

Hamilton Public Library Asset Management Plan 2024



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DEMAND DRIVERS



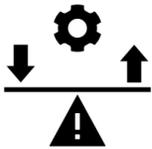
Population Growth: More branches and more hours required to deliver current levels of service.

Increased Immigration Levels: More programs and services required for newcomers to Canada.

Technological Changes: Customer expect HPL to quickly adapt to and provide access to emerging technologies. Many customers also use library computers as their sole means to access digital government services.

Customer Preferences: Customers are returning materials to the library at a slower pace after the elimination of overdue fines and replacement fines resulting in increased wait times for holds.

RISK



Critical Assets are identified as the Central Library, Regional Branches, Integrated Library Software, Local History and Archives Collections and Digital Technology Infrastructure

Major Risks include inadequate funding to meet facilities maintenance needs, risk of permanent loss of local history collections without adequate preservation, and major technology assets nearing end of service lives.

CLIMATE CHANGE



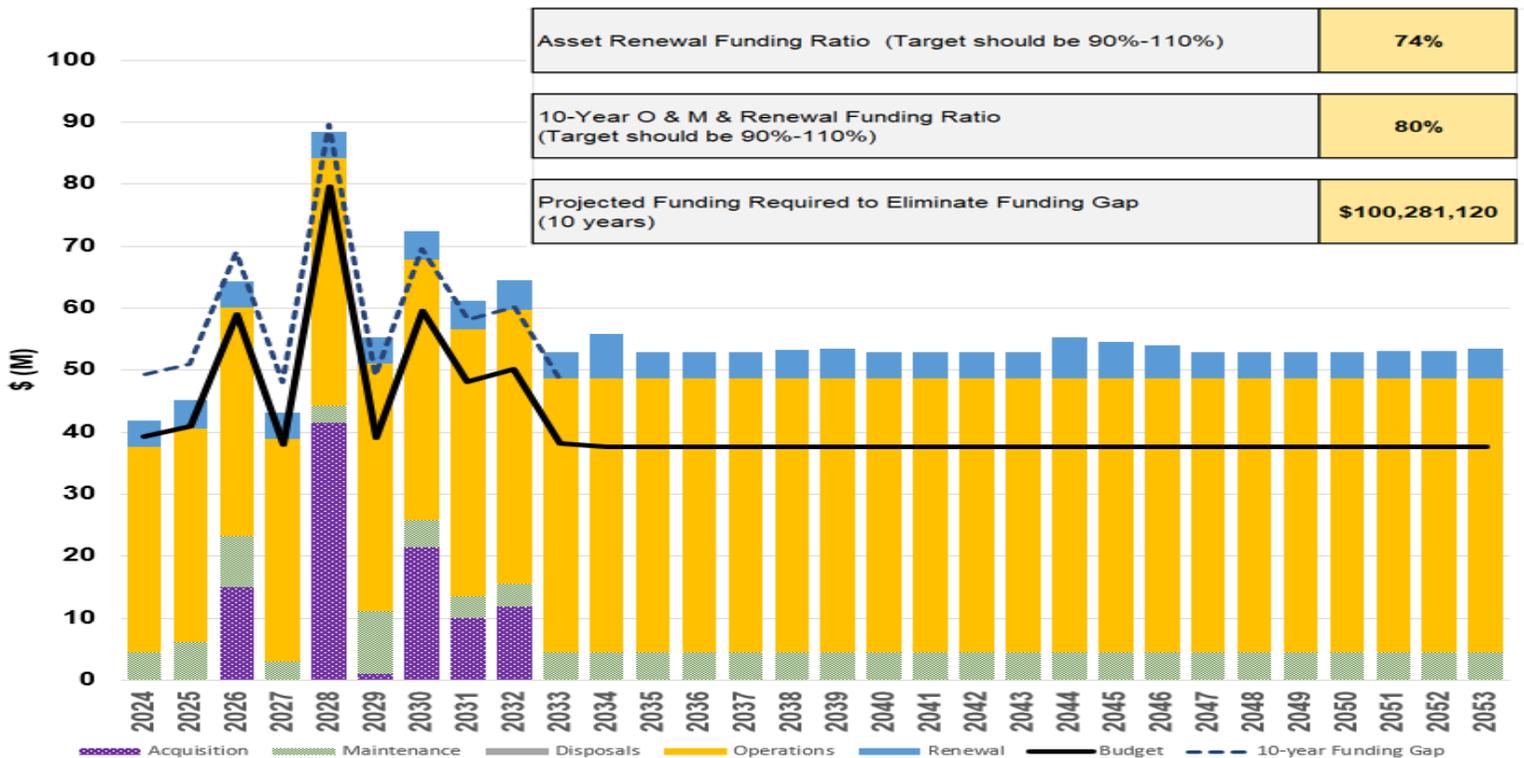
Mitigation Projects

- Replacement of Bookmobiles with electric or hybrid vehicles

Adaptation Impacts

- Increasing demand for HPL branches to serve as cooling and warming spaces for the community including multiple branches offering extended access hours.

LIFECYCLE SUMMARY



1. INTRODUCTION

Hamilton Public Library (HPL) is one of Canada's busiest and most innovative library systems and provides public library services to the City of Hamilton's diverse population. The purpose of this Asset Management (AM) Plan is to ensure that HPL has fulfilled the Asset Management Planning requirements outlined in O. Reg 588/17 for current and proposed levels of service as well as to ensure HPL has the required assets to deliver an equitable and accessible library service in accordance with the Public Libraries Act.

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 2024 - 2053 planning period.

2. BACKGROUND

The information in this section is intended to give a snapshot in time of the current state of the HPL 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 August 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 plan.

2.1 SERVICE PROFILE

The service profile consists of four main aspects of the service:

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

2.1.1 SERVICE HISTORY

The Hamilton Public Library (HPL) is one of the oldest public library systems in Ontario, dating back to 1889 when the citizens of Hamilton voted to fund a free public library. In 1890, the first library board was appointed along with the opening of the first library. In 2001, during the City's amalgamation, the Hamilton, Wentworth, and Dundas library systems merged to form the modern HPL which still exists today.

Today, HPL is proud to be considered an innovative leader among North American library systems related to its many service improvements which include automated materials handlings systems, self-checkout units, online card registration, and eliminating fines and fees as a barrier to service. HPL has also rolled out an innovative "Extended Access Hours" model and "After Hours Study Hall" services to ensure its locations are open and available to the community it serves as much as possible.

2.1.2 SERVICE FUNCTION

As with all public libraries in Ontario, HPL is governed by the Public Libraries Act (PLA)¹. The PLA has many requirements for the HPL Board to fulfill including administrative requirements. Key requirements from the PLA referring to the minimum services the HPL Board must offer include:

- Provide a comprehensive and efficient public library service that reflects the community's unique needs;
- Provide library services in the French language, where appropriate;

¹ <https://www.ontario.ca/laws/statute/90p44>

- Operate one or more libraries and ensure that they are conducted in accordance with this Act and the regulation;
- Libraries must not charge admission for the use of the library or its materials, and shall allow the public to reserve and borrow circulating materials and use reference and information services;
- The board may charge for the use of services when spaces are not being used for public library purposes or the library services are being used by persons who do not reside in the board's jurisdiction.

The purpose of HPL and libraries in general is to provide equitable access to, and support for, knowledge and creativity. Libraries play an essential role in local communities by providing access to information and resources, supporting literacy and education, promoting lifelong learning, and serving as community gathering spaces. In today's digital world, libraries also play a vital role in providing access to digital resources and advancing digital literacy.

The library is intended to be a place where people have the freedom to belong and discover. HPL is a vibrant and welcoming community place where people can learn, connect, share, and discover. From children learning how to read and developing a habit of life-long learning, to students researching and having spaces for individual and group study, to adults looking to learn a new skill, advance their employment opportunities, or just relax and enjoy, to newcomers looking for resources to adapt to their new home, to seniors looking to keep in touch with each other and meet new friends. In sum, the importance of libraries is experienced by all community members.

Based on the HPL's 2022 Community Survey and 2023 HPL City Services and Assets Review Survey, the top five areas customers expressed as priorities in the community were:

1. Clean, accessible, and well-maintained library facilities;
2. Convenient renewal and checkout processes;
3. Free Wi-Fi;
4. Relevant collection material; and,
5. Relevant programs and classes.

In order to deliver comprehensive and efficient public library services, HPL requires assets. Some ways assets support the delivery of the service include:

- Accessible and well-maintained library facilities to host physical collection materials, provide library spaces, and run programs and classes;
- Reliable vehicles including bookmobiles to make library services more accessible and utility vehicles to manage library operations;
- Variety of relevant collection material that meets the requirements and interests of a diverse demographic;
- Well-preserved Local History and Archive material for researchers and the general public; and,
- Reliable technology to provide a seamless user experience.

2.1.3 USERS OF THE SERVICE

Today, HPL operates 23 physical branches and two Bookmobiles as well as significant online services which service the entire city. HPL currently offers 1,364 weekly open hours at physical branches, and online access is available 24 hours a day. HPL has 170,000 active members and an average of 60,000 in-person visits per week meaning that nearly one in three people in the city are active library users.

HPL offers a wide range of programs, both in-person and virtual, that cater to its broad user base which includes children and youth, teenagers, adults, seniors, students, professionals, newcomers, and life-long residents. In 2022, HPL offered over 3,000 programs that were attended by 65,000 people. In 2022, HPL program offerings were limited while the larger community was still recovering from the pandemic, but in a typical year, HPL offers about 9,000 programs attended by 185,000 people.

Typically, HPL sees about 3,500,000 visits across the system per year. While the reasons for visiting are varied as outlined above, many residents need HPL's service offerings because they are unable to access certain amenities otherwise such as computer and internet access or warming and cooling spaces. HPL typically sees over 750,000 computer sessions per year with well over one million WI-FI sessions. Computer and WI-FI usage are usually higher at branches situated within lower income neighbourhoods.

HPL's 23 facilities are spread throughout Hamilton with branches in 14 of the 15 wards. These library locations, along with the two Bookmobiles allow HPL to provide services to users from across Hamilton. **Table 1** shows, for each HPL branch, its location, category, catchment area, and the population served. **Figure 1** and **Figure 2** show maps of HPL's branch locations and Bookmobile stops respectively.

Table 1: Hamilton Public Library Branches

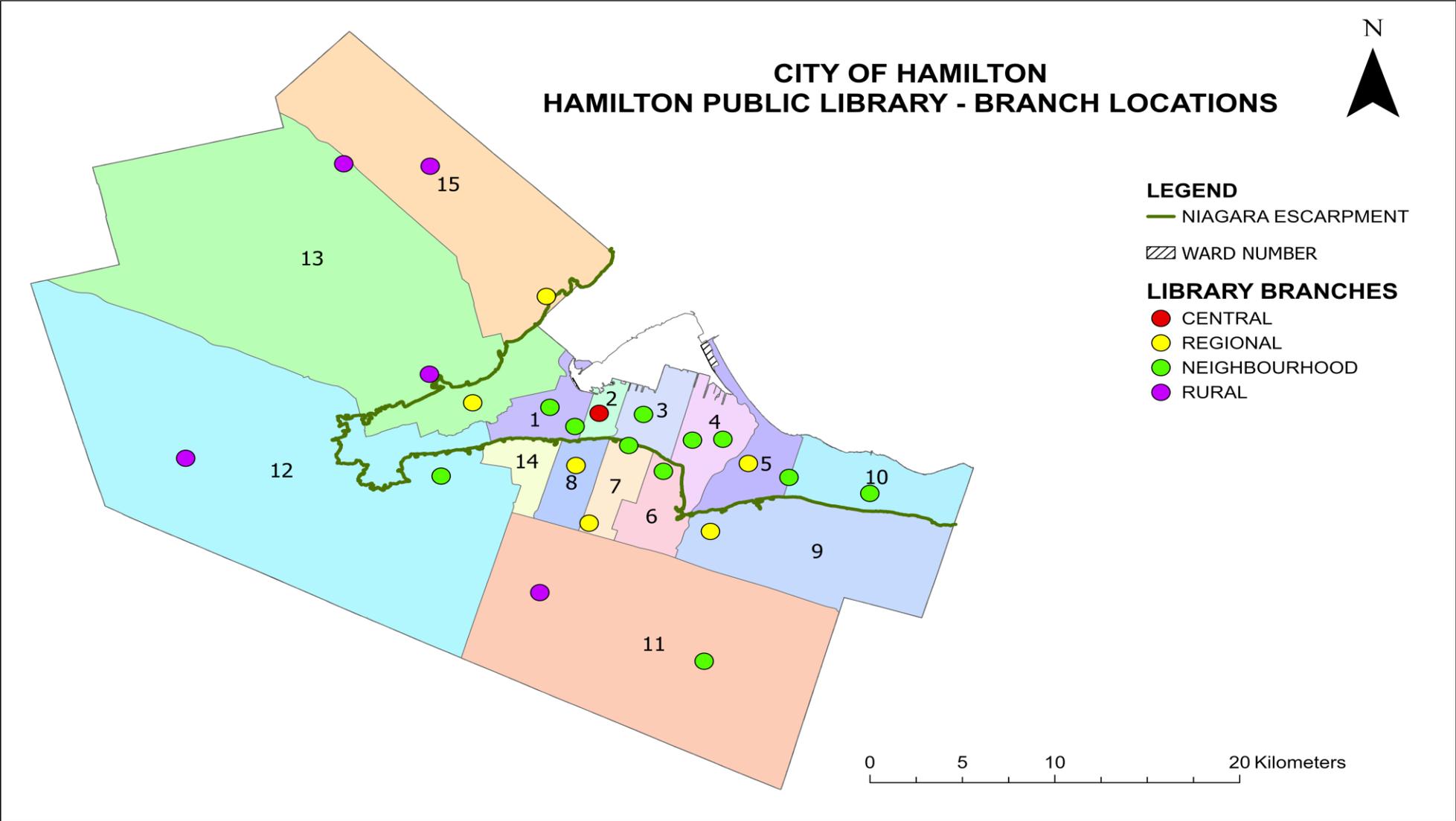
HPL BRANCH	CATEGORY	WARD NO.	BRANCH CATCHMENT AREA (KM ²)	POPULATION SERVED
Ancaster Branch	Neighbourhood	12	243.4	44,630
Barton Branch	Neighbourhood	3	10	11,365
Binbrook Branch	Neighbourhood	11	127.6	14,490
Carlisle Branch	Rural	15	107.5	6,050
Central Library	Central	2	16.9	66,770
Concession Branch	Neighbourhood	7	4.3	13,315
Dundas Branch	Regional	13	100.7	27,025
Freelton Branch	Rural	13	161.8	4,735
Greensville Branch	Rural	13	41.3	2,740
Kenilworth Branch	Neighbourhood	4	29	37,415

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HPL BRANCH	CATEGORY	WARD NO.	BRANCH CATCHMENT AREA (KM ²)	POPULATION SERVED
Locke Branch	Neighbourhood	1	5.4	8,915
Lynden Branch	Rural	12	252.9	5,375
Mount Hope Branch	Rural	11	124.5	8,090
Parkdale Branch	Neighbourhood	4	10.8	13,145
Red Hill Branch	Regional	5	16.9	22,960
Saltfleet Branch	Neighbourhood	5/10	18.2	38,395
Sherwood Branch	Neighbourhood	6	13.8	33,340
Stoney Creek Branch	Neighbourhood	10	35.4	19,725
Terryberry Branch	Regional	8	20.1	45,510
Turner Park Branch	Regional	7	36.3	69,105
Valley Park Branch	Regional	9	113.4	36,725
Waterdown Branch	Regional	15	54.3	24,955
Westdale Branch	Neighbourhood	1	10.5	15,105

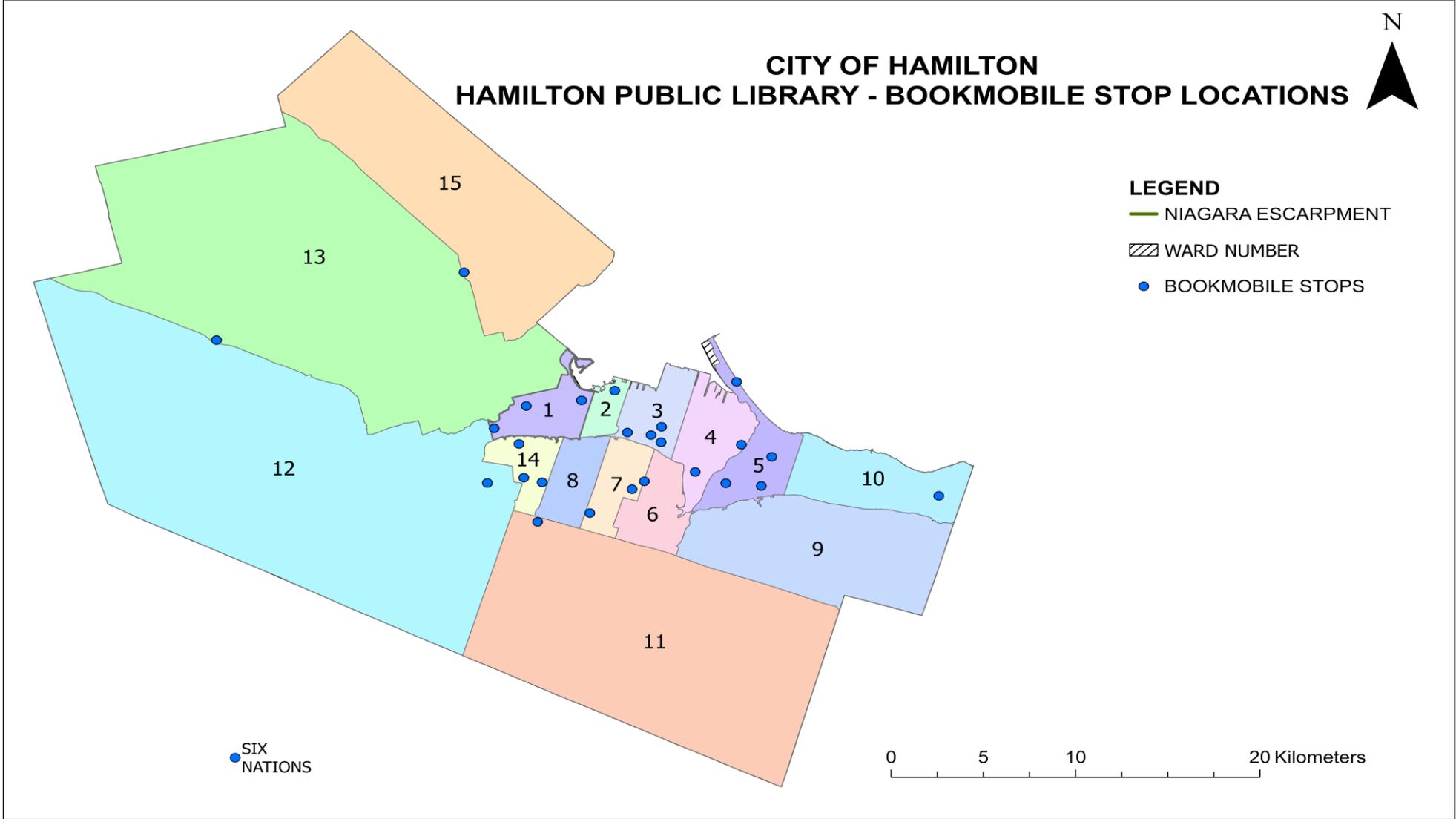
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Figure 1: Hamilton Public Library Locations



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Figure 2: Hamilton Public Library Bookmobile Stop Location



HAMILTON PUBLIC LIBRARY

ASSET MANAGEMENT PLAN

2.1.4 UNIQUE SERVICE CHALLENGES

HPL has some unique service challenges which will be discussed throughout this report. Some of these challenges are summarized below:

- Inadequate maintenance budget to meet Building Condition Assessment (BCA) forecasted maintenance needs especially roof repairs and window leaks;
- Almost \$100 Million of acquisitions are planned over the next ten years and are expected to significantly increase operations and maintenance budget needs (by approximately \$10 Million annually);
- Increasing rates of security and behaviour related issues at HPL branches may make libraries seem potentially less safe and accessible. Feedback from Corporate Asset Management (CAM) survey also suggests that customers desire more measures to be implemented to improve safety and security;
- Demands including demographic change, customer preferences, and technological advancement means HPL must continue adapting programs and services to meet needs;
- Climate change poses an additional threat by potentially increased maintenance costs;
- Additional importance of libraries as heating/warming centres. Unmet facility maintenance needs may also impact this service;
- Additional importance of Central Library as hosting city's data centre. Unmet facility maintenance needs may also impact this service;
- Bookmobiles are in poor condition and need replacement. The bookmobiles are expected to be replaced in 2026;
- Local History and Archive's digitization equipment, systems and protocols are not adequate to serve contemporary access needs. Lack of preservation system and protocols for non-digital archival records risks irreversible loss of heritage materials; and,
- The rapid pace of technological evolution presents libraries with challenges in managing IT infrastructure and services. Device upgrades and technology implementations pose risks of compatibility issues, financial strain, and demand staff training. Each technological shift introduces concerns about data security, while maintaining a seamless user experience

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2.2 LEGISLATIVE REQUIREMENTS

The most significant legislative requirements that impact the delivery of the library 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
Public Libraries Act	Ontario’s Public Libraries Act (PLA) is the key piece of legislation governing Ontario’s public libraries. It supports the provision of equal and universal access to information and establishes free public library services in Ontario through governance and regulations.
Bylaw to Establish Library Board HPL 2001	Under the PLA, public libraries in Ontario must be operated under the management and control of a public library board. The board has the authority to formulate policies concerning the operations and services of the public library. Once established by municipal by-law, a public library board is responsible for the operation of its library system.

2.3 ALIGNMENT WITH HPL BOARD’S STRATEGIC PRIORITIES

The HPL Board is comprised of nine citizen members and two councillors. Although the Library Board sets its own priorities, these priorities are generally in alignment with Council priorities. **Table 3** presents HPL Board’s strategic priorities as outlined in the Hamilton Public Library Board Strategic Plan 2023-2026 and how they align with the asset management plan.

Table 3: Hamilton Public Library Board Strategic Priorities

HPL STRATEGIC PRIORITIES	DESCRIPTION	ALIGNMENT WITH AM PLAN
Connecting to Community	The Hamilton Public Library welcomes everyone and strives to create spaces where people feel respected and included. We will continue to be a leader in fostering belonging and enhancing mutual understanding. Our physical and digital spaces will be inviting and accessible. Our collections, programs and services will be reflective of the communities we work with. We will actively pursue partnerships with aligned organizations to increase our impact sustainably.	The AM plan includes a community engagement survey to ask what customers value about the service, how customers feel about the service, and how HPL is performing. The survey results guide the development of levels of service.

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HPL STRATEGIC PRIORITIES	DESCRIPTION	ALIGNMENT WITH AM PLAN
<p>Relevant and Responsive</p>	<p>The Hamilton Public Library advances our core library values as we embrace our evolving role in supporting digital access and literacy. We maintain strong physical collections as we grow digital services. Our spaces will be modern, accessible, and increasingly energy efficient, as we use our operations to model sustainable solutions. We are engaged provincially and nationally as a leading library that works collaboratively to create policies and agreements which ensure fair access to copyrighted works in all formats.</p>	<p>The AM Plan identifies unique service challenges, major demand drivers, and critical risks faced by HPL in delivering its services.</p> <p>The AM Plan assesses required resources to ensure that HPL continues to deliver agreed upon levels of service. The AM Plan also assesses the quality of the service from a customer and technical perspective.</p>
<p>Learning Organization</p>	<p>The Hamilton Public Library continuously seeks more effective ways to create a resilient and learning organization. Staff development is a continuous focus, so that we can meet the changing societal, technological and information needs of residents. We continue to focus on reducing barriers and ensuring our services are simple to navigate. We look for new ways to do outreach and promote the awareness and use of our services.</p>	<p>Continuous improvement is a core tenet of asset management. As part of this plan, a list of continuous improvement items has been identified with timelines and resources required.</p>

2.4 ASSET HIERARCHY

As previously mentioned, to deliver equitable and accessible library services, HPL requires assets. The HPL service area has been broken down into five asset classes for the purpose of this AM Plan: Facilities, Vehicles, Collection Material, Local History and Archives, and Technology.

- **Facilities:** refers to City-owned facilities required for the provision of HPL services;
- **Vehicles:** describes different types of vehicles used for the provision of library services;
- **Collection Materials:** refers to all physical and digital library collections including books, music, movies, and various learning and educational resources;
- **Local History and Archives:** refers to all Local History and Archive collections, corporate art, as well as the digitization and environmental equipment required to preserve these assets;

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

- **Technology:** describes the different type of technology required to deliver library services including infrastructure, devices, machinery, and intangible assets.

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

Table 4: Asset Class Hierarchy

SERVICE AREA	HAMILTON PUBLIC LIBRARY				
ASSET CLASS	FACILITIES	VEHICLES	COLLECTION MATERIAL	LOCAL HISTORY AND ARCHIVES	TECHNOLOGY
	<ul style="list-style-type: none"> • Library Buildings 	<ul style="list-style-type: none"> • Bookmobiles • Utility Vehicles 	<ul style="list-style-type: none"> • Physical • Digital 	<ul style="list-style-type: none"> • Archives and Special Collections • Corporate Art • Digitization Equipment • Environmental Equipment 	<ul style="list-style-type: none"> • Digital Technology Infrastructure • Staff Equipment • Public Computers and Machinery • Intangible Assets

3. SUMMARY OF ASSETS

Table 5 displays the detailed summary of assets for the HPL service area. The data is sourced from a combination of datasets included in HPL's databases. It is important to note that inventory information does change often, and that this is a snapshot of information available as of August 2023.

The City owns approximately **\$425 Million** in HPL assets which are on average in **GOOD** condition. Assets are a weighted average of **29 years** in age which is **59%** average remaining service life (RSL). 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. Gaps shown in the data are discussed in **Section 3.2**.

Data confidence descriptions are outlined on **page 32** of the AM Plan Overview. The replacement costs below are typically a **Medium** data confidence level overall. For Facilities, replacement costs are calculated using an internal Corporate Facilities and Energy Management tool which encompasses current market rates, building type and size and were escalated to include additional soft costs. Vehicles, Collection Materials and Technology replacement costs were gathered from the most recent purchase price for similar assets and are typically **Medium** confidence. Due to the nature of heritage assets, Local History and Archives assets were difficult to quantify and have a **Very Low** confidence for replacement values. A continuous improvement item identified in **Table 31** is to appraise Local History and Archives assets to improve confidence.

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. Continuous improvement items identified in **Table 31** include developing methodologies to determine asset condition for Technology and Local History and Archives assets.

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**Table 5: Detailed Summary of Assets
(Weighted Average based on Replacement Cost)**

FACILITIES				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% REMAINING SERVICE LIFE)	AVERAGE EQUIVALENT CONDITION
Central Library	1	\$143.2M	39 Years (48%)	2 – GOOD
Data Confidence	Very High	Medium	High	High
Regional Libraries	5	\$138.2M	19 Years (77%)	2 – GOOD
Data Confidence	Very High	Medium	High	High
Neighbourhood Libraries	8	\$67.4M	36 Years (62%)	3 – FAIR
Data Confidence	Very High	Medium	High	High
Rural Libraries	5	\$20.5M	47 Years (62%)	2 – GOOD
Data Confidence	Very High	Medium	High	High
SUBTOTAL		\$369.3M	31 Years (62%)	2 – GOOD
DATA CONFIDENCE		Medium	High	High

VEHICLES				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% REMAINING SERVICE LIFE)	AVERAGE EQUIVALENT CONDITION
Bookmobiles	2	\$2.4M	14 Years (0%)	4 – POOR
Data Confidence	Very High	Medium	High	Medium
Utility Vehicles	6	\$656k	7 Years (21%)	2 – GOOD
Data Confidence	Very High	Medium	High	Medium
SUBTOTAL		\$3.1M	12 Years (5%)	4 - POOR
DATA CONFIDENCE		Medium	High	Medium

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COLLECTION MATERIALS				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% REMAINING SERVICE LIFE)	AVERAGE EQUIVALENT CONDITION
Physical Collection Material	830,468	\$29.5M	7 Years (32%)	No Data
Data Confidence	Very High	Medium	High	
Digital Collection Material	113,962	\$5.4M	Not Applicable	Not Applicable
Data Confidence	Very High	Medium		
SUBTOTAL		\$34.9M		No Data
DATA CONFIDENCE		Medium		

LOCAL HISTORY AND ARCHIVES				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% REMAINING SERVICE LIFE)	AVERAGE EQUIVALENT CONDITION
Archives and Special Collection	3,000 linear metres	\$12.1M	No Data	No Data
Data Confidence	Medium	Very Low		
Corporate Art	300 items	\$230k	No Data	No Data
Data Confidence	Medium	Very Low		
Environmental Equipment	6	\$295k	10 Years (47%)	3-FAIR
Data Confidence	High	Medium	Medium	Medium
Digitization Equipment	5	\$114k	13 Years (40%)	2-GOOD
Data Confidence	High	Medium	High	Medium
SUBTOTAL		\$12.7M	No Data	No Data
DATA CONFIDENCE		Very Low		

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TECHNOLOGY				
ASSET CATEGORY	NUMBER OF ASSETS	REPLACEMENT VALUE	AVERAGE AGE (% REMAINING SERVICE LIFE)	AVERAGE EQUIVALENT CONDITION
Digital Technology Infrastructure	146	\$895k	No Data	4-POOR
Data Confidence	High	Medium		Medium
Staff Equipment	934	\$532k	No Data	3-FAIR
Data Confidence	High	Medium		Medium
Public Computers and Machinery	1087	\$3.4M	No Data	2-GOOD
Data Confidence	High	Medium		Medium
Intangible Assets	1	Assigning value to intangible assets is a <i>Continuous Improvement</i> item	Not Applicable	Not Applicable
Data Confidence	Medium			
SUBTOTAL		\$4.9M	No Data	3-FAIR
DATA CONFIDENCE		Medium		Medium

TOTAL	\$424.9M	29 Years (59%)	2 - GOOD
DATA CONFIDENCE	Medium	High	Medium

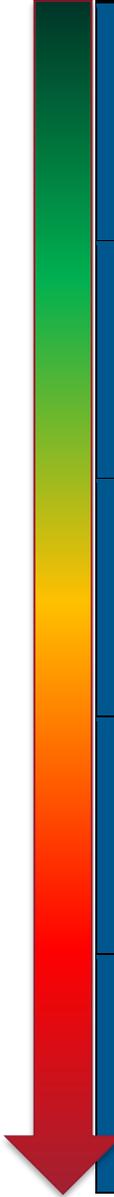
3.1 ASSET CONDITION GRADING

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.

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Table 6: Equivalent Condition Conversion Table



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:

- Facilities Condition Index was based on Building Condition Assessment (BCA) reports; and,
- For Technology assets, the condition ratings are based on subject matter expert's opinion;
- For assets where a condition assessment was not completed, but age information was known, the condition was based on the % of remaining service life.

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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 non-critical 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.
- 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.

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

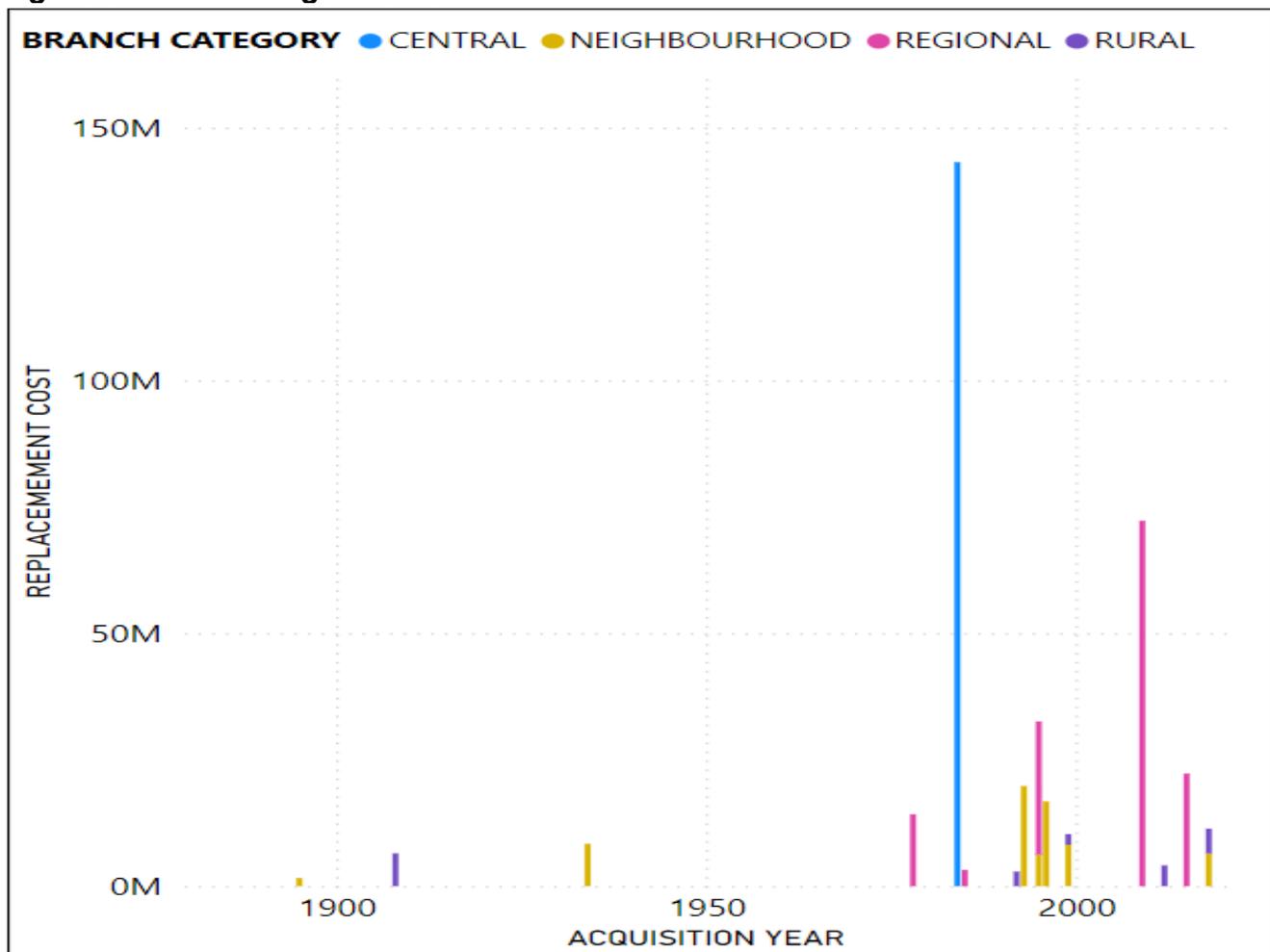
3.2.1 FACILITIES PROFILE

As previously mentioned, HPL operates and maintains 23 branches across the city. Four of these are leased while the rest are owned by the City. The sections below provide asset specific information on these assets.

3.2.1.1 AGE PROFILE

The age profile for HPL assets is shown in **Figure 3**. For HPL Facility assets, the data confidence for age is typically High because this information was recorded during the construction of the facilities.

Figure 3: Facilities Age Profile



Most HPL facilities have an Estimated Service Life (ESL) of 75 years except for the four heritage facilities (i.e., Kenilworth, Locke, Mount Hope and Dundas) which were assumed to have an ESL of 150 years. The oldest library building is Locke Branch which opened in 1895 whereas Binbrook and Greensville Branches opened as recently as 2018. All HPL facilities are within their service life and will not appear in the Renewal Forecast in Section 8.3.

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3.2.1.2 CONDITION METHODOLOGY AND PROFILE

Condition for HPL facilities is determined based on the results of a Building Condition Assessment (BCA) completed by the Corporate Facilities and Energy Management (CFEM) division. 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.

BCAs are completed on HPL facilities every five years and output a score called a Facility Condition Index (FCI) which is considered to be a high confidence level source for condition. The FCI 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 maintenance plan shown in **Section 8.2**.

A summary of the Facilities' condition methodology is provided in **Table 7**. 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
All Facilities	Every five years	2021	Facility Condition Index (0% - 100%)

The condition profile for HPL Facilities assets is shown on the next page in **Figure 4**. While most libraries are considered to be in **Good** condition, it is evident that many of the neighborhood libraries are indicated to be in **Fair or Poor** condition based on the results of the BCA. The facilities that are in POOR condition are Concession, Kenilworth, Terryberry and Westdale Branches. HPL and CFEM have ensured facilities are kept in a safe working condition but acknowledge that a significant amount of facility maintenance needs will be required in the next 10 years to maintain current levels of service as indicated in **Section 3.2.1.3**.

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Figure 4: Facilities Asset Condition Distribution



3.2.1.3 ASSET USAGE AND PERFORMANCE

The largest performance issues with Facilities involve poor condition of major (high cost or high criticality) facility components. The known service performance deficiencies in **Table 8** were identified using information from the 2021 Building Condition Assessment (BCA). Major needs across branches relate to roofing, exterior windows, wall and floor finishes, air distribution systems and electrical service and distribution.

Table 8: Known Service Performance Deficiencies

HPL FACILITY	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Ancaster	Furnaces in poor condition	Upon inspection, the electric furnace was in poor condition and due for replacement.
Barton	Roof in poor condition	Upon inspection, the roof was in poor condition with reports of leaks, excess ponding and algae. Replacement is recommended.

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HPL FACILITY	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Central	Air compressor in poor condition	The compressor was noted to be in poor condition due to frequent oil leaks
	Water heater in poor condition	The water heater has passed its expected useful life and is due for replacement. The water heater has been noted to be in poor condition
	Heating pumps in poor condition	The pumps have passed their expected useful lives and are due for replacement. The pumps have been noted to be in poor condition overall.
	Air handling unit in critical condition	It has been noted that the unit experiences many critical issues on a regular basis. It is recommended that the unit be replaced/overhauled as many of the issues could not be resolved.
	Steam humidifier in poor condition	The humidifier cannot maintain optimal relative humidity and presents a challenge for the survival of the books in the library. The humidifier is considered to be not functional. Replacement of the humidifier is recommended.
	Fire alarm system in critical condition	It has been reported that the panel has frequent short circuits and malfunctions on a regular basis. Replacement of the main fire panel has been recommended
Concession	Exterior doors in poor condition	Surface corrosion was noted at the base of the doors and frames. The doors are considered to be in poor condition overall.
	Fire alarm panels in poor condition	The fire panels are considered to be passed their expected useful life and are due for replacement. The panel has been noted to be in poor condition overall.
Dundas	Exterior windows in poor condition	Building representatives have stated that the windows have completely lost their thermal resistance. Replacement of the original windows is recommended to maintain the building's thermal resistance envelope.
	Flooring in poor condition	Flooring in electrical and mechanical rooms was found to be in poor condition.

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HPL FACILITY	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
	Distribution transformer in poor condition	At the time of inspection, the transformer was emitting high levels of heat and producing a constant hum. The transformer was noted to be in poor condition overall.
	De-icing system not in use	De-icing system is not used due to operational complications.
Freelton	Asphalt paving in poor condition	The paving appeared to be in poor condition with heaving and alligator cracking throughout.
Kenilworth	Smoke detectors in critical condition	The smoke detectors need immediate replacement.
Locke	Crawl space in poor condition	It is reported that the crawl space experiences a significant amount of moisture infiltration and dampness.
	Roof drainage in poor condition	The eaves troughs and downspouts are considered to be in poor condition causing overflow issues.
Mount Hope	Roof in poor condition	The roof was noted to be very dirty and was observed to be in poor condition overall with many areas of asphalt seeping through the gravel surface.
Turner Park	Roof in fair condition	The most recent BCA calls the roof as being in fair condition. However, HPL has identified Turner Park branch's roof to be problematic.
Waterdown	Window leaks	Exterior windows are leaking and should be repaired.
Westdale	Sanitary sewer system in poor condition	Clogging issues in men's washroom.

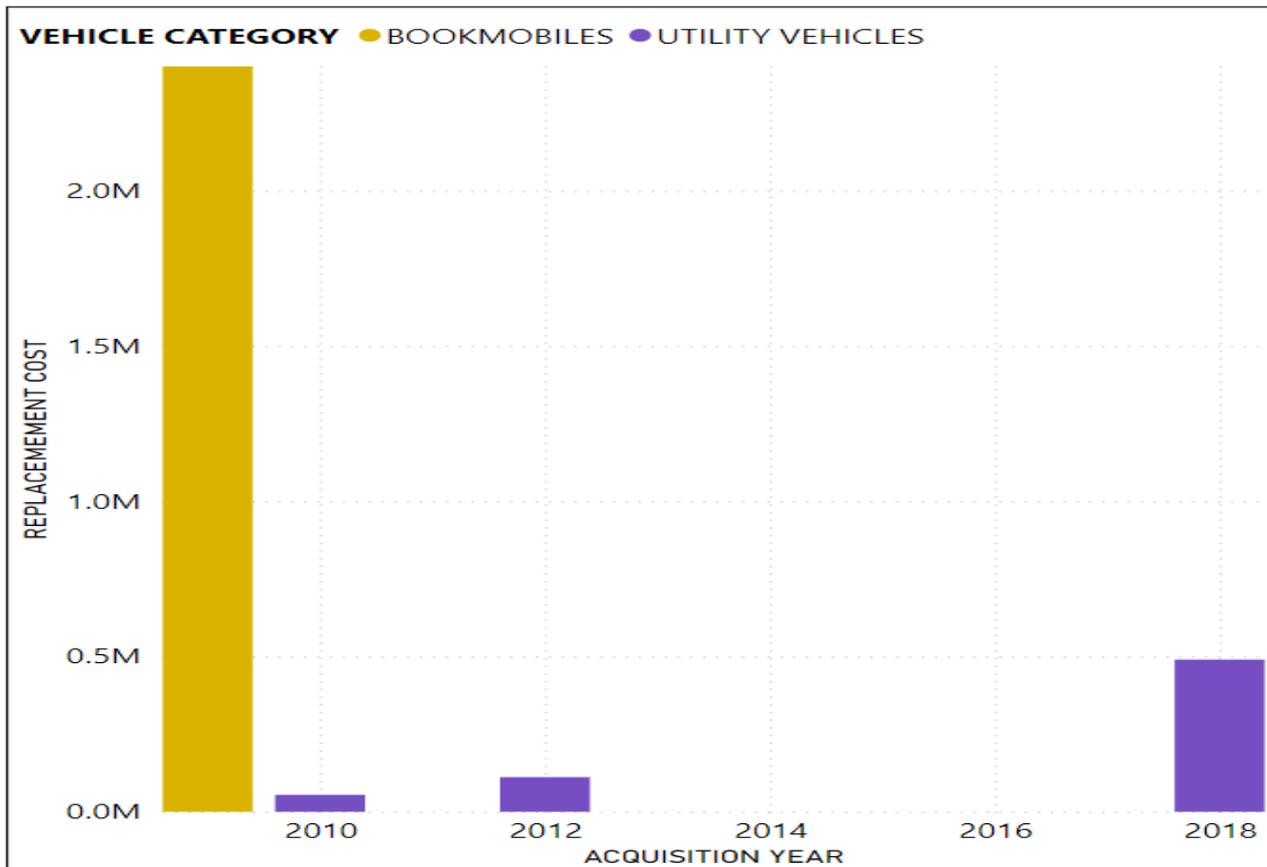
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3.2.2 VEHICLES PROFILE

3.2.2.1 AGE PROFILE

The age profile for HPL Vehicle assets is shown in **Figure 5**. 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.

Figure 5: Vehicles Age Profile



Per **Figure 5**, there is an acquisition spike in 2009 for Bookmobiles. Since these vehicles have an estimated service life (ESL) of 10 years, these vehicles are beyond their ESL and will contribute to the backlog of renewals in 2024, in **Section 8.3**. The boom lifts and utility vehicles acquired in 2010 and 2012 respectively are also beyond their ESLs are part of the backlog.

3.2.2.2 CONDITION METHODOLOGY AND PROFILE

Condition of HPL vehicles is based on a recommended life cycle that considers criteria such as age, condition, and compliance with legislated safety standards. Vehicles are on preventive maintenance schedules and CVOR (Commercial Vehicle Operator’s Registration) vehicles (e.g. Bookmobiles, courier trucks, IT and facility utility vehicles) undergo annual inspections to meet legislated safety requirements. The result of a CVOR inspection is either a Pass or Fail. A vehicle failing an inspection will be required to undergo all necessary repairs and will be re-inspected

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before being issued a CVOR certificate. A vehicle that requires major and/or more frequent maintenance is rated with a higher condition score on the 5-point scale.

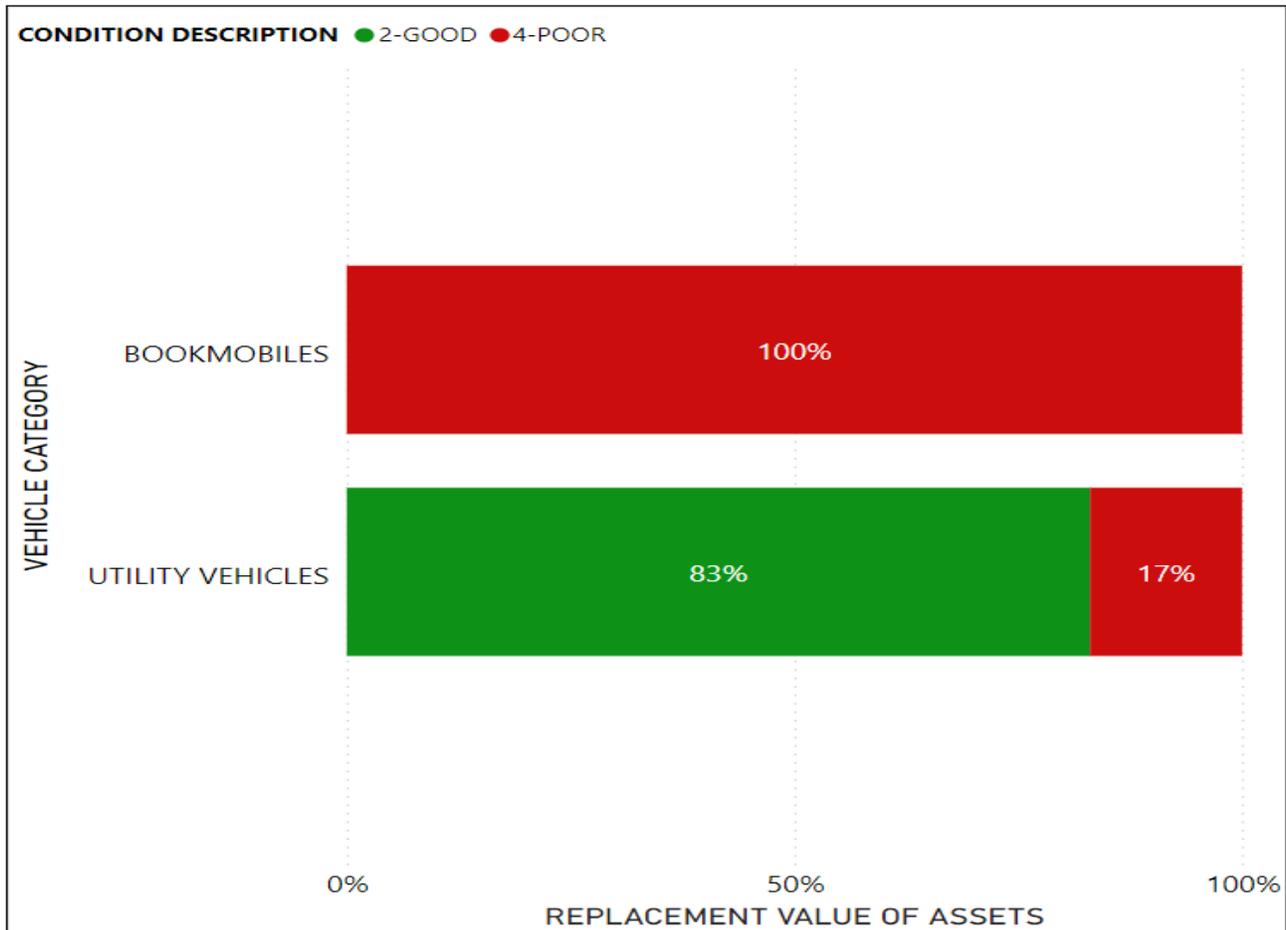
Table 9: Condition Methodology for Vehicles

ASSET	INSPECTION TYPE	DESCRIPTION	FREQUENCY	CONDITION SCORE OUTPUT
All CVOR Vehicles	CVOR	Legislated inspection in accordance with the Ontario Highway Traffic act, CVOR legislation and applicable federal and provincial legislation	Annual	Pass/Fail
All Vehicles	Preventative Maintenance	Maintenance activities including oil changes, tire rotations, etc.	Quarterly	N/A
All Vehicles	Daily Pre-trip inspection	Vehicle operator performs a pre-trip inspection and reports any defects or deficiencies in accordance with the instructions on the inspection sheet.	Daily, before operation	Pass/Fail

The condition profile of HPL’s vehicle assets is shown in **Figure 6**. At this time, the average condition of vehicle assets is Poor based on age and subject matter expert’s opinion and weighted by replacement cost. Bookmobiles have by far the highest replacement cost in this asset category and hence their Poor condition most significantly impacts the overall condition score. These vehicles are used by HPL to deliver library services to areas that have less access to HPL branches and are scheduled for replacement in 2026.

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Figure 6: Vehicles Asset Condition Distribution



3.2.2.3 ASSET USAGE AND PERFORMANCE

The largest performance issues with HPL vehicles involve key vehicle component failures. The known service performance deficiencies in **Table 10** were identified using staff input.

Table 10: Known Service Performance Deficiencies

HPL VEHICLE	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Bookmobile	Driver's Seat	Hydraulic seat consistently needs repairs to the air tubes. Air leaks frequently occur in the tubes.
Bookmobile	Leaks – Liquid	Coolant occasionally leaks (repaired by fleet), wheelchair lift fluid leaks, radiator leaks.

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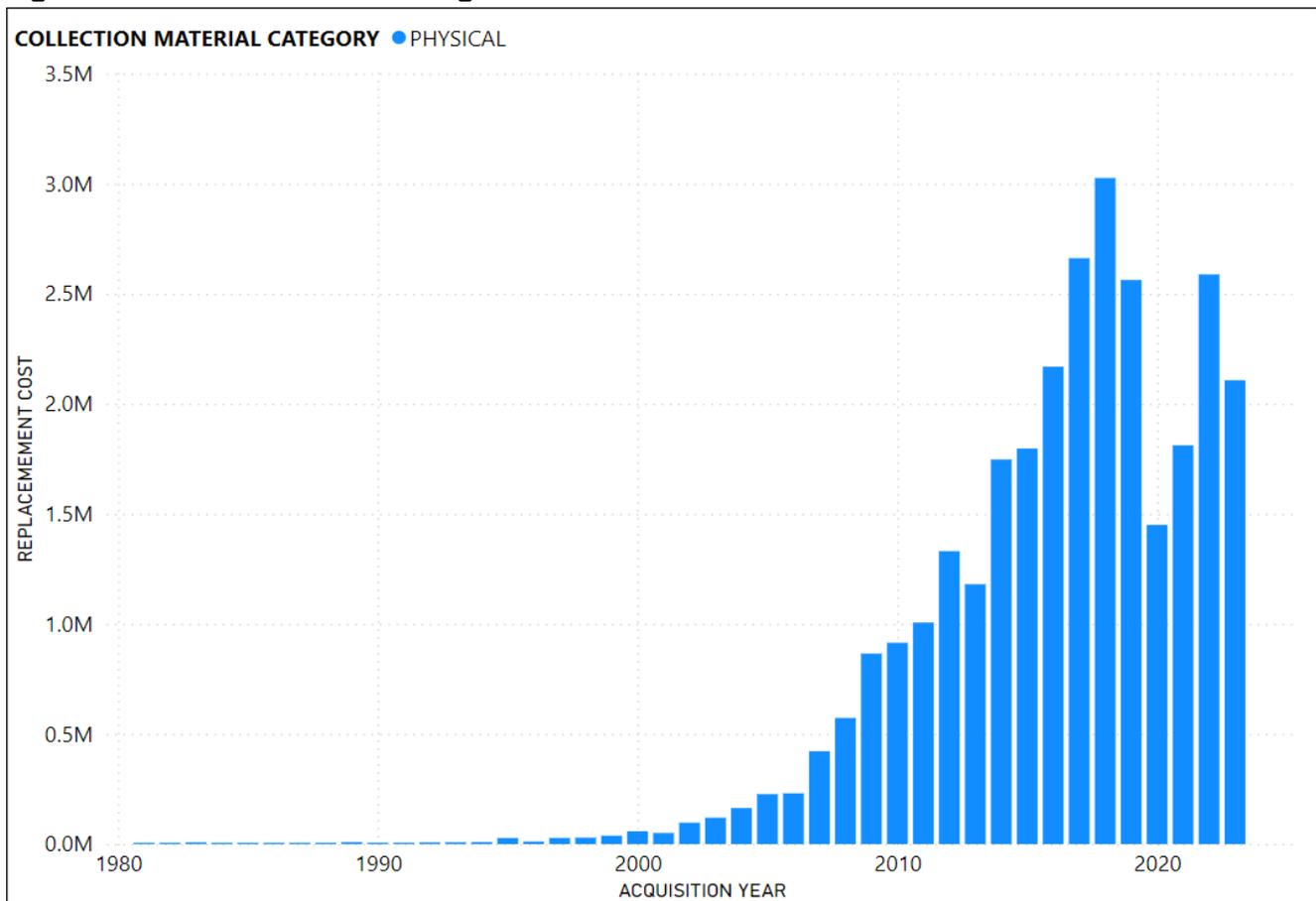
Bookmobile	Replacement Parts frequently needed	In the past year, bookmobiles have had the following parts replaced: the radiator, the driver's side seat belt buckle, passenger side mirror, battery and AC unit.
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3.2.3 COLLECTION MATERIALS PROFILE

3.2.3.1 AGE PROFILE

The age profile for HPL Physical Collection Material is shown in **Figure 7**. For Collection Material assets, the data confidence for age is typically High because asset's ages are formally tracked, and many assets are replaced based on age. Digital asset ages are not included in the age profile.

Figure 7: Collection Material Age Profile



Collection assets typically have estimated service lives (ESL) of eight years. Since these assets have relatively short ESLs, they will repeat throughout the renewal forecast shown in **Section 8.3**. The average age of physical collection materials is seven years.

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3.2.3.2 CONDITION METHODOLOGY AND PROFILE

All physical collection material is weeded by condition. There are several categories into which the damaged items may fall. These categories include water damage, stains, torn and/or missing pages, broken spine, defacement or vandalism, and foul odour.

3.2.3.3 ASSET USAGE AND PERFORMANCE

The largest performance issue with HPL Collection Materials is the increased wait times for hold fulfilment on high use items caused by increase in market costs for circulating materials and material replacement. The known service performance deficiencies in **Table 11** were identified using staff input.

Table 11: Known Service Performance Deficiencies

ASSET	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Physical Collection	Increase in market cost of circulating materials.	Due to inflation, and various market trends, the cost of physical materials (books and audio/visual materials) have been on a steady incline since 2020.

3.2.4 LOCAL HISTORY AND ARCHIVES PROFILE

Local History and Archives (LHA) dates back to 1891. At the time of writing this AM Plan, these assets did not have readily available information relating to their individual age, condition, or a condition methodology and therefore age and condition profiles could not be accurately created.

3.2.4.1 ASSET USAGE AND PERFORMANCE

The most significant performance issue with Local History and Archives is the lack of adequate preservation systems and protocol. The known service performance deficiencies in **Table 12** were identified using staff input.

Table 12: Known Service Performance Deficiencies

ASSET	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
All Local History and Archives assets	Lack of adequate preservation systems and protocols	The current Digital Asset Management system is end-of-life and in need of immediate replacement; there is currently no preservation system for born-digital archival material; the lack of modern digitization equipment leads to an inadequate digitization rate.

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ASSET	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Digitization Equipment	Digitization equipment is past their service lives	This equipment is needed to digitize and enable greater access as well as preserve the Local History and Archives collections. Needs immediate replacement: scanners, computers, storage options.

3.2.5 TECHNOLOGY PROFILE

At the time of writing this AM Plan, Technology assets did not have readily available information relating to their individual age or condition, and therefore age and condition profiles could not be accurately created.

3.2.5.1 CONDITION METHODOLOGY

IT infrastructure condition methodology contains multiple factors to assess improvement, prioritize tasks, and plan for future upgrades. The assessment criteria cover the following considerations: system performance metrics, IT security measures, application scalability, and compliance with industry standards. A few universally recognized frameworks (e.g., ITIL) are used as HPL references or guidelines when assessing the performance of each IT infrastructure component.

ITIL (Information Technology Infrastructure Library) provides guidance on service strategy, design, transition, operation, and continual improvement.

Per subject matter expert opinion, assets are in an average of Fair condition. Networking equipment assets are in Poor condition are in the process of being replaced.

3.2.5.2 ASSET USAGE AND PERFORMANCE

The most significant issues with Technology assets involve end of life or unsupported technology. The known service performance deficiencies in **Table 13** were identified using staff input.

Table 13: Known Service Performance Deficiencies

ASSET	SERVICE DEFICIENCY	DESCRIPTION OF DEFICIENCY
Self-check Units	Aging hardware: the existing units have performance issues	Need firmware upgrade to improve the performance of the self-service machines. The vendor stopped service support on the firmware.

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Switches and Routers	Most equipment has past their service lives	HPL switches and routers passed the end-of-life vendor support date. The potential risk on part failure or poor performance will be lack of vendor supply and support. It will create major service disruption at the library.
Makerspace Equipment	Certain Makerspace equipment is past their service lives.	Need replacement to newer models to keep up with demand.
Web Application	HPL.ca is built on an end-of-life web application.	The web application is aged and needs to be rebuilt on more current web technology.

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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 HPL assets and therefore the City has developed municipally defined levels of service. Levels of service are defined in three ways, customer values, customer levels of service and technical levels of service which are outlined in this section. An explanation for how these were developed is provided **in Section 7.5** of the AM Plan Overview.

4.1 SURVEY METHODOLOGY

To develop customer values and customer levels of service, the results of two customer engagement surveys were utilized. The first of these was the *2022 Hamilton Public Library Community Survey* which was conducted by HPL. The second survey entitled *Let's Connect, Hamilton – City Services and Assets Review: Hamilton Public Library* was released on September 5, 2023, on the Engage Hamilton platform and closed on October 10, 2023.

The two surveys received 4,962 and 84 responses, respectively. 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 14** below.

Table 14: Data Confidence Levels

GRADE	DATA CONSISTENCY (STANDARD DEVIATION)	CONFIDENCE LEVEL (MARGIN OF ERROR AT 95% CONFIDENCE IN SAMPLE SIZE)
Very High	0 to 0.5 – results are tightly grouped with little to no variance in response	0% to 5% - minimal to no error in results, can generally be interpreted as is
High	0.5 to 1.0 – results are tightly grouped but with slightly more variance in response	5% to 10% - error has becoming noticeable, but results are still trustworthy
Medium	1.0 to 1.5 – results are moderately grouped together, but most respondents are generally in agreement	10% to 20% - error is a significant amount and will cause uncertainty in results
Low	1.5 to 2.0 – results show a high variance with a fair amount of disparity in responses	20% to 30% - error has reached a detrimental level and results are difficult to trust
Very Low	2.0+ - results are highly variant with little to no grouping	30%+ - significant error in results, hard to interpret data in a meaningful way

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Based on an approximate population size of 570,000 and the table above, sample sizes of 4,962 and 84 correlate to margin of errors of 1% and 11% respectively at 95% confidence level. The *2022 HPL Community Survey* results therefore correspond to a Very High confidence level whereas the *2023 City Services and Assets Review: HPL* survey results correspond to a Medium 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.

For the *2023 City Services and Assets Review: HPL* survey, although the sample size correlates to a medium 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 respondents' 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 the survey was used to establish customer values and customer performance measures, it is important to note that there are limitations to the survey methodology which may also reduce the confidence level in results. The survey was released using an online platform and paper copies were made available at multiple locations across the City. However, 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. The only demographic over-representation was of 70% of respondents identifying as female, compared to only 23% respondents identifying as male.

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 HPL provides, but decisions should not be made based solely on the *2023 City Services and Assets Review: HPL* survey. The 2022 HPL community survey, had enough responses to give high confidence level in the results. These results are used to evaluate the importance and performance of different HPL services as well as to calculate the net differential for service performance versus importance.

The future intent is to release the CAM survey on a more regular basis to measure the trends in customer satisfaction over time and ensure that the City is providing the agreed level of service. In addition, the next survey will have an improved marketing and surveying strategy by both

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incorporating telephone surveys and/or IP controls to improve confidence levels in the survey responses. In addition, these results will be reviewed and improved upon for the next iteration of the AM Plan. This has been noted in **Table 31** 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 *2022 Hamilton Public Library Community Survey* and the *2023 Let’s Connect, Hamilton – City Services and Assets Review: Hamilton Public Library*.

Table 15: Customer Values

SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
HPL facilities should be accessible and well-maintained	2023 HPL City Services and Assets Review Survey	Based on survey responses, customers value clean, accessible, and well-maintained library spaces with very high data consistency.	Decrease (Maintenance budget is inadequate to meet BCA identified needs and security related incidents unless brought in control can make facilities less accessible).

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SERVICE OBJECTIVE:			
CUSTOMER VALUES	CUSTOMER SATISFACTION MEASURE	CURRENT FEEDBACK	EXPECTED TREND BASED ON PLANNED BUDGET (10-YEAR HORIZON)
Convenient reservation and renewal of collection material is a very important service	HPL's 2022 Community Survey	Based on survey responses, online reservation and renewal of collection material is a very important service for customers with high data consistency.	Maintain (HPL offers online reservation and renewal of collection material. However physical self-checkout units in most HPL branches are nearing end of service life).
Free Wi-Fi at HPL branches is a very important service		Based on survey responses, free Wi-Fi at HPL branches is a very important service for customers with medium data consistency.	Maintain
Collection material is important for customers		Based on survey responses, collection materials are important for customers with high data consistency.	Maintain
Library locations, programs and classes, and public computers are all important services for the customers		Based on survey responses, library locations, programs and classes, and public computers are all important services for customers with high data consistency.	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 HPL Service in terms of its quality, reliability, accessibility, responsiveness, sustainability, and 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.

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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.

Table 16: Customer Levels of Service

TYPE OF MEASURE	LEVEL OF SERVICE STATEMENT	SOURCE	PERFORMANCE MEASURE	CURRENT PERFORMANCE	EXPECTED TREND BASED ON PLANNED BUDGET
Quality/ Condition	Provide comprehensive and efficient public library services.	HPL's 2022 Community Survey	Average survey respondent opinion on how HPL has performed overall in the last 24 months in all service areas	Good Performance	Maintain
		Confidence Level		Very High	
		Data Consistency		High	
		2023 HPL City Services and Assets Review Survey	Average survey respondent opinion on if accessing library services felt comfortable overall	Comfortable	Decrease (Maintenance budget is inadequate to meet BCA identified needs and security related incidents unless brought in control can make facilities less accessible)
		Confidence Level		Medium	
		Data Consistency		High	

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TYPE OF MEASURE	LEVEL OF SERVICE STATEMENT	SOURCE	PERFORMANCE MEASURE	CURRENT PERFORMANCE	EXPECTED TREND BASED ON PLANNED BUDGET
	Be fiscally responsible when delivering services.	2023 HPL City Services and Assets Review Survey	Average survey respondent opinion on if HPL is providing good value for money when providing infrastructure and services	Good Performance	Maintain
		Confidence Level		Medium	
		Data Consistency		High	
Function	Provide comprehensive and efficient public library services.	2023 HPL City Services and Assets Review Survey	Average survey respondent opinion on if HPL is meeting overall service needs	Exceeds Needs	Maintain
		Confidence Level		Medium	
		Data Consistency		Medium	
Capacity	Ensure public library services are accessible to the public.	2023 HPL City Services and Assets Review Survey	Average survey respondent opinion on if they are satisfied with their ability to access HPL services overall	Satisfied	Increase (Several new HPL branch openings are planned in the next ten years)
		Confidence Level		Medium	
		Data Consistency		High	
		2023 HPL City Services and Assets Review Survey	Average survey respondent opinion on if placement of HPL branches meets needs	Meets Needs	Increase (Several new HPL branch openings are planned in the next ten years)
		Confidence Level		Medium	
Data Consistency		High			

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4.3.1 CUSTOMER INDICES

The three indices calculated to assess how customer expectations are aligning with the perceived performance for HPL are listed below in **Table 17**. 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 17: Customer Indices

CUSTOMER INDICES	AVERAGE RESULT
Service Importance Versus Performance Net Differential	-3
Net Promoter Score (%)	49
Service Rates Versus Value for Money Net Differential	21

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.

Per **Figure 8** on the next page, the net differential does not exceed 20 points for any of services meaning that typically there is a match between the importance of the service and how HPL is perceived to be performing in that aspect of the service. The service with the largest mismatch is the checkout and renewal process. Users rate ease of checkout and renewals including online service very highly. The performance of HPL in the delivery of this service is Good but the net differential can be reduced by improving it to Very Good. Note that HPL provides online renewal service but self check-out units in some branches are near end of life and need replacement.

Overall, with a net differential of close to zero (-3), customers rate performance very close to the importance that they assign to different HPL services indicating a match in importance and performance. Note that the importance vs performance net differential is based on the results of just the *2022 HPL Community Survey* results which gives it a very high confidence. However, HPL services such as library locations and spaces, public computers, and connecting customers to information are not included in the calculation as respondents were not asked to rate importance or performance of these services in that survey.

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Figure 8: Importance versus Performance Index Score

Service Area	Performance	Importance	Net Differential
Checkout and Renewal process	81.39	95.11	-13.71
Free Wi-Fi	78.24	80.54	-2.29
Programs and Classes	70.31	70.06	0.25
Collection Material	73.90	70.06	3.84

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 individuals do not have many alternatives for utilizing different services. 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.

Respondents who selected a score less than four are considered 'Detractors' meaning that they would not recommend the service, while scores of five are considered 'Promoters' who would recommend the service. Scores of four are considered 'Passive' which means they do not have strong feelings about the service and so 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.

Based on the results below in **Figure 9**, HPL has a high positive net promoter score indicating that on average customers would vastly recommend HPL services to others. The two lowest scoring aspects of the service are programs and classes and public computers whereas checkout and renewal process top the list.

Figure 9: Net Promoter Score

Service Area	σ	NPS	Detractors	Passives	Promoter
All Service Areas	19.6%	49.24	70	93	296
Checkout and Renewal Process	17.7%	62.82	9	11	58
Free Wi-Fi	20.8%	56.45	9	9	44
Collection Materials	16.8%	52.00	10	16	49
Library Locations and Spaces	19.1%	48.05	10	20	47
Connecting Customers to Information and Community Resources	18.3%	44.64	8	15	33
Programs and Classes	23.1%	38.46	11	10	31
Public Computers	21.0%	35.59	13	12	34

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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 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 indices 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.

Based on the results below in **Figure 10**, survey respondents have indicated that HPL provides overall Very Good value for money, but customers also desire rates to be maintained. HPL is known for being innovative, the public perception of the service is positive, and customers think they are getting good value for money. However, since there is an interest in maintaining rates, it appears that there isn't a growth mindset with the public. Therefore, it is recommended that HPL explore promoting and seeking agreement from the public for potential innovations they are proposing in future. Another potential reason for customers to not favor rate increases could be that inflation is causing people to not want to pay for additional services at this time.

Figure 10: Rates versus Value for Money index Score

Service Area	Rates (Index Score)	Value for Money (Index Score)	Net Differential
Total	67	88	21
Programs and Classes	66	83	17
Library Locations and Spaces	69	87	18
Collection Materials	69	88	18
Public Computers	66	89	23
Connecting Customers to Information and Community Resources	64	87	23
Free Wi-Fi	67	91	24
Checkout and Renewal Process	68	92	24

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.²

Table 18 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.

² IPWEA, 2015, IIMM, p 2|28.

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Table 18: Technical Levels of Service

LIFECYCLE ACTIVITY	LEVEL OF SERVICE	ACTIVITY MEASURE	CURRENT ACTUAL PERFORMANCE (2023)	CURRENT TARGET PERFORMANCE (2023)	PROPOSED 10-YEAR PERFORMANCE
Acquisition	Ensure public library services are accessible to the public.	Average time to travel to nearest library	100% of address points in Hamilton are covered within 15-minute driving time	15-minute travel time to nearest branch	15-minute travel time to nearest branch
	Ensure public library services are accessible to the public.	# of Weekly Open Hours	1,364	1,364	1,700
Operation	Provide comprehensive and efficient public library services.	% of Residents that are active library users	27%	35%	35%
		Budget	\$36M annual operating budget	Unknown	\$55M annual operating budget
	Provide comprehensive and efficient public library services.	# of behavioral related incident per 10,000 visits	5 per 10,000	2 per 10,000	2 per 10,000
		Budget	\$577K	\$1.0M	
	Provide comprehensive and efficient public library services.	Wait times for holds	29 days	21 days	21 days
		Budget	\$2.4M	\$3.7M	\$5.2M
Maintenance	Ensure that HPL assets are maintained in good condition	Frequency of HPL facilities cleaning	Once per day	Once per day	Once per day
		Budget	\$37K	\$400K	\$500K
		Average Facility Condition Index	3.48%	< 5%	< 5%
		Budget	\$600K (Combined HPL and CFEM)	\$2.0M	TBD

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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. These have been identified as continuous improvement items in **Table 31**.

4.3.3 PROPOSED LEVELS OF SERVICE DISCUSSION

Based on the Customer Levels of Service **Table 16** and Technical Levels of Service **Table 18**, it is evident that typically customer expectations match HPL's service levels. Since the *2023 City Services and Assets Review: Hamilton Public Library* results have only a medium level of data confidence, it is difficult to make any conclusive decisions based on the initial survey. Due to this lack of high data confidence in the current levels of service information, HPL will need to collect more data before proposing any new levels of service. Although the 2022 HPL Community Survey had results with very high data confidence, it did not look into customer's perception of value for money or rate changes. 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 HPL to areas for further investigation before proposing any new levels of service

CONDITION / QUALITY

Survey respondents thought that HPL had *good* performance overall and they felt *comfortable* accessing HPL's services. However, the current maintenance budget is inadequate to meet BCA identified needs and security related incidents, unless brought in control, can make customers feel less comfortable accessing services. Currently HPL meets its performance targets for cleanliness of facilities and the current Facility Condition Index is also within the target range. HPL is also looking to increase its security budget which should help to address access and comfort issues.

In terms of providing good value for money, customers rated that HPL provided good value for money. However, when asked if they would like to see rate changes to increase or decrease service levels, customers on average preferred no change. If HPL is looking to add more services or increase level of service for existing services, it should consider that customers favour rates to be maintained. In this scenario, HPL should consider promoting and seeking agreement from the public for potential innovations they are proposing in future. Survey results suggest that customers are satisfied with current level of service.

FUNCTION

Survey respondents thought that HPL currently exceeds at meeting overall service needs. The survey results align well with HPL meeting its branch open hours target of close to 1,300 hours

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per week. In the coming years, with HPL planning to acquire multiple new branches, the number of system wide branch-hours are expected to increase to 1,700. Based on this, it is expected that HPL will continue to exceed needs in this aspect to the service. At the same time, customers have indicated a desire to maintain rates. HPL should investigate further if the acquisition of \$100 Million worth of new facilities and the corresponding increase in operation and maintenance expenditure estimated to be around \$11.0 Million annually is something that would align with customer's preferences.

CAPACITY

Customers were *satisfied* with their ability to access HPL services and responded that placement of library branches across the city met needs overall. With an increased focus on digital resources and online resources, as well as the addition of the planned eight new HPL branches, service accessibility is poised to increase. Furthermore, currently every address in Hamilton lies within a 15-minute driving time of an HPL branch which is the target travel time. The average transit travel time to a library branch in urban areas is currently not available and its calculation has been identified as a continuous improvement item in **Table 31**.

The current average wait time for holds is 29 days which is more than the HPL target of 21 days. HPL will need to invest more resources to reduce wait times. However, as customers have indicated a desire to maintain rates, HPL should investigate further if the customers are in fact satisfied with current wait times.

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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.

5.1 DEMAND DRIVERS

For the HPL service area, the key drivers are:

- Population Growth;
- Increased Immigration Levels;
- Variable Economic Conditions;
- Technological Changes; and,
- Increased focus on sustainability.

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 31**.

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 19**. 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.

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Table 19: Demand Management Plan

DEMAND DRIVER	CURRENT POSITION	PROJECTION (10 Years)	IMPACT ON SERVICES	DEMAND MANAGEMENT PLAN
Population Growth	570,000	680,000	<ul style="list-style-type: none"> • More/ expanded branch locations to maintain current levels of service. • Increased open hours 	<ul style="list-style-type: none"> • Capital Budget funding to build new or expand existing branches. • Increased operating funding to add FTE to staff new and expanded spaces. • FTE required would depend on size of branch and open hours.
Increased Immigration Levels	10,000 per year	100,000 newcomers over 10 years	<ul style="list-style-type: none"> • More services/ programs for newcomers. Language and integration services. 	<ul style="list-style-type: none"> • Increased FTE and spaces for Newcomer Learning type programs. • Currently have three FTE aided by federal grant funding. • Would likely need another FTE just to keep pace with growth assuming the three FTE that HPL has now is sufficient for community needs.
Customer Preferences	Overdue fines and replacement fees were eliminated in 2020. This has resulted in materials returning to a library at a slower pace.	Overdue fines and replacement fees will not be reintroduced.	<ul style="list-style-type: none"> • Most books are returned within two loan periods instead of one. • Hold placed by members take longer to fulfill. • More copies are needed to bring down wait times for high use items. 	<ul style="list-style-type: none"> • HPL has adjusted its performance metrics and has invested more funds in the fulfilment of holds to adequately meet member demands in a timely fashion. • HPL would need to increase budget for collection materials from the current \$2.4M to an estimated \$3.7M to reduce wait times to target levels.

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DEMAND DRIVER	CURRENT POSITION	PROJECTION (10 Years)	IMPACT ON SERVICES	DEMAND MANAGEMENT PLAN
Economic Conditions	Stable	Variable	<ul style="list-style-type: none"> • During economic downturns people are more likely to turn to the library to access free or low-cost services. Use of the library to help with upskilling and job search. • During prosperous times people are more likely to turn to the library to help with business start-up help, upskilling, access to specialized skills enhancement. 	<ul style="list-style-type: none"> • Build flexibility into space plans and collection/ programming to meet community needs as appropriate. • This flexibility should be a prime consideration when designing or redesigning space.
Technological Changes	Rapid Changes	Even faster Exponential Changes	<ul style="list-style-type: none"> • Ever increasing importance and ability to quickly adapt to and provide access to changing technologies 	<ul style="list-style-type: none"> • Having budgets that are sufficiently funded to enable HPL to provide the community with access to the latest technological resources and to train staff to navigate and be successful in whatever that new reality will be. • HPL currently has a \$24,000 annual budgeted provision to reserve. This should be \$100,000 annual to keep up with pace of change.
Sustainability	High Focus	Increased Desire for providing services in an environmentally sustainable way	<ul style="list-style-type: none"> • Expectation that sustainability is a main factor not an after-thought for new builds and facility renewals 	<ul style="list-style-type: none"> • Capital Budget and Operational funding to enable sustainability to be built into new designs. • In some cases, this may reduce operating costs over the long term

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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 HPL, typically assets are acquired or constructed.

At this time there are approximately **\$100.8 Million** in assets acquired over the next 10 years as discussed in **Section 8.1**. Acquiring new assets will commit HPL to ongoing operations, maintenance and renewal costs for the amount of time that the service is required. These future costs have been estimated when possible using available information in the Lifecycle Management Plans in **Section 8.0**, 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’³.

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 reductions in service, personal injury, environmental impacts, a ‘financial shock’, reputational impacts, or other consequences. The risk assessment process also identifies the likelihood of these 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 31**.

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

Table 20: Critical Assets

CRITICAL ASSET(S)	FAILURE MODE	IMPACT
Central Library	Physical Failure	<ul style="list-style-type: none"> • Overall library system processing functions would be significantly reduced. • Central Library offers extended hours as a warming centre as part of City’s Winter Response Strategy. This service would be affected. • City’s main data centre is hosted in the Central Library. Physical damage to data centre equipment would likely affect the effective provision of all city services
Regional Branches	Physical Failure	<ul style="list-style-type: none"> • Public would lose access to space including warming/ cooling center and critical library services.

³ ISO 31000:2009, p 2

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CRITICAL ASSET(S)	FAILURE MODE	IMPACT
Integrated Library Software	Essential Service Interruption	<ul style="list-style-type: none"> Public will lose access to physical and digital collection materials. System processing functions will be significantly reduced. Public computer access and print authentication will be lost.
New Collection Materials And Perennial Favorites	Essential Service Interruption	<ul style="list-style-type: none"> Public will lose access to core library services. Some customers and members will be lost as a result. Hold fulfilment will be impacted.
Local History And Archives Collection	Physical Failure	<ul style="list-style-type: none"> Hamilton will permanently lose unique materials. This will result in loss of heritage and organization reputation.
Digital Technology Infrastructure	Physical Failure	<ul style="list-style-type: none"> Customers will lose access to collection materials, digital collections, and databases. Customers will lose access to public computers.

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

6.2 RISK ASSESSMENT

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

An assessment of risks associated with service delivery will identify risks that will result in loss or reductions 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 21**. It is essential that these critical risks and costs are reported to management.

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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	TREATMENT COSTS
Central Library	<p>Roof and/or window leaks, HVAC out of order, or other service interruption.</p> <p>These can happen due to heavy rainfall, windy conditions and/or deferred maintenance.</p> <p>Data centre hosted in the Central Library may get damaged.</p> <p>Collection materials and/or local history and archives may get damaged causing permanent loss to the City's cultural heritage.</p> <p>Library service hours will be affected as well as capacity of branches to function as warming/cooling centres.</p>	Very High	<p>More frequent inspections.</p> <p>Increased budget for lifecycle renewal and maintenance.</p>	\$33.1 million BCA identified needs over next 10 years
Security Incidents	<p>There exists a possibility of serious security incidents happening, especially at Central Library due to its Downtown Hamilton location.</p>	Very High	<p>On going vendor management.</p> <p>Explore partnership opportunities with the City</p>	To be Determined
Local History Archives (LHA) Analog Collections	<p>Damage and/or deterioration due to leaks, temperature and humidity fluctuations, malfunction of fire</p>	High	<p>Regular inspection of equipment.</p> <p>Inspection of roof in overhead areas of LHA.</p>	To Be Determined

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	suppression equipment, and pests.		Disaster plan. Active pest management.	
Information Security attacks	Privacy breach/ sabotage/ extortion/ theft.	High	Investment in up-to-date protection. FTE funding for cyber security position.	To Be Determined
LHA Systems	Deterioration and/or loss of LHA digital collections due to lack of digital preservation system and protocols, loss of access to digital assets held by third party partners or bit rot due to lack of check sum measures.	High	Invest in digital preservation system. Migration from obsolete formats. Up-to-date digital preservation procedures and staff training.	Exact costing is unknown; however, a rough estimate could be about \$200,000 startup with yearly ongoing costs \$20,000 for the platform alone. Additional staffing would be required on at least a temporary basis to migrate obsolete formats. Digital Preservation, policy, procedures, and training could be done in-house or with a mix of contract staff. Would require work with HPL DT and City of Hamilton IT teams.
Digital Technology (DT) Infrastructure	Downtime and loss of data due to out-of-date equipment/ software.	High	Replace end of life switches and Routers. Upgrade staff computers every 5 years. Keep software licensing management up to date. Conduct regular maintenance to sorters, servers, and self-check machines.	\$1.4M budget for Switches replacement. Plan \$1M every year for computer and software licensing renewal and replacement. \$0.5M budget to replace end-of-life Drupal 7 web application.

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			Redesign the HPL.ca website with more current web platform application.	
Lower government funding	Loss of funding at municipal, provincial or federal governments due to change in council priorities or government spending cutbacks.	High	Ensuring budgets are managed in a responsible manner. Continued value/impact assessments. ROI or value calculator reviews.	Internal Resources
Restrictive Licensing Terms and Embargos on Digital and Streaming Content	Digital content licensing models create challenges for development and retention of HPL's digital collections. Metered access, high pricing, embargoes that limit or delay access.	High	Continued advocacy. Pooling library resources to increase buying power. Seek alternative solutions to delivery and retention of digital content.	To Be Determined
Staff Technology Skills Gap	Staff skills not keeping pace with technological change.	High	Incorporate technology skills in recruitment strategy. Monitor training requirements.	Internal Resources
Intellectual freedom challenges	Risk associated with finding the right balance between upholding intellectual freedom and advancing inclusion.	High	Collaboration with other libraries. Staff training. Review of protocols.	Internal Resources

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.

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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.

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.

Table 22 outlines what activities HPL cannot afford to do over the next 10 years with their existing budget and provides the associated service and risk trade-offs.

Table 22: Service and Risk Trade-offs

WHAT WE CANNOT DO (WHAT CAN WE NOT AFFORD OVER THE NEXT 10 YEARS?)	SERVICE TRADE-OFF (HOW WILL NOT COMPLETING THIS AFFECT OUR SERVICE?)	RISK TRADE-OFF (WHAT RISK CONSEQUENCES ARE WE UNDERTAKING?)
Central Library Roof and Mechanical Repairs	Staff and customers may be uncomfortable in the building. Central Library is a Warming and Cooling Centre, so service may be reduced. Data centre may be impacted. May require closed if roof repairs do not occur.	More reactive repairs, library may need to close. Delayed repairs may end up becoming more costly and eventually result in a renewal. Potential health and safety risk with roof repair requirement.
Turner Park Roof Replacement	May require closure if roof replacement does not occur.	Potential health and safety risk with roof replacement requirement. Reactive costs and reputational risk.
Waterdown Window Leak Repair	Less library space will be available for service.	Repairs may end up becoming more costly and eventually result in a renewal. Reputational risk if not addressed.
HPL Switches and Routers replacement	Low network efficiency or no network connection due to equipment failure. Lost library services which are dependent on Network connection.	Lack of part and service support due to end-of-life vendor support. Big reputational risk on library service delivery.

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WHAT WE CANNOT DO (WHAT CAN WE NOT AFFORD OVER THE NEXT 10 YEARS?)	SERVICE TRADE-OFF (HOW WILL NOT COMPLETING THIS AFFECT OUR SERVICE?)	RISK TRADE-OFF (WHAT RISK CONSEQUENCES ARE WE UNDERTAKING?)
Staff Computer upgrade every 5 years	Low productivity on service delivery and daily office operation due to out-of-date or incompatible application and hardware support.	Slow computer performance and high cost of finding support for out-of-date applications. Reputational risk if staff computers result in low productivity.
Materials Handling Sorters Replacement	Delays in materials for public. More staff intervention to run the service if can't rely on automation.	Health and safety risk with equipment that is prone to failure. Reputational risk if machines are not working.
Self-Check Units Replacement	Delays in checkouts for public. More staff intervention to run the service if we can't rely on automation.	Reputational risk if machines are not working.
Microsoft licensing exponential pricing increase (potential)	Currently HPL gets education licensing from Microsoft which is at a reduced price compared to business or non-profit licensing. Microsoft may put public libraries under Non-profit licensing which would significantly increase the licensing costs for Software assurance, Office 365 and system centre licensing	Over 300% increase in licensing and subscription costs from Microsoft if HPL is no longer able to get education licensing and has to get non-profit licensing instead

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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 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 and 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 31**.

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 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, 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 31**.

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 HPL 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 HPL will have to accommodate as shown in **Table 23** below.

Table 23: Climate Change Mitigation Transformation

CLIMATE CHANGE MITIGATION TRANSFORMATION	MODELLED TARGET	IMPACT TO SERVICE/ASSET	DEMAND MANAGEMENT PLAN
Transforming Our Buildings	By 2050, all municipal buildings are retrofitted to achieve 50% energy efficiency	Capital funds will need to be secured and plans developed to retrofit existing buildings to achieve energy efficiency. Facilities may need to be closed for a period to perform the work.	Will result in higher capital costs required to achieve the goal. Grant funding may help to offset some costs. Plans will need to be developed to provide service alternatives for longer renovation periods.
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.	Digital Technology & Maintenance Vans are already being procured as electric. Existing bookmobiles planned to be replaced with electric Sprinter type vehicle and Electric Bus. Two Courier Trucks will be due for replacement by 2028. Charging stations will need to be installed to support this change. Higher expected upfront cost to procure electric vehicles.	Business Case for electric vehicles. Higher upfront costs however lower expected operating costs. The cost of climate impact risk of not doing so should be considered. Be on the lookout for grant funding opportunities to help offset costs.

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CLIMATE CHANGE MITIGATION TRANSFORMATION	MODELLED TARGET	IMPACT TO SERVICE/ASSET	DEMAND MANAGEMENT PLAN
Revolutionizing Renewables	By 2050, 50% of municipal buildings will add rooftop solar PV, covering 30% of the building's electrical load.	Capital funds will need to be secured and plans developed to retrofit existing buildings. Facilities may need to be closed for a period to perform the work.	Will result in higher capital costs required to achieve the goal. Grant funding may help to offset some costs. Plans will need to be developed to provide service alternatives for longer renovation periods.
Growing Green	Planting 50,000 trees a year through to 2050	May be an opportunity to plant trees on library properties. Would increase funds needed for landscaping to ensure premises remain clean and tidy.	Higher operating costs to maintain ground. Needs to be planned for.

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 HPL is currently pursuing are outlined below in **Table 24**. These projects may already be included in the budget and may be quantified in the lifecycle models.

Table 24: Asset Climate Mitigation Projects

PROJECT	CLIMATE CHANGE MITIGATION TRANSFORMATION	PROJECT DESCRIPTION	CLIMATE CHANGE IMPACT
Replacement of Vehicles	Changing how we move	Replacement of Bookmobiles with EV or Hybrid models. Facility Vehicles being replaced with EV's.	Reduce emissions associated with vehicle operation.
Valley Park Renovation	Transforming our buildings	First LEED (Leadership in Energy and Environmental Design) branch.	Reduce emissions associated with facility operation.

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PROJECT	CLIMATE CHANGE MITIGATION TRANSFORMATION	PROJECT DESCRIPTION	CLIMATE CHANGE IMPACT
Mount Hope Renovation	Transforming our buildings	Mount Hope: the federal grant was not approved.	Reduce emissions associated with facility operation.
Replacement of Central Library windows and of lights to low-energy LEDs.	Transforming our buildings	Low E Glass installed around the entire facade to assist in heat/cooling loss. All Branches converted high use/common area lighting to LEDs for energy savings.	Reduce emissions associated with facility operation.

CLIMATE MITIGATION DISCUSSION

Transforming our Buildings and Growing Green

HPL has made some progress on this target as certain branches have been LEED certified whereas LED lights have replaced more traditional and energy inefficient lights in library branches.

Changing How We Move

This is another area HPL is making progress in trying to mitigate climate change impacts. HPL will be replacing its two Bookmobiles with electric or hybrid vehicles. These vehicles are expected to arrive in 2026.

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.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.

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

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

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 31**.

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 HPL staff which will have a potential impact on assets and services include temperature increases, and ice storms as shown in **Table 25** below.

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

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
Increased instances of heat-related issues due to extreme heat.	16.1 average days where temperature is 30 degrees Celsius or more	34.4 average days where temperature is 30 degrees Celsius or more	Increase in requests for Libraries to open on closed days to allow for more public spaces for people to use as respite from heat or cold resulting in increased operating costs. Increase in HVAC equipment operation, maintenance, and replacement.	Prioritizing locations to be used as extreme heat/cold shelters. Adjust PM schedules as required.
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)	More and heavy rainfall will strain roofing and drainage systems of buildings leading to more frequent repairs needed and earlier replacement of roof and drainage infrastructure. May result in service disruptions if not addressed.	More frequent condition assessments may be needed along with more capital dollars to address problems otherwise backlog and service disruptions will increase.
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	More frequent, intense storms would lead to more weather closures. This would limit the ability of people to access services.	Increase staff ability to provide as much remote or digital services on these days.

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

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
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)	Possible damage to assets including roofs, below grade levels which service hours might be reduced and may lead to loss of reputation.	Continue to work with City partners that manage and prioritize these projects.

*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
- 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 6.2**, 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 26**.

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

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 26 : Adapting to Climate Change

ADAPTATION IMPACT STATEMENT	SERVICE OR ASSET AT RISK DUE TO IMPACT	WHAT CAN HAPPEN	RISK RATING	RISK ADAPTATION PLAN
Increased instances of heat-related issues due to extreme heat.	DT Infrastructure	DT Infrastructure may get affected. Increased energy to meet needs for temperature and humidity control.	High	Project recently completed. No disaster recovery system. Data backup available. Cloud based disaster recovery an option.
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.	Library Buildings	Buildings need to remain open longer to act as Warming and Cooling centers e.g., Central Library due to increased instances of heat and cold alerts.	High	Budget for more security guard hours. Further services may be required if volumes warrant it.
Changes in the frequency of extreme rainfall events will result in increased instances of flooding on private and public properties.	Library Buildings	Service interruptions experienced due to roof leaks and drainage issues. Caused by Increased levels of precipitation, storm events.	High	Increased budget for capital replacements, increased inspection frequency addressing failed areas before they spread.

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

ADAPTATION IMPACT STATEMENT	SERVICE OR ASSET AT RISK DUE TO IMPACT	WHAT CAN HAPPEN	RISK RATING	RISK ADAPTATION PLAN
				Increased budget for capital and major repairs.
Rising summer temperatures and extreme heat will increase energy demand for air conditioning, causing a financial burden for low-income households.	Library Buildings	HVAC Malfunction, premature wear, and tear. Caused by increased energy demand for air conditioning.	High	Increase preventive maintenance schedule during warmer periods. Re-assess replacement or upgrade intervals.

CURRENT ADAPTATION PROJECTS

Table 27: Asset Climate Adaptation Projects

PROJECT	ADAPTATION IMPACT STATEMENT	PROJECT DESCRIPTION OF CLIMATE CHANGE ADAPTATION
City's Winter Response Strategy and Heat Response Strategy	<p>i) Prolonged power outages during winter months due to an increase in ice storms resulting in public safety concerns.</p> <p>ii) 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.</p>	Increasing demand for HPL branches to serve as cooling and warming spaces for the community including multiple branches offering extended access hours.

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

CLIMATE ADAPTATION DISCUSSION

INCREASED TEMPERATURE and INCREASE IN ICE STORMS

HPL is making its facilities available for the community as warming and cooling spaces in winter and summer months respectively.

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

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 include costs from 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.

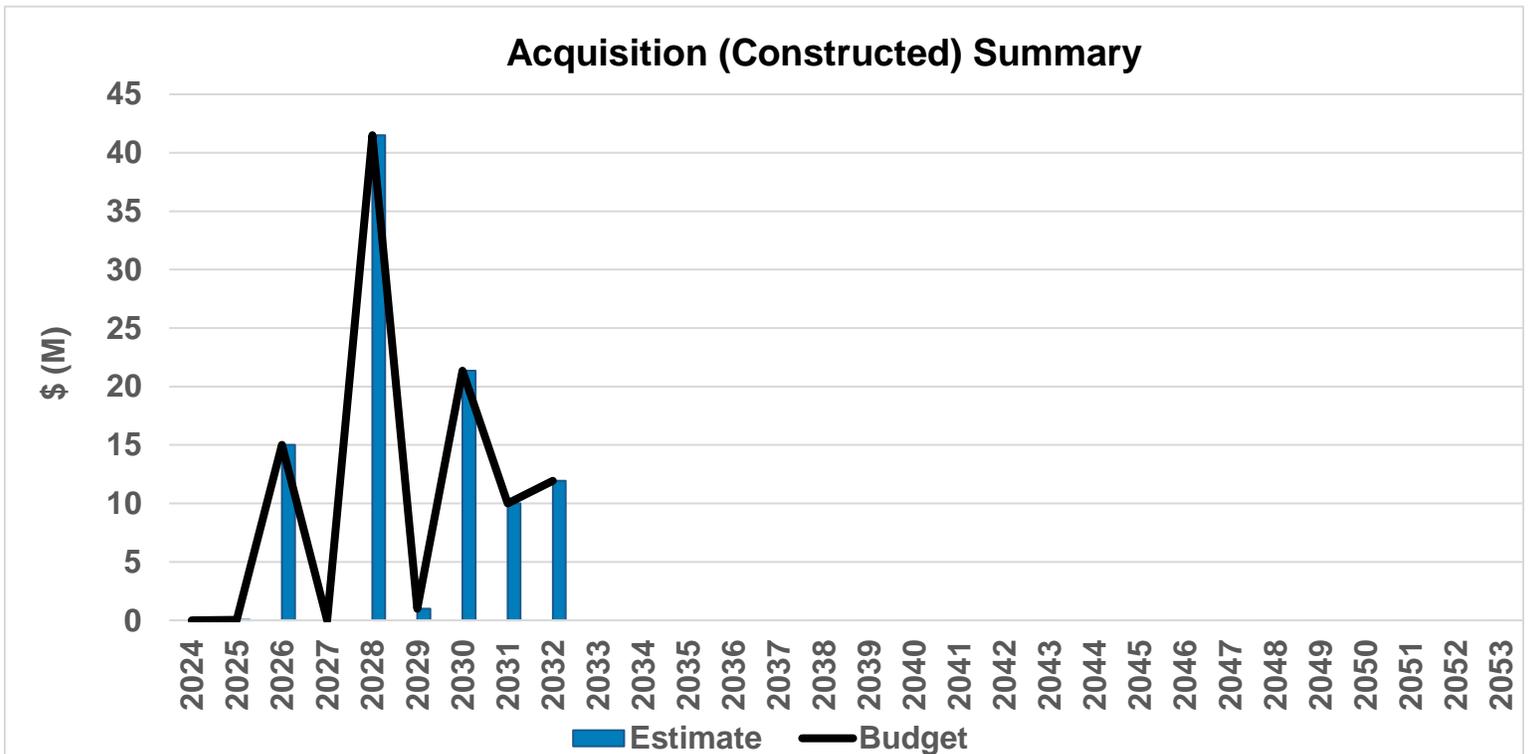
As a result of this new process, there may be some areas where the budget was not able to be broken down perfectly by lifecycle activity. Future AM Plans will focus on improving the understanding of Whole Life Costs and funding options. However, at this time the plan is limited on those aspects. Expenditure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

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,

CONSTRUCTED OR PURCHASED ACQUISITIONS

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



HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

The major acquisition expenditures over the next ten years include:

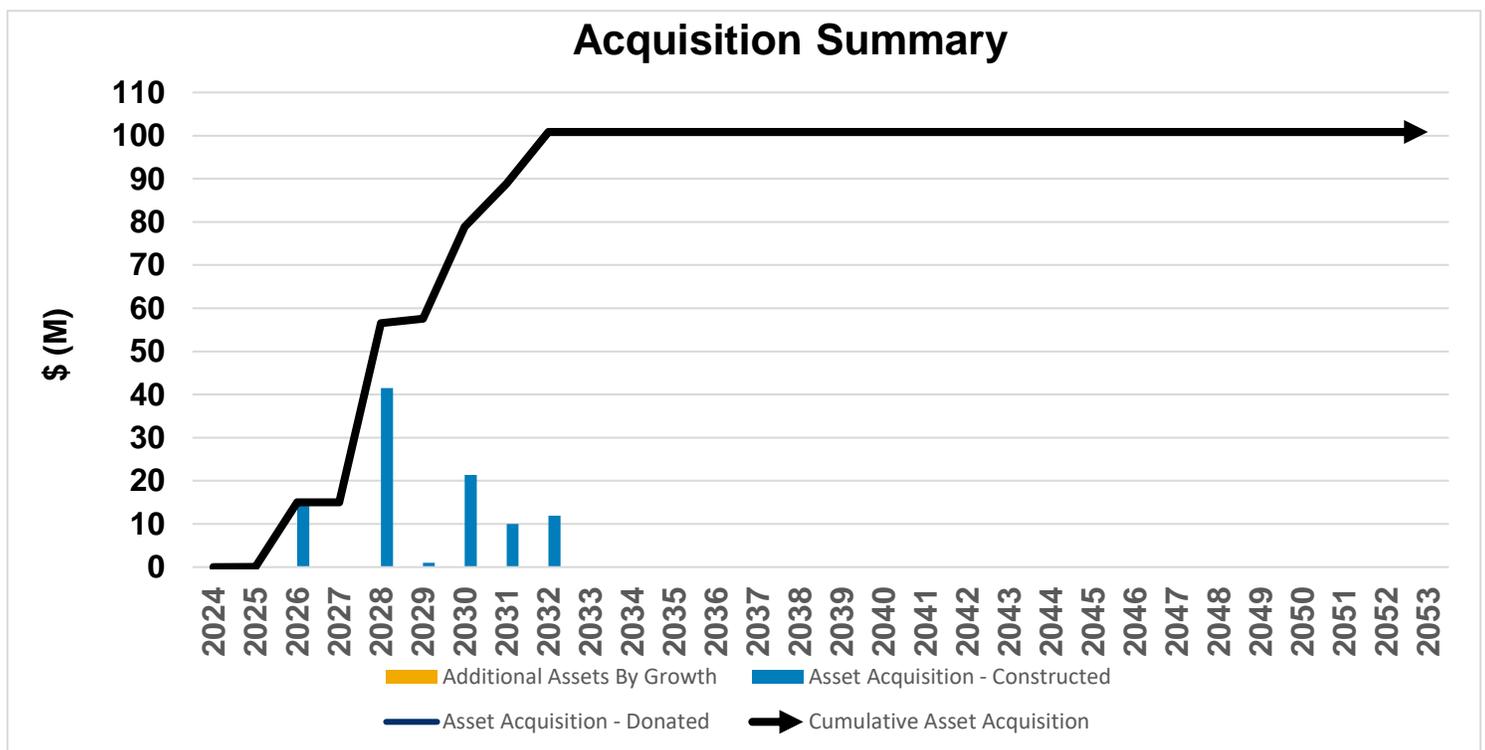
- **\$19.0 Million** for Downtown Stoney Creek Library in 2028
- **\$15.0 Million** for Library Discovery Centre and Feasibility Study in 2026
- **\$14.0 Million** for East Hamilton Replace and Expand in 2028
- **\$11.9 Million** for Elfrida Library in 2032
- **\$11.0 Million** for Winona/ Stoney Creek Library Construction in 2030
- **\$10.4 Million** for Lower City New/ Expanded Library in 2030
- **\$10.0 Million** for Ancaster Expansion in 2031
- **\$8.5 Million** for West Mountain Branch in 2028
- **\$1.0 Million** for New Bookmobile in 2029
- **\$48.9 thousand** for new Maintenance Van

Total of **\$99.8 Million** in facility acquisitions and **\$1.0 Million** for vehicles over 10 years. Facilities acquisitions include **\$66.5 Million** for new branches and **\$33.5 Million** for expansion projects. All of these acquisitions are geared towards increasing system wide branch-hours to maintain and possibly improve current levels of service.

ACQUISITIONS SUMMARY

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

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



HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

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 12**. 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.

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

- **\$24.9 Million** allocated for employee related costs in 2024 (i.e., salaries, wages, benefits, contractual agreement etc.)

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 HPL 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 HPL assets are reliable and can achieve the desired level of service.

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

- **\$5.0 Million** for Local History and Archives Renovation in 2026. This project entails updating the Central Library third floor to make the Local History and Archives collection more user friendly and accessible to the public. Note that this date for renovation is likely to be pushed back despite being listed as 2026 in HPL's capital budget projections.
- **\$2.9 Million** for Mount Hope Library renovation in 2025

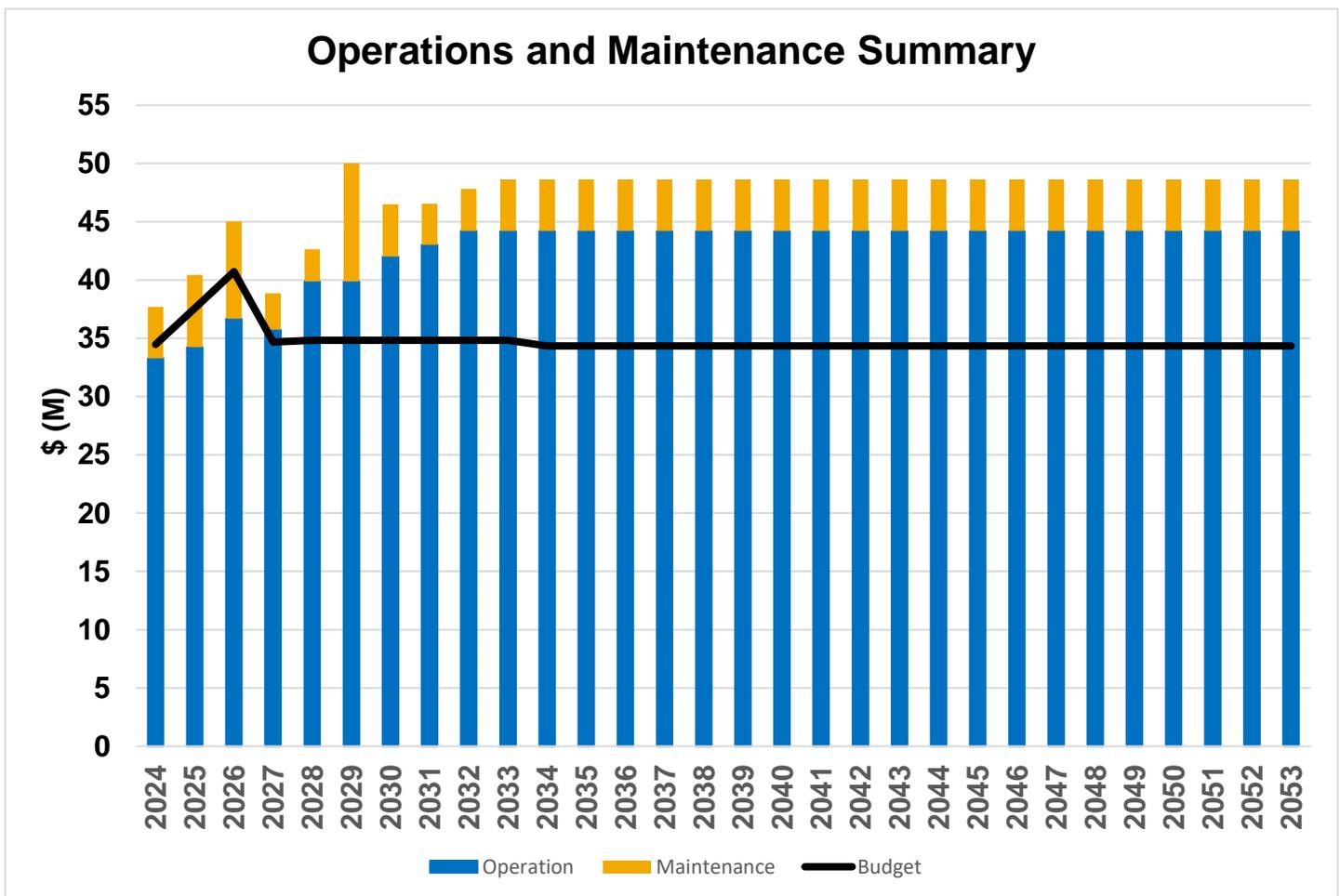
The two projects mentioned above are part of HPL's 10-year capital plan and explain the spike in the budget in years 2025 -2026 in **Figure 13** on the following page.

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

In terms of needs, Building Condition Assessment reports have identified \$33.1 Million worth of maintenance work required for HPL facilities over the next 10 years. Most of the needs to relate to Central, Turner Park and Terryberry branches. The most significant needs include replacement of roof, floor and wall finishes, exterior windows, air distribution systems and electric service and distribution.

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. For this plan operation and maintenance costs are added at 10% and 1% of acquisition cost respectively based on subject matter expert’s opinion. Figure 12 shows the forecast operations and maintenance costs relative to the proposed operations and maintenance Planned Budget. It is evident that over the next 10 years, as HPL acquires more branches, its forecasted operations and maintenance needs continue to increase as well.

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



HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

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 28** 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 2023 however they will be reviewed annually until their accuracy reflects the City's current practices.

Table 28: Estimated Service Lives for Assets

ASSET (SUB)CATEGORY	ESTIMATED SERVICE LIFE (YEARS)
Heritage Facilities (Dundas, Kenilworth, Locke, Mount Hope)	150
All other Facilities	75
Bookmobiles	10
Vans and Trucks	7
Boom Lifts	10
Collection Materials (excl. devices and eBooks)	8
Data Center Assets	12
Networking Equipment	12
Staff Computers	5
Staff Laptops	4
Mobile Devices	4
Printers	9

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

ASSET (SUB)CATEGORY	ESTIMATED SERVICE LIFE (YEARS)
Public Computers	8
PACS - ELO	12
Sorters	12
Self-Check Equipment	12
Security Cameras	8
Makerspace Equipment	6

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

RENEWAL RANKING CRITERIA

Asset renewal is typically undertaken to either:

- Ensure the reliability of the existing infrastructure to deliver the service it was constructed to facilitate (e.g., library branches remain open for service hours); or,
- To ensure the infrastructure is of sufficient quality to meet the service requirements (e.g. IT equipment is in acceptable condition)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.⁶

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**.

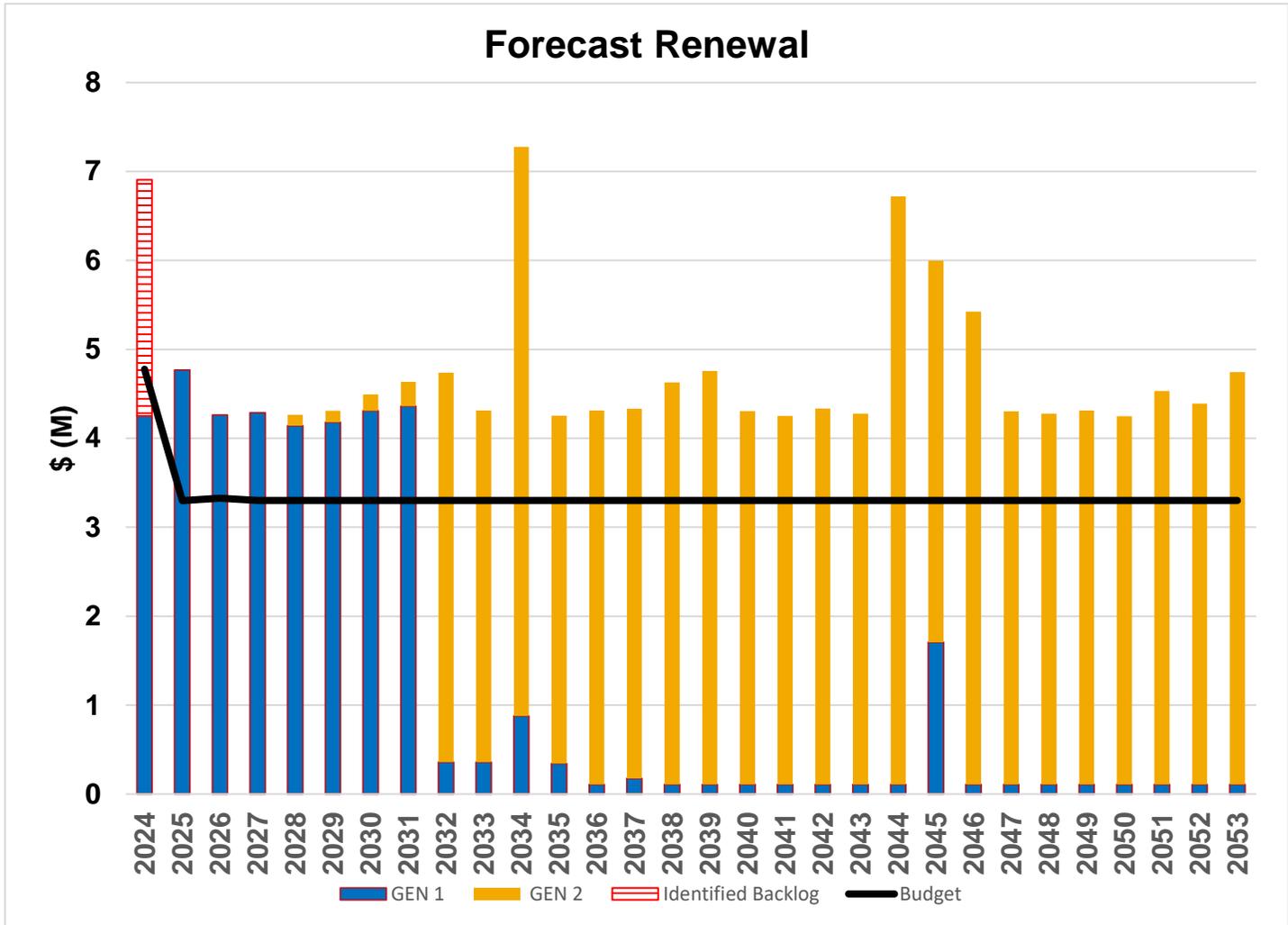
In the figure below, Generation 1 (Gen 1) costs refer to renewals that occur for the first time in the model based on the estimated service life and Generation 2+ (Gen 2+) costs refer to renewals that have occurred twice or more based on the estimated service life.

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

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

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

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



Currently, HPL has a backlog amount of approximately \$2.7M. The major backlog items include:

- \$2.4 Million for Bookmobiles which are expected to be replaced in 2026
- \$300K in for various assets including utility vehicles, technology assets and digitization equipment.

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

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

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

Every year the biggest contributors to renewal needs are collection materials (\$3.7 Million need compared \$2.4 Million budget) and technology assets (\$100K need compared to \$24K budget). For this plan, only complete replacement of building is considered renewal. Any replacement of a component is taken to be maintenance cost. As a result, facilities do not contribute to renewal needs.

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.

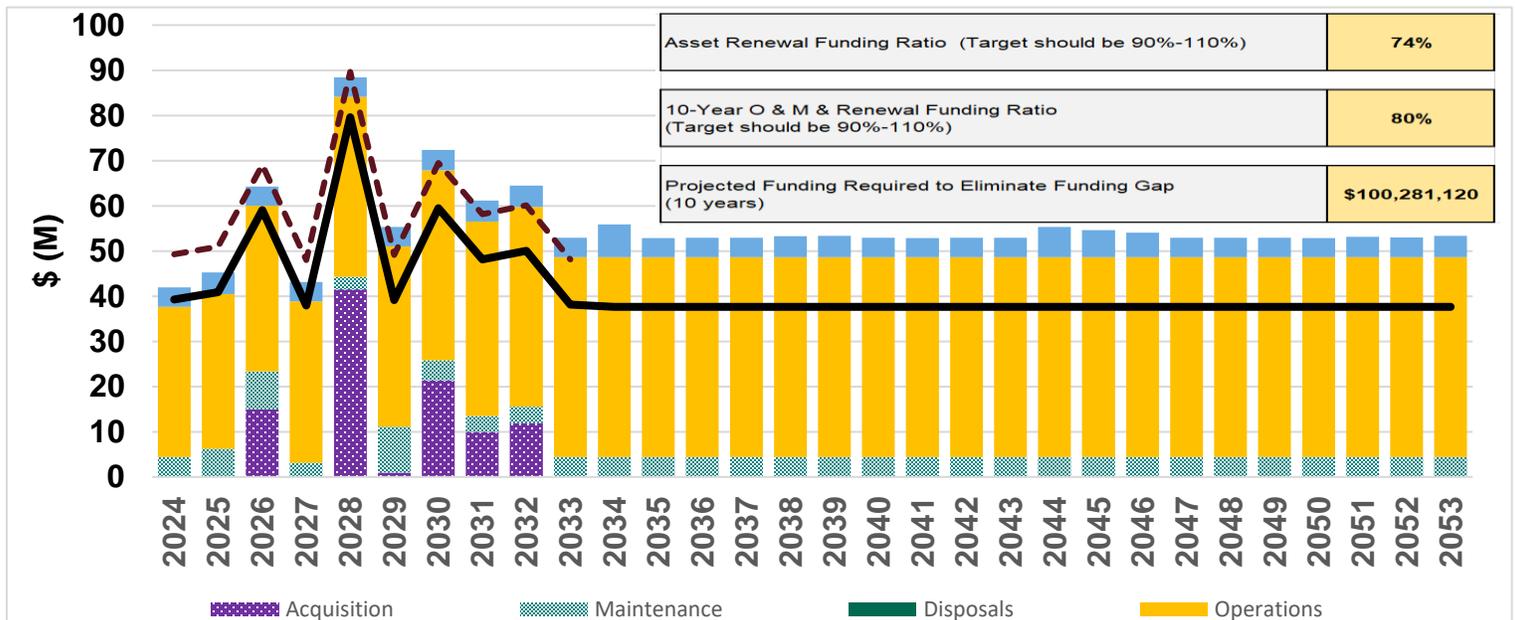
Currently, no assets have been identified for disposal by HPL.

8.5 LIFECYCLE COST SUMMARY

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: Lifecycle Summary
All Figure Values Are Shown In 2023 Dollars



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There is typically insufficient budget to address the planned lifecycle activities for the 2024-2033 planning period which may result in an eventual reduction in levels of service if not addressed. HPL will also need to increase their operating budget beyond the status quo to support the acquisitions described in **Section 8.1**.

The current gap comes from these main sources: insufficient budget to meet current facility maintenance needs, additional (as yet unbudgeted) operations and maintenance expenditure for new facility acquisitions, unfunded Bookmobile renewals in backlog, as well as underfunded collection materials and technology assets renewals.

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

HAMILTON PUBLIC LIBRARY 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 HPL 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 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 **73.5%**

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.

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

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

Over the next 10 years the City expects to have **73.5%** of the funds required for the optimal renewal of assets. This is clearly not enough to reliably renew HPL's assets. Major contributors to unfunded renewals include collection materials and technology assets.

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 O&M and Renewal Ratio 80%

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

The forecast operations, maintenance, and renewal costs over the 10-year planning period is **\$49 Million** 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 **\$39 Million** on average per year giving a 10-year funding shortfall of **\$10 Million** per year or **\$100 Million** over the 10 year planning period. This indicates that **80%** 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 HPL is funding their assets at an acceptable rate. Note, that 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;

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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; and,
- Influence level of service expectations or demand drivers.

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

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

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

Table 29 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.

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

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

Table 29: Forecast Costs (Outlays) For the Long-Term Financial Plan

YEAR	ACQUISITION	OPERATION	MAINTENANCE	RENEWAL	DISPOSAL
2024	\$0	\$33,275,856	\$0	\$6,906,080	\$0
2025	\$48,900	\$34,244,644	\$6,196,783	\$4,766,440	\$0
2026	\$15,000,000	\$36,679,516	\$8,348,957	\$4,260,543	\$0
2027	\$0	\$35,733,340	\$3,118,806	\$4,287,218	\$0
2028	\$41,500,000	\$39,883,340	\$2,765,212	\$4,262,840	\$0
2029	\$1,000,000	\$39,883,340	\$10,137,254	\$4,310,035	\$0
2030	\$21,360,000	\$42,019,340	\$4,487,391	\$4,492,733	\$0
2031	\$10,000,000	\$43,019,340	\$3,538,139	\$4,634,881	\$0

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YEAR	ACQUISITION	OPERATION	MAINTENANCE	RENEWAL	DISPOSAL
2032	\$11,940,000	\$44,213,340	\$3,594,650	\$4,737,040	\$0
2033	\$0	\$44,213,340	\$4,419,128	\$4,313,038	\$0
2034	\$0	\$44,213,340	\$4,419,127	\$7,276,100	\$0
2035	\$0	\$44,213,340	\$4,419,127	\$4,255,240	\$0
2036	\$0	\$44,213,340	\$4,419,127	\$4,311,306	\$0
2037	\$0	\$44,213,340	\$4,419,127	\$4,332,040	\$0
2038	\$0	\$44,213,340	\$4,419,127	\$4,627,888	\$0
2039	\$0	\$44,213,340	\$4,419,127	\$4,756,833	\$0
2040	\$0	\$44,213,340	\$4,419,127	\$4,304,640	\$0
2041	\$0	\$44,213,340	\$4,419,127	\$4,250,881	\$0
2042	\$0	\$44,213,340	\$4,419,127	\$4,333,947	\$0
2043	\$0	\$44,213,340	\$4,419,127	\$4,276,440	\$0
2044	\$0	\$44,213,340	\$4,419,127	\$6,718,235	\$0
2045	\$0	\$44,213,340	\$4,419,127	\$5,997,800	\$0
2046	\$0	\$44,213,340	\$4,419,127	\$5,424,209	\$0
2047	\$0	\$44,213,340	\$4,419,127	\$4,302,240	\$0
2048	\$0	\$44,213,340	\$4,419,127	\$4,278,485	\$0
2049	\$0	\$44,213,340	\$4,419,127	\$4,312,435	\$0
2050	\$0	\$44,213,340	\$4,419,127	\$4,248,502	\$0
2051	\$0	\$44,213,340	\$4,419,127	\$4,531,879	\$0
2052	\$0	\$44,213,340	\$4,419,127	\$4,388,640	\$0
2053	\$0	\$44,213,340	\$4,419,127	\$4,745,240	\$0

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

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 more detailed service delivery options and alternatives to optimize limited financial resources.

9.4 VALUATION FORECASTS

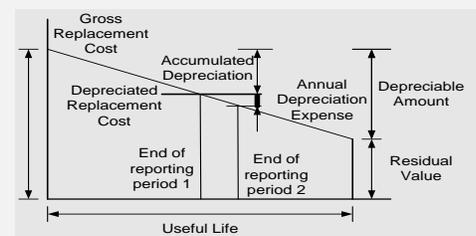
Asset values are forecast to increase as additional assets are added into service. As projections improve and can be validated with market pricing, the net valuations will increase significantly.

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)	\$424,880,813
Depreciable Amount	\$424,880,813
Depreciated Replacement Cost⁸	\$250,161,696
Depreciation	\$ 8,726,381



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 years, and they should increase over time based on improved market

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

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

equivalent costs as well as anticipated cost changes due to climate change mitigation and adaptation strategies.

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 encompass additional operational need estimates where already quantified;
- Maintenance forecasts are based on current budget allocations and encompass anticipated needs where known;
- Replacement costs were based on current pricing. They were also made without determining what the asset would be replaced with in the future (e.g. hydrogen vehicles were not encompassed in replacement costs).

9.7 FORECAST RELIABILITY AND CONFIDENCE

The forecast costs, proposed budgets, and valuation projections in this AM Plan are based on the best available data. For effective asset and financial management, it is critical that the information is current and accurate. Data confidence is defined on **Page 31** in the AM Plan Overview.

Table 30: Data Confidence Assessment for Data Used in AM Plan

DATA	CONFIDENCE ASSESSMENT	COMMENT
Demand Drivers	Medium	The impacts from the identified demand drivers were not added to lifecycle model for this iteration of the AM plan.
Acquisition Forecast	Medium	Used HPL's 10-Year Capital Plan for anticipated acquisitions which are subject to change.
Operation Forecast	Low	Operation needs for new acquisitions are added as 10% of acquisition cost for each subsequent year.
Maintenance Forecast	Low	Maintenance needs encompass current forecast needs per the Building Condition Assessment as well maintenance needs for new facilities that are planned to be acquired over the next 10 years. Maintenance needs for new acquisitions are added as 1% of acquisition cost for each subsequent year.
Renewal Forecast - Asset Values	Medium	A combination of market and historical costs was used for renewal costs of technology assets,

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

DATA	CONFIDENCE ASSESSMENT	COMMENT
		<p>vehicles, and collection materials with medium confidence.</p> <p>No local history assets and facilities assets are due for renewal in the planned period.</p>
Renewal Forecast - Asset Useful Lives	Medium	Estimated service lives are based on subject matter expert's opinion for all asset classes.
Renewal Forecast-Condition Modelling	Medium	Condition was known for facilities based on Building Condition Assessment Reports. For vehicles and technology assets, it was based on subject matter expert's opinion and no condition information was available for collection material and local history assets.
Disposal Forecast	Not Applicable	No disposals were integrated into the forecast.

HAMILTON PUBLIC LIBRARY 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 HPL 10-Year Capital Plan;
- 2023 HPL Operating Budget;
- 2024-2026 HPL Multi-Year Operating Forecast;
- 2024 Corporate Facilities and Energy Management Capital Budget;
- 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 improvements span from improved lifecycle activities and improved financial planning to plans to physically improve the assets.

The Improvement plan **Table 31** 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.

⁹ ISO 55000 Refers to this as the Asset Management System

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

Table 31: Improvement Plan
**p.a. – per annum*

#	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
1.	Update HPL Branch Building Condition Assessments	CFEM	Internal Resources and External Consultant	2026
2.	Complete Exterior Site Management Plans for all branches (climate change management)	HPL Facilities	Internal Resources	2025
3.	Compile fixture and furniture inventory for all HPL branches	HPL Facilities	Internal Resources	2025
4.	Update HPL’s Facilities Master Plan	HPL Facilities	Internal Resources	2025
5.	Develop an average annual sustainable funding amount to budget for major digital technology equipment replacement purchases.	HPL	Internal Resources	2024
6.	Develop an average annual sustainable funding amount to budget for bookmobile replacements.	HPL	Internal Resources	2026
7.	Establishing consistency in asset purchases across all Makerspaces	HPL - Digital Technology Services	Internal Resources	2024
8.	Establish a tracking system of expiry dates for subscriptions and licenses. Integrate with existing asset management inventory sheet.	HPL - Digital Technology Services	Internal Resources	2024
9.	Appraisal of all corporate art and archival accessions to improve data confidence of collection value.	HPL - Local History and Archives	Dedicated annual budget line (\$15,000)	Ongoing; 10-15 years for initial appraisals depending on budget; ongoing reappraisal for more valuable pieces (every 15 to 20 years)
10.	Investigate developing condition scoring methodology for collection material assets.	HPL - Collections	Internal Resources	2024

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

#	TASK	RESPONSIBILITY	RESOURCES REQUIRED	TIMELINE
11.	Document IT Procurement process and communicate to staff to ensure asset information is tracked for all new assets.	HPL - DT	Internal Resources	2025
12.	Investigate developing condition assessment methodology for significant technology assets and review estimated service lives.	HPL - DT	Internal Resources	Ongoing
13.	Investigate developing condition and collection assessment methodologies for Local History and Archive collections.	HPL - Local History and Archives	Internal Resources	2029
14.	Calculate average transit travel time to HPL facilities as a measure of technical level of service.	HPL/CAM/IT	Within existing capacity	2024

10.3 MONITORING AND REVIEW PROCEDURES

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

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

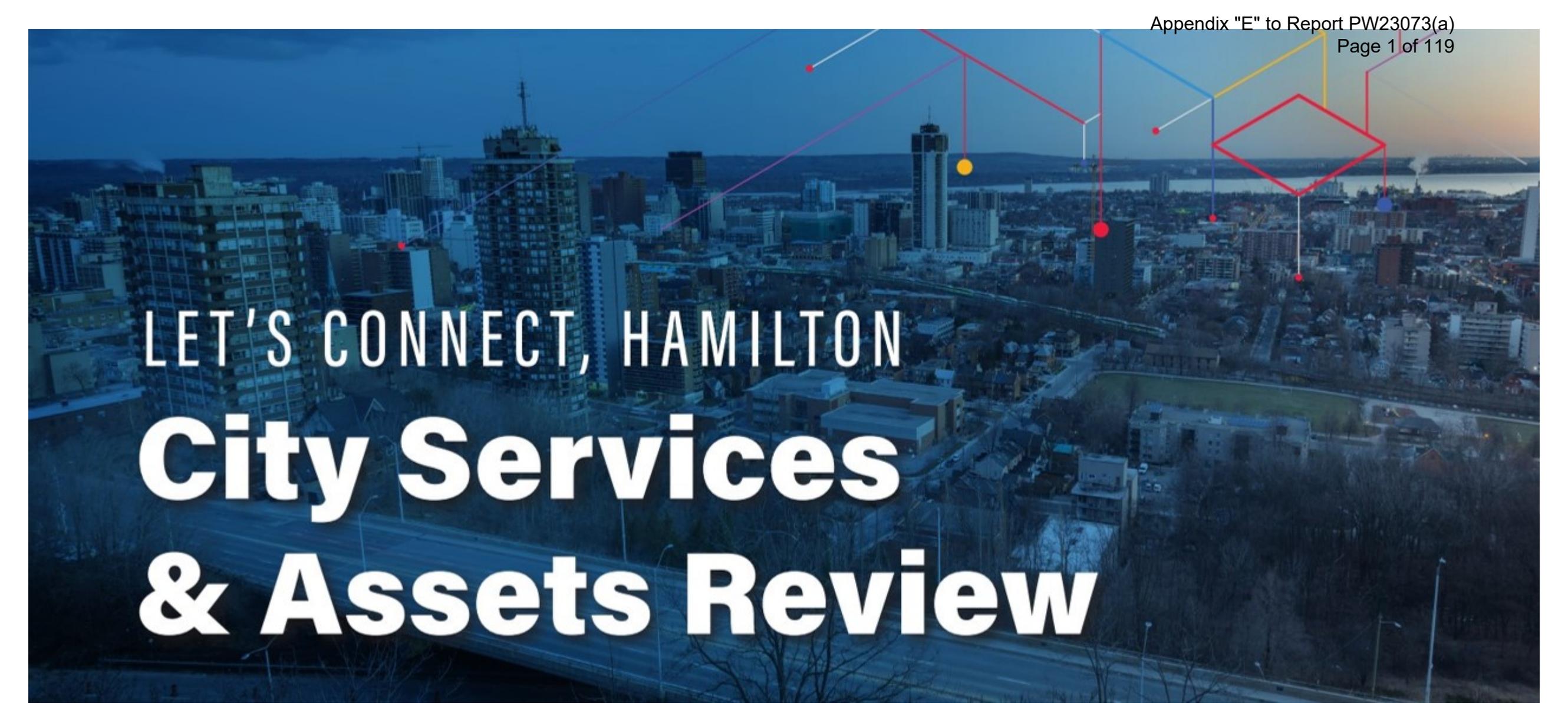
10.4 PERFORMANCE MEASURES

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

- The degree to which the required forecast costs identified in this AM Plan are incorporated into the long-term financial plan;
- The degree to which the one to 10-year detailed works programs, budgets, business plans and corporate structures consider the 'global' works program trends provided by the AM Plan;
- The degree to which the existing and projected service levels and service consequences, risks and residual risks are incorporated into the Strategic Planning documents and associated plans; and,
- The Asset Renewal Funding Ratio achieving the Organizational target (this target is 90-100%).

HAMILTON PUBLIC LIBRARY ASSET MANAGEMENT PLAN

Appendix A – Survey Analysis



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



Survey Response Demographics

09/05/2023 to 10/10/2023



84 Respondents	74 Survey Questions	6 Demographic Questions	5170 Survey Responses	503 Demographic Responses
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Age	% Pop. by Age	% of Respondents	Respondents
18 to 34	22.1%	19.0%	16
35 to 64	41.7%	58.3%	49
65+	19.5%	20.2%	17

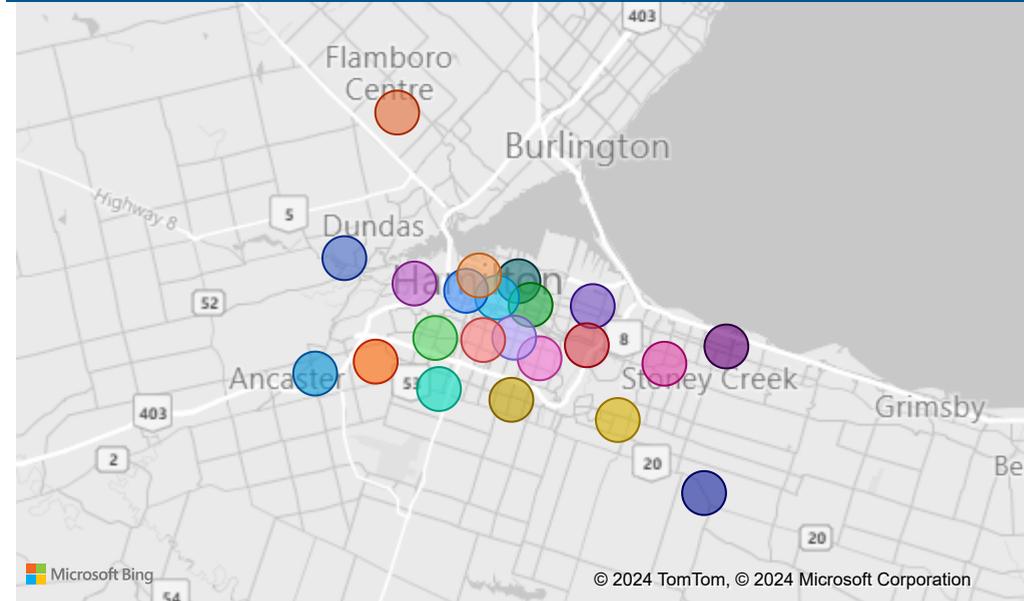
Gender	% of Respondents	Respondents
Female	70.2%	59
Male	23.8%	20
Other	6.0%	5

Residency	% of Respondents	Respondents
I live in Hamilton	92.9%	78
I work in Hamilton	44.0%	37
I'm retired	21.4%	18
Other	10.7%	10

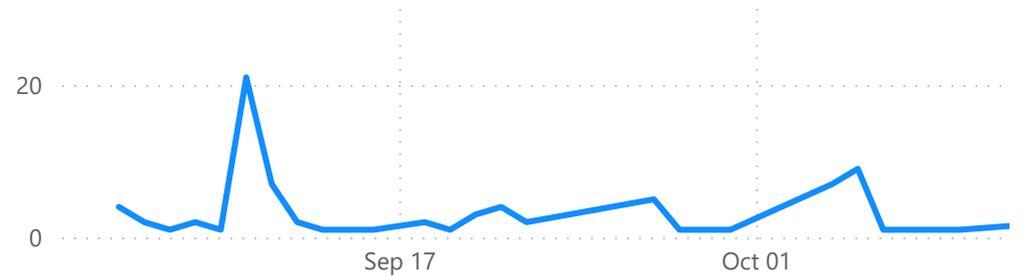
Identity	% of Respondents	Respondents
I do not identify with any of the other groups	57.1%	48
Marginalized group	40.5%	42

Region	% Pop. by Region	Population	% of Respondents	Respondents
Lower	45.6%	432,375	61.9%	52
Upper	37.3%	353,485	23.8%	20
Rural	17.1%	161,840	8.3%	7

Respondent Density Map



Respondents by Day



Responses Respondents

4317

84

Survey Question Summary

Corporate Asset Management
 City Services & Asset Review
 Hamilton Public Library
 November 2023



Question #	Survey Question	n (Sample Size)	σ (Consistency)	Margin of Error (Confidence Level \pm)
7	In the last 24 months if you have used Hamilton Public Library services, how satisfied are you with your ability to access services?	47	0.97	14%
8	Do the following Hamilton Public Library services meet your needs?	60	1.11	13%
9	Based on the map above and your experience accessing libraries in Hamilton, does the placement of Hamilton Public Library branches meet your needs?	82	0.91	11%
10	One of Hamilton Public Library Design Principles is that libraries should be spaced throughout the city so that no resident (or as few as possible) need to travel more than 15 minutes to reach a library. Travel time is defined as transit use where transit is available and car use where no transit is available. Does the HPL's target of having a library location within a 15-minute travel time from each Hamilton resident meet your needs?	81	0.99	11%
11	Did you feel comfortable accessing the following Hamilton Public Library services?	64	0.93	12%
13	How likely would you be to recommend the following Hamilton Public Library service to others?	66	0.98	12%
14	Based on the figure above, how would you rate Hamilton Public Library for providing good value for money in the infrastructure and services provided to your community?	65	0.94	12%
15	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?	74	1.15	11%
16	Thinking about how you use libraries, do you agree with the following statements?	72	0.87	12%
17	Thinking about how you want to use the library, do you agree with the following statements?	80	0.61	11%



Question

7

Satisfaction with Services

In the last 24 months if you have used Hamilton Public Library services, how satisfied are you with your ability to access services?

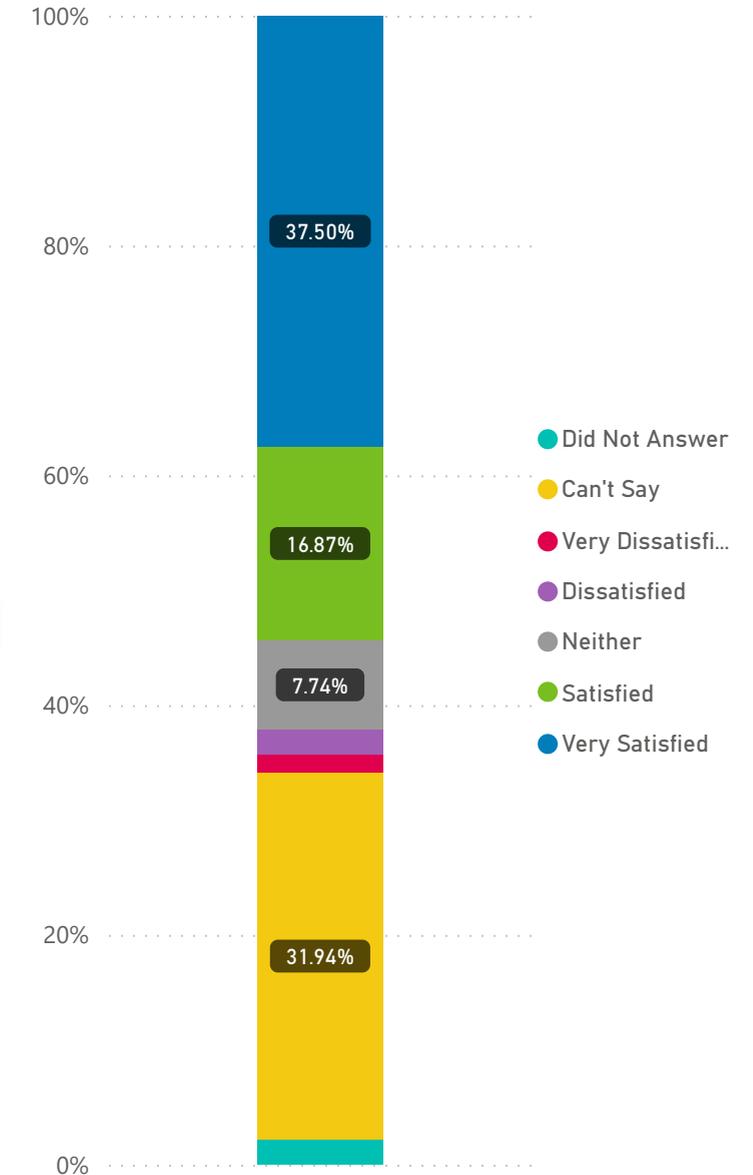
Responses

332

Respondents

83

Service Area	Very Dissatisfied	Dissatisfied	Neither	Satisfied	Very Satisfied
Total	8	11	39	85	189
Public Computers	1		8	10	24
Programs and Classes	2	5	9	10	13
Library Locations and Spaces	2	3	7	24	41
Free Wi-Fi	1	1	5	11	32
Connecting Customers to Information and Community Resources	1	2	6	17	21
Checkout and Renewal Process	1		4	13	58



Question

-
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Service Area	σ	Avg.	Opt Out	Opt Out %
Total	0.97	4.31	172	34.1%
Checkout and Renewal Process	0.70	4.67	8	9.5%
Free Wi-Fi	0.90	4.44	34	40.5%
Public Computers	0.93	4.30	41	48.8%
Library Locations and Spaces	0.97	4.29	7	8.3%
Connecting Customers to Information and Community Resources	0.95	4.17	37	44.0%
Programs and Classes	1.20	3.69	45	53.6%

Respondents who did not answer or selected 'Can't Say' are included in opt out.



Question

8

Services Meeting Needs

Do the following Hamilton Public Library services meet your needs?

Responses

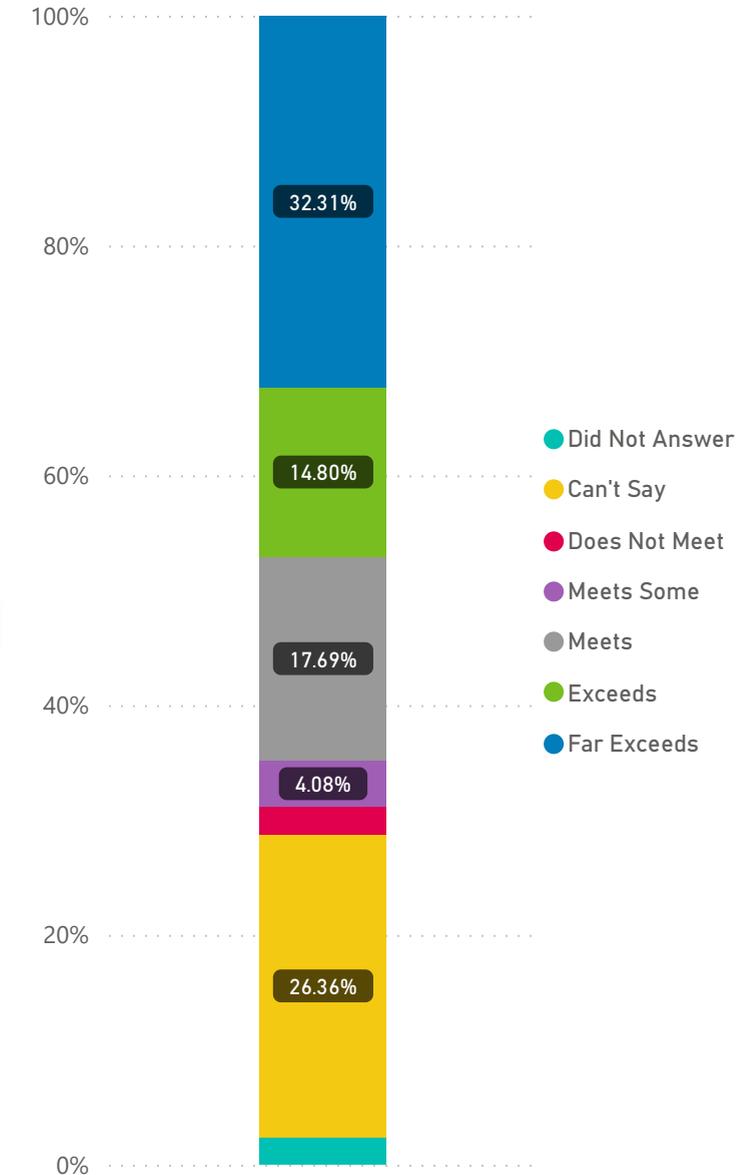
419

Respondents

81

Service Area	Does Not Meet	Meets Some	Meets	Exceeds	Far Exceeds
Total	14	24	104	87	190
Public Computers	1	1	18	9	17
Programs and Classes	5	9	11	5	13
Library Locations and Spaces	3	8	15	16	36
Free Wi-Fi	1	1	12	11	26
Connecting Customers to Information and Community Resources	2	1	10	15	21
Collection Materials	1	4	22	18	28
Checkout and Renewal Process	1		16	13	49

Service Area	σ	Avg.	Opt Out	Opt Out %
Total	1.11	3.99	169	28.7%
Checkout and Renewal Process	0.89	4.38	5	6.0%
Free Wi-Fi	0.98	4.18	33	39.3%
Connecting Customers to Information and Community Resources	1.04	4.06	35	41.7%
Library Locations and Spaces	1.19	3.95	6	7.1%
Collection Materials	1.01	3.93	11	13.1%
Public Computers	1.01	3.87	38	45.2%
Programs and Classes	1.39	3.28	41	48.8%



Respondents who did not answer or selected 'Can't Say' are included in opt out.



Question

9

Library Placement

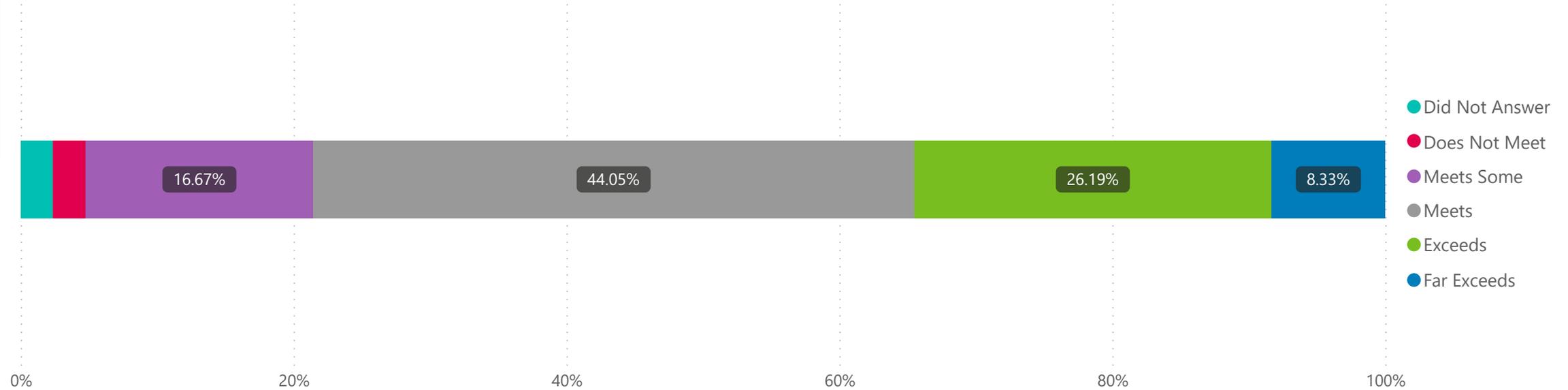
Based on the map above and your experience accessing libraries in Hamilton, does the placement of Hamilton Public Library branches meet your needs?

Responses

82

Respondents

82



Service Area	Does Not Meet	Meets Some	Meets	Exceeds	Far Exceeds	σ	Avg.	Avg. %	Opt Out	Opt Out %
Based on the map above and your experience accessing libraries in Hamilton, does the placement of Hamilton Public Library branches meet your needs?	2	14	37	22	7	0.91	3.12	64.4%	2	2.38%

Respondents who did not answer or selected 'Can't Say' are included in opt out.



Question

10

15-Minute Travel Time

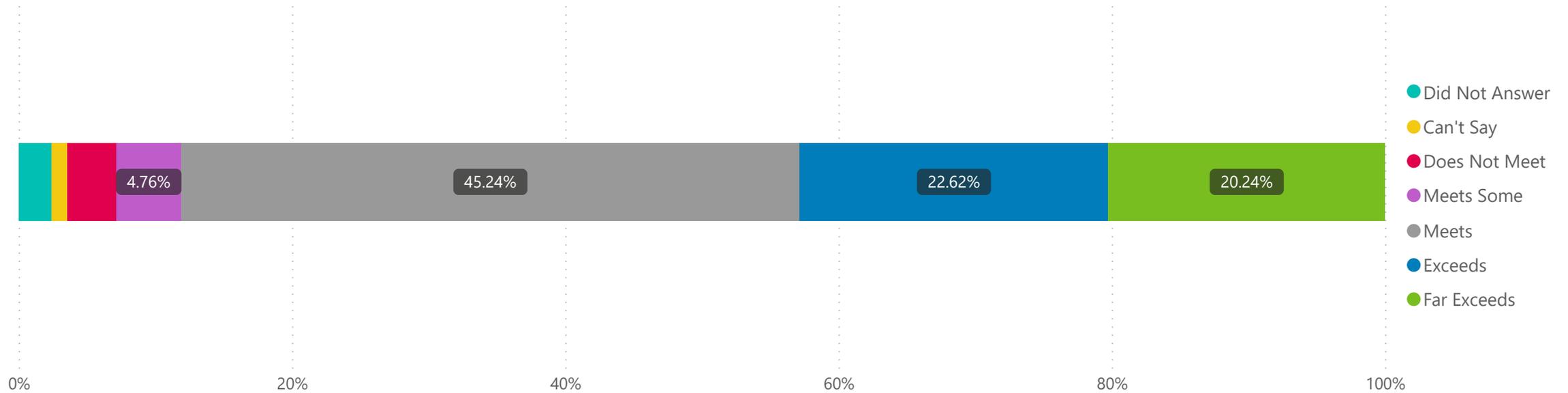
Does the HPL's target of having a library location within a 15-minute travel time from each Hamilton resident meet your needs?

Responses

82

Respondents

82



Service Area	Does Not Meet	Meets Some	Meets	Exceeds	Far Exceeds	Avg.	Avg. %	σ	Opt Out	Opt Out %
One of Hamilton Public Library Design Principles is that libraries should be spaced throughout the city so that no resident (or as few as possible) need to travel more than 15 minutes to reach a library	3	4	38	19	17	3.38	70.6%	0.99	3	3.57%

Respondents who did not answer or selected 'Can't Say' are included in opt out.



Question

11

Safe and Comfortable Access

Did you feel comfortable accessing the following Hamilton Public Library services?

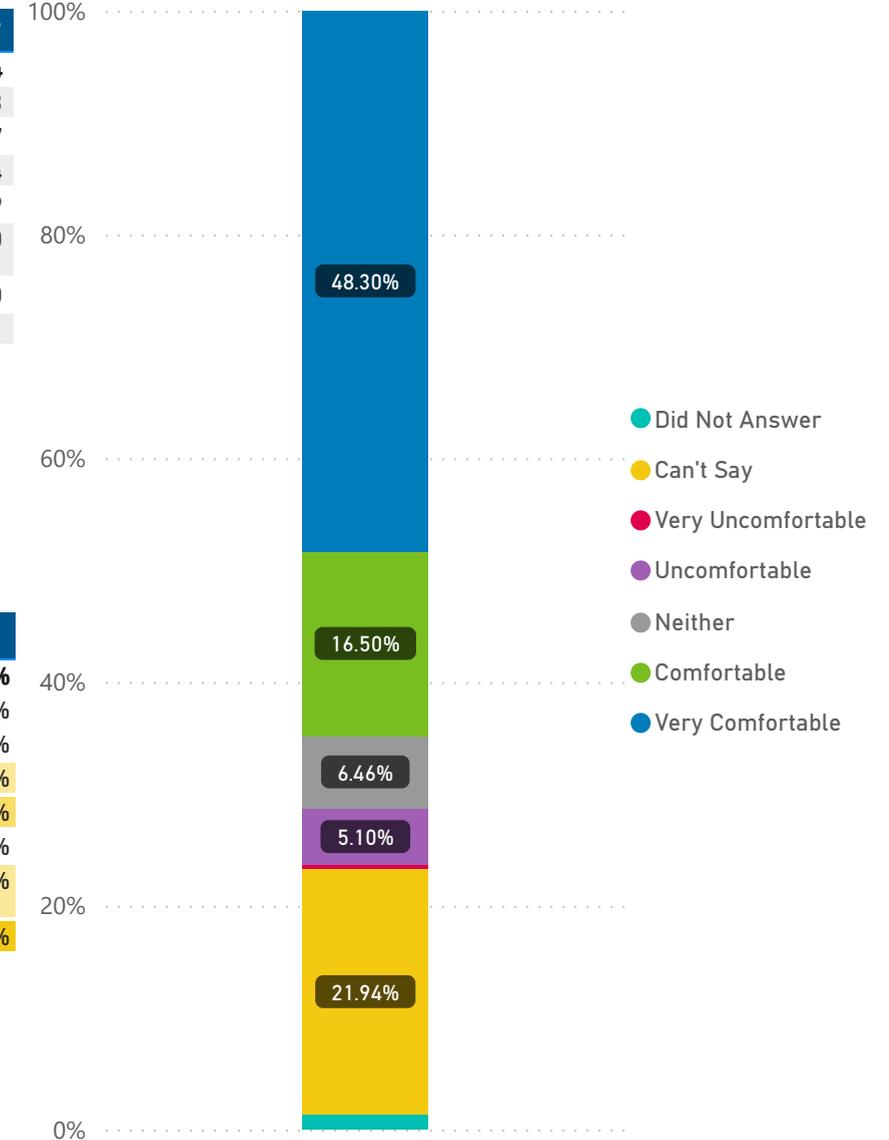
Responses

451

Respondents

82

Service Area	Very Uncomfortable	Uncomfortable	Neither	Comfortable	Very Comfortable
Total	2	30	38	97	284
Public Computers		4	7	11	33
Programs and Classes		9	3	11	27
Library Locations and Spaces	1	5	9	17	44
Free Wi-Fi		4	4	11	39
Connecting Customers to Information and Community Resources	1	3	7	17	30
Collection Materials		3	5	18	50
Checkout and Renewal Process		2	3	12	61



Service Area	σ	Avg.	Opt Out	Opt Out %
Total	0.93	4.40	137	23.3%
Checkout and Renewal Process	0.67	4.69	6	7.1%
Collection Materials	0.79	4.51	8	9.5%
Free Wi-Fi	0.89	4.47	26	31.0%
Public Computers	0.95	4.33	29	34.5%
Library Locations and Spaces	1.00	4.29	8	9.5%
Connecting Customers to Information and Community Resources	0.97	4.24	26	31.0%
Programs and Classes	1.14	4.12	34	40.5%

Respondents who did not answer or selected 'Can't Say' are included in opt out.



Question

13

Recommend to Others

How likely would you be to recommend the following Hamilton Public Library service to others?

Responses

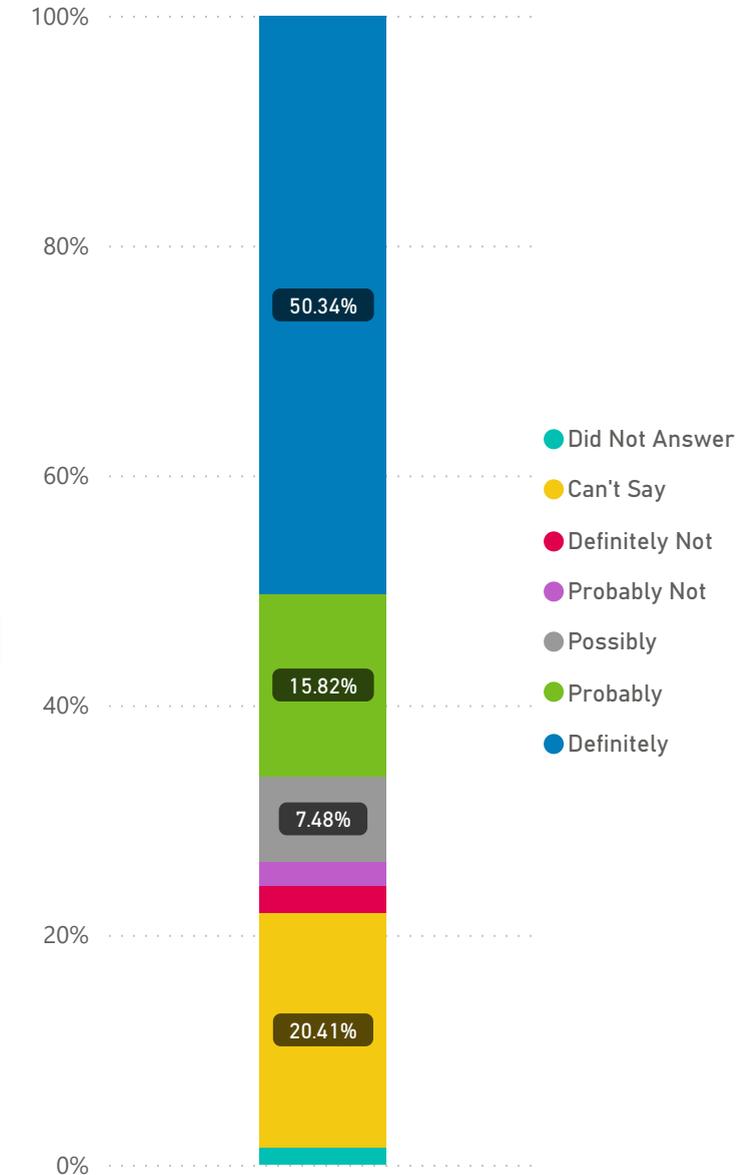
459

Respondents

83

Service Area	Definitely Not	Probably Not	Possibly	Probably	Definitely
Total	14	12	44	93	296
Public Computers	2	2	9	12	34
Programs and Classes	3	2	6	10	31
Library Locations and Spaces	2	3	5	20	47
Free Wi-Fi	3	1	5	9	44
Connecting Customers to Information and Community Resources	1	2	5	15	33
Collection Materials	1	1	8	16	49
Checkout and Renewal Process	2	1	6	11	58

Service Area	σ	Avg.	Opt Out	Opt Out %
Total	0.98	4.41	129	21.9%
Checkout and Renewal Process	0.89	4.56	6	7.1%
Collection Materials	0.84	4.48	9	10.7%
Free Wi-Fi	1.04	4.45	22	26.2%
Library Locations and Spaces	0.96	4.39	7	8.3%
Connecting Customers to Information and Community Resources	0.92	4.38	28	33.3%
Public Computers	1.05	4.25	25	29.8%
Programs and Classes	1.15	4.23	32	38.1%



Respondents who did not answer or selected 'Can't Say' are included in opt out.



Question

13

Responses

459

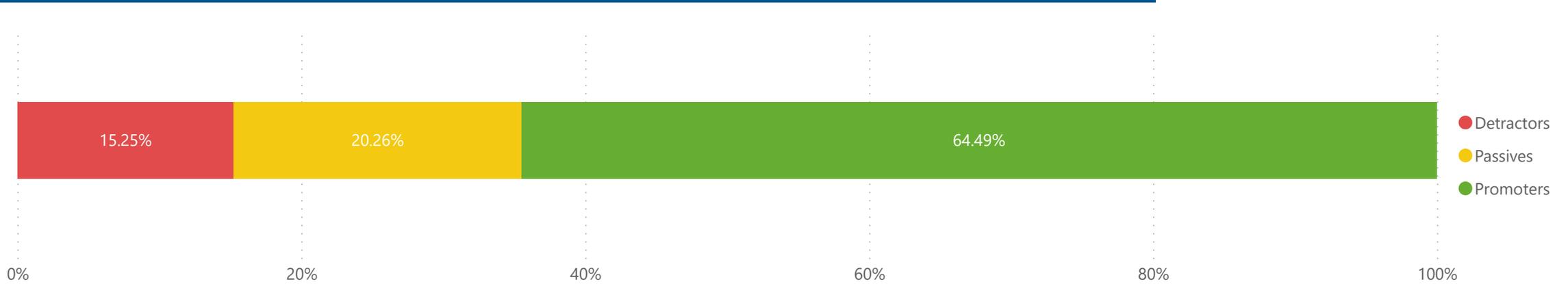
Respondents

83

Net Promoter Score

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

How likely would you be to recommend the following Hamilton Public Library service to others?



Service Area	σ	NPS	Detractors	Passives	Promoter
All Service Areas	19.6%	49.24	70	93	296
Checkout and Renewal Process	17.7%	62.82	9	11	58
Free Wi-Fi	20.8%	56.45	9	9	44
Collection Materials	16.8%	52.00	10	16	49
Library Locations and Spaces	19.1%	48.05	10	20	47
Connecting Customers to Information and Community Resources	18.3%	44.64	8	15	33
Programs and Classes	23.1%	38.46	11	10	31
Public Computers	21.0%	35.59	13	12	34

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.



Question

14

Value for Money

Based on the figure above, how would you rate Hamilton Public Library for providing good value for money in the infrastructure and services provided to your community?

Responses

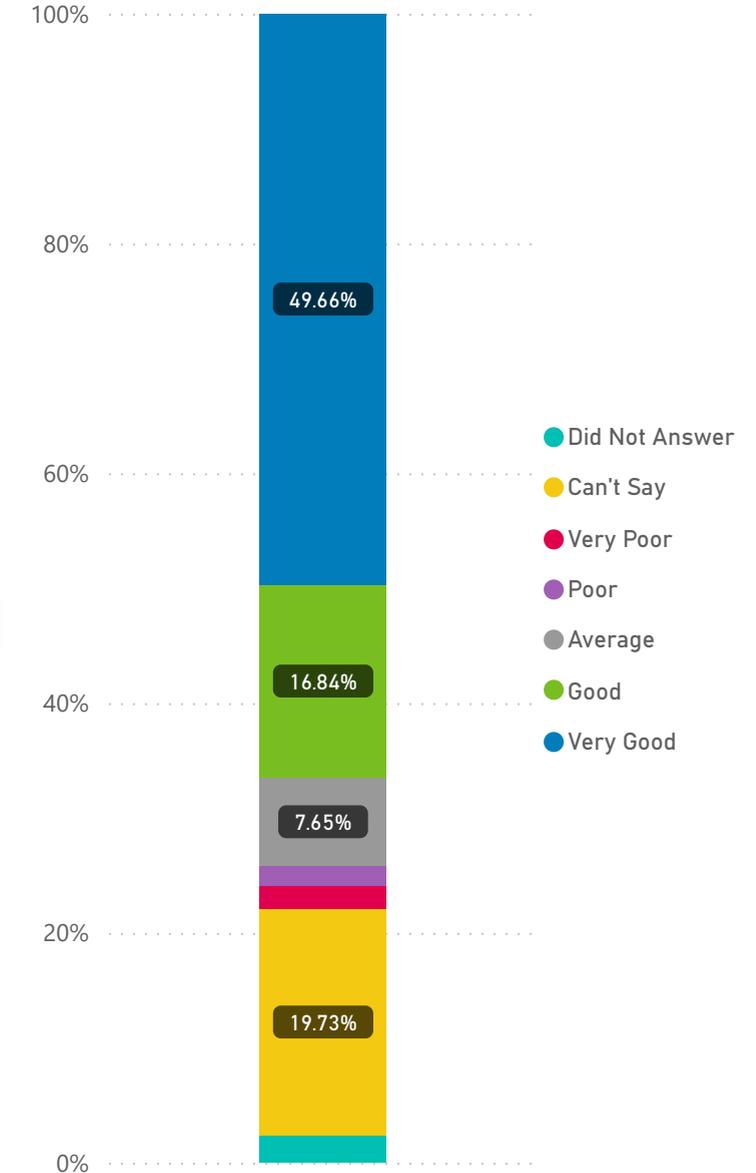
458

Respondents

83

Service Area	Very Poor	Poor	Average	Good	Very Good
Total	12	10	45	99	292
Public Computers	1	1	6	12	39
Programs and Classes	2	3	7	16	28
Library Locations and Spaces	3	3	4	18	47
Free Wi-Fi	2		4	12	41
Connecting Customers to Information and Community Resources	2	1	9	8	37
Collection Materials	1	2	9	19	45
Checkout and Renewal Process	1		6	14	55

Service Area	σ	Avg.	Opt Out	Opt Out %
Total	0.94	4.42	130	22.1%
Checkout and Renewal Process	0.74	4.61	8	9.5%
Free Wi-Fi	0.89	4.53	25	29.8%
Public Computers	0.87	4.47	25	29.8%
Collection Materials	0.89	4.38	8	9.5%
Library Locations and Spaces	1.03	4.37	9	10.7%
Connecting Customers to Information and Community Resources	1.03	4.35	27	32.1%
Programs and Classes	1.07	4.16	28	33.3%



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



Question

15

Tax Rates

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?

Responses

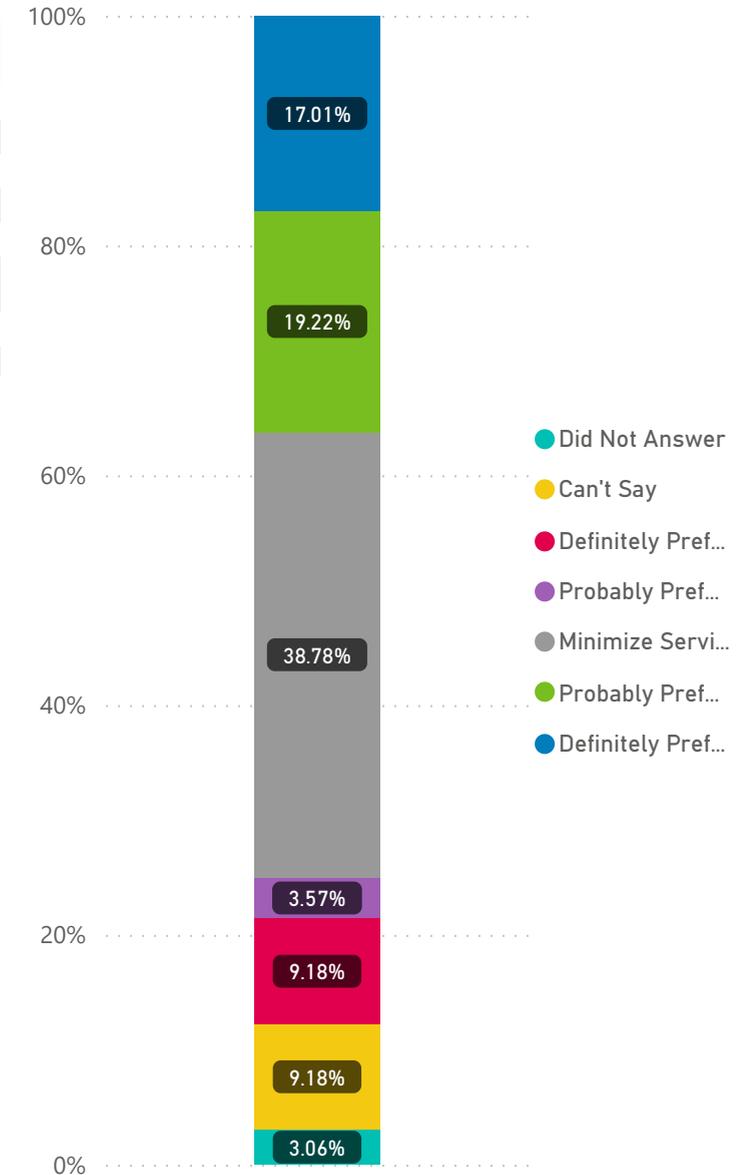
516

Respondents

80

Service Area	Definitely Prefer Service Cuts	Probably Prefer Service Cuts	Minimize Service Cuts, Maintain Rates	Probably Prefer Rate Rise	Definitely Prefer Rate Rise
Total	54	21	228	113	100
Public Computers	9	4	31	17	14
Programs and Classes	8	5	28	15	14
Library Locations and Spaces	10	2	25	22	18
Free Wi-Fi	7	2	37	13	14
Connecting Customers to Information and Community Resources	9	4	36	11	12
Collection Materials	6	3	31	20	15
Checkout and Renewal Process	5	1	40	15	13

Service Area	σ	Avg.	Opt Out	Opt Out %
Total	1.15	3.36	72	12.2%
Library Locations and Spaces	1.24	3.47	7	8.3%
Collection Materials	1.10	3.47	9	10.7%
Checkout and Renewal Process	1.01	3.41	10	11.9%
Free Wi-Fi	1.11	3.34	11	13.1%
Programs and Classes	1.20	3.31	14	16.7%
Public Computers	1.19	3.31	9	10.7%
Connecting Customers to Information and Community Resources	1.16	3.18	12	14.3%



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



Question

16

Responses

720

Respondents

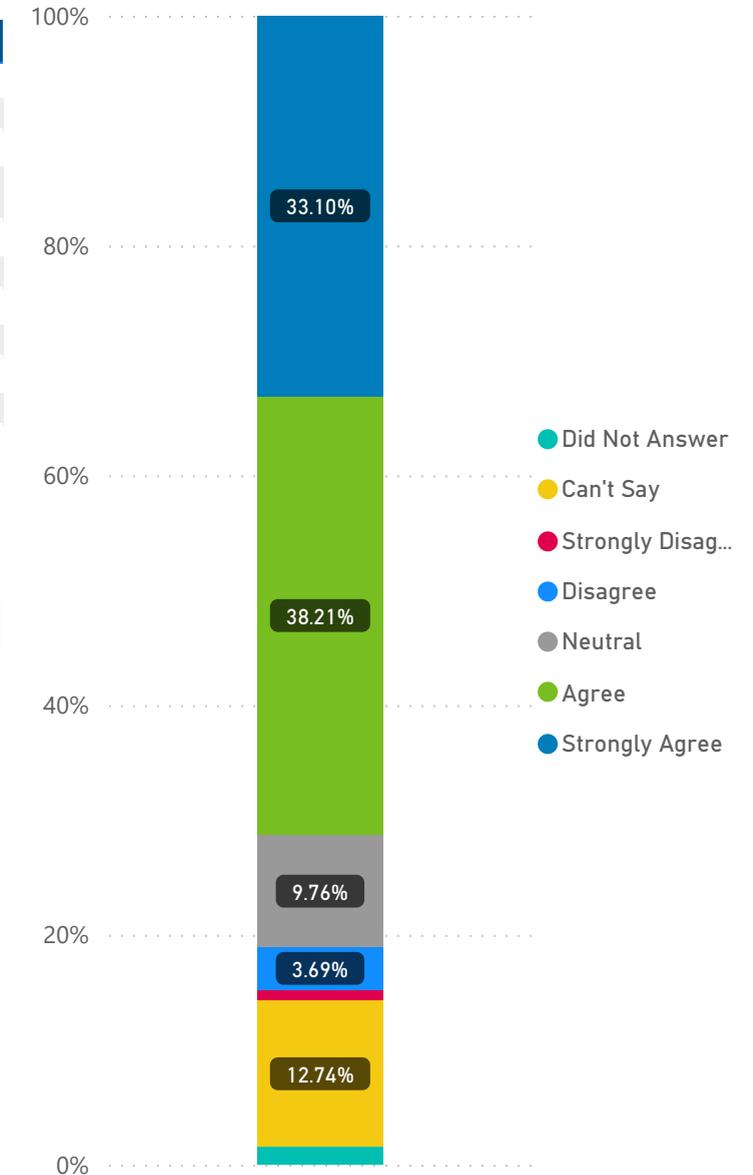
83

Performance of Services

Thinking about how you use libraries, do you agree with the following statements?

Service Area	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Total	8	31	82	321	278
Safe, equitable and inclusive spaces for all.	2	4	8	32	34
Inviting, appealing and attractive	1	5	9	38	30
Energy efficient, helping the city meet energy targets and reduce utility usage.	1	2	5	17	14
Easy to enter, with clearly marked public entrances.		2	8	37	34
Comfortable with appropriate levels of lighting and noise.		5	9	39	30
Clean and in good repair.		5	8	42	28
Accessible, meeting provincial minimum standards per AODA, 2005.	1	2	4	35	30
Accessible by public transportation.	1	2	10	38	27
The public computers are fast, reliable and secure.	1	1	14	15	15
Connecting members to information and services should be an important service for Hamilton Public Library to provide.	1	3	7	28	36

Service Area	σ	Avg.	Opt Out	Opt Out %
Total	0.87	4.15	120	14.3%
Easy to enter, with clearly marked public entrances.	0.74	4.27	3	3.6%
Connecting members to information and services should be an important service for Hamilton Public Library to provide.	0.88	4.27	9	10.7%
Accessible, meeting provincial minimum standards per AODA, 2005.	0.80	4.26	12	14.3%
Safe, equitable and inclusive spaces for all.	0.96	4.15	4	4.8%
Comfortable with appropriate levels of lighting and noise.	0.83	4.13	1	1.2%
Accessible by public transportation.	0.82	4.13	6	7.1%
Clean and in good repair.	0.81	4.12	1	1.2%
Inviting, appealing and attractive	0.90	4.10	1	1.2%
Energy efficient, helping the city meet energy targets and reduce utility usage.	0.96	4.05	45	53.6%
The public computers are fast, reliable and secure.	0.95	3.91	38	45.2%



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



Differential of Importance and Performance

Service areas where importance exceeds performance by 20 points is indicative of a mismatch between expectations and service levels, equal to one point on the Likert scale used.

Responses

1519

Respondents

58

Service Area	Performance (index score)	Importance (index score)	Net Differential	Opt Out %
Total	83	93	-10	10%
Clean and in good repair.	82	95	-12	2%
The public computers are fast, reliable and secure.	78	90	-12	26%
Safe, equitable and inclusive spaces for all.	83	95	-12	5%
Accessible by public transportation.	83	94	-11	5%
Comfortable with appropriate levels of lighting and noise.	83	94	-11	3%
Energy efficient, helping the city meet energy targets and reduce utility usage.	81	92	-11	29%
Inviting, appealing and attractive	82	93	-11	3%
Accessible, meeting provincial minimum standards per AODA, 2005.	85	94	-9	10%
Easy to enter, with clearly marked public entrances.	85	93	-8	4%
Connecting members to information and services should be an important service for Hamilton Public Library to provide.	85	89	-4	8%

Performance *Q16 Thinking about how you use libraries, do you agree with the following statements?*

Importance *Q17 Thinking about how you want to use the library, do you agree with the following statements?*

HPL Survey

Service Area	Performance	Importance	Net Differential	Count
Checkout and Renewal process	81.39	95.11	-13.71	4,654
Free Wi-Fi	78.24	80.54	-2.29	4,672
Programs and Classes	70.31	70.06	0.25	4,640
Collection Material	73.90	70.06	3.84	4,595

These are the results for the survey run internally by HPL which examine alternative service areas that were not covered in our survey.

The Net Differential is calculated here by taking the average Likert score for each service area and multiplied by 20, the difference between performance and importance is then calculated as our final product. Negative differential indicates a higher perceived level of importance vs performance and positive is the opposite.



Question

17

Importance of Services

Thinking about how you want to use the library, do you agree with the following statements?

Responses

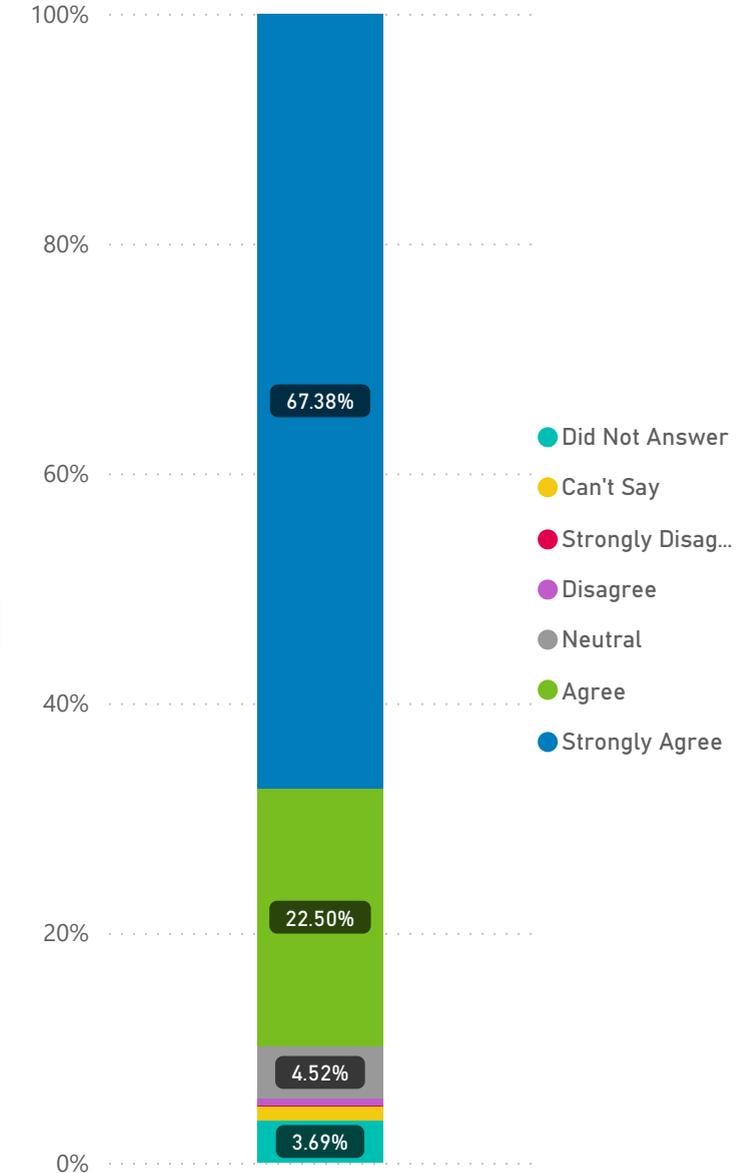
799

Respondents

82

Service Area	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Total	1	5	38	189	566
Safe, equitable and inclusive spaces for all.		1	2	15	62
Inviting, appealing and attractive			4	21	55
Energy efficient, helping the city meet energy targets and reduce utility usage.		2	4	18	56
Easy to enter, with clearly marked public entrances.			5	17	59
Comfortable with appropriate levels of lighting and noise.			3	19	58
Clean and in good repair.			2	17	62
Accessible, meeting provincial minimum standards per AODA, 2005.			2	19	58
Accessible by public transportation.			4	17	60
The public computers are fast, reliable and secure.		1	6	23	48
Connecting members to information and services should be an important service for Hamilton Public Library to provide.	1	1	6	23	48

Service Area	σ	Avg.	Opt Out	Opt Out %
Total	0.61	4.64	41	4.9%
Clean and in good repair.	0.49	4.74	3	3.6%
Safe, equitable and inclusive spaces for all.	0.57	4.73	4	4.8%
Accessible, meeting provincial minimum standards per AODA, 2005.	0.51	4.71	5	6.0%
Accessible by public transportation.	0.56	4.69	3	3.6%
Comfortable with appropriate levels of lighting and noise.	0.54	4.69	4	4.8%
Easy to enter, with clearly marked public entrances.	0.59	4.67	3	3.6%
Inviting, appealing and attractive	0.58	4.64	4	4.8%
Energy efficient, helping the city meet energy targets and reduce utility usage.	0.70	4.60	4	4.8%
The public computers are fast, reliable and secure.	0.69	4.51	6	7.1%
Connecting members to information and services should be an important service for Hamilton Public Library to provide.	0.79	4.47	5	6.0%

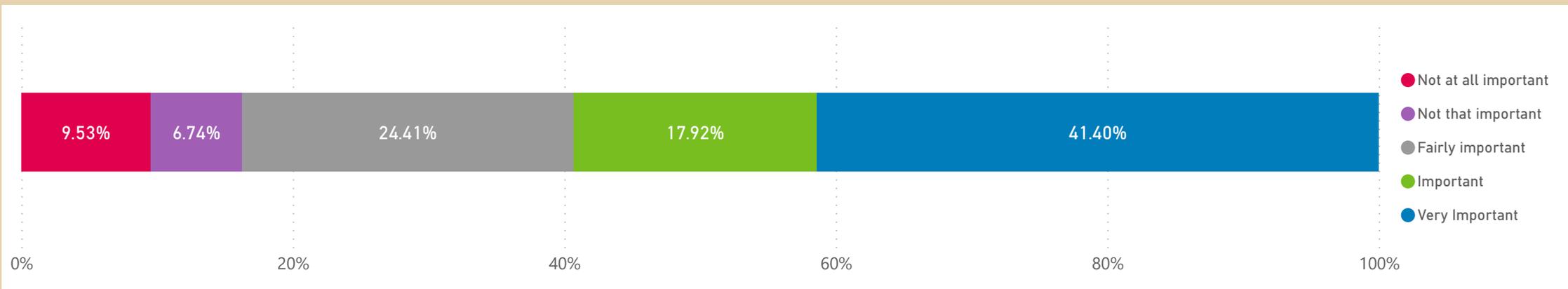


Respondents who opted out by not answering or selecting 'Can't Say' are included in opt out.



Responses
28,413

HPL Survey - Importance of Services



Service Area	Not at all important	Not that important	Fairly important	Important	Very Important
Total	2,709	1,914	6,937	5,091	11,762
Checkout and Renewal process	69	37	218	316	4,014
Collection Material	69	356	2,082	1,370	718
Free Wi-Fi	516	228	642	514	2,772
Locations	526	345	1,521	1,038	1,490
Programs and Classes	472	435	1,347	1,059	1,327
Public Computers	1,057	513	1,127	794	1,441

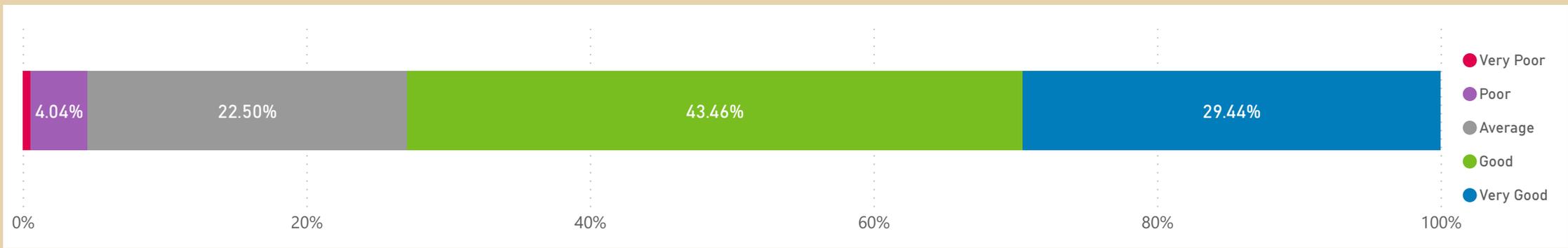
Service Area	Average	Avg. %	σ	Count
Checkout and Renewal process	4.76	95.11	0.71	4,654
Free Wi-Fi	4.03	80.54	1.39	4,672
Locations	3.53	70.65	1.28	4,920
Collection Material	3.50	70.06	0.90	4,595
Programs and Classes	3.50	70.06	1.27	4,640
Public Computers	3.21	64.25	1.50	4,932

These are the results for the survey run internally by HPL



Responses
27,962

HPL Survey - Performance of Services



Service Area	Very Poor	Poor	Average	Good	Very Good
Total	156	1,130	6,292	12,151	8,233
Checkout and Renewal process	9	113	532	2,891	1,109
Collection Material	11	222	1,218	2,850	294
Connections	25	52	322	1,540	2,762
Free Wi-Fi	33	56	1,771	1,240	1,572
Hours	29	305	422	2,139	1,805
Programs and Classes	49	382	2,027	1,491	691

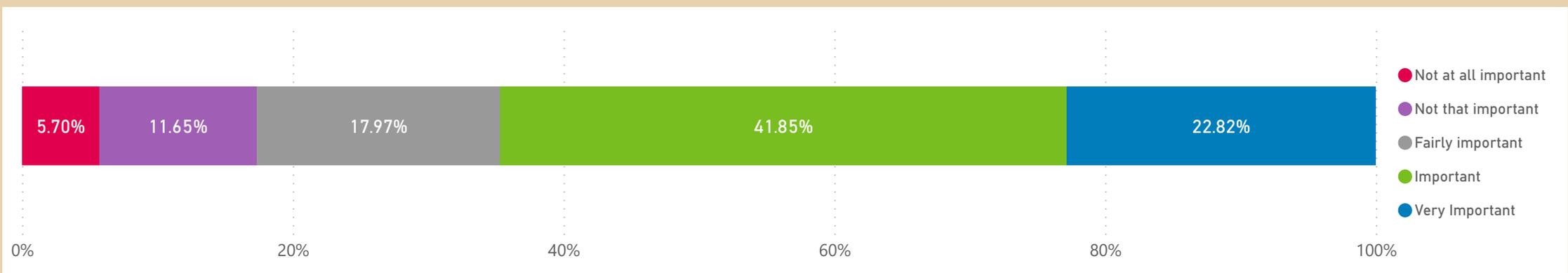
Service Area	Average	Avg. %	σ	Count
Connections	4.48	89.62	0.72	4,701
Hours	4.15	82.92	0.88	4,700
Checkout and Renewal process	4.07	81.39	0.68	4,654
Free Wi-Fi	3.91	78.24	0.91	4,672
Collection Material	3.70	73.90	0.67	4,595
Programs and Classes	3.52	70.31	0.88	4,640

These are the results for the survey run internally by HPL



Responses
13,907

HPL Survey - Impact of Services



Service Area	Not at all important	Not that important	Fairly important	Important	Very Important
Total	1,128	2,305	3,555	8,278	4,513
Collection Material	81	443	921	2,569	929
Free Wi-Fi	472	506	1,053	1,574	1,340
Locations	489	1,115	1,173	1,735	426
Programs and Classes	86	241	408	2,400	1,818

Service Area	Average	Avg. %	σ	Count
Free Wi-Fi	3.80	76	1.25	4,672
Locations	3.52	70	1.14	4,920
Programs and Classes	3.28	66	0.88	4,640
Collection Material	3.26	65	0.91	4,595

These are the results for the survey run internally by HPL



Summary of Specific Service Areas over Several Questions

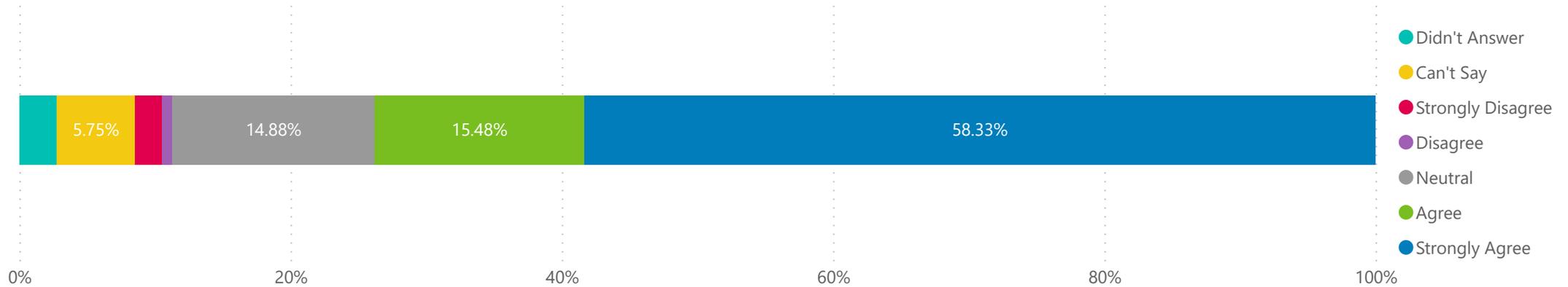
Checkout and Renewal Process

Responses

451

Respondents

81



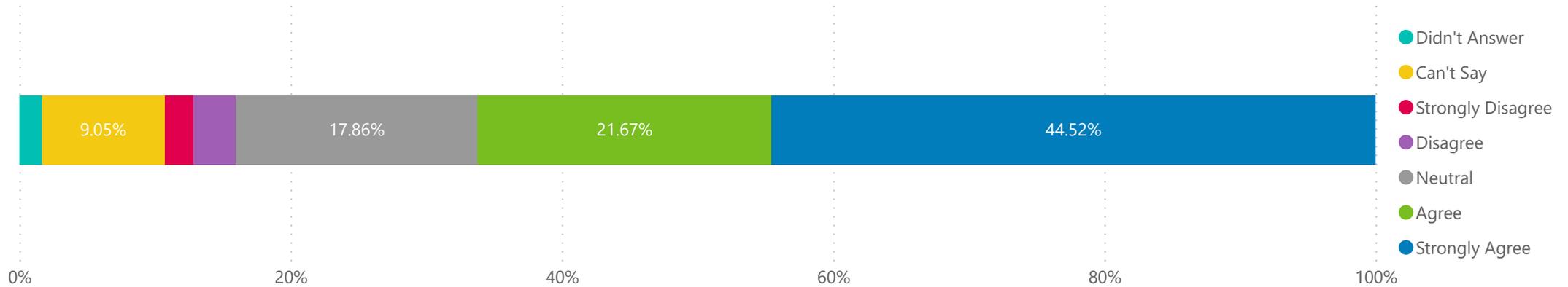
Question	σ	Avg.	Avg. %	Opt Out	Opt Out %
All Questions	0.94	4.39	87.85	43	8.53%
Q11 Did you feel comfortable accessing the following Hamilton Public Library services?	0.67	4.69	93.85	6	7.14%
Q7 In the last 24 months if you have used Hamilton Public Library services, how satisfied are you with your ability to access services?	0.70	4.67	93.42	8	9.52%
Q14 Based on the figure above, how would you rate Hamilton Public Library for providing good value for money in the infrastructure and services provided to your community?	0.74	4.61	92.11	8	9.52%
Q13 How likely would you be to recommend the following Hamilton Public Library service to others?	0.89	4.56	91.28	6	7.14%
Q8 Do the following Hamilton Public Library services meet your needs?	0.89	4.38	87.59	5	5.95%
Q15 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?	1.01	3.41	68.11	10	11.90%



Summary of Specific Service Areas over Several Questions

Collection Materials

Responses
366
 Respondents
82



	σ	Avg.	Avg. %	Opt Out	Opt Out %
All Questions	1.01	4.16	83.15	45	10.71%
Q11 Did you feel comfortable accessing the following Hamilton Public Library services?	0.79	4.51	90.26	8	9.52%
Q13 How likely would you be to recommend the following Hamilton Public Library service to others?	0.84	4.48	89.60	9	10.71%
Q14 Based on the figure above, how would you rate Hamilton Public Library for providing good value for money in the infrastructure and services provided to your community?	0.89	4.38	87.63	8	9.52%
Q8 Do the following Hamilton Public Library services meet your needs?	1.01	3.93	78.63	11	13.10%
Q15 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?	1.10	3.47	69.33	9	10.71%

Respondents who did not answer or selected 'Can't Say' are included in opt out.



Summary of Specific Service Areas over Several Questions

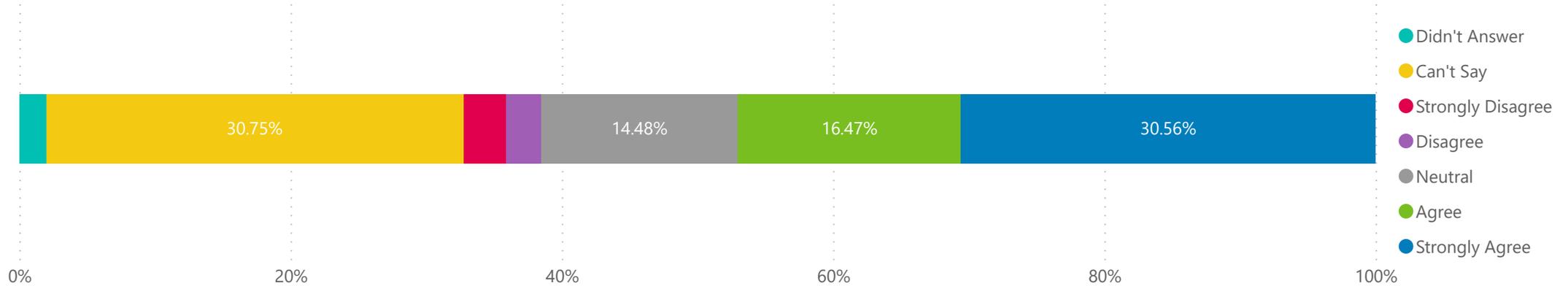
Connecting Customers to Information and Community Resources

Responses

323

Respondents

79



	σ	Avg.	Avg. %	Opt Out	Opt Out %
All Questions	1.12	4.02	80.41	165	32.74%
Q13 How likely would you be to recommend the following Hamilton Public Library service to others?	0.92	4.38	87.50	28	33.33%
Q14 Based on the figure above, how would you rate Hamilton Public Library for providing good value for money in the infrastructure and services provided to your community?	1.03	4.35	87.02	27	32.14%
Q11 Did you feel comfortable accessing the following Hamilton Public Library services?	0.97	4.24	84.83	26	30.95%
Q7 In the last 24 months if you have used Hamilton Public Library services, how satisfied are you with your ability to access services?	0.95	4.17	83.40	37	44.05%
Q8 Do the following Hamilton Public Library services meet your needs?	1.04	4.06	81.22	35	41.67%
Q15 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?	1.16	3.18	63.61	12	14.29%

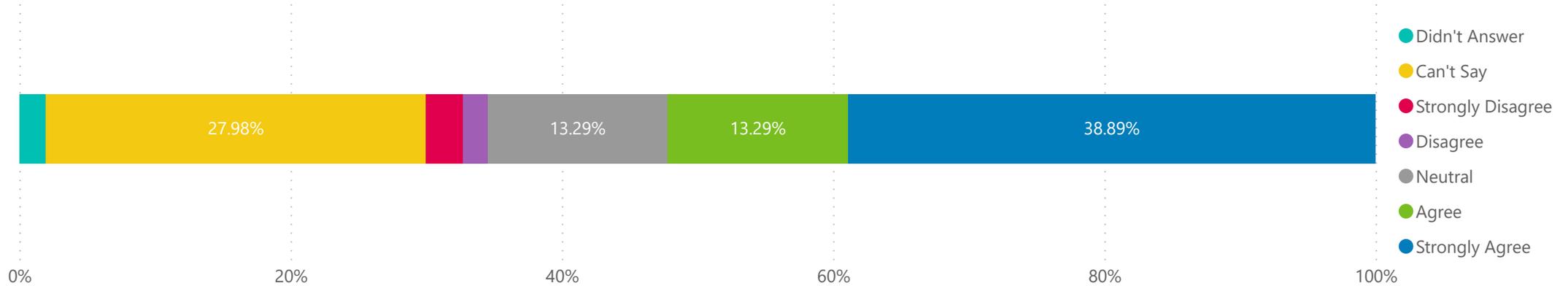
Respondents who did not answer or selected 'Can't Say' are included in opt out.



Summary of Specific Service Areas over Several Questions

Free Wi-Fi

Responses
339
 Respondents
80



	σ	Avg.	Avg. %	Opt Out	Opt Out %
All Questions	1.08	4.20	83.91	151	29.96%
Q14 Based on the figure above, how would you rate Hamilton Public Library for providing good value for money in the infrastructure and services provided to your community?	0.89	4.53	90.51	25	29.76%
Q11 Did you feel comfortable accessing the following Hamilton Public Library services?	0.89	4.47	89.31	26	30.95%
Q13 How likely would you be to recommend the following Hamilton Public Library service to others?	1.04	4.45	89.03	22	26.19%
Q7 In the last 24 months if you have used Hamilton Public Library services, how satisfied are you with your ability to access services?	0.90	4.44	88.80	34	40.48%
Q8 Do the following Hamilton Public Library services meet your needs?	0.98	4.18	83.53	33	39.29%
Q15 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?	1.11	3.34	66.85	11	13.10%

Respondents who did not answer or selected 'Can't Say' are included in opt out.



Summary of Specific Service Areas over Several Questions

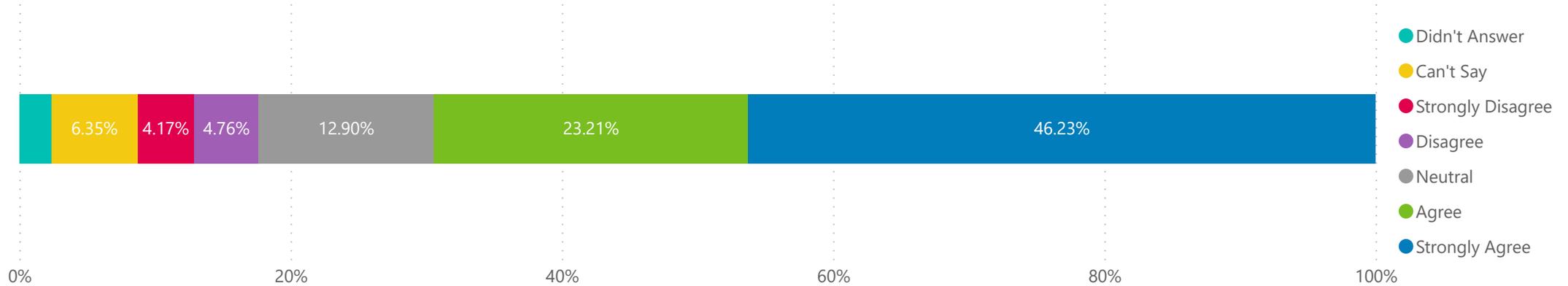
Library Locations and Spaces

Responses

439

Respondents

83



	σ	Avg.	Avg. %	Opt Out	Opt Out %
All Questions	1.12	4.12	82.48	44	8.73%
Q13 How likely would you be to recommend the following Hamilton Public Library service to others?	0.96	4.39	87.79	7	8.33%
Q14 Based on the figure above, how would you rate Hamilton Public Library for providing good value for money in the infrastructure and services provided to your community?	1.03	4.37	87.47	9	10.71%
Q11 Did you feel comfortable accessing the following Hamilton Public Library services?	1.00	4.29	85.79	8	9.52%
Q7 In the last 24 months if you have used Hamilton Public Library services, how satisfied are you with your ability to access services?	0.97	4.29	85.71	7	8.33%
Q8 Do the following Hamilton Public Library services meet your needs?	1.19	3.95	78.97	6	7.14%
Q15 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?	1.24	3.47	69.35	7	8.33%

Respondents who did not answer or selected 'Can't Say' are included in opt out.



Summary of Specific Service Areas over Several Questions

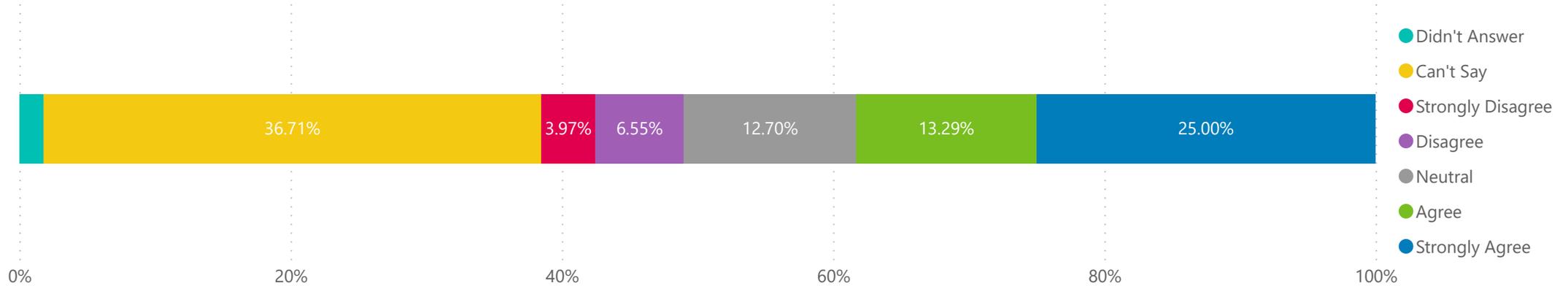
Programs and Classes

Responses

290

Respondents

78



	σ	Avg.	Avg. %	Opt Out	Opt Out %
All Questions	1.26	3.79	75.87	194	38.49%
Q13 How likely would you be to recommend the following Hamilton Public Library service to others?	1.15	4.23	84.62	32	38.10%
Q14 Based on the figure above, how would you rate Hamilton Public Library for providing good value for money in the infrastructure and services provided to your community?	1.07	4.16	83.21	28	33.33%
Q11 Did you feel comfortable accessing the following Hamilton Public Library services?	1.14	4.12	82.40	34	40.48%
Q7 In the last 24 months if you have used Hamilton Public Library services, how satisfied are you with your ability to access services?	1.20	3.69	73.85	45	53.57%
Q15 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?	1.20	3.31	66.29	14	16.67%
Q8 Do the following Hamilton Public Library services meet your needs?	1.39	3.28	65.58	41	48.81%

Respondents who did not answer or selected 'Can't Say' are included in opt out.



Summary of Specific Service Areas over Several Questions

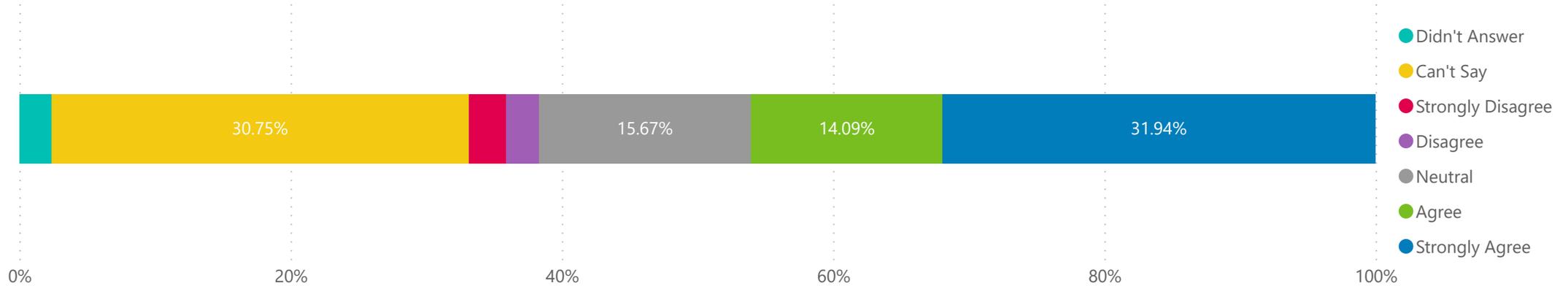
Public Computers

Responses

323

Respondents

80



	σ	Avg.	Avg. %	Opt Out	Opt Out %
All Questions	1.11	4.05	80.95	167	33.13%
Q14 Based on the figure above, how would you rate Hamilton Public Library for providing good value for money in the infrastructure and services provided to your community?	0.87	4.47	89.49	25	29.76%
Q11 Did you feel comfortable accessing the following Hamilton Public Library services?	0.95	4.33	86.55	29	34.52%
Q7 In the last 24 months if you have used Hamilton Public Library services, how satisfied are you with your ability to access services?	0.93	4.30	86.05	41	48.81%
Q13 How likely would you be to recommend the following Hamilton Public Library service to others?	1.05	4.25	85.08	25	29.76%
Q8 Do the following Hamilton Public Library services meet your needs?	1.01	3.87	77.39	38	45.24%
Q15 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?	1.19	3.31	66.13	9	10.71%

Respondents who did not answer or selected 'Can't Say' are included in opt out.



Definition and Ranking of Consistency and Confidence

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 agreement	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

$$\text{Margin of Error} = \frac{0.98}{\sqrt{n}}$$

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 aspect.

The margin of error is calculated using the factor 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 is the only factor and thus has 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.