MUNICIPALITY OF BROCKTON

Non-Core Asset Management Plan Update 2024

July 2024 –24-8049

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Acronyms, Abbreviations, Definitions

An abbreviation and an acronym are both shortened versions of something else. Both can often be represented as a series of letters. Many people are unable to tell the difference between an abbreviation and an acronym.

Acronym / Abbreviation	Definition
LOS	Level of Service
EUL	Estimated Useful Life
AM Plan	Asset Management Plan
BCA	Building Condition Assessment
O. Reg. 588/17	Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure

Executive Summary

The Municipality of Brockton's 2024 Non-Core Asset Management Plan Update serves as a strategic guide to managing non-core assets in alignment with the requirements of O.Reg. 588/17. This plan is a critical component in ensuring the long-term sustainability, efficiency, and reliability of service delivery. It encompasses a detailed inventory of assets, assessment of their conditions, and strategies for maintenance, rehabilitation, and replacement.

The asset categories included in the scope of this AM Plan update are presented in the following sections:

- Buildings & Facilities (Section 2)
- Furniture & Fixtures (Section 3)
- Land & Land Improvements (Section 4)
- Machinery & Equipment (Section 5)
- Streetlights (Section 6)
- Vehicles (Section 7)
- Natural Assets (Section 8)

In the following sub-sections of the Executive Summary the combined highlights from each of the asset categories are presented. For more details on each asset category, refer to the section of the Asset Management Plan.

State of Local Infrastructure

The state of local infrastructure section identifies the inventory of assets in the category and presents the current condition of the municipality's non-core assets, including their age, condition, and replacement value. This assessment provides a baseline understanding of the existing infrastructure and identifies areas that require immediate attention or future investments. Figure E-1 below depicts the total replacement costs for all assets analyzed in the AMP (excluding natural assets), which was determined to be approximately $92.9 million dollars.

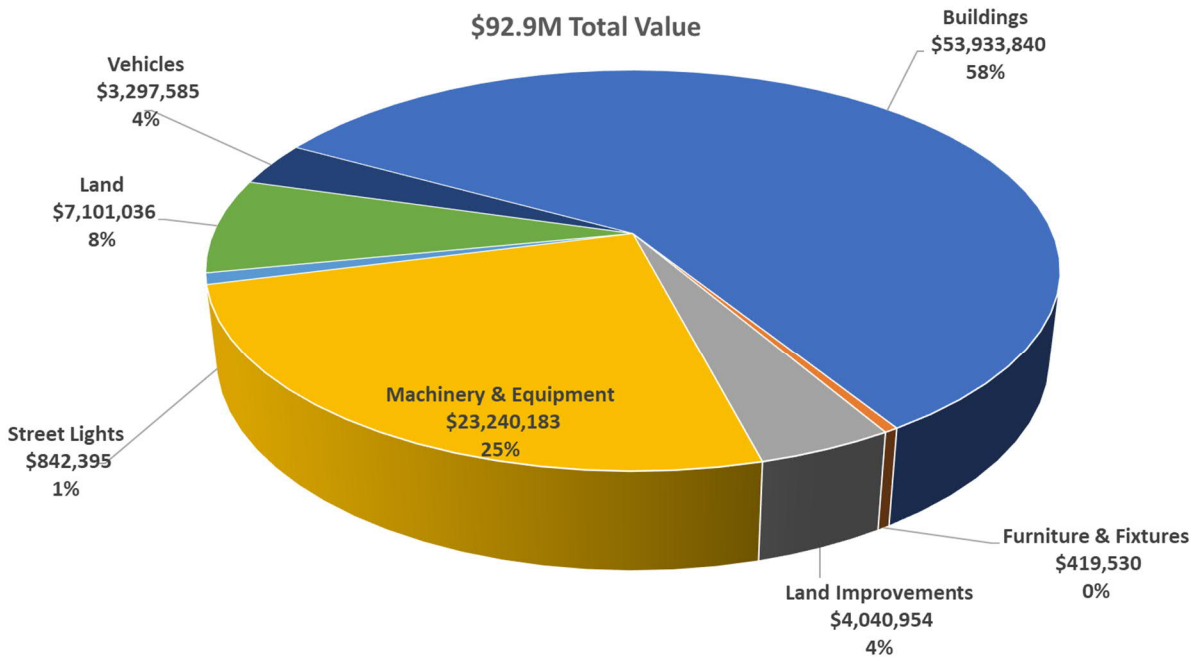

Figure E-1: Total Replacement Costs (2023 Dollars) for Non-Core Assets

Asset condition was evaluated for each category excluding Land assets and Natural assets. Most assets rely on age-based condition; however, some instances of physical condition assessment were present such as with assets in the Buildings category. Condition was ranked on the scale include in Table E-1 below.

Table E- 1: Condition Rating Scale

Condition Rating	Very Poor	Poor	Fair	Good	Very Good
Percentile Range (%)	0 – 20	20 -39	40 – 59	60 -79	80 -100

Figure E-2 below depicts the average asset condition in each category, weighted by asset replacement costs.

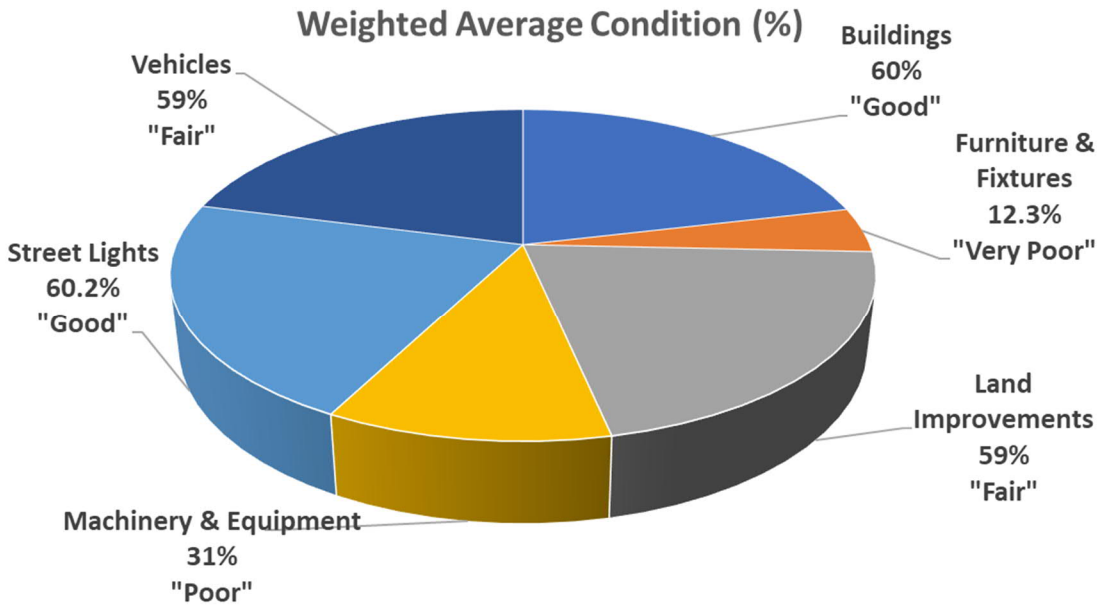

Figure E-2: Weighted Average (by replacement value) Condition by Asset Category

Lifecycle Management Strategy

Each asset was forecasted for replacement based on their estimated useful life and their current condition rating. Each State of Local Infrastructure section includes asset category and asset segment level capital expenditure forecasts. The forecasts are summarized by Figure E-3 which presents the 10-year projection of capital expenditure required to replace all non-core assets currently in service beyond their estimated useful life, as well as assets which will reach the end of their life within the next 10 years. The average annual capital expenditure required was estimated to be $4.12M.

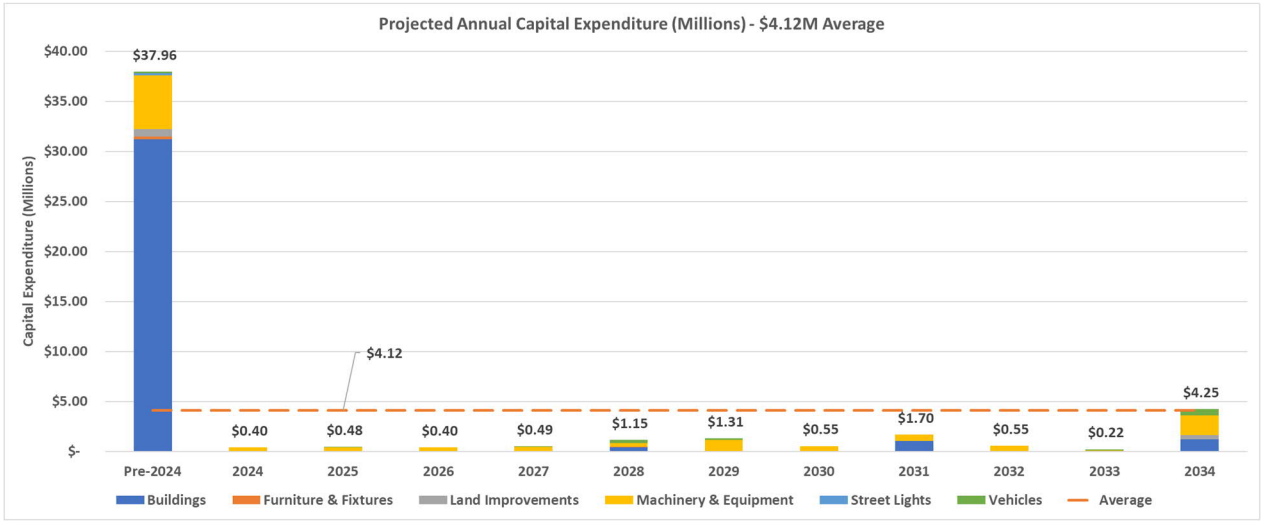

Figure E-3: 10-yr Projected Annual Capital Expenditure

The Municipality must also consider the lifecycle activities which can be undertaken during an asset's life to extend its lifespan. These activities, under O. Reg. 588/17, are defined to include constructing, maintaining, renewing, operating, and decommissioning of assets and all engineering and design work associated with these activities. Lifecycle activities have been defined for each of the asset categories considered within this AM Plan update, excluding natural assets.

Risk & Criticality

The Municipality evaluates asset risk on a probability and consequence matrix, each with an independent scale from 1 to 5. The final risk rating is therefore a score between 1 and 25, with scores above 15 being considered high risk. Figure _ below showcases the current value of assets at each risk score. See Appendix C of the 2021 AM Plan for the criteria used to determine the risk rating of each asset.

Table E- 2: Value of assets at each risk rating

Consequence	Probability 1	2	3	4	5
5	$8,430,470.80	$2,992,055.00	$502,332.00	$3,708,568.23	$6,052,125.70
4	$289,070.00	$3,285,252.77	$377,203.00	$4,902,067.29	$4,850,180.85
3	$765,597.00	$629,700.00	$464,572.00	$566,405.00	$14,707,248.92
2	$228,812.53	$315,684.47	$2,304,608.96	$242,052.00	$1,784,136.51
1	$2,725,597.44	$5,525,750.95	$11,776,443.31	$2,370,041.27	$2,399,845.14

Assets should be managed in a proactive manner with consideration to the probability of failure and the consequences of failure.

Level of Service

The Level of Service (LOS) define the performance expectation that the municipality aims to achieve and maintain for its non-core assets. The LOSare developed in consultation with stakeholders and align with regulatory requirements. As required by O.Reg. 588/17, the current levels of service are defined for two different audiences as follows:

- Community Levels of Service: intended to be customer-focused, provide a qualitative description of scope and quality.
- Technical Levels of Service: provide technical metrics which includes consideration of what the asset is capable of providing and how it is performing.

O.Reg. 588/17 outlines LOS metrics for core assets, but leaves it up to municipalities to develop their own LOS metrics for non-core assets. The Municipality has done so for all categories highlighted in this AM Plan update. The AM Plan will be updated for 2025 to include proposed LOS metrics and statements.

Table E- 3: LOS Parameters for Each Asset Category

Asset Category	Community LOS Parameters	Technical LOS Parameters
Buildings & Facilities	• Reliability • Availability	• Quality • Availability
Furniture & Fixtures	• Safety • Quantity (or Availability)	• Safety • Quality
Machinery & Equipment	• Reliability	• Reliability • Safety
Land & Land Improvements	• Quantity • Availability	• Quantity • Availability
Streetlights	• Environmental Acceptability • Safety	• Environmental Acceptability
Vehicles	• Availability • Safety	• Safety • Reliability
Natural Assets	• Availability	• Availability

Recommendations for Continuous Improvement

The Municipality will continue to regularly review and update asset data and asset management documentation. O.Reg. 588/17 stipulates that all municipalities must update their asset management plans for July 1, 2025 to include details on proposed levels of service, financing strategies, and impacts of growth and economic trends among others updates. Each asset category includes one or more recommendations for continuous improvement.

1.0 Introduction

This 2024 Non-Core Asset Management Plan (AM Plan) Update is in pursuit of O. Reg. 588/17 Clause 5.(1) and is a direct update to the Municipality of Brockton's 2021 Asset Management Plan (2021 AM Plan). This update includes comprehensive revisions to the State of Local Infrastructure sections for the following non-core asset categories:

- Buildings & Facilities;
- Vehicles;
- Machinery & Equipment; and,
- Land and Land Improvements (Formerly Parks and Land Improvements in the 2021 AM Plan).

The revisions reflect updated asset inventories and information, as well as sections which were missing from the 2021 AM Plan which are required for O. Reg. 588/17 compliance including the Current Level of Service (LOS) and Risk & Criticality sections. In addition to those categories included in the previous AM Plan, the following non-core asset categories are highlighted for the first time:

- Natural Assets;
- Furniture & Fixtures; and,
- Streetlights.

Both the Furniture & Fixtures and Streetlights categories were previously considered segments of larger categories – Furniture & Fixtures was included under Buildings & Facilities, and Streetlights was included in Roads.

All remaining sections of the 2021 AM Plan remain unchanged. An update to the entire AM Plan is planned ahead of the July 1, 2025 O. Reg. 588/17 deadline to evaluate additional elements of each asset category, including proposed level of service as well as the impact of population changes and economic trends.

The asset categories included in the scope of this AM Plan update are presented in the following sections:

- Buildings & Facilities (Section 2)
- Furniture & Fixtures (Section 3)
- Land & Land Improvements (Section 4)
- Machinery & Equipment (Section 5)
- Streetlights (Section 6)
- Vehicles (Section 7)
- Natural Assets (Section 8)

2.0 Buildings & Facilities

2.1 State of Local Infrastructure

The Municipality's inventory of Buildings & Facilities is managed in CityWide, and comprises of 47 individual facilities. These are owned by the Municipality and maintained by various departments that provide key administrative, protective, recreational, and cultural services to the community. A portion of the Municipality's buildings were evaluated as part of a Building Condition Assessment (BCA) performed by Gordian in late 2023.

2.1.1 Asset Hierarchy and Segmentation

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Most reports and analytics presented in this AMP are summarized at Level 3 (Asset Segment) and/or Level 2 (Asset Category) as presented in the 2021 AMP and is shown in Figure 2-1.

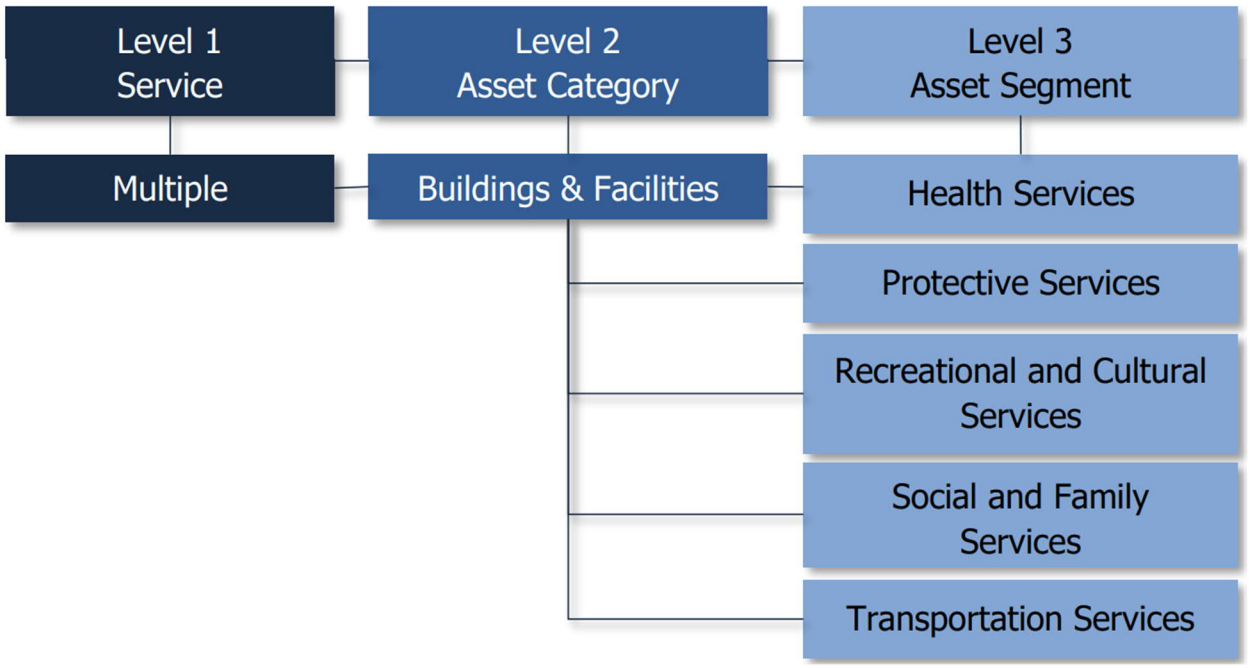

Figure 2-1: Asset Hierarchy - Building & Facilities

2.1.2 Asset Inventory & Replacement Cost

There are 46 buildings in the Buildings & Facilities category with an estimated Total Replacement Cost of $52.253 million.

Table 2-1 presents the quantity, replacement cost method and total replacement cost of each asset segment in the Municipality's Buildings & Facilities inventory.

Table 2-1: Replacement Costs - Building & Facilities

Asset Service Area	Quantity	Replacement Cost Method	Total Replacement Cost
Environmental Services	7	BCA / Historical Cost Inflation	$11,549,990.08
General Government	1	User-Defined Cost	$1,500,000.00
Recreation and Cultural Services	25	BCA / Historical Cost Inflation	$26,079,620.22
Transportation Services	9	BCA / Historical Cost Inflation	$8,830,189.11
Protection Services	2	BCA / Historical Cost Inflation	$3,719,782.60
Social and Family Services	1	BCA	$1,680,378.90
Health Services	2	BCA / Historical Cost Inflation	$573,878.69

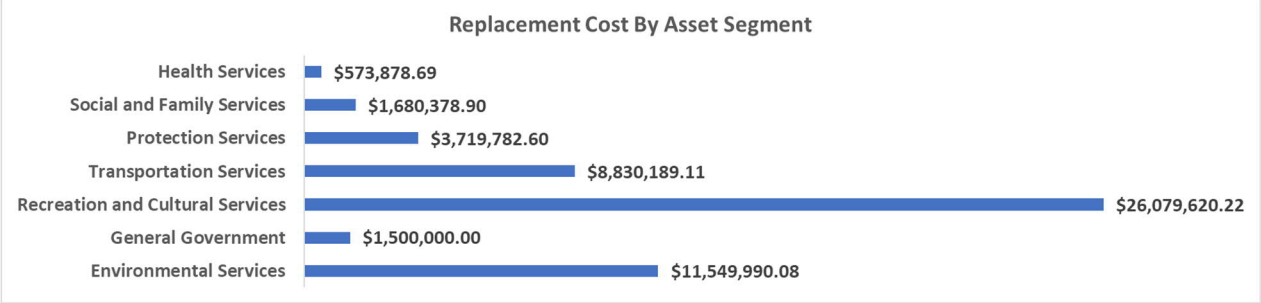

Figure 2-2: Replacement Cost by Asset Segment - Buildings & Facilities

2.1.3 Asset Condition

Table 2-2 identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost. The average asset condition was determined to be 60% or "Good".

Table 2-2: Average Asset Condition - Buildings & Facilities

Asset Service Area	Average Condition (%)	Average Condition Rating	Condition Source
Environmental Services	41	Fair	BCA / Age-based
General Government	93	Very Good	BCA
Recreation and Cultural Services	54	Fair	BCA / Age-based
Transportation Services	51	Fair	BCA / Age-based
Protection Services	53	Fair	BCA / Age-based
Social and Family Services	71	Good	BCA
Health Services	60	Fair	BCA / Age-based

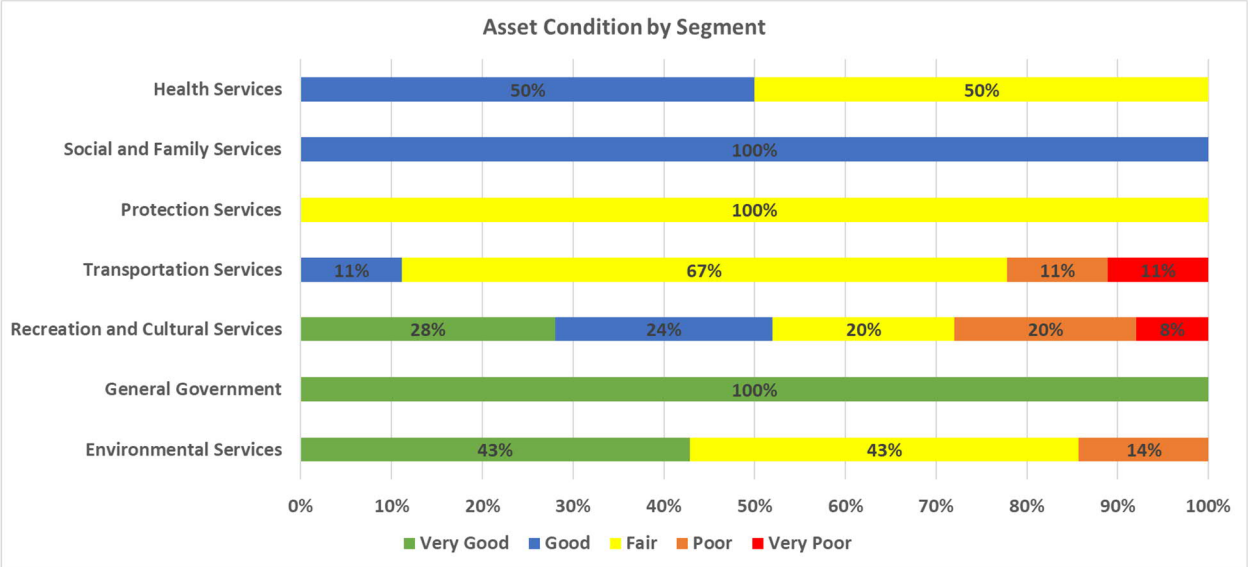

Figure 2-3: Asset Condition by Segment - Buildings & Facilities

The BCA evaluated the condition of 29 of the Municipality's 47 buildings. The BCA reports were finalized the time of the 2024 Non-Core AMP Update. A list of current deficiencies and their repair costs was developed for each building. The repair costs were divided by the newly determined replacement costs of the building to determine the building's Facility Condition Index (FCI) score, which was linearly interpolated to develop a condition rating.

To ensure that the Municipality's Buildings & Facilities continues to provide an acceptable level of service, the Municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Buildings & Facilities.

2.1.3.1 Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality's current approach:

- High-level assessments by internal staff are performed annually to determine the condition of facilities.
- An external BCA has been completed by Gordian on some facilities which was used to adjust their replacement cost and condition rating.

2.1.4 Estimated Useful Life and Average Age

The average age of the Buildings & Facilities category is 27.8 years with an estimated average service life remaining of 4.5 years.

The estimated useful life for Buildings & Facilities assets has been assigned according to a combination of established industry standards and staff knowledge. The average age of each asset is based on the number of years each asset has been in-service. Finally, the average service life remaining represents the difference between the estimated useful life and the average age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining. See Table 2-3 for summary of the average age and estimated useful life.

Table 2-3: Estimated Useful Life and Average Age - Buildings & Facilities

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Environmental Services	40 years	25.5	13.2
General Government	80 years	5.3	74.7
Recreation and Cultural Services	10–40 years	31.9	12.3
Transportation Services	40 years	42.2	6.9
Protection Services	10-50 years	21.8	18.2
Social and Family Services	10 years	9.3	0.7
Health Services	40 years	39.9	10.8

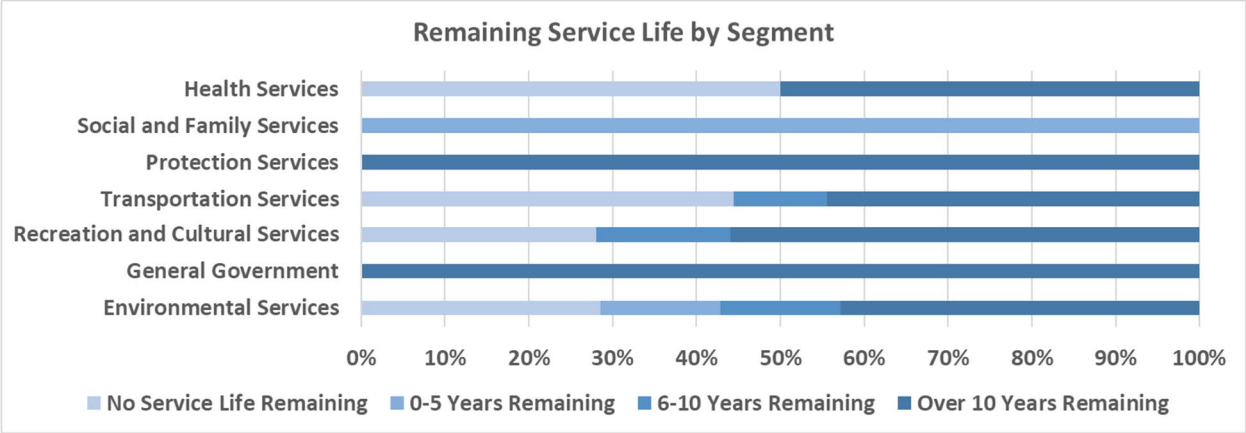

Figure 2-4: Remaining Service Life - Buildings & Facilities

Each asset's estimated useful life should be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type. Most buildings have been set to a standard 40 years.

2.2 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Table 2-4 outlines the Municipality's current lifecycle management strategy.

Table 2-4: Lifecycle Activities - Buildings & Facilities

Activity Type	Description of Current Strategy
Maintenance/Rehabilitation	Municipal buildings are subject to regular inspections to identify health & safety requirements as well as structural deficiencies that require additional attention.
	The Municipality worked with third-party inspectors to assess building condition, and identify and triage repair projects. Projects range from small repairs to major rehabilitations. Refer to building-specific BCA reports for further details.
Replacement	Assessments are completed strategically as buildings approach their end-of-life to determine whether replacement or rehabilitation is appropriate.

2.2.1.1 Forecasted Capital Requirements

Based on the current buildings and facilities inventory and assuming end-of-life replacement for all assets, the AMP forecasts short- and long-term capital requirements for the Buildings & Facilities category.

Figure 2-5 provides a 50-year forecast. This projection is used as it ensures that every asset has gone through one full iteration of replacement and does not include assets that may be required for growth. The forecasted requirements are aggregated into 10-year bins and are based on the Municipality's asset inventory as of 2024. The trend line represents the average 10-year capital requirements. The average 10-year requirement was $8.79M, and the average annual requirement was $0.88M.

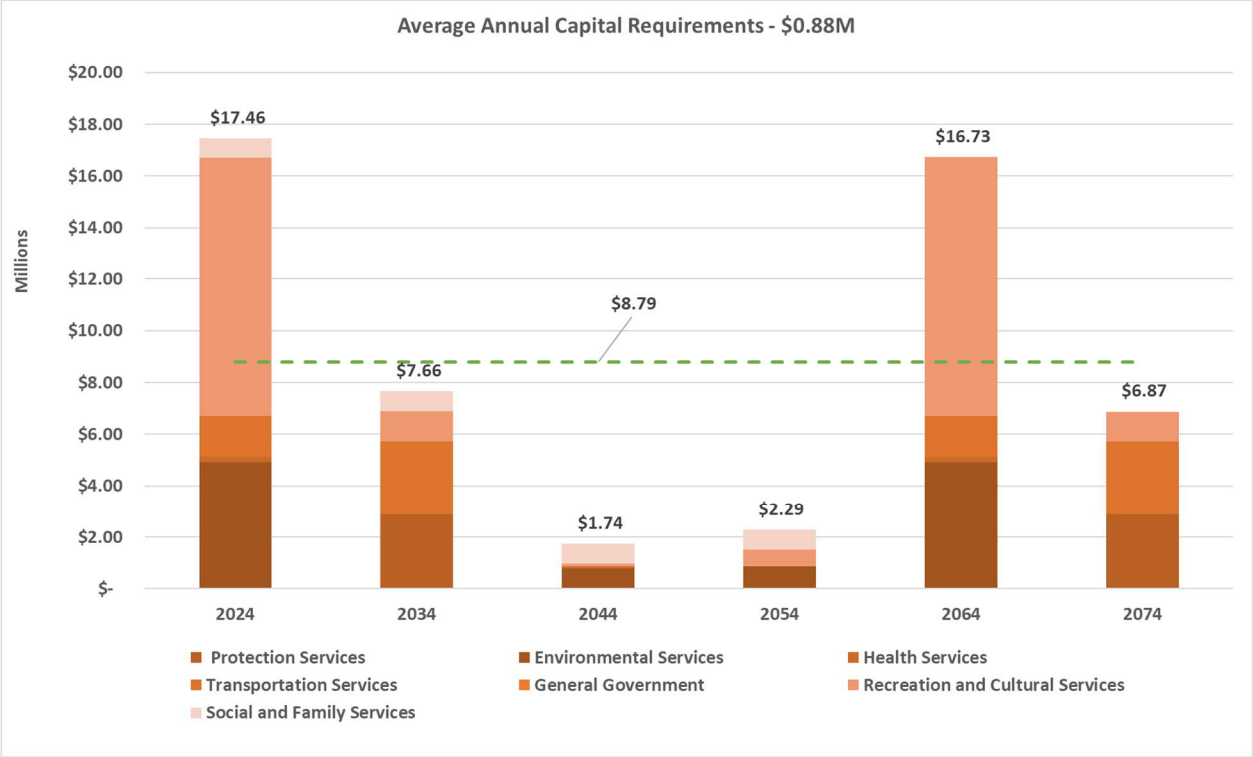

Figure 2-5: 50-year Projected Capital Requirements - Buildings & Facilities

Figure 2-6 provides a 10-year forecast to assist in short-term financial planning. Replacing assets that are currently in service beyond their estimated useful life constitutes the majority of capital required in the next 10 years. The dashed amber line represents the average annual expenditure to replace failing assets. The specific projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

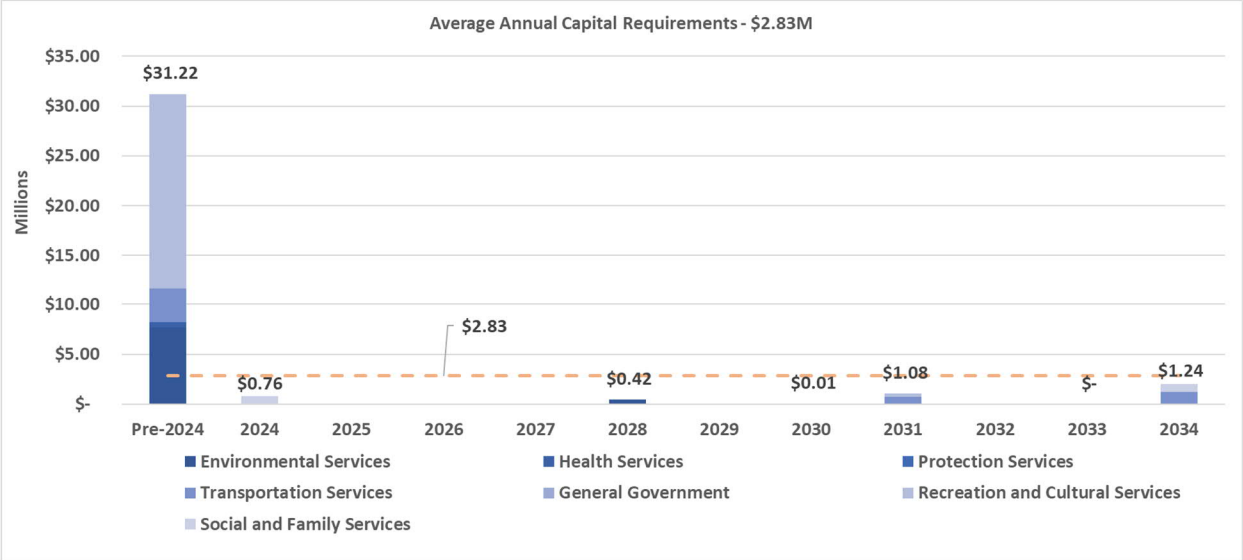

Figure 2-6: 10-year Projected Capital Requirements - Buildings & Facilities

2.3 Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C of the 2021 AM Plan for the criteria used to determine the risk rating of each asset.

Consequence	Probability 1	2	3	4	5
5				2 Asset $2,117,264.23	3 Assets $3,886,526.70
4	2 Assets $42,618.00	1 Asset $380,990.77		4 Assets $4,358,289.29	4 Assets $1,587,950.85
3					8 Assets $13,354,409.92
2	2 Assets $48,152.53		3 Assets $2,086,723.96		1 Asset $932,782.00
1	3 Assets $880,461.00	3 Asset $5,057,941.79	2 Assets $11,593,448.55	4 Assets $2,157,815.27	4 Assets $1,752,682.14

Figure 2-7: Risk Matrix - Buildings & Facilities

2.3.1.1 Risks to Current Asset Management Strategies

Table 2-5 summarizes key risks to service delivery that the Municipality is currently facing and will face in the near future.

Table 2-5: Risks to Asset Management Strategy - Buildings & Facilities

Risk to Asset Management Strategy	Description
Aging Infrastructure & Deferred Maintenance	Many buildings and facilities may be nearing the end of their useful life, leading to increased maintenance costs and higher risk of failure. Many maintenance tasks and repair projects have been deferred to a later date, further increasing the severity of repairs and probability of failure.
Regulatory Changes	Changes in building codes, safety regulations, and environmental standards can necessitate unexpected upgrades or modifications to existing facilities.
Energy Efficiency and Sustainability	Pressure to reduce energy consumption and carbon footprints can require retrofitting and upgrading of existing facilities, which can be costly. When an existing facility is decommissioned, the replacement facility must often meet a higher bar for energy efficiency.
Skill and Resource Shortages	A lack of skilled personnel and resources to carry out necessary maintenance and upgrades can hamper asset management efforts. Changes in workforce demographics and a reduction in desire for alternate shift work may impact the ability to carry out regular maintenance.
Data and Information Management	Inaccurate or incomplete data on the condition and performance of assets can lead to poor decision-making and misallocation of resources.

2.4 Level of Service

The current level of service provided by Buildings and Facilities assets are outlined in Table 2-6 and Table 2-7 below.

Table 2-6: Community LOS - Buildings & Facilities

Service Parameter	Description	LOS Metric	Current LOS (2023)
Reliability	Preventing closure or instances of reduced capacity	Number of days where a Buildings and Facility asset was closed due to equipment or structural failure	The arena was closed for approximately 1 day and one evening due to various mechanical issues and repairs in previous two years.
		% of Buildings and Facilities currently marked as high risk (Risk score greater than 14)	Approximately 44% of buildings and facilities are considered high-risk.
Availability	How community demand for spaces is being met	Number of bookings at each building in previous year	• Cargill Community Center (CC) – 234 • Elmwood CC – 116 • Walkerton CC Ice – 269 • Walkerton CC Auditorium – 83 • Walkerton CC Arena Floor – 29 • Walkerton Library – 106 • Bradly School House - 16
		Number of recreation facilities per 1,000 residents	Brockton has approximately 1.84 recreation facilities per 1,000 residents

Service Parameter	Description	LOS Metric	Current LOS (2023)
	How the Municipality is providing buildings that are AODA compliant	Number of buildings which are AODA compliant	One (1) of Brockton's buildings is AODA compliant.

Table 2-7: Technical LOS - Buildings & Facilities

Service Parameter	Description	Technical Metric	Current LOS (2023)
Quality	Providing buildings in good condition and working order.	Average condition rating of Buildings & Facilities assets	The average condition of buildings & facilities in the Municipality is 59 out of 100, or "Fair".
Availability	Providing adequate access to Buildings and Facilities, while not keeping redundant assets.	Average days booked at each facility per year as a percentage of bookable time	To be provided in update.

2.5 Recommendations

2.5.1 Funding and Resource Allocation

The Municipality should provide additional funding and resource allocation to address deferred maintenance and upgrade aging infrastructure. Utilize the BCA to prioritize and address critical issues first.

2.5.2 Data Management

The BCA provided a strong base from which the Municipality can build out their wealth of information on their Building & Facilities Assets. Work to ensure as many details as practical are moved from the BCA reports, which are static documents, to the CityWide inventory, which is a living database. Provide tools for maintenance staff to update the asset information frequently as changes occur.

2.5.3 Resilience and Adaptation

Incorporate resilience measures to protect buildings and facilities from extreme weather events and the impact of climate change. This can include reducing energy consumption, redesigning drainage systems, improving lot grading, retrofitting windows, and increasing funding allocation, among other methods.

3.0 Furniture & Fixtures

3.1 State of Local Infrastructure

The Municipality's Furniture & Fixtures inventory is managed in CityWide, and comprises of 31 individual assets. These are owned by the Municipality and maintained by various departments that provide key structural, recreational, and cultural services to the community.

3.1.1 Asset Hierarchy and Segmentation

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Most reports and analytics presented in this AM Plan are summarized at Level 3 (Asset Segment) and/or Level 2 (Asset Category).

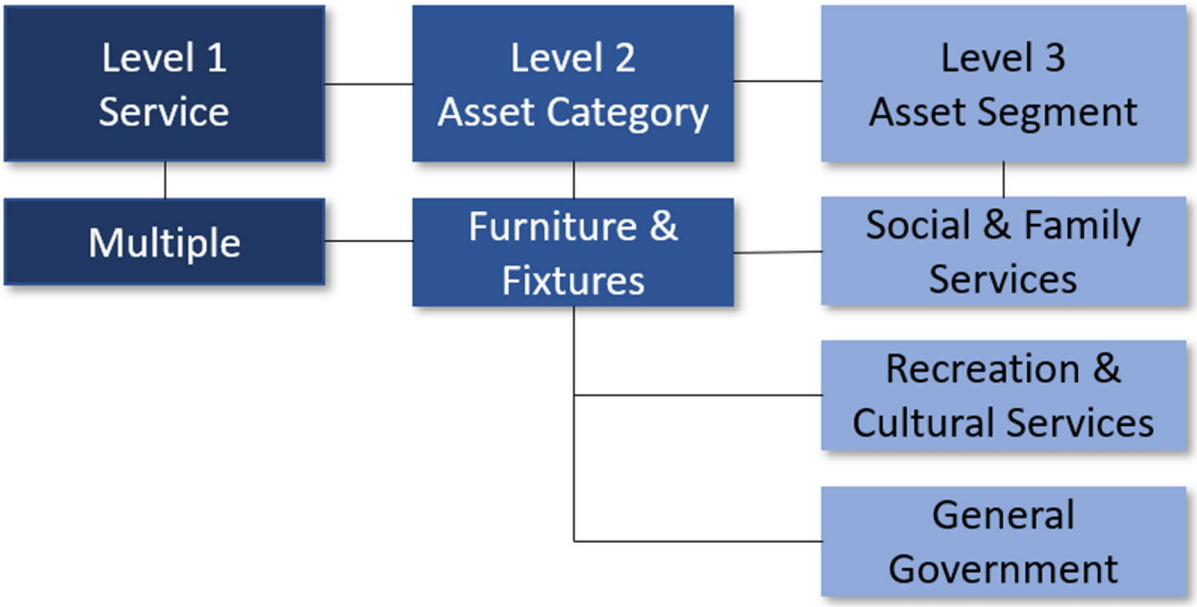

Figure 3-1: Asset Hierarchy - Furniture & Fixtures

3.1.2 Asset Inventory & Replacement Cost

The estimated total replacement cost for Furniture & Fixtures assets is $429,500. Table 3-1 presents the quantity, replacement cost method and total replacement cost of each asset segment in the Municipality's Furniture & Fixtures inventory.

Table 3-1: Replacement Cost and Quantity - Furniture & Fixtures

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Social and Family Services	7	CPI Tables	$18,249.00
Recreation and Cultural Services	18	CPI Tables	$319,107.00
General Government	6	CPI Tables	$82,174.00

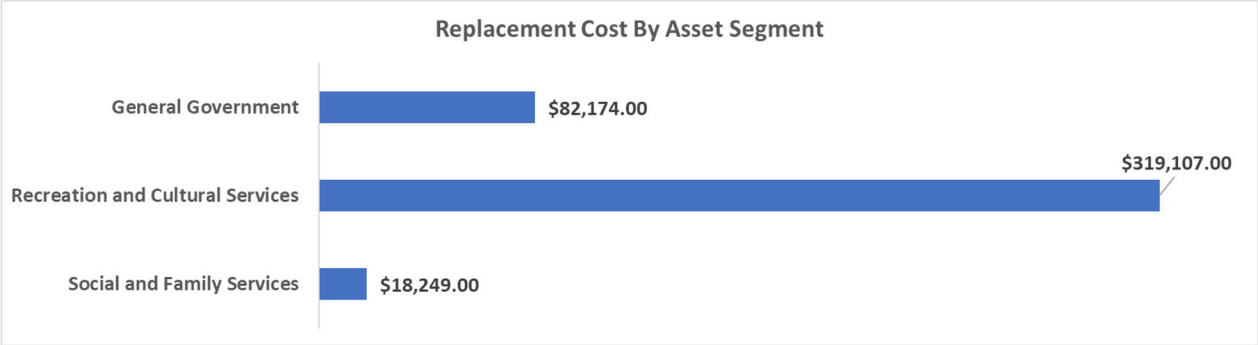

Figure 3-2: Replacement Costs by Asset Segment - Furniture & Fixtures

3.1.3 Asset Condition

The average condition rating for Furniture & Fixtures is Very Poor. Table 3-2 presents the current average condition and source of available condition data for each asset segment.

Table 3-2: Average Asset Condition - Furniture & Fixtures

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Social and Family Services	0	Very Poor	Age-based
Recreation and Cultural Services	23	Poor	Age-based
General Government	14	Very Poor	Age-based

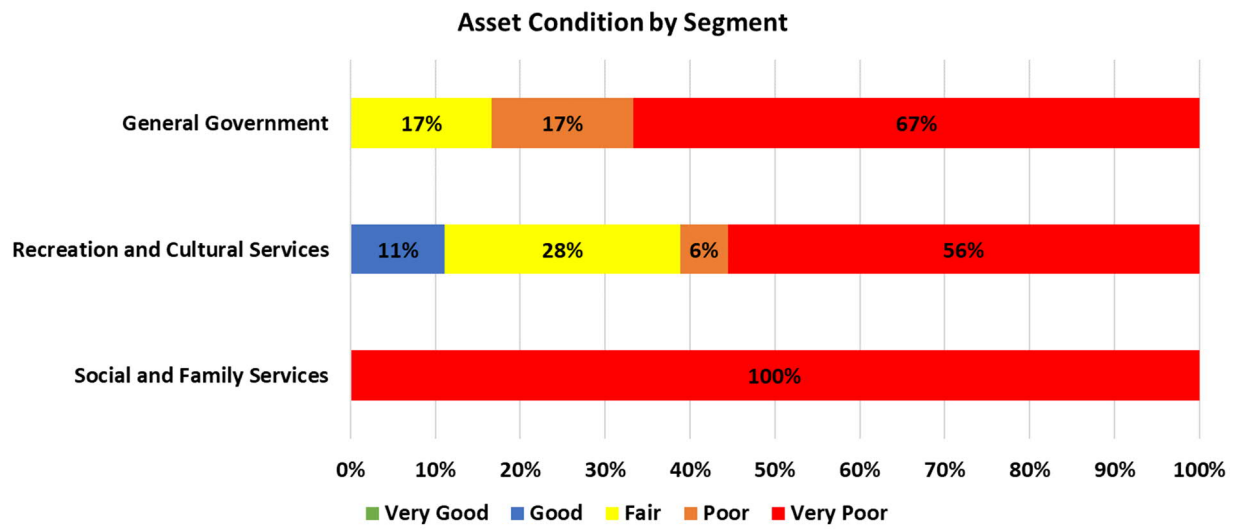

Figure 3-3: Asset Condition by Segment - Furniture & Fixtures

3.1.3.1 Current Approach to Condition Assessment

Assets are currently assessed using an age-based condition rating system, which determines asset condition based on the expected useful life of similar assets.

3.1.4 Estimated Useful Life and Average Age

The average age of Furniture & Fixtures is 25.4 years and the average service life remaining is 4.5 years.

The Estimated Useful Life for Furniture & Facilities assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining. See summary in Table 3-3.

Table 3-3: Estimated Useful Life and Average Age - Furniture & Fixtures

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Social and Family Services	5-10 years	25.7	0
Recreation and Cultural Services	10-50 years	28.8	9.9
General Government	5-20 years	21.8	3.5

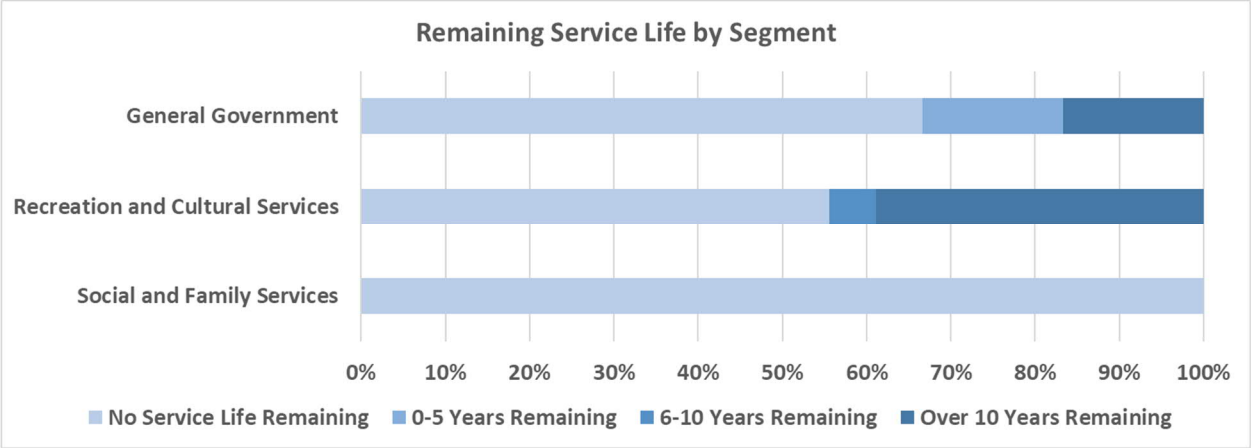

Figure 3-4: Remaining Service Life - Furniture & Fixtures

3.2 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history and environment.

Due to the nature of furniture and fixtures assets, preventative maintenance is limited outside of basic cleaning. The following table outlines the Municipality's current lifecycle management strategy.

Table 3-4: Lifecycle Activities - Furniture & Fixtures

Activity Type	Description of Current Strategy
Maintenance	Visual inspections conducted by maintenance staff each time the asset is cleaned or moved into or out of storage. Minor component repairs such as replacement of hinges or table legs are conducted when the component breaks.
Replacement	Furniture and fixture assets are replaced when a significant component of the asset breaks, or funding is available to replace an asset at the end of its estimated useful life.

3.2.1.1 Forecasted Capital Requirements

Based on the current inventory, and assuming end-of-life replacement for all assets, Figure 3-5 provides a 25-year forecast. This projection is used as it ensures that most assets have gone through one full iteration of replacement, and does not include assets that may be required for growth. The forecasted requirements are aggregated into 5-year bins and are based on the Municipality's asset inventory as of 2024. The trend line represents the average 5-year capital requirements, which were determined to be approximately $123,000.

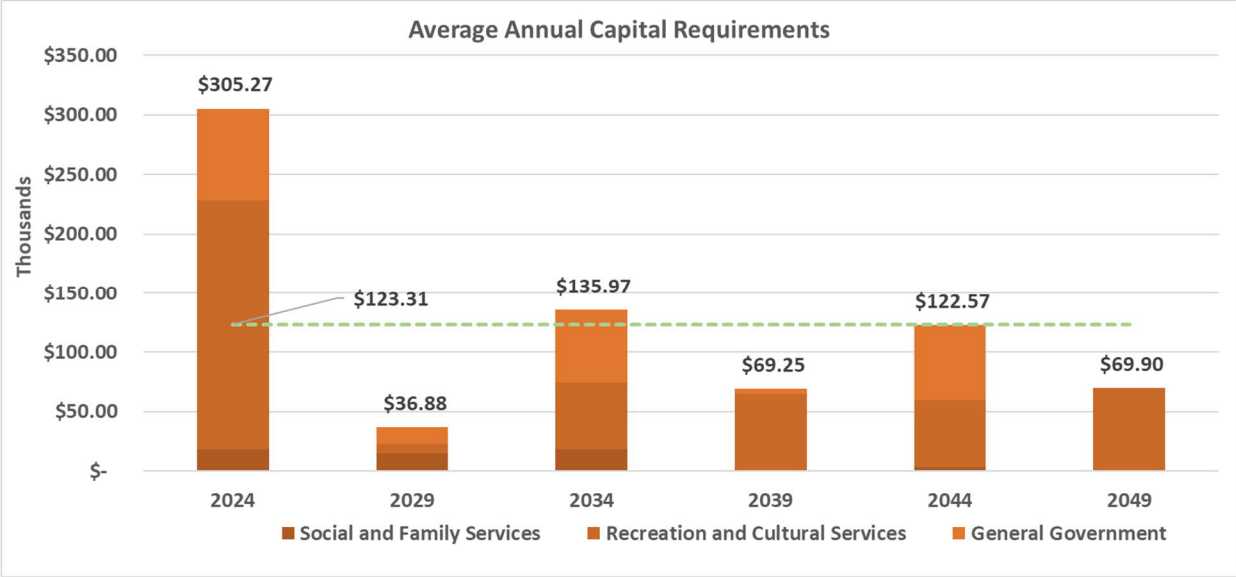

Figure 3-5: 25-year Projected Capital Requirements - Furniture & Fixtures

Figure 3-6 presents a 10-year forecast to assist in short-term financial planning. Replacing assets that are currently in service beyond their estimated useful life constitutes the majority of capital required in the next 10 years. The dashed amber line represents the average annual expenditure to replace failing assets, which was determined to be approximately $26,000 annually.

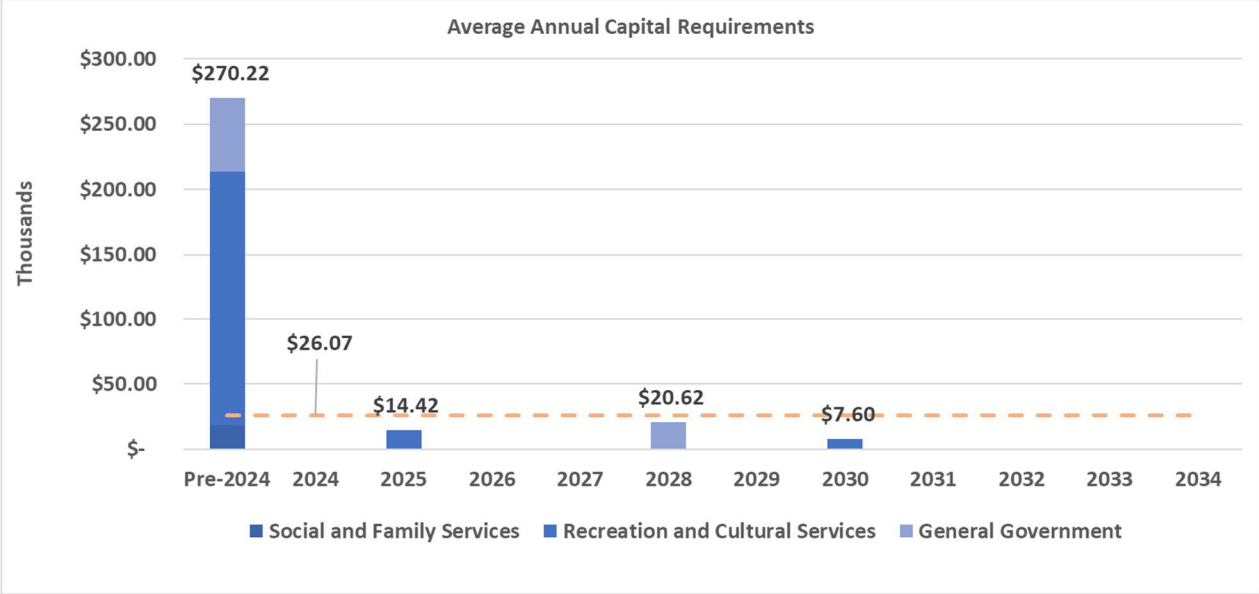

Figure 3-6. 10-year Projected Capital Requirements - Furniture & Fixtures

3.3 Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C of the 2021 AM Plan for the criteria used to determine the risk rating of each asset.

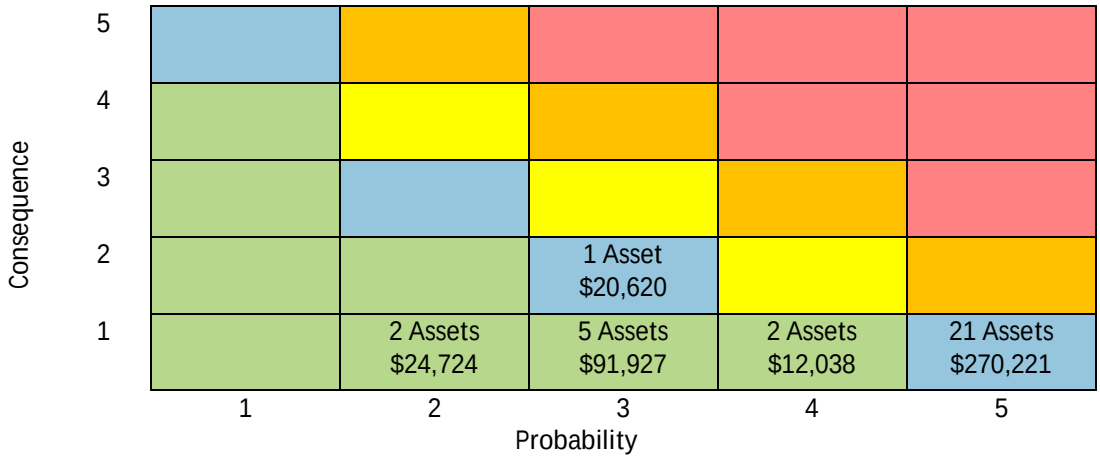

Figure 3-7: Risk Matrix- Furniture & Fixtures

A significant fraction of the Municipality's furniture and fixture assets have a high probability of failure due to their age. While the consequence of failure for individual assets has been assessed to be low, the cumulative impact of multiple failures within a short span of time may represent a significant financial burden for the Municipality. The Municipality should take steps to reduce the number of assets in their furniture and fixture inventory that are deemed to have a high probability of failure to avoid unplanned expenditures.

3.3.1 Risks to Current Asset Management Strategies

Table 3-5 summarizes key risks to service delivery that the Municipality is currently facing and will face in the near future.

Table 3-5: Risks to Asset Management Strategy - Furniture & Fixtures

Risk to Asset Management Strategy	Description
Aging Infrastructure	Several assets are in service beyond their EUL. These assets have increased likelihood of failure and may need more frequent repairs. Higher overall costs are likely to be incurred if these assets are not replaced.
Inadequate Inventory Management	Inadequate inventory management may result in inefficient use of resources and unplanned expenses. Furniture and Fixtures assets are often not formally managed due to their relatively low cost.
Asset Misuse	Public-facing assets are more likely to be misused or damaged, shortening their lifespan.

3.4 Level of Service

The current level of service provided by the Municipality's Furniture & Fixture assets is summarized in Table 3-6 and Table 3-7 below.

Table 3-6: Community LOS - Furniture & Fixtures

Service Parameter	Description	LOS Metric	Current LOS (2023)
Safety	Community feels safe and secure using the Furniture and Fixtures.	Actions performed by Municipality to ensure safety of public when using Furniture & Fixtures assets	The Municipality regularly performs informal inspections of furniture and fixtures. Assets with identified hazards are replaced in a timely manner. Many assets are currently in service beyond their expected useful life, as their observed condition is Fair or better.
Quantity (or Availability)	The furniture available at recreation venues is adequate to host booked events.	Brief description of the Municipality's policy on Furniture & Fixture maintenance and replacement	The Municipality maintains an adequate inventory of furniture. When furniture is removed due to damage, and thereby the capacity of a venue is reduced, the reduction in capacity is made known at the time of booking. Furniture is replaced and capacity is restored as financially feasible.

Table 3-7: Technical LOS - Furniture & Fixtures

Service Parameter	Description	Technical Metric	Current LOS (2023)
Safety	Community feels safe and secure using the Furniture and Fixtures.	Response time to remove (or close access to) furniture when identified as not fit for purpose	Response time is approximately one (1) hour.
Quality	Assets are in good working order.	% of assets have a condition rating of "Fair" or better	Approximately 26% of Furniture and Fixture assets have a condition rating of "Fair" (>40%) or better.

3.5 Recommendations

3.5.1 Asset Inventory

The asset inventory should be reviewed to ensure that all furniture and fixtures owned by the Municipality are accounted for. Consider adding large groups of furniture associated with a single facility or activity into Citywide as a single asset to reduce administrative load.

3.5.2 Expected Useful Life

A significant fraction of the Municipality's furniture and fixture assets remain in service after their estimated useful life has ended. The Municipality should review the estimated useful life of furniture and fixture assets to determine if they are accurate. If not, the estimated useful life, and in turn the condition rating, of assets should be adjusted to more accurately reflect reality and improve financial projections.

3.5.3 Condition Assessment Strategies

The Municipality should review their current condition assessment strategies to determine if in-person assessments are feasible. Consider developing a single-page condition assessment form which can be completed annually by facility maintenance staff.

4.0 Land &Land Improvements

4.1 State of Local Infrastructure

The Land & Land Improvements inventory is managed in CityWide and comprises of 111 Land assets, and 37 Land Improvement assets that assist the Municipality in providing community recreation, cultural value, and natural outdoor space. The Land and Land Improvement categories are tightly interlinked, and as such are discussed together for the purpose of asset management.

4.1.1 Asset Hierarchy and Segmentation

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Most reports and analytics presented in this AMP are summarized at Level 3 (Asset Segment) and/or Level 2 (Asset Category) as presented in the 2021 AMP and is shown in Figure 4-1 and Figure 4-2.

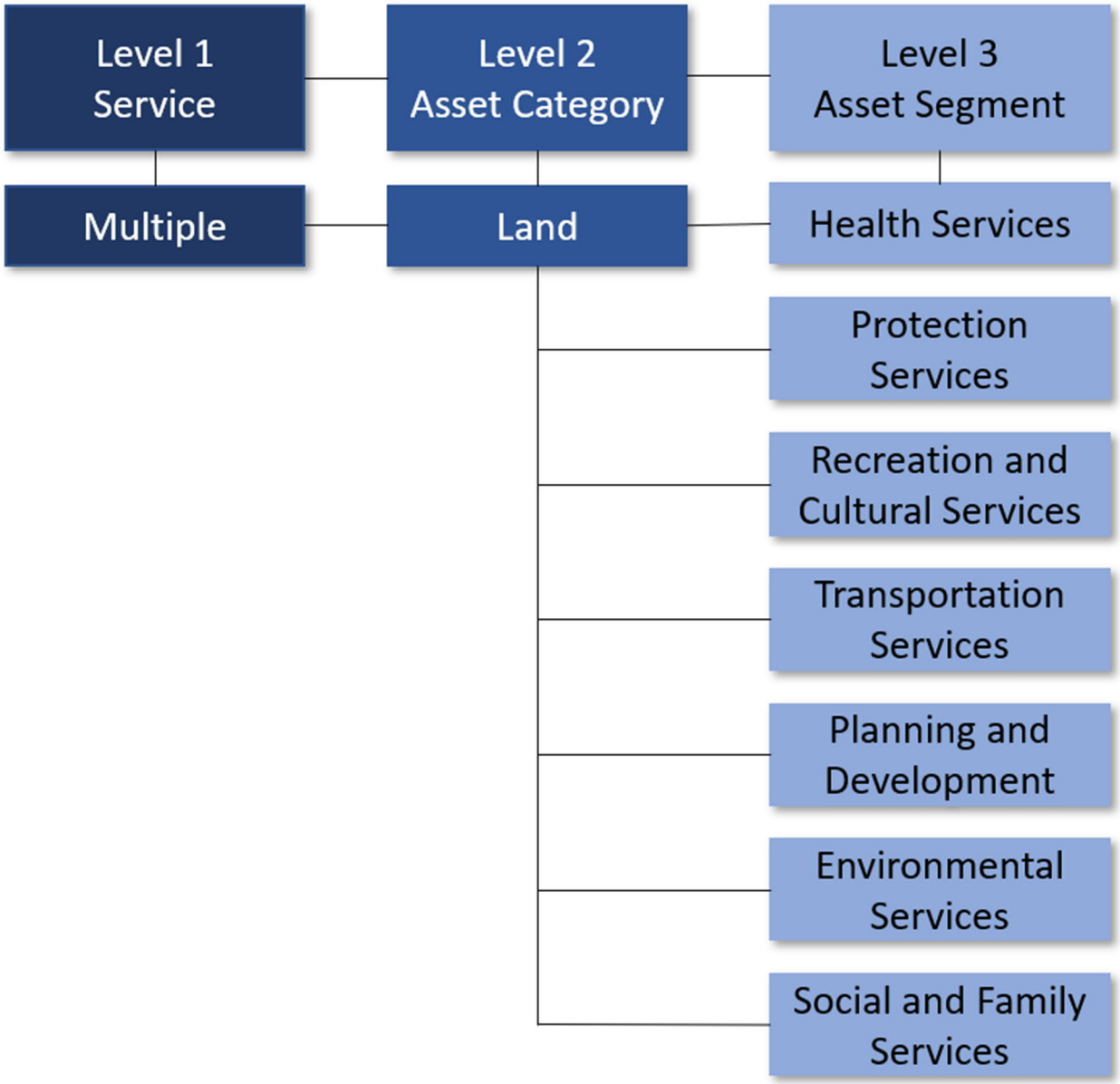

Figure 4-1: Asset Hierarchy - Land

All land assets represent a parcel of land owned, rented, or leased by the Municipality. Each asset is assigned a segment based on what service it, or the improvements/developments on it deliver to the community. Figure 4-2 below showcases the hierarchy of Land Improvement assets.

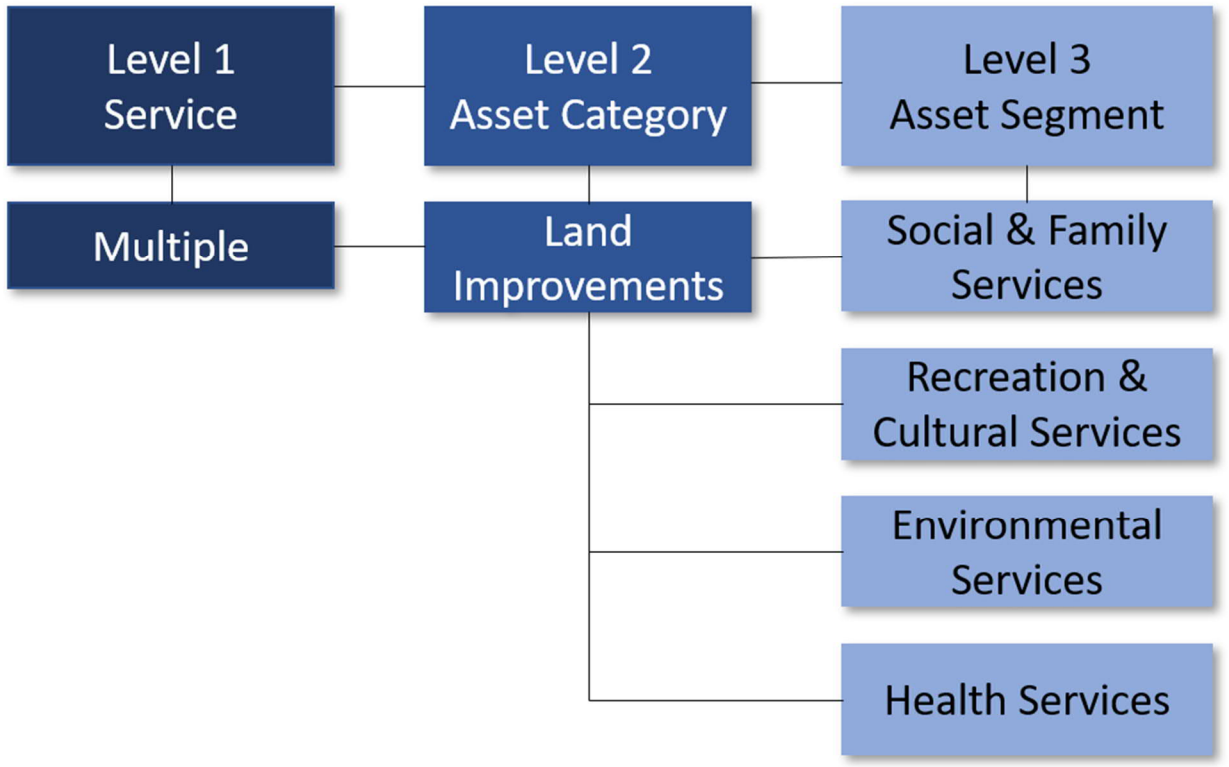

Figure 4-2: Asset Hierarchy - Land Improvements

For Land Improvement assets, segments typically include the following type of assets:

- Social & Family Services – Daycare playground equipment;
- Recreational & Cultural Services – Playground equipment, pavilions, walkways, benches, etc.;
- Environmental Services – Municipal drains; and,
- Health Services – Columbarium.

4.1.2 Asset Inventory & Replacement Cost

Table 4-1 presents the quantity, replacement cost method and total replacement cost of each asset segment in the Municipality's Land & Land Improvements inventory.

Table 4-1: Replacement Costs & Quantity – Land

Land Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
General Government	42	Historical Cost Inflation	$1,482,829.61
Recreation and Cultural Services	20	Historical Cost Inflation	$2,347,727.00
Environmental Services	17	Historical Cost Inflation	$1,016,908.81
Transportation Services	11	Historical Cost Inflation	$523,185.00
Protection Services	2	Historical Cost Inflation	$300,072.00
Planning and Development	5	Historical Cost Inflation	$882,800.00
Social and Family Services	1	Historical Cost Inflation	$95,778.00
Health Services	13	Historical Cost Inflation	$451,736.00
			$7,101,036.42

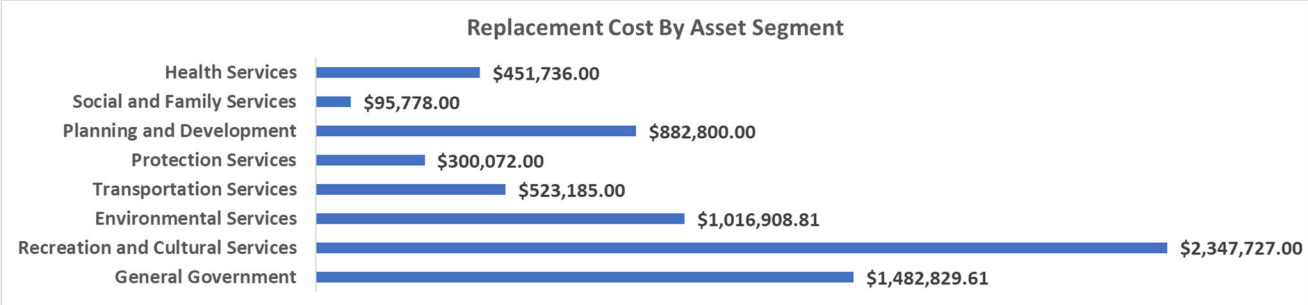

Figure 4-3: Replacement Costs by Asset Segment - Land

Table 4-2: Replacement Costs and Quantity - Land Improvements

Land Improvements Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Recreation and Cultural Services	29	Historical Cost Inflation	$3,701,893.00
Environmental Services	6	Historical Cost Inflation	$253,748.00
Health Services	1	Historical Cost Inflation	$51,262.00
Social and Family Services	1	Historical Cost Inflation	$34,051.00
			$4,040,954.00

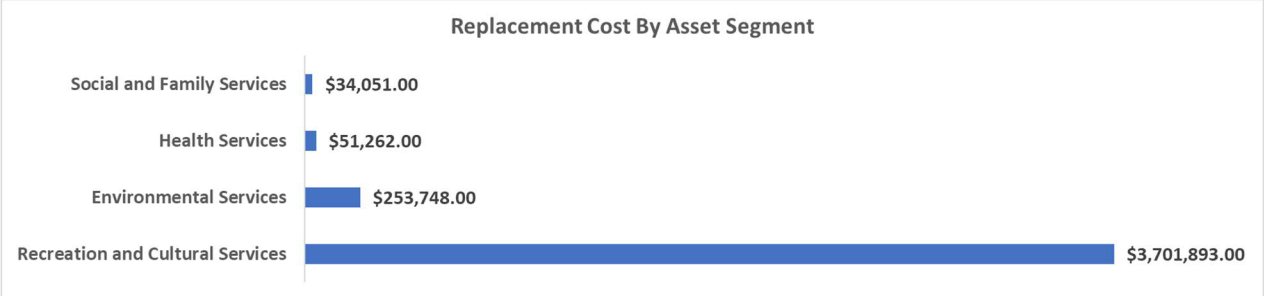

Figure 4-4: Replacement Costs by Asset Segment - Land Improvements

4.1.3 Asset Condition

Table 4-3 identifies the current average condition and source of available condition data for each asset segment in the Land Improvement category. The Average Condition (%) is a weighted value based on replacement cost. The average condition was determined to be 59%, or "Fair".

Table 4-3: Average Asset Condition - Land Improvements

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Recreation and Cultural Services	69	Good	Age-based
Environmental Services	86	Very Good	Age-based
Health Services	79	Good	Age-based
Social and Family Services	0	Very Poor	Age-based

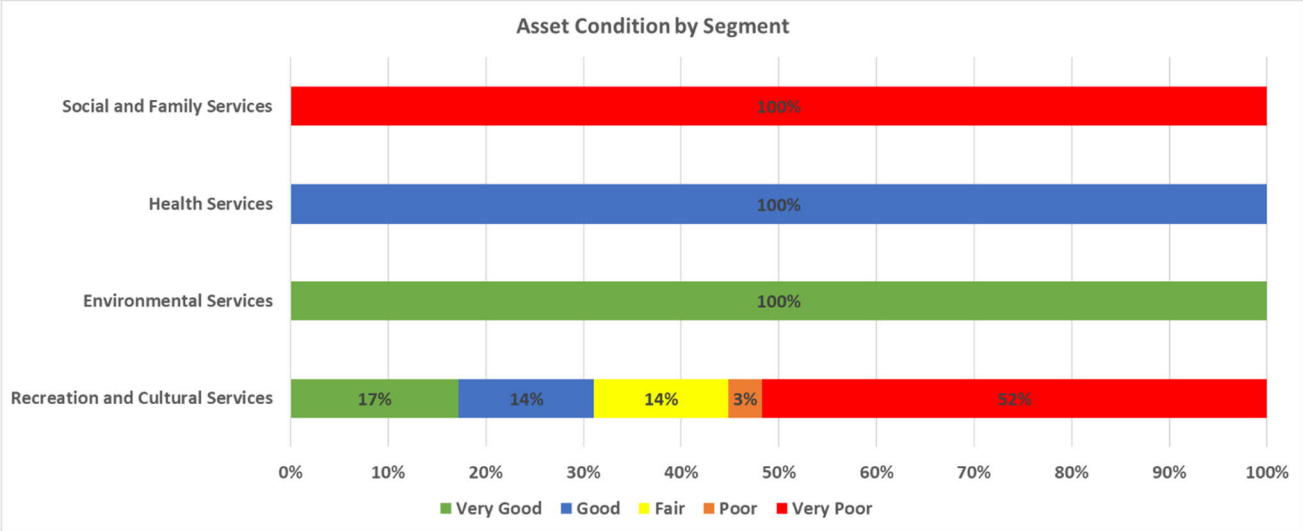

Figure 4-5: Asset Condition by Segment - Land Improvements

Condition data was not available for the Municipality's Land asset inventory. To ensure that the Municipality's Land continues to provide an acceptable level of service, the Municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Land and Land Improvements.

4.1.4 Estimated Useful Life & Average Age

The Municipality has not assigned an Estimated Useful Life to Land assets, as they are considered perpetual when maintained correctly. The Municipality should continue to evaluate this approach and ensure that Land assets are being appropriately maintained and managed.

The Estimated Useful Life for Land Improvement assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Table 4-4: EUL & Average Age - Land Improvements

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Recreation and Cultural Services	10-40 years	19.0	7.3
Environmental Services	35-40 years	5.6	21.7
Health Services	75 years	15.5	59.5
Social and Family Services	10 years	27.0	0.0
		16.8	22.2

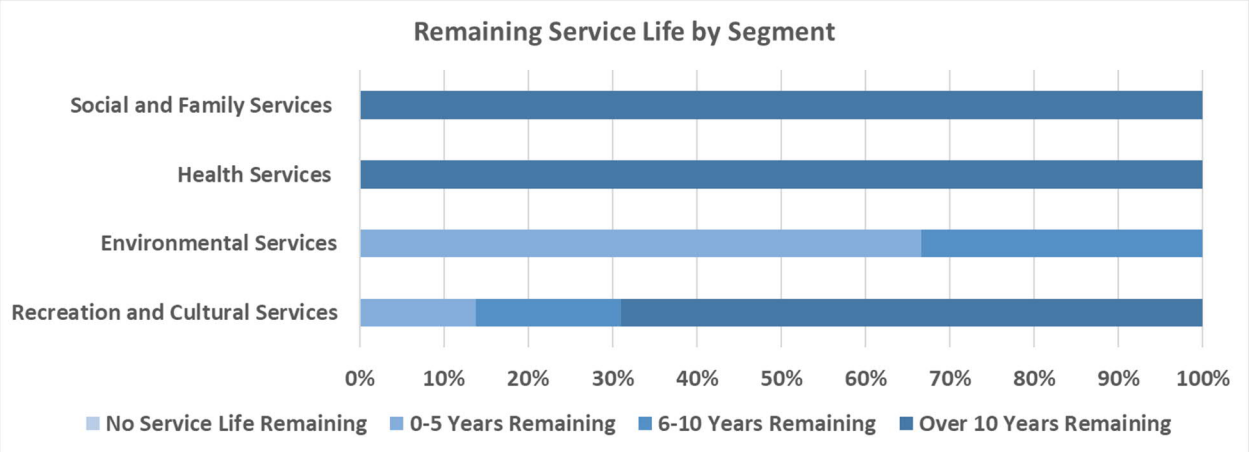

Figure 4-6: Remaining Service Life - Land Improvements

4.2 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Table 4-5 outlines the Municipality's current lifecycle management strategy.

Table 4-5: Lifecyle Activities - Land & Land Improvements

Activity Type	Description of Current Strategy
Maintenance	Maintenance details vary by asset and department. A pavilion may require simple cleaning and occasional repainting, while soccer fields will require consistent mowing, aeration, and line painting to ensure they provide adequate service.
	Informal inspections are carried out by municipal staff on a regular basis.
	More stringent maintenance and inspection of Playgrounds and similar assets according to CAN/CSA-Z614 and required as per O. Reg. 137/15.
Rehabilitation	Rehabilitation of assets is dealt with on a case-by-case basis. Land assets which deteriorate are typically rehabilitated rather than replaced. Potential examples include implementing erosion control measures or enacting a contaminated site cleanup process.
Replacement	Assessments are completed strategically as Land Improvement assets approach their end-of-life to determine whether replacement or rehabilitation is more appropriate.

4.2.1 Forecasted Capital Requirements

Based on the current inventory, and assuming end-of-life replacement for all assets, the graph below provides a 25-year forecast. This projection is used as it ensures that most assets have gone through one full iteration of replacement, and does not include assets that may be required for growth. The forecasted requirements are aggregated into 5-year bins and are based on the Municipality's asset inventory as of 2024. The trend line represents the average 5-year capital requirements, which were determined to be approximately $0.93M.

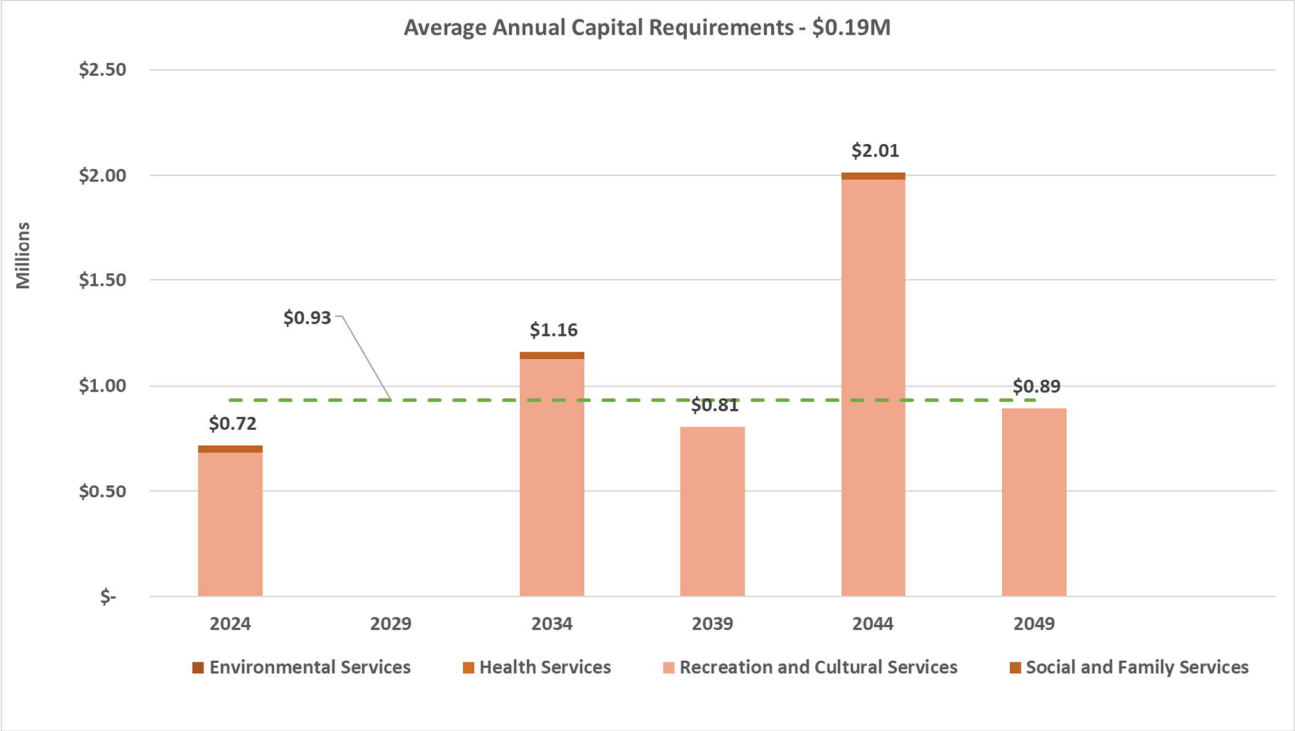

Figure 4-7: 25-year Projected Capital Requirements - Land Improvements

Figure 4-8 provides a 10-year forecast to assist in short-term financial planning. Replacing assets that are currently in service beyond their estimated useful life constitutes the majority of capital required in the next 10 years. The dashed amber line represents the average annual expenditure to replace failing assets.

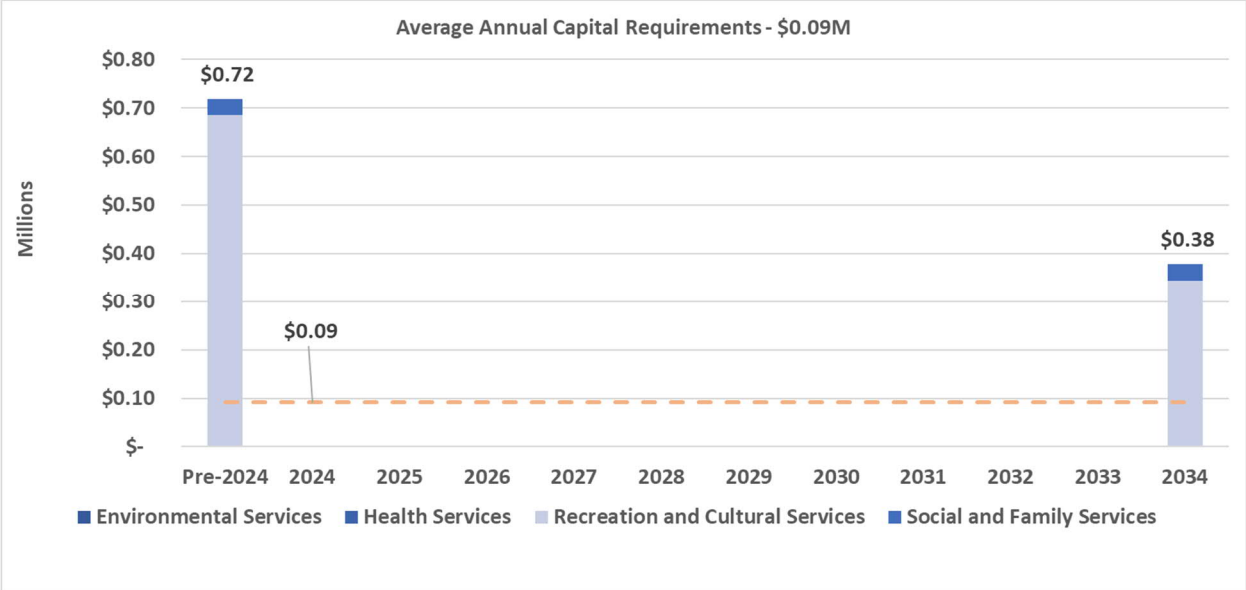

Figure 4-8: 10-year Projected Capital Requirements - Land Improvements

4.3 Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within the Land Improvements asset category based on 2024 inventory data. See Appendix C of the 2021 AM Plan for the criteria used to determine the risk rating of each asset.

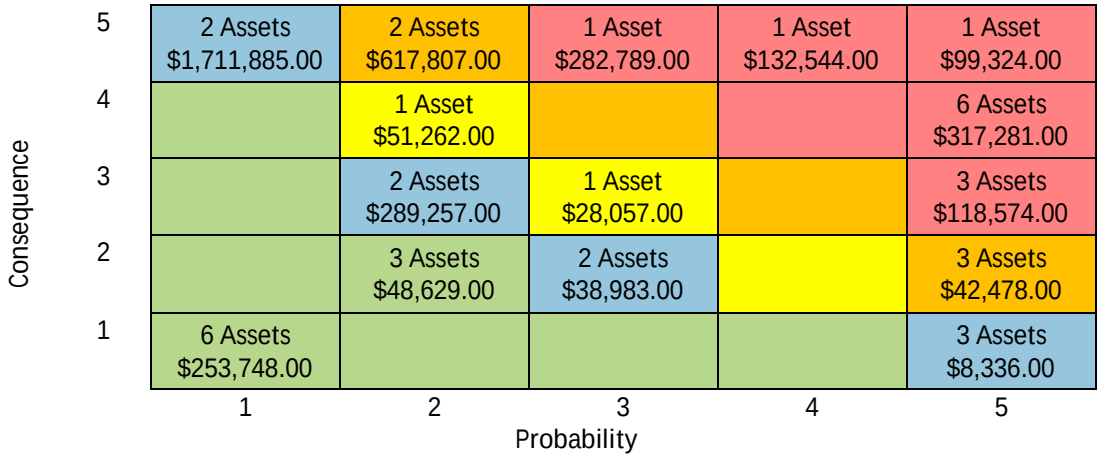

Figure 4-9: Risk Matrix - Land Improvements

The Municipality has not developed risk scores for their Land asset inventory.

4.3.1 Risks to Current Asset Management Strategies

Table 4-6 summarizes key risks to service delivery that the Municipality is currently facing and will face in the near future.

Table 4-6: Risks to Asset Management Strategy - Land & Land Improvements

Risk to Asset Management Strategy	Description
Inadequate Inventory Management	Inadequate inventory management may result in inefficient use of resources and unplanned expenses. Land assets are not formally managed, which may lead to them being neglected.
Climate Resilience and Adaptation	The level of service delivered by parks may be impacted by climate change. It may become more difficult to maintain greenery, control erosion, and provide adequate drainage in the face of more extreme weather events. Additional funding may be required to mitigate climate change impacts in the future.
Increasing Land Value	Land values have increased significantly in recent years, making it more challenging to acquire additional parcels, and making it more appealing to sell parcels to private buyers. The Municipality will have to carefully evaluate all future decisions regarding their Land asset portfolio.
Asset Misuse	Public-facing assets are more likely to be misused or damaged, shortening their lifespan.

4.4 Level of Service

The level of service provided by the Municipality's Land and Land Improvements assets are summarized in Table 4-7 and Table 4-8 below.

Table 4-7: Community LOS - Land & Land Improvements

Service Parameter	Description	LOS Metric	Current LOS (2023)
Quantity	The Municipality maintains an adequate portfolio of parks, green spaces, and playgrounds.	# of parks per 1000 population	There are approximately 1.84 parks per 1000 population in the Municipality (18 total).
Availability	Park assets are available to the public as often as reasonably possible.	Description of how the Municipality prevents park closures, and how closure time is minimized when necessary	The Municipality conducts preventative inspections and maintenance on parks and recreation assets to minimize closures. When factors such as weather necessitate closures, Brockton responds appropriately to minimize closure time.

Table 4-8: Technical LOS - Land & Land Improvements

Service Parameter	Description	Technical Metric	Current LOS (2023)
Quantity	The Municipality maintains an adequate portfolio of parks, green spaces, and playgrounds.	Park/greenspace area as a percentage of total area in the Municipality	To be provided in a later update.
Availability	Land and Land Improvement assets are maintained	Average number of inspections carried out on Land Improvement assets per month	Assets such as play structures are inspected on a monthly basis. The total number of inspections carried out on land improvement assets in a given month is currently tracked informally. The Municipality is in the process of developing a formal process to track the availability of facilities. (or – please provide the information if tracking is currently in place)

4.5 Recommendations

4.5.1 Condition Assessment Strategies

All assets in the Municipality's management software, CityWide, are set to default to age-based projected condition. This utilizes the asset's acquisition date and it's Estimated Useful Life to generate a condition rating. This method does apply to Land assets, as they are not "new" when acquired, and have an EUL of zero years. The Municipality should carry out formal condition assessments on an annual basis.

4.5.2 Community Engagement and Feedback

To ensure that desired level of service is being met, the Municipality should increase community involvement in the planning and management of park facilities through regular public consultations, surveys, and feedback forms. The Municipality could establish volunteer programs and partnerships with local organizations to support park maintenance and improvement projects.

4.5.3 Replacement Costs

All Land asset and Land Improvement asset replacement costs used in this AMP were based on the inflation of historical costs. These costs should be evaluated to determine their accuracy and reliability. Replacement costs should be updated according to the best available information on the cost to replace the asset in today's value.

5.0 Machinery & Equipment

5.1 State of Local Infrastructure

The Municipality's Machinery & Equipment inventory is managed in CityWide and comprises of 282 assets. In order to maintain the high quality of public infrastructure and support the delivery of core and non-core services, Staff own and employ machinery and equipment assets which are used for a variety of service deliveries.

Keeping machinery & equipment in an adequate state of repair is important to maintain a high level of service.

5.1.1 Asset Hierarchy and Segmentation

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Most reports and analytics presented in this AMP are summarized at the Level 3 (Asset Segment) and/or Level 2 (Asset Category) as presented in the 2021 AM Plan and is shown in Figure 5-1.

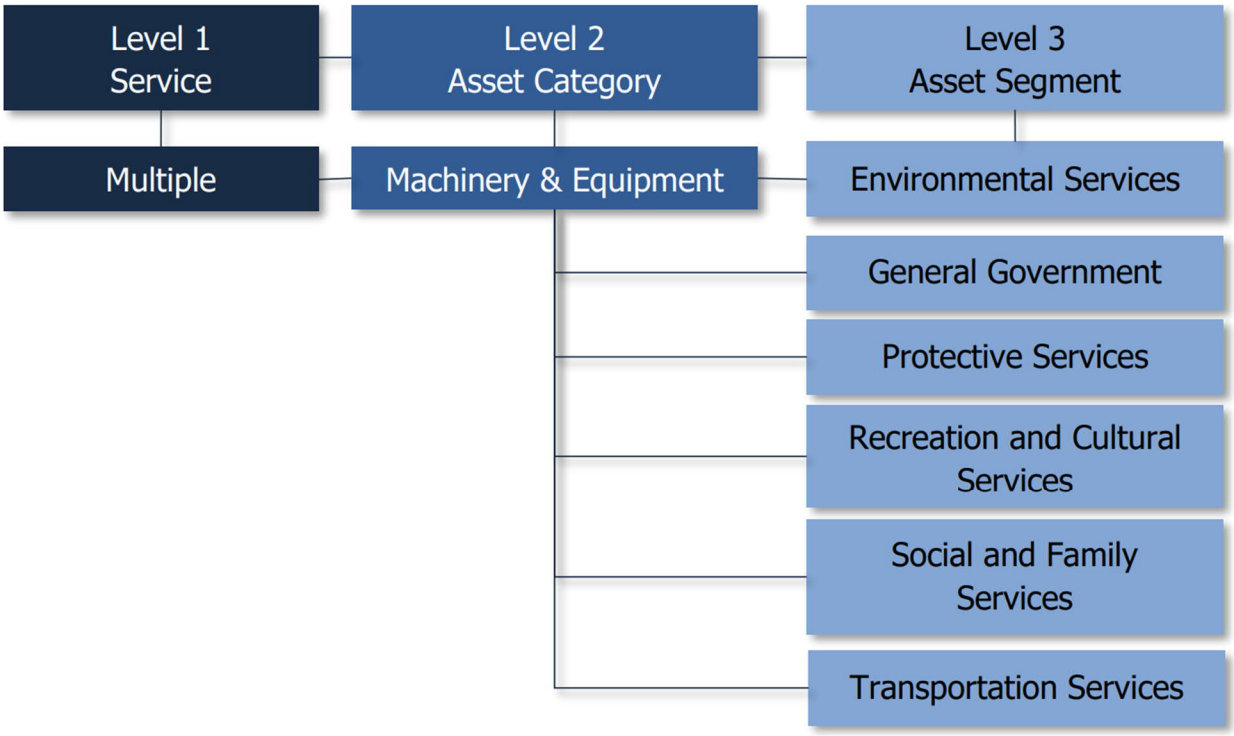

Figure 5-1: Asset Hierarchy - Machinery & Equipment

For Machinery and Equipment assets, segments typically include the following type of assets:

- Environmental Services – Water/Wastewater treatment equipment, generators, Landfill compactor;
- General Government – Office equipment;
- Protection Services – Bunker gear, SCBA equipment, other emergency response gear;
- Recreation and Cultural Services – Sports equipment, tractors/trailers for maintaining fields;
- Social and Family Services – Daycare equipment; and,
- Transportation Services – Plows, graders, other road maintenance equipment.

5.1.2 Asset Inventory & Replacement Cost

There are 282 assets in the Machinery and Equipment category with an estimated Total Replacement Cost of $23.24M. Table 5-1 includes the quantity, replacement cost method and total replacement cost of each asset segment in the Municipality's Machinery & Equipment inventory.

Table 5-1: Replacement Costs & Quantity - Machinery & Equipment

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Environmental Services	53	CPI Tables	$13,422,828.62
Health Services	4	CPI Tables	$100,033.00
Protection Services	44	CPI Tables	$638,737.92
Transportation Services	54	CPI Tables	$5,699,355.15
Social and Family Services	17	CPI Tables	$152,590.00
General Government	23	CPI Tables	$568,016.46
Recreation and Cultural Services	66	CPI Tables	$2,658,621.46

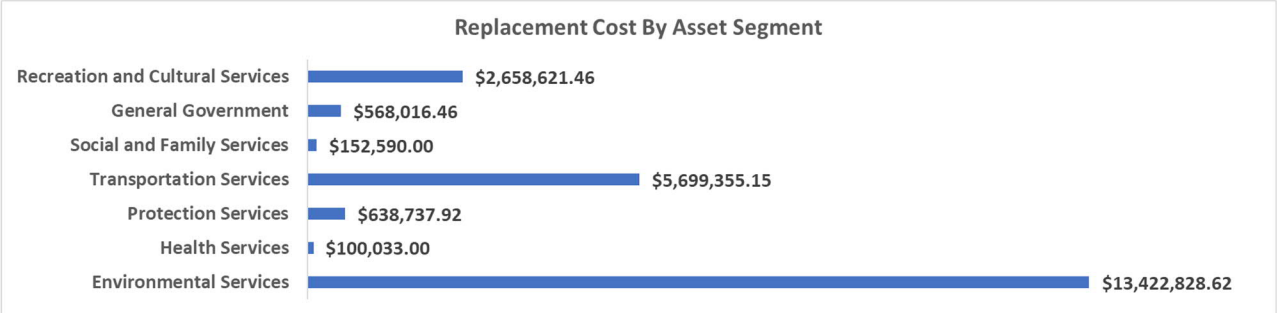

Figure 5-2: Replacement Costs by Asset Segment - Machinery & Equipment

More than half of the replacement costs can be attributed to the Environmental Services asset segment. Replacement costs within this segment, and other segments, should be reviewed periodically to ensure accuracy.

5.1.3 Asset Condition

Table 5-2 identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost. The average asset condition was determined to be 31% or "Poor".

Table 5-2: Average Asset Condition - Machinery & Equipment

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Environmental Services	40	Poor	Age-based
Health Services	25	Poor	Age-based
Protection Services	41	Fair	Age-based
Transportation Services	26	Poor	Age-based
Social and Family Services	14	Very Poor	Age-based
General Government	33	Poor	Age-based
Recreation and Cultural Services	36	Poor	Age-based

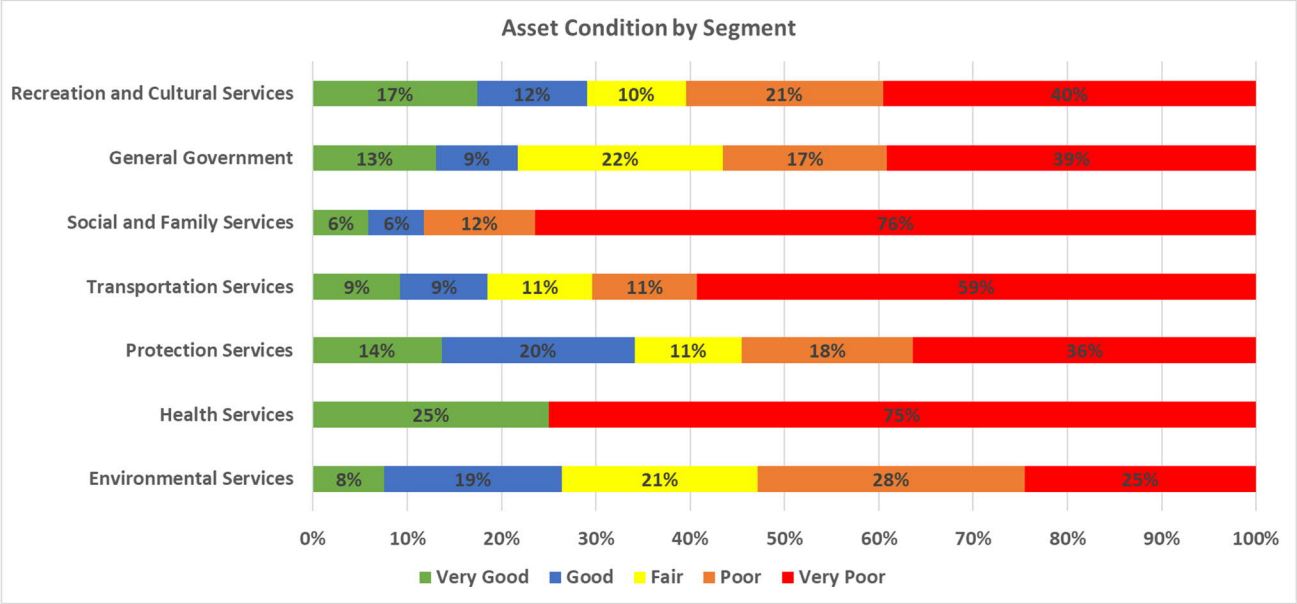

Figure 5-3: Asset Condition by Segment - Machinery & Equipment

To ensure that the Municipality's Machinery & Equipment continues to provide an acceptable level of service, the Municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Machinery & Equipment.

5.1.3.1 Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality's current approach:

- Staff complete regular inspections of machinery & equipment to ensure they are in state of adequate repair.
- Some equipment such as the recreation refrigeration system are reviewed annually based on requirements and needs.
- Recreation equipment is inspected according to the Technical Standards and Safety Authority (TSSA) to meet provincial requirements.

5.1.4 Estimated Useful Life & Average Age

The average age of the Machinery and Equipment category is 13.1 years with an estimated average service life remaining of 4.5 years.

The Estimated Useful Life for Machinery & Equipment assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Table 5-3: EUL & Average Age - Machinery & Equipment

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Environmental Services	10-85 years	19	11.9
Health Services	10 years	15.2	18.6
Protection Services	5-20 years	6.8	3.9
Transportation Services	10-15 years	13.2	2.9
Social and Family Services	5-25 years	16.5	1.5
General Government	3-10 years	9.5	3.1
Recreation and Cultural Services	5-35 years	11.4	5.7

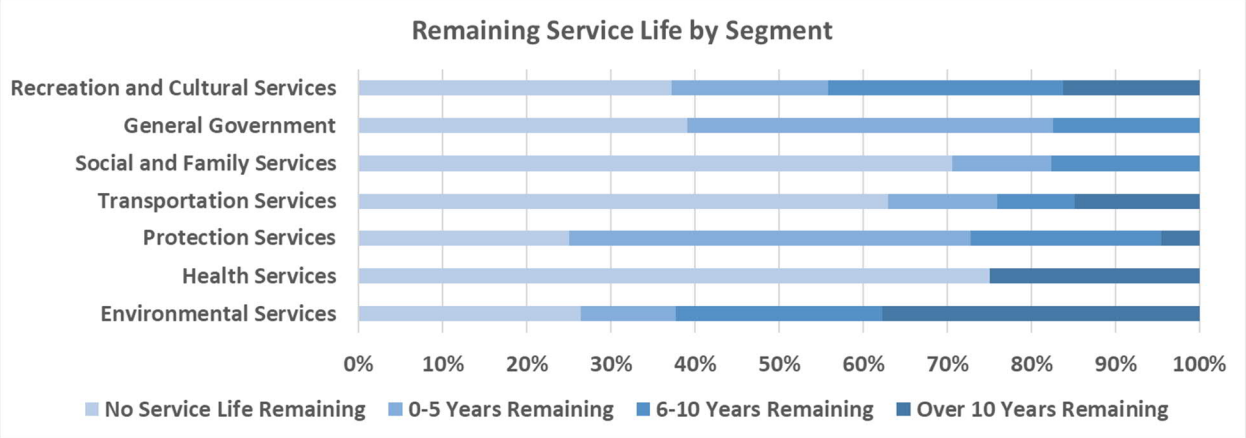

Figure 5-4: Remaining Service Life - Machinery & Equipment

Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

5.2 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Table 5-4 outlines the Municipality's current lifecycle management strategy.

Table 5-4: Lifecycle Activities - Machinery & Equipment

Activity Type	Description of Current Strategy
Maintenance	Maintenance details vary by asset and department. Computers require cleaning and dusting, while a grader requires oil changes, tire replacement, etc.
	Fire Protection and Emergency Services equipment (Assets in the Protection Services segment) is subject to a much more rigorous inspection and maintenance program compared to most other departments. Maintenance is performed to applicable standards such as NFPA.
	Machinery & equipment are maintained according to manufacturer recommended actions and supplemented by the expertise of municipal staff.
Replacement	The replacement of machinery & equipment depends on deficiencies identified by operators that may impact their ability to complete required tasks. Furthermore, staff monitor any increase in maintenance costs to identify if an asset replacement is required.

5.2.1.1 Forecasted Capital Requirements

Based on the current machinery & equipment inventory, and assuming end-of-life replacement for all assets, Figure 5-5 provides a 25-year forecast for the Machinery & Equipment category. This projection is used as it ensures that every asset has gone through one full iteration of replacement and does not include assets that may be required for growth. The forecasted requirements are aggregated into 5-year bins and are based on the Municipality's asset inventory as of 2024. The trend line represents the average 5-year capital requirements, which was determined to be $4.47M. The average annual capital requirement was determined to be approximately $890,000.

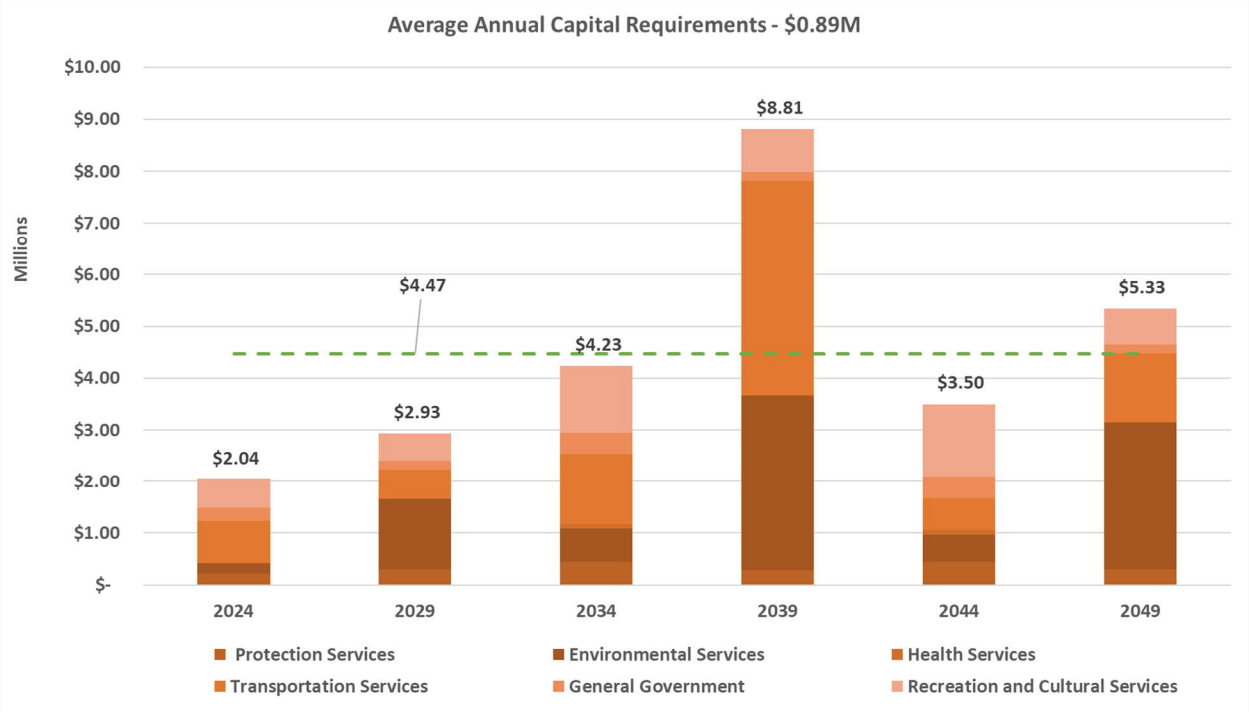

Figure 5-5: 25-year Projected Capital Requirements - Machinery & Equipment

Figure 5-6 depicts the 10-year forecast to assist in short-term financial planning. Replacing assets that are currently in service beyond their estimated useful life constitutes the majority of capital required in the next 10 years. The dashed amber line represents the average annual expenditure to replace failing assets, which was determined to be $1.03M.

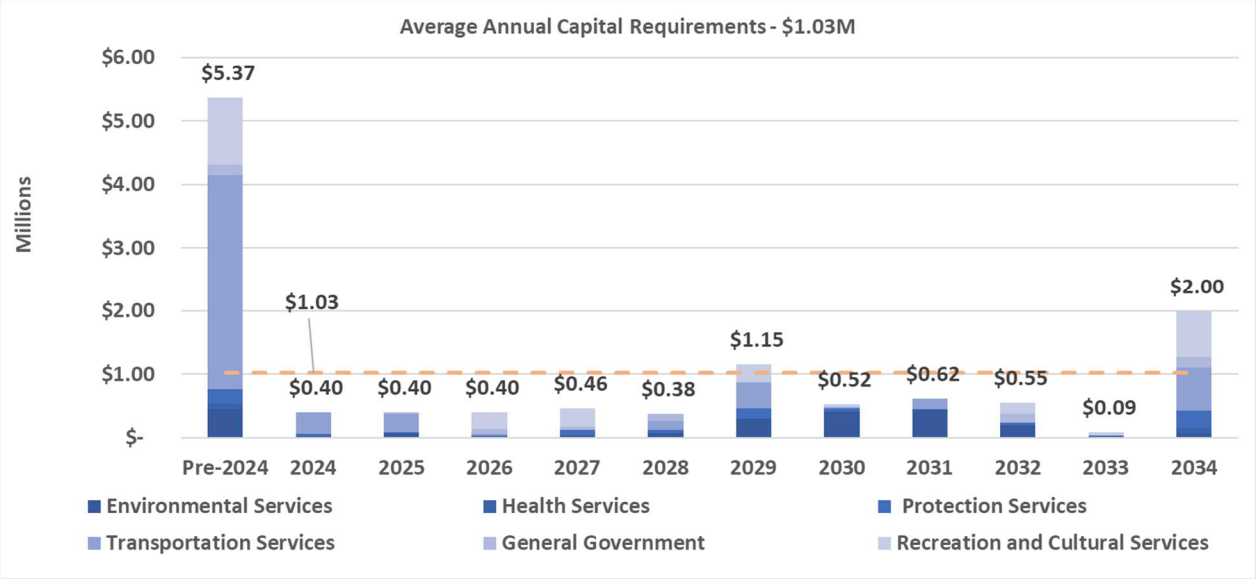

Figure 5-6: 10-year Projected Capital Requirements - Machinery & Equipment

5.3 Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C of the 2021 AM Plan for the criteria used to determine the risk rating of each asset.

Consequence	Probability 1	2	3	4	5
5	2 Assets $5,454,681.00	2 Assets $2,030,354.00	1 Asset $219,543.00	3 Assets $876,010.00	5 Assets $1,737,866.00
4	1 Asset $116,486.00	1 Asset $2,853,000.00	3 Assets $377,203.00	4 Assets $543,778.00	19 Assets $2,719,028.00
3	8 Assets $424,460.00	5 Assets $279,357.00	6 Assets $291,904.00	11 Assets $566,405.00	27 Assets $1,181,165.00
2	8 Assets $180,660.00	7 Assets $169,641.00	6 Assets $158,282.00	12 Assets $242,052.00	34 Assets $660,361.00
1	27 Assets $1,403,510.89	22 Assets $354,101.16	12 Assets $91,067.76	21 Assets $180,669.00	35 Assets $192,615.00

Figure 5-7: Risk Matrix - Machinery & Equipment

5.4 Level of Service

The current level of service provided by the Machinery and Equipment assets is summarized in Table 5-5 and Table 5-6 below.

Table 5-5: Community LOS - Machinery & Equipment

Service Parameter	Description	LOS Metric	Current LOS (2023)
Reliability	Provides reliable service	Description of how reliable the machinery and equipment assets are, and the actions performed to ensure reliability	Machinery and equipment assets are inspected on a regular basis, with frequency according to their service delivery. All assets are inspected, operated and maintained to the requirements of applicable standards (i.e. NFPA, MTO,OPSS, etc.).

Table 5-6: Technical LOS - Machinery & Equipment

Service Parameter	Description	Technical Metric	Current LOS (2023)
Reliability	Maintenance activities keep Machinery & Equipment assets in good working order for their expected useful life.	% of machinery & equipment assets with a "Good" or better condition rating	Approximately 25% of Machinery and Equipment assets have a condition rating of "Good" (>60%) or better.
		% of machinery & equipment assets with regular (weekly, monthly, or annually) inspections	100%
Safety	Operators are trained to provide safe and effective use of machinery and equipment assets.	% of operators with required certifications	100%
		Description of operator training and safe work practices in place to ensure safe operation	The Municipality ensures that all Operators have valid and current certifications where required.

5.5 Recommendations

5.5.1 Condition Assessment Strategies

The Municipality should formalize condition assessment strategies for high-value machinery and equipment assets, such as graders, tractors, and water/wastewater treatment equipment. Applicable standards and guidelines can be used to develop appropriate condition assessment processes.

5.5.2 Asset Inventory

The Municipality should conduct an inventory review, and collect and consolidate asset data to ensure all relevant assets are accounted for.

5.5.3 Risk Management Strategies

Develop comprehensive strategies to mitigate risks associated with a significant portion of Machinery and Equipment assets. The combined value of high-risk assets is currently over $7M. Transitioning to lower-risk assets through rehabilitation and replacement may provide significant financial benefit to the municipality.

6.0 Streetlights

6.1 State of Local Infrastructure

The Municipality's Streetlight inventory is managed in CityWide and contains 561 assets. Assets represent individual groups of lights, as well as large groups of streetlights where applicable.

6.1.1 Asset Hierarchy and Segmentation

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. In Citywide, Streetlights are considered an Asset Segment under the Roads asset category. They have been extracted from Roads for analysis as part of the 2024 Non-Core AMP Update.

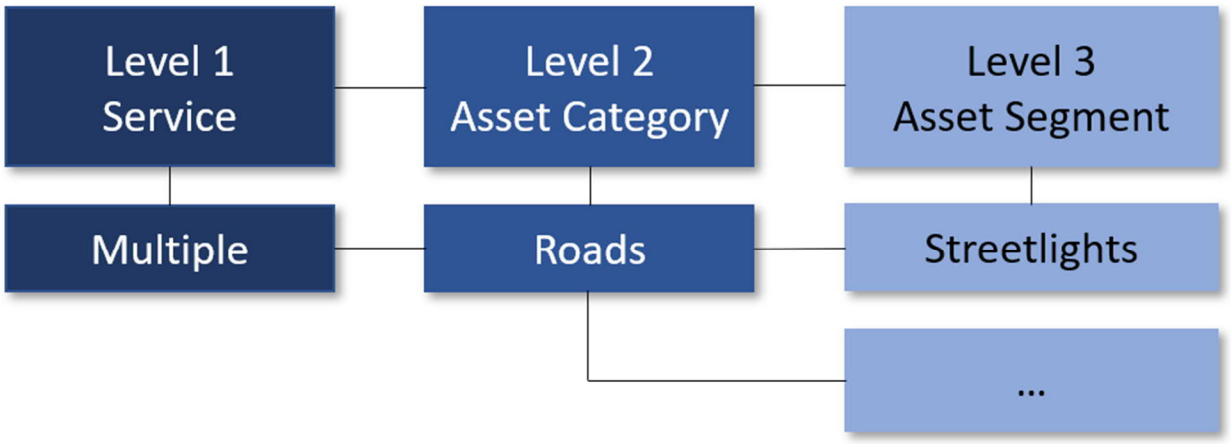

Figure 6-1: Asset Hierarchy - Streetlights

6.1.2 Asset Inventory & Replacement Cost

Table 6-1 includes the quantity, replacement cost method and total replacement cost of the Municipality's Streetlight inventory. The total replacement cost was determined to be approximately $842,000.

Table 6-1: Replacement Cost & Quantity - Streetlights

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Streetlights	561	CPI Tables	$842,394.55

6.1.3 Asset Condition

Table 6-2 identifies the current average condition and source of available condition data for Streetlight assets. The Average Condition (%) is a weighted value based on replacement cost. Streetlights were determined to be in "Good" condition on average.

Table 6-2: Average Asset Condition - Streetlights

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Streetlights	60.2	Good	Age-based

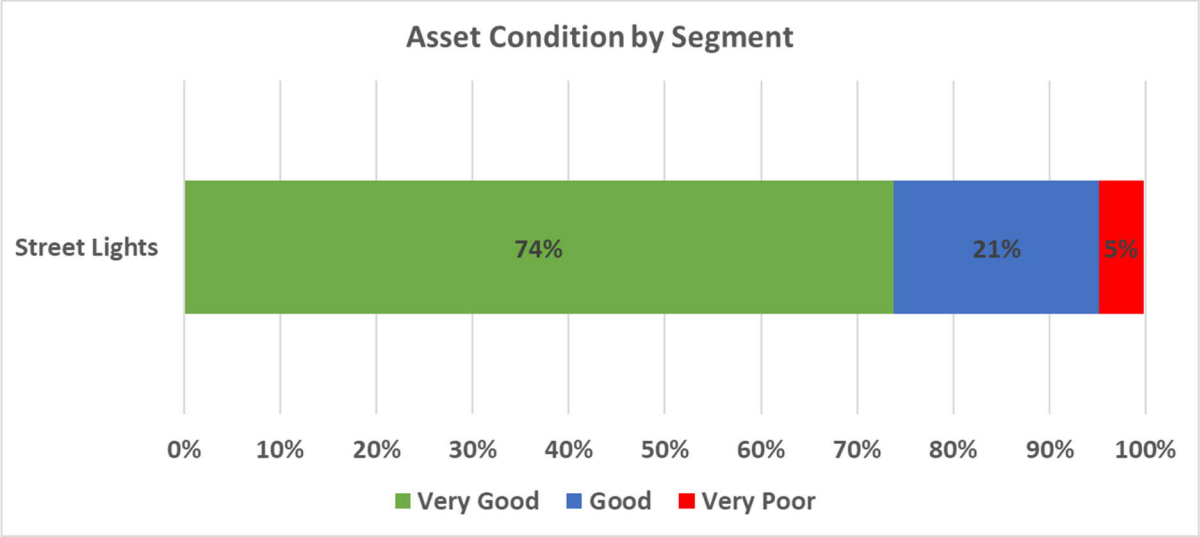

Figure 6-2: Asset Condition by Segment - Streetlights

To ensure that the Municipality's Streetlight assets continue to provide an acceptable level of service, the Municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Streetlights.

6.1.4 Estimated Useful Life & Average Age

The Estimated Useful Life for assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining. The estimated useful life of Streetlights was set to a standard of 30 years. The average age of Streetlight assets is 6.9 years, and they have an average estimated service life of 23.8 years remaining.

Table 6-3: EUL & Average Age - Streetlights

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Streetlights	30 Years	6.9	23.8

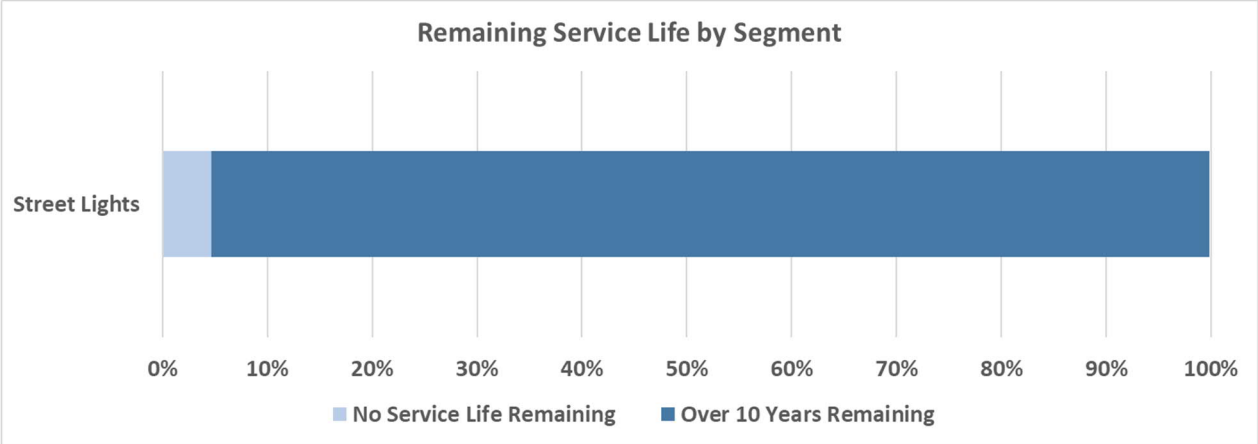

Figure 6-3: Remaining Service Life - Streetlights

6.2 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Table 6-4 outlines the Municipality's current lifecycle management strategy.

Table 6-4: Lifecycle Activities - Streetlights

Activity Type	Description of Current Strategy
Maintenance	Bulbs must be replaced when they burn out. LED bulbs have an EUL of up to 20 years, depending on model and daily active hours.
	Cleaning of Streetlights in urban areas, removal of posters and signs attached to the pole.
Rehabilitation	Older streetlights may be retrofitted to use LED bulbs if the pole, base, and other key components are deemed to be in acceptable condition. Current poles may be rehabilitated in the future if innovation in lighting technology provides sufficient incentive.
Replacement	Replacement of older streetlights will occur as budget allows. Streetlights may be rehabilitated and kept in service beyond their EUL if they continue to function.

6.2.1.1 Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that the Brockton should allocate towards funding rehabilitation and replacement needs to meet future capital needs. The specific projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

Figure 6-4 provides a 25-year forecast. This projection is used as it ensures that every asset has gone through one full iteration of replacement and does not include assets that may be required for growth. The forecasted requirements are aggregated into 5-year bins and are based on the Municipality's asset inventory as of 2023. The trend line represents the average 5-year capital requirements, while the average annual capital requirement was determined to be approximately $39,100.

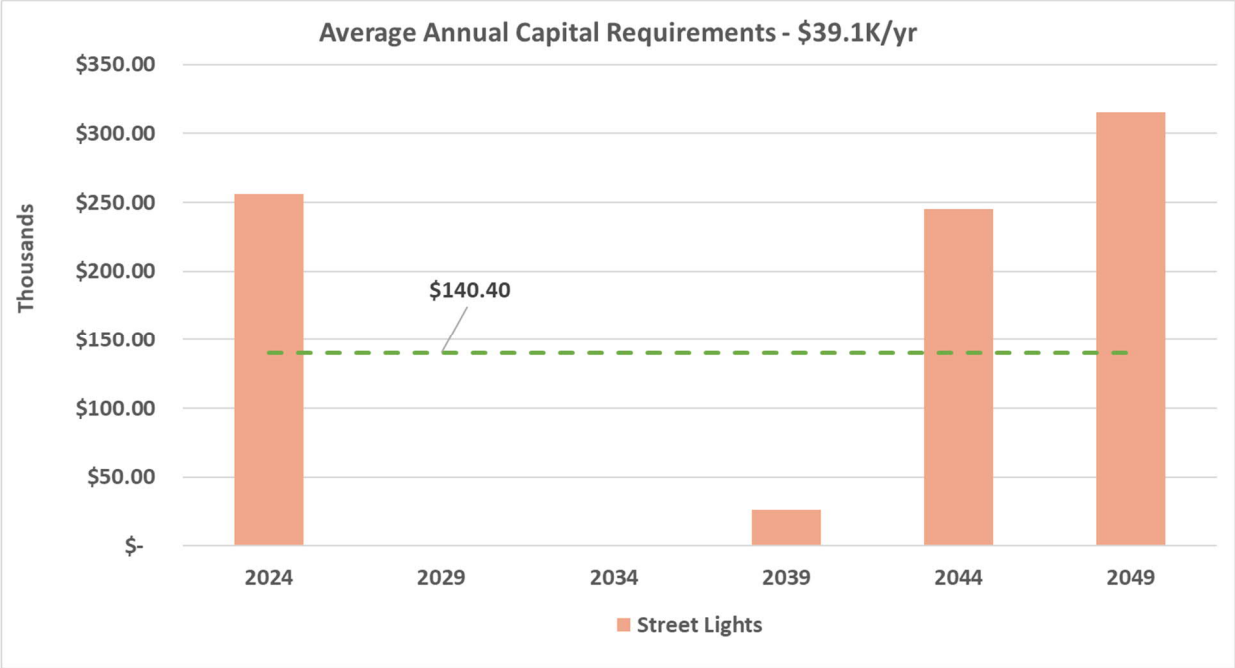

Figure 6-4: 25-year Projected Capital Requirements - Streetlights

All costs contained within the 2024-2029 bin are backlogged replacements of existing assets which have reached the end of their useful life. It would cost approximately $255,769 to replace all in-service streetlights which have exceeded their estimated useful life.

6.3 Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C of the 2021 AM Plan for the criteria used to determine the risk rating of each asset.

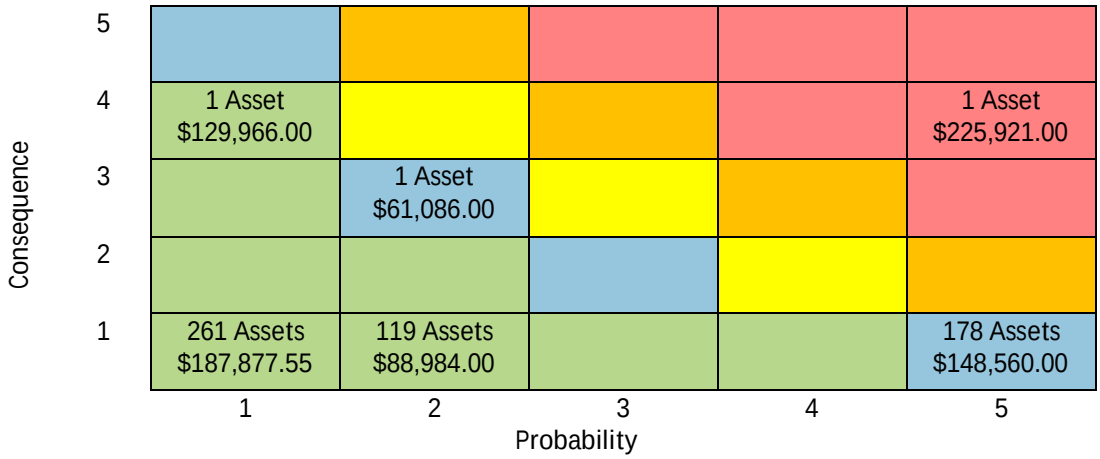

Figure 6-5: Risk Matrix - Streetlights

6.3.1.1 Risks to Current Asset Management Strategies

Table 6-5 summarizes key trends, challenges, and risks to service delivery that the Municipality is currently facing.

Table 6-5: Risks to Asset Management Strategy - Streetlights

Risk to Asset Management Strategy	Description
Aging Infrastructure	Large numbers of streetlights from the 1980s are still in service after their estimated useful life has ended. Maintenance requirements may intensify over time, leading to additional costs and higher probability of failure.
Climate Change & Extreme Weather Events	Flooding and extreme weather can cause damage to streetlights, even toppling them over. As instances of extreme weather are predicted to increase due to ongoing climate change, the Municipality must pay attention to industry best practices to ensure their streetlights can withstand the conditions, and set aside additional funds for more frequent repairs and rehabilitation.

6.4 Level of Service

The current level of service provided by Streetlight assets are outlined in Table 6-6 and Table 7-7.

Table 6-6: Community LOS - Streetlights

Service Parameter	Description	LOS Metric	Current LOS (2023)
Environmental Acceptability	Sustainable practices are utilized when Streetlights are maintained or replaced.	Description of the Municipality's policy towards using LEDs or other energy efficient bulbs, and other efficiency strategies	The Municipality uses LED bulbs in all new streetlights. Existing streetlights are currently being retrofitted, and the majority of them have been switched to LED bulbs. All incandescent bulbs will be replaced with LED bulbs in coming years.
Safety	Urban streets are adequately lit to decrease vehicle accidents and improve pedestrian safety.	Description of how community safety by active streetlights is being met.	Regular inspections to replace bulbs or damaged streetlights within a reasonable time.

Table 6-7: Technical LOS - Streetlights

Service Parameter	Description	Technical Metric	Current LOS (2023)
Environmental Acceptability	Sustainable practices are utilized when Streetlights are maintained or replaced.	Average annual cost of electricity.	Monitoring has not yet been formalized. The Municipality aims to gather metering data from groups of streetlights to develop an average annual electricity cost value.
		% of lights operating with energy efficient bulbs.	Approximately 93.8% of streetlights are operating with LED bulbs.

6.5 Recommendations

6.5.1 Condition Assessment Strategies

The Municipality should formalize condition assessment strategies for streetlights. Assessment of streetlights can take place during roads assessments. Applicable standards and guidelines can be used to develop appropriate condition assessment processes, such as Ontario Provincial Standard 617: Installation of Roadway Luminaries or CSA E60598-2.

6.5.2 Risk Management Strategies

Develop comprehensive strategies to mitigate risks associated with a significant financial portion of Streetlights assets. Transitioning to lower-risk assets through rehabilitation and replacement may provide significant financial benefit to the municipality.

7.0 Vehicles

7.1 State of Local Infrastructure

The Municipality's Vehicle inventory is managed in CityWide and comprises of 24 assets. Like Machinery and Equipment assets, Vehicle assets allow staff to efficiently deliver municipal services and personnel. Municipal Vehicle assets are used to support several service areas, some of which are:

- Operations;
- Protective Services;
- Recreation and Cultural Services; and,
- Transportation Services.

7.1.1 Asset Hierarchy and Segmentation

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Most reports and analytics presented in this AMP are summarized at Level 3 (Asset Segment) and/or Level 2 (Asset Category) as presented in the 2021 AMP and is shown in Figure 7-1. The category of "Fleet" has been renamed to "Vehicles".

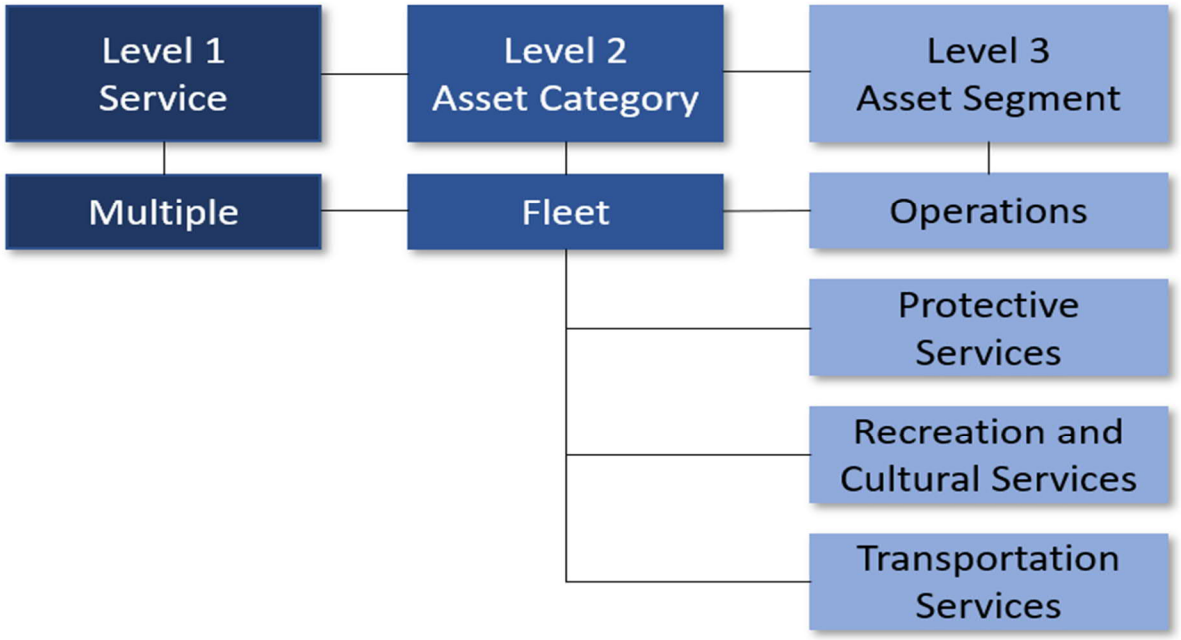

Figure 7-1: Asset Hierarchy - Vehicles

7.1.2 Asset Inventory & Replacement Cost

There are 24 assets in the Vehicles category with an estimated Total Replacement Cost of $3.3 million. Table 7-1 below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Municipality's Vehicle category.

Table 7-1: Replacement Costs & Quantity - Vehicles

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Operations	1	CPI Tables	$40,268.47
Protection Services	6	CPI Tables / User-Defined Cost	$2,560,204.51
Recreation and Cultural Services	6	CPI Tables / User-Defined Cost	$250,103.00
Transportation Services	11	CPI Tables / User-Defined Cost	$447,009.00

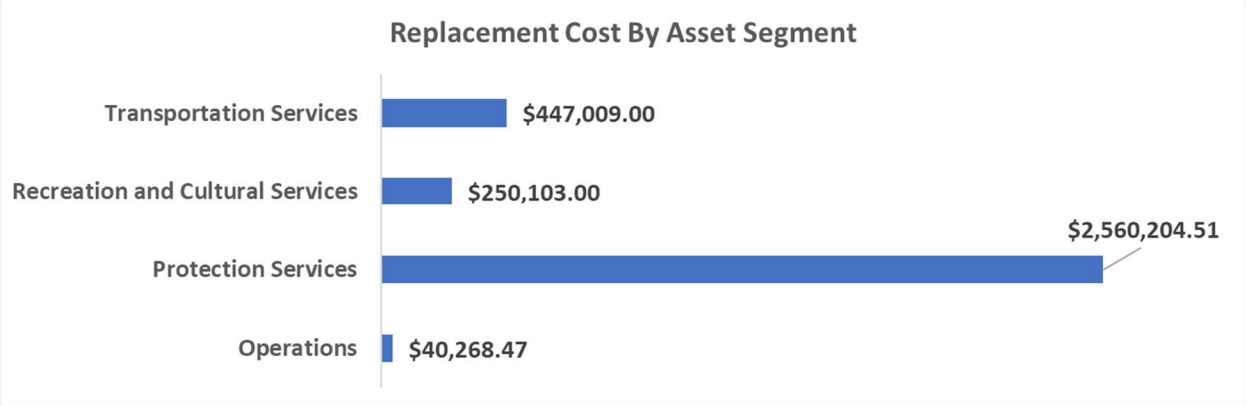

Figure 7-2: Replacement Costs by Asset Segments - Vehicles

7.1.3 Asset Condition

Table 7-2 below identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost. The average asset condition was determined to be 59% or "Fair".

Table 7-2: Average Asset Condition - Vehicles

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Operations	79	Good	Age-based
Protection Services	51	Fair	Age-based
Recreation and Cultural Services	62	Good	Age-based / Individual Assessment
Transportation Services	45	Fair	Age-based

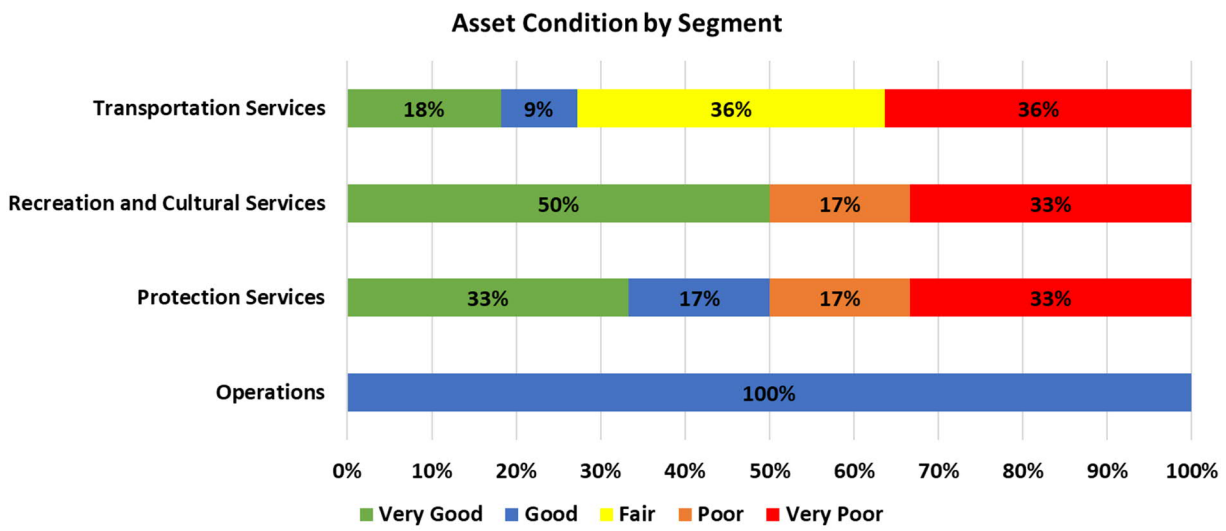

Figure 7-3: Vehicles - Asset Condition by Segment

To ensure that the Municipality's Vehicle assets continue to provide an acceptable level of service, the Municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Vehicles.

7.1.3.1 Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality's current approach:

- Staff complete regular visual inspections of fleet assets to ensure they are in state of adequate repair prior to operation.
- Assets are assigned a condition rating based on their age, which is adjusted if inspection reports are available.

7.1.4 Estimated Useful Life & Average Age

The Estimated Useful Life for Vehicles assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining. The average age of the Vehicles category is 6.7 years, with an average estimated remaining service life of 10.2 years.

Table 7-3: EUL & Average Age - Vehicles

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Operations	15 years	3.1	11.9
Protection Services	10-30 years	11.6	15.3
Recreation and Cultural Services	10-15 years	4.8	8.5
Transportation Services	10-15 years	7.2	4.9

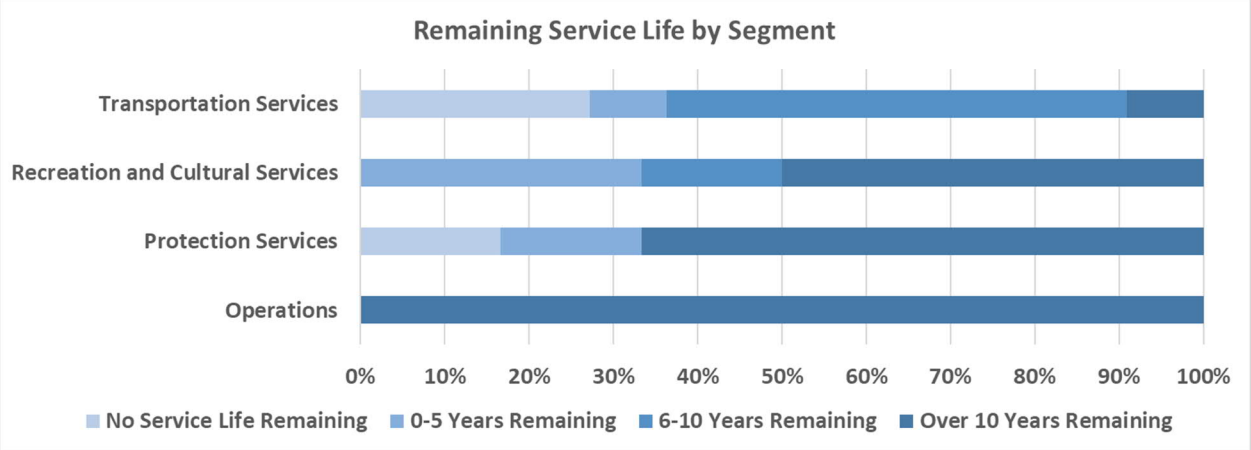

Figure 7-4: Remaining Service Life - Vehicles

Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

7.2 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Table 7-4 outlines the Municipality's current lifecycle management strategy.

Table 7-4: Lifecycle Activities - Vehicles

Activity Type	Description of Current Strategy
Maintenance	Visual inspections completed and documented daily; fluids inspected at every fuel stop; tires inspected monthly
	Detailed inspections, including tire rotation and oil change are carried out on a regular basis. The km ranges that are used to identify when an inspection is needed vary according to the vehicle's size and function.
	Annual preventative maintenance activities include system components check and additional detailed inspections.
Replacement	Vehicle age, kilometres and annual repair costs are taken into consideration when determining appropriate treatment options and replacement timelines.

7.2.1.1 Forecasted Capital Requirements

Based on the current vehicle inventory, and assuming end-of-life replacement for all assets, Figure 7-5 provides a 25-year forecast. This projection is used as it ensures that every asset has gone through one full iteration of replacement and does not include assets that may be required for growth. The forecasted requirements are aggregated into 5-year bins and are based on the Municipality's asset inventory as of 2024. The trend line represents the average 5-year capital requirements, which were determined to be approximately $750,000.

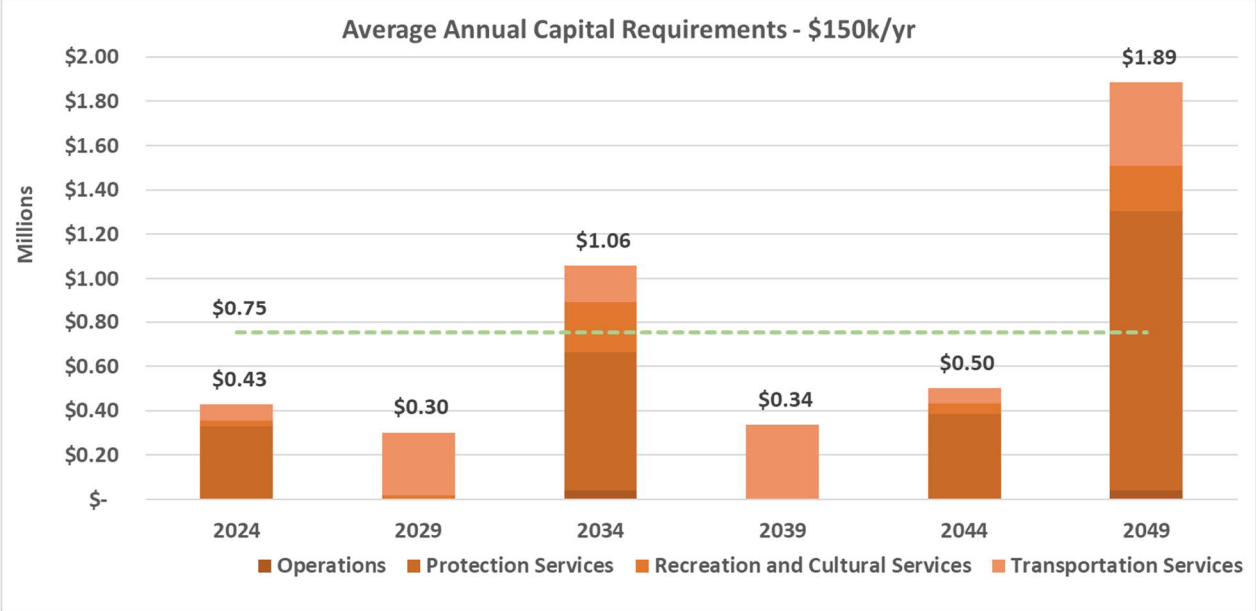

Figure 7-5: 50-yr Projected Capital Requirements – Vehicles

Figure 7-6 depicts the 10-year forecast to assist in short-term financial planning. Replacing assets that are currently in service beyond their estimated useful life constitutes the majority of capital required in the next 10 years. The dashed amber line represents the average annual expenditure to replace failing assets, which was determined to be approximately $125,000.

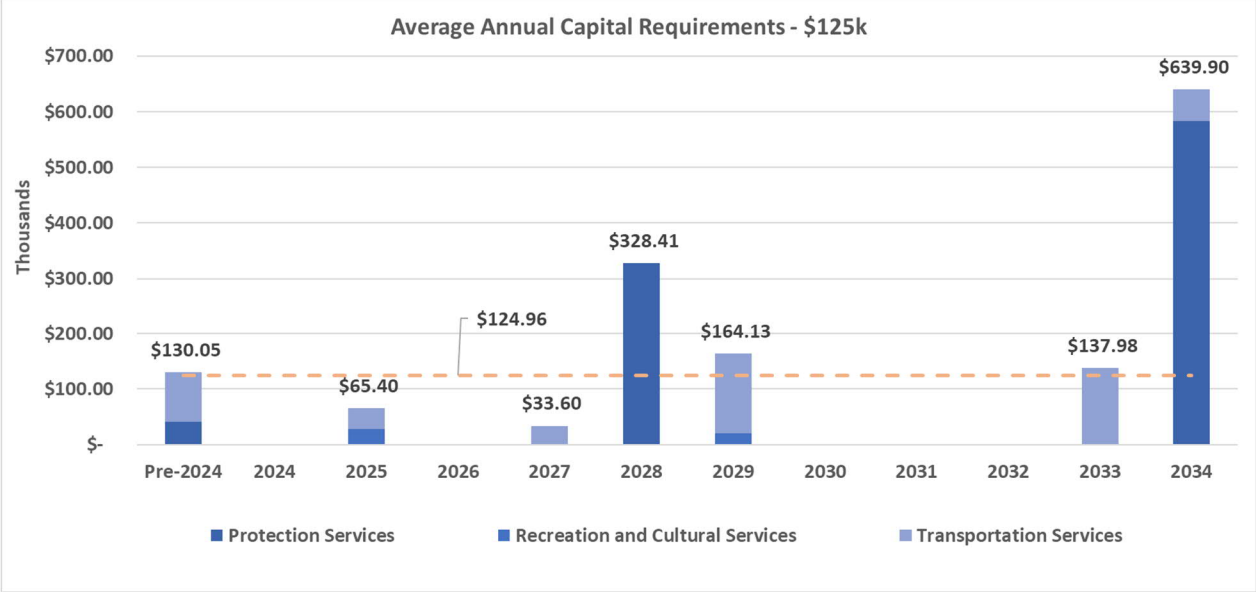

Figure 7-6: 10-yr Projected Capital Requirements - Vehicles

7.3 Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C of the 2021 AM Plan for the criteria used to determine the risk rating of each asset.

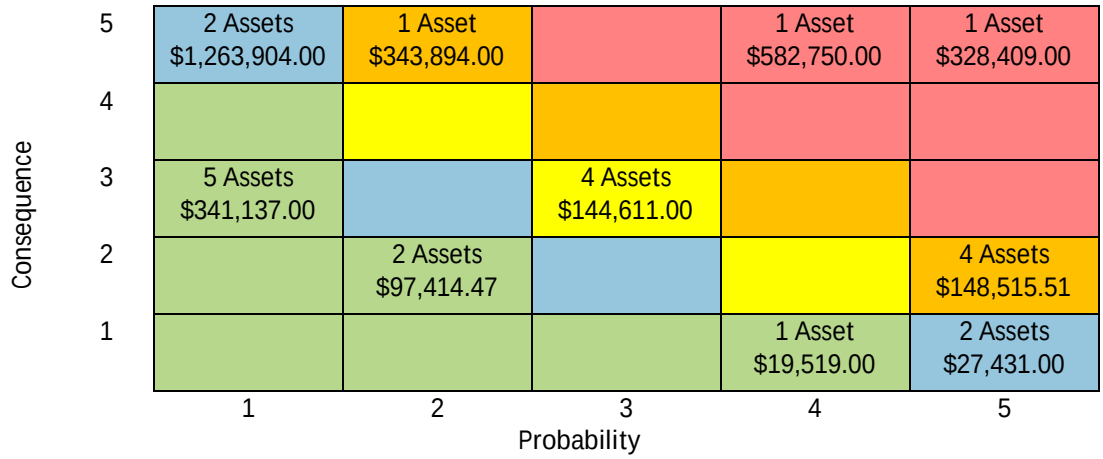

Figure 7-7: Risk Matrix - Vehicles

7.3.1.1 Risks to Current Asset Management Strategies

Table 7-5 summarizes key trends, challenges, and risks to service delivery that the Municipality is currently facing.

Table 7-5: Vehicles - Risks to Asset Management Strategy

Risk to Asset Management Strategy	Description
Vehicle Supply Chain Issues	Vehicle prices and delivery timelines have not returned to pre-pandemic levels, and it is expected that many in-demand vehicles will have elevated prices and delivery timelines well into the future. Proactive financial planning is necessary to avoid potential issues such as not having adequate funds to purchase a vehicle, or being forced to use a vehicle past its service life due to the delivery timeline of its replacement.
Vehicle Complexity	Modern day vehicles are increasingly more complex and therefore more difficult to maintain and repair. Operators may be required to attend additional training to maintain and repair vehicles, and paying manufacturer-specific technicians may become more commonplace.

7.4 Level of Service

The current level of service provided by the Municipality's Vehicle assets are outlined in Table 7-6 and Table 7-7 below.

Table 7-6: Community LOS - Vehicles

Service Parameter	Description	LOS Metrics	Current LOS (2023)
Availability	Vehicles are available to provide services as required.	Description of how often vehicles fail to start or are not available when required, and how instances of nonresponse are prevented	The Municipality has recorded zero instances of a vehicle failing to start when required in the previous 12 months. One vehicle was determined to be unsafe and removed from service. Nonresponses to calls are prevented by performing preventative vehicle maintenance in accordance with manufacturer and regulatory guidelines.
Safety	Staff operate vehicles in a safe manner.	Description of policies and practices used to ensure safety of vehicle operators and bystanders	The Municipality requires that staff operating vehicles have all applicable licenses (i.e. Class B,F,G etc.), comply with all road regulations, and complete a pre-trip visual inspection before each journey. Additional inspections are conduced according to asset service delivery.

Table 7-7: Technical LOS - Vehicles

Service Parameter	Description	Technical Metric	Current LOS (2023)
Safety	Vehicles are safe for staff to operate.	Number of failed pre-trip inspections in the previous 12 months	One failed pre-trip inspection was recorded in the previous 12 months. The vehicle was determined to be unsafe and was removed from service.
		Number of Health and Safety incidents involving Municipality vehicles in the previous 12 months	One health and safety incident involving a Municipality vehicle was recorded in the previous 12 months. The vehicle was determined to be unsafe and was removed from service.
Reliability	Vehicles are available when required.	Average plated vehicle odometer reading	*current odometer reading / expected useful life mileage*

7.5 Recommendations

7.5.1 Replacement Costs

The majority of the replacement costs used in this AMP were based on the inflation of historical costs. These costs should be evaluated to determine their accuracy and reliability. Replacement costs should be updated according to the best available information on the cost to replace the asset in today's value.

7.5.2 Condition Assessment Strategies

The Municipality should formalize vehicle condition assessments and ensure that asset information is synchronized with Citywide. The majority of asset condition assessments in this AMP are age-based, which is less accurate than a condition assessment conducted by a trained member of staff. Accurate condition information will lead to more useful capital projections. Alternatively, a condition rating system based on vehicle odometer readings could be developed.

8.0 Natural Assets

8.1 State of Local Infrastructure

The Municipality's Natural Asset inventory is still under development. A desktop study in early 2024 developed a preliminary inventory using Geographic Information System (GIS) files, property parcel information and aerial imagery. Asset condition, estimated useful life, and level of service are yet to be evaluated by the Municipality.

8.1.1 Asset Hierarchy

During the desktop study, Natural Assets were delineated and classified using the Ecological Land Classification (ELC) System for southern Ontario (Lee et al., 1998; Lee, 2008). Natural asset boundaries were first established from the existing agency feature boundaries and classified using the hierarchy listed below. Natural asset boundaries and classifications were then further refined through analysis of aerial imagery (ESRI 2023, Google 2024) to achieve a higher degree of accuracy and currency for the boundaries and classifications.

Table 8-1: Natural Assets - Asset Hierarchy

ELC Code	ELC Class	ELC Criteria and Notes	Source Layers and Classification Notes
Watercourse	Watercourse	Created as 0.5 m linear polygons buffered from the LIO *Watercourse* polyline source layers	LIO: Watercourse
OA	Open Aquatic	Permanent or intermittent water bodies. Little to no emergent vegetation. Water depth generally > 2m.	LIO: Waterbody
SW	Swamp	Tree or shrub cover >25%. Dominated by hydrophytic shrub and tree species. Variable flooding regimes. Water depth <2 m. Standing water or pooling >20% of ground cover.	LIO: Wetland (Swamp) ACI: Wetland overlapping LIO: Wooded Area
MA	Marsh	Tree and shrub cover ≤25%. Dominated by emergent hydrophytic macrophytes. Variable flooding regimes. Water depth <2 m.	LIO: Wetland (Marsh)
ME	Meadow	Tree and shrub cover <25% with open herbaceous vegetation	Visually identified
FO	Forest	Tree cover >60%.	LIO: Wooded Area ACI: Coniferous ACI: Mixed Wood
WO	Woodland	Tree cover 35% - 60%	LIO: Wooded Area or other areas visually identified
TH	Thicket	Shrub cover >25%; tree cover <25%	ACI: Shrubland or other areas visually identified
TAGM1	Coniferous Plantation	Typically comprised of linear rows of planted conifers	Visually identified
TAGM2	Mixed Plantation	Typically comprised of linear rows of planted conifers and broad-leaf trees	Visually identified
TAGM5	Fencerow	Linear rows of trees, typically single rows; often along field or property edges	Visually identified
AG	Agriculture	Open cropped lands, pasture lands, shrub / treed orchards.	ACI: Corn ACI: Soybeans ACI: Winter Wheat ACI: Other grains
CV	Constructed	Lands subject to development, containing little to no remnant natural features	ACI: Urban / Developed ACI: Exposed Land / Barren Visually identified

ELC Code	ELC Class	ELC Criteria and Notes	Source Layers and Classification Notes
CGL	Constructed Green Lands	Developed lands with naturalized managed features (e.g., nature parks)	Visually identified

8.1.2 Asset Inventory

A total of 323 individual natural asset ELC polygons were identified and mapped. A summary count of the number of natural assets (ELC polygons) in each ELC class is provided in Table 8-2, below.

Table 8-2: Natural Assets - Asset Quantity

ELC Community Class	Count of Polygons
Agriculture	16
Coniferous Plantation	2
Constructed	120
Constructed Green Lands	3
Fencerow	7
Forest	37
Marsh	8
Meadow	13
Mixed Plantation	1
Open Aquatic	6
Swamp	45
Thicket	10
Watercourse	46
Woodland	9
Total:	323

8.2 Level of Service

The current level of service provided by Natural Assets are outlined in Table 8-3 and in Table 8-4.

Table 8-3. Community LOS - Natural Assets

Service Parameter	Description	LOS Metrics	Current LOS (2023)
Availability	Natural assets are available to deliver services in the community	Area of natural assets per hectare of municipality	The Municipality will develop tracking at a later date.

Table 8-4. Technical LOS - Natural Assets

Service Parameter	Description	Technical Metric	Current LOS (2024)
Availability	Natural assets are available to deliver services to the community	Activities to protect the health of natural assets	The Municipality will develop tracking at a later date.