Asset Management Plan 2025

TOWNSHIP OF HORTON

2025

psdcitywide

This Asset Management Plan was prepared by:

Empowering your organization through advanced asset management, budgeting & GIS solutions

Key Statistics

$41.5m	2024 Replacement Cost of Asset Portfolio
$27.9k	Replacement Cost of Infrastructure Per Household
93%	Percentage of Assets in Fair or Better Condition
100%	Percentage of Assets with Assessed Condition Data
$164K	Annual Capital Infrastructure Deficit
10 Years	Recommended Timeframe for Eliminating Annual Infrastructure Deficit
2.04%	Target Reinvestment Rate
1.64%	Actual Reinvestment Rate

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1. Executive Summary

Municipal infrastructure delivers critical services that are foundational to the economic, social, and environmental health and growth of a community. The goal of asset management is to enable infrastructure to deliver an adequate level of service in the most cost-effective manner. This involves the ongoing review and update of infrastructure information and data alongside the development and implementation of asset management strategies and long-term financial planning.

1.1 Scope

This Asset Management Plan (AMP) identifies the strategies that are in place to manage public infrastructure and makes recommendations where they can be further refined. Through the implementation of sound asset management strategies, the Municipality can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP includes the following asset categories:

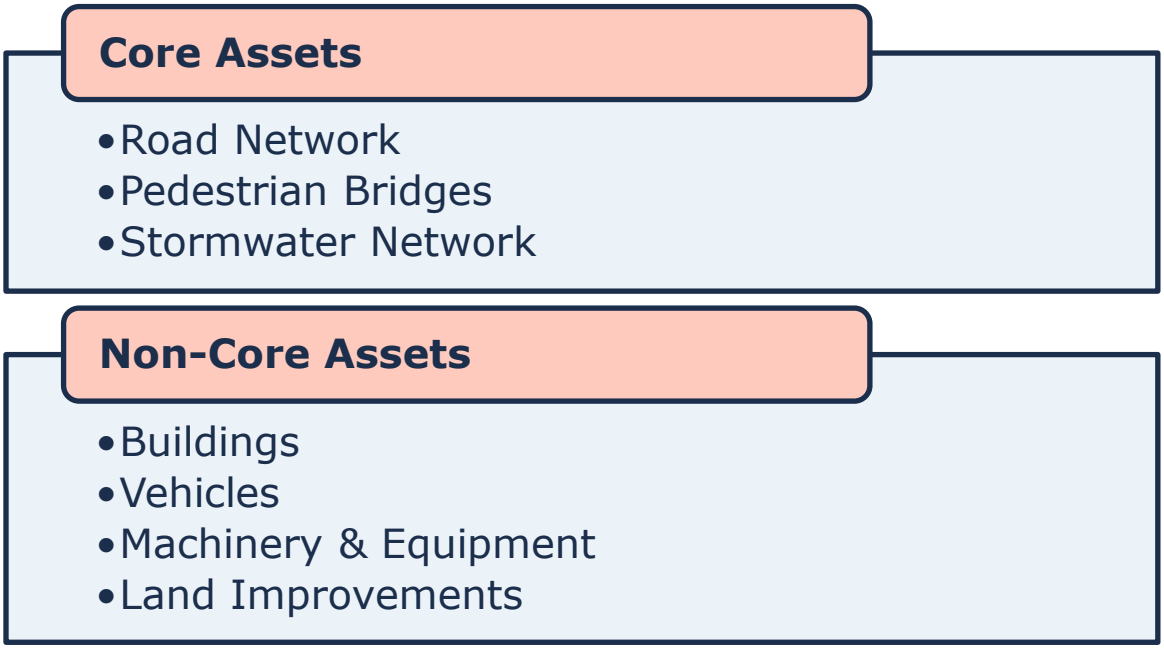


Figure 1 Core and Non-Core Asset Categories

1.2 O. Reg. 588/17 Compliance

With the development of this AMP the Municipality has achieved compliance with July 1, 2025, requirements under O. Reg. 588/17. This includes requirements for levels of service and inventory reporting for all asset categories. More detail on compliance can be found in section 2.5.1 O. Reg. 588/17 Compliance Review.

1.3 Findings

The overall replacement cost of the asset categories included in this AMP totals $41.5 million. 93% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 100% of assets.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP utilizes proactive lifecycle strategies to determine the lowest cost option to achieve the proposed (10-year) level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Municipality's average annual capital requirement totals $844 thousand. Based on a historical analysis of sustainable capital funding sources, the Municipality is committing approximately $680 thousand towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $164 thousand.

It is important to note that this AMP represents a snapshot in time and is based on the best available processes, data, and information at the Municipality. Strategic asset management planning is an ongoing and dynamic process that requires continuous improvement and dedicated resources.

1.4 Recommendations

A financial strategy was developed to address the annual capital funding gap. The following graphic shows the annual tax change required to eliminate the Municipality's infrastructure deficit, while achieving the target level of service.[1]

Figure 2 Proposed Tax/Rate Changes

[1] This is the recommended baseline increase over the next 10 years (annual increase). It assumes that all additional revenue from this increase will be allocated exclusively to capital expenditure, while simultaneously reallocating funds which have been historically used for debt obligations. See section 12. for a comprehensive breakdown.

2. Introduction & Context

2.1 Community Profile

Census Characteristic	Township of Horton	Ontario
Population 2021	3,182	14,223,942
Population Change 2016-2021	10.2%	5.8%
Total Private Dwellings	1,486	5,929,250
Population Density	20.1/km^2	15.9/km^2
Land Area	158.02 km^2	892,411.76 km^2

Table 1 Township of Horton Community Profile

The Township of Horton, located in Renfrew County, Ontario, surrounds the neighbouring Town of Renfrew, which was originally part of Horton Township before its incorporation as a separate municipality. The area was first settled in the mid-1820s and officially incorporated as a township in 1850.

One of the region’s earliest transportation routes, the Opeongo Line, served as a vital link for settlers and traders, enabling cargo and passengers to move inland from the Ottawa River. Today, the Township's natural landscape—featuring the Ottawa River, Bonnechere River, and several large lakes—continues to attract tourists, cottagers, and day-trippers from nearby Ottawa.

With the expansion of Highway 17 to a four-lane route connecting to Arnprior, Horton is well-positioned for continued growth as an appealing rural destination that offers the benefits of both countryside living and urban employment opportunities.

2.2 Climate Change

Climate change can cause severe impacts on human and natural systems around the world. The effects of climate change include increasing temperatures, higher levels of precipitation, droughts, and extreme weather events. In 2019, Canada's Changing Climate Report (CCCR 2019) was released by Environment and Climate Change Canada (ECCC).

The report revealed that between 1948 and 2016, the average temperature increase across Canada was 1.7°C; moreover, during this period, Northern Canada experienced a 2.3°C increase. The temperature increase in Canada has doubled that of the global average. If emissions are not significantly reduced, the temperature could increase by 6.3°C in Canada by the year 2100 compared to 2005 levels. Observed precipitation changes in Canada include an increase of approximately 20% between 1948 and 2012. By the late 21st century, the projected increase could reach an additional 24%. During the summer months, some regions in Southern Canada are expected to experience periods of drought at a higher rate. Extreme weather events and climate conditions are more common across Canada. Recorded events include droughts, flooding, cold extremes, warm extremes, wildfires, and record minimum arctic sea ice extent.

The changing climate poses a significant risk to the Canadian economy, society, environment, and infrastructure. The impacts on infrastructure are often a result of climate-related extremes such as droughts, floods, higher frequency of freeze-thaw cycles, extended periods of high temperatures, high winds, and wildfires. Physical infrastructure is vulnerable to damage and increased wear when exposed to these extreme events and climate variabilities. Canadian Municipalities are faced with the responsibility to protect their local economy, citizens, environment, and physical assets.

2.2.1 Horton Township Climate Profile

The Township of Horton is situated in Eastern Ontario along the Ottawa River. The Township is expected to experience notable effects of climate change which include higher average annual temperatures, an increase in total annual precipitation, and an increase in the frequency and severity of extreme events. According to Climatedata.ca – a collaboration supported by Environment and Climate Change Canada (ECCC) – the Township of Horton may experience the following trends:

Higher Average Annual Temperature:

- Between the years 1971 and 2000 the annual average temperature was 5.4 ºC

- Under a high emissions scenario, the annual average temperatures are projected to increase by 8.3 ºC by the year 2050 and over 12.2 ºC by the end of the century.

Increase in Total Annual Precipitation:

- Under a high emissions scenario, Horton Township is projected to experience a 12% increase in precipitation by the year 2051 and a 17% increase by the end of the century.

Increase in Frequency of Extreme Weather Events:

- It is expected that the frequency and severity of extreme weather events will change.

2.2.2 Integration of Climate Change and Asset Management

Asset management practices aim to deliver sustainable service delivery - the delivery of services to residents today without compromising the services and well-being of future residents. Climate change threatens sustainable service delivery by reducing the useful life of an asset and increasing the risk of asset failure. Desired levels of service can be more difficult to achieve due to climate change impacts such as flooding, high heat, drought, and more frequent and intense storms.

To achieve the sustainable delivery of services, climate change considerations should be incorporated into asset management practices. The integration of asset management and climate change adaptation observes industry best practices and enables the development of a holistic approach to risk management.

2.3 Asset Management Overview

Municipalities are responsible for managing and maintaining a broad portfolio of infrastructure assets to deliver services to the community. The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value ratepayers receive from the asset portfolio.

The acquisition of capital assets accounts for only 10-20% of their total cost of ownership. The remaining 80-90% comes from operations and maintenance. This AMP focuses its analysis on the capital costs to maintain, rehabilitate and replace existing municipal infrastructure assets.

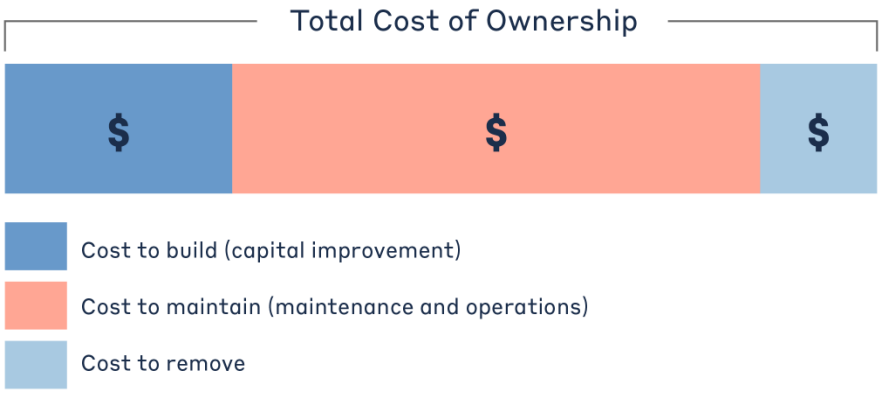


Figure 3 Total Cost of Asset Ownership

These costs can span decades, requiring planning and foresight to ensure financial responsibility is spread equitably across generations. An asset management plan is critical to this planning, and an essential element of broader asset management program. The industry-standard approach and sequence to developing a practical asset management program begins with a Strategic Plan, followed by an Asset Management Policy and an Asset Management Strategy, concluding with an Asset Management Plan.

This industry standard, defined by the Institute of Asset Management (IAM), emphasizes the alignment between the corporate strategic plan and various asset management documents. The strategic plan has a direct, and cascading impact on asset management planning and reporting.

2.3.1 Foundational Asset Management Documentation

The industry-standard approach and sequence to developing a practical asset management program begins with a Strategic Plan/Priorities, followed by an Asset Management Policy and an Asset Management Strategy, concluding with an Asset Management Plan.

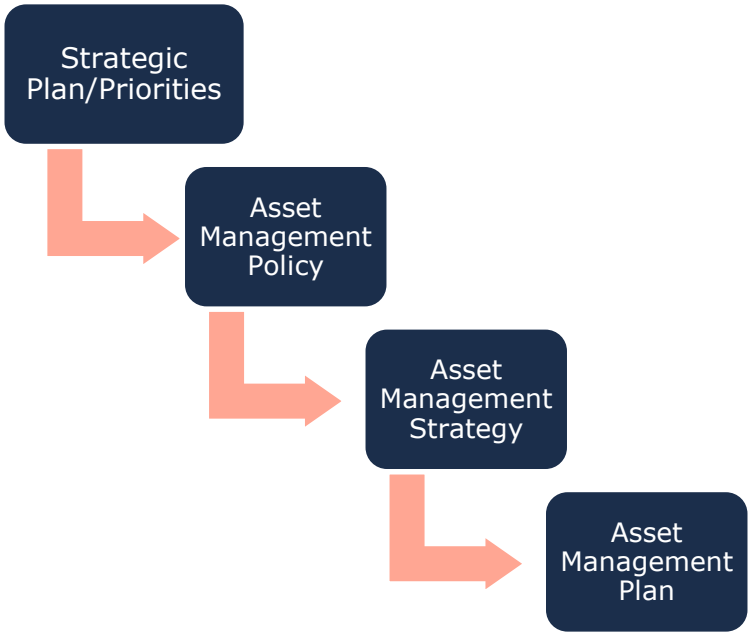


Figure 4 Foundational Asset Management Documents

This industry standard, defined by the Institute of Asset Management (IAM), emphasizes the alignment between the corporate strategic plan/priorities and various asset management documents. The strategic plan has a direct, and cascading impact on asset management planning and reporting.

Asset Management Policy

An asset management policy represents a statement of the principles guiding the municipality's approach to asset management activities. It aligns with the organizational strategic plan and provides clear direction to municipal staff on their roles and responsibilities as part of the asset management program.

The Township adopted By-law No. 2019-26 "A By-law to Adopt an Asset Management Strategy Policy" on April 2019 in accordance with Ontario Regulation 588/17. The objectives of the policy include:

• To provide leadership and commitment to the development and implementation of the Township's asset management program.

• To guide the Township by using a consistent framework across the organization, to facilitate logical and evidence-based decision-making for the management of assets and to support the delivery of services now and in the future.

• To demonstrate to all stakeholder's transparency and accountability of the decision-making processes of strategic plans, budget, service levels and risks.

• To meet legislative requirements

• To endeavour to align with the Township's Strategic Policy.

Asset Management Strategy

An asset management strategy outlines the translation of organizational objectives into asset management objectives and provides a strategic overview of the activities required to meet these objectives. It provides greater detail than the policy on how the municipality plans to achieve asset management objectives through planned activities and decision-making criteria.

The Township's Asset Management Policy contains many of the key components of an asset management strategy and may be expanded on in future revisions or as part of a separate strategic document.

Asset Management Plan

The asset management plan (AMP) presents the outcomes of the Municipality's asset management program and identifies the resource requirements needed to achieve a defined level of service. The AMP typically includes the following content:

- State of Infrastructure
- Asset Management Strategies
- Levels of Service
- Financial Strategies

The AMP is a dynamic document that should be updated regularly as additional asset and financial data becomes available. This will allow the Municipality to reevaluate the state of infrastructure and identify how the organization's asset management and financial strategies are progressing.

2.3.2 Key Concepts in Asset Management

Effective asset management integrates several key components, including lifecycle management, risk & criticality, and levels of service. These concepts are applied throughout this asset management plan and are described below in greater detail.

Lifecycle Management Strategies

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. Asset deterioration has a negative effect on the ability of an asset to fulfill its intended function, and may be characterized by increased cost, risk and even service disruption.

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.

There are several field intervention activities that are available to extend the life of an asset. These activities can be generally placed into one of three categories: maintenance, rehabilitation, and replacement. The following table provides a description of each type of activity and the general difference in cost.

Depending on initial lifecycle management strategies, asset performance can be sustained through a combination of maintenance and rehabilitation, but at some point, replacement is required. Understanding what effect these activities will have on the lifecycle of an asset, and their cost, will enable staff to make better recommendations.

Lifecycle Activity	Cost	Typical Associated Risks
Maintenance Activities that prevent defects or deteriorations from occurring	**$**	• Balancing limited resources between planned maintenance and reactive, emergency repairs and interventions • Diminishing returns associated with excessive maintenance activities, despite added costs • Intervention selected may not be optimal and may not extend the useful life as expected, leading to lower payoff and potential premature asset failure;

Lifecycle Activity	Cost	Typical Associated Risks
Rehabilitation/ Renewal Activities that rectify defects or deficiencies that are already present and may be affecting asset performance	**$$$**	• Useful life may not be extended as expected • May be costlier in the long run when assessed against full reconstruction or replacement • Loss or disruption of service, particularly for underground assets;
Replacement/ Reconstruction Asset end-of-life activities that often involve the complete replacement of assets	**$$$$$**	• Incorrect or unsafe disposal of existing asset • Costs associated with asset retirement obligations • Substantial exposure to high inflation and cost overruns • Replacements may not meet capacity needs for a larger population • Loss or disruption of service, particularly for underground assets

Table 2 Lifecycle Management: Typical Lifecycle Interventions

The Municipality's approach to lifecycle management is described within each asset category outlined in this AMP. Staff will continue to evolve and innovate current practices for developing and implementing proactive lifecycle strategies to determine which activities to perform on an asset and when they should be performed to maximize useful life at the lowest total cost of ownership.

Risk & Criticality

Asset risk and criticality are essential building blocks of asset management, integral in prioritizing projects and distributing funds where they are needed most based on a variety of factors. Assets in disrepair may fail to perform their intended function, pose substantial risk to the community, lead to unplanned expenditures, and create liability for the municipality. In addition, some assets are simply more important to the community than others, based on their financial significance, their role in delivering essential services, the impact of their failure on public health and safety, and the

extent to which they support a high quality of life for community stakeholders.

Risk is a product of two variables: the probability that an asset will fail, and the resulting consequences of that failure event. It can be a qualitative measurement, (i.e. low, medium, high) or quantitative measurement (i.e. 1-5), that can be used to rank assets and projects, identify appropriate lifecycle strategies, optimize short- and long-term budgets, minimize service disruptions, and maintain public health and safety.

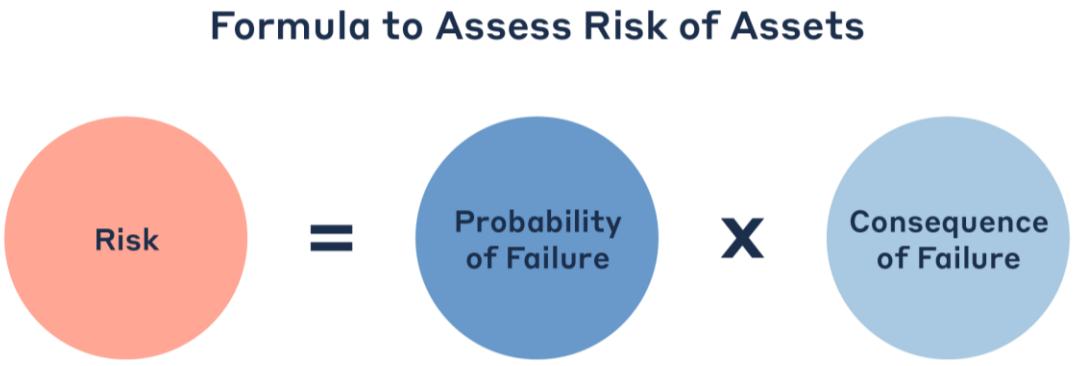


Figure 5 Risk Equations

The approach used in this AMP relies on a quantitative measurement of risk associated with each asset. The probability and consequence of failure are each scored from 1 to 5, producing a minimum risk index of 1 for the lowest risk assets, and a maximum risk index of 25 for the highest risk assets.

Probability of Failure

Several factors can help decision-makers estimate the probability or likelihood of an asset's failure, including its condition, age, previous performance history, and exposure to extreme weather events, such as flooding and ice jams—both a growing concern for municipalities in Canada.

Consequence of Failure

Estimating criticality also requires identifying the types of consequences that the organization and community may face from an asset's failure, and the magnitude of those consequences. Consequences of asset failure will vary across the infrastructure portfolio; the failure of some assets may result primarily in high direct financial cost but may pose limited risk to the community. Other assets may have a relatively minor financial value, but any downtime may pose significant health and safety hazards to residents.

Table 3 illustrates the various types of consequences that can be integrated in developing risk and criticality models for each asset category and segments within. We note that these consequences are common, but not exhaustive.

Type of Consequence	Description
Direct Financial	Direct financial consequences are typically measured as the replacement costs of the asset(s) affected by the failure event, including interdependent infrastructure.
Economic	Economic impacts of asset failure may include disruption to local economic activity and commerce, business closures, service disruptions, etc. Whereas direct financial impacts can be seen immediately or estimated within hours or days, economic impacts can take weeks, months and years to emerge, and may persist for even longer.
Socio-political	Socio-political impacts are more difficult to quantify and may include inconvenience to the public and key community stakeholders, adverse media coverage, and reputational damage to the community and the Municipality.
Environmental	Environmental consequences can include pollution, erosion, sedimentation, habitat damage, etc.
Public Health and Safety	Adverse health and safety impacts may include injury or death, or impeded access to critical services.
Strategic	These include the effects of an asset's failure on the community's long-term strategic objectives, including economic development, business attraction, etc.

Table 3 Risk Analysis: Types of Consequences of Failure

This AMP includes a preliminary evaluation of asset risk and criticality. Each asset has been assigned a probability of failure score and consequence of

failure score based on available asset data. These risk scores can be used to prioritize maintenance, rehabilitation, and replacement strategies for critical assets.

These models have been built in Citywide for continued review, updates, and refinements.

Levels of Service

A level of service (LOS) is a measure of the services that the Municipality is providing to the community and the nature and quality of those services. Within each asset category in this AMP, technical metrics and qualitative descriptions that measure both technical and community levels of service have been established and measured as data is available.

The Municipality measures the level of service provided at two levels: Community Levels of Service, and Technical Levels of Service. This AMP includes those LOS that are required under O. Reg. 588/17 as well as any additional metrics the Municipality wishes to track.

Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories as applicable (Roads, Pedestrian Bridges, Storm Water, Water, and Sanitary) the province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP.

Technical Levels of Service

Technical levels of service are a measure of key technical attributes of the service being provided to the community. These include mostly quantitative measures and tend to reflect the impact of the Municipality's asset management strategies on the physical condition of assets or the quality/capacity of the services they provide.

For core asset categories as applicable (Roads, Pedestrian Bridges, Storm Water, Water, and Sanitary) the province, through O. Reg. 588/17, has also provided technical metrics that are required to be included in this AMP.

Current and Proposed Levels of Service

Proposed levels of service should be realistic and achievable within the timeframe outlined by the Municipality. They should also be determined with consideration of a variety of community expectations, fiscal capacity, regulatory requirements, corporate goals and long-term sustainability. Once proposed levels of service have been established, the Municipality must

identify a lifecycle management and financial strategy which allows these targets to be achieved.

Core Values

The core values behind levels of service reflect the Municipality's commitment to delivering services that meet community needs in a fair, responsible, and sustainable way. These values help guide how infrastructure is managed and how service expectations are set. By aligning asset management decisions with these values, the Municipality can provide services that people trust.

Value	Description
Accessible	Services are available and accessible for customers who require them
Reliable	Services are provided with minimal service disruption and are available to customers in line with needs and expectations
Safe	Services are delivered such that they minimize health, safety, and security risks
Affordable	Services are delivered at an affordable cost for both the organization and customer
Sustainable	Services are designed to be used efficiently. Long-term plans are in place to ensure that they are available to all customers into the future

Table 4 Levels of Service: Core Values

2.4 Scope & Methodology

2.4.1 Asset Categories for this AMP

This asset management plan for the Township of Horton is produced in compliance with O. Reg. 588/17. The July 2025 deadline under the regulation—the last of three AMPs—requires analysis of core and non-core asset categories, along with the proposed levels of service for the following ten years

The AMP summarizes the state of the infrastructure for the Municipality's asset portfolio, establishes levels of service and the associated technical and customer-oriented key metrics, outlines lifecycle strategies for optimal asset

management and performance, and provides financial strategies to reach sustainability for the asset categories listed below.

Figure 6 Tax Funded Asset Categories

2.4.2 Data Effective Date

It is important to note that this plan is based on data as of **2024** therefore, it represents a snapshot in time using the best available processes, data, and information at the Municipality. Strategic asset management planning is an ongoing and dynamic process that requires continuous data updates and dedicated data management resources.

2.4.3 Deriving Replacement Costs

There are a range of methods to determine the replacement cost of an asset, and some are more accurate and reliable than others. This AMP relies on two methodologies:

User-Defined Cost and Cost Per Unit

Based on costs provided by municipal staff which could include average costs from recent contracts; data from engineering reports and assessments; staff estimates based on knowledge and experience.

Cost Inflation / CPI Tables

Historical costs of the assets are inflated based on Consumer Price Index or Non-Residential Building Construction Price Index.

User-defined costs based on reliable sources are a reasonably accurate and reliable way to determine asset replacement costs. Cost inflation is typically used in the absence of reliable replacement cost data. It is a reliable method for recently purchased and/or constructed assets where the total cost is reflective of the actual costs that the Municipality incurred. As assets age, and new products and technologies become available, cost inflation becomes a less reliable method.

2.4.4 Estimated Service Life & Service Life Remaining

The estimated useful life (EUL) of an asset is the period over which the Municipality expects the asset to be available for use and remain in service before requiring replacement or disposal. The EUL for each asset in this AMP was assigned according to the knowledge and expertise of municipal staff and supplemented by existing industry standards when necessary.

By using an asset's in-service data and its EUL, the Municipality can determine the service life remaining (SLR) for each asset. Using condition data and the asset's SLR, the Municipality can more accurately forecast when it will require replacement. The SLR is calculated as follows:

Figure 7 Service Life Remaining Calculation

2.4.5 Reinvestment Rate

As assets age and deteriorate, they require additional investment to maintain a state of good repair. The reinvestment of capital funds, through asset renewal or replacement, is necessary to sustain an adequate level of service. The reinvestment rate is a measurement of available or required funding relative to the total replacement cost.

By comparing the actual vs. target reinvestment rate the Municipality can determine the extent of any existing funding gap. The reinvestment rate is calculated as follows:

Figure 8 Target Reinvestment Rate Calculation

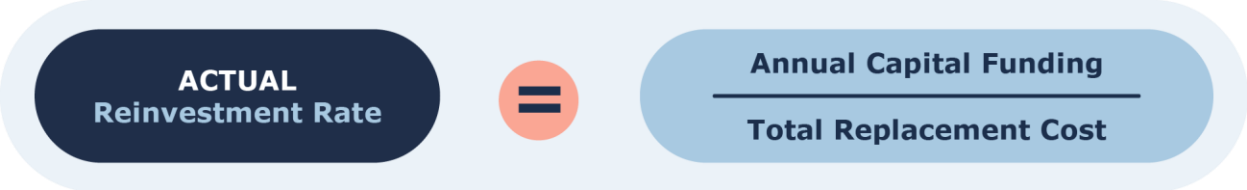


Figure 9 Actual Reinvestment Rate Calculation

2.4.6 Deriving Asset Condition

An incomplete or limited understanding of asset condition can mislead long-term planning and decision-making. Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life.

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the Municipality's asset portfolio. The table below outlines the condition rating system used in this AMP to determine asset condition. This rating system is aligned with the Canadian Core Public Infrastructure Survey which is used to develop the Canadian Infrastructure Report Card. When assessed condition data is not available, service life remaining is used to approximate asset condition.

Condition	Description	Criteria	Service Life Remaining (%)
Very Good	Fit for the future	Well maintained, good condition, new or recently rehabilitated	80-100
Good	Adequate for now	Acceptable, generally approaching mid-stage of expected service life	60-80
Fair	Requires attention	Signs of deterioration, some elements exhibit significant deficiencies	40-60
Poor	Increasing potential of affecting service	Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration	20-40
Very Poor	Unfit for sustained service	Near or beyond expected service life, widespread signs of advanced deterioration, some assets may be unusable	0-20

Table 5 Standard Condition Rating Scale

The analysis in this AMP is based on assessed condition data only as available. In the absence of assessed condition data, asset age is used as a proxy to determine asset condition.

The table above summarizes the standard methodology for determining asset condition within this AMP. For those categories in which there is a different rating scale for condition assessment, they will be outlined within that category's *Asset Condition* subsection. For instances where the scale is the same, only the approach for condition assessment will be outlined.

2.5 Ontario Regulation 588/17

As part of the Infrastructure for Jobs and Prosperity Act, 2015, the Ontario government introduced Regulation 588/17 - Asset Management Planning for

Municipal Infrastructure (O. Reg 588/17)[2]. Along with creating better performing organizations, more liveable and sustainable communities, the regulation is a key, mandated driver of asset management planning and reporting. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them.

Figure 10 below outlines key reporting requirements under O. Reg 588/17 and the associated timelines.

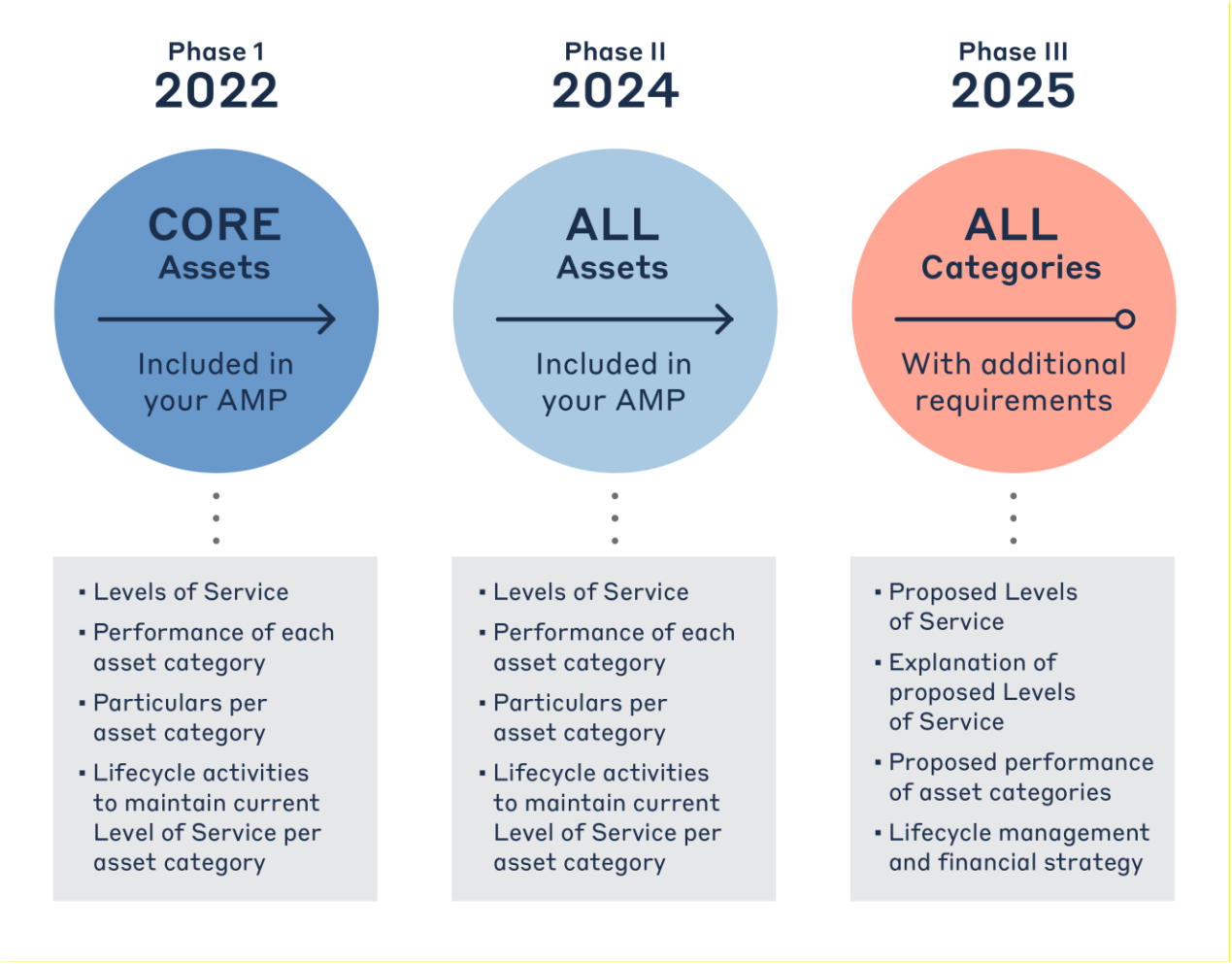


Figure 10 O. Reg. 588/17 Requirements and Reporting Deadlines

[2] O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure https://www.ontario.ca/laws/regulation/170588

2.5.1 O. Reg. 588/17 Compliance Review

Requirement	O. Reg. 588/17 Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	4.1 – 10.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1 – 10.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.3 – 10.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.2 – 10.2	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.4 – 10.4	Complete
Current/proposed levels of service in each category	S.5(2), 1(i-ii) S.6 (1)	4.6 – 10.6	Complete
Performance measures in each category	S.5(2), 2 S. 6 (1), 2	4.6 – 10.6	Complete
Lifecycle activities needed for proposed levels of service for 10 years	S.5(2), 4 S. 6 (1), 4	4.4, 4.6 – 10.4, 10.6	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4 S. 6 (1), 4	4.6.4 – 10.6.4	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	11.1 – 11.2	Complete

Table 6 O. Reg. 588/17 Compliance Review

3. Portfolio Overview – State of the Infrastructure

The state of the infrastructure (SOTI) summarizes the inventory, condition, age profiles, and other key performance indicators for the Municipality's infrastructure portfolio. These details are presented for all core and non-core asset categories.

3.1 Asset Hierarchy & Data Classification

Asset hierarchies explain 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. Key category details are summarized at asset segment level.

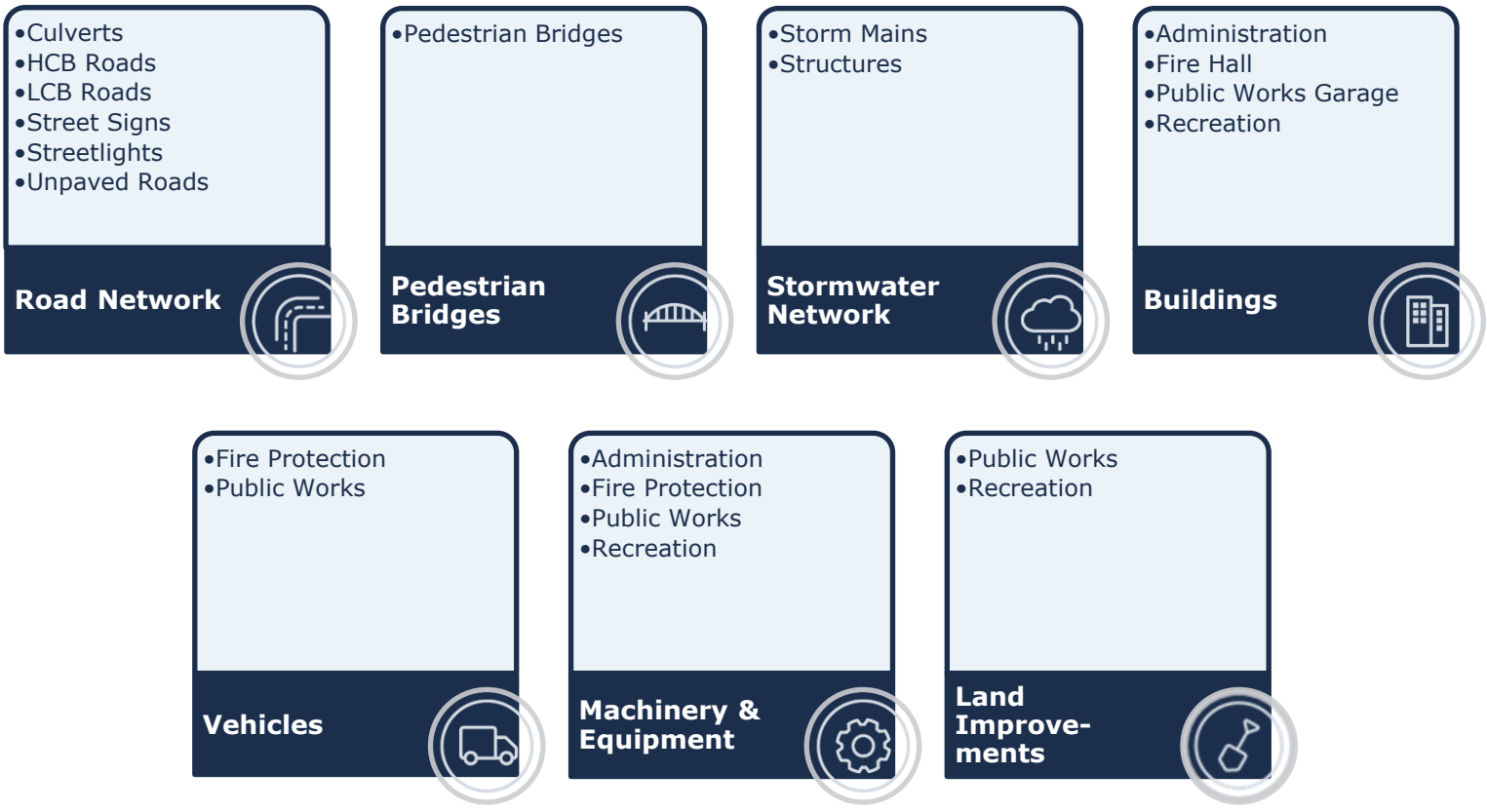


Figure 11 Asset Hierarchy and Data Classification

3.2 Portfolio Overview

3.2.1 Total Replacement Cost of Asset Portfolio

The seven asset categories analyzed in this Asset Management Plan have a total current replacement cost of $41.5 million. This estimate was calculated using user-defined costing, cost per unit, as well as inflation of historical or original costs to current date. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today. Figure 12 illustrates the replacement cost of each asset category.

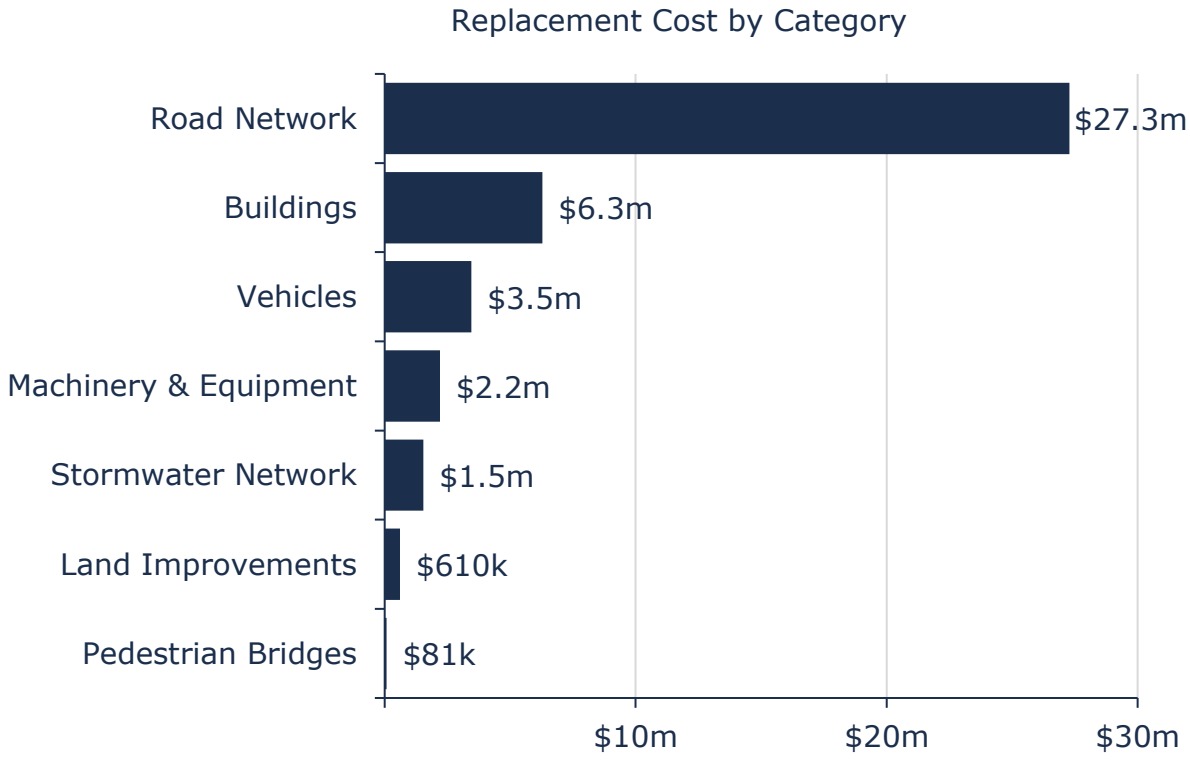


Figure 12 Current Replacement Cost by Asset Category

3.2.2 Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps by comparing the target to the current reinvestment rate. To meet the existing long-term capital requirements, the Municipality requires an annual capital investment of $844 thousand, for a target portfolio reinvestment rate of 2.04%. Currently, the annual investment from sustainable revenue sources is $680 thousand, for a current portfolio reinvestment rate of 1.64%. Target and current re-investment rates by asset category are detailed below.

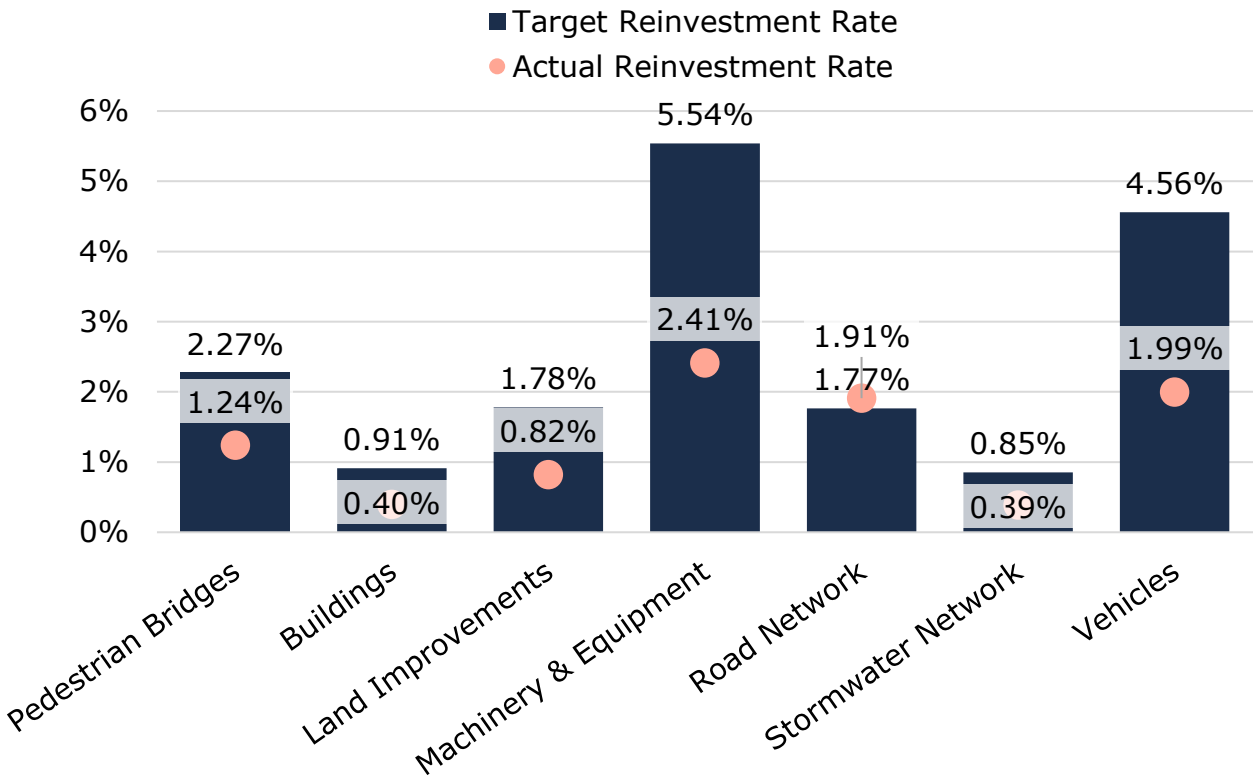


Figure 13 Current Vs. Target Reinvestment Rate

3.2.3 Condition of Asset Portfolio

Figure 14 and Figure 15 summarize asset condition at the portfolio and category levels, respectively. Based on both assessed condition, 93% of the Municipality's infrastructure portfolio is in fair or better condition, with the remaining 7% in poor or worse condition. Typically, assets in poor or worse condition may require replacement or major rehabilitation in the immediate or short-term. Targeted condition assessments may help further refine the list of assets that may be candidates for immediate intervention, including potential replacement or reconstruction.

Similarly, assets in fair condition should be monitored for disrepair over the medium term. Keeping assets in fair or better condition is typically more cost-effective than addressing assets needs when they enter the latter stages of their lifecycle or decline to a lower condition rating, e.g., poor or worse.

Condition data was available for all assets included in the AMP.

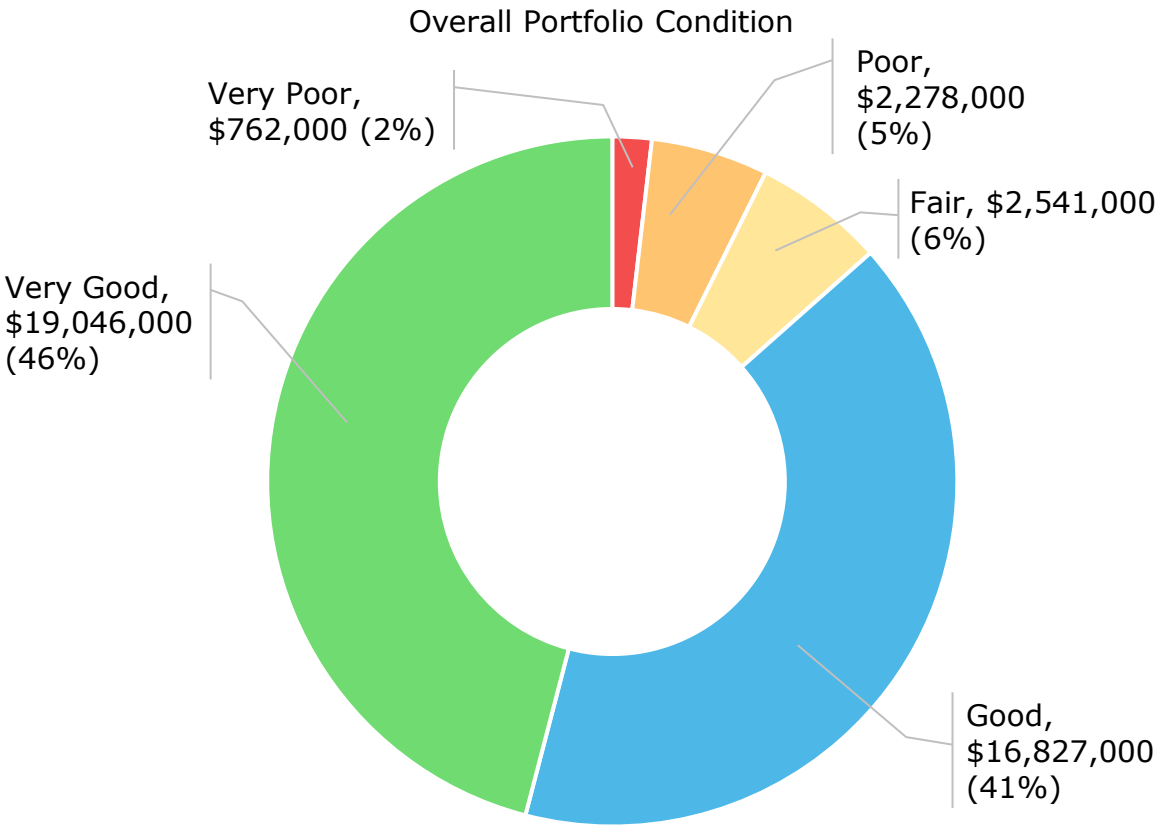


Figure 14 Asset Condition: Portfolio Overview

As further illustrated in Figure 15 at the category level, the majority of major, core infrastructure are in fair or better condition. These findings are based on in-field condition assessment data. See Table 7 for details on how condition data was derived for each asset segment.

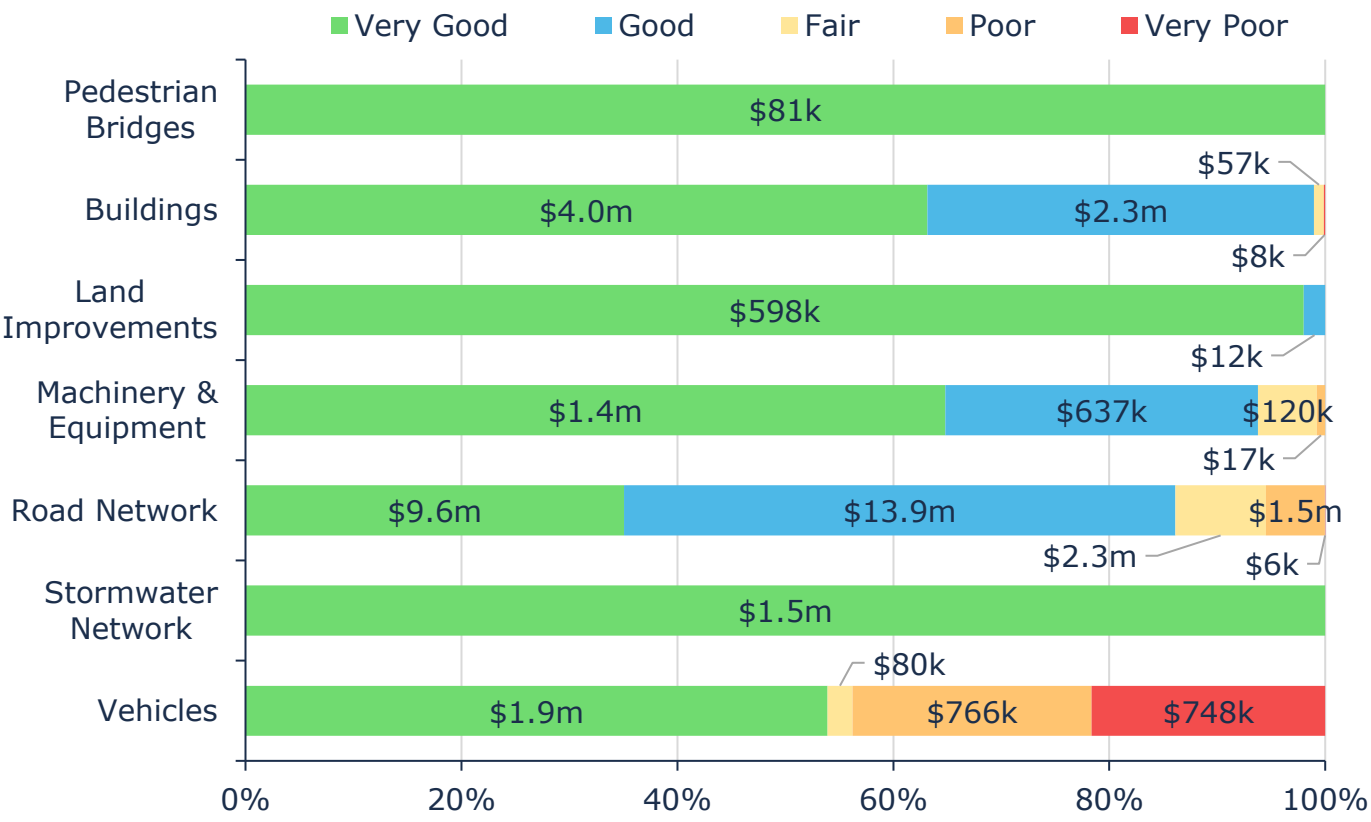


Figure 15 Asset Condition by Asset Category

Source of Condition Data

This AMP relies on assessed condition for 100% of assets, based on and weighted by replacement cost. Assessed condition data is invaluable in asset management planning as it better reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

Asset Category	Asset Segment(s)	% of Assets with Assessed Conditions	Primary Source of Condition Data
Road Network	All Segments	100%	Internal Assessments
Pedestrian Bridges[3]	All Segments	100%	Internal Assessments
Storm Network	All Segments	100%	Engineering Assessments
Buildings	All Segments	100%	Building Condition Assessments
Vehicles	All Segments	100%	Internal Assessments CVOR Annual Assessments
Machinery & Equipment	All Segments	100%	Internal Assessments
Land Improvements	All Segments	100%	Internal Assessments

Table 7 Source of Condition Data

3.2.4 Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 17% of the Municipality's assets will require replacement within the next 10 years (not accounting for asset replacement backlog).

3.2.5 Risk Matrix

Using the risk equation and preliminary risk models, Figure 16 shows how the municipality's assets across the different asset categories are stratified within a risk matrix.

[3] The Township owns and manages two pedestrian bridges, which are scheduled to receive an external assessment in 2025, in accordance with O.Reg. 472.10

1 - 4 Very Low $15,950,000 (38%)	5 - 7 Low $12,619,000 (30%)	8 - 9 Moderate $6,128,000 (15%)	10 - 14 High $3,882,000 (9%)	15 - 25 Very High $2,876,000 (7%)

Figure 16 Risk Matrix: All Assets

The analysis shows that based on current risk models, approximately 7% of the Municipality's assets, with a current replacement cost of approximately $2.876 million, carry a risk rating of 15 or higher (red) out of 25. Assets in this group may have a high probability of failure based on available condition data and age-based estimates.

As new asset attribute information and condition assessment data are integrated with the asset register, asset risk ratings will evolve, resulting in a redistribution of assets within the risk matrix. Staff should also continue to calibrate risk models.

We caution that since risk ratings rely on many factors beyond an asset's physical condition or age; assets in a state of disrepair can sometimes be classified as low risk, despite their poor condition rating. In such cases, although the probability of failure for these assets may be high, their consequence of failure ratings was determined to be low based on the attributes used and the data available.

Similarly, assets with very high condition ratings can receive a moderate to high-risk rating despite a low probability of failure. These assets may be deemed as highly critical to the Municipality based on their costs, economic importance, social significance, and other factors. Continued calibration of an asset's criticality and regular data updates are needed to ensure these models more accurately reflect an asset's actual risk profile.

Core Assets

4. Road Network

4.1 Inventory & Valuation

Table 8 summarizes the quantity, unit of measure, total replacement cost, and primary replacement cost method of each asset segment in the Municipality's road network inventory.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Culverts	905	Length (m)	$2,927,738	Cost per Unit
HCB Roads	32,608	Length (m)	$15,061,530	Cost per Unit
LCB Roads	5,570	Length (m)	$1,359,300	Cost per Unit
Street Signs	478	Assets	$60,706	CPI
Streetlights	18	Assets	$69,283	CPI
Unpaved Roads	51,909	Length (m)	$7,800,995	Cost per Unit
Total			**$27,279,552**	

Table 8 Detailed Asset Inventory: Road Network

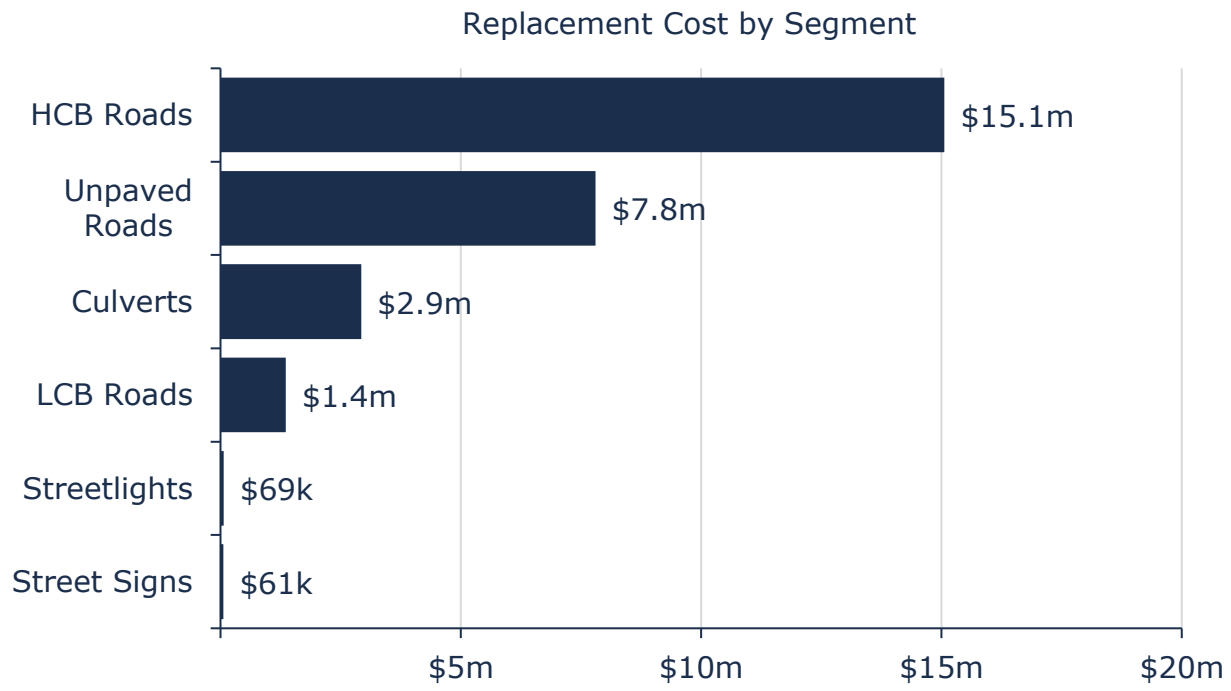


Figure 17 Portfolio Valuation: Road Network

4.2 Asset Condition

Figure 18 summarizes the replacement cost-weighted condition of the Municipality's road network. Based on a combination of field inspection data, 94% of assets are in fair or better condition; the remaining 6% of assets are in poor to very poor condition. Condition assessments were available for 100% of assets in the Road Network, based on replacement cost. This condition data was projected from inspection date to current year to estimate their condition today.

Assets in poor or worse condition may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. As illustrated in Figure 18, the majority of the Municipality's road network assets are in fair or better condition.

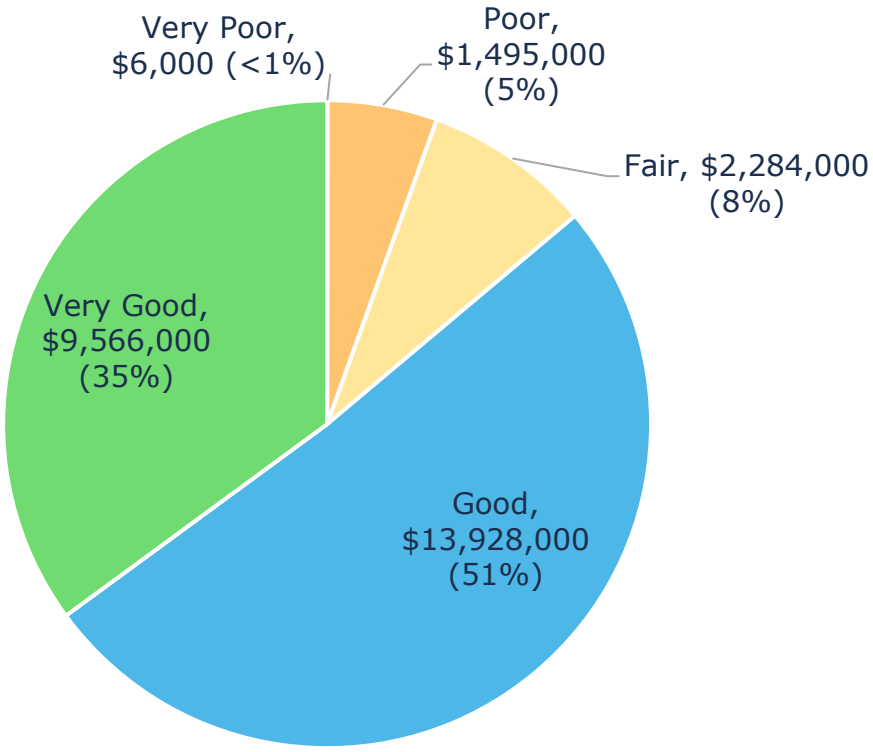


Figure 18 Asset Condition: Road Network Overall

As illustrated in Figure 19, based on condition assessments, the majority of the Municipality's road network is in fair or better condition.

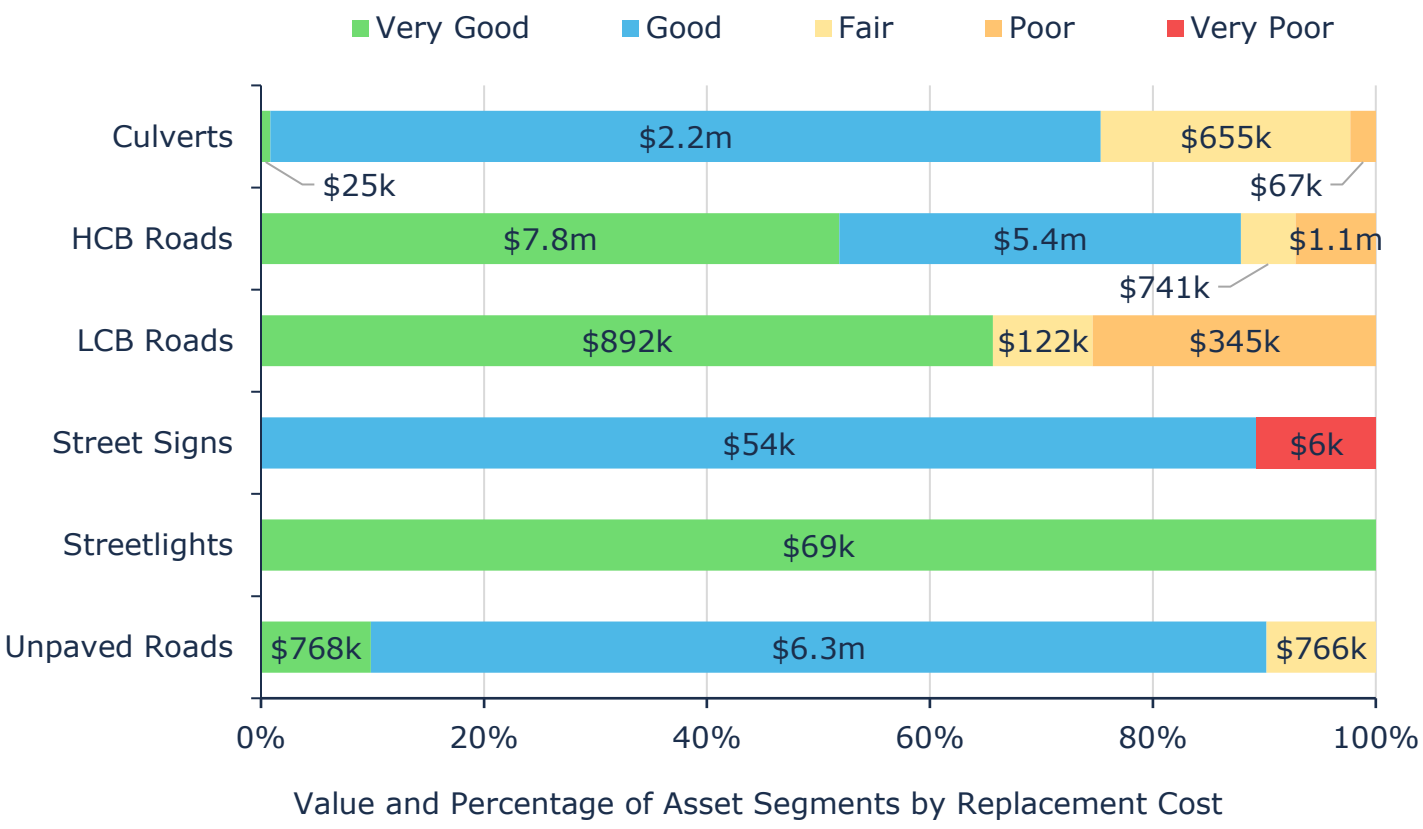


Figure 19 Asset Condition: Road Network by Segment

4.2.1 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:

- Annual internal assessments of road segments.
- Utilize the Road Surface Optimization, Preservation and Developmental Policy to ensure adequate levels of service and life cycle objectives are maintained.
- Roadside appurtenances, such as street signs receive external assessments for condition and reflectivity

4.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential long-term replacement spikes.

Figure 20 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

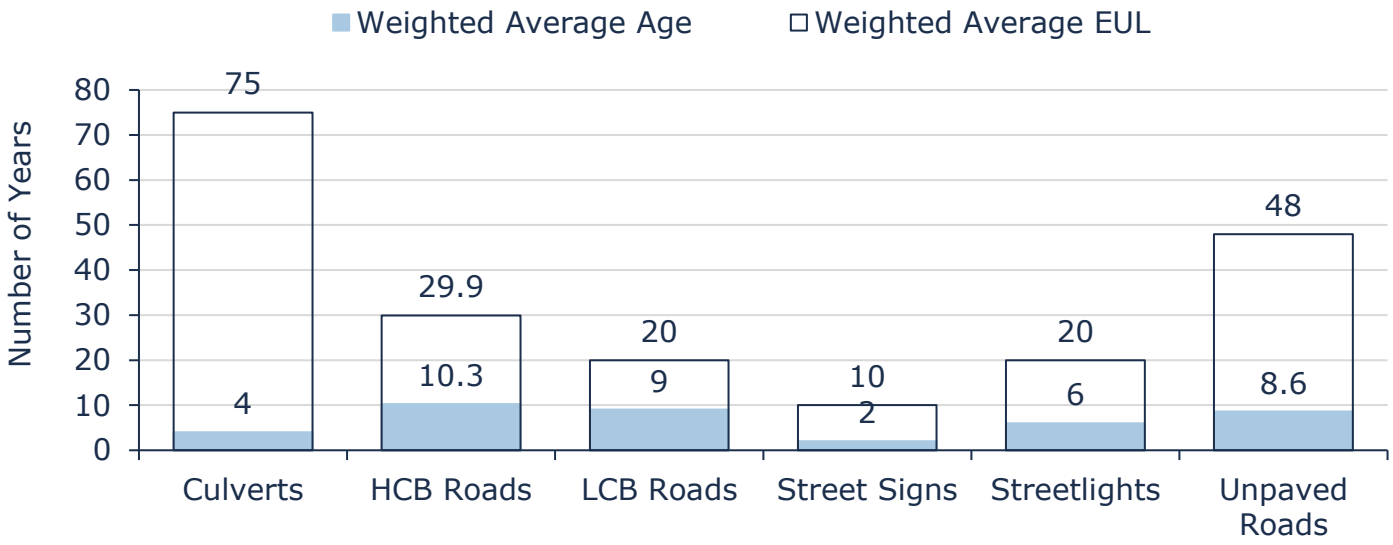


Figure 20 Estimated Useful Life vs. Asset Age: Road Network

Age analysis shows that most asset segments have plenty of life left and are in a healthy state.

Although asset age is an important measurement for long-term planning, condition assessments provide a more accurate indication of actual asset needs. Further, useful life estimates established as part of the PSAB 3150 implementation may not be accurate and may not reflect in-field asset performance.

4.4 Current Approach to Lifecycle Management

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.

The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of LCB and HCB roads. Instead of allowing the roads to deteriorate until replacement is required, strategic rehabilitation is expected to extend the service life of roads at a lower total cost.

For HCB (Asphalt) roads the profiles were separated to incorporate different interventions based on traffic counts, see below:

HCB <400 AADT		
Event Name	**Event Class**	**Event Trigger**
Crack Sealing	Maintenance	5 Years (Repeated)
Cape Seal	Rehabilitation	60 Condition
Single Lift Re-surfacing	Rehabilitation	40 - 50 Condition
Full Reconstruction	Replacement	0 – 40 Condition

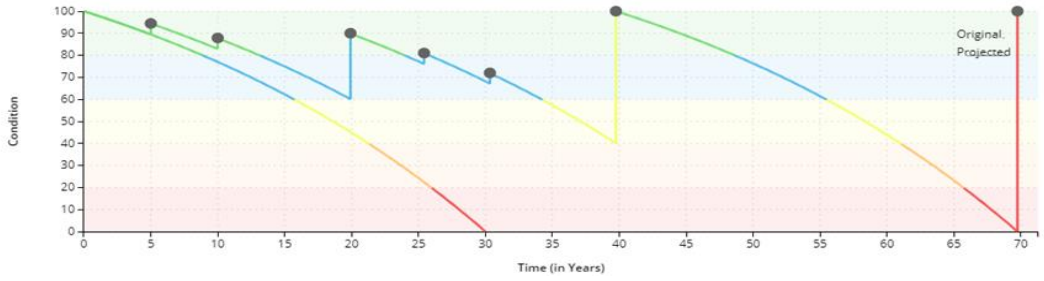


Table 9 Lifecycle Management Strategy: Road Network (HCB Roads)

HCB >= 400 AADT		
Event Name	**Event Class**	**Event Trigger**
Fog Sealing	Maintenance	75 - 85 Condition
Micro Surfacing	Rehabilitation	70 - 80 Condition
Scratch Coat / Asphalt Overlay	Rehabilitation	65 - 70 Condition
Shave and Pave	Rehabilitation	40 – 50 Condition
Full Reconstruction	Replacement	0 – 40 Condition

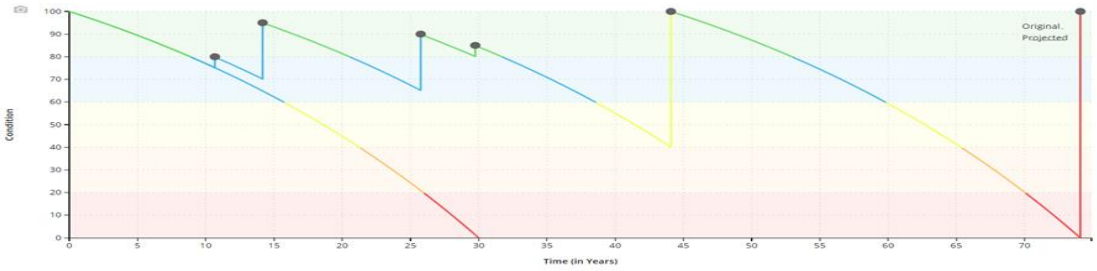


Table 10 Lifecycle Management Strategy: Road Network (HCB Roads)

LCB		
Event Name	**Event Class**	**Event Trigger**
Single Surface Treatment	Rehabilitation	40 - 50 Years
Double Surface Treatment	Rehabilitation	20 – 30 Condition
Full Reconstruction	Replacement	0 - 40 Condition

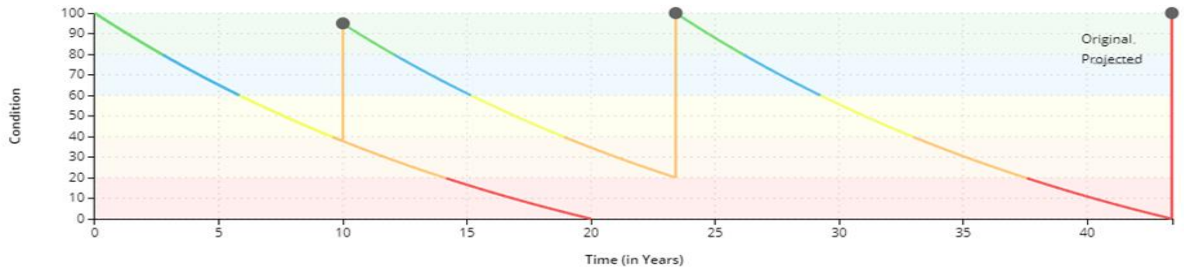


Table 11 Lifecycle Management Strategy: Road Network (LCB Roads)

4.5 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, replacement costs, and road class. The risk ratings for assets without useful attribute data were calculated using only condition, service life remaining, and their replacement costs.

The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the Municipality may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the Municipality's Asset Management Database (Citywide Assets). See *Risk & Criticality* section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 **Very Low** $11,639,000 (43%)	5 - 7 **Low** $7,614,000 (28%)	8 - 9 **Moderate** $4,802,000 (18%)	10 - 14 **High** $1,863,000 (7%)	15 - 25 **Very High** $1,362,000 (5%)

Figure 21 Risk Matrix: Road Network

4.6 Levels of Service

The table that follows summarize the Municipality's current and proposed levels of service with respect to prescribed KPIs under Ontario Regulation 588/17, as well as any additional performance measures that the Municipality selected for this AMP.

4.6.1 Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description, which may include maps, of the road network in the Municipality and its level of connectivity	Scope	See Appendix B
	Description or images that illustrate the different levels of road class pavement condition	Quality	The Township staff provide surface condition with a rating as follows: 0 – 20 Very Poor 20 – 40 Poor 40 – 60 Fair 60 – 80 Good 80 – 100 Very Good
Technical	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km2)	Scope	0
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km2)		0.42
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km2)		0.68
Technical	Average pavement condition index for paved roads in the Municipality	Quality	HCB: 78 LCB: 69
	Average surface condition for unpaved roads in the Municipality (e.g. excellent, good, fair, poor)		Good

Table 12: Road Network – Current Levels of Service

4.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Horton Township's inventory were run until 2103, to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Funding Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Good - this scenario utilizes a target average condition of 60% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for the road network.

Scenarios	Replacement Cost	Average Condition	Annual Capital Reinvestment
Scenario 1 – Lifecycle	$27,280,000	58.16%	$558,000
Scenario 2 - Current Funding Rate	$27,280,000	58.16%	$515,000
Scenario 3 – Target Condition 60% **(selected)**	$27,280,000	57.75%	$482,000

Table 13: Road Network - Proposed Levels of Service Scenarios

4.6.3 Additional Metrics

The table that follows summarize the Municipality's additional performance measures to be tracked after the conclusion of this AMP under Ontario Regulation 588/17.

Metric Type	KPI Metric	Proposed LOS Metric (2034)
Technical	Adherence to the Municipality's road lifecycle strategy, as indicated in the TCA policy	Yes –To be tracked annually, over a 10-year period
	Average quantitative risk rating (0-25)[4]	9.9

Table 14: Road Network - Additional Metrics

4.6.4 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 3) for the Municipality, within a 10-year timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Culverts	-	-	-	-	-	-	-	-	-	-
HCB Roads	-	-	-	-	-	$70k	$5k	-	-	-
LCB Roads	-	-	-	-	-	-	$1k	-	$41k	-
Street Signs	-	-	-	-	-	-	-	-	-	-
Streetlights	-	-	-	-	-	-	-	-	-	-
Unpaved Roads	-	-	-	-	-	-	$78k	$123k	$120k	$145k
Total	-	-	-	-	-	$70k	$85k	$123k	$161k	$145k

Table 15: Road Network - 10-Year Capital Forecast

[4] See Risk & Criticality in section 2.3.2

5. Pedestrian Bridges

5.1 Inventory & Valuation

Table 16 summarizes the quantity and current replacement cost of the Municipality's pedestrian bridges.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Pedestrian Bridges	2	Assets	$81,000	CPI
TOTAL			**$81,000**	

Table 16 Detailed Asset Inventory: Pedestrian Bridges

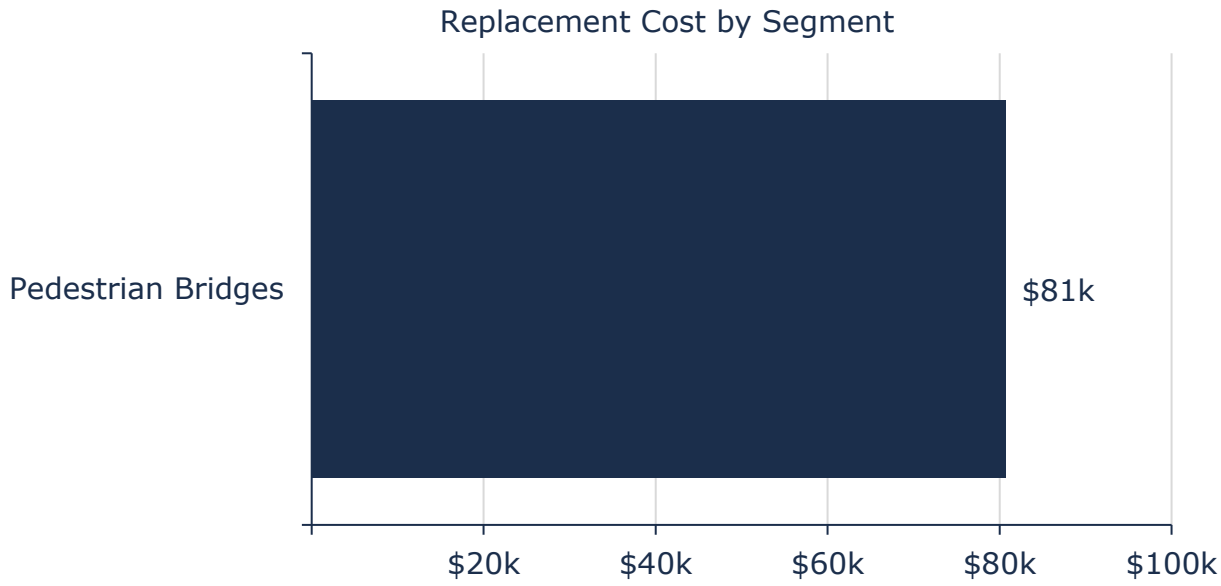


Figure 22 Portfolio Valuation: Pedestrian Bridges

5.2 Asset Condition

Figure 23 and 25 summarize the replacement cost-weighted condition of the Municipality's pedestrian bridges. Both pedestrian bridges are in very good condition.

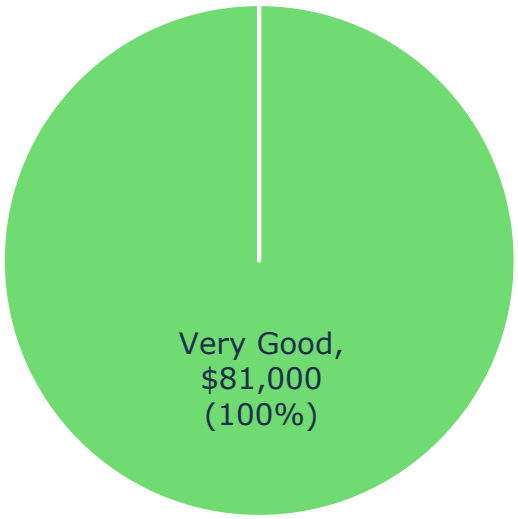


Figure 23 Asset Condition: Pedestrian Bridges Overall

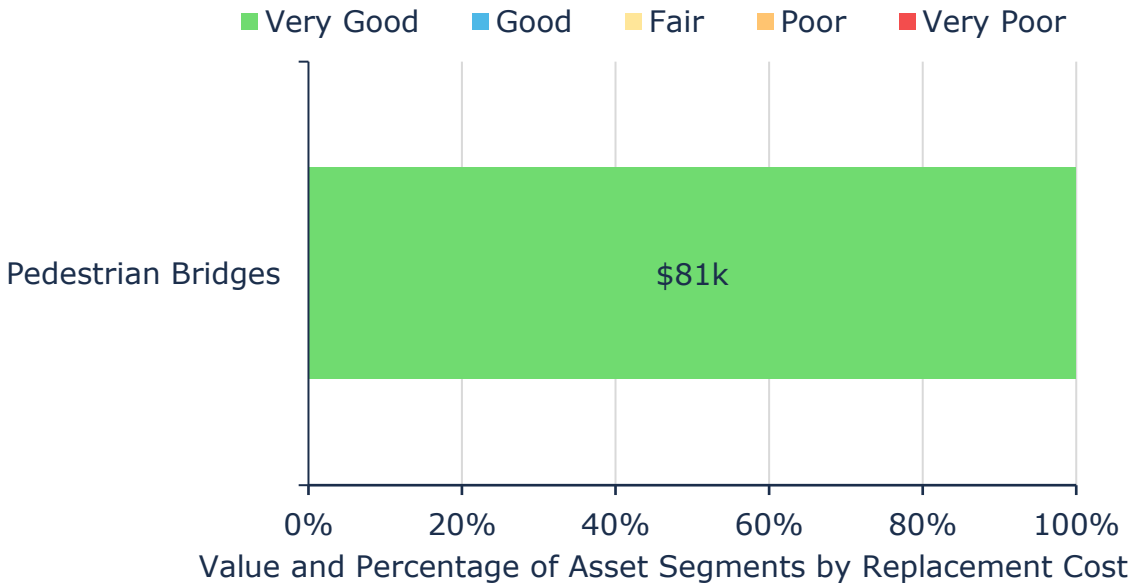


Figure 24 Asset Condition: Pedestrian Bridges by Segment

5.2.1 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:

- Condition assessments for both pedestrian within the Township are conducted biennially, following the guidelines of the Ontario Structure Inspection Manual (OSIM). The next scheduled assessment will occur later this year, in partnership with the County of Renfrew in 2026.
- In this AMP, the following rating criteria is used to determine the current condition of Pedestrian Bridges and forecast future capital requirements:

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

5.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

Figure 25 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets. As seen below, pedestrian bridges have used up just over half of their estimated useful life.

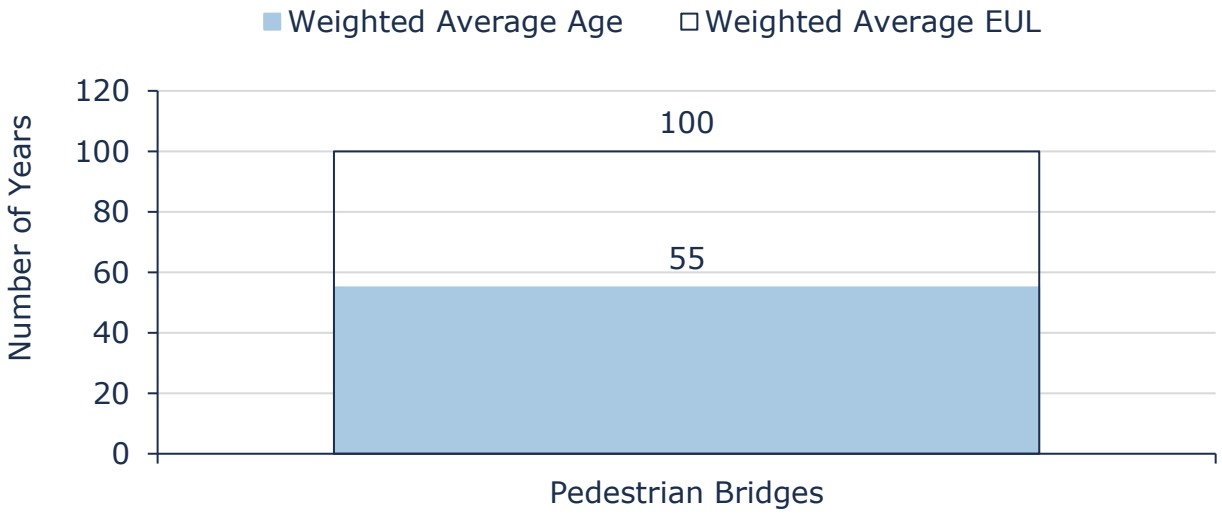


Figure 25 Estimated Useful Life vs. Asset Age: Pedestrian Bridges

5.4 Current Approach to Lifecycle Management

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.

The following table outlines the Municipality's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation and Replacement	Lifecycle activities are driven by the results of staff inspections and aligned with the roadway condition needs
Inspection	The Municipality, in accordance with Ontario Regulation 472/10, will be conducting biennial inspections on its pedestrian bridges.

Table 17 Lifecycle Management Strategy: Pedestrian Bridges

5.5 Risk Analysis

The risk matrix below is generated using available asset data, including condition and replacement costs.

The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the Municipality may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the Municipality's Asset Management Database (Citywide Assets). See *Risk & Criticality* section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 **Very Low**	5 - 7 **Low**	8 - 9 **Moderate**	10 - 14 **High**	15 - 25 **Very High**
$81,000 (100%)	- (0%)	- (0%)	- (0%)	- (0%)

Figure 26 Risk Matrix: Pedestrian Bridges

5.6 Levels of Service

The table that follows summarize the Municipality's current and proposed levels of service with respect to prescribed KPIs under Ontario Regulation 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

5.6.1 Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	Scope	The Township owns and maintains two pedestrian bridges. Both structures are designed to support non-motorized traffic, including pedestrians and cyclists.
Community	Description or images of the condition of pedestrian bridges and how this would affect use of the pedestrian bridges	Quality	See 5.2.1
Technical	% of bridges in the Municipality with loading or dimensional restrictions	Scope	0%
Technical	Average bridge condition index value for bridges in the Municipality	Quality	83

Table 18: Pedestrian Bridges – Current Levels of Service

5.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Horton Township's inventory were run until 2068 to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Funding Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Good - this scenario utilizes a target average condition of 60% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for the Municipality's pedestrian bridges.

Scenarios	Replacement Cost	Average Condition	Annual Capital Reinvestment
Scenario 1 – Lifecycle	$81,000	59.36%	$2,000
Scenario 2 - Current Funding Rate	$81,000	58.23%	$1,000
Scenario 3 – Target Condition 60% **(selected)**	$81,000	59.36%	$2,000

Table 19: Pedestrian Bridges - Proposed Levels of Service Scenarios

5.6.3 Additional Metrics

The table that follows summarize the Municipality's additional performance measures to be tracked after the conclusion of this AMP under Ontario Regulation 588/17.

Metric Type	KPI Metric	Proposed LOS Metric (2034)
	Average quantitative risk rating (0-25)[5]	5.4

Table 20: Pedestrian Bridges - Additional Metrics

5.6.4 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 3) for the Municipality, within a 10-year timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Pedestrian Bridges	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-

Table 21: Pedestrian Bridges - 10-Year Capital Forecast

[5] See Risk & Criticality in section 2.3.2

6. Stormwater Network

6.1 Inventory & Valuation

Table 22 summarizes the quantity and current replacement cost of all stormwater management assets available in the Municipality's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Storm Mains	1,423	Length (m)	$1,133,865	CPI
Structures[6]	90	Assets	$411,975	CPI
TOTAL			**$1,545,840**	

Table 22 Detailed Asset Inventory: Storm Network

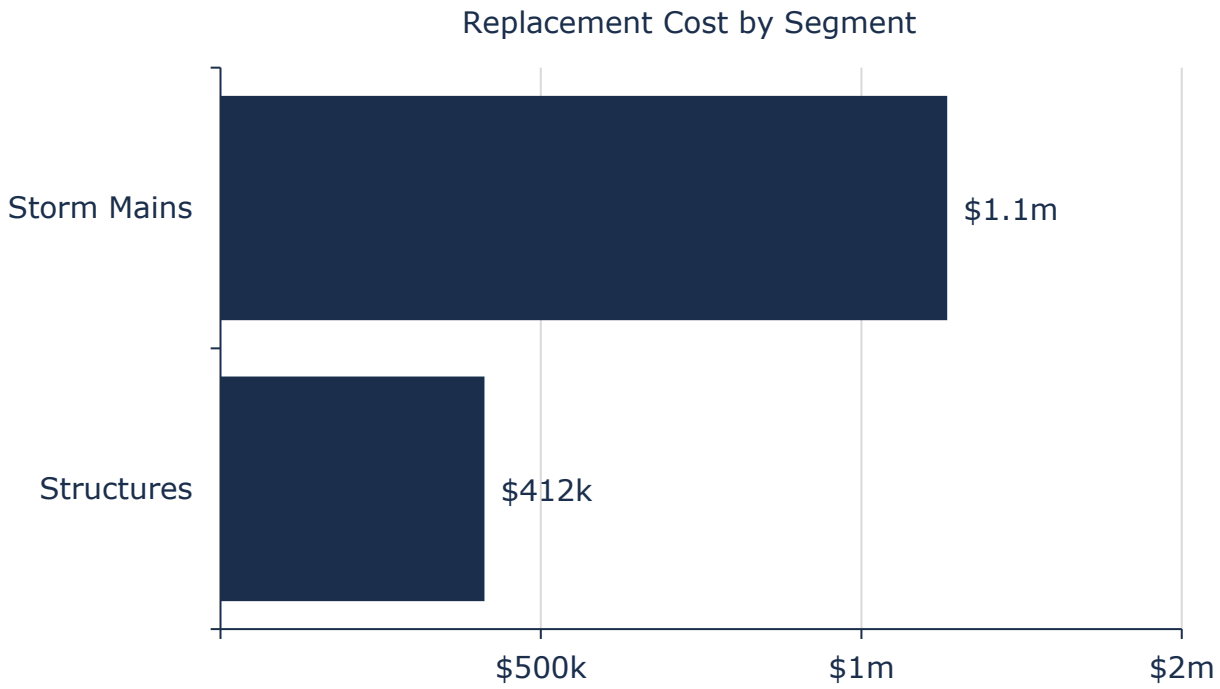


Figure 27 Portfolio Valuation: Storm Network

[6] Structures consist of catch basins, ditch inlets and outlets

6.2 Asset Condition

Figure 28 summarizes the replacement cost-weighted condition of the Municipality's stormwater network assets. Based on assessment data, approximately 100% of assets are very good condition.

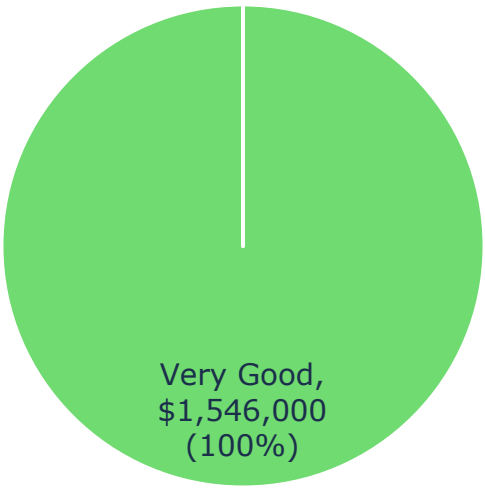


Figure 28 Asset Condition: Stormwater Network Overall

Figure 29 summarizes the condition of stormwater network assets. The analysis illustrates that all stormwater mains are in very good condition.

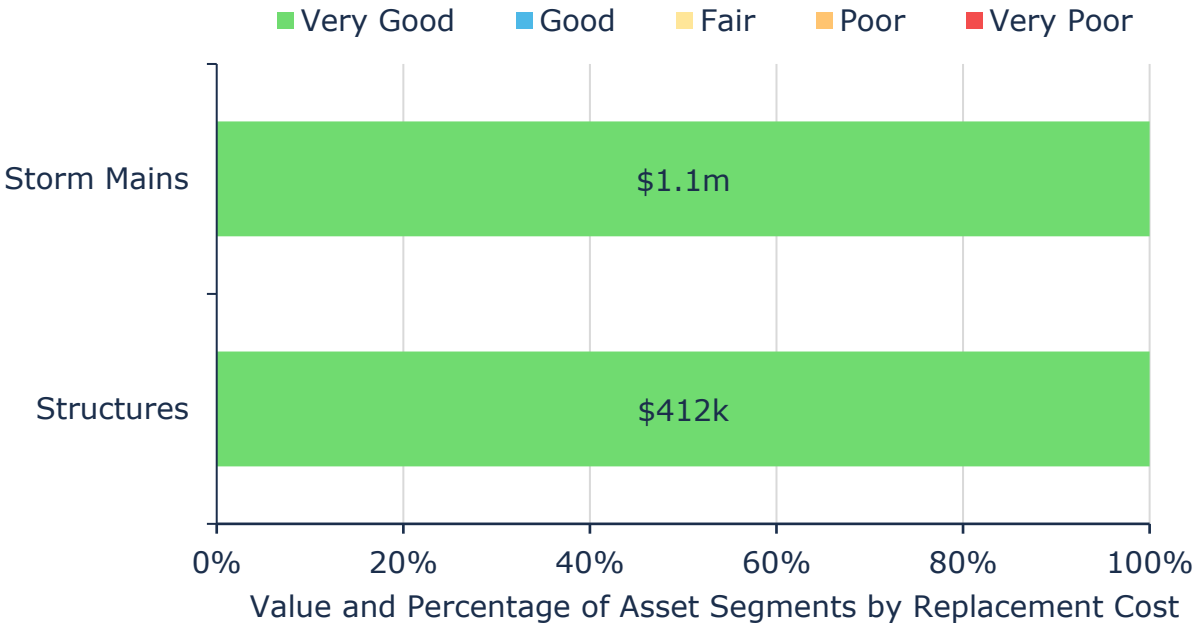


Figure 29 Asset Condition: Storm Network by Segment

6.2.1 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:

- Visual inspections are conducted by staff
- CCTV inspections are conducted by contractor once a road reconstruction is identified prior to the design phase

6.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

Figure 30 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets. Most assets within the category have only used a small portion of their estimated lifespan.

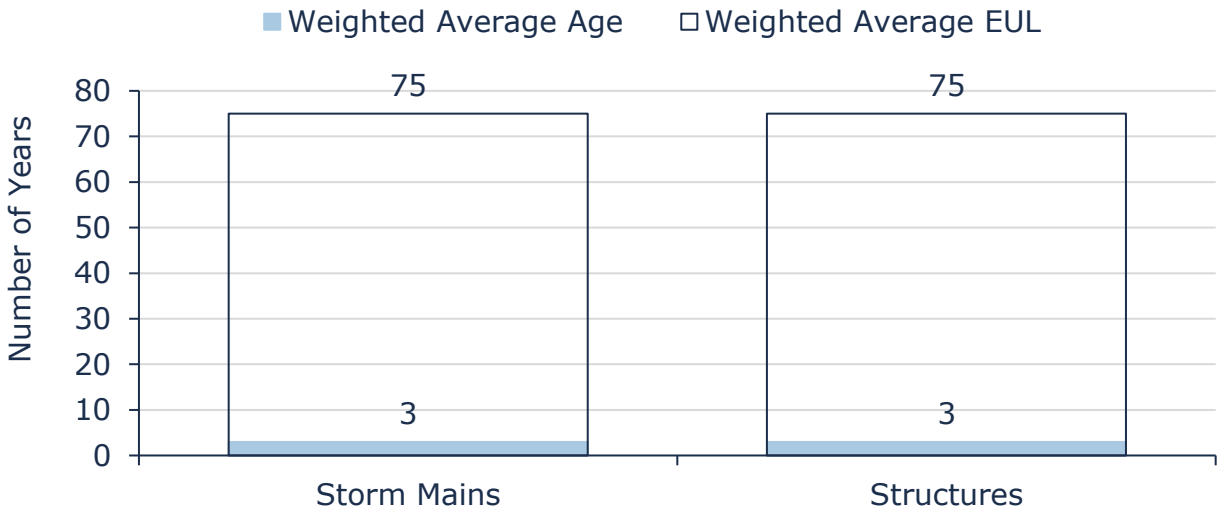


Figure 30 Estimated Useful Life vs. Asset Age: Stormwater Network

6.4 Current Approach to Lifecycle Management

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.

The following table outlines the Municipality's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Primary activities include a yearly flush and clean of the entire system network.
	CCTV inspections and cleaning is completed as budget becomes available, and this information will be used to drive forward rehabilitation and replacement plans
Rehabilitation	Grate replacements are conducted on an as needed basis.
Replacement	Aligned with Road Reconstruction

Table 23 Lifecycle Management Strategy: Stormwater Network

6.5 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, and replacement costs. As no attribute data was available for storm assets, the risk ratings for assets were calculated using only these required, minimum asset fields.

The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the Municipality may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the Municipality's Asset Management Database (Citywide Assets). See *Risk & Criticality* section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 **Very Low**	5 - 7 **Low**	8 - 9 **Moderate**	10 - 14 **High**	15 - 25 **Very High**
$1,546,000 (100%)	- (0%)	- (0%)	- (0%)	- (0%)

Figure 31 Risk Matrix: Stormwater Network

6.6 Levels of Service

The table that follows summarizes the Municipality's current and proposed levels of service with respect to prescribed KPIs under Ontario Regulation 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

6.6.1 Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description, which may include map, of the user groups or areas of the Municipality that are protected from flooding, including the extent of protection provided by the municipal Storm Sewer system	Scope	Appendix B
Technical	% of properties in Municipality resilient to a 100-year storm	Scope	100%
	% of the municipal storm sewer management system resilient to a 5-year storm		100%

Table 24: Stormwater Network – Current Levels of Service

6.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Horton Township's inventory were run until 2098 to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Funding Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Good - this scenario utilizes a target average condition of 60% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for the Municipality's stormwater network assets.

Scenarios	Replacement Cost	Average Condition	Annual Capital Reinvestment
Scenario 1 – Lifecycle	$1,546,000	80.45%	$21,000
Scenario 2 - Current Funding Rate	$1,546,000	76.85%	$6,000
Scenario 3 – Target Condition 60% **(selected)**	$1,546,000	78.41%	$13,000

Table 25: Storm Network - Proposed Levels of Service Scenarios

6.6.3 Additional Metrics

The table that follows summarize the Municipality's additional performance measures to be tracked after the conclusion of this AMP under Ontario Regulation 588/17.

Metric Type	KPI Metric	Proposed LOS Metric
Technical	% of Stormwater Network Assessed per year	100
	Catch Basin Cleaning (Total # flushed per year)	100

Metric Type	KPI Metric	Proposed LOS Metric
	Conduct floodplain mapping	Yes[7]
	Average quantitative risk rating (0-25)[8]	2.24

Table 26: Storm Network - Additional Metrics

6.6.4 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 3) for the Municipality, within a 10-year timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Storm Mains	-	-	-	-	-	-	-	-	-	-
Structures	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-

Table 27: Storm Network - 10-Year Capital Forecast

[7] By 2034, the Municipality plans on conducting external floodplain mapping. Doing so will help the Municipality improve infrastructure planning, design, and identify specific maintenance and upgrade needs
[8] See Risk & Criticality in section 2.3.2

Non-Core Assets

7. Buildings

7.1 Inventory & Valuation

Table 28 summarizes the quantity and current replacement cost of all Buildings assets available in the Municipality's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Administration	1	Assets	$631,977	CPI
Fire Hall	1	Assets	$1,719,443	CPI
Public Works Garage	1	Assets	$1,438,695	CPI
Recreation	1	Assets	$2,490,911	CPI
TOTAL			**$6,281,026**	

Table 28 Detailed Asset Inventory: Buildings

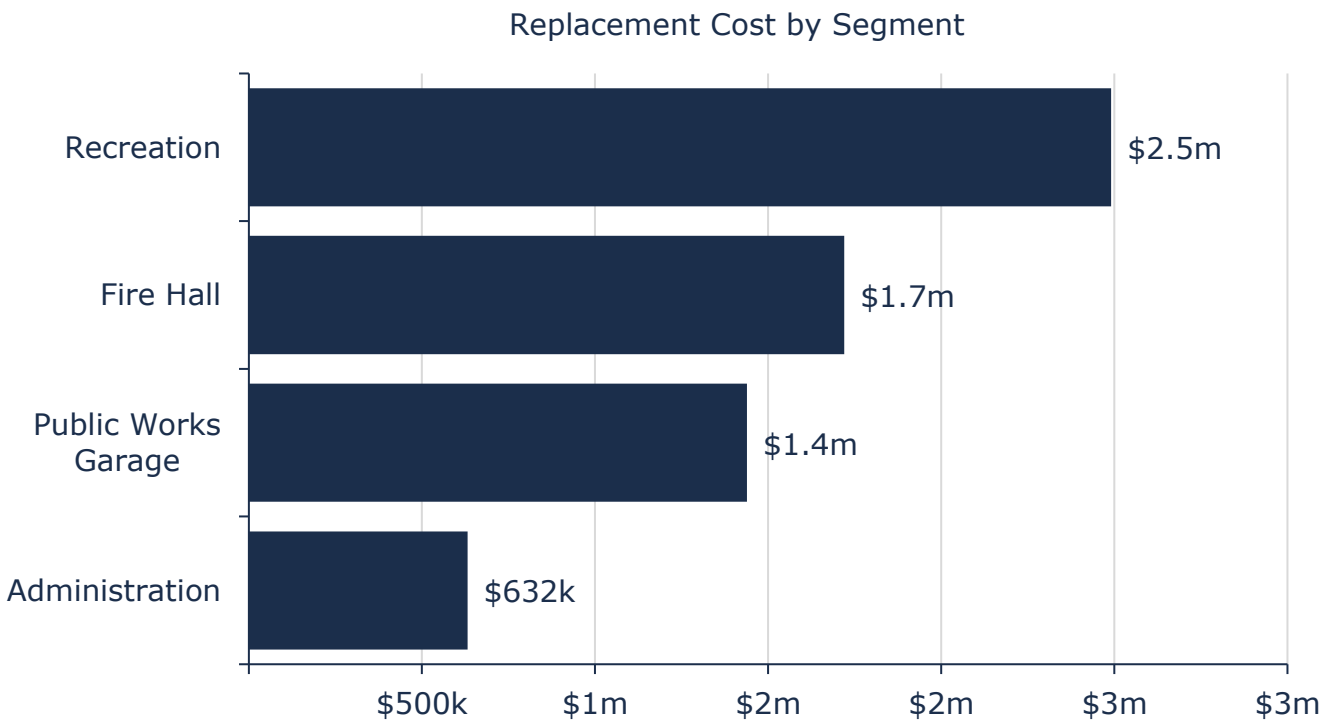


Figure 32 Portfolio Valuation: Buildings

7.2 Asset Condition

Figure 33 summarizes the replacement cost-weighted condition of the Municipality's Buildings portfolio. Based wholly on assessment data, 99% of Buildings assets are in fair or better condition.

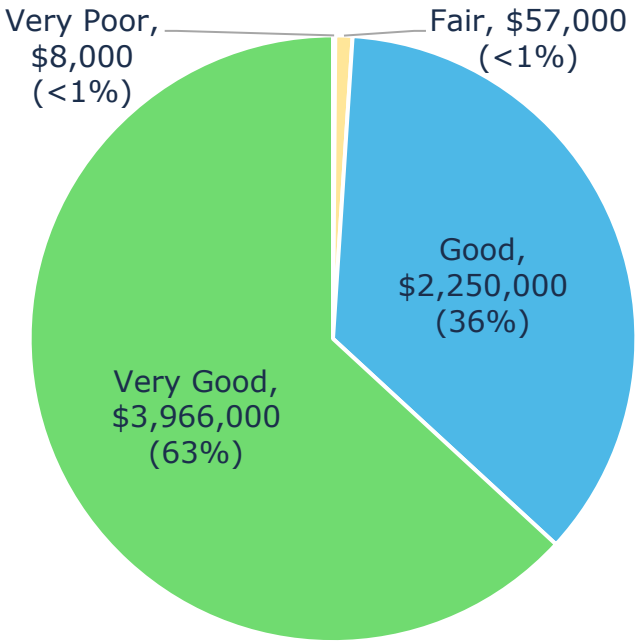


Figure 33 Asset Condition: Buildings Overall

Figure 34 summarizes the condition of buildings by each department. Most buildings assets are in very good condition with some components of the Public Works garage assets dipping to a poor condition. Overall, based on the information available, this asset category is in a very healthy state.

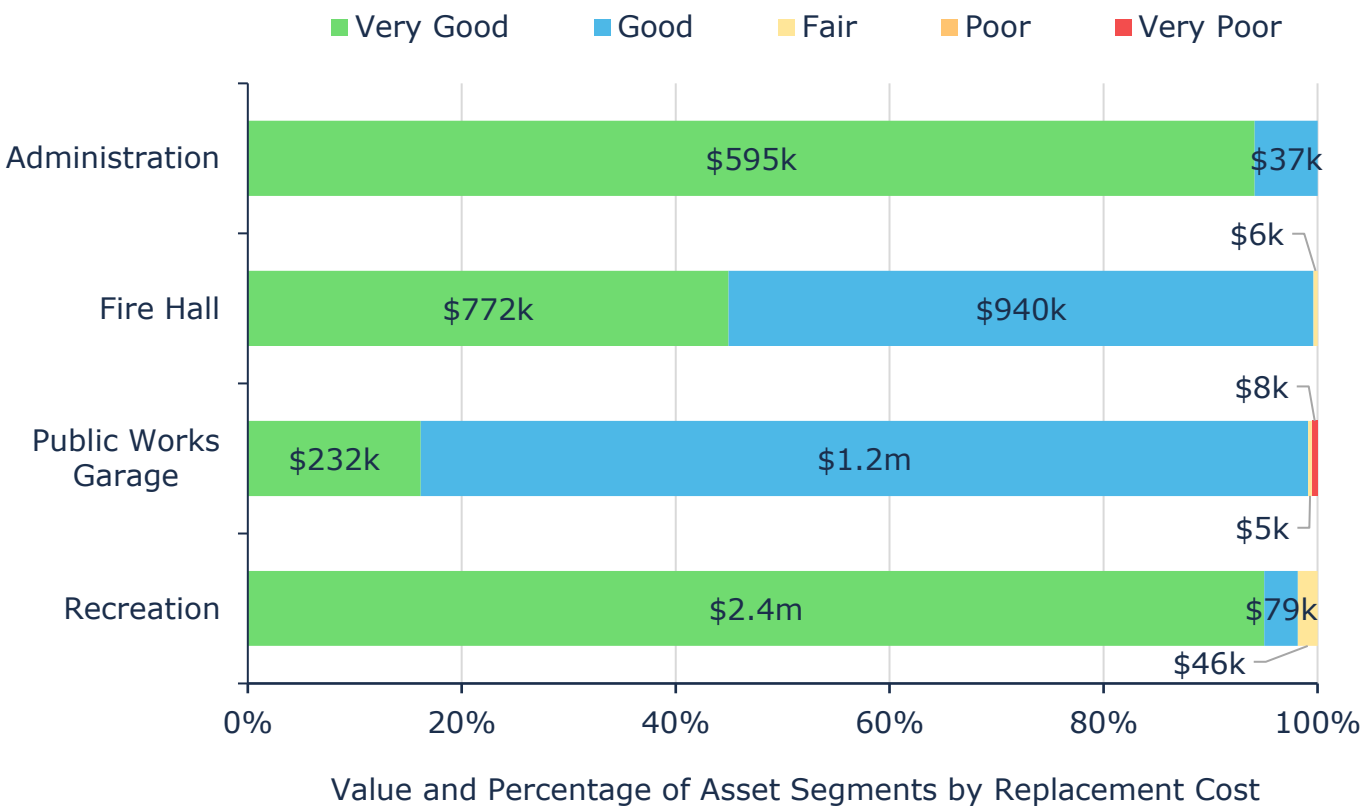


Figure 34 Asset Condition: Buildings by Segment

Buildings assets are unique in that they rarely require the need for replacement based solely on condition. It is typical that, in addition to condition, other factors, such as capacity, will impact the asset's ability to serve the purpose originally intended.

7.2.1 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:

- Buildings Inspections are conducted monthly by the Joint Health & Safety Committee
- A building assessment was conducted by third-party in 2014.[9]

[9] It is recommended that the Municipality conduct a third-party condition assessment in the coming years. Doing so yields many benefits including: better capital planning, risk management and mitigation, ensuring that regulatory compliance standards are met, and potential cost savings by identifying areas for proactive maintenance/rehabilitation

7.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

Figure 35 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

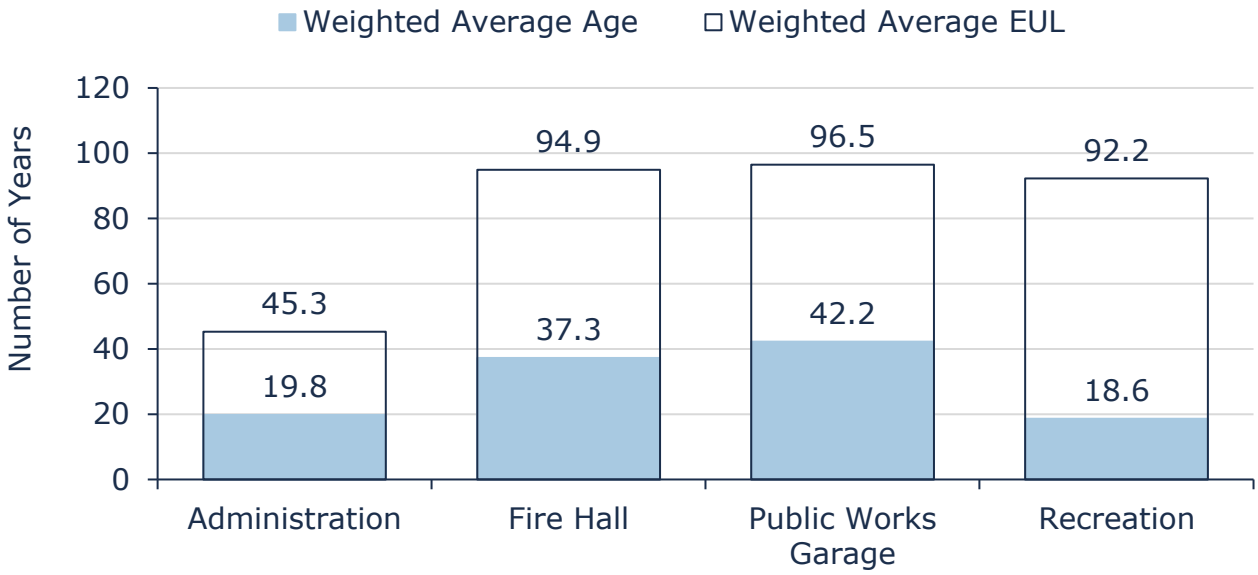


Figure 35 Estimated Useful Life vs. Asset Age: Buildings

7.4 Current Approach to Lifecycle Management

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 29 outlines the Municipality's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Inspection, Maintenance & Rehabilitation	Municipal buildings are subject to regular inspections to identify health & safety requirements and any visual defects.
	Depends on Grant and Upper Tier Funding opportunities for major rehabilitation
Replacement	Assessments are completed reactively based on compliance with regulations such as TSSA. The building audit is used to prioritize.

Table 29 Lifecycle Management Strategy: Buildings

7.5 Risk Analysis

The risk matrix below is generated using available asset data, including service life remaining, replacement costs, and building department. The risk ratings for assets without useful attribute data were calculated using only age, service life remaining, and their replacement costs.

The matrix classifies assets based on their individual probability and consequence of failure; each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the Municipality may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the Municipality's Asset Management Database (Citywide Assets). See *Risk & Criticality* section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 **Very Low**	5 - 7 **Low**	8 - 9 **Moderate**	10 - 14 **High**	15 - 25 **Very High**
$964,000 (15%)	$2,720,000 (43%)	$1,258,000 (20%)	$1,339,000 (21%)	- (0%)

Figure 36 Risk Matrix: Buildings

7.6 Levels of Service

The table that follows summarizes the Municipality's current and proposed levels of service with respect to prescribed KPIs under Ontario Regulation 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

7.6.1 Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description, which may include maps, of the types of buildings that the Municipality operates and maintains	Scope	See Section 7.1
Technical	Average condition rating	Quality	Very Good - 89
	AODA compliance target (%)		2/3

Table 30: Buildings – Current Levels of Service

7.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Horton Township's inventory were run until 2113 to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Funding Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Good - this scenario utilizes a target average condition of 60% of the infrastructure within each asset category.

The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for the Municipality's buildings.

Scenarios	Replacement Cost	Average Condition	Annual Capital Reinvestment
Scenario 1 – Lifecycle	$6,281,000	77.82%	$81,000
Scenario 2 - Current Funding Rate	$6,281,000	48.36%	$21,000
Scenario 3 – Target Condition 60% **(selected)**	$6,281,000	68.45%	$57,000

Table 31: Buildings - Proposed Levels of Service Scenarios

7.6.3 Additional Metrics

The table that follows summarize the Municipality's additional performance measures to be tracked after the conclusion of this AMP under Ontario Regulation 588/17.

Metric Type	KPI Metric	Proposed LOS Metric
Technical	Implementation of maintenance manager software[10]	Y
	AODA compliance	3/3[11]
	Average quantitative risk rating (0-25)[12]	6.34

Table 32: Buildings - Additional Metrics

[10] Improves data tracking for better asset management. Projected to be implemented in 2026
[11] Three facilities include: boat launch, community centre, and outdoor park on Elliot Crescent
[12] See Risk & Criticality in section 2.3.2

7.6.4 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 3) for the Municipality, within a 10-year timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Administration	-	-	-	-	-	-	-	-	-	-
Fire Hall	-	-	-	-	-	-	-	-	-	-
Public Works Garage	-	-	-	-	-	-	-	-	-	-
Recreation	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-

Table 33: Buildings - 10-Year Capital Forecast

8. Vehicles

8.1 Inventory & Valuation

Table 34 summarizes the quantity and current replacement cost of all vehicle assets available in the Municipality's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Fire Protection	4	Assets	$2,212,583	CPI
Public Works	5	Assets	$1,246,795	CPI
TOTAL			**$3,459,378**	

Table 34 Detailed Asset Inventory: Vehicles

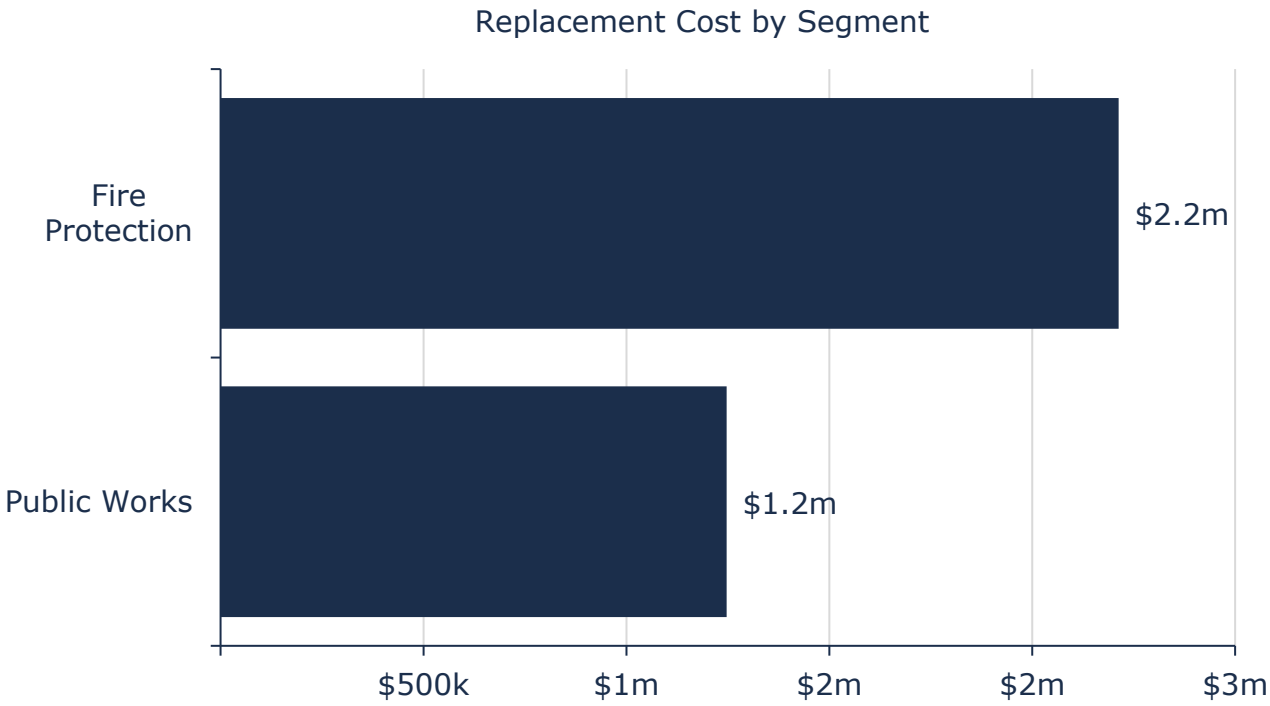


Figure 37 Portfolio Valuation: Vehicles

8.2 Asset Condition

Figure 38 summarizes the replacement cost-weighted condition of the Municipality's vehicles portfolio. Based on assessment data, 56% of vehicles are in fair or better condition, with the remaining 44% are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. Condition data was available for 100% of vehicles, based on replacement costs.

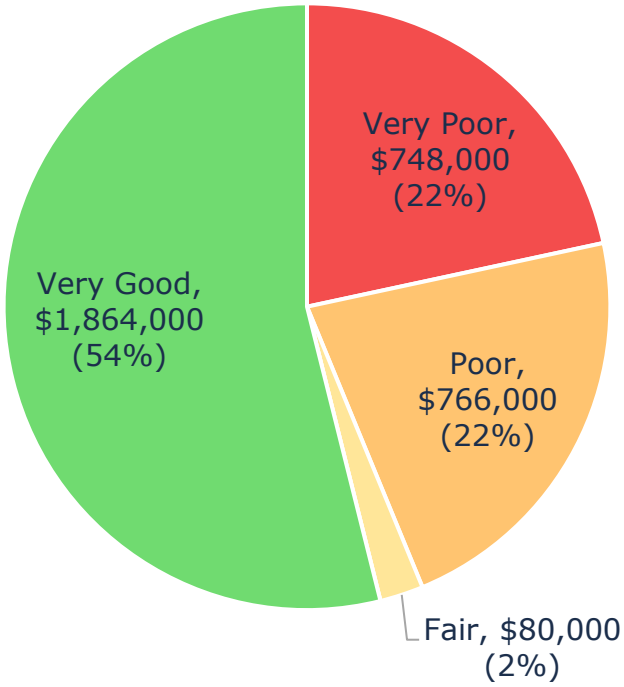


Figure 38 Asset Condition: Vehicles Overall

Figure 39 summarizes the condition of vehicles by use case. All Public Works vehicles are in fair or better condition but attention may be needed to address the condition of Fire Protection vehicles in which 68% of those assets are in poor or worse condition.

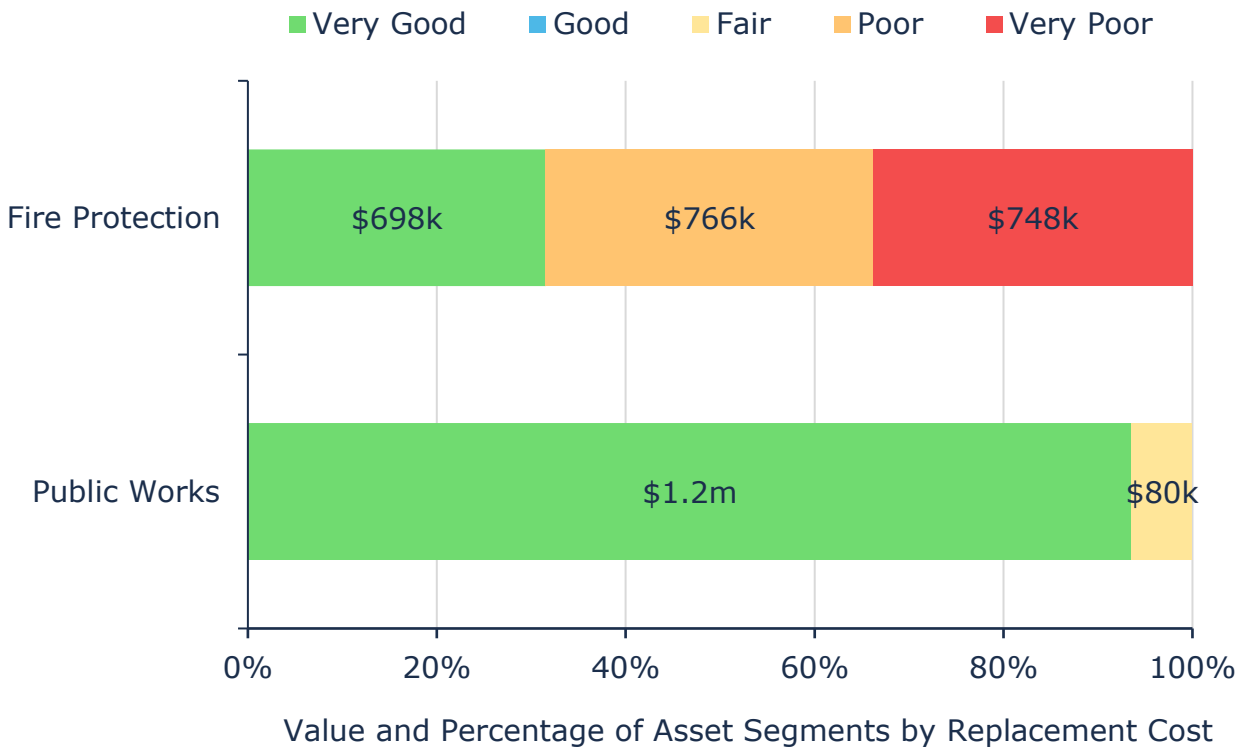


Figure 39 Asset Condition: Vehicles by Segment

8.2.1 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 annual safety inspections on all CVOR vehicles
- A condition assessment of all vehicles was conducted in 2024

8.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

Figure 40 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets. As seen in the figure below, Fire Protection vehicles have exceeded their estimated useful life and may be due for replacement in the coming years.

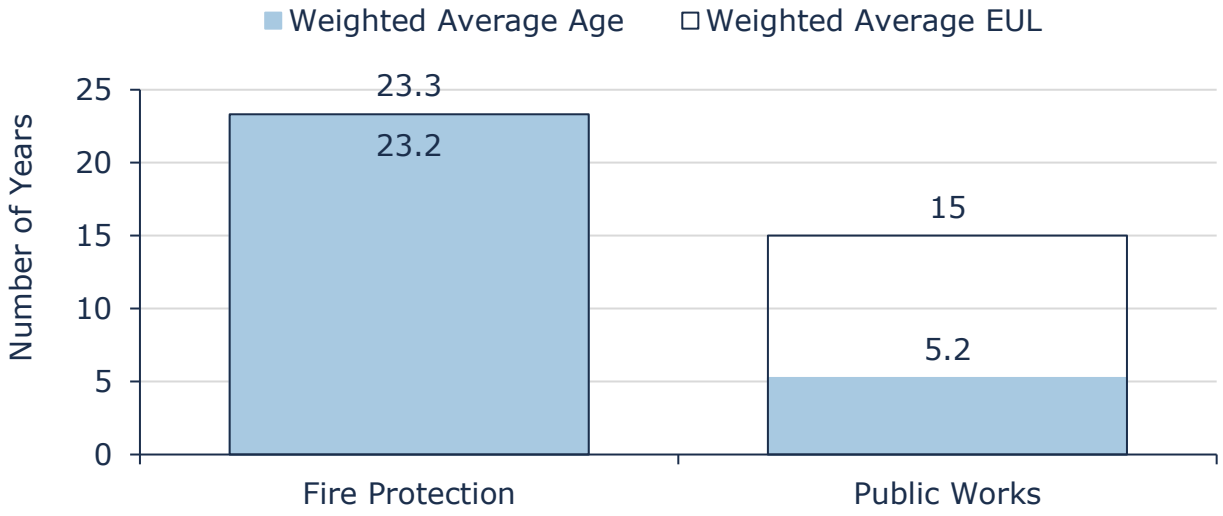


Figure 40 Estimated Useful Life vs. Asset Age: Vehicles

8.4 Current Approach to Lifecycle Management

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.

The following table outlines the Municipality's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Visual inspections completed and documented daily; fluids inspected at every fuel stop; tires inspected monthly
	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

Table 35 Lifecycle Management Strategy: Vehicles

8.5 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, replacement costs, and department or service area. The risk ratings for assets without useful attribute data were calculated using only condition, service life remaining, and their replacement costs.

The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the Municipality may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the Municipality's Asset Management Database (Citywide Assets). See *Risk & Criticality* section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$351,000 (10%)	$1,513,000 (44%)	- (0%)	$80,000 (2%)	$1,515,000 (44%)

Figure 41 Risk Matrix: Vehicles

8.6 Levels of Service

The table that follows summarizes the Municipality's current and proposed levels of service with respect to prescribed KPIs under Ontario Regulation 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

8.6.1 Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description the types of vehicles that the Municipality operates and the services that they help to provide to the community	Scope	Refer to section 8.1
Technical	Average condition of vehicles in the municipality	Quality	Fair - 57

Table 36: Vehicles – Current Levels of Service

8.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Horton Township's inventory were run until 2053 to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Funding Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Good - this scenario utilizes a target average condition of 60% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for vehicles assets.

Scenarios	Replacement Cost	Average Condition	Annual Capital Reinvestment
Scenario 1 – Lifecycle	$3,459,000	78.56%	$215,000
Scenario 2 - Current Funding Rate	$3,459,000	34.00%	$73,000
Scenario 3 – Target Condition 60% **(selected)**	$3,459,000	68.00%	$158,000

Table 37: Vehicles - Proposed Levels of Service Scenarios

8.6.3 Additional Metrics

The table that follows summarize the Municipality's additional performance measures to be tracked after the conclusion of this AMP under Ontario Regulation 588/17.

Metric Type	KPI Metric	Proposed LOS Metric
Technical	% of vehicles following a scheduled maintenance & replacement program[13]	100%
	% of Vehicles Meeting Annual Safety Certification[14]	100%
	Average quantitative risk rating (0-25)[15]	9.02

Table 38: Vehicles - Additional Metrics

[13] Strategic alignment between AMP and TCA policy
[14] As required by MTO, compliance check. Critical to winter control and emergency services
[15] See Risk & Criticality in section 2.3.2

8.6.4 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 3) for the Municipality, within a 10-year timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Fire Protection	$748k	-	-	-	$766k	-	-	-	-	-
Public Works	-	-	-	-	-	-	-	-	$155k	$470k
Total	$748k	-	-	-	$766k	-	-	-	$155k	$470k

Table 39: Vehicles - 10-Year Capital Forecast

9. Machinery & Equipment

9.1 Inventory & Valuation

Table 40 summarizes the quantity and current replacement cost of all equipment assets available in the Municipality's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Administration	2	Assets	$82,446	CPI
Fire Protection	108	Assets	$214,668	CPI
Public Works	44	Assets	$1,667,411	CPI
Recreation	9	Assets	$234,018	CPI
TOTAL			**$2,198,543**	

Table 40 Detailed Asset Inventory: Machinery & Equipment

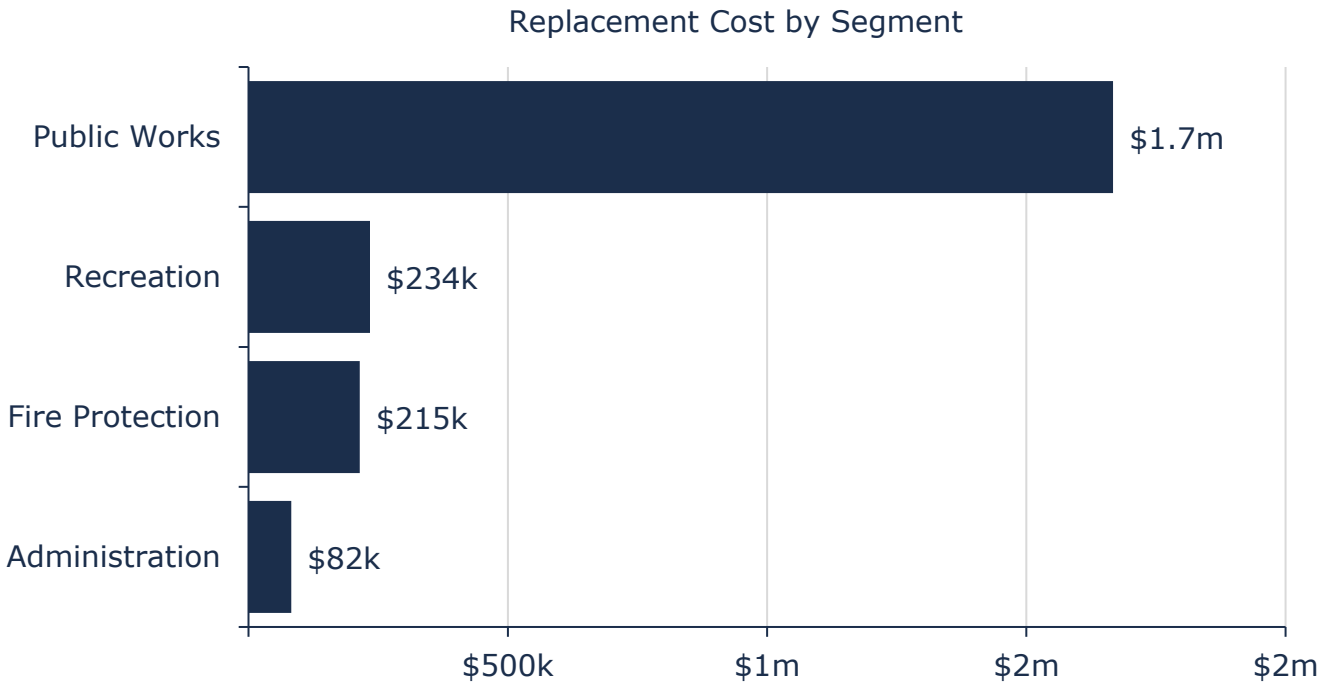


Figure 42 Portfolio Valuation: Machinery & Equipment

9.2 Asset Condition

Figure 43 summarizes the replacement cost-weighted condition of the Municipality's equipment portfolio. Based on assessed conditions, 99% of assets are in fair or better condition; the remaining 1% are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

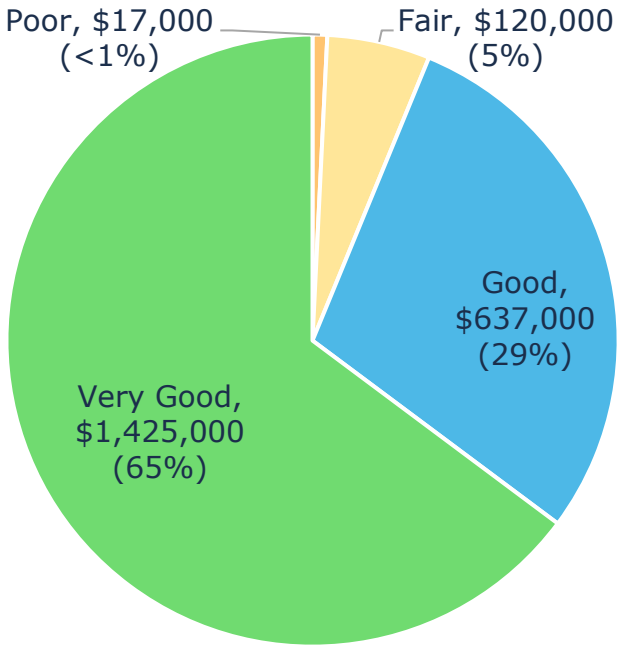


Figure 43 Asset Condition: Machinery & Equipment Overall

Figure 44 summarizes the condition of machinery and equipment by each department. The small number of assets in poor or worse condition are concentrated in the public works segment.

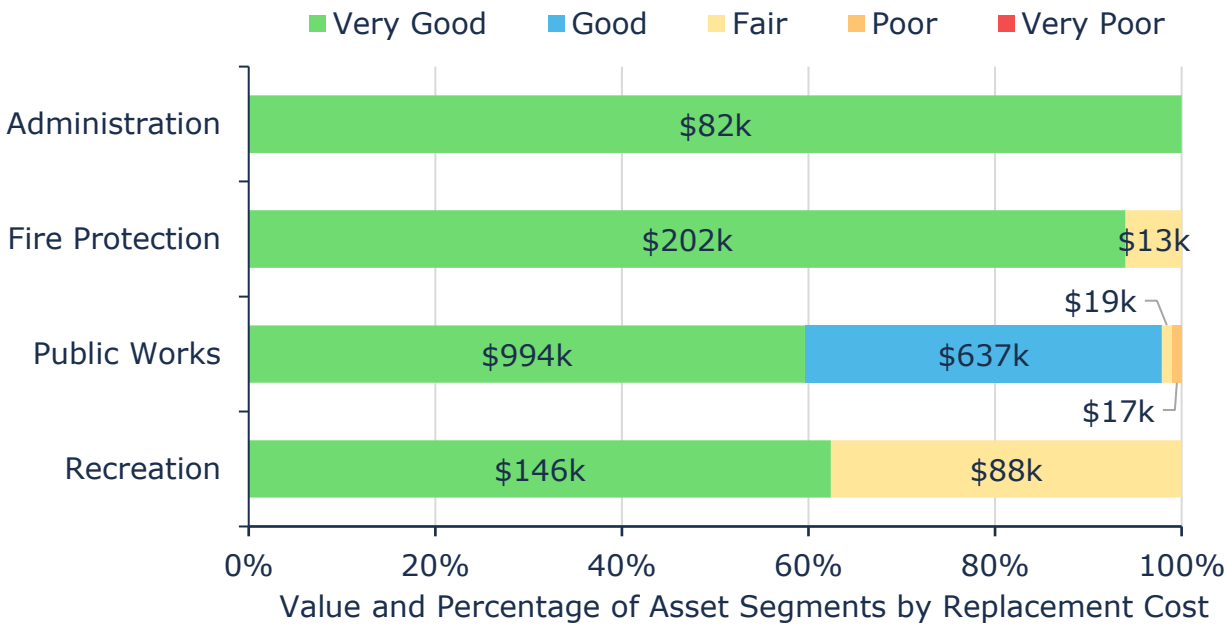


Figure 44 Asset Condition: Machinery & Equipment by Segment

9.2.1 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 annual safety inspections of fire machinery & equipment to ensure they are in state of adequate repair according to NFPA standards
- Internal maintenance and inspection are conducted for equipment assets

9.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

Figure 45 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets. Although Recreation assets have surpassed their estimated useful life, they remain in an adequate condition as noted above.

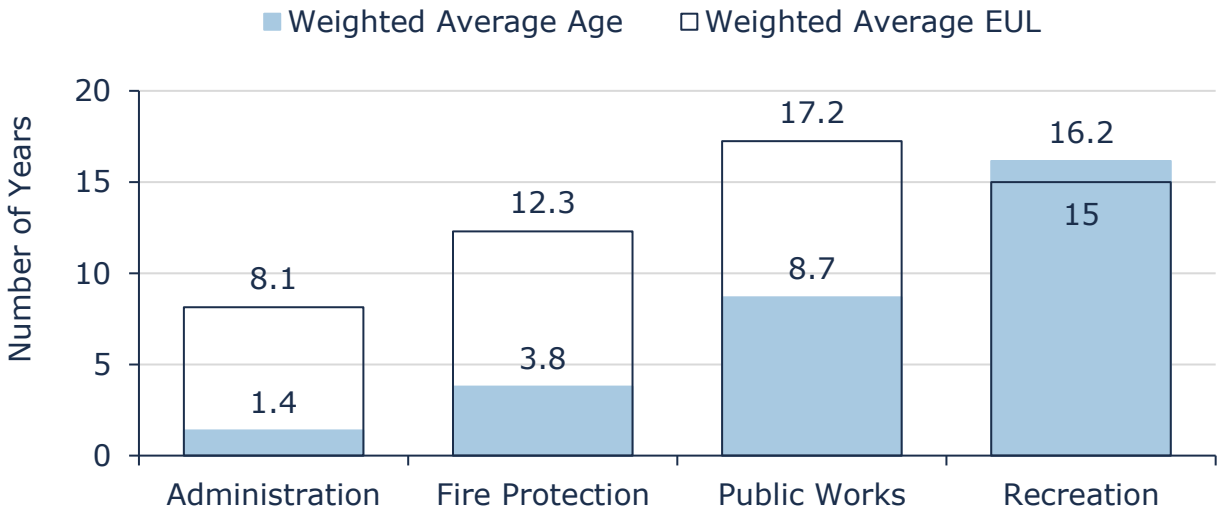


Figure 45 Estimated Useful Life vs. Asset Age: Machinery & Equipment

9.4 Current Approach to Lifecycle Management

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.

The following table outlines the Municipality's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Maintenance program varies by department
	Fire Protection Services equipment is subject to a much more rigorous inspection and maintenance program compared to most other departments
	Machinery & equipment is 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

Table 41 Lifecycle Management Strategy: Machinery & Equipment

9.5 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, and replacement costs. The risk ratings for assets without useful attribute data were calculated using only condition, service life remaining, and their replacement costs.

The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the Municipality may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the Municipality's Asset Management Database (Citywide Assets). See *Risk & Criticality* section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 **Very Low** $1,022,000 (46%)	5 - 7 **Low** $508,000 (23%)	8 - 9 **Moderate** $68,000 (3%)	10 - 14 **High** $600,000 (27%)	15 - 25 **Very High** - (0%)

Figure 46 Risk Matrix: Machinery & Equipment

9.6 Levels of Service

The table that follows summarizes the Municipality's current and proposed levels of service with respect to prescribed KPIs under Ontario Regulation 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

9.6.1 Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description or images of the types of equipment that the Municipality operates and the services that they help to provide to the community	Scope	Refer to section 9.1
Technical	Average condition of equipment (e.g. very good, good, fair, poor, very poor)	Quality	Very Good - 83

Table 42: Machinery & Equipment – Current Levels of Service

9.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Horton Township's inventory were run until 2058 to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Funding Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Good - this scenario utilizes a target average condition of 60% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for machinery & equipment assets.

Scenarios	Replacement Cost	Average Condition	Annual Capital Reinvestment
Scenario 1 – Lifecycle	$2,199,000	77.81%	$162,000
Scenario 2 - Current Funding Rate	$2,199,000	36.15%	$52,00
Scenario 3 – Target Condition 60% **(selected)**	$2,199,000	66.97%	$122,000

Table 43: Machinery & Equipment - Proposed Levels of Service Scenarios

9.6.3 Additional Metrics

The table that follows summarize the Municipality's additional performance measures to be tracked after the conclusion of this AMP under Ontario Regulation 588/17.

Metric Type	KPI Metric	Proposed LOS Metric
Technical	% of equipment following a scheduled maintenance & replacement program[16]	100%
	Average quantitative risk rating (0-25)[17]	8.37

Table 44: Machinery & Equipment - Additional Metrics

[16] Strategic alignment between AMP and TCA policy
[17] See Risk & Criticality in section 2.3.2

9.6.4 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 3) for the Municipality, within a 10-year timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Admini-stration	-	-	-	$31k	-	-	$9k	-	-	-
Fire Protection	-	-	-	$13k	$42k	$82k	$18k	-	-	-
Public Works	-	-	-	$57k	$55k	$22k	$523k	-	-	-
Recreation	-	-	-	$88k	-	-	-	-	-	-
Total	-	-	-	$188k	$98k	$103k	$550k	-	-	-

Table 45: Machinery & Equipment - 10-Year Capital Forecast

10. Land Improvements

10.1 Inventory & Valuation

Table 46 summarizes the quantity and current replacement cost of all land improvements assets available in the Municipality's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Public Works	41	Assets	$95,891	CPI
Recreation	10	Assets	$514,389	CPI
TOTAL			**$610,280**	

Table 46 Detailed Asset Inventory: Land Improvements

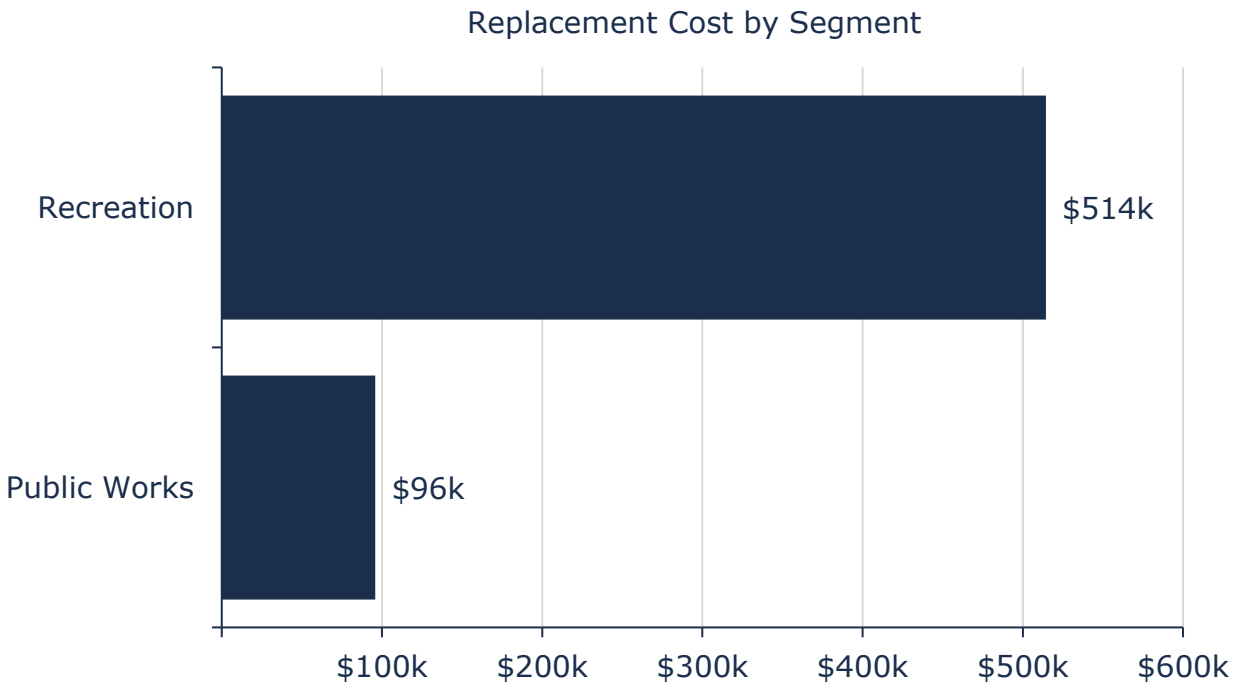


Figure 47 Portfolio Valuation: Land Improvements

10.2 Asset Condition

Figure 48 summarizes the replacement cost-weighted condition of the Municipality's land improvements portfolio. Based on assessed conditions, 100% of assets are in fair or better condition.

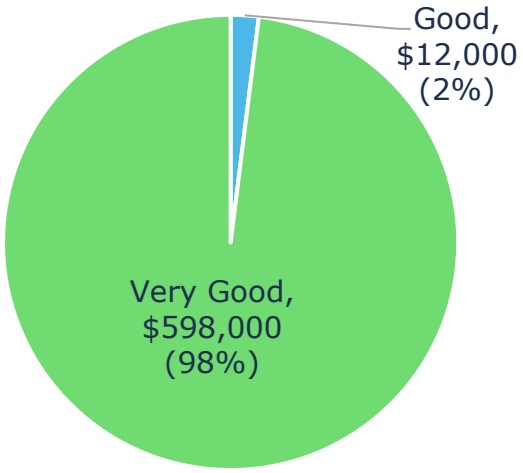


Figure 48 Asset Condition: Land Improvements Overall

Figure 49 summarizes the condition of land improvements by each department.

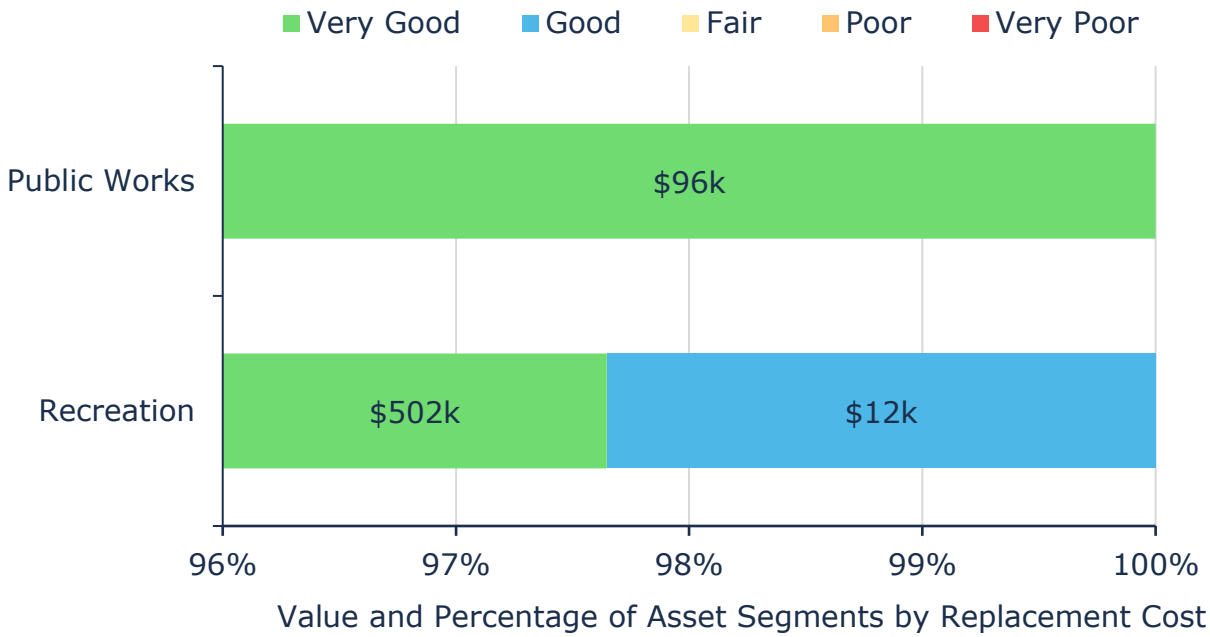


Figure 49 Asset Condition: Land Improvements by Segment

10.2.1 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:

- Joint Health & Safety Committee staff complete monthly visual inspections of land improvements assets to ensure they are in state of adequate repair
- There are no formal condition assessment programs in place for land improvements

10.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

Figure 50 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

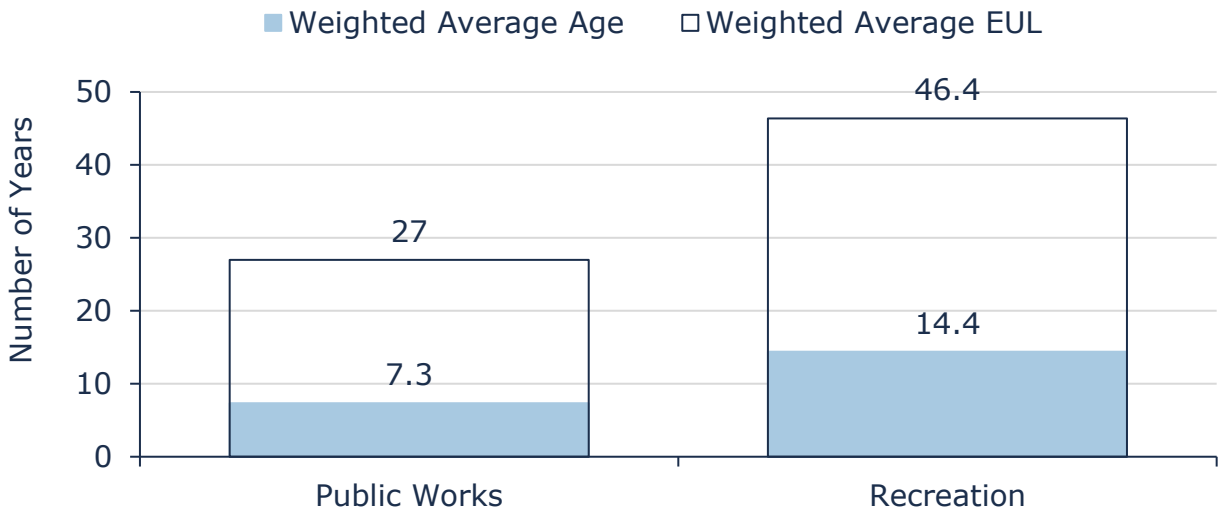


Figure 50 Estimated Useful Life vs. Asset Age: Land Improvements

10.4 Current Approach to Lifecycle Management

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.

The following table outlines the Municipality's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation & Replacement	Land improvement assets include several unique asset types and lifecycle requirements are dealt with on a case-by-case basis
	Scheduled maintenance including lawn care, dock inspections and septic pumping are conducted seasonally.

Table 47 Lifecycle Management Strategy: Land Improvements

10.5 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, and replacement costs. The risk ratings for assets without useful attribute data were calculated using only condition, service life remaining, and their replacement costs.

The matrix stratifies assets based on their individual probability and consequence of failure; each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the Municipality may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the Municipality's Asset Management Database (Citywide Assets). See *Risk & Criticality* section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 **Very Low**	5 - 7 **Low**	8 - 9 **Moderate**	10 - 14 **High**	15 - 25 **Very High**
$347,000 (57%)	$263,000 (43%)	- (0%)	- (0%)	- (0%)

Figure 51 Risk Matrix: Land Improvements

10.6 Levels of Service

The table that follows summarizes the Municipality's current and proposed levels of service with respect to prescribed KPIs under Ontario Regulation 588/17 as well as any additional performance measures that the Municipality has selected for this AMP.

10.6.1 Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description, which may include maps, of the land improvements that the Municipality operates and maintains	Scope	Refer to section 10.1
Technical	Average condition of land improvements in the municipality	Scope	Very Good - 95

Table 48: Land Improvements – Current Levels of Service

10.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Horton Township's inventory were run until 2073 to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Funding Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Good - this scenario utilizes a target average condition of 60% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for land improvements assets.

Scenarios	Replacement Cost	Average Condition	Annual Capital Reinvestment
Scenario 1 – Lifecycle	$610,000	78.68%	$16,000
Scenario 2 - Current Funding Rate	$610,000	54.10%	$5,000
Scenario 3 – Target Condition 60% **(selected)**	$610,000	71.64%	$11,000

Table 49: Land Improvements - Proposed Levels of Service Scenarios

10.6.3 Additional Metrics

The table that follows summarize the Municipality's additional performance measures to be tracked after the conclusion of this AMP under Ontario Regulation 588/17.

Metric Type	KPI Metric	Proposed LOS Metric
Technical	Alignment of inspections with best practices[18]	Y
	AODA Compliance[19]	100%
	Average quantitative risk rating (0-25)[20]	4.73

Table 50: Land Improvements - Additional Metrics

[18] Annual inspections on existing parks aligned with CSA Z614 / ASTM F1487 standards
[19] Improve accessibility by achieving AODA compliance across public land improvements, ensuring inclusive community spaces (ex. park on Elliot Crescent)
[20] See Risk & Criticality in section 2.3.2

10.6.4 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 3) for the Municipality, within a 10-year timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Public Works	-	-	-	-	-	-	-	-	-	-
Recreation	-	-	-	-	-	-	-	-	-	-
Total	-	-	-	-	-	-	-	-	-	-

Table 51: Land Improvements - 10-Year Capital Forecast

Strategies

Growth

Financial Strategy

11. Growth

The demand for infrastructure and services will change over time based on a combination of internal and external factors. Understanding the key drivers of growth and demand will allow the Municipality to plan for new infrastructure more effectively, and the upgrade or disposal of existing infrastructure. Increases or decreases in demand can affect what assets are needed and what level of service meets the needs of the community.

11.1 Renfrew County Official Plan (2022)

The Official Plan for the County of Renfrew provides the overarching land use policy framework for all lower-tier municipalities, including Horton Township. It establishes a vision for sustainable development, infrastructure coordination, and natural resource management that aligns with provincial planning directives. Within this framework, Horton is primarily designated as Rural and Waterfront, reflecting its agricultural base, dispersed settlement patterns, and riverfront assets. The Official Plan directs growth to existing rural clusters where development can be supported by appropriate private servicing, such as wells and septic systems, given the absence of full municipal infrastructure. Development is to proceed at a scale that is compatible with Horton's rural character, with servicing policies requiring that site conditions demonstrate suitability to avoid negative environmental or financial impacts. These policies support asset management principles by ensuring that infrastructure investments are aligned with long-term lifecycle costs and that land use decisions do not create servicing burdens beyond municipal capacity.

The Official Plan places strong emphasis on preserving Horton's agricultural lands and rural landscapes. It reinforces the use of Minimum Distance Separation (MDS) to manage the interface between agricultural operations and non-farm development, while discouraging the fragmentation of productive farmland. In addition, Horton's environmental features—including significant woodlands, wildlife habitat, valley lands, and riparian areas along the Ottawa and Bonnechere Rivers—are protected through environmental impact assessment policies that apply to development within or adjacent to these sensitive areas. The Waterfront designation permits low-density seasonal or permanent residential development, recreational uses, and limited commercial activity, provided, that shoreline protection, natural buffers, and public access are maintained. These provisions recognize the recreational and ecological value of Horton's River corridors and ensure that new development enhances, rather than diminishes, these assets.

To support a vibrant and resilient rural economy, the Official Plan encourages the establishment of home-based businesses, limited commercial development, and tourism-related activities that are compatible with the Township's scale and context. Economic development efforts are supported by policies that promote reliable year-round access through the maintenance and improvement of local transportation networks. Infrastructure planning also supports the extension or enhancement of broadband and telecommunications infrastructure, where feasible, to improve service access and attract new opportunities. Collectively, the policies set out for Horton aim to manage growth in a way that preserves its distinct rural identity, protects vital natural and agricultural resources, and contributes to the broader County goals of fostering healthy, livable, and economically sustainable communities.

12. Financial Strategy

For an asset management plan to be effective and meaningful, it must be integrated with financial planning and long-term budgeting. The development of a comprehensive financial plan will allow the Municipality of Horton Township to identify the financial resources required for sustainable asset management based on existing asset inventories, desired levels of service, and projected growth requirements.

This report develops such a financial plan by presenting several scenarios for consideration and culminating with final recommendations. As outlined below, the scenarios presented model different combinations of the following components:

1. The financial requirements for:
    a. Existing assets
    b. Existing/proposed service levels
    c. Requirements of contemplated changes in service
    d. Requirements of anticipated growth
2. Use of traditional sources of municipal funds:
    a. Tax levies
    b. User fees
    c. Debt
    d. Development charges
3. Use of non-traditional sources of municipal funds:
    a. Reallocated budgets
    b. Partnerships
    c. Procurement methods
4. Use of Senior Government Funds:
    a. Canada Community-Building Fund (CCBF)
    b. Annual grants

Note: Periodic grants are normally not included due to Provincial requirements for firm commitments. However, if moving a specific project forward is wholly dependent on receiving a one-time grant, the replacement cost included in the financial strategy is the net of such grant being received.

If the financial plan component results in a funding shortfall, the province requires the inclusion of a specific plan as to how the impact of the shortfall will be managed. In determining the legitimacy of a funding shortfall, the province may evaluate a Municipality's approach to the following:

1. To reduce financial requirements, consideration has been given to revising service levels downward.
2. All asset management and financial strategies have been considered. For example:
    a. If a zero-debt policy is in place, is it warranted? If not the use of debt should be considered.
    b. Do user fees reflect the cost of the applicable service? If not, increased user fees should be considered.

12.1 Annual Requirements & Capital Funding

12.1.1 Annual Requirements

The annual requirements represent the amount the Municipality should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs and achieve long-term sustainability. In total, the Municipality must allocate approximately $844 thousand annually to address capital requirements for the assets included in this AMP.

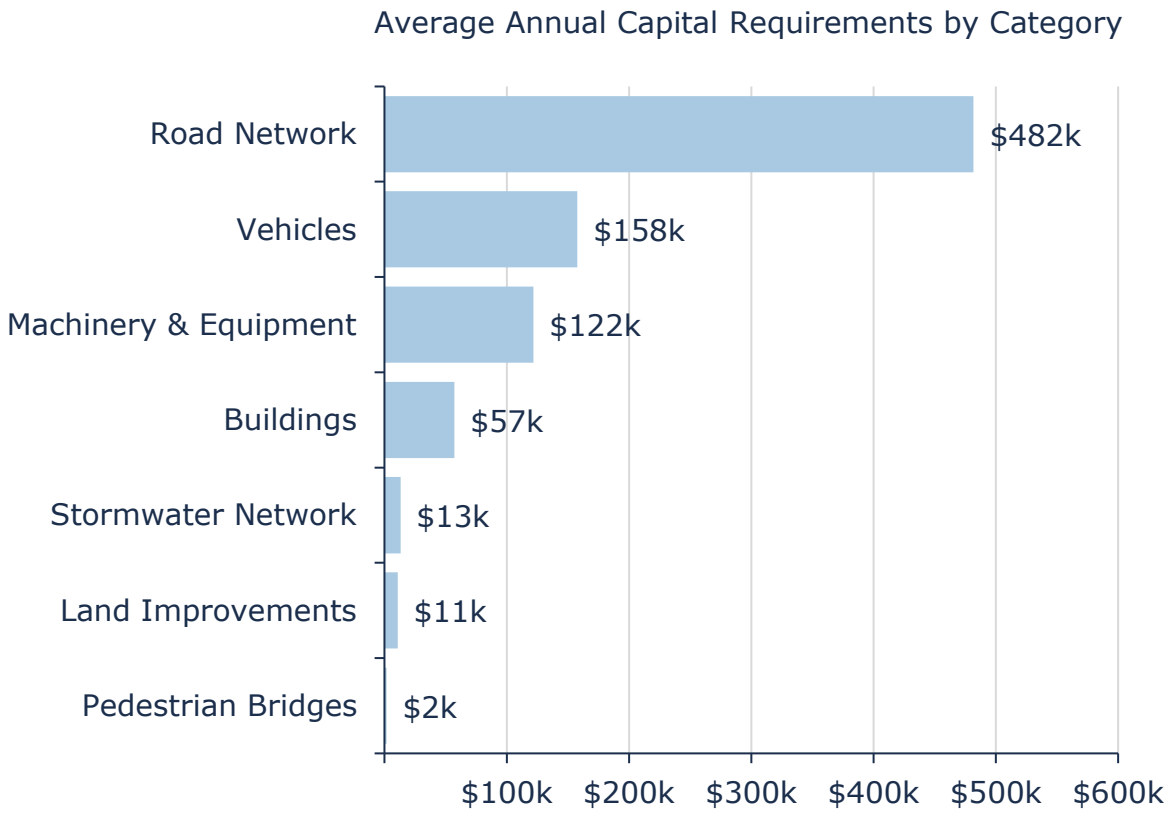


Figure 52 Annual Capital Funding Requirements by Asset Category

Where applicable, lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal of some of the main assets in these categories. The development of these strategies allows for a comparison of potential cost avoidance if the strategies were to be implemented. The following compares the two different strategies:

1. **Replacement Only Scenario**: Based on the assumption that assets deteriorate and – without regularly scheduled maintenance and rehabilitation – are replaced at the end of their service life.
2. **Lifecycle Strategy Scenario**: Based on the assumption that lifecycle activities are performed at strategic intervals to extend the service life of assets until replacement is required.

The implementation of a proactive lifecycle strategy leads to potential annual cost avoidance and better overall performance. As the lifecycle strategy scenario represents the lowest cost option available to the Municipality, we have used these annual requirements in the development of the financial strategy.

12.1.2 Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Municipality is committing approximately $680 thousand towards capital projects per year. Given the annual capital requirement of $844 thousand, there is currently a funding gap of $164 thousand annually.

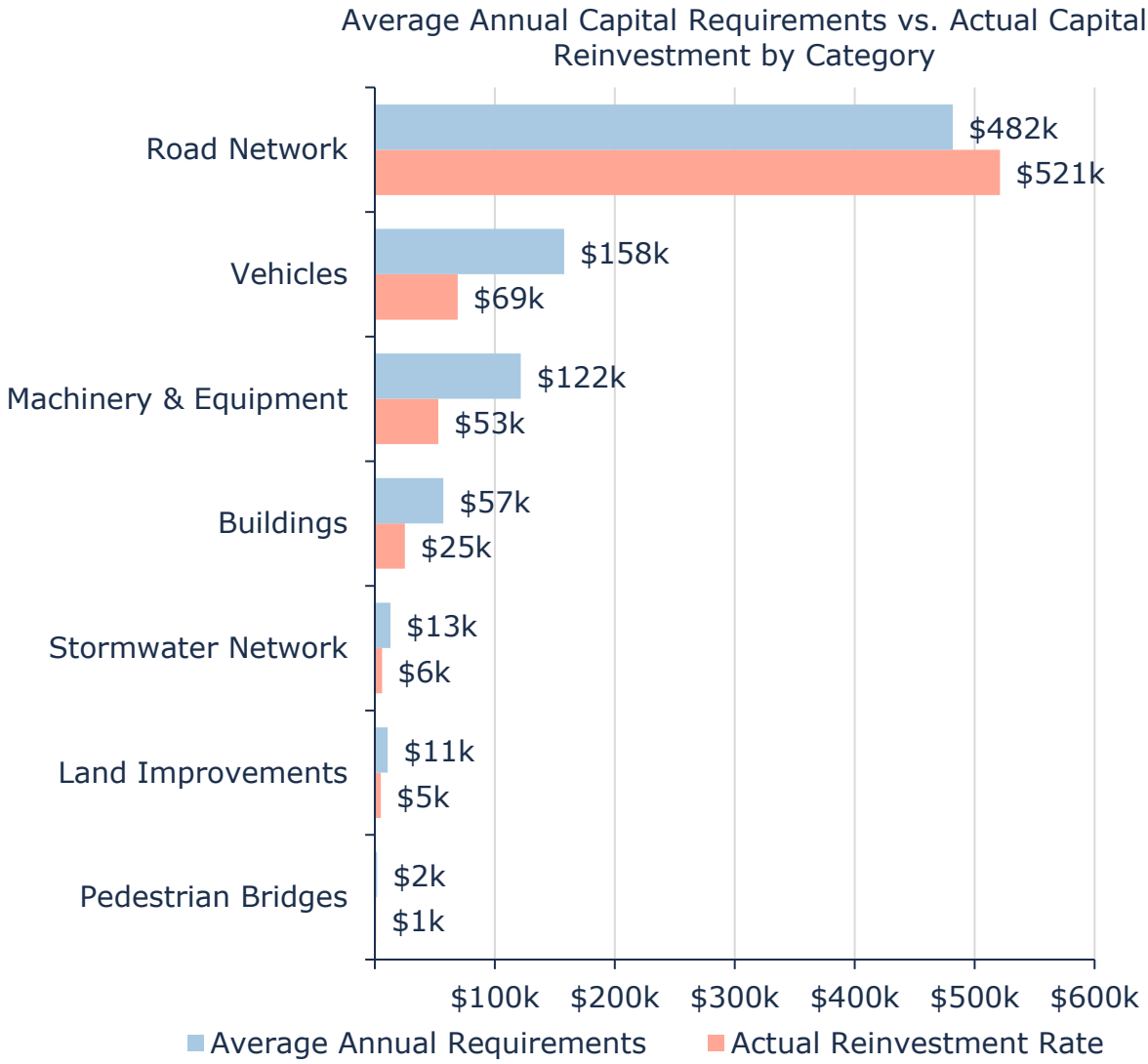


Figure 53 Annual Requirements vs. Capital Funding Available

12.2 Funding Objective

We have developed a scenario that would enable Horton Township to achieve full funding within 1 to 20 years for the following assets:

Tax Funded Assets: road network, pedestrian bridges, stormwater network, buildings, vehicles, machinery & equipment, and land improvements

12.3 Financial Profile: Tax Funded Assets

12.3.1 Current Funding Position

The following tables show, by asset category, Horton Township's average annual asset investment requirements, current funding positions, and funding increases required to achieve full funding on assets funded by taxes.

Asset Category	Avg. Annual Require-ment	Annual Funding Available				Annual Deficit
		Property Taxation & Reserves [21]	CCBF	OCIF	Total Available	
Pedestrian Bridges	2,000	1,000			1,000	1,000
Buildings	57,000	25,000			25,000	32,000
Land Improvements	11,000	5,000			5,000	6,000
Machinery & Equipment	122,000	53,000			53,000	69,000
Road Network	482,000	211,000	123,000	187,000	521,000	-39,000
Stormwater Network	13,000	6,000			6,000	7,000
Vehicles	158,000	69,000			69,000	89,000
Total	**844,000**	**370,000**	**123,000**	**187,000**	**680,000**	**164,000**

Table 52 Annual Available Funding for Tax Funded Assets

The average annual investment requirement for the above categories is approximately $844 thousand. Annual revenue currently allocated to these assets for capital purposes is approximately $680 thousand leaving an annual deficit of about $164 thousand. Put differently, these infrastructure categories are currently funded at 80.5% of their long-term requirements.

12.3.2 Full Funding Requirements

In 2024, Horton Township had annual tax revenues of $2.9 million. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding would require the following tax change over time:

[21] Three year rolling average: 2022-2024

Asset Category	Tax Change Required for Full Funding
Pedestrian Bridges	0%
Buildings	1.1%
Land Improvements	0.2%
Machinery & Equipment	2.4%
Road Network	-1.4%
Stormwater Network	0.2%
Vehicles	3.1%
Total	**5.6%**[22]

Table 53 Tax Increase Requirements for Full Funding

Our recommendations include capturing the above changes and allocating them to the infrastructure deficit outlined above. The table below outlines this concept and presents several options:

	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	165,000	165,000	165,000	165,000
Change in Debt Costs	-46,000	-64,000	-82,000	-100,000
Resulting Infrastructure Deficit:	**119,000**	**101,000**	**83,000**	**65,000**
Tax Increase Required	4.1%	3.5%	2.9%	2.3%
Annually:	**0.8%**	**0.4%**	**0.2%**	**0.1%**

Table 54 Tax Increase Options 5-20 Years

12.3.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 10-year option. This involves full funding being achieved over 10 years by:

[22] A negative funding figure (road network) for an asset category does not inherently mean it is overfunded; rather, it reflects a reallocation of resources within a shared property tax pool to better align with overall asset management priorities in any given year.

a) when realized, reallocating the debt cost reductions to the infrastructure deficit as outlined above

b) increasing tax revenues by 0.4% each year for the next 10 years solely for the purpose of phasing in the proposed levels of service for asset categories covered in this section of the AMP

c) adjusting tax revenue increases in future year(s) when allocations to capital expenditure exceed or fail to meet budgeted amounts

d) allocating the current CCBF and OCIF revenue as outlined previously.

e) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.

f) reallocating appropriate revenue from categories in a surplus position to those in a deficit position, when applicable

g) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. By Provincial AMP rules, this periodic funding cannot be incorporated into an AMP unless there are firm commitments in place. We have included OCIF formula-based funding, if applicable, since this funding is a multi-year commitment[23].
2. We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

This option achieves full funding within 10 years by achieving the Municipality's proposed level of service while prioritizing financial sustainability over the period modeled.

[23] The Municipality should take advantage of all available grant funding programs and transfers from other levels of government. While OCIF has historically been considered a sustainable source of funding, the program is currently undergoing review by the provincial government. Depending on the outcome of this review, there may be changes that impact its availability.

Prioritizing future projects will require the current data to be replaced by condition-based data. Although our recommendations include no further use of debt, the results of the condition-based analysis may require otherwise.

12.4 Use of Debt

The following tables outline how Horton Township has historically used debt for investing in the asset categories as listed. There is currently $2.5 million of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of $214,000 (2024), well within its provincially prescribed maximum of $632,613.[24]

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2019	2020	2021	2022	2023
Pedestrian Bridges						
Buildings						
Land Improvements						
Machinery & Equipment						
Road Network	2,493,000				2,452,000	
Stormwater Network						
Vehicles						
Total	**2,493,000**				**2,452,000**	

Table 55: Current Debt Overview

[24] Schedule 81

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2024	2025	2026	2027	2028	2029	2034
Pedestrian Bridges							
Buildings							
Land Improvements							
Machinery & Equipment							
Road Network	214,000	210,000	205,000	201,000	198,000	168,000	150,000
Stormwater Network							
Vehicles							
Total	**214,000**	**210,000**	**205,000**	**201,000**	**198,000**	**168,000**	**150,000**

Table 56: Principal Interest

The revenue options outlined in this plan allow Horton Township to fully fund its long-term infrastructure requirements without further use of debt.

12.5 Use of Reserves

Available Reserves

Reserves play a critical role in long-term financial planning. The benefits of having reserves available for infrastructure planning include:

a) the ability to stabilize tax rates when dealing with variable and sometimes uncontrollable factors
b) financing one-time or short-term investments
c) accumulating the funding for significant future infrastructure investments
d) managing the use of debt
e) normalizing infrastructure funding requirement

By asset category, the table below outlines the details of the reserves currently available to Horton Township:

Asset Category	Reserve Balance
Pedestrian Bridges	3,000
Buildings	629,000
Land Improvements	3,000
Machinery & Equipment	589,000
Road Network	5,000
Stormwater Network	3,000
Vehicles	95,000
Total	**1,327,000**

Table 57: Use of Reserves

There is considerable debate in the municipal sector as to the appropriate level of reserves that a Municipality should have on hand. There is no clear guideline that has gained wide acceptance. Factors that municipalities should consider when determining their capital reserve requirements include:

a) breadth of services provided
b) age and condition of infrastructure
c) use and level of debt
d) economic conditions and outlook
e) internal reserve and debt policies.

These reserves are available for use by applicable asset categories during the phase-in period to full funding. This coupled with Horton Township's judicious use of debt in the past, allows the scenarios to assume that, if required, available reserves and debt capacity can be used for high priority and emergency infrastructure investments in the short- to medium-term.

Appendices

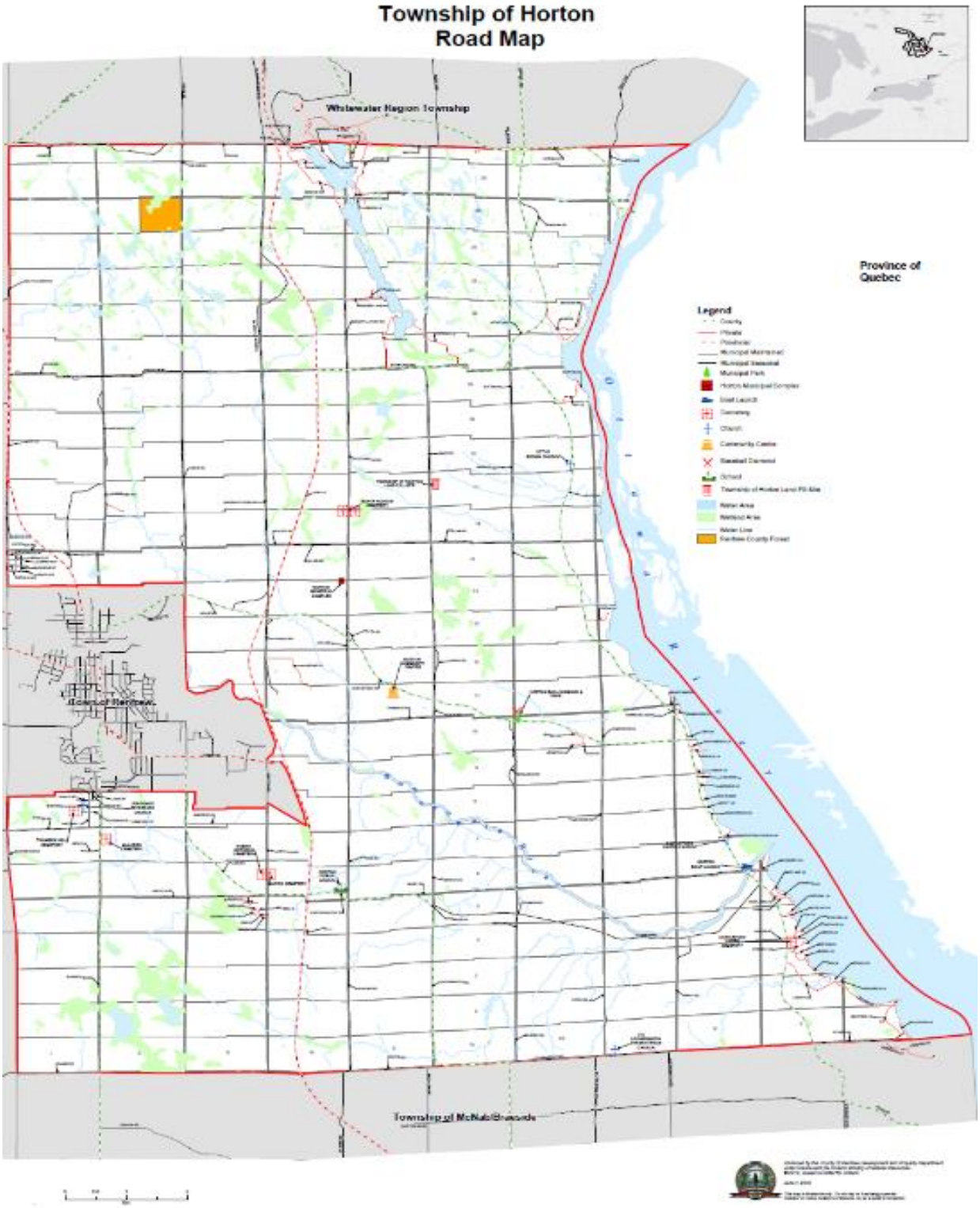
Appendix A – Infrastructure Report Card

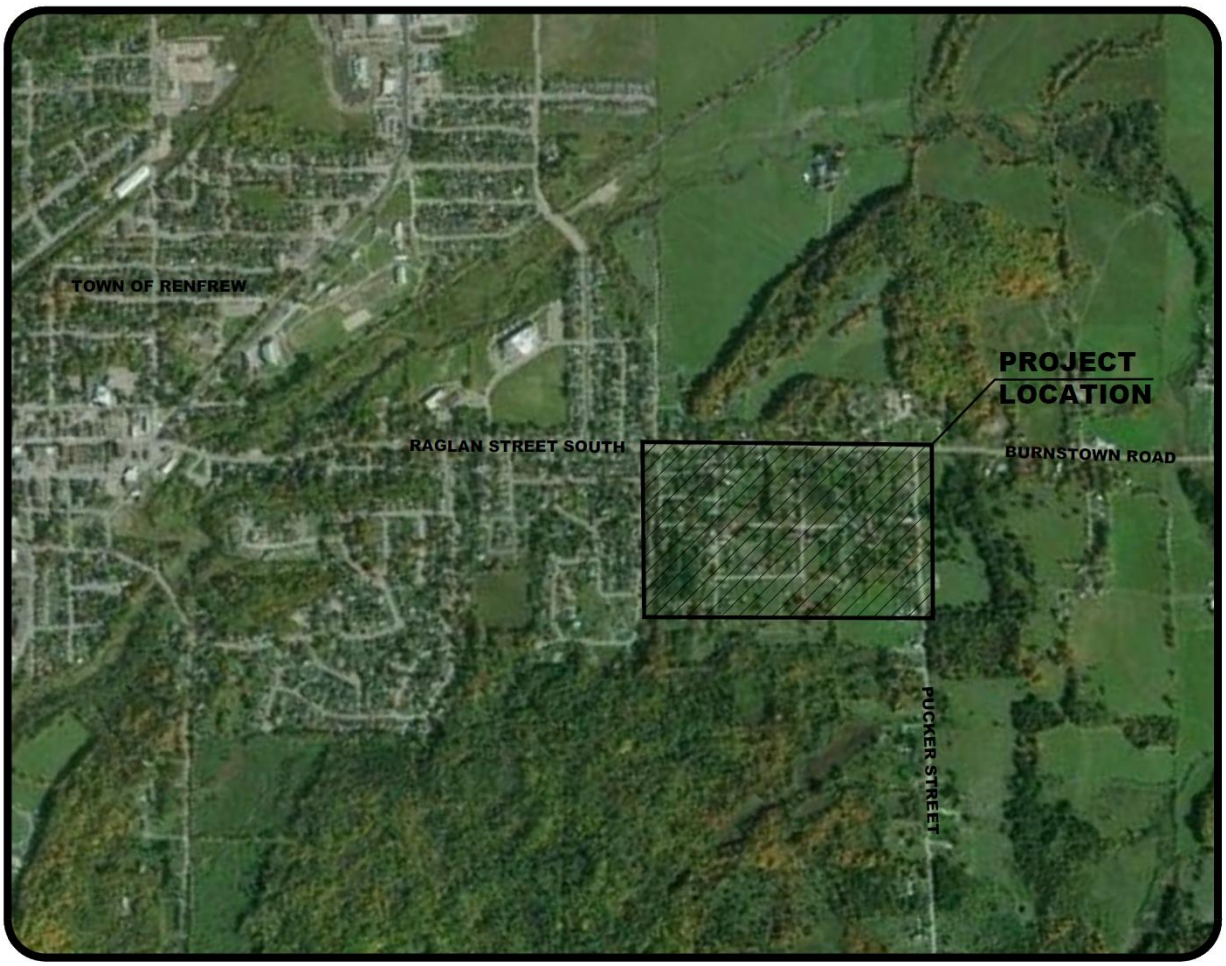
Appendix B – Level of Service Maps

Appendix A – Infrastructure Report Card

Asset Category	Replacement Cost	Average Condition	Financial Capacity	
Road Network	**$ 27.3m**	**Good**	Annual Requirement:	$482,000
			Funding Available:	$521,000
			Annual Surplus:	**$39,000**
Pedestrian Bridges	**$ 81,000**	**Very Good**	Annual Requirement:	$2,000
			Funding Available:	$1,000
			Annual Deficit:	**1,000**
Stormwater Network	**$ 1.5m**	**Very Good**	Annual Requirement:	$13,000
			Funding Available:	$6,000
			Annual Deficit:	**$7,000**
Buildings	**$ 6.3m**	**Very Good**	Annual Requirement:	$57,000
			Funding Available:	$25,000
			Annual Deficit:	**$32,000**
Vehicles	**$ 3.5m**	**Fair**	Annual Requirement:	$158,000
			Funding Available:	$69,000
			Annual Deficit:	**$89,000**
Machinery & Equipment	**$ 2.2m**	**Very Good**	Annual Requirement:	$122,000
			Funding Available:	$5,000
			Annual Deficit:	**$69,000**
Land Improvements	**$ 610,000**	**Very Good**	Annual Requirement:	$11,000
			Funding Available:	$5,000
			Annual Deficit:	$6,000

Appendix B – Level of Service Maps & Photos




TOWN OF RENFREW
PROJECT LOCATION
RAGLAN STREET SOUTH
BURNSTOWN ROAD
PUCKER STREET