Asset Management Plan 2025

Township of Havelock-Belmont-Methuen

2025

psdcitywide

This Asset Management Plan was prepared by:

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

Key Statistics

$111m	2024 Replacement Cost of Asset Portfolio
$28.8k	Replacement Cost of Infrastructure Per Household
62%	Percentage of Assets in Fair or Better Condition
51%	Percentage of Assets with Assessed Condition Data
$815k	Annual Capital Infrastructure Deficit
10 Years	Recommended Timeframe for Eliminating Annual Infrastructure Deficit for Tax Funded Assets
3.64%	Target Reinvestment Rate
2.90%	Actual Reinvestment Rate

Table of Contents

1. Executive Summary 1
2. Introduction & Context 3
3. State of the Infrastructure 18

Core Assets 25

4. Road Network 26
5. Bridges & Culverts 35
6. Water Network 41
7. Sanitary Sewer Network 49
8. Stormwater Network 58

Non-Core Assets 64

9. Facilities 65
10. Land Improvements 71
11. Vehicles 77
12. Machinery & Equipment 83

Strategies 90

13. Growth 91
14. Financial Strategy 93

Appendix A – Infrastructure Report Card 103
Appendix B – Level of Service Maps & Photos 104

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 current practices and 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 Township can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP includes the following asset categories:

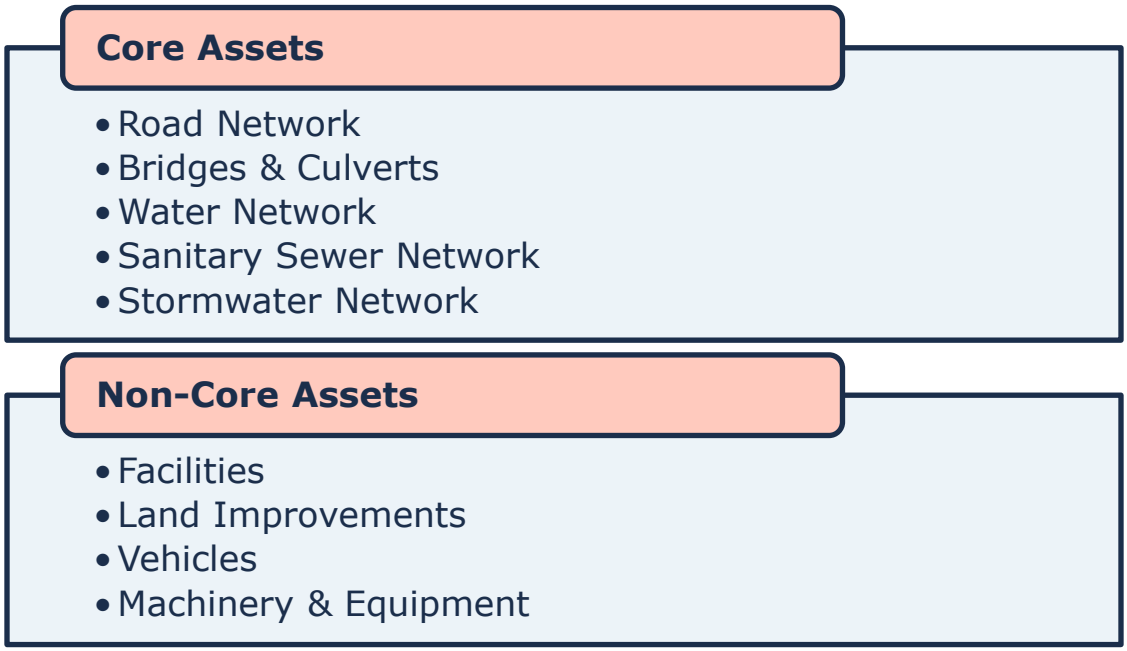


Figure 1 Core and Non-Core Asset Categories

1.2 O. Reg. 588/17 Compliance

With the development of this AMP, the Township of Havelock-Belmont-Methuen (HBM) has achieved compliance with the July 1, 2025, requirements under O. Reg. 588/17. This includes requirements for levels of service and inventory reporting for all asset categories. More details on compliance can be found in section 2.5.1 .

1.3 Findings

The overall replacement cost of the asset categories included in this AMP totals $111 million. 62% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 51% of assets. For the remaining 49% of assets, assessed condition data was unavailable, and asset age was used to approximate condition - a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning and a recurring recommendation in this AMP.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (e.g., paved roads) and replacement-only strategies to determine the lowest cost option to maintain the current level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Township's average annual capital requirement totals $4.0 million. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $3.2 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $800,000.

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 Township. 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 graphics show the annual tax/rate changes required to eliminate the Township's infrastructure deficit based on a 10-year plan:

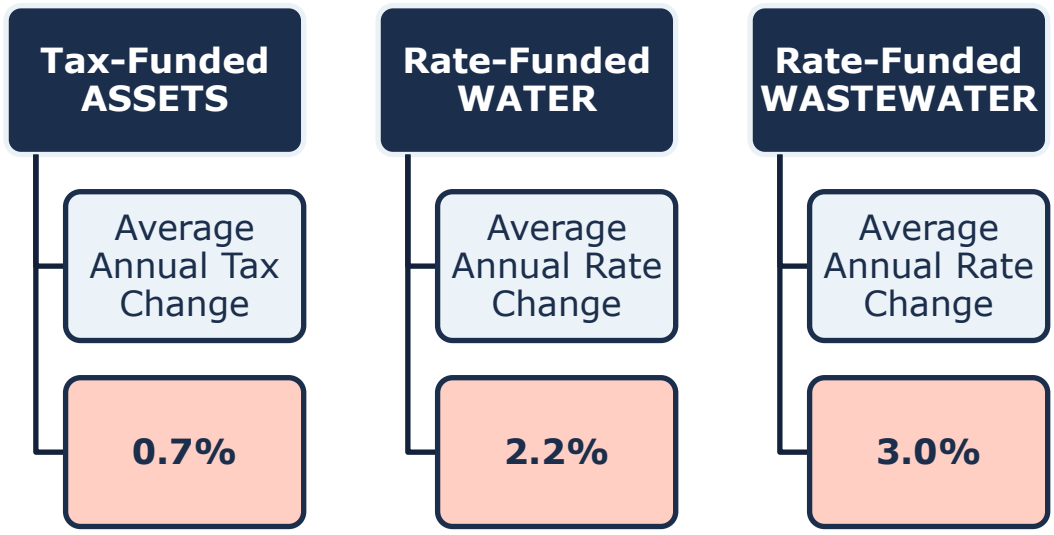


Figure 2 Proposed Tax/Rate Changes

2. Introduction & Context

2.1 Community Profile

The Township of Havelock-Belmont-Methuen is a small Township of 5,083 (2021 Census) located within Peterborough County. The Township is situated along the Highway 7, 40 kilometres northeast of Peterborough, Ontario.

Havelock-Belmont-Methuen was incorporated in 1998 via the amalgamation of the former township of Belmont and Methuen with the Village of Havelock. The area was settled in the early 19th century, with the Township of Belmont and Methuen first being surveyed in 1823. The community of Havelock was incorporated as a village in 1892.

The Township of Havelock-Belmont-Methuen is near regional centers such as Peterborough and Oshawa. Havelock-Belmont-Methuen provides a mix of small-town life, access to urban amenities, and natural beauty, making the Township an excellent place for residents to work, live, and play.

The Township has prioritized maintenance of its current infrastructure, allocating resources to ensure the ongoing functionality and resilience of its assets. This dedication highlights the Township's commitment to maintaining the effectiveness and integrity of its essential infrastructure.

Census Characteristic	Township of HBM	Ontario
Population 2021	5,083	14,223,942
Population Change 2016-2021	12.2%	5.8%
Total Private Dwellings	3,856	5,929,250
Population Density	9.6/km^2	15.9/km^2
Land Area	529.35 km^2	892,411.76 km^2

Table 1 Township of HBM Community Profile

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 Township of Havelock-Belmont-Methuen Climate Profile

Havelock-Belmont-Methuen is located in Peterborough County, within southeastern Ontario. The Township is expected to face notable climate change impacts, including rising temperatures, increased precipitation, and more frequent extreme weather events. According to ClimateData.ca, supported by Environment and Climate Change Canada (ECCC), the Township is likely to experience the following trends under a high emissions scenario:

Higher Average Annual Temperature:

- Between 1971 and 2000, the annual average temperature in the region was approximately 6.4°C.
- By 2050, the annual average temperature is projected to increase to 9.0°C, and by the end of the century, it could exceed 12.8°C.

Increase in Total Annual Precipitation:

- Total annual precipitation is projected to increase by 10% by 2050 and up to 16% by the end of the century.
- Increased precipitation may be concentrated in winter months, leading to risks such as flooding and infrastructure strain.

Increase in Frequency of Extreme Weather Events:

- The Township is likely to experience a rise in extreme weather events, including more frequent and intense storms, flash flooding, and heat waves.
- Freeze-thaw cycles are expected to become more erratic, exacerbating wear and tear on critical infrastructure like roads and bridges.

2.2.2 Integration of Climate Change and Asset Management

Asset management practices are designed to support sustainable service delivery—providing reliable services to current residents without compromising future generations. Climate change directly threatens this goal by reducing asset lifespans, increasing the frequency and severity of asset failures, and introducing additional risks such as flooding, heat stress, and storm damage.

Integrating climate change adaptation into asset management practices ensures that the Township's infrastructure remains resilient in the face of these challenges. Best practices include

incorporating climate projections into lifecycle cost analyses, prioritizing risk-based decision-making, and planning for adaptive strategies that mitigate climate-related vulnerabilities.

By aligning asset management with climate change considerations, the Township of Havelock-Belmont-Methuen can enhance its resilience and deliver reliable services despite changing environmental conditions. This integrated approach will position the Township to manage risks holistically while ensuring the long-term sustainability of its infrastructure and community well-being.

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.

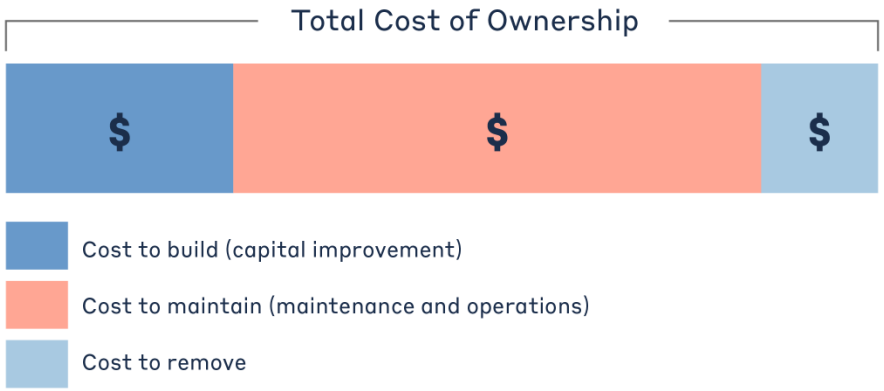


Figure 3 Total Cost of Asset Ownership

These costs can span decades, requiring planning and foresight to ensure financial responsibility is spread equitably across generations. An AMP 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, followed by an Asset Management Policy and an Asset Management Strategy, concluding with an Asset Management Plan.

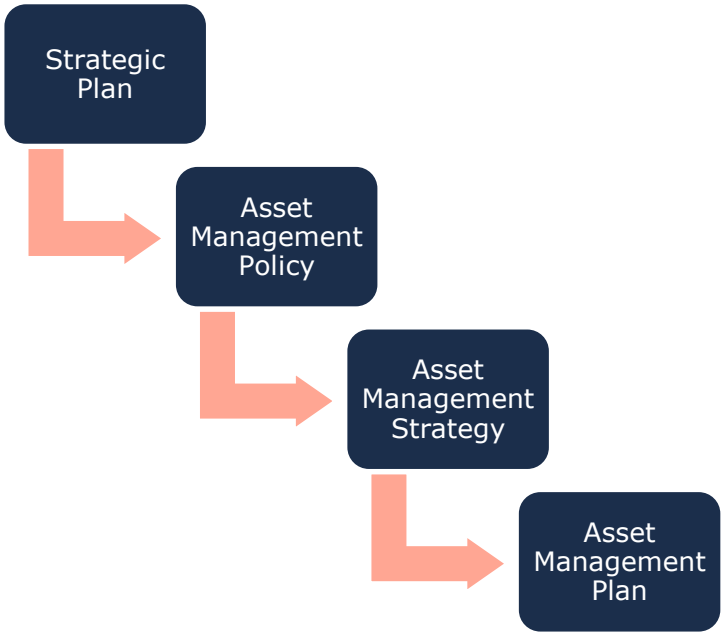


Figure 4 Foundational Asset Management Documents

This industry standard, defined by the Institute of Asset Management (IAM), emphasizes the alignment between the corporate strategic plan 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 Township'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 Policy No. 47 "Strategic Asset Management Policy" on December 3rd, 2024, in accordance with Ontario Regulation 588/17.

The purpose of the policy is to ensure the development of a comprehensive municipal asset management program that supports informed decision-making, promotes sustainable service delivery, and demonstrates an organization-wide commitment to responsible infrastructure stewardship. It establishes principles for lifecycle and risk management, continuous improvement, and integration with long-term financial planning.

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 Township 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 in future revisions or as part of a separate strategic document.

Asset Management Plan

The (AMP) presents the outcomes of the Township'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 living document that should be updated regularly as additional asset and financial data becomes available. This will allow the Township to re-evaluate 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 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
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 assets • 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 Township'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.

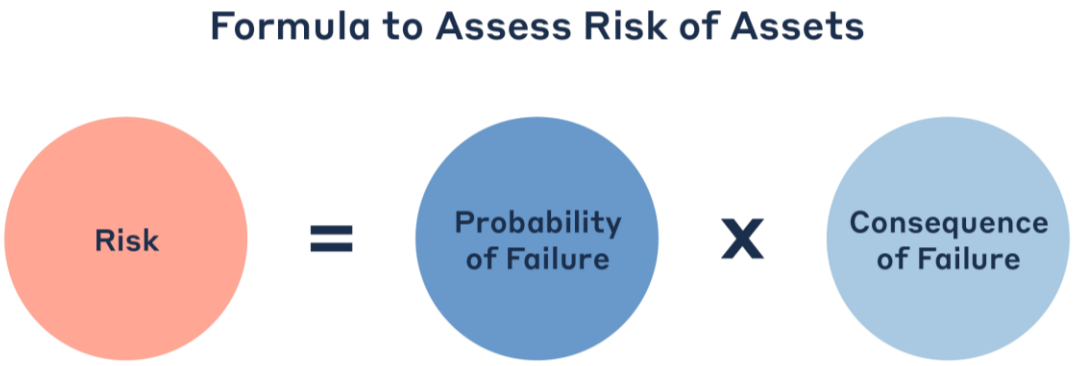


Figure 5 Risk Equations

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 Township 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 Township 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 Township 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, Bridges & Culverts, Stormwater, 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 Township'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, Bridges & Culverts, Stormwater, 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 Township. 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 Township 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 Township'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 Township 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 Havelock-Belmont-Methuen is produced in compliance with O. Reg. 588/17.

The AMP summarizes the state of the infrastructure for the Township's asset portfolio, establishes current/proposed 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.

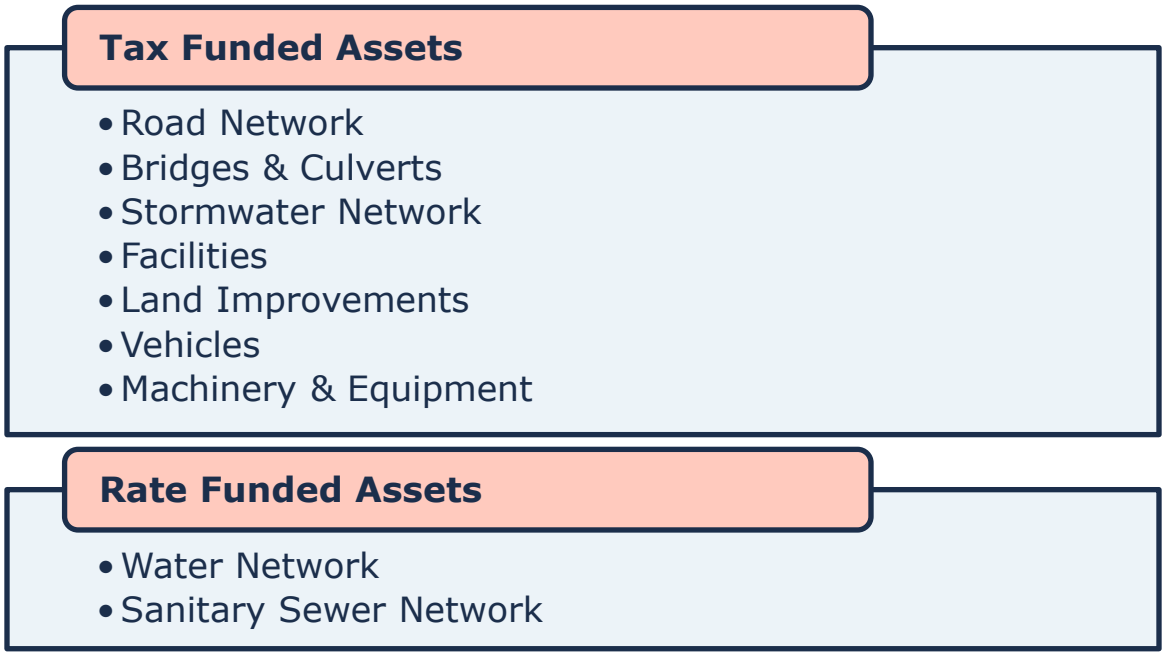


Figure 6 Tax Funded and Rate Funded Asset Categories

2.4.2 Data Effective Date

It is important to note that this plan is based on data as of **December 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 Township 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 Township 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 in-service data and EUL, the Township can determine the service life remaining (SLR) for each asset. Using condition data and the SLR, the Township 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 Township can determine the extent of any existing funding gap. The reinvestment rate is calculated as follows:

Figure 8 Target Reinvestment Rate Calculation

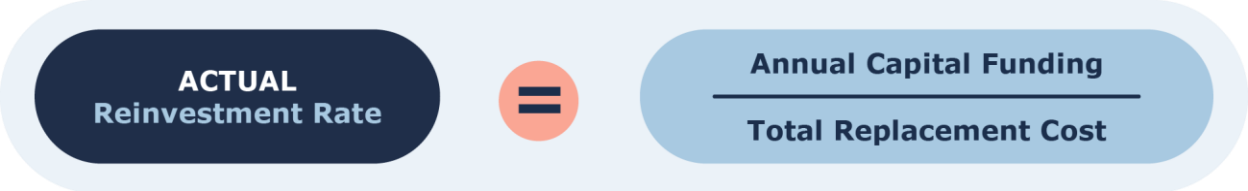


Figure 9 Actual Reinvestment Rate Calculation

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 Township'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.

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)[1]. Along with creating better performing organizations, more livable 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.

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

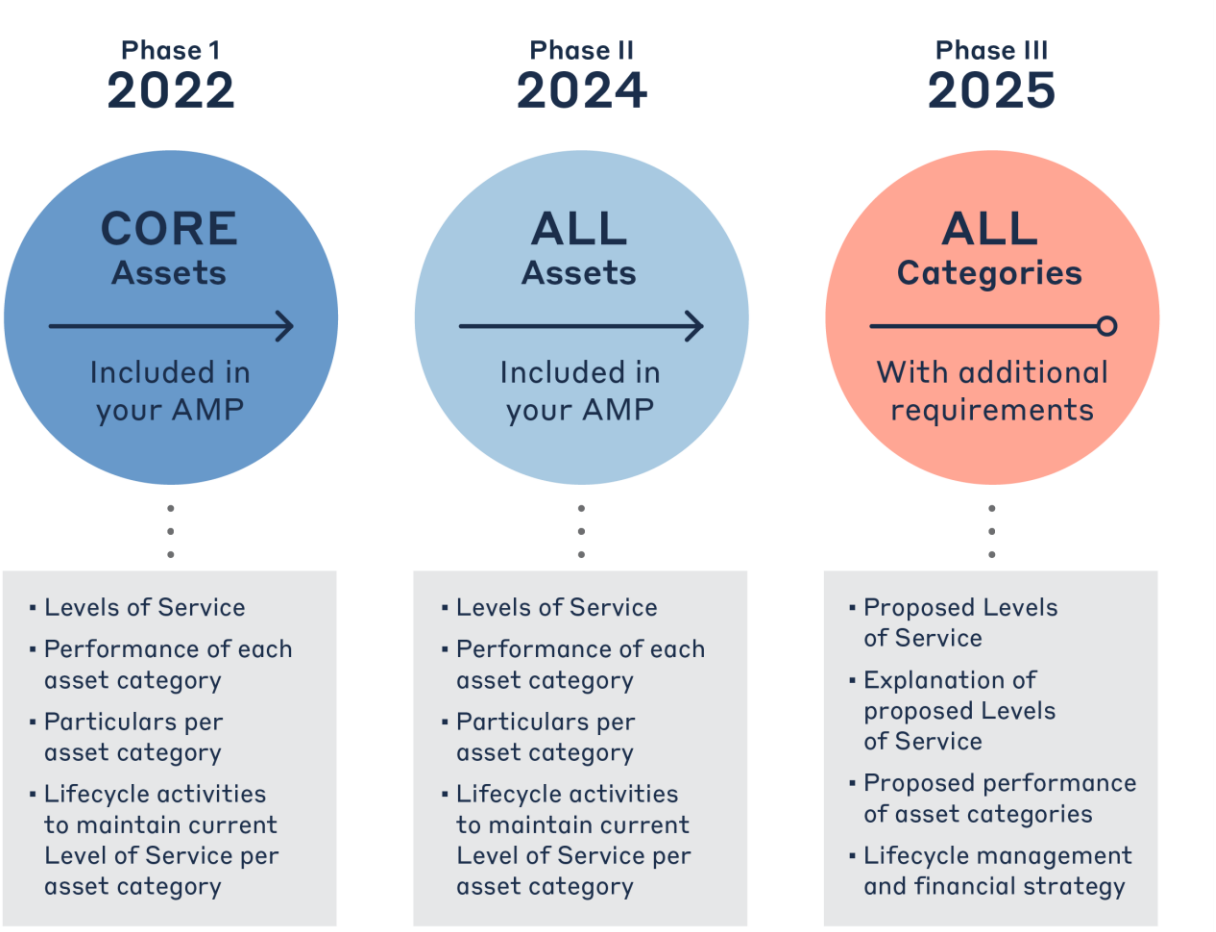


Figure 10 O. Reg. 588/17 Requirements and Reporting Deadlines

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 – 12.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1 – 12.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.3 – 12.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.2 – 12.2	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.2 & 4.4 – 12.2 & 12.4	Complete
Current/proposed levels of service in each category	S.5(2), 1(i-ii) S.6 (1)	4.6 – 12.6	Complete
Performance measures in each category	S.5(2), 2 S. 6 (1), 2	4.6 – 12.6	Complete
Lifecycle activities needed for proposed levels of service for 10 years	S.5(2), 4 S. 6 (1), 4	4.4 – 12.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4 S. 6 (1), 4	4.6.3 – 12.6.3	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	13.1 – 13.2	Complete

Table 6 O. Reg. 588/17 Compliance Review

3. State of the Infrastructure

The state of the infrastructure (SOTI) summarizes the inventory, condition, age profiles, and other key performance indicators for the Township'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.

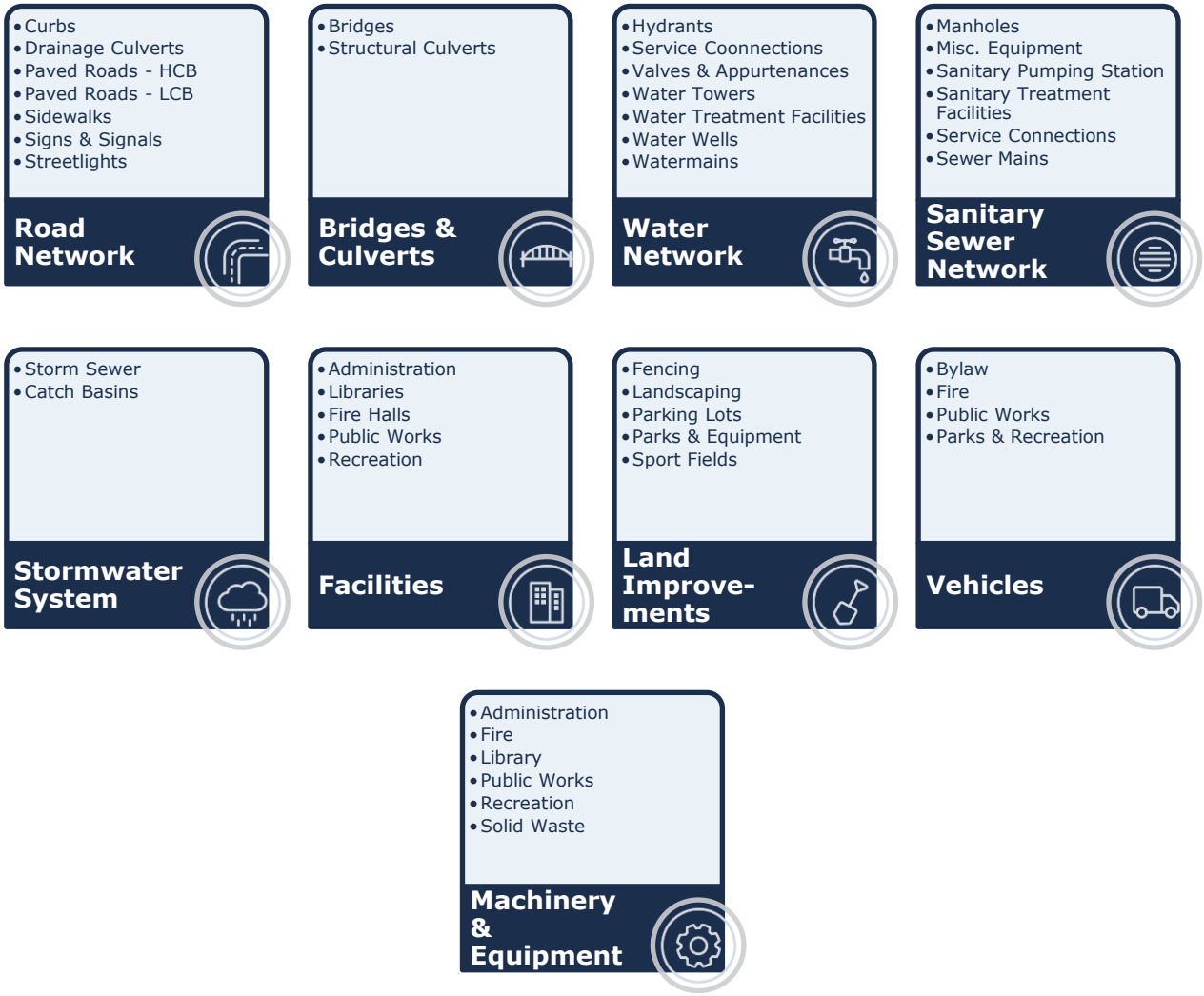


Figure 11 Asset Hierarchy and Data Classification

3.2 Portfolio Overview

3.2.1 Total Replacement Cost of Asset Portfolio

The nine asset categories analyzed in this Asset Management Plan have a total current replacement cost of $111 million. This estimate was calculated using user-defined costing, as well as inflation of historical or original costs to current date. This estimate reflects the replacement of historical assets with similar, not necessarily identical, assets available for procurement today.

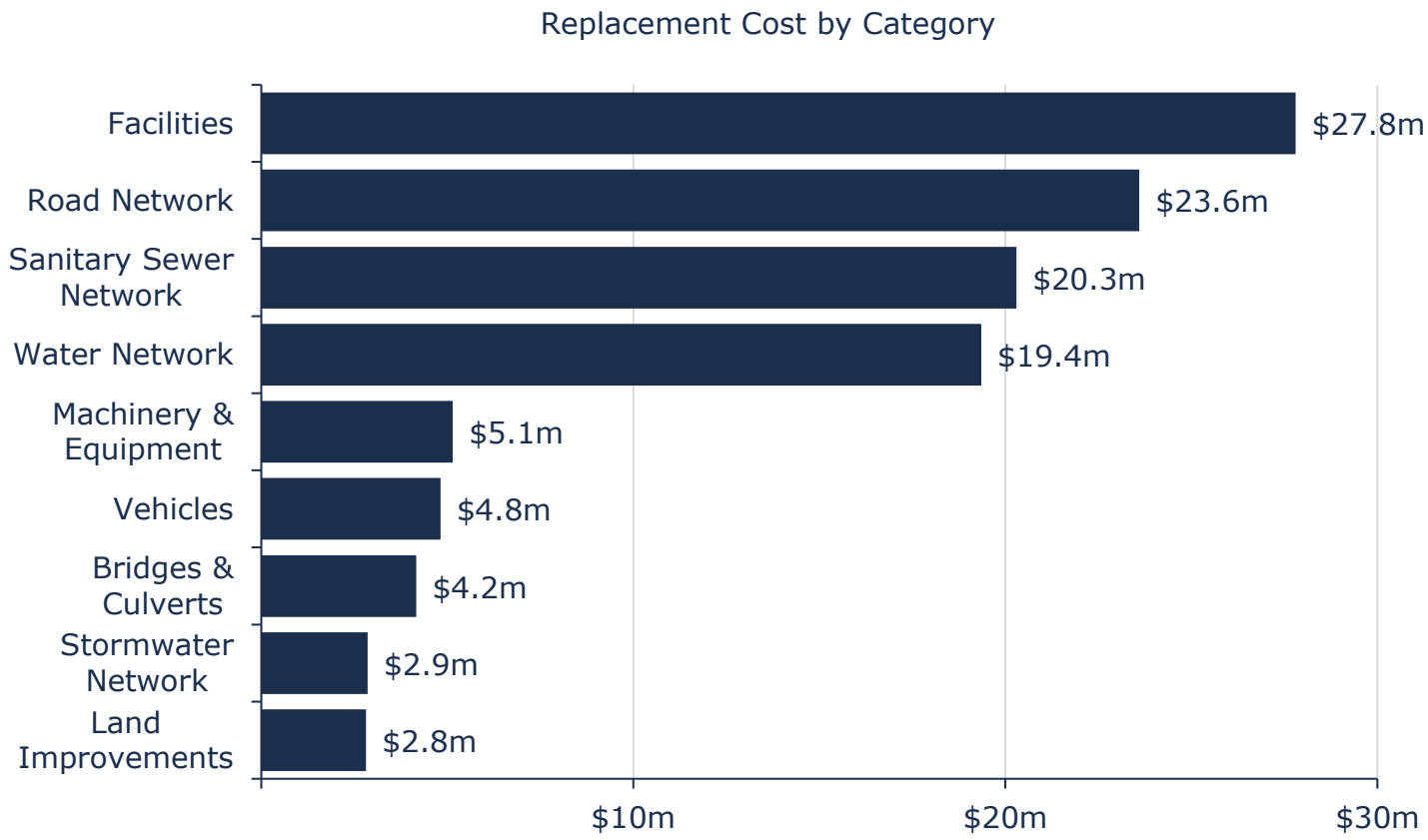


Figure 12 Current Replacement Cost by Asset Category

3.2.2 Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps or surpluses by comparing target vs actual reinvestment rate. To meet the long-term replacement needs, the Township should be allocating approximately $4.0 million annually, for a target reinvestment rate of 3.64%. Actual annual spending on infrastructure totals approximately $3.2 million, for an actual reinvestment rate of 2.90%. Target and current re-investment rates by asset category are detailed below.

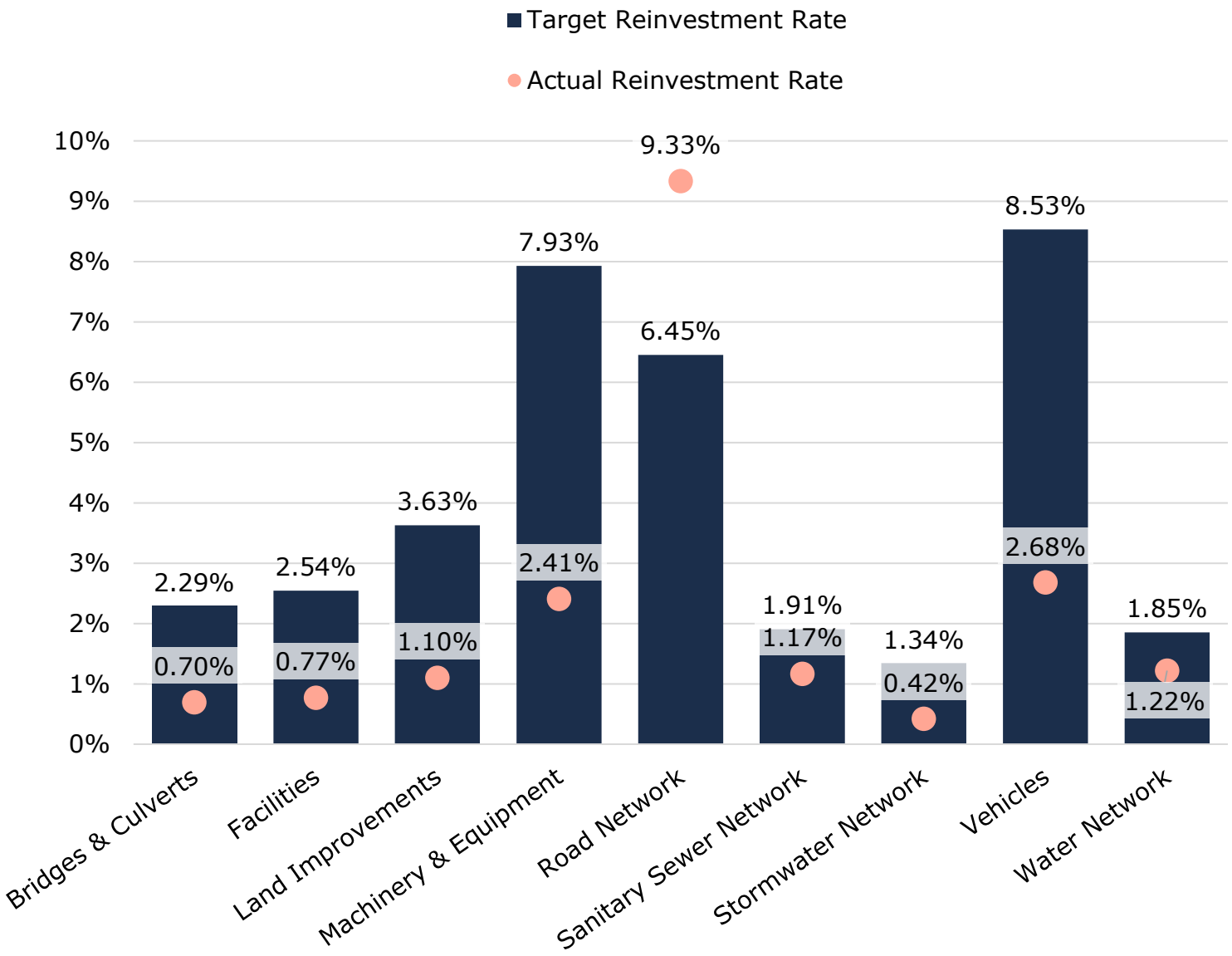


Figure 13 Current Vs. Target Reinvestment Rate

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 and age-based analysis, 62% of the Township's infrastructure portfolio is in fair or better condition, with the remaining 38% 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.

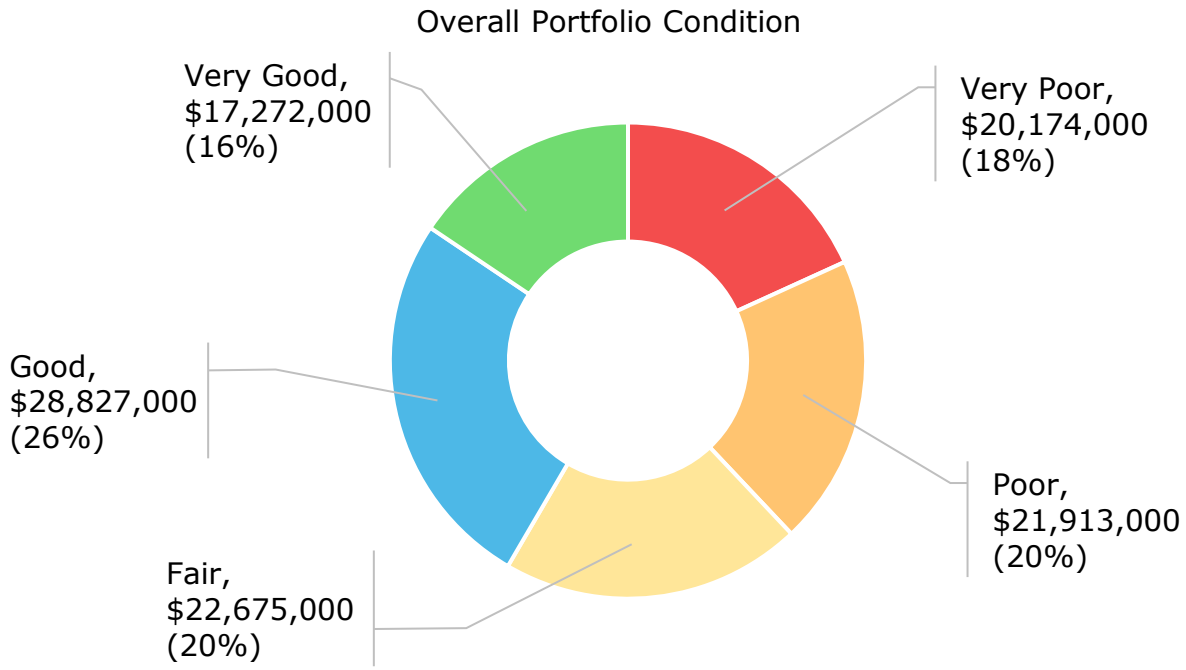


Figure 14 Asset Condition: Portfolio Overview

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

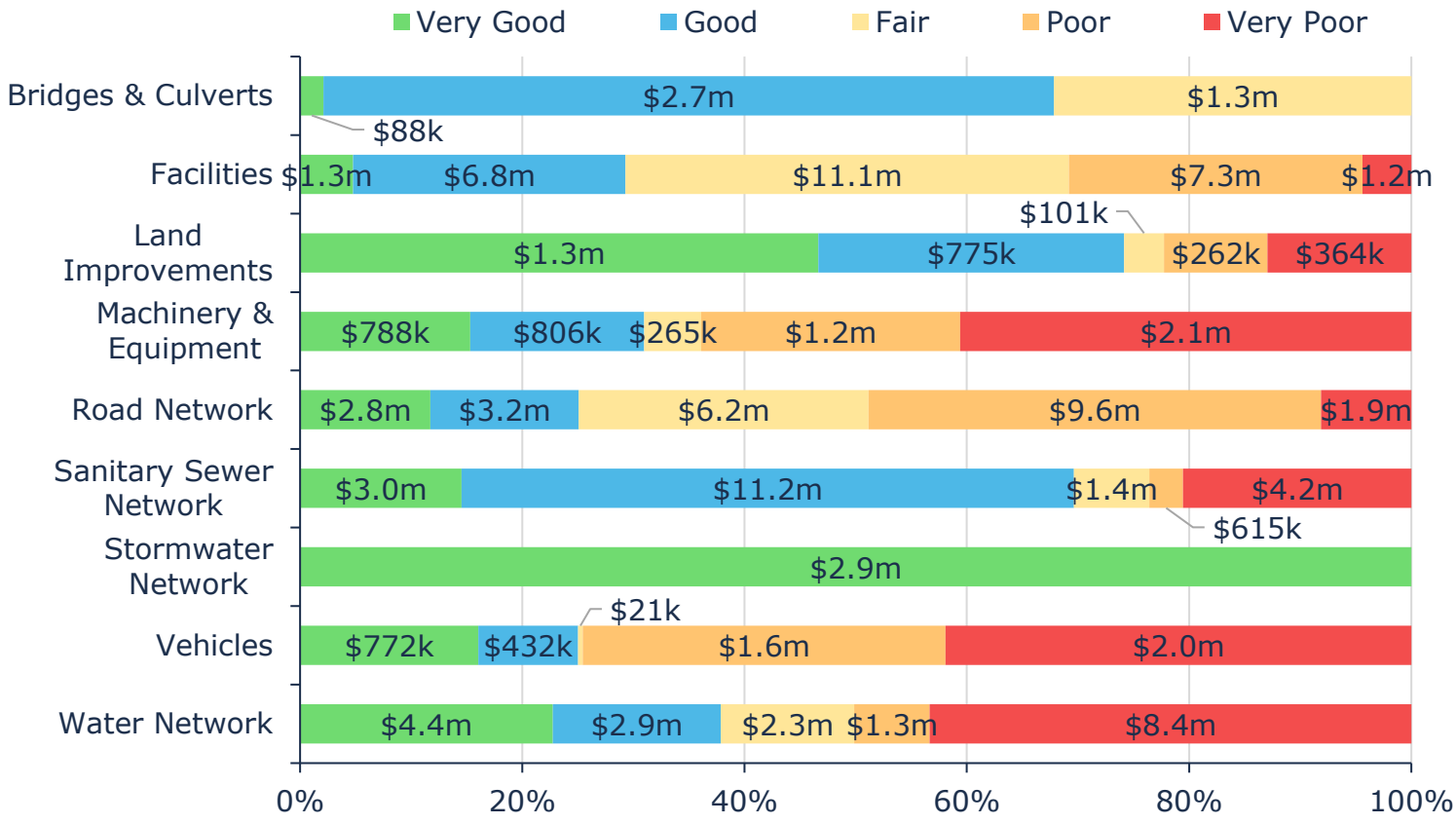


Figure 15 Asset Condition by Asset Category

Source of Condition Data

This AMP relies on assessed condition data for 51% of assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it 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	% of Assets with Assessed Conditions	Source of Condition Data
Road Network	73%	Road Needs Study (RNS)
Bridges & Culverts	98%	OSIM Report
Stormwater Network	0%	N/A
Facilities	100%	Building Condition Assessments (BCAs)
Machinery & Equipment	0%	N/A
Vehicles	0%	N/A
Land Improvements	0%	N/A
Sanitary Sewer Network	35%	Building Condition Assessments (BCAs)
Water Network	0%	N/A

Table 7 Source of Condition Data

3.2.4 Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 37% of the Town'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 assets across the different asset categories are stratified within a risk matrix.

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$16,747,000 (15%)	$14,970,000 (14%)	$13,477,000 (12%)	$21,270,000 (19%)	$44,396,000 (40%)

Figure 16 Risk Matrix: All Assets

The analysis shows that based on current risk models, approximately 40% of the Township's assets, with a current replacement cost of approximately $44 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 Township 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 Township's road network inventory.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Curbs	1,780	Length (m)	$267,000	Cost per Unit
Drainage Culverts	6,528	Quantity	$1,790,517	CPI
Paved Roads - HCB	12	Length (km)	$5,140,746	Cost per Unit
Paved Roads - LCB	65	Length (km)	$13,375,446	Cost per Unit
Sidewalks	17,917	Area (m2)	$2,866,752	Cost per Unit
Signs & Signals	86	Quantity	$23,852	CPI
Streetlights	1	Quantity	$138,167	CPI
TOTAL			**$23,602,480**	

Table 8 Detailed Asset Inventory: Road Network

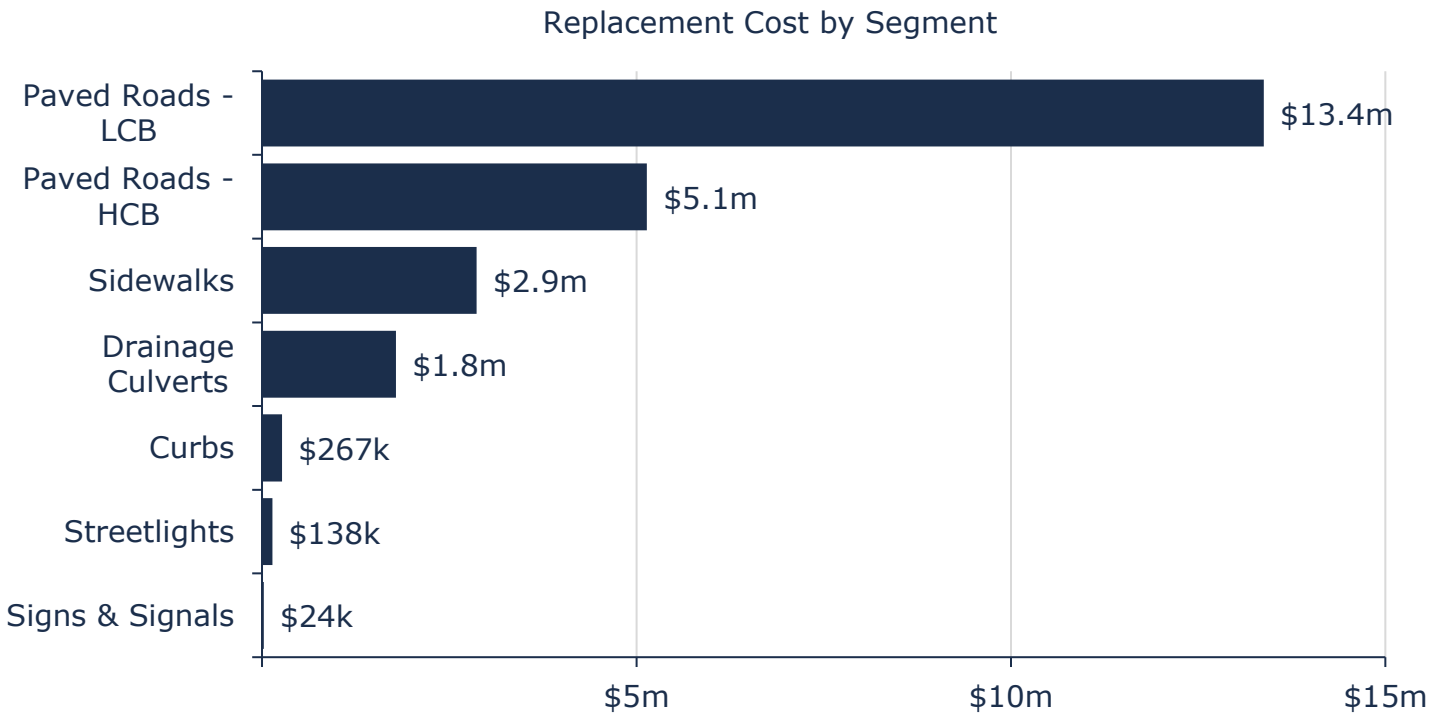


Figure 17 Portfolio Valuation: Road Network

4.2 Asset Condition

Figure 18 summarizes the replacement cost-weighted condition of the Township's Road network. Based on a combination of field inspection data and age, 51% of assets are in fair or better condition; the remaining 49% of assets are in poor to very poor condition. Condition assessments were available for 100% of LCB roads, 69% of HCB roads, and 11% of the sidewalks, based on replacement cost. This condition data was projected from inspection date to current year to estimate their condition today. No condition data was available for the remaining asset types.

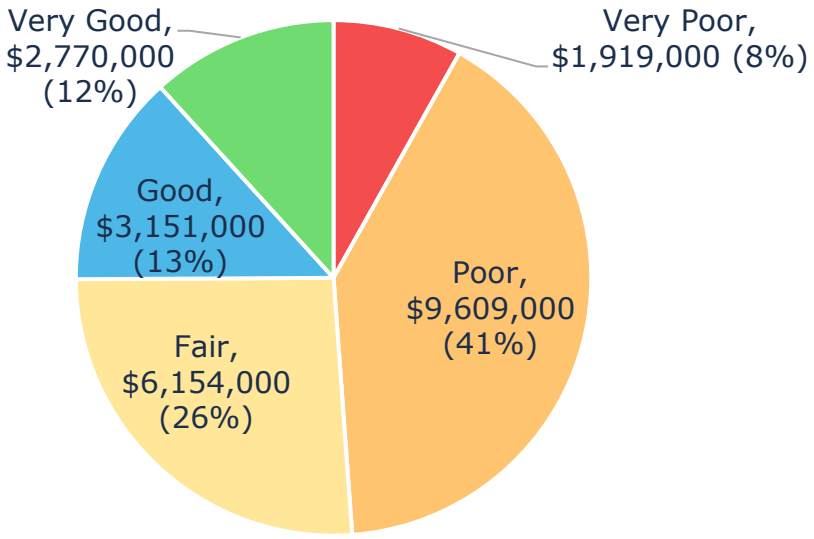


Figure 18 Asset Condition: Road Network Overall

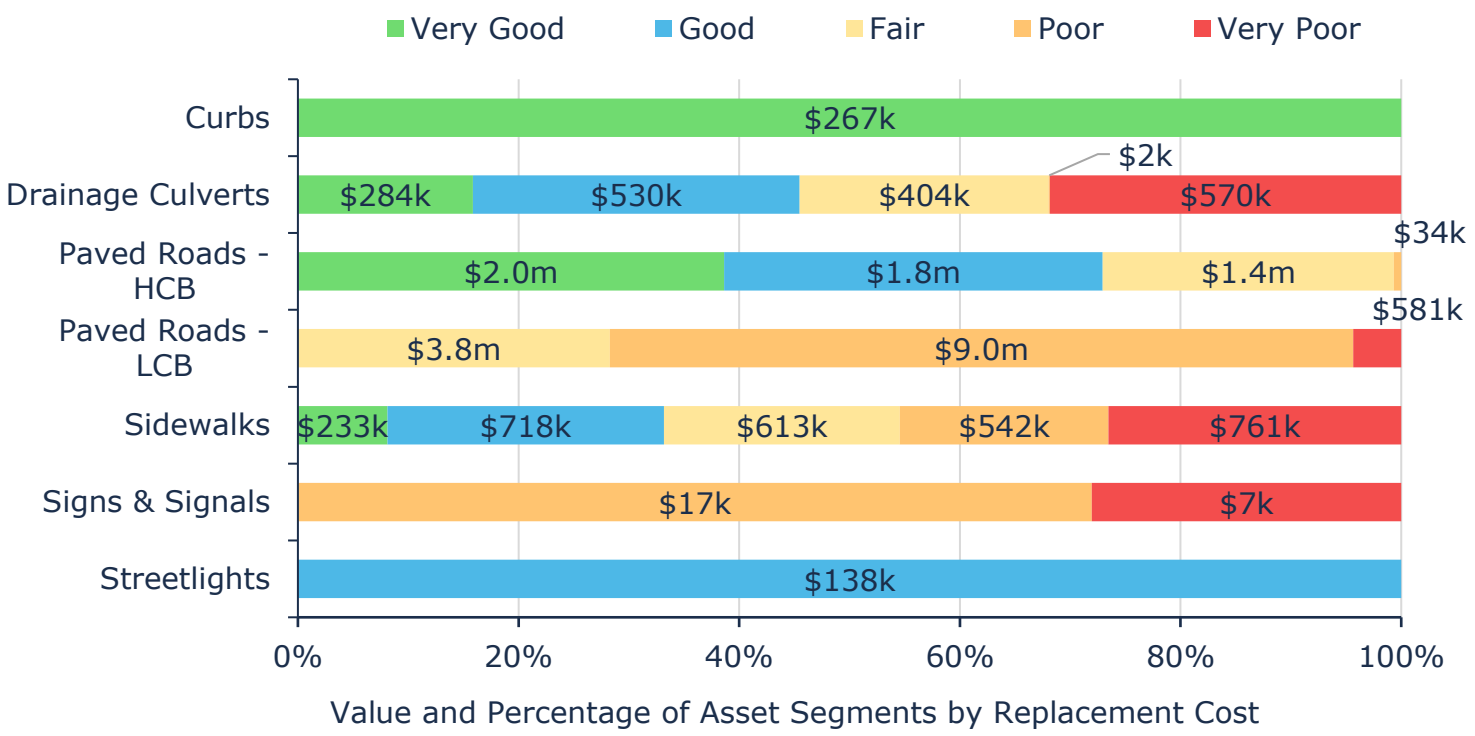


Figure 19 Asset Condition: Road Network by Segment

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.

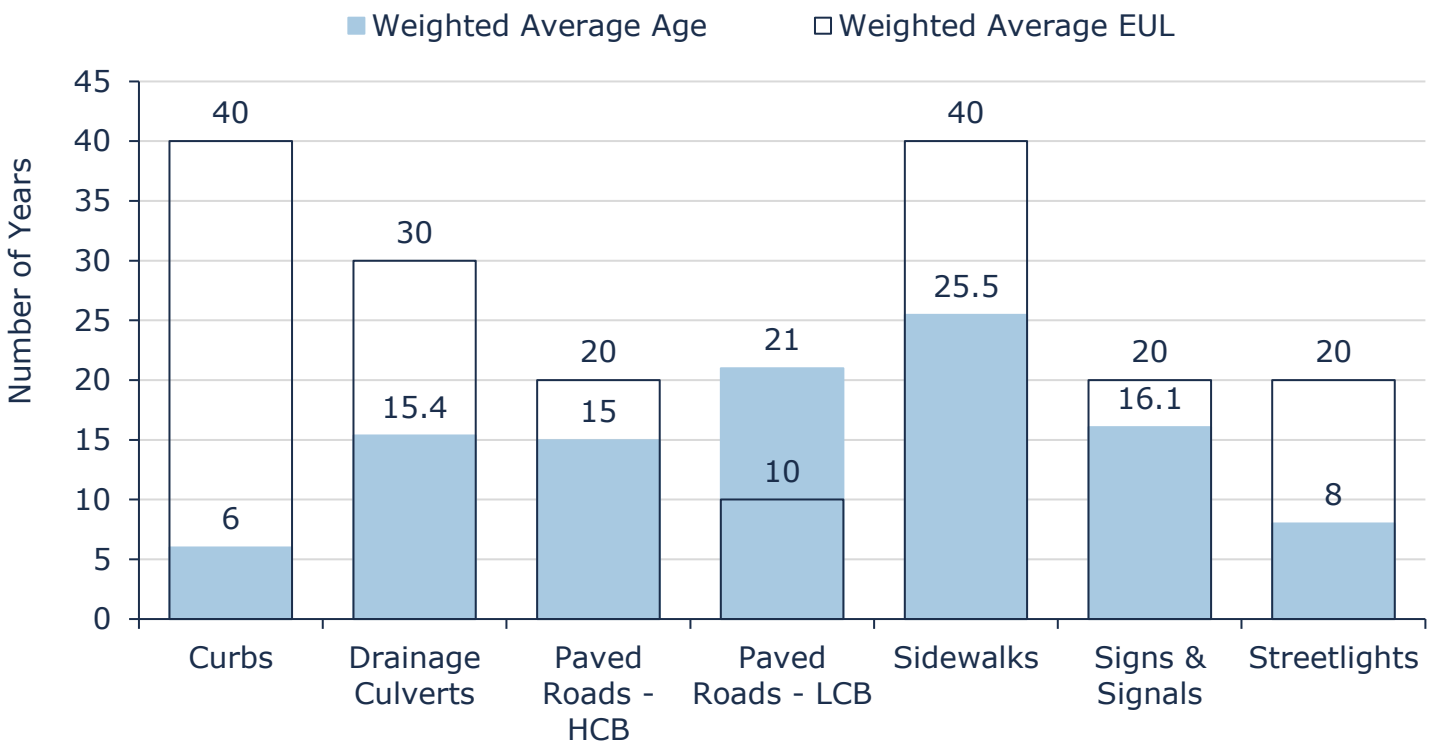


Figure 20 Estimated Useful Life vs. Asset Age: Road Network

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 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 HCB and LCB 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.

Paved Roads (HCB)		
Event Name	**Event Class**	**Event Trigger**
Crack Sealing	Maintenance	5 Years (Repeated)
Single Surface Overlay	Rehabilitation	15 Years
Reconstruction	Replacement	0 to 0 Condition

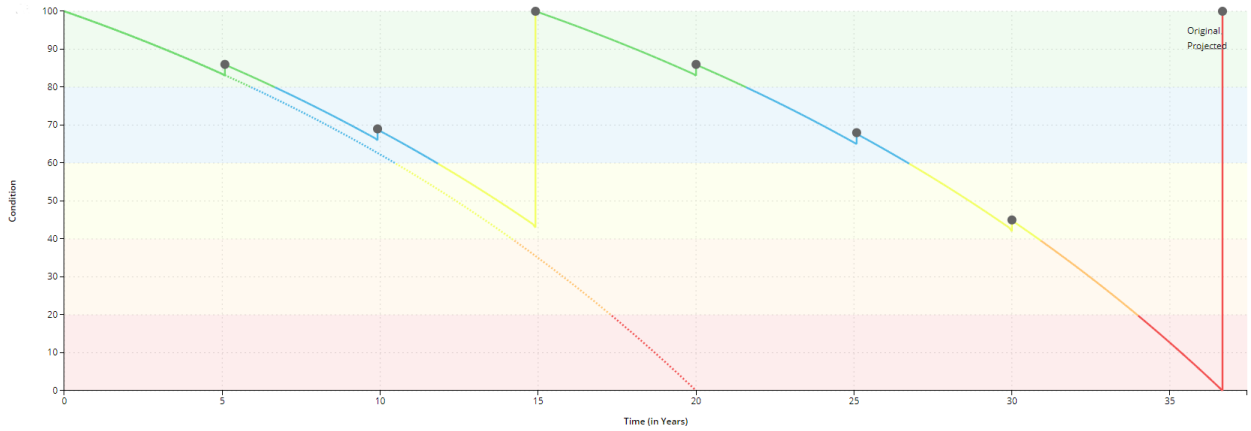


Table 9 Lifecycle Management Strategy: Road Network (HCB Roads)

Paved Roads (LCB)		
Event Name	**Event Class**	**Event Trigger**
Double Surface Treatment	Rehabilitation	7 Years
Full Reconstruction	Replacement	0 to 0 Condition

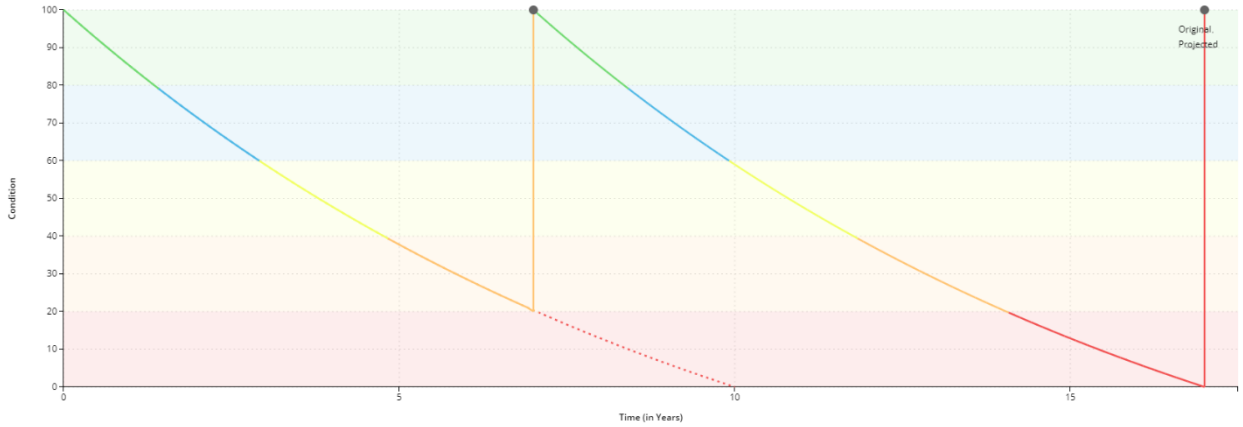


Table 10 Lifecycle Management Strategy: Road Network (LCB Roads)

4.5 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, replacement costs, traffic data, 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 Township 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 Township'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	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$1,877,084	$2,587,152	$1,584,349	$3,609,746	$13,944,150
(8%)	(11%)	(7%)	(15%)	(59%)

Figure 21 Risk Matrix: Road Network

4.6 Levels of Service

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

4.6.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Scope	Description, which may include maps, of the road network in the Township and its level of connectivity	The majority of the Township's roads are unpaved, primarily making up the rural areas. Residential and urban areas utilize a mix of HCB and LCB roads. Most of these roads are single lane rural, local, and collector segments.

<table>
<tr><th>Service Attribute</th><th>Qualitative Description</th><th>Current LOS</th></tr>
<tr><td>Quality</td><td>Description or images that illustrate the different levels of road class pavement condition</td><td>The Township completed a Road Management Study in May 2021 in coordination with Engage Engineering Ltd. Every road section received rating which considers pertinent attribute details including drainage, alignment, surface condition, structural adequacy, and more. The following rating scale was applied:
<table>
<tr><th>Condition</th><th>Rating</th></tr>
<tr><td>Very Good</td><td>80-100</td></tr>
<tr><td>Good</td><td>60-80</td></tr>
<tr><td>Fair</td><td>40-60</td></tr>
<tr><td>Poor</td><td>20-40</td></tr>
<tr><td>Very Poor</td><td>0-20</td></tr>
</table></td></tr>
</table>

Table 11 O. Reg. 588/17 Community Levels of Service: Road Network

4.6.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km^2)	0
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km^2)	0.86
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)	0.22
Quality	Average pavement condition index for paved roads in the Township	HCB: 75 LCB: 36

Table 12 O. Reg. 588/17 Technical Levels of Service: Road Network

4.7 Proposed Levels of Service

The scenarios that were used to analyze the Township's inventory were run for 40 years 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 Capital Reinvestment 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 Fair - this scenario utilizes a target average condition of 40% 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	Average Risk Rating (0-25)	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	$23,602,480	52.4%	11.32	$1,522,000
Scenario 2 - Current Capital Investment Rate		51.8%	11.43	$2,203,000
Scenario 3 - Maintain Condition 40%		40.8%	13.28	$1,067,000

Table 13 O. Reg. 588/17 Proposed LOS: Road Network

4.7.1 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding within the recommended timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Curbs	-	-	-	-	-	-	-	-	-	-
Drainage Culverts	$34k	-	-	-	$12k	$493k	$2k	-	-	-
Paved Roads - HCB	$49k	$344k	$144k	$122k	-	$408k	$15k	$215k	$43k	-
Paved Roads - LCB	$311k	$2.7m	$3.8m	$296k	-	-	-	-	-	$297k
Sidewalks	-	-	$72k	-	-	-	$86k	-	-	-
Signs & Signals	-	-	-	$7k	$12k	$5k	-	-	-	-
Streetlights	-	-	-	-	-	-	-	-	-	-
Total	**$394k**	**$3.0m**	**$4.0m**	**$425k**	**$24k**	**$906k**	**$104k**	**$215k**	**$43k**	**$297k**

Table 14: Road Network - 10-Year Capital Forecast

5. Bridges & Culverts

5.1 Inventory & Valuation

Table 15 summarizes the quantity, unit of measure, total replacement cost, and primary replacement cost method of each asset segment in the Township's bridges & culverts.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Bridges	3	Quantity	$1,277,707	User-Defined
Structural Culverts	3	Quantity	$2,890,000	User-Defined
TOTAL			**$4,167,707**	

Table 15 Detailed Asset Inventory: Bridges & Culverts

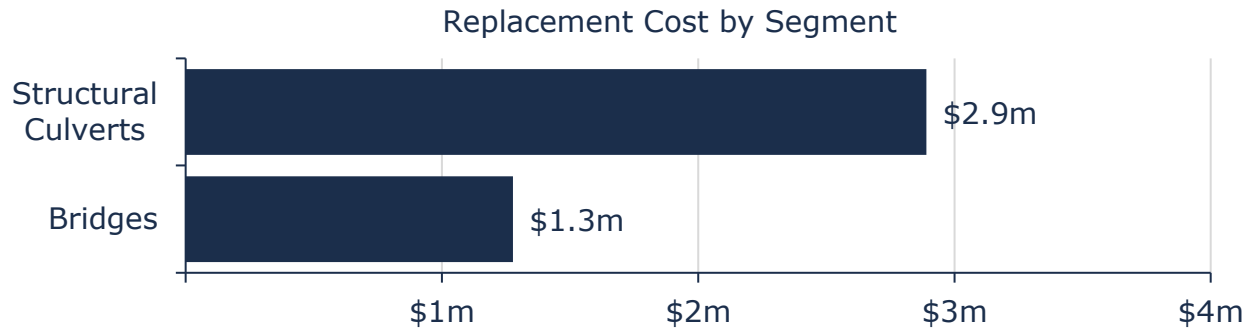


Figure 22 Portfolio Valuation: Bridges & Culverts

5.2 Asset Condition

Figure 23 summarizes the replacement cost-weighted condition of the Township's bridges and culverts. Based on the Township's recent Ontario Structures Inspection Manual (OSIM) assessments, 100% bridges and culverts are in fair or better condition.

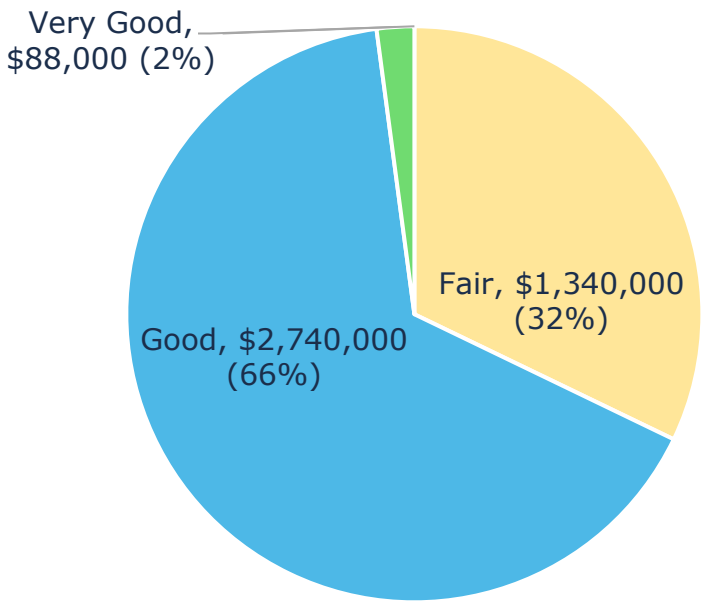


Figure 23 Asset Condition: Bridges & Culverts Overall

As bridges and structures reach a poor or worse rating (i.e., a bridge condition index of less than 40), they are not necessarily unsafe for regular use, and individual circumstances must be considered. The OSIM ratings are designed to identify repairs needed to elevate condition ratings to a fair or higher.

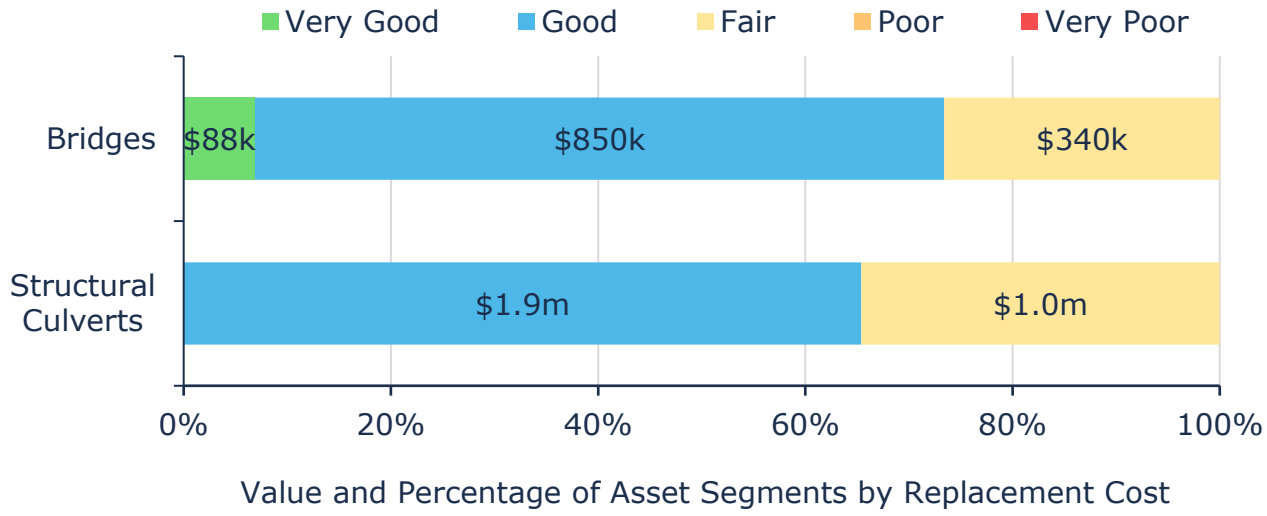


Figure 24 Asset Condition: Bridges & Culverts by Segment

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.

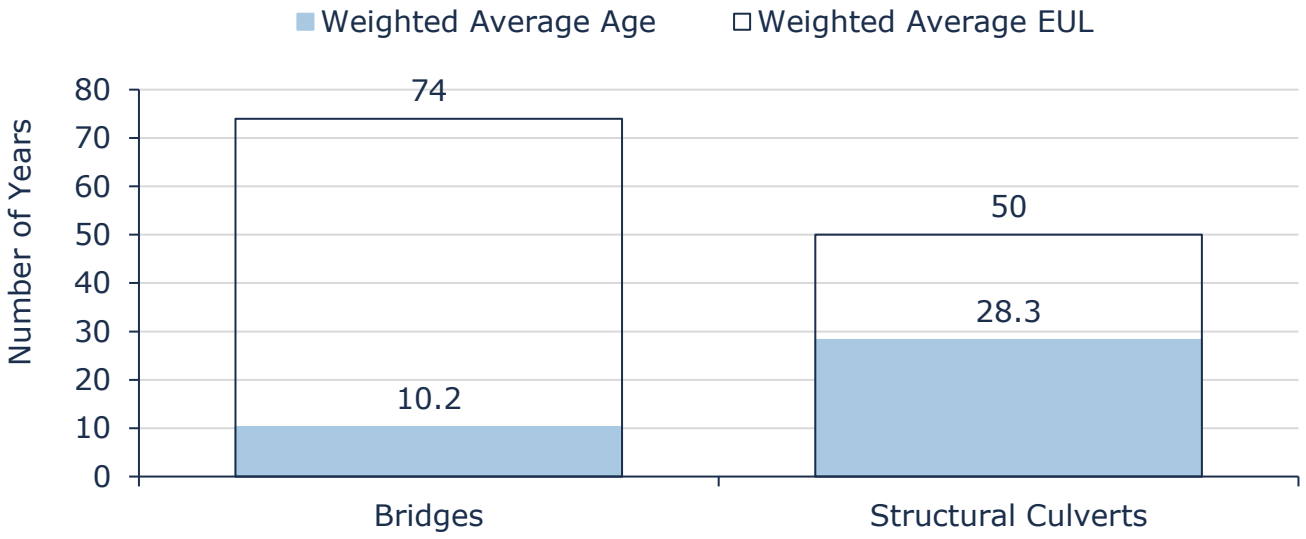


Figure 25 Estimated Useful Life vs. Asset Age: Bridges & Culverts

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 Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation and Replacement	All lifecycle activities are driven by the results of mandated structural inspections completed according to the Ontario Structure Inspection Manual (OSIM).

The most recent inspection report was completed in 2023 by Jewell Engineering.

Table 16 Lifecycle Management Strategy: Bridges & Culverts

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 Township 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 Township'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**
$87,707 (2%)	$890,000 (21%)	$1,850,000 (44%)	- (0%)	$1,340,000 (32%)

Figure 26 Risk Matrix: Bridges & Culverts

5.6 Levels of Service

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

5.6.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Scope	Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists, and farm equipment)	Bridges and structural culverts are a key component of the municipal transportation network. None of the municipality's structures have loading or dimensional restrictions meaning that most types of vehicles, including heavy transport, motor vehicles, emergency vehicles and cyclists can cross them without restriction
Quality	Description or images of the condition of culverts and how this would affect use of the culverts	See Appendix B – Level of Service Maps & Photos

Table 17 O. Reg. 588/17 Community Levels of Service: Bridges & Culverts

5.6.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Scope	% of bridges in the Township with loading or dimensional restrictions	0%
Quality	Average bridge condition index value for bridges in the Township	69
	Average bridge condition index value for culverts in the Township	63

Table 18 O. Reg. 588/17 Technical Levels of Service: Bridges & Culverts

5.7 Proposed Levels of Service

The scenarios that were used to analyze the Township's inventory were run for 60 years 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 Capital Reinvestment 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 Fair - this scenario utilizes a target average condition of 40% 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 Township's bridges & culverts.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	**$4,167,707**	48.5%	14.26	$95,000
Scenario 2 - Current Capital Investment Rate		29.7%	17.89	$29,000
Scenario 3 - Maintain Condition 40%		45.0%	14.95	$68,000

Table 19 O. Reg. 588/17 Proposed LOS: Bridges & Culverts

5.7.1 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding within the recommended timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Bridges	$4k	$4k	$4k	$4k	-	-	-	-	-	-
Structural Culverts	-	-	-	-	-	-	-	-	$1.0m	-
Total	**$4k**	**$4k**	**$4k**	**$4k**	**-**	**-**	**-**	**-**	**$1.0m**	**-**

Table 20: Bridges & Culverts: 10-Year Capital Forecast

6. Water Network

6.1 Inventory & Valuation

Table 21 summarizes the quantity and current replacement cost of the Township's various water network assets.

Segment	Quantity (components)	Unit of Measure	Replacement Cost	Primary RC Method
Hydrants	85	Quantity	$935,000	Cost per Unit
Service Connections	697	Quantity	$2,243,200	CPI
Valves & Appurtenances	101	Quantity	$454,500	Cost per Unit
Water Towers	1 (2)	Quantity	$2,547,452	CPI
Water Treatment Facilities	1 (12)	Quantity	$1,136,868	CPI
Water Wells	17	Quantity	$1,486,256	CPI
Watermains	12,097	Length (m)	$10,547,000	Cost per Unit
	Total:		**$19,350,646**	

Table 21 Detailed Asset Inventory: Water Network

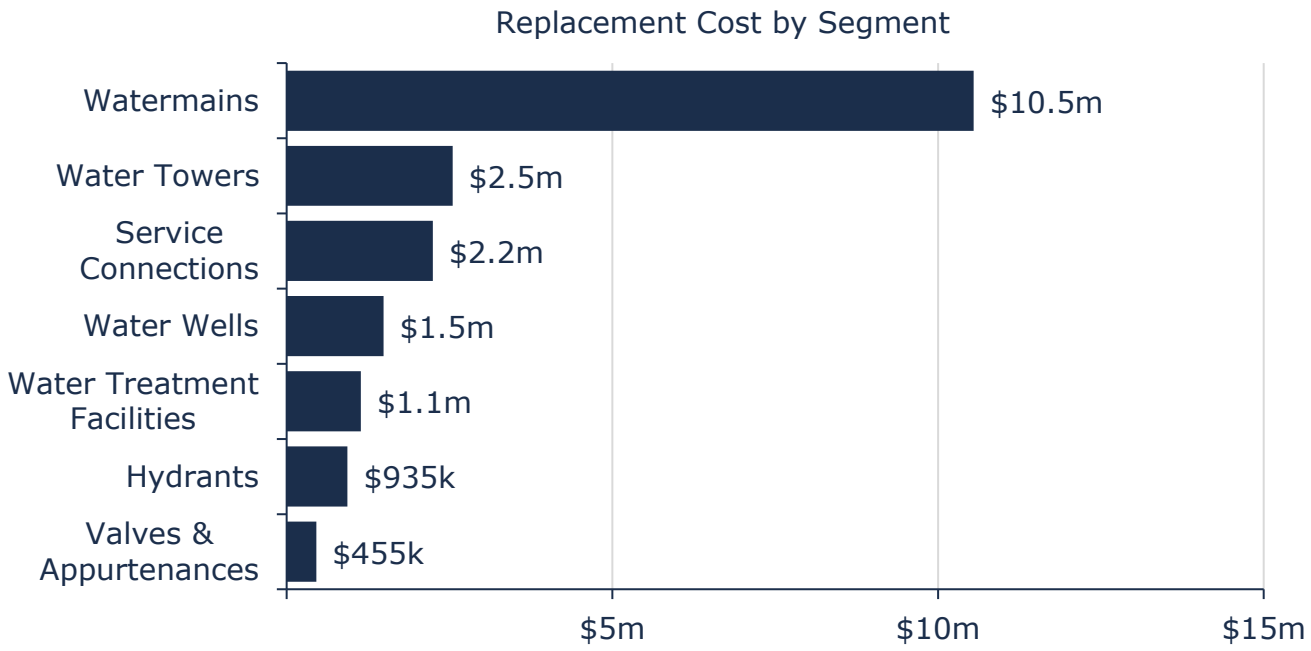


Figure 27 Portfolio Valuation: Water Network

6.2 Asset Condition

Figure 28 summarizes the replacement cost-weighted condition of the Township's water network. Based on age-based data, 50% of assets are in fair or better condition; the remaining 50% are in poor to very poor condition. Age was used as an approximation of condition for these assets. Age-based condition estimations can skew data and lead to potential under- or overstatement of asset needs.

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.

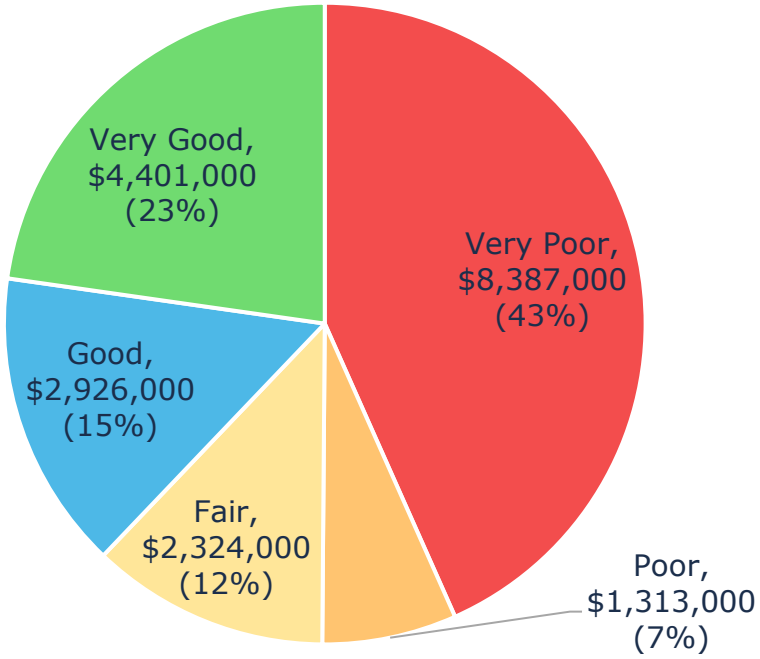


Figure 28 Asset Condition: Water Network Overall

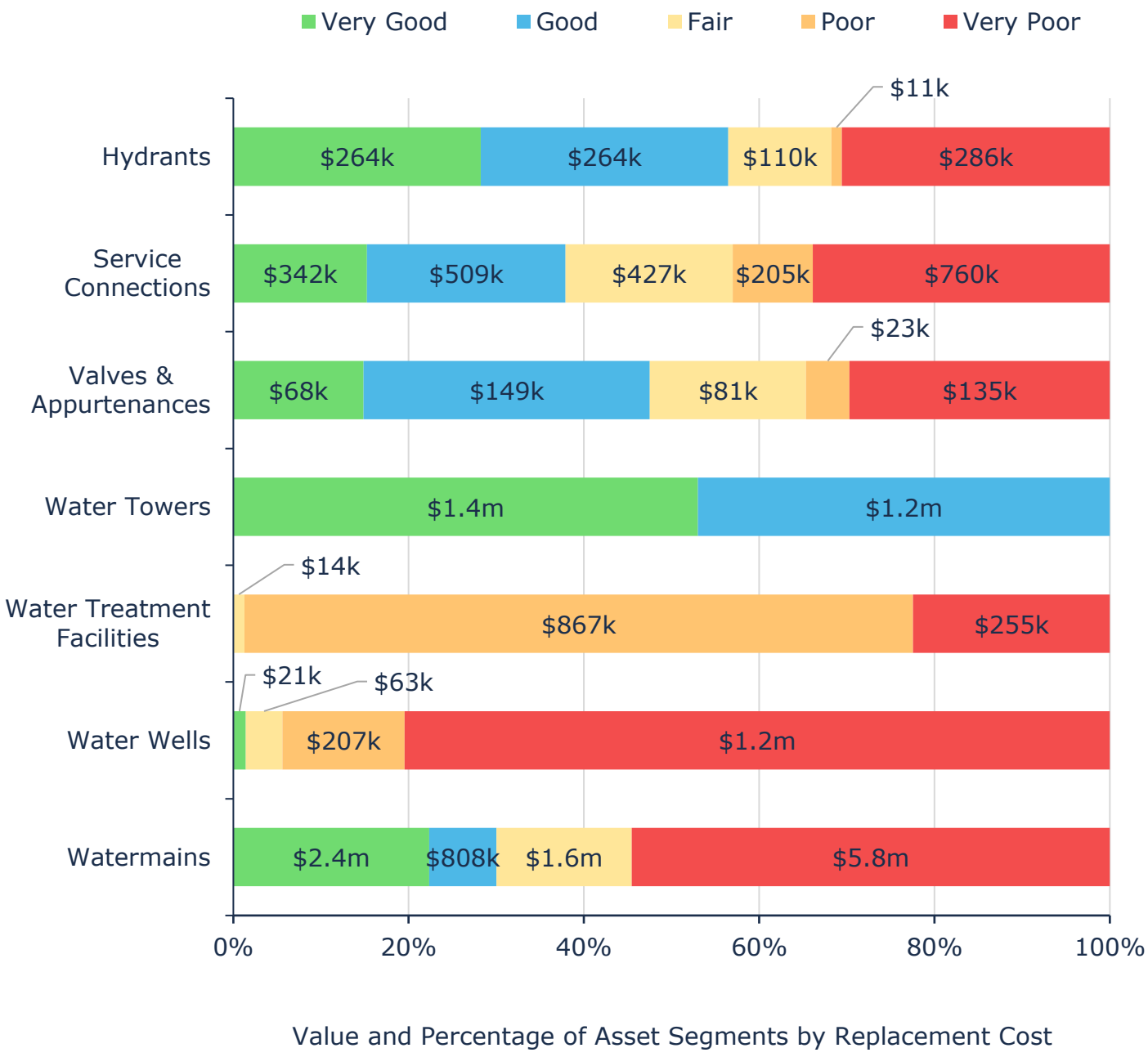


Figure 29 Asset Condition: Water Network by Segment

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 long-term 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.

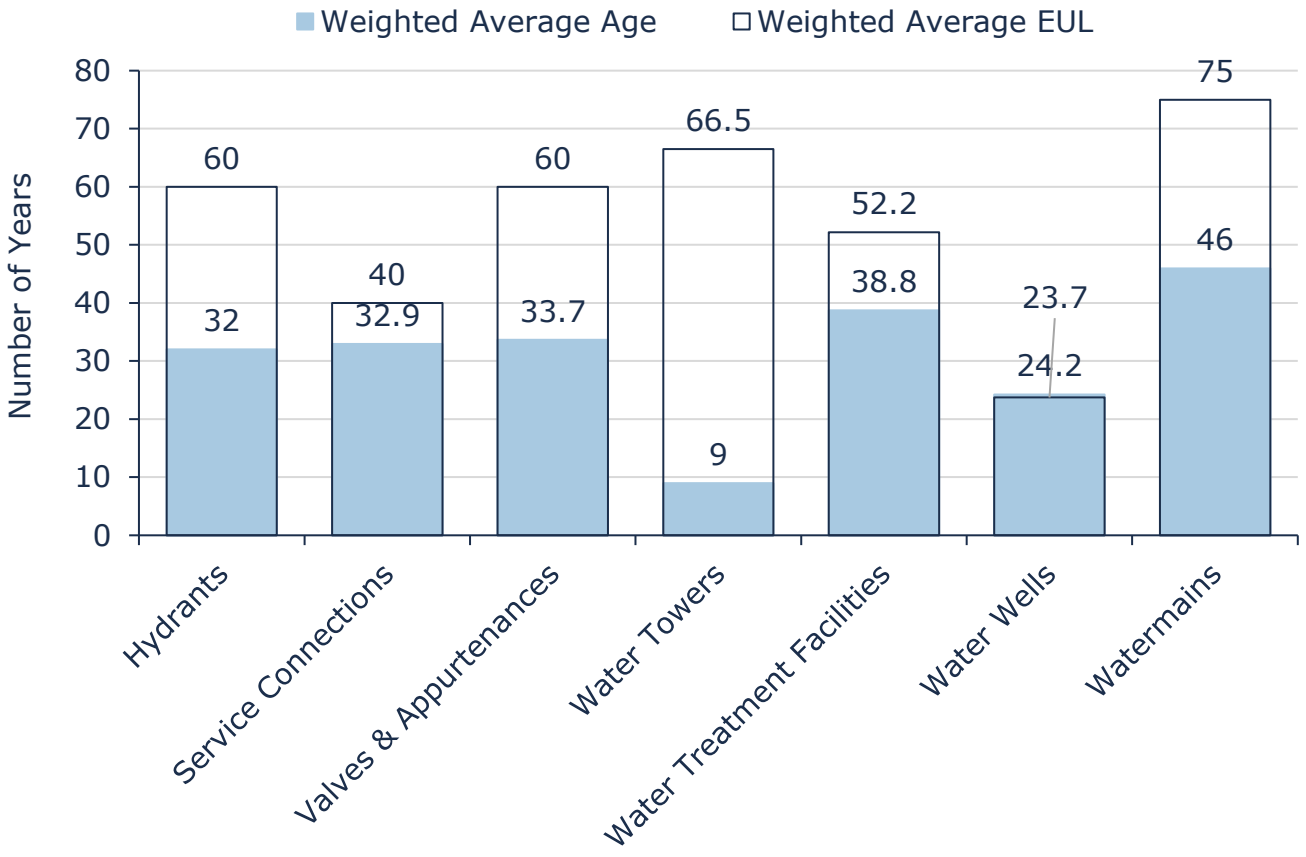


Figure 30 Estimated Useful Life vs. Asset Age: Water Network

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 Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Flushing is carried out on as an-needed basis to meet water quality requirements
	Trenchless re-lining of water mains presents significant challenges and is not always a viable option
Replacement	In the absence of mid-lifecycle rehabilitative events, most mains are simply maintained with the goal of full replacement once it reaches its end-of-life. Replacement activities are identified based on a deficiency list that factors in age, pipe material and the history of breaks.

Table 22 Lifecycle Management Strategy: Water Network

6.5 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, replacement costs, traffic data, 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 Township 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 Township'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	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$4,516,512	$2,699,061	$1,201,523	$2,943,266	$7,990,285
(23%)	(14%)	(6%)	(15%)	(41%)

Figure 31 Risk Matrix: Water Network

6.6 Levels of Service

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

6.6.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Scope	Description, which may include maps of the user groups or areas of the Township that are connected to the municipal Water Network	See Appendix B – Level of Service Maps & Photos
	Description, which may include maps, of the user groups or areas of the Township that have fire flow	See Appendix B – Level of Service Maps & Photos
Reliability	Description of boil water advisories and service interruptions	No boil water advisories have been reported in 2024

Table 23 O. Reg. 588/17 Community Levels of Service: Water Network

6.6.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Scope	% of properties connected to the municipal Water Network	TBD[2]
	% of properties where fire flow is available	TBD[3]
Reliability	# of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal Water Network	0
	# of connection-days per year where water is not available due to water main breaks compared to the total number of properties connected to the municipal Water Network	0

Table 24 O. Reg. 588/17 Technical Levels of Service: Water Network

[2] The Township does not currently have data available to determine this technical metric. All properties within the Village of Havelock are connected to the water system. Other communities rely on well water.
[3] The Township does not currently have data available to determine this technical metric. Properties connected to the water system are expected to meet fire flow requirements.

6.7 Proposed Levels of Service

The scenarios that were used to analyze the Township's inventory were run for 85 years 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 Capital Reinvestment 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 Fair - this scenario utilizes a target average condition of 40% 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 Township's water network.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	**$19,350,646**	49.7%	10.33	$359,000
Scenario 2 - Current Capital Investment Rate		33.7%	13.26	$236,000
Scenario 3 - Maintain Condition 40%		41.3%	11.36	$279,000

Table 25 O. Reg. 588/17 Proposed LOS: Water Network

6.7.1 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Hydrants	-	-	-	$22k	-	-	-	-	-	-
Service Connections	-	-	-	-	-	-	-	-	-	-
Valves & Appurtenances	-	-	-	$9k	-	-	-	-	$5k	-
Water Towers										
Water Treatment Facilities	$108k	-	$6k	-	$6k	$27k	-	-	-	$8k
Water Wells	$169k	-	-	$468k	-	$177k	-	-	-	-
Watermains	-	-	-	-	-	-	-	-	$5.8m	-
Total	**$277k**	**-**	**$6k**	**$499k**	**$6k**	**$204k**	**-**	**-**	**$5.8m**	**$8k**

Table 26: Water Network: 10-Year Capital Forecast

7. Sanitary Sewer Network

7.1 Inventory & Valuation

Table 27 summarizes the quantity and current replacement cost of the Township's various sanitary sewer network assets.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Manholes	40	Quantity	$540,000	Cost per Unit
Misc. Equipment	6	Quantity	$29,774	CPI
Sanitary Pumping Stations	1	Quantity	$587,310	User-Defined
Sanitary Treatment Facilities	1	Quantity	$5,449,865	User-Defined
Service Connections	616	Quantity	$4,342,210	CPI
Sewer Mains	12,694	Length (m)	$9,348,387	Cost per Unit
		Total:	**$20,297,547**	

Table 27 Detailed Asset Inventory: Sanitary Sewer Network

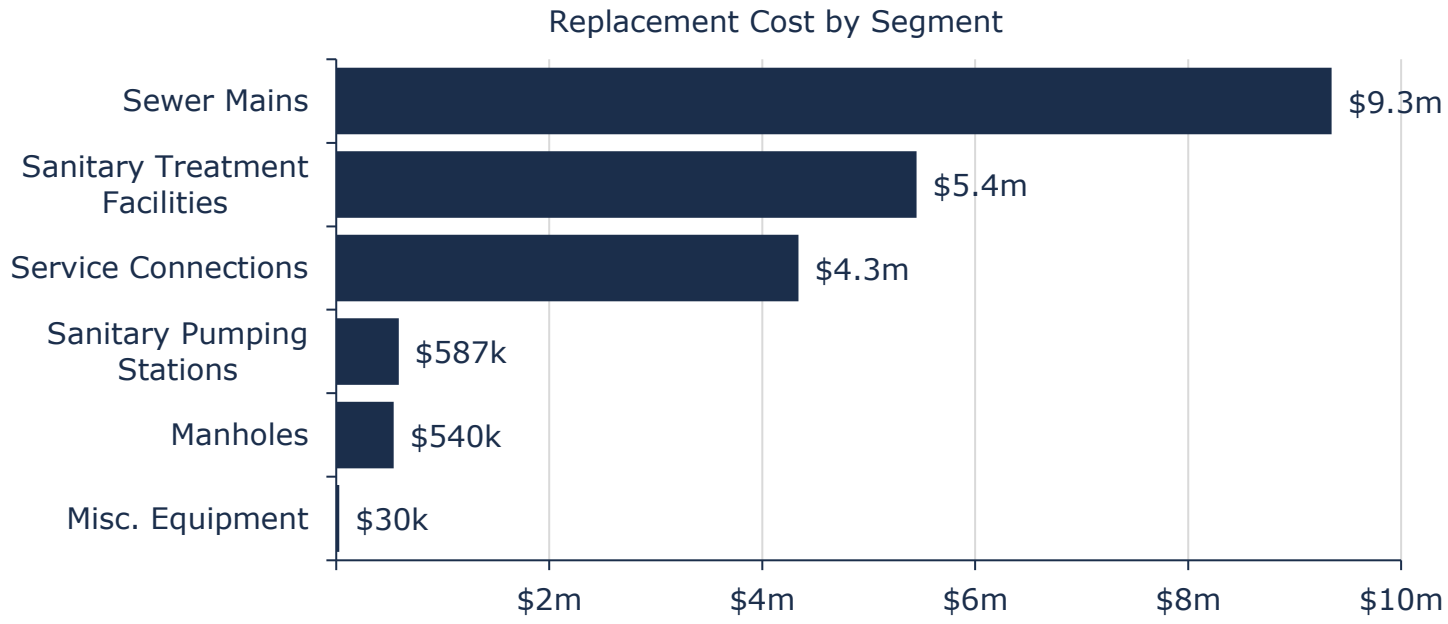


Figure 32 Portfolio Valuation: Sanitary Sewer Network

7.2 Asset Condition

Figure 33 summarizes the replacement cost-weighted condition of the Township's sanitary sewer network. Based on a combination of field inspection data and age, 76% of assets are in fair or better condition; the remaining 24% of assets are in poor to very poor condition. Condition assessments were available for 100% of Sanitary Pumping Stations, 99% Sanitary Treatment Facilities, and 12% of Sewer Mians based on replacement cost. This condition data was projected from inspection date to current year to estimate their condition today. No condition data was available for sanitary equipment.

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.

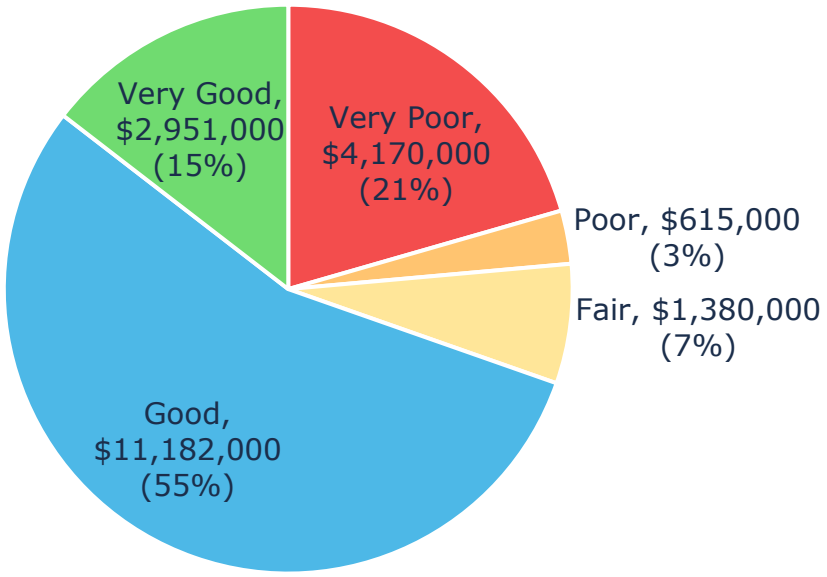


Figure 33 Asset Condition: Sanitary Sewer Network Overall

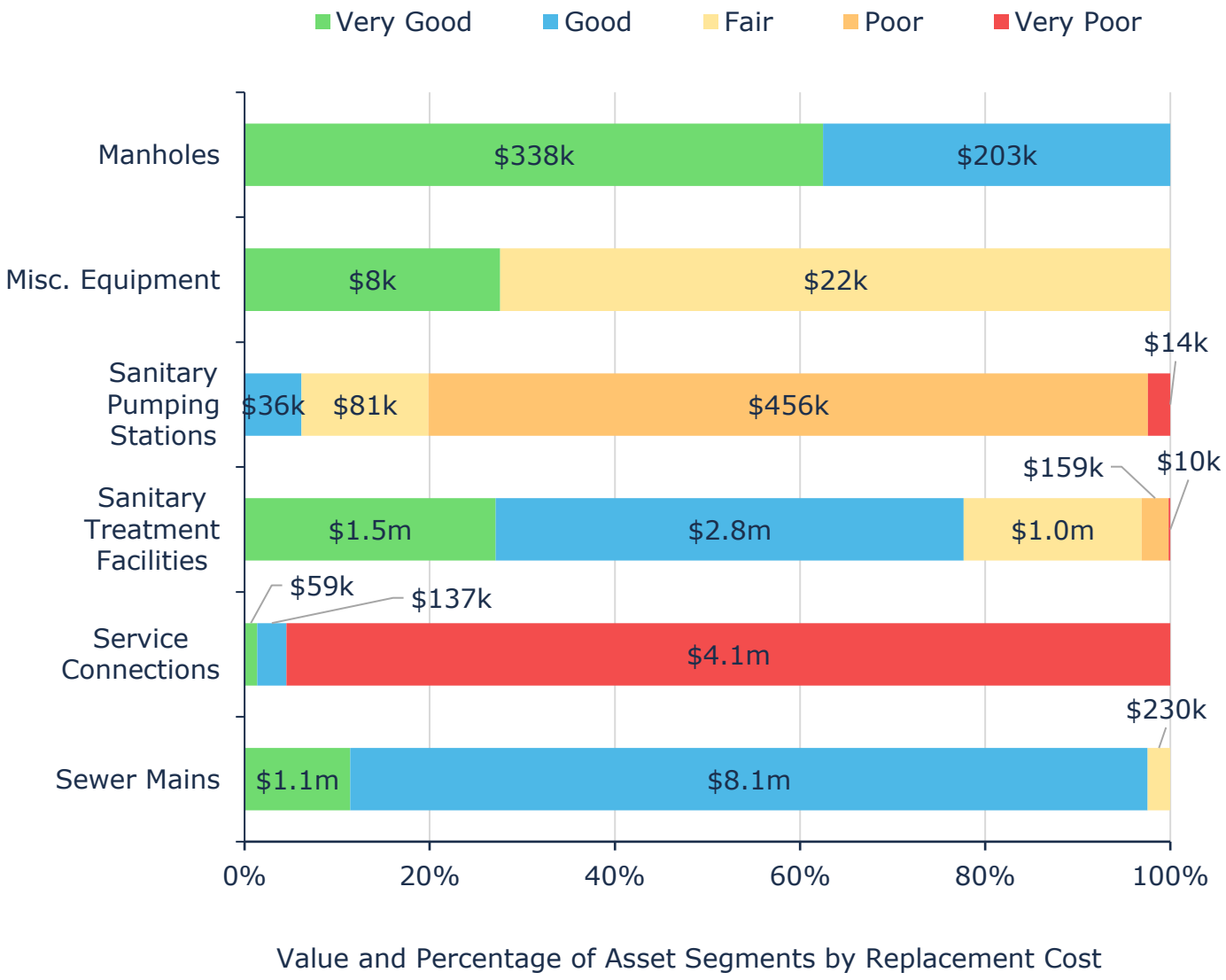


Figure 34 Asset Condition: Sanitary Sewer Network by Segment

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 long-term 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.

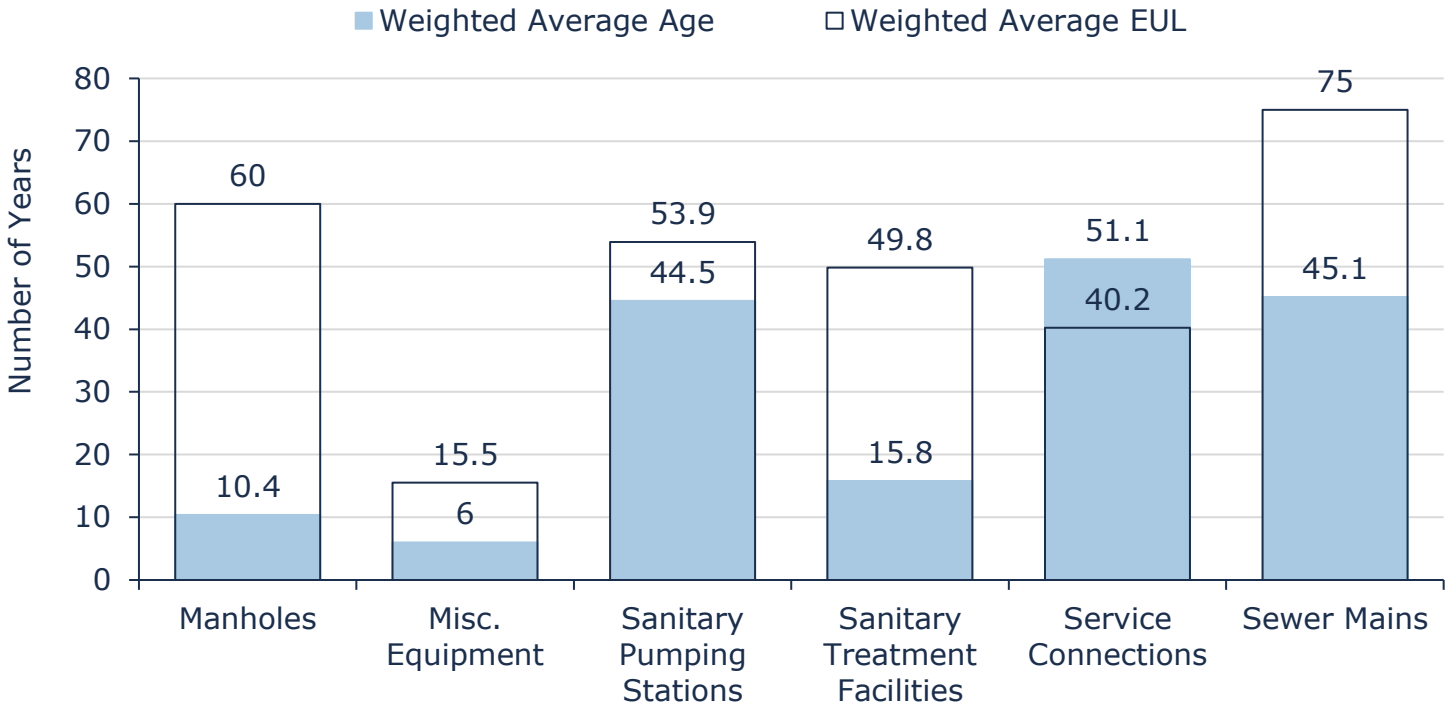


Figure 35 Estimated Useful Life vs. Asset Age: Sanitary Sewer Network

7.4 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 asset's characteristics, location, utilization, maintenance history and environment. The following lifecycle strategy has been developed as a proactive approach to managing the lifecycle of sanitary mains. A trenchless re-lining strategy is expected to extend the service life of sanitary mains at a lower total cost of ownership.

Table 28 Lifecycle Management Strategy: Sanitary Sewer Network (Sanitary Mains)

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Flushing and cleaning of sanitary assets are completed on an as needed basis. There are no formalized rehabilitation strategies currently in place.
Replacement	Replacement activities are carried out on an as needed basis, in a reactive manner

Table 29 Lifecycle Management Strategy: Sanitary Sewer Network

7.5 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, replacement costs, traffic data, 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 Township 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 Township'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** $2,589,060 (13%)	5 - 7 **Low** $4,509,684 (22%)	8 - 9 **Moderate** $2,939,787 (14%)	10 - 14 **High** $4,706,377 (23%)	15 - 25 **Very High** $5,552,639 (27%)

Figure 36 Risk Matrix: Sanitary Sewer Network

7.6 Levels of Service

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

7.6.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Scope	Description, which may include maps, of the user groups or areas of the Township that are connected to the municipal wastewater Network	See Appendix B – Level of Service Maps & Photos

Service Attribute	Qualitative Description	Current LOS
Reliability	Description of how combined sewers in the municipal wastewater Network are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes	The Township does not own any combined sewers
	Description of the frequency and volume of overflows in combined sewers in the municipal wastewater Network that occur in habitable areas or beaches	
	Description of how stormwater can get into sanitary sewers in the municipal wastewater Network, causing sewage to overflow into streets or backup into homes	Stormwater can enter into sanitary sewers due to cracks in sanitary mains or through indirect connections (e.g. weeping tiles). In the case of heavy rainfall events, sanitary sewers may experience a volume of water and sewage that exceeds its designed capacity. In some cases, this can cause water and/or sewage to overflow backup into homes. The disconnection of weeping tiles from sanitary mains and the use of sump pumps and pits directing storm water to the storm drain system can help to reduce the chance of this occurring.
	Description of how sanitary sewers in the municipal wastewater Network are designed to be resilient to stormwater infiltration	The municipality follows a series of design standards that integrate servicing requirements and land use considerations when constructing or replacing sanitary sewers. These standards have been determined with consideration of the minimization of sewage overflows and backups.
	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater Network	Effluent refers to water pollution that is discharged from a wastewater treatment plant,

Service Attribute	Qualitative Description	Current LOS
		and may include suspended solids, total phosphorous and biological oxygen demand. The Environmental Compliance Approval (ECA) identifies the effluent criteria for municipal wastewater treatment plants.

Table 30 O. Reg. 588/17 Community Levels of Service: Sanitary Sewer Network

7.6.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Scope	% of properties connected to the municipal wastewater Network	TBD[4]
Reliability	# of events per year where combined sewer flow in the municipal wastewater Network exceeds system capacity compared to the total number of properties connected to the municipal wastewater Network	0
	# of connection-days per year having wastewater backups compared to the total number of properties connected to the municipal wastewater Network	0
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater Network	0

Table 31 O. Reg. 588/17 Technical Levels of Service: Sanitary Sewer Network

7.7 Proposed Levels of Service

The scenarios that were used to analyze the Township's inventory were run for 75 years 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.

[4] The Township does not currently have data available to determine this technical metric. All properties within the Village of Havelock are connected to the wastewater system. Other communities rely on septic services.

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 Capital Reinvestment 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 Fair - this scenario utilizes a target average condition of 40% 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 Township's sanitary sewer network.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	**$20,297,547**	63.0%	9.43	$387,000
Scenario 2 - Current Capital Investment Rate		45.5%	12.88	$237,000
Scenario 3 - Maintain Condition 40%		43.4%	12.63	$202,000

Table 32 O. Reg. 588/17 Proposed LOS: Sanitary Sewer Network

7.7.1 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Manholes	-	-	-	-	-	-	-	-	-	-
Misc. Equipment	-	-	-	-	$22k	-	-	-	-	-
Sanitary Pumping Stations	$12k	$4k	$60k	-	$13k	$50k	$47k	$3k	-	$33k
Sanitary Treatment Facilities	$9k	$15k	$2k	$2k	$136k	-	$31k	$105k	-	$277k
Service Connections	-	-	-	-	-	-	-	-	-	-
Sewer Mains	-	-	-	-	-	-	-	-	-	-
Total	**$20k**	**$19k**	**$62k**	**$2k**	**$170k**	**$50k**	**$78k**	**$107k**	**-**	**$310k**

Table 33: Sanitary Sewer Network - 10-Year Capital Forecast

8. Stormwater Network

8.1 Inventory & Valuation

Table 34 summarizes the quantity and current replacement cost of all stormwater management assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Catch Basins	80	Quantity	$600,000	Cost per Unit
Storm Sewers	Unknown[5]	Length (m)	$2,260,980[6]	Cost per Unit
TOTAL			**$2,860,980**	

Table 34 Detailed Asset Inventory: Stormwater Network

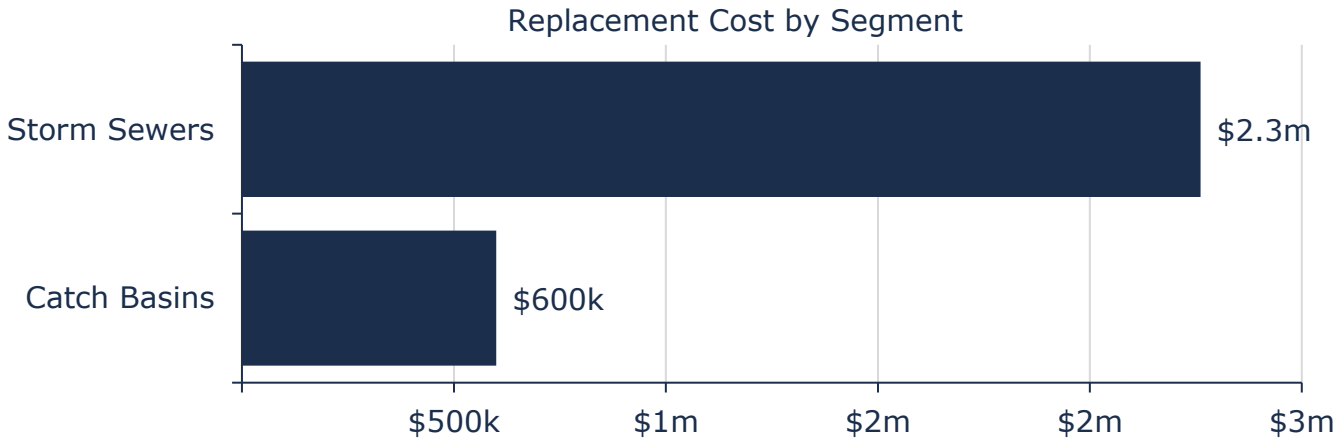


Figure 37 Portfolio Valuation: Stormwater Network

8.2 Asset Condition

Figure 38 summarizes the replacement cost-weighted condition of the Township's Stormwater management assets. Age-based analysis indicates that 100% of the assets are in fair or better condition. Assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

[5] The stormwater inventory is incomplete and has not been broken out into consistent sections of storm sewer mains. The Township plans to update the inventory as assessments occur, and should be updated in future iterations of the Plan

[6] This value is based on the best available costs in the Township's asset inventory. It is recognized that it likely understates the full value of the stormwater network.

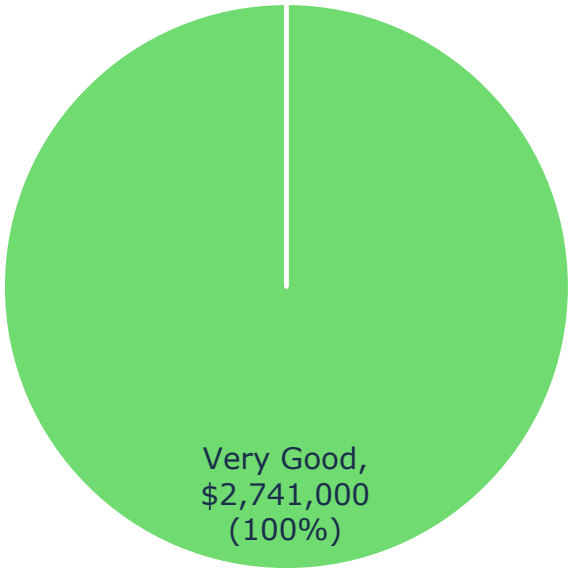


Figure 38 Asset Condition: Stormwater Network Overall

Figure 39 summarizes the age-based condition of stormwater assets. The analysis illustrates that 100% storm sewers and catch basins are in fair or better condition.

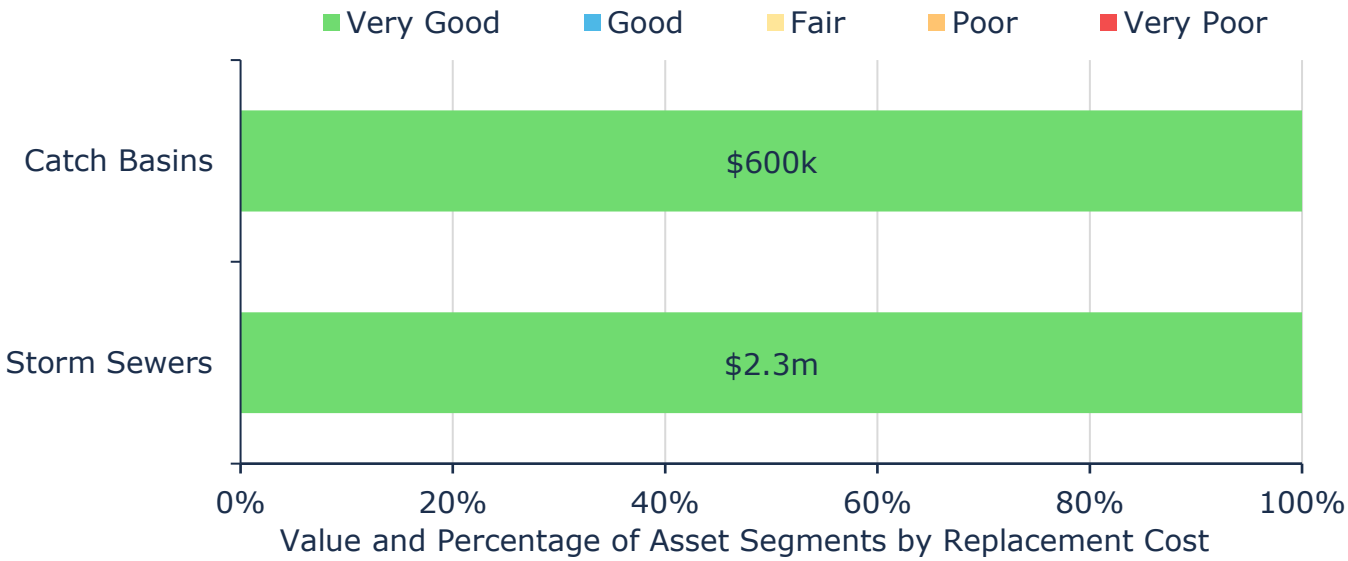


Figure 39 Asset Condition: Stormwater Network by Segment

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.

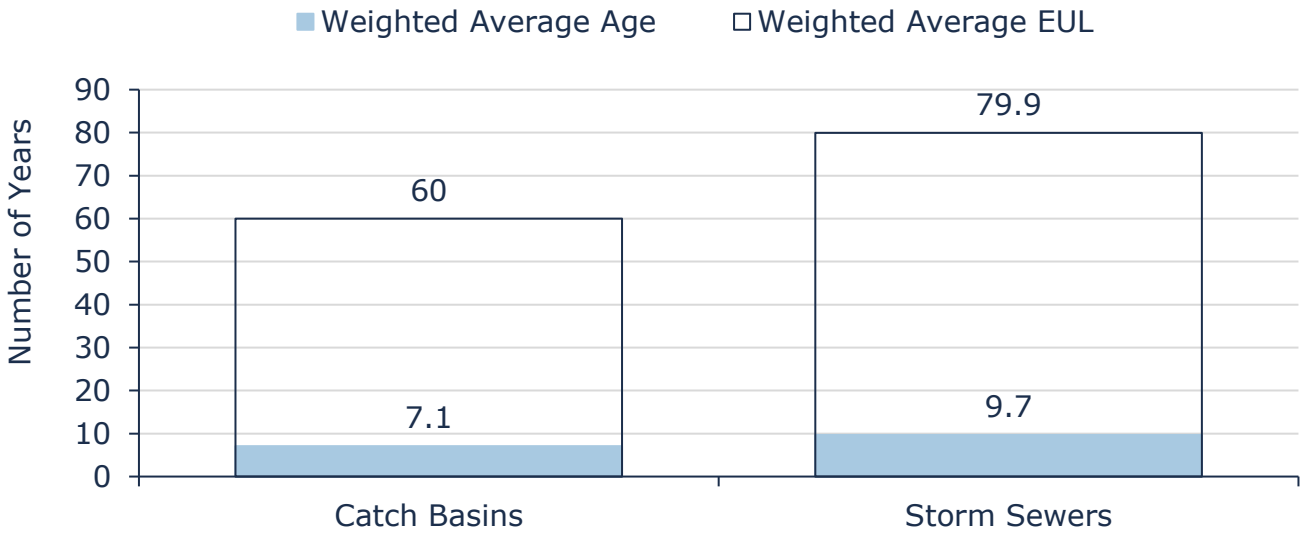


Figure 40 Estimated Useful Life vs. Asset Age: Stormwater Network

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 Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Flushing and cleaning of stormwater assets are completed on an as needed basis. There are no formalized maintenance or rehabilitation strategies currently in place. However, the Township is undergoing a master drainage plan, which will assist in the proactive management of its asset infrastructure
Replacement	Replacement activities are carried out on an as needed basis, in a reactive manner

Table 35 Lifecycle Management Strategy: Stormwater Network

8.5 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 Township 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 Township'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
$2,335,980 (82%)	$525,000 (18%)	- (0%)	- (0%)	- (0%)

Figure 41 Risk Matrix: Stormwater Network

8.6 Levels of Service

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

8.6.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Scope	Description, which may include maps of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal Stormwater Network	The Village of Havelock's stormwater Network is comprised of catch basins, stormwater mains, and natural drainage features. Other areas of the Township are primarily managed by ditches and street culverts.

Table 36 O. Reg. 588/17 Community Levels of Service: Stormwater Network

8.6.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Scope	% of properties in municipality resilient to a 100-year storm	TBD[7]
	% of the municipal Stormwater management system resilient to a 5-year storm	TBD[8]

Table 37 O. Reg. 588/17 Technical Levels of Service: Stormwater Network

8.7 Proposed Levels of Service

The scenarios that were used to analyze the Township's inventory were run for 75 years 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 Capital Reinvestment Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

[7] The Township does not currently have data available to determine this technical metric. The rate of properties that are expected to be resilient to a 100-year storm is expected to be low.
[8] The Township does not currently have data available to determine this technical metric. The percentage of the stormwater system resilient to a 5-year storm is expected to be high.

Scenario 3: Target Condition Fair - this scenario utilizes a target average condition of 40% 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 Township's stormwater network.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	**$2,860,980**	72.8%	6.03	$38,000
Scenario 2 - Current Capital Investment Rate		68.7%	6.44	$12,000
Scenario 3 - Maintain Condition 40%		67.6%	6.78	$18,000

Table 38 O. Reg. 588/17 Proposed LOS: Stormwater Network

8.7.1 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Catch Basins	-	-	-	-	-	-	-	-	-	-
Storm Sewers	-	-	-	-	-	-	-	-	-	-
Total	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Table 39: Stormwater Network - 10-Year Capital Forecast

Non-Core Assets

9. Facilities

9.1 Inventory & Valuation

Table 40 summarizes the quantity and current replacement cost of all facility assets available in the Township's asset register. Facility assets are componentized. The quantity listed represents the number of asset records currently available for each department.

Segment	Facility Components	Unit of Measure	Replacement Cost	Primary RC Method
Administration	80	Quantity	$3,107,195	User-Defined
Fire Halls	130	Quantity	$2,574,415	User-Defined
Libraries	140	Quantity	$3,248,930	User-Defined
Public Works	127	Quantity	$4,928,402	User-Defined
Recreation	256	Quantity	$13,943,379	User-Defined
TOTAL			**$27,802,321**	

Table 40 Detailed Asset Inventory: Facilities

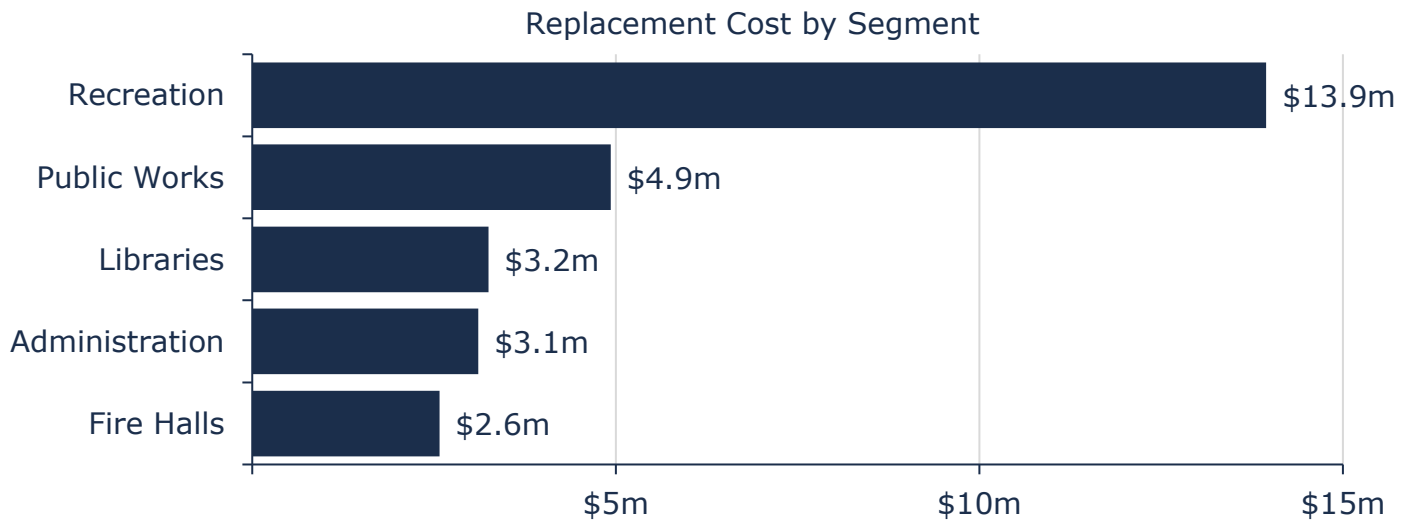


Figure 42 Portfolio Valuation: Facilities

9.2 Asset Condition

Figure 43 summarizes the replacement cost-weighted condition of the Township's buildings portfolio. Based mostly on in-field inspection data, 70% of Facilities assets are in fair or better condition; however, 30%, with a current replacement cost of more than $8.5 million 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.

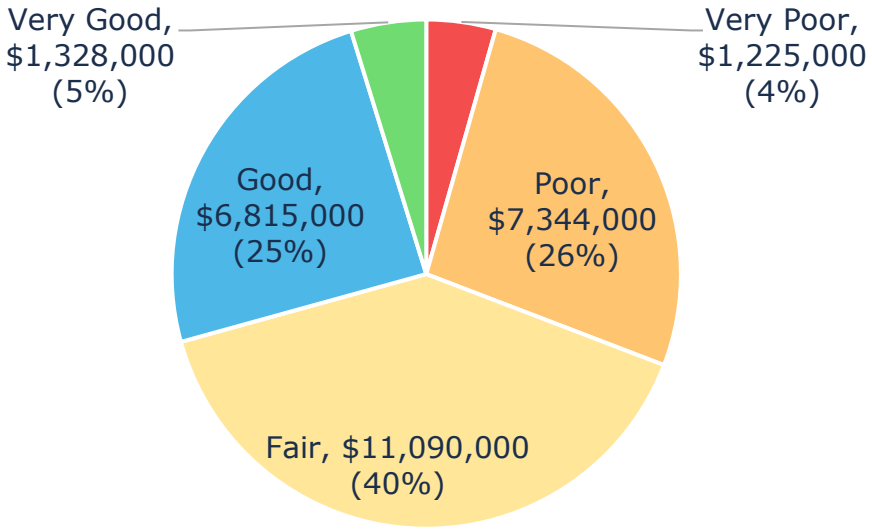


Figure 43 Asset Condition: Facilities Overall

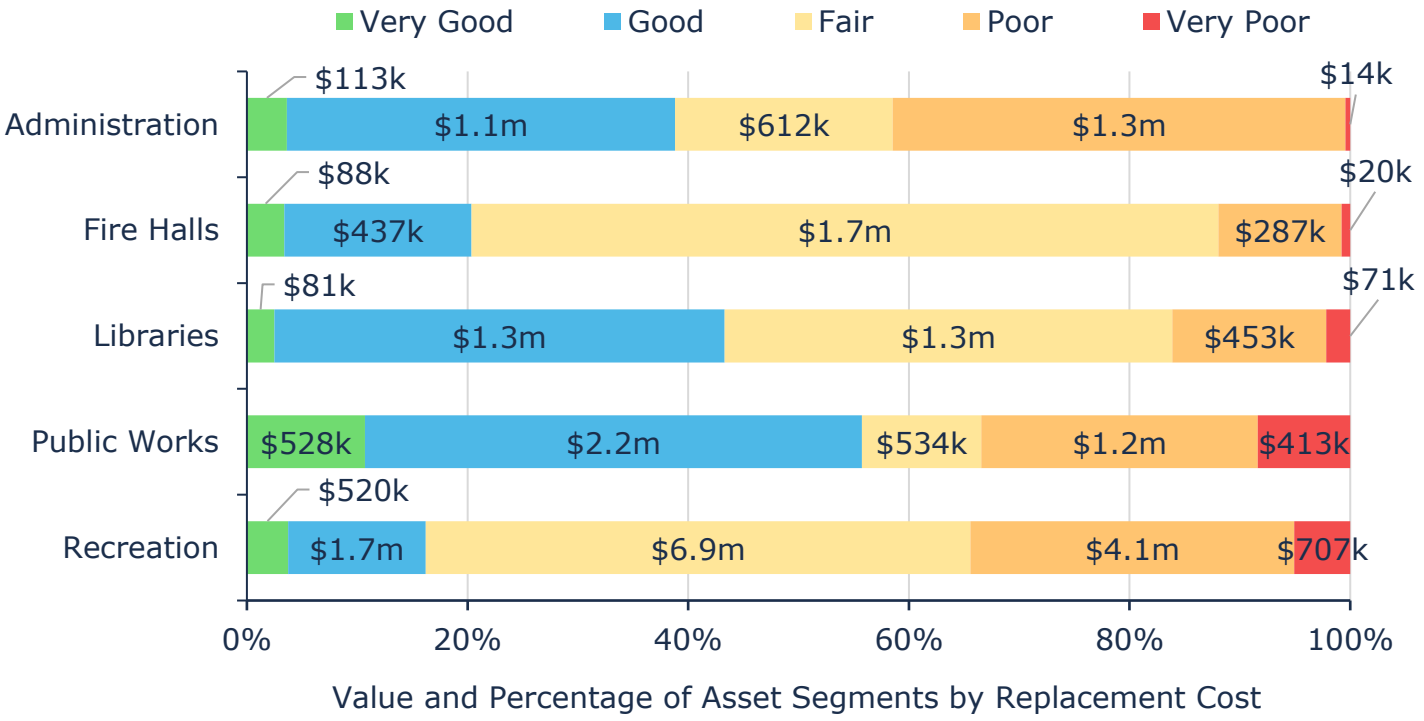


Figure 44 Asset Condition: Facilities by Segment

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.

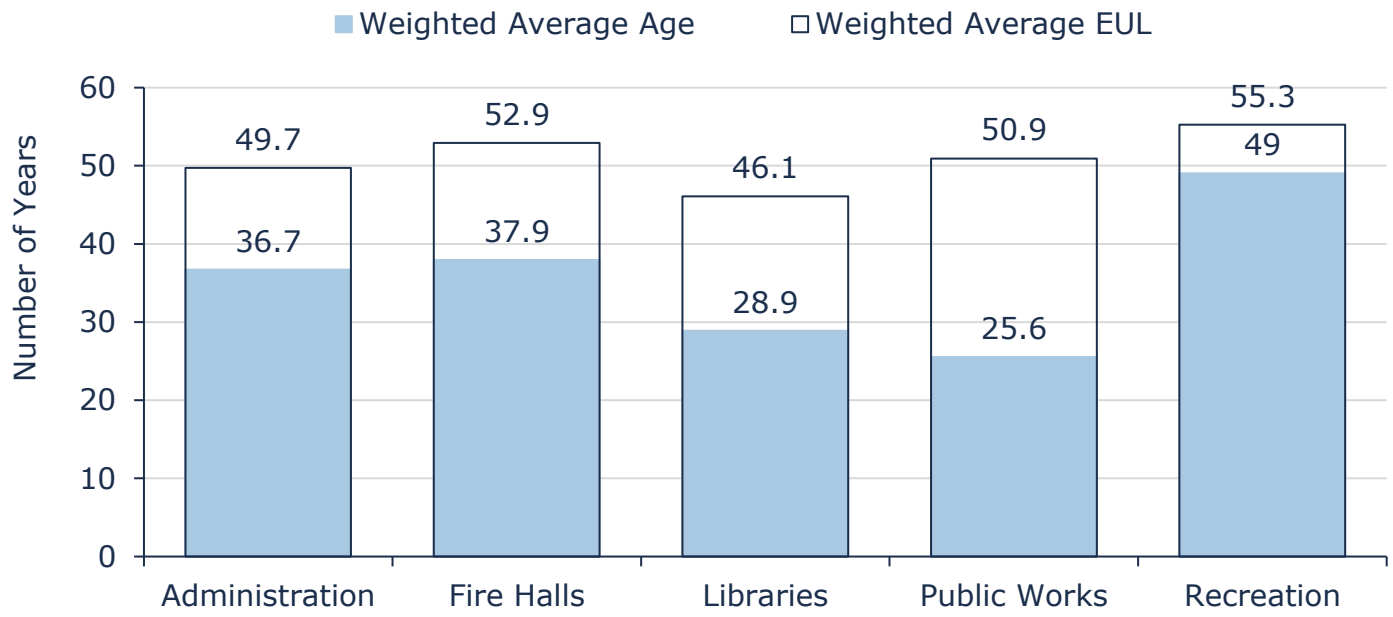


Figure 45 Estimated Useful Life vs. Asset Age: Facilities

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.

Table 41 outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Municipal buildings are subject to internal staff inspections to identify health & safety and accessibility requirements. Routine maintenance is conducted on an as needed basis.
Replacement	Facility condition assessment studies are conducted periodically. These studies assess facilities at a component level, suggesting a replacement schedule for components nearing the end of life. Replacement activities are conducted based on necessity and availability of funding

Table 41 Lifecycle Management Strategy: Facilities

9.5 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 Township 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 Township'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** $1,886,286 (7%)	5 - 7 **Low** $1,647,950 (6%)	8 - 9 **Moderate** $4,801,715 (17%)	10 - 14 **High** $6,586,200 (24%)	15 - 25 **Very High** $12,880,170 (46%)

Figure 46 Risk Matrix: Facilities

9.6 Levels of Service

The tables that follow summarize the Township's current levels of service. There are no specifically prescribed KPIs under Ontario Regulation 588/17 for non-core assets, therefore the KPIs below represent performance measures that the Township has selected for this AMP.

9.6.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Affordable	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed at municipal facilities	Refer to sections 9.2 & 9.4

Table 42 Community Levels of Service: Facilities

9.6.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Quality	Average Condition Rating (%)	58

Table 43 Technical Levels of Service: Facilities

9.7 Proposed Levels of Service

The scenarios that were used to analyze the Township's inventory were run for 65 years 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 Capital Reinvestment 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 Fair - this scenario utilizes a target average condition of 40% 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 Township's facilities.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	**$27,802,321**	47.9%	13.13	$707,000
Scenario 2 - Current Capital Investment Rate		23.5%	17.33	$214,000
Scenario 3 - Maintain Condition 40%		40.4%	14.37	$516,000

Table 44 O. Reg. 588/17 Proposed LOS: Facilities

9.7.1 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Administration	$55k	$26k	$2k	$167k	$350k	-	$26k	-	$255k	$57k
Fire Halls	$148k	$59k	$2k	$48k	$15k	$139k	$8k	-	$40k	$13k
Libraries	$215k	$41k	-	$45k	$240k	$10k	$45k	$105k	$4k	$271k
Public Works	$171k	$227k	$27k	$9k	$129k	$549k	$6k	-	-	$141k
Recreation	$1.2m	$80k	$30k	$706k	$136k	$383k	$42k	$1.8m	$211k	$249k
Total	**$1.8m**	**$432k**	**$60k**	**$976k**	**$871k**	**$1.1m**	**$127k**	**$2.0m**	**$510k**	**$731k**

Table 45: Facilities - 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 Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Fencing	8,411	Quantity	$319,725	CPI
Landscaping	7	Quantity	$660,864	CPI
Parking Lots	7	Quantity	$825,041	CPI
Parks & Equipment	43	Quantity	$837,302	CPI
Sport Fields	44	Quantity	$172,486	CPI
Total:			**$2,815,418**	

Table 46 Detailed Asset Inventory: Land Improvements

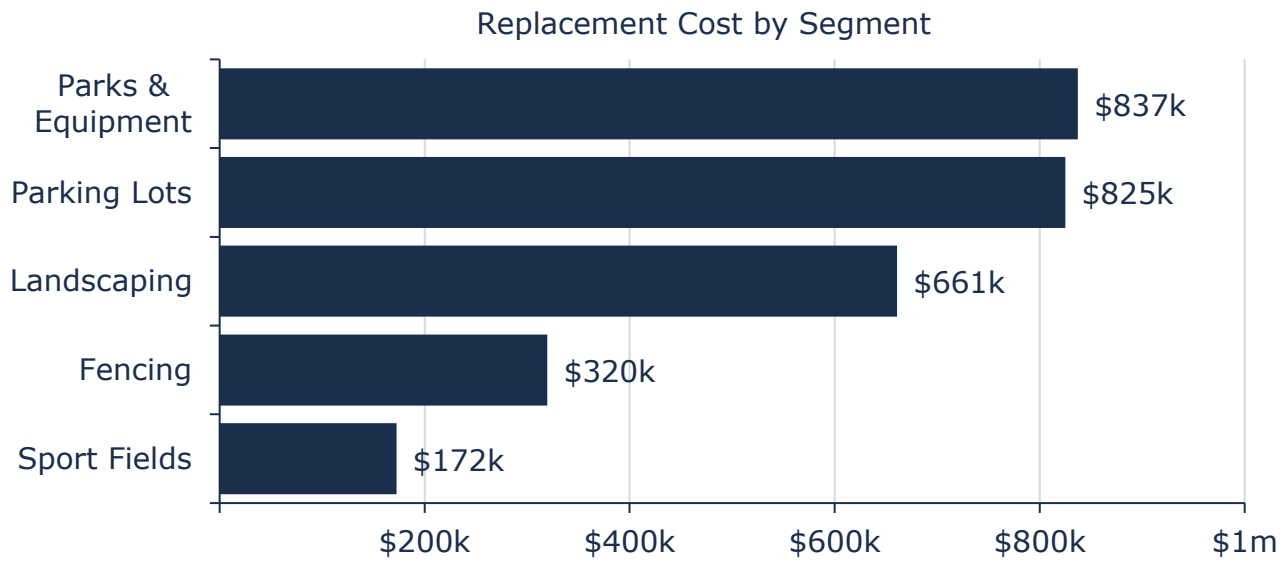


Figure 47 Portfolio Valuation: Land Improvements

10.2 Asset Condition

Figure 48 summarizes the replacement cost-weighted condition of the Township's land improvement portfolio. Based on age-based data, 78% of assets are in fair to better condition, while the remaining assets range from poor to worse. Assets in poor or very poor condition may

require short-term intervention, while fair condition assets should be monitored closely for further deterioration.

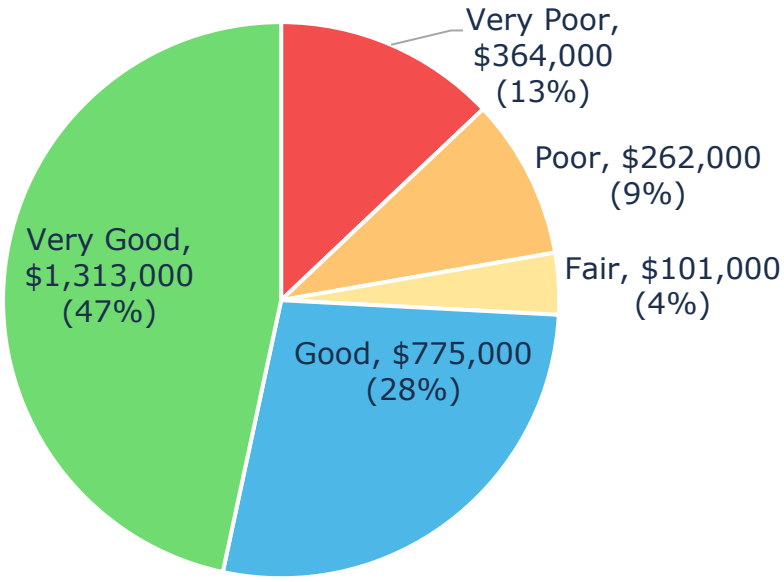


Figure 48 Asset Condition: Land Improvements Overall

Figure 49 summarizes the age-based condition of land improvements by each department. Assets in poor or worse condition are primarily concentrated in fencing and sport fields.

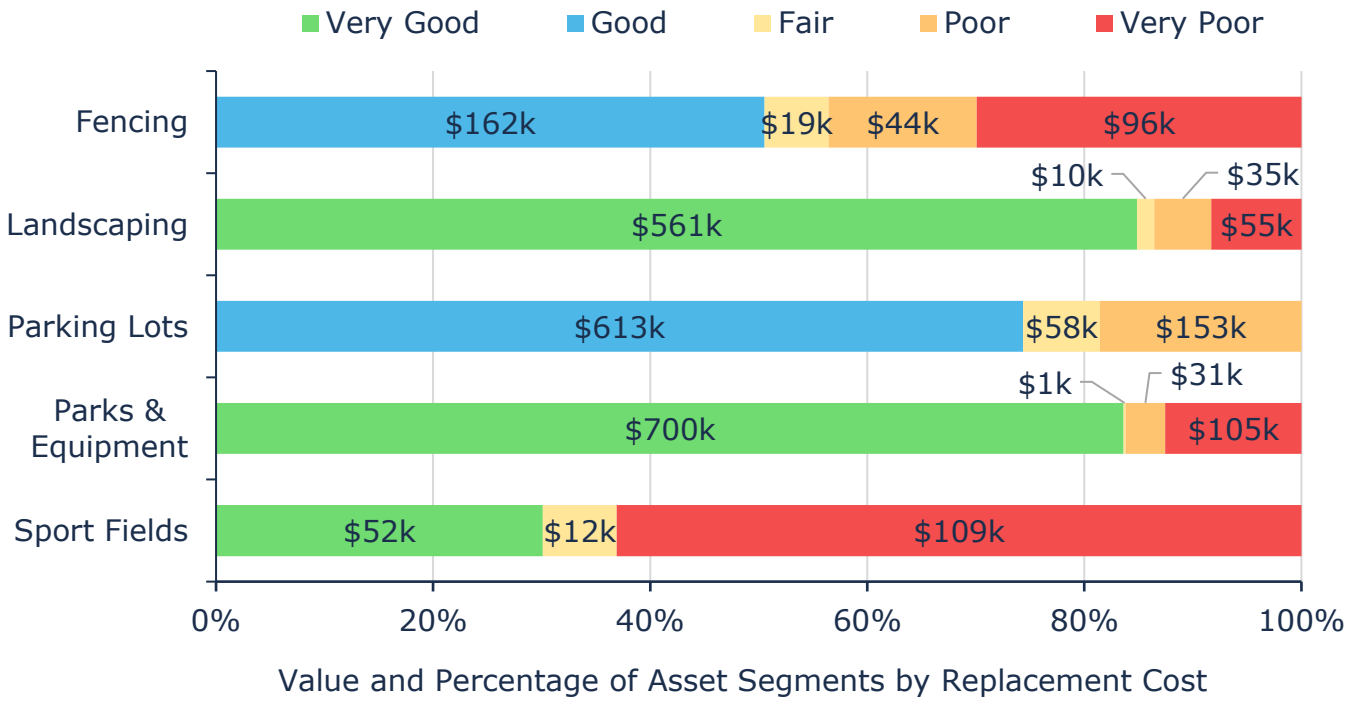


Figure 49 Asset Condition: Land Improvements by Segment

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.

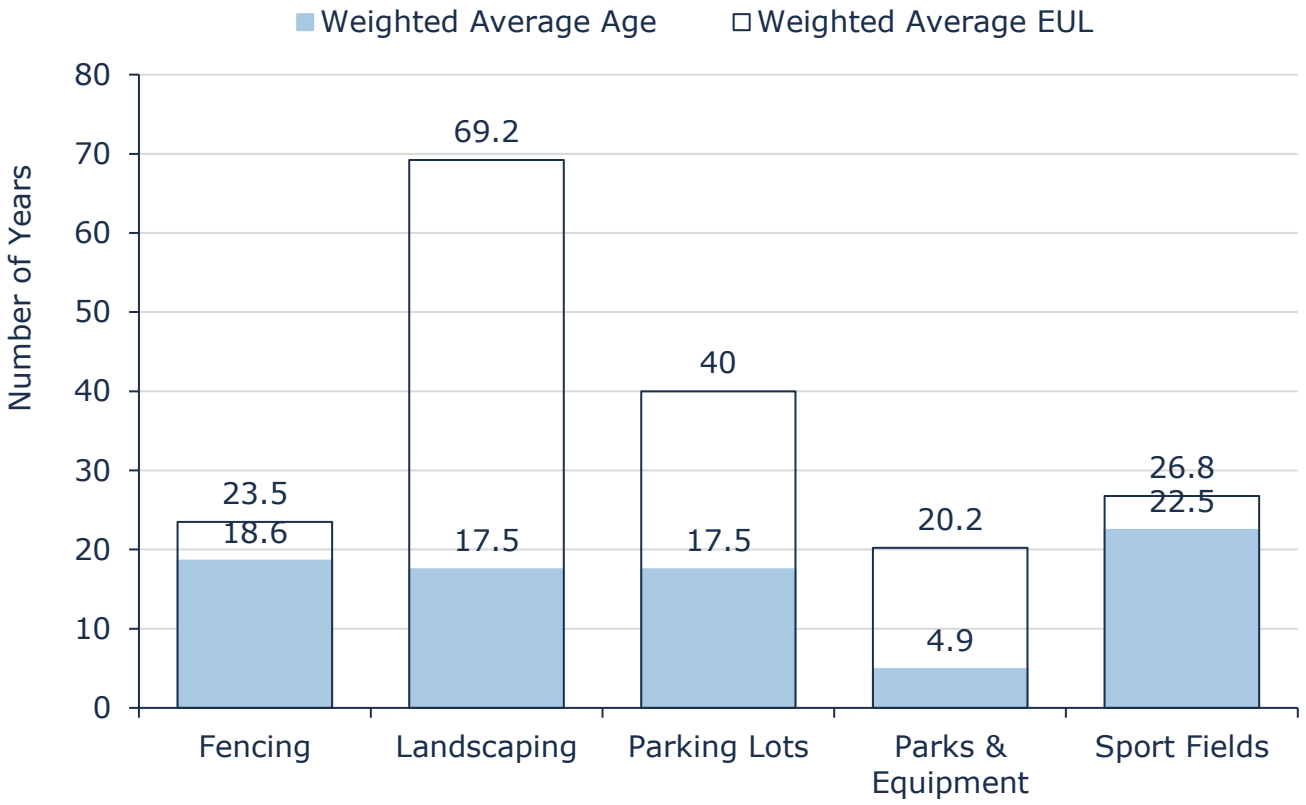


Figure 50 Estimated Useful Life vs. Asset Age: Land Improvements

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.

Table 47 outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation & Replacement	The land improvements asset category includes several unique asset types and lifecycle requirements are dealt with on a case-by-case basis. Regular inspections are carried out according to Canadian Standards Association (CSA) guidelines

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 Township 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 Township'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
$1,091,041 (39%)	$724,608 (26%)	$84,728 (3%)	$878,036 (31%)	$37,005 (1%)

Figure 51 Risk Matrix: Land Improvements

10.6 Levels of Service

The tables that follow summarize the Township's current levels of service. There are no specifically prescribed KPIs under Ontario Regulation 588/17 for non-core assets, therefore the KPIs below represent performance measures that the Township has selected for this AMP.

10.6.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Affordable	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on land improvement assets	Refer to sections 10.2 & 10.4

Table 48 Community Levels of Service: Land Improvements

10.6.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Quality	Average Condition Rating (%)	63

Table 49 Technical Levels of Service: Land Improvements

10.7 Proposed Levels of Service

The scenarios that were used to analyze the Township's inventory were run for 65 years 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 Capital Reinvestment 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 Fair - this scenario utilizes a target average condition of 40% 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 Township's Land Improvements.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	**$2,815,418**	48.9%	11.18	$102,000
Scenario 2 - Current Capital Investment Rate		24.0%	14.87	$31,000
Scenario 3 - Maintain Condition 40%		44.3%	11.66	$89,000

Table 50 O. Reg. 588/17 Proposed LOS: Land Improvements

10.7.1 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Fencing	$14k	$3k	-	-	-	-	-	$25k	-	-
Landscaping	-	-	-	-	-	$10k	-	-	-	-
Parking Lots										
Parks & Equipment	$34k	$19k	$17k	$13k	$6k	$4k	$9k	-	-	-
Sport Fields	-	-	-	-	-	-	-	-	-	$8k
Total	**$49k**	**$22k**	**$17k**	**$13k**	**$7k**	**$14k**	**$9k**	**$25k**	**-**	**$8k**

Table 51: Land Improvements - 10-Year Capital Forecast

11. Vehicles

11.1 Inventory & Valuation

Table 52 summarizes the quantity and current replacement cost of all vehicle assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Bylaw	3	Quantity	$129,080	CPI
Fire	9	Quantity	$2,788,499	User-Defined
Parks & Recreation	1	Quantity	$73,955	CPI
Public Works	12	Quantity	$1,823,064	CPI
TOTAL			**$4,815,000**	

Table 52 Detailed Asset Inventory: Vehicles

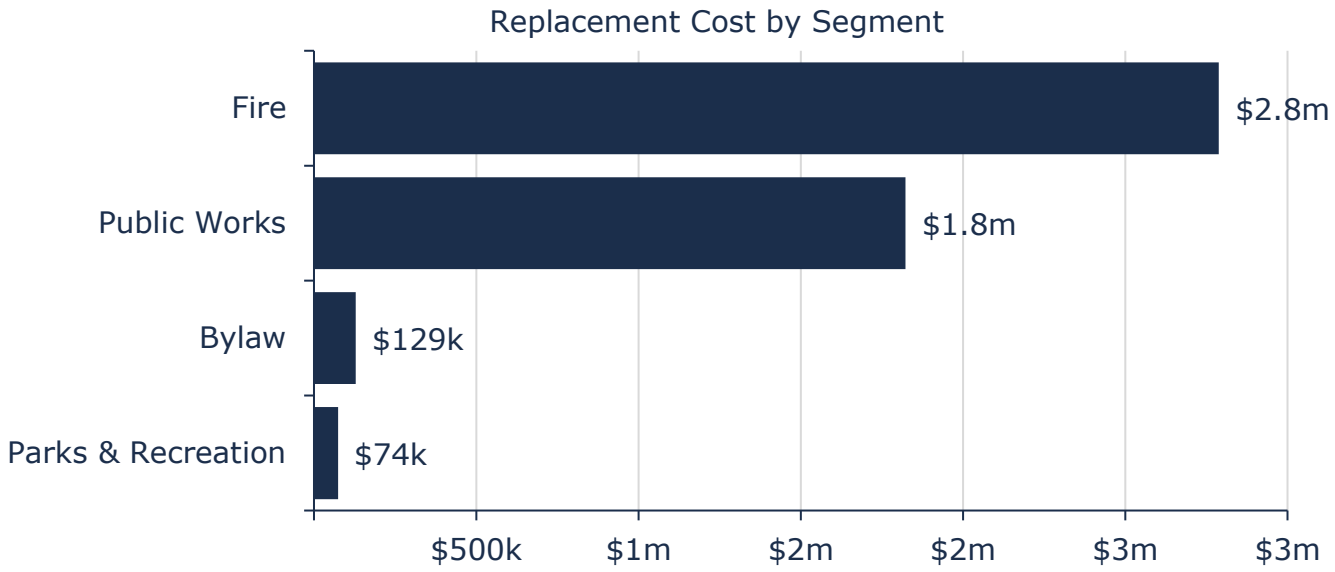


Figure 52 Portfolio Valuation: Vehicles

11.2 Asset Condition

Figure 53 summarizes the replacement cost-weighted condition of the Township's vehicles portfolio. Based primarily on age-based data, 25% of vehicles are in fair or better condition, with the remaining 75% 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.

Age was used as an approximation of condition for these assets. Age-based condition estimations can skew data and lead to potential under- or overstatement of asset needs.

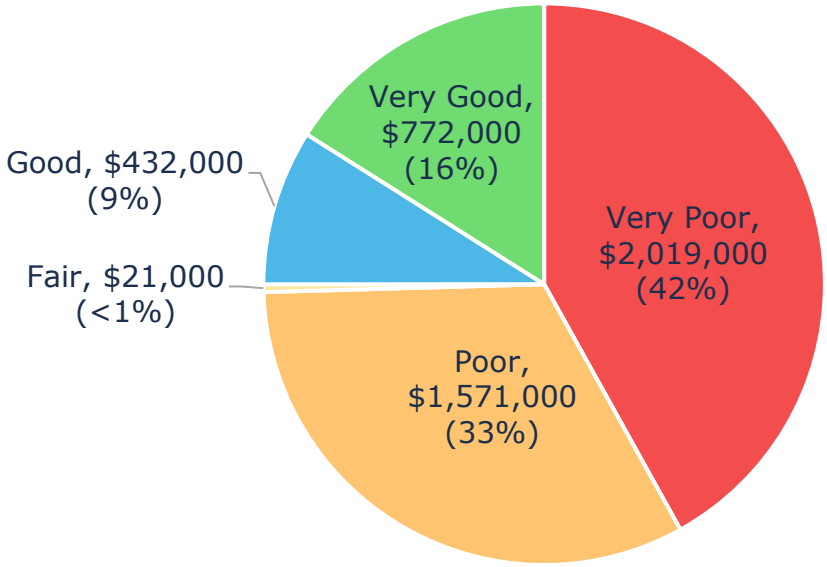


Figure 53 Asset Condition: Vehicles Overall

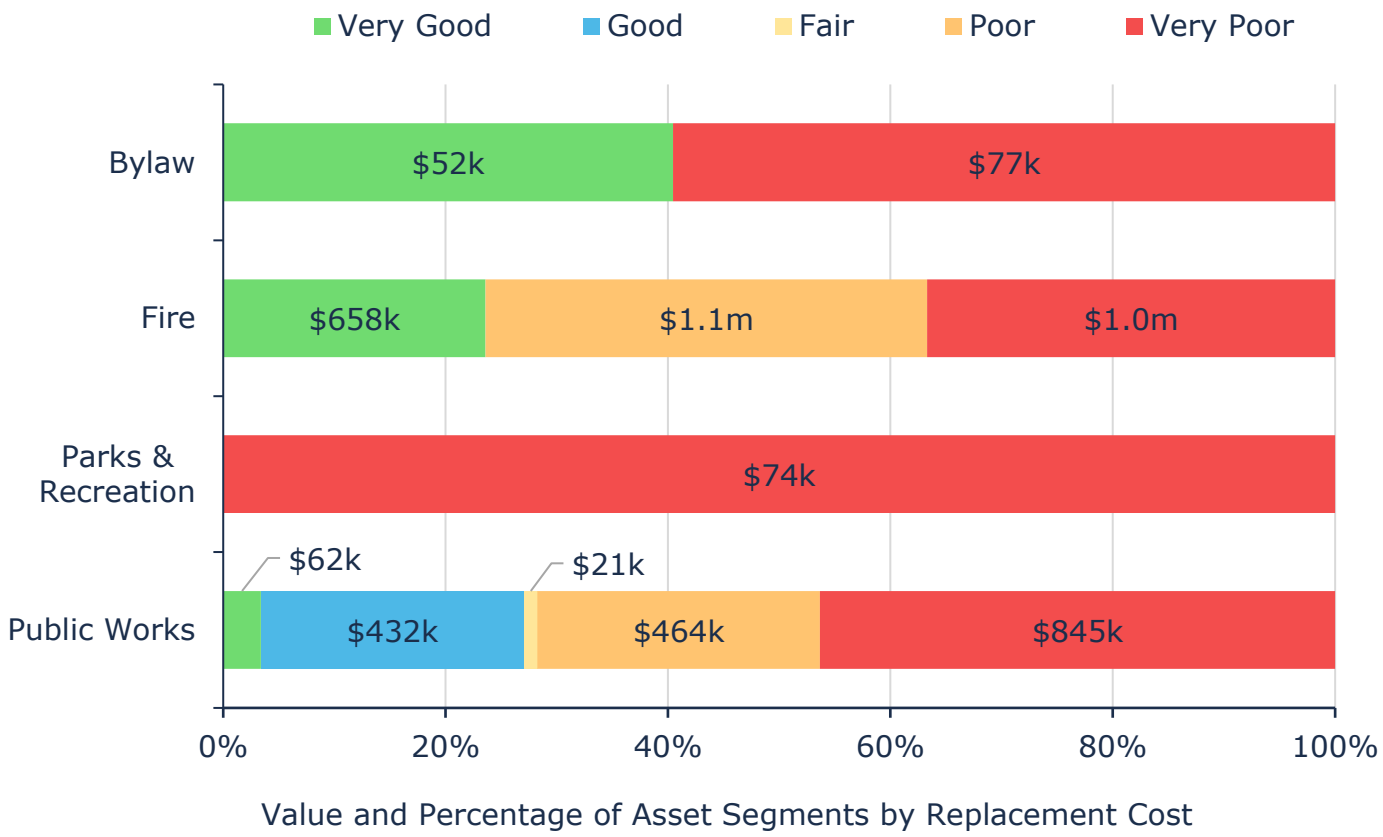


Figure 54 Asset Condition: Vehicles by Segment

11.3 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 55 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.

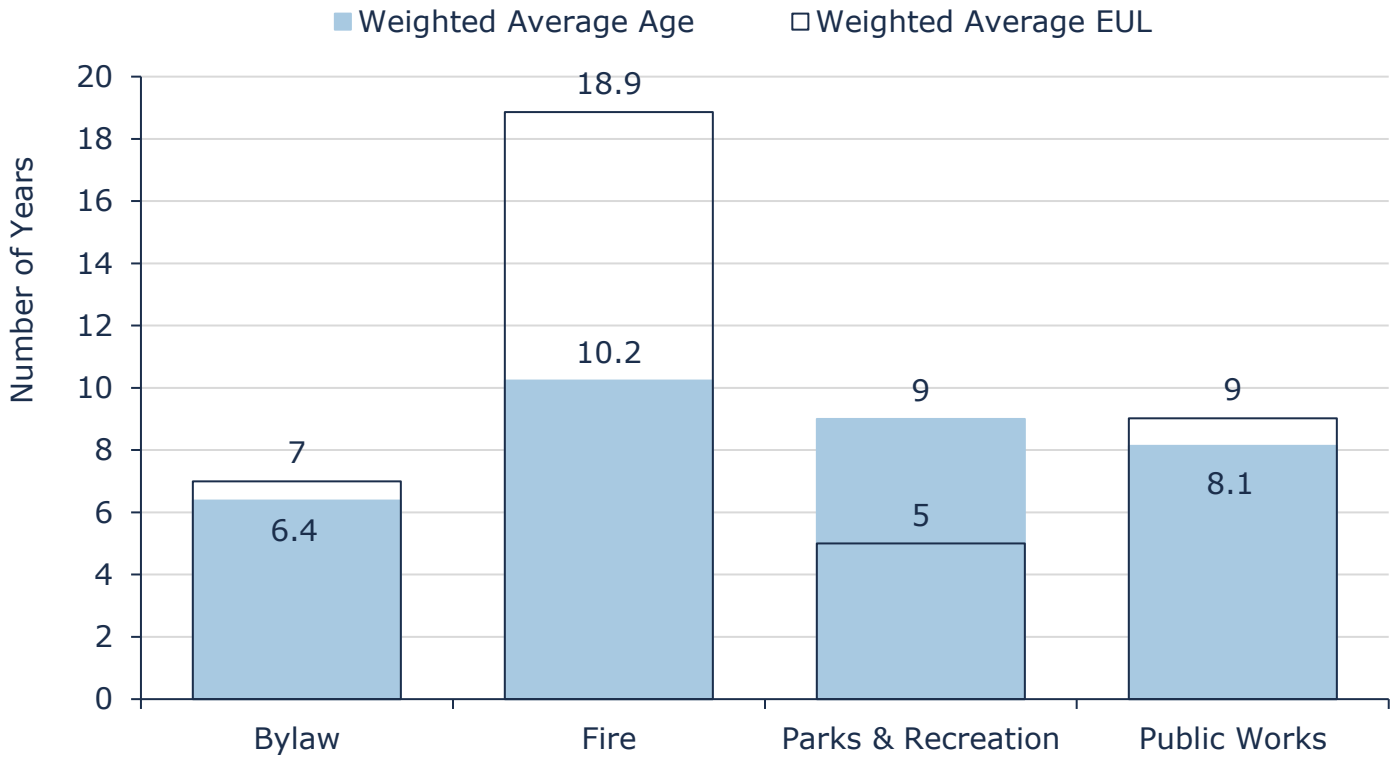


Figure 55 Estimated Useful Life vs. Asset Age: Vehicles

11.4 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 Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Visual inspections completed and documented on a regular basis.
	Annual preventative maintenance activities include system components check and additional detailed inspections.
Replacement	Vehicle age, kilometers and annual repair costs are taken into consideration when determining appropriate treatment options.

Table 53 Lifecycle Management Strategy: Vehicles

11.5 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 Township'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	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$979,000	$516,000	$341,000	$1,303,000	$1,676,000
(20%)	(11%)	(7%)	(27%)	(35%)

Figure 56 Risk Matrix: Vehicles

11.6 Levels of Service

The tables that follow summarize the Township's current levels of service. There are no specifically prescribed KPIs under Ontario Regulation 588/17 for non-core assets, therefore the KPIs below represent performance measures that the Township has selected for this AMP.

11.6.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Affordable	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on vehicles	Refer to sections 11.2 & 11.4

Table 54 Community Levels of Service: Vehicles

11.6.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Quality	Average Condition Rating (%)	34

Table 55 Technical Levels of Service: Vehicles

11.7 Proposed Levels of Service

The scenarios that were used to analyze the Township's inventory were run for 20 years 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 Capital Reinvestment 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 Fair - this scenario utilizes a target average condition of 40% 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 Township's vehicles.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	**$4,815,000**	48.4%	10.68	$427,000
Scenario 2 - Current Capital Investment Rate		16.7%	15.7	$129,000
Scenario 3 - Maintain Condition 40%		43.8%	11.21	$349,000

Table 56 O. Reg. 588/17 Proposed LOS: Vehicles

11.7.1 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Bylaw	$43k	-	-	-	-	-	$52k	$77k	-	-
Fire	-	-	$60k	$597k	$530k	$940k	-	$323k	-	$55k
Parks & Recreation	-	-	-	-	-	$74k	-	-	-	-
Public Works	-	$141k	$21k	$392k	-	$195k	$425k	$33k	$69k	$141k
Total	**$43k**	**$141k**	**$81k**	**$989k**	**$530k**	**$1.2m**	**$477k**	**$433k**	**$69k**	**$196k**

Table 57: Vehicles - 10-Year Capital Forecast

12. Machinery & Equipment

12.1 Inventory & Valuation

Table 58 summarizes the quantity and current replacement cost of all machinery & equipment available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Administration	141	Quantity	$560,388	CPI
Fire	947	Quantity	$1,751,185	User-Defined
Library	977	Quantity	$288,854	CPI
Public Works	26	Quantity	$1,308,184	CPI
Recreation	214	Quantity	$965,554	CPI
Solid Waste	20	Quantity	$263,675	CPI
TOTAL			**$5,147,608**	

Table 58 Detailed Asset Inventory: Machinery & Equipment

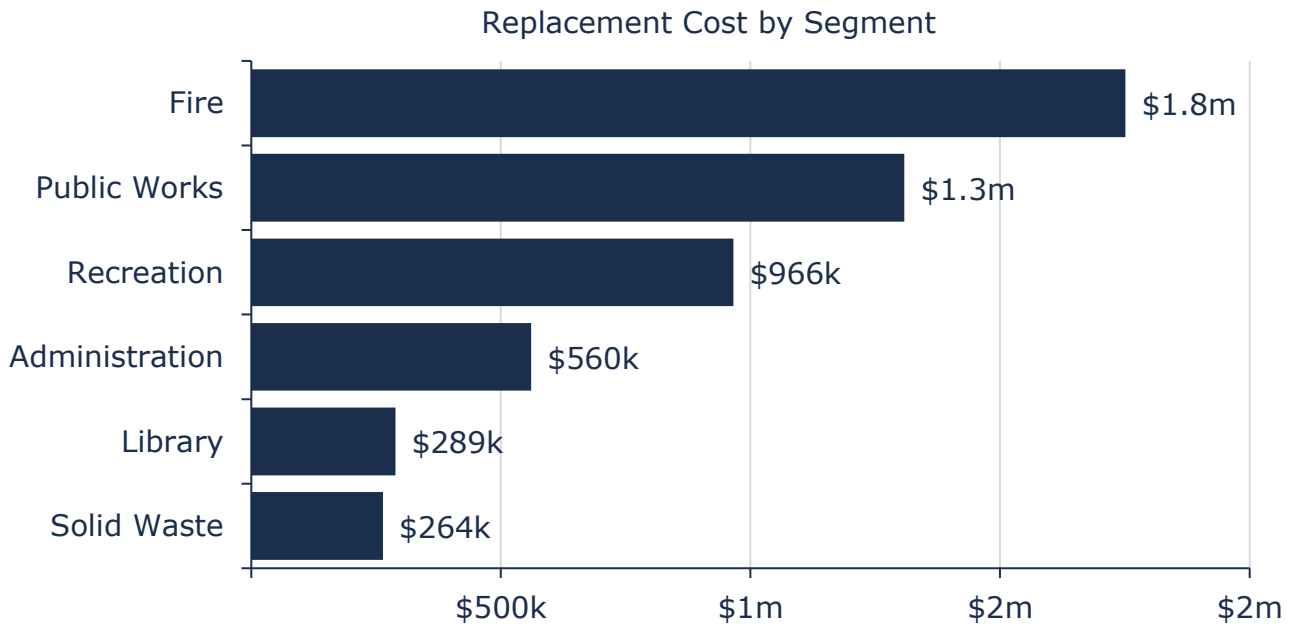


Figure 57 Portfolio Valuation: Machinery & Equipment

12.2 Asset Condition

Figure 58 summarizes the replacement cost-weighted condition of the Township's machinery and equipment portfolio. Based on age-based data, 36% of assets are in fair or better condition and the remaining 64% of assets are in poor 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.

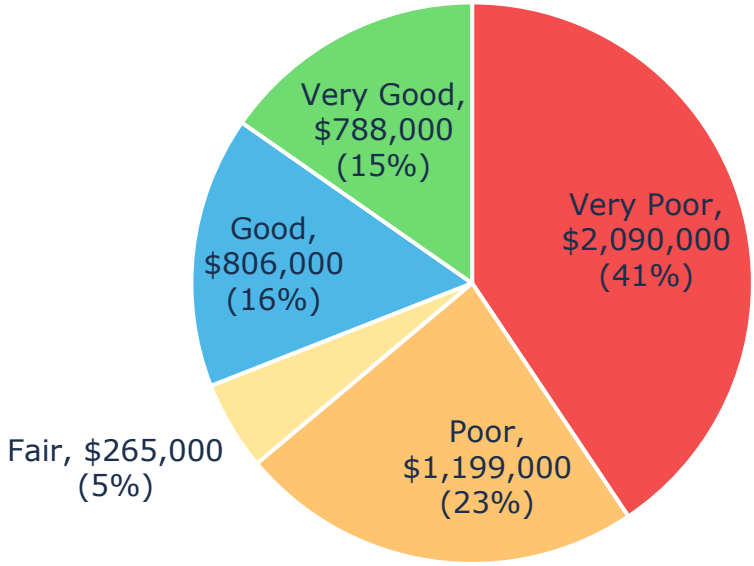


Figure 58 Asset Condition: Machinery & Equipment Overall

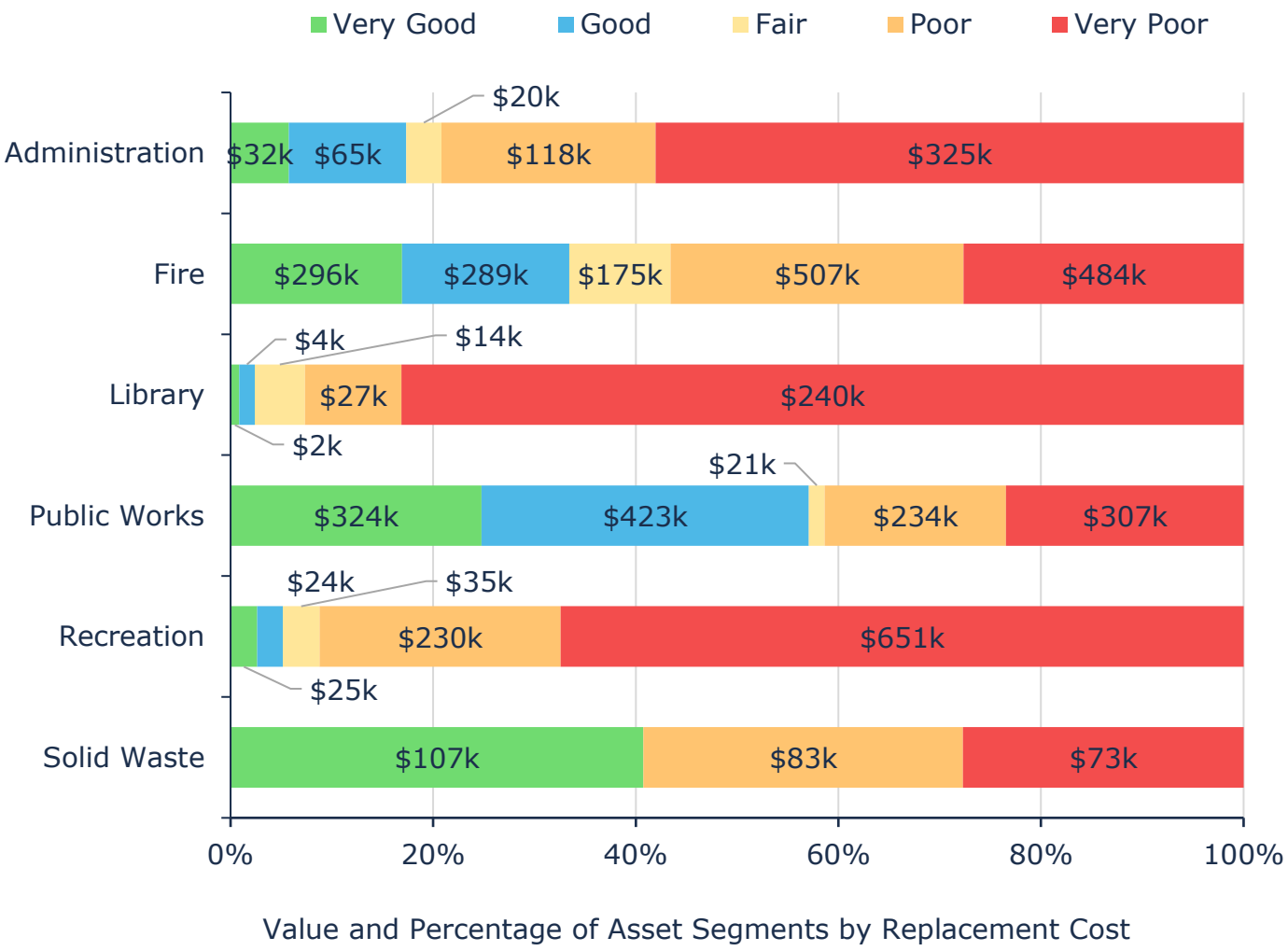


Figure 59 Asset Condition: Machinery & Equipment by Segment

12.3 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 60 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.

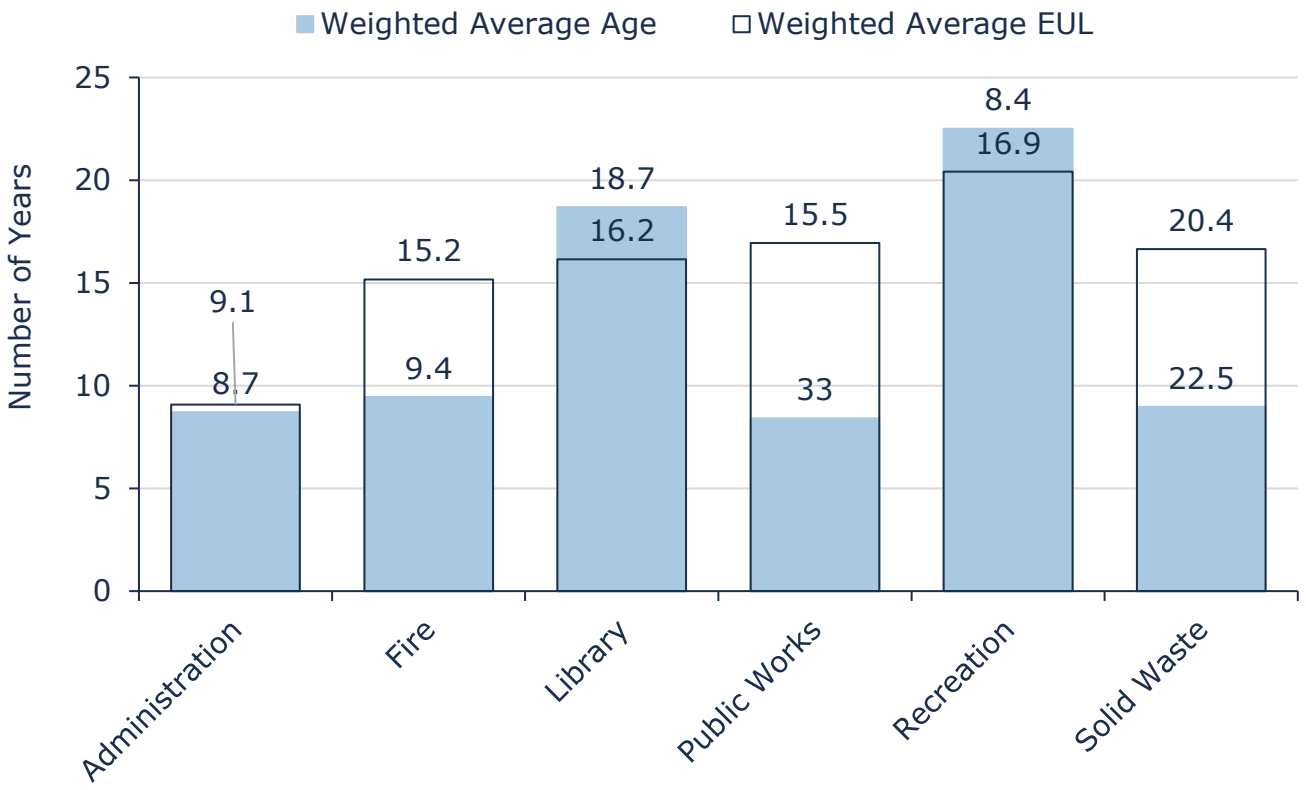


Figure 60 Estimated Useful Life vs. Asset Age: Machinery & Equipment

12.4 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 Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Maintenance program varies by department
	Machinery and equipment is maintained according to manufacturer recommended actions and supplemented by the expertise of municipal staff
Replacement	The replacement of machinery and equipment depends on deficiencies identified by operators that may impact their ability to complete required tasks

Table 59 Lifecycle Management Strategy: Machinery & Equipment

12.5 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 Township 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 Township'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**
$1,384,185 (27%)	$870,857 (17%)	$673,713 (13%)	$1,243,326 (24%)	$975,527 (19%)

Figure 61 Risk Matrix: Machinery & Equipment

12.6 Levels of Service

The tables that follow summarize the Township's current levels of service. There are no specifically prescribed KPIs under Ontario Regulation 588/17 for non-core assets, therefore the KPIs below represent performance measures that the Township has selected for this AMP.

12.6.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Affordable	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on machinery & equipment assets	Refer to sections 12.2 & 12.4

Table 60 Community Levels of Service: Machinery & Equipment

12.6.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Quality	Average Condition Rating (%)	34

Table 61 Technical Levels of Service: Machinery & Equipment

12.7 Proposed Levels of Service

The scenarios that were used to analyze the Township's inventory were run for 25 years 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 Capital Reinvestment 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 Fair - this scenario utilizes a target average condition of 40% 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 Township's bridges & culverts.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	**$5,147,608**	48.9%	8.05	$408,000
Scenario 2 - Current Capital Investment Rate		17.8%	11.82	$124,000
Scenario 3 - Maintain Condition 40%		40.7%	8.69	$32,000

Table 62 O. Reg. 588/17 Proposed LOS: Machinery & Equipment

12.7.1 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Administration	$63k	$68k	$76k	$72k	$29k	$146k	$21k	$21k	$47k	$6k
Fire	$92k	$107k	$76k	$107k	$310k	$119k	$138k	$75k	$96k	$138k
Library	$21k	$27k	$14k	$1k	$9k	$52k	$61k	$90k	$26k	$17k
Medical	$4k	-	-	-	-	-	-	-	-	-
Public Works	$65k	-	-	$223k	-	$40k	$12k	-	$7k	$171k
Recreation	-	$6k	$11k	$120k	$34k	$33k	-	$80k	$10k	$7k
Solid Waste	$13k	$19k	-	$83k	-	-	-	-	-	-
Total	**$258k**	**$228k**	**$177k**	**$607k**	**$382k**	**$390k**	**$232k**	**$267k**	**$186k**	**$339k**

Table 63: Machinery & Equipment - 10-Year Capital Forecast

Strategies

Growth

Financial Strategy

13. 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 Township 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.

13.1 Township of Havelock-Belmont-Methuen Official Plan

The Township adopted the Official Plan in 2012 to ensure conformance with the County of Peterborough Official Plan, and address matters of local planning interest. The Official Plan is a planning document for the purpose of guiding the future development of the Township of Havelock-Belmont-Methuen.

Key settlement areas have been identified in the Official plan to accommodate population growth.

Over the next 20 years, from 2012, the Township is expected to grow by 9.2% or approximately 375 persons. The focus of these settlement areas is to optimize the use of public services and infrastructure, and to minimize outward sprawl of development into areas of natural resources and natural heritage.

13.2 County of Peterborough Official Plan (2022)

The Growth Plan for the Greater Golden Horseshoe (the "Growth Plan") and its Amendment 1 was approved by the Lieutenant Governor in Council to take effect on August 28, 2020. The Plan emphasis on optimizing the use of existing infrastructure and services public service facilities before expanding the urban area. The Growth Plan establishes the population and employment forecasts for County of Peterborough to 2051 as follows: Population 82,000, Employment 26,000.

The County of Peterborough Official Plan is responsible for allocating growth among the eight local municipalities based on a combination of local factors including: local planning policy; historic and recent growth trends; market demand; and the capacity to accommodate growth from land supply and servicing perspectives. The County has allocated 6% percent of the new population growth in the County to the Township of Havelock-Belmont-Methuen.

13.3 Impact of Growth on Lifecycle Activities

As the municipality continues to evolve in the coming years, so will demand. Consequently, it is likely that funding will need to be reprioritized.

As growth-related assets are acquired, constructed, or retired, updated records should be integrated into the Township's asset register, and consequently, its asset management plan. Additionally, the municipality should continue to review the lifecycle costs of growth-related infrastructure. These costs should be considered in long-term funding strategies that are designed to achieve the municipality's proposed levels of service.

14. 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 Township of Havelock-Belmont-Methuen 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:

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

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 Township's approach to the following:

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

14.1 Annual Requirements & Capital Funding

14.1.1 Annual Requirements

The annual requirements represent the amount the Township 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 Township must allocate approximately $4.0 million annually to address capital requirements for the assets included in this AMP.

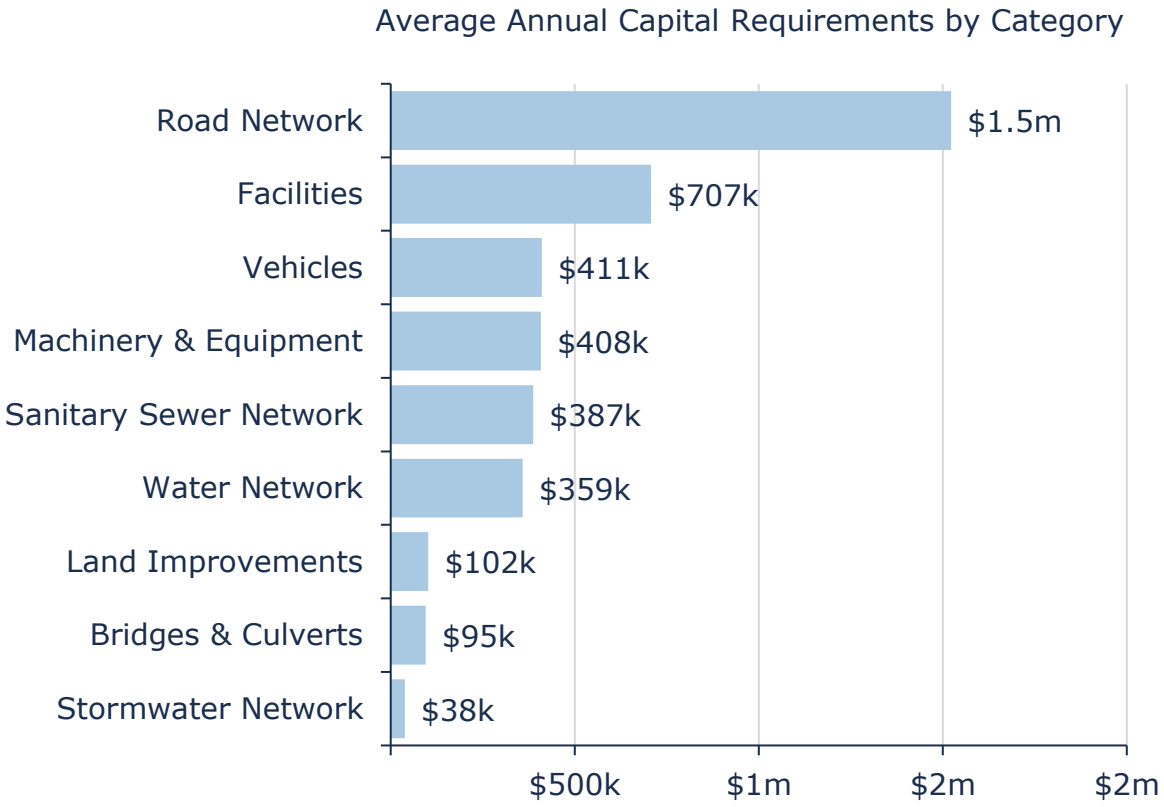


Figure 62 Annual Capital Funding Requirements by Asset Category

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:

- **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.
- **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 Township, we have used these annual requirements in the development of the financial strategy.

14.1.2 Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $3.2 million towards capital projects per year. Given the annual capital requirement of $4.0 million, there is currently a funding gap of $800,000 annually.

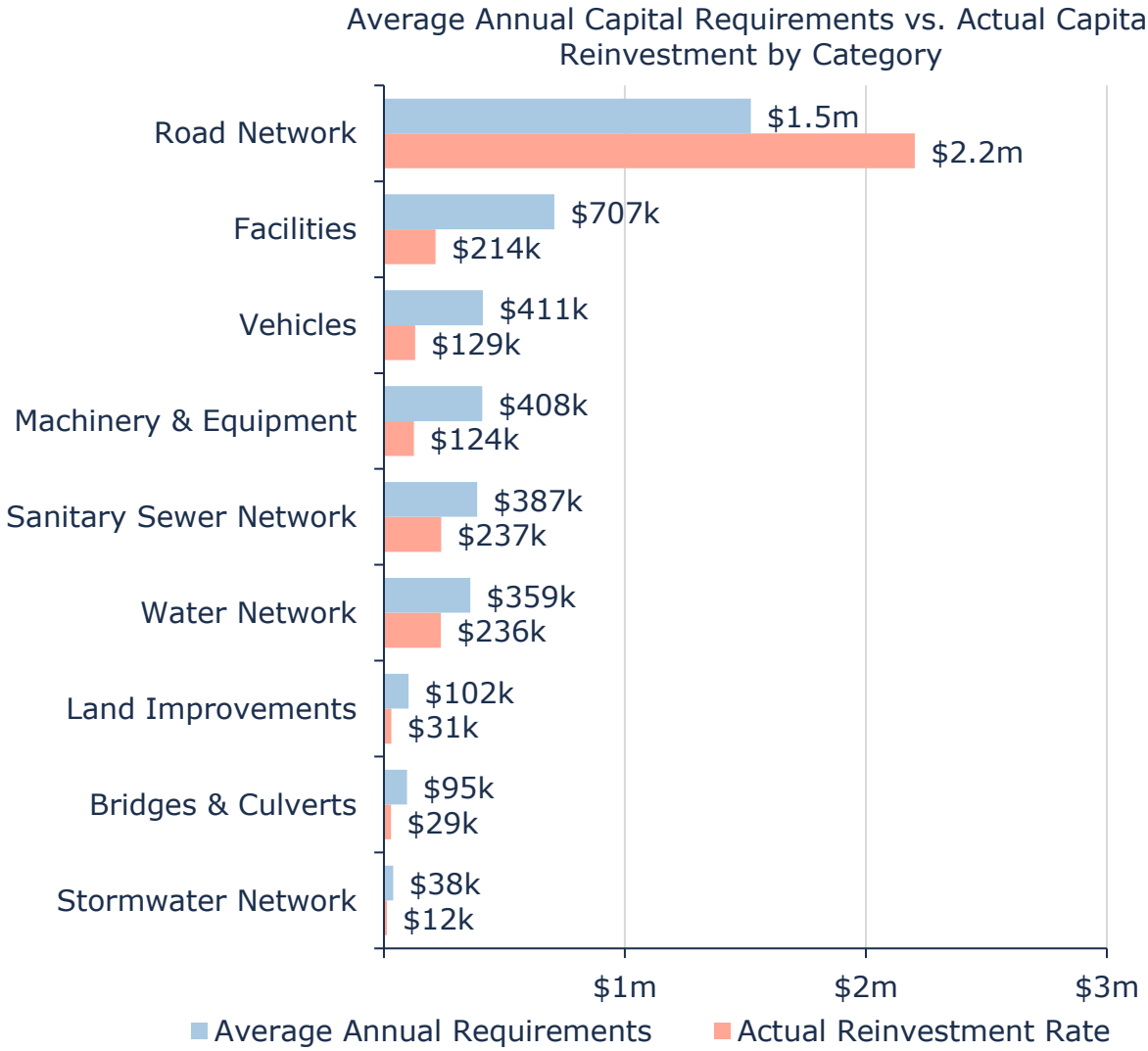


Figure 63 Annual Requirements vs. Capital Funding Available

14.2 Funding Objective

We have developed a scenario that would enable Havelock-Belmont-Methuen to achieve full funding within 1 to 20 years for the following assets:

- **Tax Funded Assets:** road network, bridges & culverts, stormwater network, facilities, land improvements, vehicles, and machinery & equipment
- **Rate Funded Assets:** water network and sanitary sewer network

14.3 Financial Profile: Tax Funded Assets

14.3.1 Current Funding Position

The following tables show, by asset category, the 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
		Taxes to Reserves	Government Transfers	Aggregate Resources Trust	Total Available	
Bridges & Culverts	$95,000	$29,000			$29,000	$66,000
Facilities	$707,000	$214,000			$214,000	$493,000
Land Improvements	$102,000	$31,000			$31,000	$71,000
Machinery & Equipment	$408,000	$124,000			$124,000	$284,000
Road Network	$1,522,000	$461,000	$1,580,000[9]	$162,000	$2,203,000	$-681,000
Stormwater Network	$38,000	$12,000			$12,000	$26,000
Vehicles	$427,000	$129,000			$129,000	$298,000
Total	**$3,299,000**	**$1,000,000**	**$1,580,000**	**$162,000**	**$2,742,000**	**$557,000**

Table 64 Annual Available Funding for Tax Funded Assets

The average annual investment requirement for the above categories is 3.299 million. Annual revenue currently allocated to these assets for capital purposes is $2.742 million leaving an annual deficit of $557 thousand. Put differently, these infrastructure categories are currently funded at 83.1% of their long-term requirements.

[9] CCBF ($160,000), OCIF ($180,000), OMPF ($1,240,000)

14.3.2 Full Funding Requirements

In 2024, the Township of Havelock-Belmont-Methuen had budgeted annual tax revenues of approximately $7.9 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:

Asset Category	Tax Change Required for Full Funding
Bridges & Culverts	0.8%
Facilities	6.2%
Land Improvements	0.9%
Machinery & Equipment	3.6%
Road Network	-8.6%[10]
Stormwater Network	0.3%
Vehicles	3.8%
Weighted Average Total	**7.0%**

Table 65 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	$557,000	$557,000	$557,000	$557,000
Change in Debt Costs	N/A	N/A	N/A	N/A
Resulting Infrastructure Deficit:	**$557,000**	**$557,000**	**$557,000**	**$557,000**
Tax Increase Required	7.0%	7.0%	7.0%	7.0%
Annually:	**1.4%**	**0.7%**	**0.5%**	**0.4%**

Table 66 Tax Increase Options 5-20 Years

[10] A negative funding figure 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.

14.3.3 Financial Strategy Recommendations

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

- increasing tax revenues by 0.7% each year for the next 10 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
- allocating CCBF, OCIF, and OMPF revenue as outlined previously.
- reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
- increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

- 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.[11]
- 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. Alternatively, Municipality's should consider a downward revision of certain service levels.
- The Township is currently in the process of applying for substantial funding (HEWSF) that will have an impact on the roads, stormwater, water and sanitary networks. Although not yet approved, the related project is expected to run until 2027. The Township would receive approximately $11 million in funding for the mentioned asset classes.[12] This will have a multivariate impact - from the Township's asset management register to its proposed levels of service KPIs, and consequently, the 10-year financial strategy. As per Ontario Regulation 588/17, the Township will conduct a review of its asset management plan on an annual basis. At that time, it is recommended that the Township's asset register be updated so that proposed level of service KPIs can be adjusted accordingly, if necessary.

Although this option achieves full funding on an annual basis in 10 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows the pent-up investment demand of $2.7 million in backlog, for tax-funded assets.

[11] The Township 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.
[12] Provincial funding source accounting for 73% ($11,027,420)

14.4 Financial Profile: Rate Funded Assets

14.4.1 Current Funding Position

The following tables show, by asset category, Havelock-Belmont-Methuen'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
		Rates	CCBF	OCIF	Total Available	
Water Network	$359,000	$548,000	$0	0	$236,000	$123,000
Sanitary Sewer Network	$387,000	$502,000	$0	0	$237,000	$150,000
Total	**$746,000**	**$1,050,000**	**$0**	**0**	**$473,000**	**$273,000**

Table 67 Annual Available Funding for Rate Funded Assets

The average annual investment requirement for the above categories is $746 thousand. Annual revenue currently allocated to these assets for capital purposes is $437 thousand leaving an annual deficit of $273 thousand. Put differently, these infrastructure categories are currently funded at 63.4% of their long-term requirements.

14.4.2 Full Funding Requirements

In 2024, the Township of HBM has annual water and sanitary revenues of $548,000 and $502,000 respectively. As illustrated in the table below, without consideration of any other sources of revenue, full funding would require the following changes over time:

Asset Category	Rate Change Required for Full Funding
Water Network	22.4%
Sanitary Sewer Network	29.9%

Table 68 Rate 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:

	Water Network			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	$123,000	$123,000	$123,000	$123,000
Rate Increase Required	22.4%	22.4%	22.4%	22.4%
Annually:	**4.5%**	**2.2%**	**1.5%**	**1.1%**

Table 69 Water Rate Increase Options 5-20 Years

	Sanitary Sewer Network			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	$150,000	$150,000	$150,000	$150,000
Rate Increase Required	29.9%	29.9%	29.9%	29.9%
Annually:	**6.0%**	**3.0%**	**2.0%**	**1.5%**

Table 70 Sanitary Rate Increase Options 5-20 Years

14.4.3 Financial Strategy Recommendations

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

- increasing revenues by 3.0% for sanitary services and 2.2% for water services each year for the next 20 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
- increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

- As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. This periodic funding should not be incorporated into an AMP unless there are firm commitments in place.
- We realize that raising rate revenues 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.
- The Township is currently in the process of applying for substantial funding (HEWSF) that will have an impact on the roads, stormwater, water and sanitary networks. Although not yet approved, the related project is expected to run until 2027. The Township would receive approximately $11 million in funding for the mentioned asset classes.[13] This will

[13] Provincial funding source accounting for 73% ($11,027,420).

have a multivariate impact - from the Township's asset management register to its proposed levels of service KPIs, and consequently, the 10-year financial strategy. As per Ontario Regulation 588/17, the Township will conduct a review of its asset management plan on an annual basis. At that time, it is recommended that the Township's asset register be updated so that proposed level of service KPIs can be adjusted accordingly, if necessary.
- Any increase in rates required for operations would be in addition to the above recommendations.

Although this option achieves full funding on an annual basis in 10 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows the pent-up investment demand of $6.0 million in backlog, for rate-funded assets.

14.5 Use of Debt

Debt can be strategically utilized as a funding source within the long-term financial plan. The benefits of leveraging debt for infrastructure planning include:

- the ability to stabilize tax & user rates when dealing with variable and sometimes uncontrollable factors
- equitable distribution of the cost/benefits of infrastructure over its useful life
- a secure source of funding
- flexibility in cash flow management

The Township has no debt on the assets included in this asset management plan. The revenue options outlined in this plan allow Havelock-Belmont-Methuen to fully fund its long-term infrastructure requirements without the use of debt.

14.6 Use of Reserves

14.6.1 Available Reserves

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

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

By asset category, the table below outlines the details of the reserves currently available to Havelock-Belmont-Methuen.

Asset Category	Balance at December 31, 2024
Bridges & Culverts	$129,000
Facilities	$3,172,000
Land Improvements	$262,000
Machinery & Equipment	$1,976,000
Road Network	$2,420,000
Stormwater Network	$129,000
Vehicles	$1,753,000
Total Tax Funded:	**$9,841,000**
Water Network	$831,000
Sanitary Sewer Network	$1,295,000
Total Rate Funded:	**$2,126,000**

Table 71 Havelock-Belmont-Methuen Reserve Balances

There is considerable debate in the municipal sector as to the appropriate level of reserves that a Township 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:

- breadth of services provided
- age and condition of infrastructure
- use and level of debt
- economic conditions and outlook
- internal reserve and debt policies.

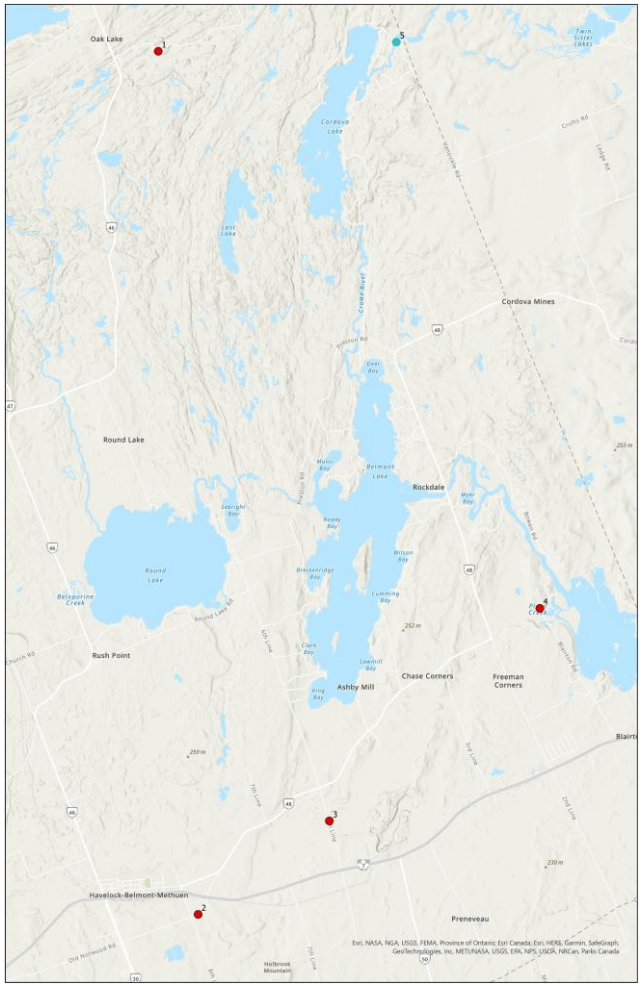
These reserves are available for use by applicable asset categories during the phase-in period to achieve full funding. This coupled with Havelock-Belmont-Methuen's judicious use of debt in the past, allows the scenarios to assume that, if required, available reserves and debt capacity can be used for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

Appendix A – Infrastructure Report Card

Asset Category	Replacement Cost	Average Condition	Financial Capacity (2024)	
Road Network	**$23.6 m**	**Fair**	Annual Requirement:	$1,522,000
			Funding Available:	$2,203,000
			Annual Surplus:	**$681,000**
Bridges & Culverts	**$4.1 m**	**Good**	Annual Requirement:	$95,000
			Funding Available:	$29,000
			Annual Deficit:	**66,000**
Water Network	**$19.3 m**	**Fair**	Annual Requirement:	$359,000
			Funding Available:	$236,000
			Annual Deficit:	**$123,000**
Sanitary Sewer Network	**$20.2 m**	**Good**	Annual Requirement:	$387,000
			Funding Available:	$237,000
			Annual Deficit:	**$150,000**
Stormwater Network	**$2.8 m**	**Very Good**	Annual Requirement:	$38,000
			Funding Available:	$12,000
			Annual Deficit:	**26,000**
Facilities	**$27.8 m**	**Fair**	Annual Requirement:	$707,000
			Funding Available:	$214,000
			Annual Deficit:	**$493,000**
Land Improvements	**$2.8 m**	**Good**	Annual Requirement:	$102,000
			Funding Available:	$31,000
			Annual Deficit:	**$41,000**
Vehicles	**$4.2 m**	**Poor**	Annual Requirement:	$427,000
			Funding Available:	$129,000
			Annual Deficit:	**$298,000**
Machinery & Equipment	**$ 5.1 m**	**Poor**	Annual Requirement:	$408,000
			Funding Available:	$124,000
			Annual Deficit:	**$284,000**

Appendix B – Level of Service Maps & Photos

Bridges & Culverts Location Map



Images of Bridge in Fair Condition

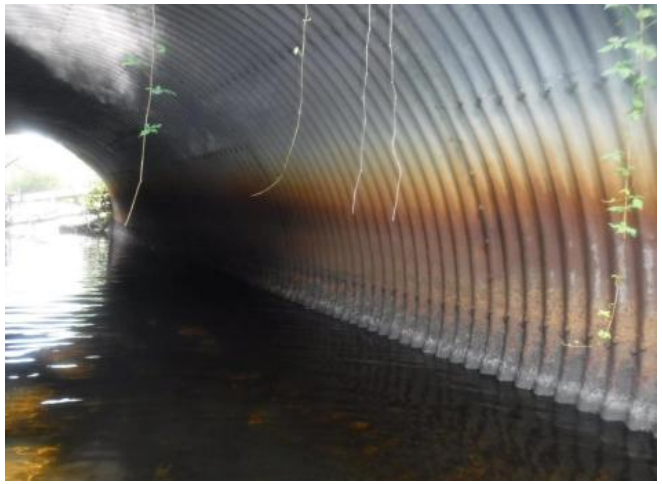
Devil Four Mile Otter Creek Bridge

Inspected: 2023-08-31

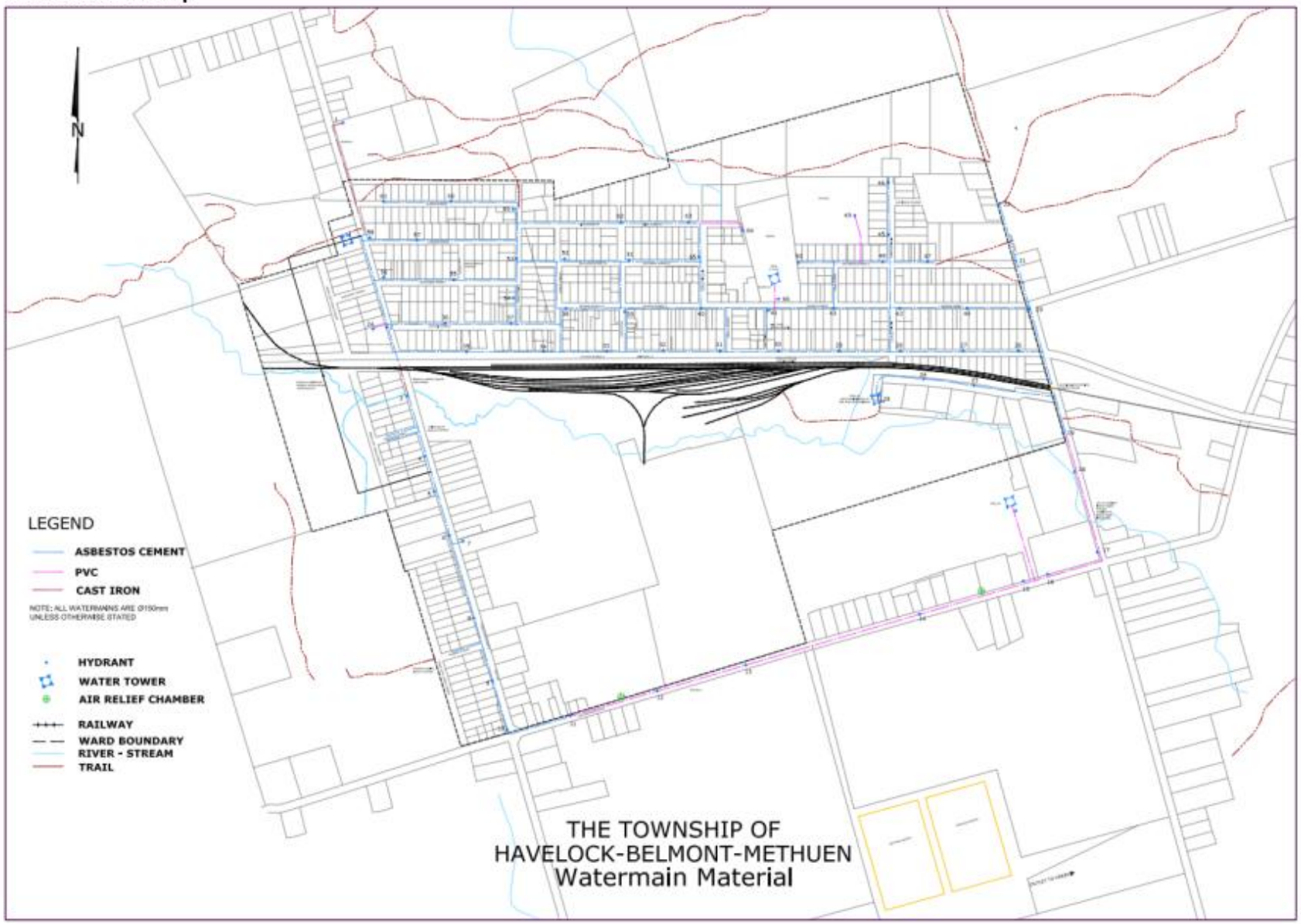
Images of Culverts in Good Condition

Vansickle Road Deer Bridge Culvert

Inspected: 2023-08-31



Water Network Map



Sanitary Sewer Network