Asset Management Plan 2025

Township of Leeds and Thousand Islands

January 2026

psdcitywide

This Asset Management Plan was prepared by:

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

Key Statistics

$172m	2024 Replacement Cost of Asset Portfolio
$34.1k	Replacement Cost of Infrastructure Per Household
73%	Percentage of Assets in Fair or Better Condition
60%	Percentage of Assets with Assessed Condition Data
$920k	Annual Capital Infrastructure Deficit
10 Years	Recommended Timeframe to reach Proposed Levels of Service
2.67%	Target Investment Rate to meet Proposed Levels of Service
2.19%	Actual Investment Rate

Table of Contents

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 of Leeds and Thousand Islands can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP includes the following asset categories:

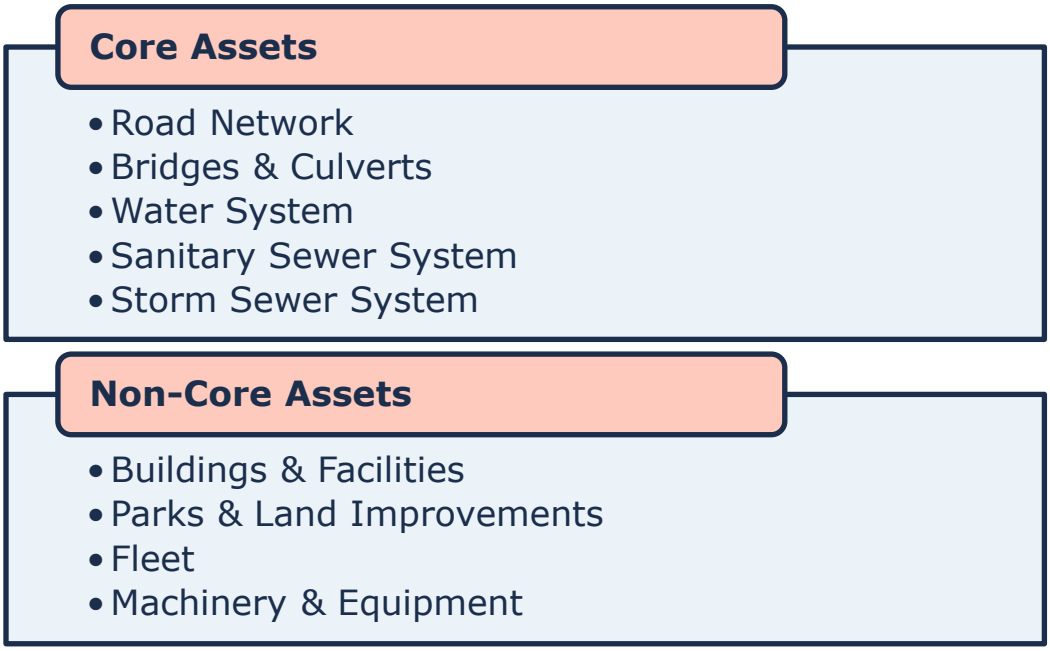


Figure 1 Core and Non-Core Asset Categories

1.2 Compliance

With the development of this AMP the Township of Leeds and Thousand Islands has achieved compliance with July 1, 2025, requirements under O. Reg. 588/17. This includes requirements for proposed levels of service and inventory reporting for all asset categories.

1.3 Findings

The overall replacement cost of the asset categories included in this AMP totals $172 million. 73% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 60% of assets. For the remaining 40% 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 (HCB, LCB and Gravel Roads) and replacement only strategies (all other assets) 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 $4.7 million. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $3.8 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $920,000.

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 shows annual tax/rate change required to eliminate the Township's infrastructure deficit based on a 10-year plan:

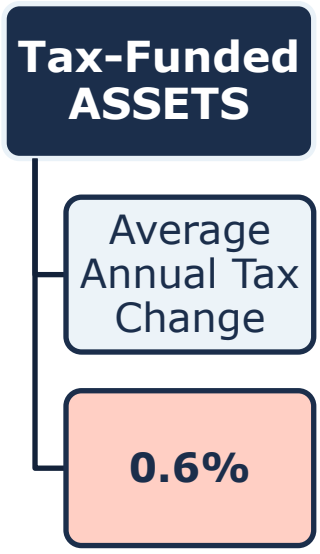


Figure 2 Proposed Tax/Rate Changes

Recommendations to guide continuous refinement of the Township's asset management program. These include:

- Review data to update and maintain a complete and accurate dataset
- Develop a condition assessment strategy with a regular schedule
- Review and update lifecycle management strategies
- Development and regularly review short- and long-term plans to meet capital requirements
- Measure current levels of service and proposed levels of service, and monitor their feasibility

2. Introduction & Context

2.1 Asset Management Overview

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

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

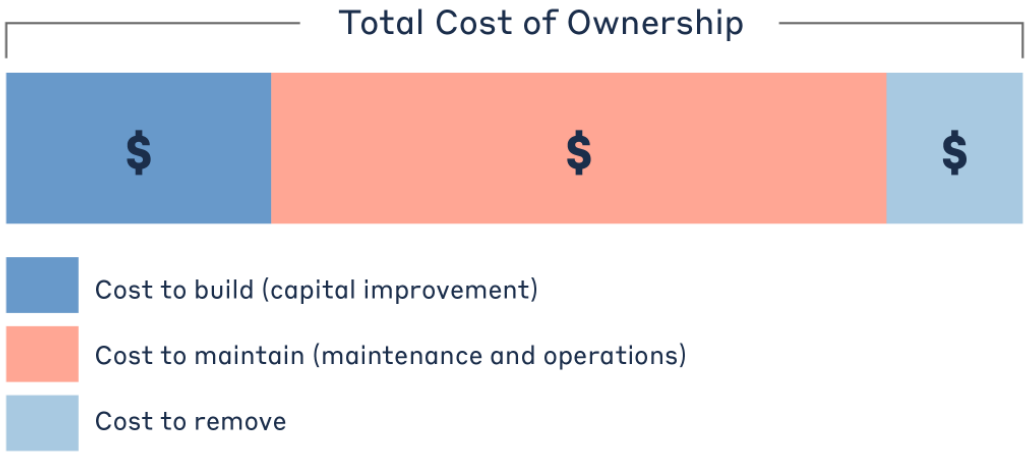


Figure 3 Total Cost of Asset Ownership

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

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

2.1.1 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.

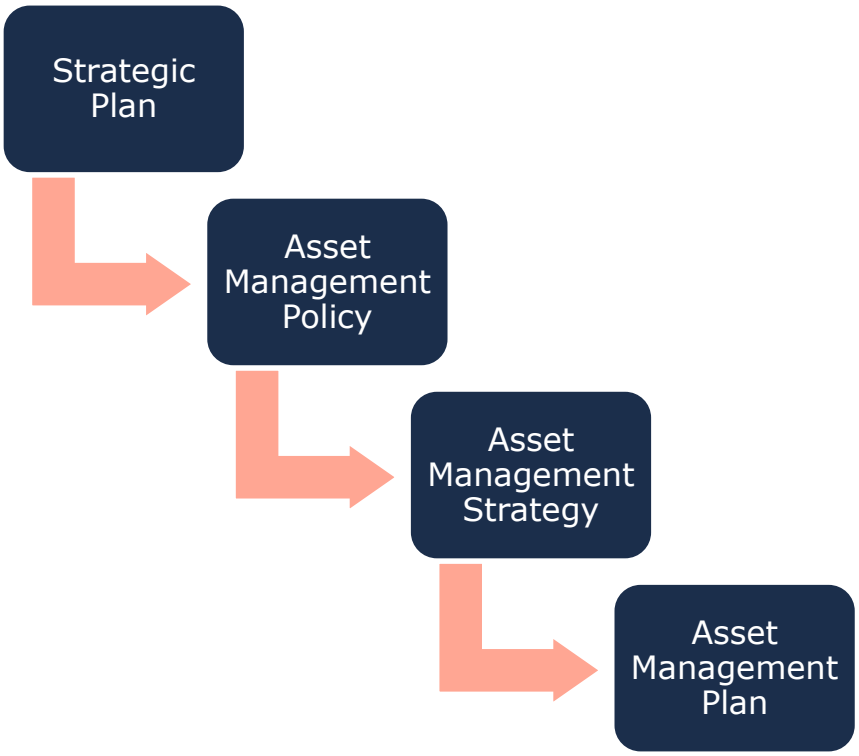


Figure 4 Foundational Asset Management Documents

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 of Leeds and Thousand Islands adopted By-law No. 19-011 "A By-law to establish a Strategic Asset Management Policy" on February 11th, 2019 in accordance with Ontario Regulation 588/17.

The objectives of the policy include:

- Provide a framework for implement Asset Management
- Delivery of Services/Programs
- Public Input/Council Direction
- Risk/Budgets

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 asset management plan (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.

2.1.2 Key Concepts in Asset Management

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

Lifecycle Management Strategies

The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history and environment. Asset deterioration has a negative effect on the ability of an asset to fulfill its intended function, and may be characterized by increased cost, risk and even service disruption.

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

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

Lifecycle Activity	Cost	Typical Associated Risks
Maintenance Activities that prevent defects or deteriorations from occurring	**$**	♦ Balancing limited resources between planned maintenance and reactive, emergency repairs and interventions; ♦ Diminishing returns associated with excessive maintenance activities, despite added costs; ♦ Intervention selected may not be optimal and may not extend the useful life as expected, leading to lower payoff and potential premature asset failure;
Rehabilitation/ Renewal Activities that rectify defects or deficiencies that are already present and may be affecting asset performance	**$$$**	♦ Useful life may not be extended as expected; ♦ May be costlier in the long run when assessed against full reconstruction or replacement; ♦ Loss or disruption of service, particularly for underground assets;
Replacement/ Reconstruction Asset end-of-life activities that often involve the complete replacement of assets	**$$$$$**	♦ Incorrect or unsafe disposal of existing asset; ♦ Costs associated with asset retirement obligations; ♦ Substantial exposure to high inflation and cost overruns; ♦ Replacements may not meet capacity needs for a larger population; ♦ Loss or disruption of service, particularly for underground assets;

Table 1 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.

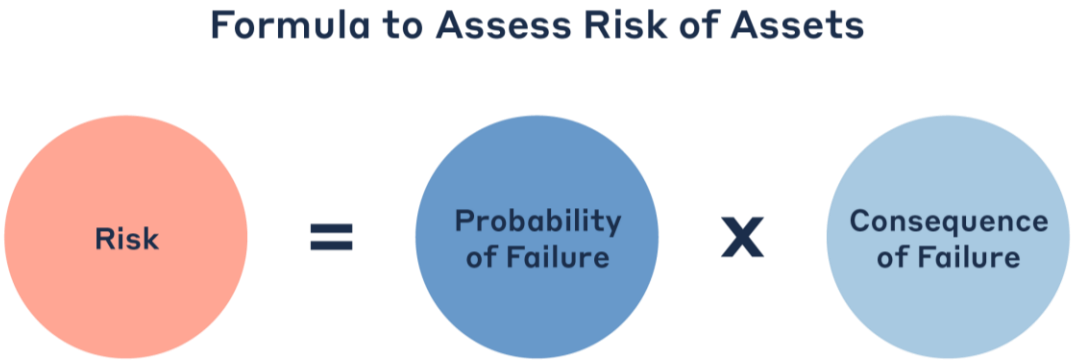


Figure 5 Risk Equations

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 2 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 2 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.

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, Water, Sanitary Sewer, Storm Sewer) 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, 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

Current LOS are the past performance metrics of an asset category up until present day. In contrast, Proposed LOS looks toward the municipality's goal for asset performance by a defined future date.

It is important to note that O. Reg 588/17 does not dictate which proposed LOS metrics municipality's need to strive for. A proposed LOS will be very specific to each community's resident desires, political goals, and financial capacity. This can range from increasing service levels and costs, to maintaining or even reducing current performance in order to mitigate future cost increases. Regardless of the proposed LOS chosen, O. Reg 588/17 requires municipalities to demonstrate the achievability of their selected metrics.

2.2 Scope & Methodology

2.2.1 Asset Categories for this AMP

This asset management plan for the Township of Leeds and Thousand Islands is produced in compliance with O. Reg. 588/17. The July 2025 deadline under the regulation—the third of three AMPs—requires analysis of core and non-core asset categories, as well as proposed service levels and how to fund them.

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

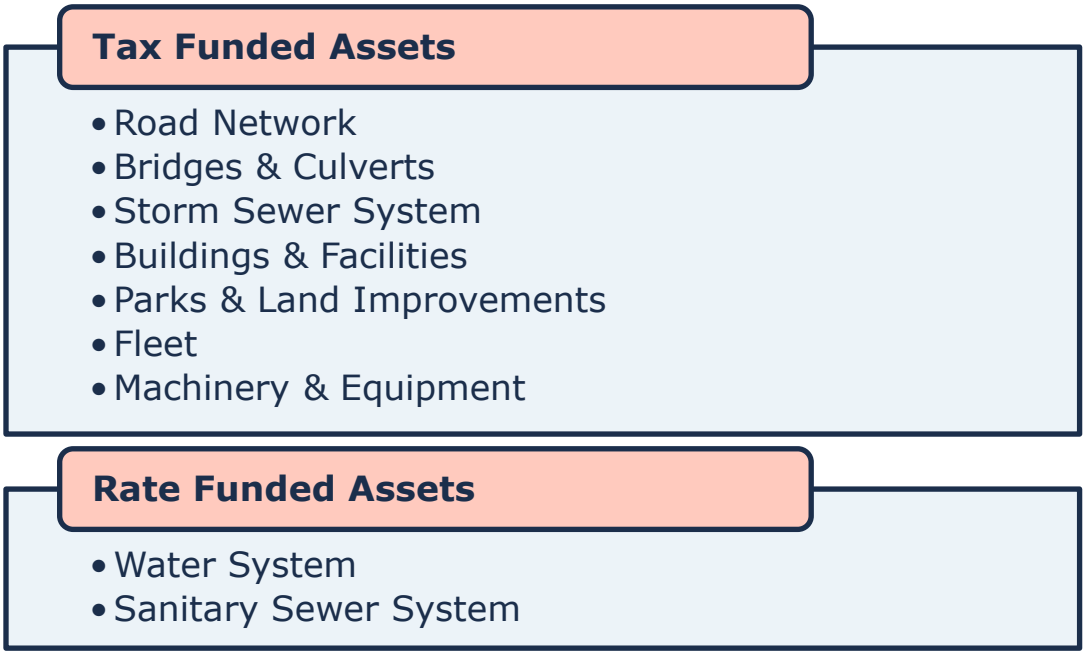


Figure 6 Tax Funded and Rate Funded Asset Categories

2.2.2 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 Township. Strategic asset management planning is an ongoing and dynamic process that requires continuous data updates and dedicated data management resources.

2.2.3 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.

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

Figure 7 Service Life Remaining Calculation

2.2.5 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

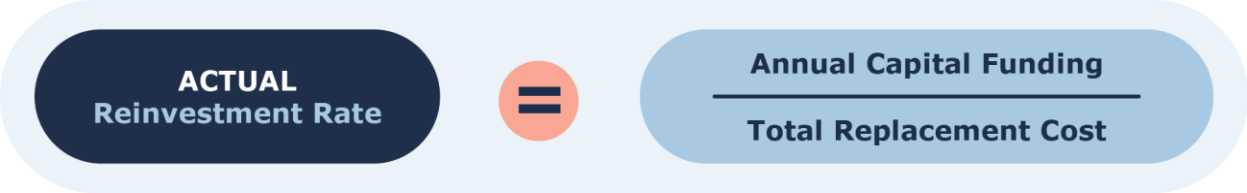


Figure 9 Actual Reinvestment Rate Calculation

2.2.6 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 3 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.

2.3 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 live-able 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

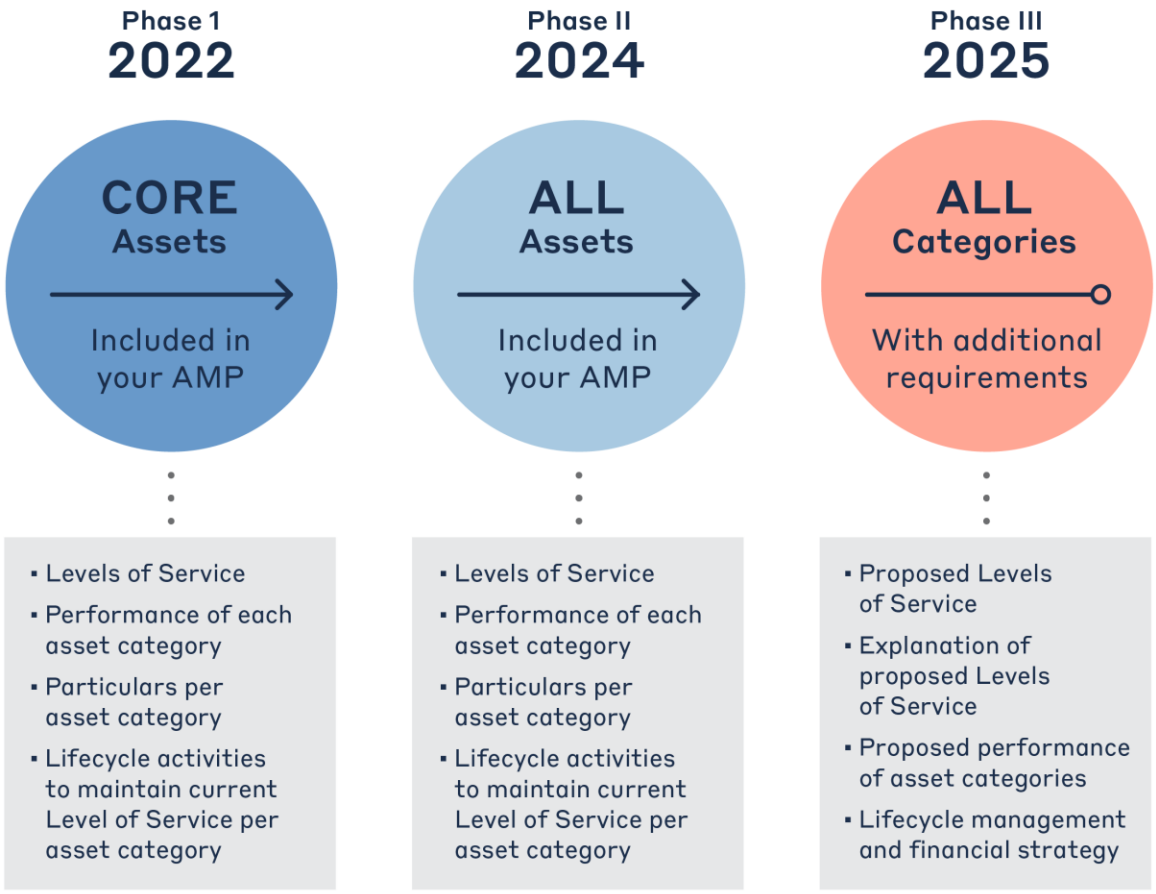


Figure 10 O. Reg. 588/17 Requirements and Reporting Deadlines

2.3.1 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)	5.1 – 13.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	5.1 – 13.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	5.3 – 13.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	5.2 – 13.2	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	5.4 – 13.4	Complete

Requirement	O. Reg. 588/17 Section	AMP Section Reference	Status
Current levels of service in each category	S.5(2), 1(i-ii)	5.7 – 13.7	Complete
Current performance measures in each category	S.5(2), 2	5.7 – 13.7	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	5.4 – 13.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	5.5 – 13.5	Complete
Growth considerations	S.6(1), 5	14.1 – 14.2	Complete
Proposed levels of service for each category for next 10 years	S.6(1), 1(i-ii)	5.8 – 13.8	Complete
Explanation of appropriateness of proposed levels of service	S.6(1), 2(i-iv)	4.2	Complete
Lifecycle management activities for proposed levels of service	S.6(1), 4(i)	4.2	Complete
10-year capital costs for proposed levels of service	S.6(1), 4(ii)	Appendix B	Complete
Annual funding availability projections	S.6(1), 4(iii)	4.2	Complete

Table 4 O. Reg. 588/17 Compliance Review

Portfolio Overview

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 hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. 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 $172 million. This estimate was calculated using user-defined costing, as well as inflation of historical or original costs to current date. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today. Figure 12 illustrates the replacement cost of each asset category; at 33% of the total portfolio, the road network forms the largest share of the Township's asset portfolio, followed by buildings and facilities at 28%.

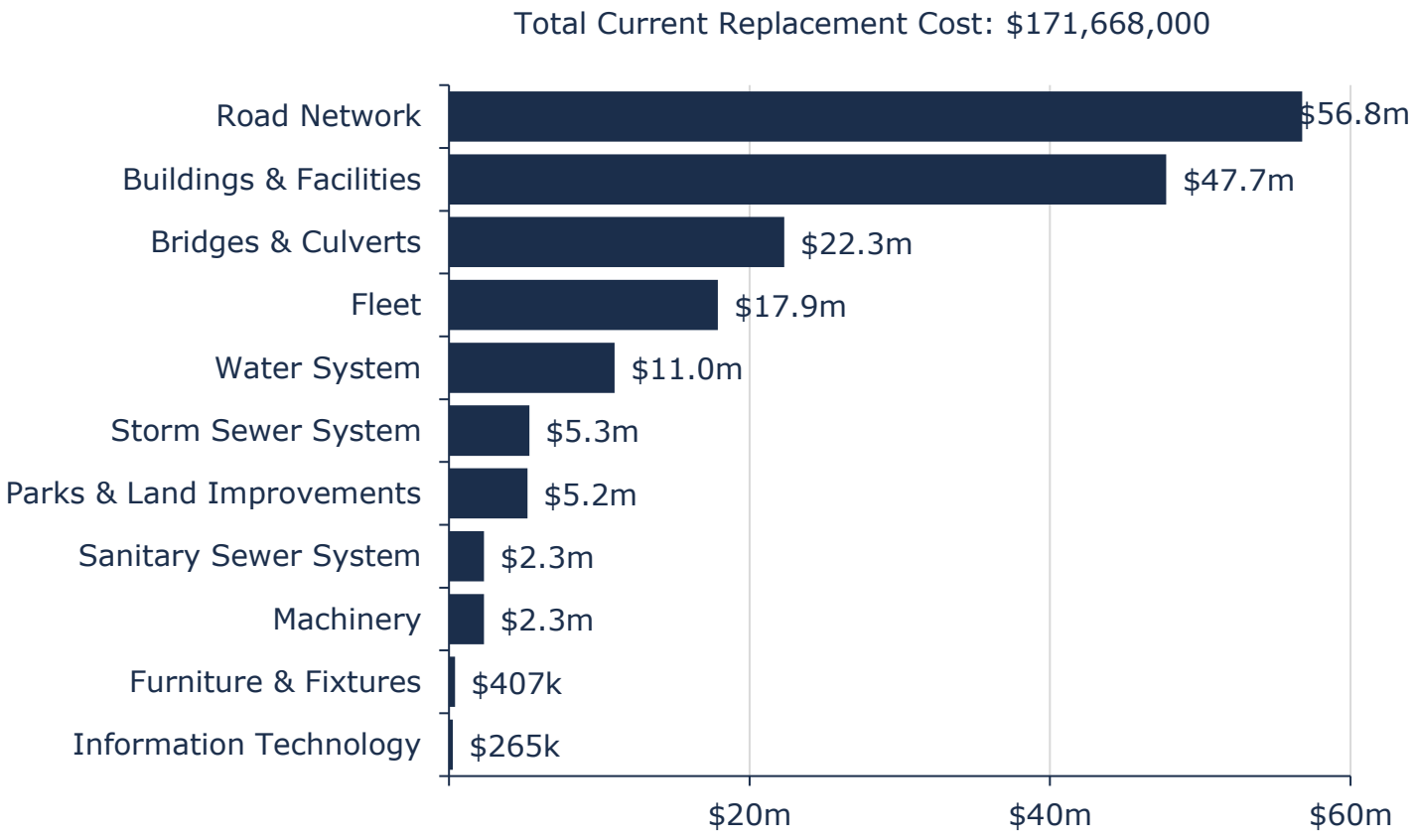


Figure 12 Current Replacement Cost by Asset Category

3.2.2 Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps by comparing the target to the current reinvestment rate. To meet the existing long-term capital requirements, the Township requires an annual capital investment of $4.7 million, for a target portfolio reinvestment rate of 2.73%. Currently, annual investment from sustainable revenue source is $3.8 million, for a current portfolio reinvestment rate of 2.19%. Target and current re-investment rates by asset category are detailed below.

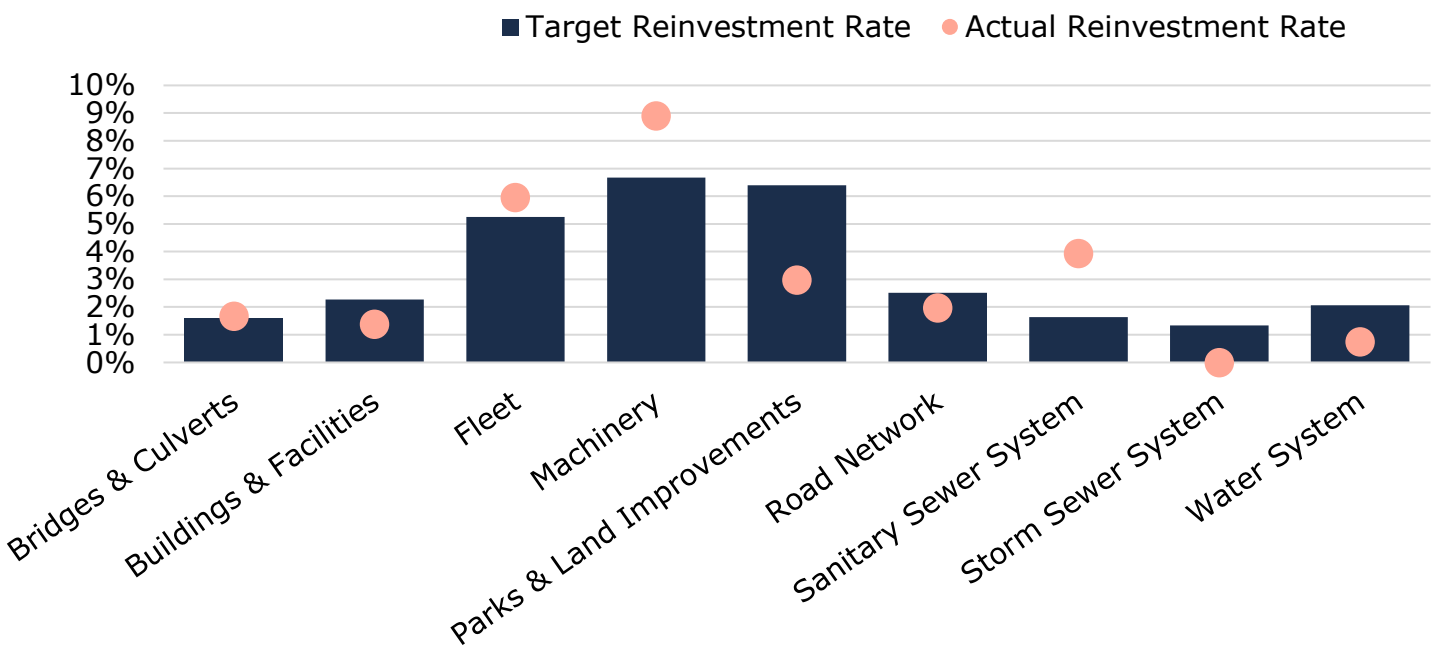


Figure 13 Current Vs. Target Reinvestment Rate

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, 73% of the Township's infrastructure portfolio is in fair or better condition, with the remaining 27% in poor or worse condition. Typically, assets in poor or worse condition may require replacement or major rehabilitation in the immediate or short-term. Targeted condition assessments may help further refine the list of assets that may be candidates for immediate intervention, including potential replacement or reconstruction.

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

Condition data was available for majority of the road network, bridges & culverts, and many buildings and facilities. For all remaining assets, including major infrastructure such as storm mains and water mains, 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.

Further, when past assessed condition data was available, it was projected to the current year-end (2024). This 'projected condition' can generate lower condition ratings than those established at the time of the original condition assessment. The rate of this deterioration will also depend on lifecycle curves used to project condition over time.

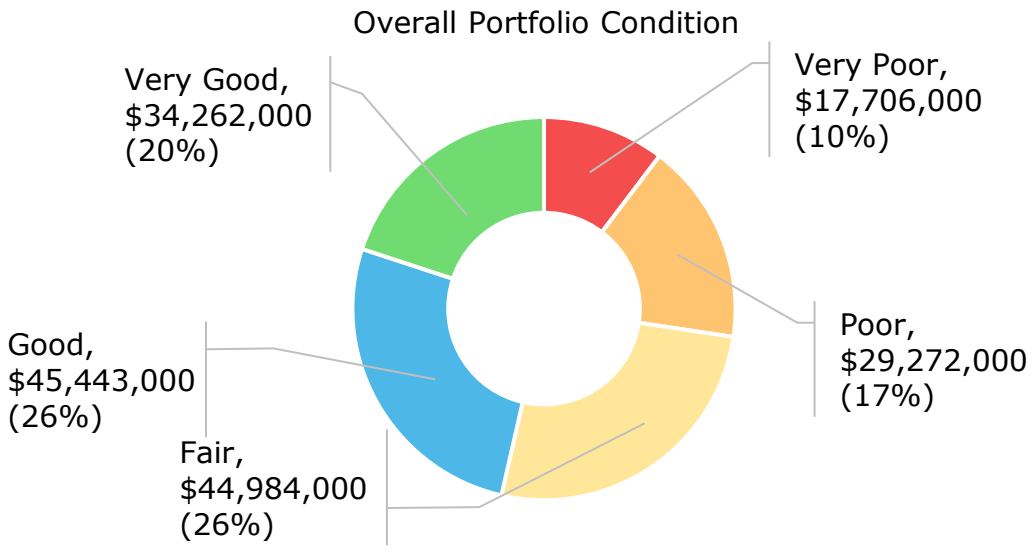


Figure 14 Asset Condition: Portfolio Overview

As further illustrated in Figure 15 at the category level, the majority of major, core infrastructure including roads, bridges, and structural culverts are in fair or better condition, based on in-field condition assessment data. See Table 5 for details on how condition data was derived for each asset segment.

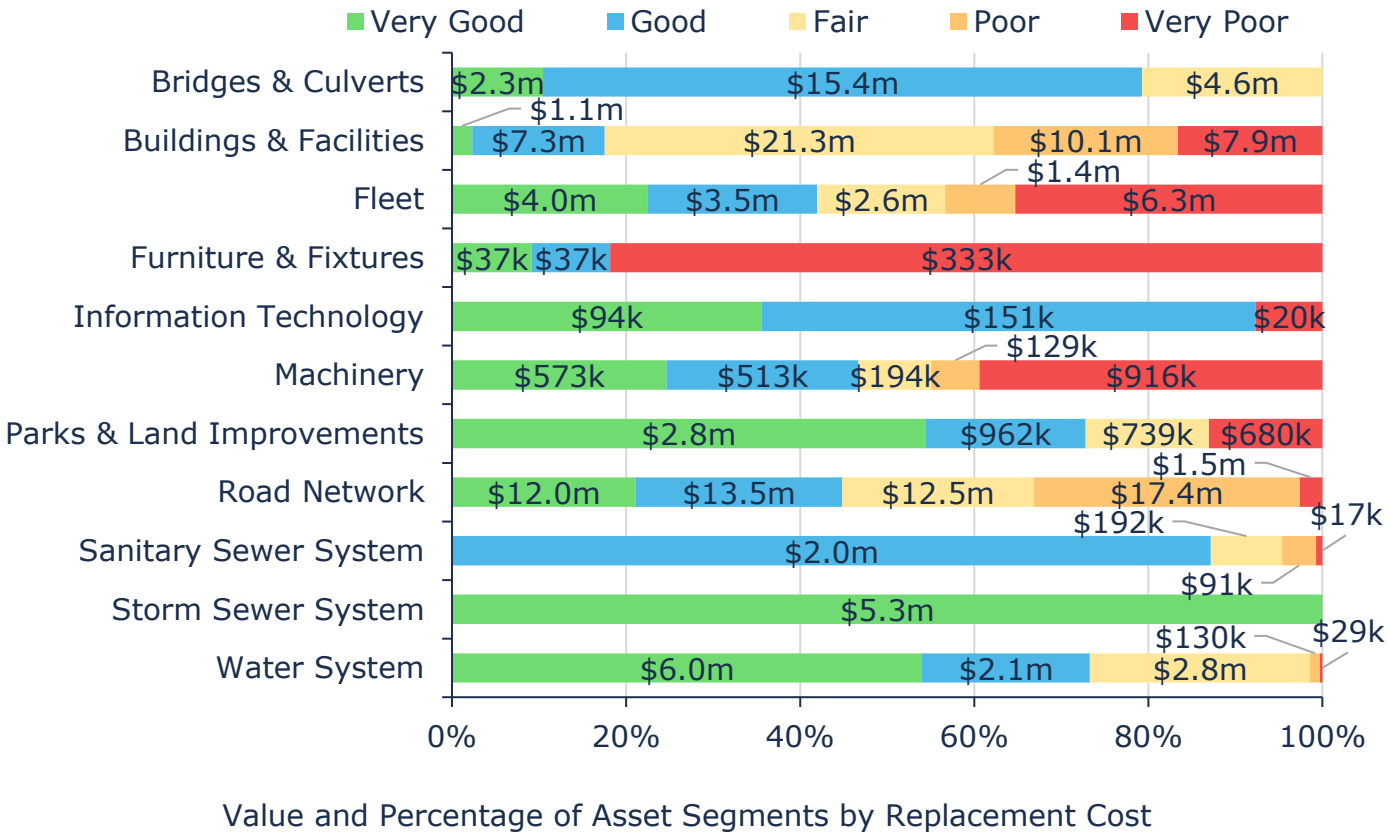


Figure 15 Asset Condition by Asset Category

Source of Condition Data

This AMP relies on assessed condition for 60% of assets, based on and weighted by replacement cost. For the remaining assets, 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. Table 5 below identifies the source of condition data used throughout this AMP.

Asset Category	Asset Segment(s)	% of Assets with Assessed Conditions	Source of Condition Data
Road Network	HCB Roads	100%	2020 Roads Needs Study
	LCB Roads	93%	
	Roadside Appurtenances	51%	
Bridges & Culverts	Bridges Structural Culverts	93%	2023 OSIM Report
Water System	All	2%	Staff Assessments
Sanitary Sewer System	All	13%	Staff Assessments
Storm Sewer System	All	0%	N/A
Buildings & Facilities	All	54%	Staff Assessments
Parks & Land Improvements	All	2%	Staff Assessments
Fleet	All	1%	Staff Assessments
Machinery & Equipment	All	1%	Staff Assessments

Table 5 Source of Condition Data

3.2.4 Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 12% of the Township's assets will require replacement within the next 10 years. Refer to Appendix B – 10-Year Capital Requirements.

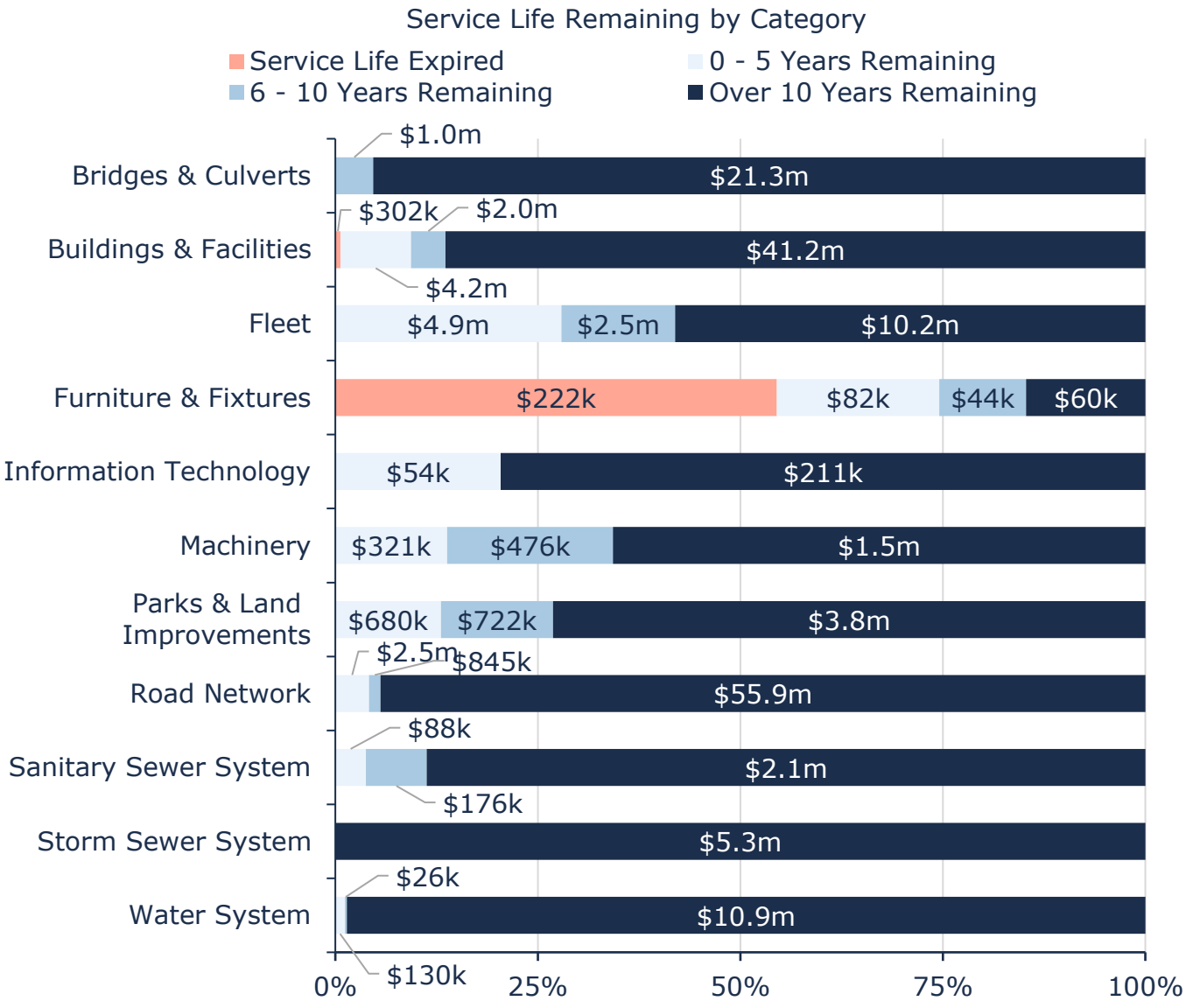


Figure 16 Service Life Remaining by Asset Category

3.2.5 Risk Matrix

Using the risk equation and preliminary risk models, Figure 17 shows how assets across the different asset categories are stratified within a risk matrix.

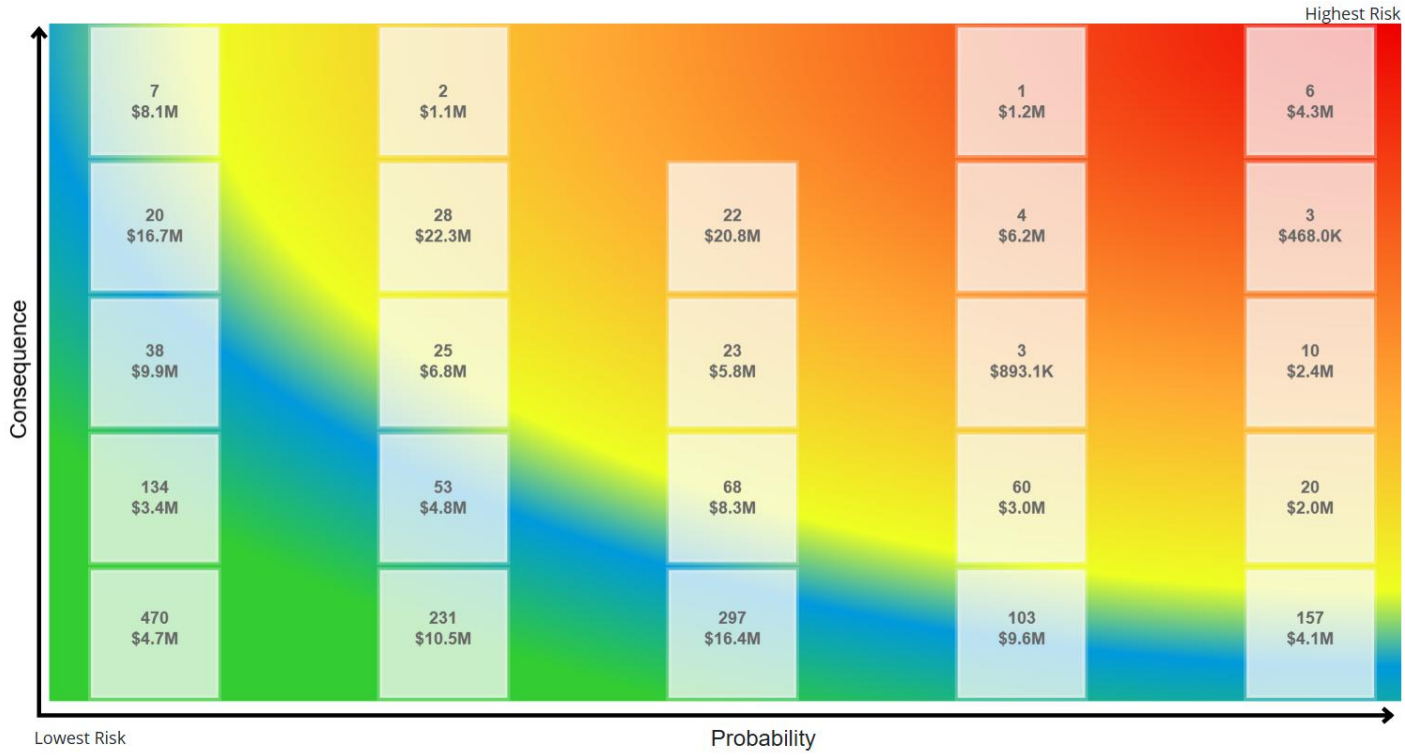


Figure 17 Risk Matrix: All Assets

The analysis shows that based on current risk models, approximately 15% of the Township's assets, with a current replacement cost of approximately $27 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 and were considered to be most essential to the Township.

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 were 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.

3.2.6 Forecasted Capital Requirements

Aging assets require maintenance, rehabilitation, and replacement. Figure 18 below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for all asset categories analyzed in this AMP over a 50-year time horizon. On average, $4.7 million is required each year to remain current with capital replacement needs for the Township's asset portfolio (red dotted line). Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise. This figure relies on age and available condition data.

The chart also illustrates a backlog of more than $524,000, comprising assets that remain in service beyond their estimated useful life. It is unlikely that all such assets are in a state of disrepair, requiring immediate replacements. This makes continued and expanded targeted and consistent condition assessments integral. Risk frameworks, proactive lifecycle strategies, and levels of service targets can then be used to prioritize projects, continuously refine estimates for both backlogs and ongoing capital needs, and help select the right treatment for each asset. In addition, more effective componentization of buildings will improve these projections, including backlog estimates.

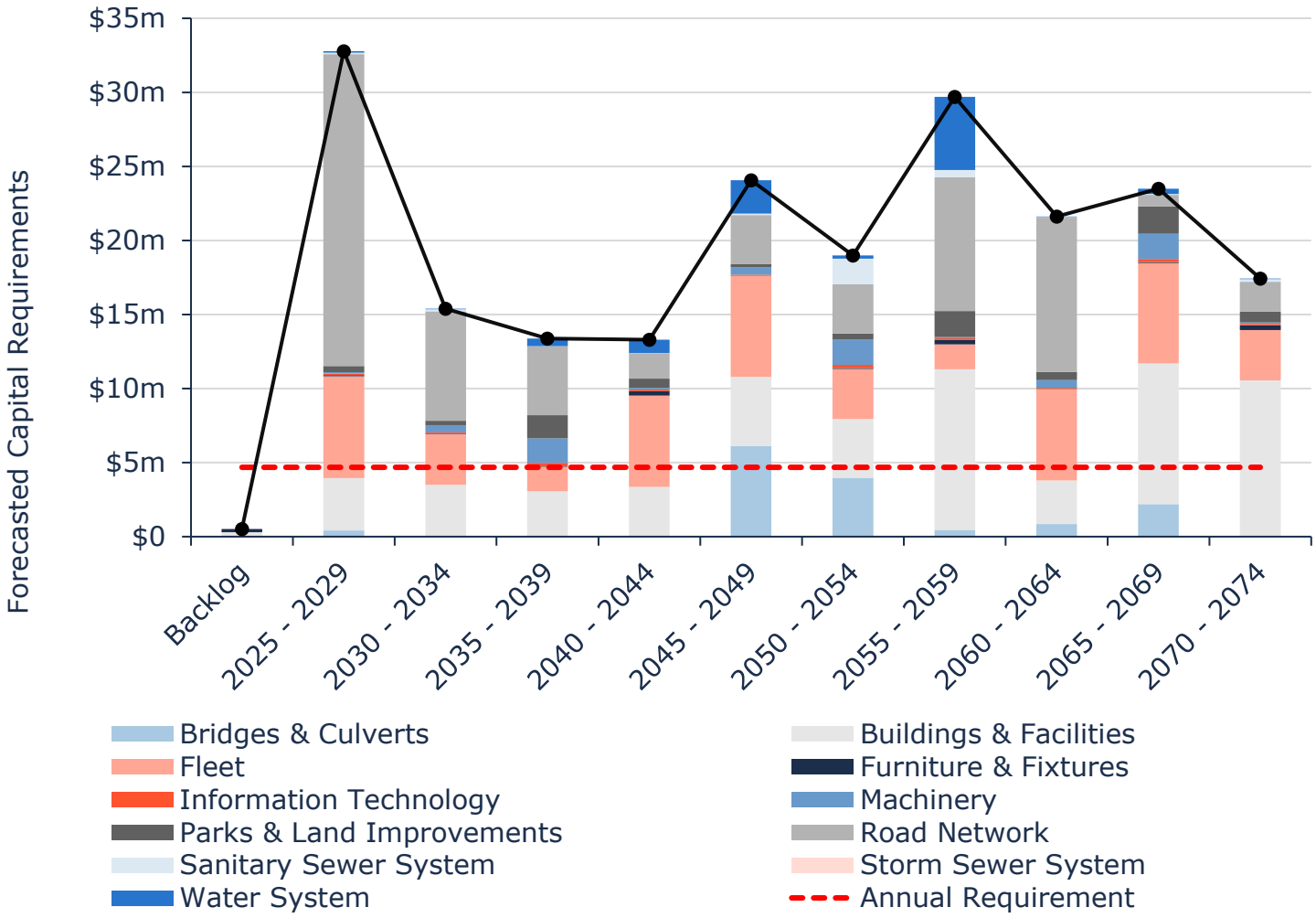


Figure 18 Capital Replacement Needs: Portfolio Overview 2025-2074

Proposed Levels of Service

4. Proposed Levels of Service Analysis

4.1 Overview

4.1.1 O. Reg. 588/17 Proposed Levels of Service Requirements

The third iteration of municipal Asset Management Plans required under O. Reg. 588/17 requires the evaluation of levels of service (LOS) that includes:

- Proposed LOS options (i.e. increase, decrease, or maintain current LOS) and the risks associated with these options.
- How the proposed LOS may differ from current LOS.
- Whether the proposed LOS are achievable; and
- The municipality's ability to afford proposed LOS.

Additionally, a lifecycle management and financial strategy to support the proposed LOS must be identified for a period of 10 years with specific reporting on:

- Identification of lifecycle activities needed to provide the proposed LOS.
- Annual costs over the next 10 years to achieve the proposed LOS; and
- Identification of proposed funding projected to be available.

4.1.2 Considerations

Proposed LOS for the Township have been developed through comprehensive engagement with Township staff, council, and the community. In order to achieve any target LOS goal, careful consideration of the following should be given to the following:

Financial Impact Assessments

- Assess historical expenditures/budget patterns to gauge feasibility of increasing budgets to achieve increased service levels
- Consider implications of LOS adjustments on other services and other infrastructure programs (i.e. trade-offs)

Infrastructure Condition Assessments

- Regularly assess the condition of critical infrastructure components
- Use standardized condition assessment protocols (where possible) to quantify the state of the infrastructure
- Identify non-critical components where maintenance could potentially be deferred without causing severe degradation
- Use current condition metrics as benchmarks to gauge feasibility of large adjustments to LOS

Service Metrics

- Measure user satisfaction, response times, and other relevant indicators for specific services

Service Impact Assessments

- Evaluate potential impacts on user satisfaction and service delivery due to changes in infrastructure condition

Key Lifecycle Activities

- Implement routine maintenance and inspections to ensure infrastructure reaches its optimal useful life
- Monitor and optimize operational processes for efficiency
- Regularly review and update preventive maintenance schedules
- Prioritize critical infrastructure components for maintenance
- Implement cost-saving measures without compromising safety or compliance
- Develop strategies for managing and communicating service impacts to stakeholders
- Invest in technology and process improvements to enhance maintenance efficiency
- Upgrade critical infrastructure components to improve overall reliability
- Explore opportunities for innovation and efficiency gains

Risk Management

- Identify potential risks to infrastructure and service quality resulting from adjusted service levels
- Develop contingency plans to address unforeseen challenges without compromising service quality
- Monitor performance closely to ensure that the target investment translates to the desired infrastructure condition

Infrastructure Condition Enhancements

- Identify areas for improvement and increased maintenance to enhance overall infrastructure condition

Timelines

- Although O. Reg. 588/17 requires evaluation of expenditures for a 10-year period in pursuit of proposed LOS, it does not require municipalities to achieve the LOS within this 10-year timeframe (ex. a municipality may have a goal to reach X% condition by 2050, the AMP is required to review the first 10 years of the strategy to reach this goal)
- Careful consideration should be given to setting realistic targets for when proposed service levels can be achieved.

Stakeholder Engagement

- It is recommended to ensure adjustments to LOS are not made in isolation and without consultation of various stakeholders. This could include, but is not limited to:
  - Department Heads/Infrastructure Managers
  - Residents
  - Service Users
  - Council
- Efforts should be made to communicate changes to LOS transparently to all affected stakeholders

Flexibility

- Priorities may change over time due to a variety of factors, such as:
  - Financial state of the municipality
  - Availability of grants
  - Significant increases or decreases in population
  - Changes in political priorities
  - Changes in resident priorities
  - New technologies
  - Changes in legislation
- Any proposed changes to LOS should be flexible and able to adapt to changes listed above, and other unforeseen circumstances

4.2 Proposed Levels of Service Scenarios

The three scenarios outlined in the following section were analyzed as options for proposed service levels for all categories included in this Asset Management Plan.

While all three scenarios were reviewed, ***the Township of Leeds and Thousand Islands selected Scenario 1 as their preferred path forward regarding proposed levels of service for Wate and Wastewater Rate Funded assets, and Scenario 2 as their preferred path forward for Tax Funded assets***, which is reflected in the financial strategy and 10-year capital replacement forecasts.

The Township will be performing an external rate study to determine the rate increase required for water and wastewater and have therefore opted to maintain existing funding levels for these asset categories, pending recommendations from the rate study.

4.2.1 Scenario 1: Maintain Existing Funding

This scenario assumes no increases to taxes or rates for the purpose of increasing capital funding.

- Annual capital allocation for tax-funded assets: $3.6 m
- Annual capital allocation for water rate-funded assets: $92k
- Annual capital allocation for sanitary rate-funded assets: $82k

Lifecycle Changes Required for Scenario 1

For all asset classes, no changes to lifecycle strategies are required in order to achieve Scenario 1. With the lack of funding, although existing lifecycle strategies are modelled within the Township's asset management system, a significant number of lifecycle events will not have sufficient funds and will move from projected events into the infrastructure backlog.

Affordability/Achievability of Scenario 1

Of the three scenarios analyzed, Scenario 1 is the least expensive option. Maintaining existing funding levels would require no tax or rate increases. The available capital funding over the next 10 years for Scenario 1 would remain consistent as indicated in the table below:

Categories	Available Capital Funding									
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tax-Funded	$3.6m	$3.6m	$3.6m	$3.6m	$3.6m	$3.6m	$3.6m	$3.6m	$3.6m	$3.6m
Rate-Funded (Water)	$92k	$92k	$92k	$92k	$92k	$92k	$92k	$92k	$92k	$92k
Rate-Funded (Waste-water)	$82k	$82k	$82k	$82k	$82k	$82k	$82k	$82k	$82k	$82k

Table 6 Scenario 1 Available Capital Funding Over Next 10 Years

As the Township of Leeds and Thousand Islands selected Scenario 1 as their preferred proposed level of service for the water and wastewater rate funded assets, a further breakdown of projected capital expenditures by asset category can be found in Appendix B – 10-Year Capital Requirements.

It is important to note that an AMP is a dynamic document which should be reviewed regularly to ensure up-to-date information is incorporated including accurate replacement costs, changes in inventory, changes in available funding sources, and reflection on progress made on previous recommendations.

Changes to Community and Technical Levels of Service for Scenario 1

The Township of Leeds and Thousand Islands does not anticipate any changes to qualitative community levels of services for any of the asset categories included within this AMP. All asset categories will see adjustments to their technical levels of service over time, particularly relating to capital reinvestment rate and average condition of assets. Refer to each asset category for more details.

Risks Associated with Scenario 1

There are pros and cons associated with each scenario analyzed, and each benefit is counter-balanced with consequences. For Scenario 1, the following risks have been identified:

- Increased infrastructure backlog
  - While modelling no financial increases on residents and businesses, knowingly continuing with insufficient infrastructure funding the Township is committing to sub-optimal lifecycle management of its assets. Being unable to complete strategic lifecycle interventions and replacements may result in increased asset failures, reduced reliability, and the potential for costly unbudgeted repairs to maintain services.
  - The risks of maintaining a funding level of 81% of the recommendation, Scenario 1 increases the risk of services being impacted by deteriorating asset conditions.

- Reliance on Grants
  - As Scenario 1 maintains a position of 81% of recommended funding levels, the Township will be more reliant on conditional grants, as they become available. While these are beneficial to all municipalities to secure to reduce their tax/rate burden on residents, they are considered an unsustainable revenue source. The Township will be more vulnerable to changes in provincial and federal policy and funding programs.
- Missed opportunities for efficiencies
  - While analyzing Scenario 1, no alternative lifecycle strategies were proposed. Mid-lifecycle interventions, such as asphalt overlays and sewer lining, can result in extended lifespans of assets and reduced costs over the lifetime of the assets. By relying on existing lifecycle strategies, the Township risks paying more than necessary to maintain their asset inventory

Appropriateness of Scenario 1 to Meet the Township's Needs

Township staff emphasized a need to balance financial impacts on residents with the reality of the current state of infrastructure within the municipality. Upon review of all three scenarios, Scenario 1 was selected as the most appropriate option for the water and wastewater assets, as The Township will be performing an external rate study to determine the rate increase required for water and wastewater and have therefore opted to maintain existing funding levels for these asset categories, pending recommendations from the rate study.

4.2.2 Scenario 2: Achieving 100% of Target Funding in 10 Years

This scenario assumes gradual tax and rate increases, stabilizing at 100% funding in 10 years.

- Annual Tax **Increase** ~0.6%
- Annual Water Rate **Increase** ~3.3%
- Annual Wastewater Rate **Decrease** ~1.3%

Lifecycle Changes Required for Scenario 2

For all asset categories, no changes to lifecycle strategies are required in order to achieve Scenario 2. In future iterations of the AMP, it is recommended to more closely analyze changes to lifecycle management strategies to find long-term cost savings and efficiencies.

Affordability/Achievability of Scenario 2

Of the three scenarios analyzed, Scenario 2 is the most expensive option in terms of tax/rate increases. Reaching 100% of the recommended funding immediately would require an increase of 6.4% in tax revenue. This is not reasonable or realistic to achieve in a short period of time. With the recommended implementation timeframe of 10 years, tax revenue would be increased gradually from $12.9 million to $13.6 million, water revenue from $361k to $500k, and wastewater revenue decreased from $361k to $317k. Based on these gradual proposed increases, while maintaining existing sustainable grant funding, the available **capital** funding over the next 10 years for Scenario 2 is indicated in the table below:

Categories	Available Capital Funding									
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Tax-Funded	$3.66m	$3.74m	$3.82m	$3.90m	$3.98m	$4.06m	$4.14m	$4.22m	$4.34m	$4.42m
Rate-Funded (Water)	$104k	$116k	$129k	$142k	$156k	$170k	$184k	$199k	$215k	$231k
Rate-Funded (Waste-water)	$78k	$73k	$68k	$64k	$59k	$55k	$51k	$46k	$42k	$38k

Table 7 Scenario 2 Available Capital Funding Over Next 10 Years

It is important to note that an AMP is a dynamic document which should be reviewed regularly to ensure up-to-date information is incorporated including accurate replacement costs, changes in inventory, changes in available funding sources, and reflection on progress made on previous recommendations.

Changes to Community and Technical Levels of Service for Scenario 2

The Township of Leeds and Thousand Islands does not anticipate any changes to qualitative community levels of services for any of the asset categories included within this AMP. All asset categories will see adjustments to their technical levels of service over time, particularly relating to capital reinvestment rate and average condition of assets. Refer to each asset category for more details.

Risks Associated with Scenario 2

There are pros and cons associated with each scenario analyzed, and each benefit is counter-balanced with consequences. For Scenario 2, the following risks have been identified:

- Increased infrastructure backlog
  - While mitigating the impact of financial increases on residents and businesses, taking 10 years to reach the targeted funding levels means 10 years of sub-optimal lifecycle management of assets. Being unable to complete strategic lifecycle interventions and replacements may result in increased asset failures, reduced reliability, and the potential for costly unbudgeted repairs to maintain services.
- Missed opportunities for efficiencies
  - While analyzing Scenario 2, no alternative lifecycle strategies were proposed. Mid-lifecycle interventions, such as asphalt overlays and sewer lining, can result in extended lifespans of assets and reduced costs over the lifetime of the assets. By relying on existing lifecycle strategies, the Township risks paying more than necessary to maintain their asset inventory.

Appropriateness of Scenario 2 to Meet the Township's Needs

Township staff emphasized a need to balance financial impacts on residents with the reality of the current state of infrastructure within the municipality. Increasing tax revenue to $13.6 million would require an increase of 0.6% annually for 10 years.

Upon review of all three scenarios, Scenario 2 was selected as the most appropriate option for tax funded assets as an annual tax increase of 0.5% for the next 10 years was determined to be subjectively manageable to implement, while creating a sustainable future for the Township's infrastructure. The risks associated with relying on conditional grants from higher levels of government were deemed to be too great considering the country-wide trend of downloading responsibilities (and costs) to municipal governments and reducing funding opportunities.

4.2.3 Scenario 3: Achieving Midpoint Between Current and Target Funding in 10 Years

This scenario assumes gradual tax and rate increases, stabilizing at the midpoint between the current and target funding in 10 years.

- Annual Tax **Increase** ~0.3%
- Annual Water Rate **Increase** ~1.8%
- Annual Wastewater Rate **Decrease** ~2.1%

While this scenario was modelled for consideration, the Township did not elect to move forward with this scenario.

Lifecycle Changes Required for Scenario 3

For all asset categories, no changes to lifecycle strategies are required in order to achieve Scenario 3. In future iterations of the AMP, it is recommended to more closely analyze changes to lifecycle management strategies to find long-term cost savings and efficiencies.

Affordability/Achievability of Scenario 3

Of the three scenarios analyzed, Scenario 3 is the middle ground in regards to cost. Reaching the midway point between the current and target funding immediately would require an increase of 2.7% in tax revenue. With the recommended implementation timeframe of 10 years, tax revenue would be increased gradually from $12.9 million to $13.3 million, water revenue increased from $361k to $432k, and wastewater revenue decreased from $361k to $292k. Based on these gradual proposed increases, while maintaining existing sustainable grant funding, the available **capital** funding over the next 10 years for Scenario 3 is indicated in the table below:

Categories	Available Capital Funding									
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tax-Funded	$3.63m	$3.67m	$3.70m	$3.74m	$3.78m	$3.82m	$3.86m	$3.90m	$3.94m	$3.98m
Rate-Funded (Water)	$99k	$105k	$112k	$119k	$126k	$133k	$140k	$147k	$155k	$163k
Rate-Funded (Waste-water)	$75k	$67k	$60k	$54k	$46k	$39k	$32k	$26k	$19k	$13k

Table 8 Scenario 3 Available Capital Funding Over Next 10 Years

It is important to note that an AMP is a dynamic document which should be reviewed regularly to ensure up-to-date information is incorporated including accurate replacement costs, changes in inventory, changes in available funding sources, and reflection on progress made on previous recommendations.

Changes to Community and Technical Levels of Service for Scenario 1

The Township of Leeds and Thousand Islands does not anticipate any changes to qualitative community levels of services for any of the asset categories included within this AMP. All asset categories will see adjustments to their technical levels of service over time, particularly relating to capital reinvestment rate and average condition of assets. Refer to each asset category for more details.

Risks Associated with Scenario 3

There are pros and cons associated with each scenario analyzed, and each benefit is counter-balanced with consequences. For Scenario 3, the following risks have been identified:

- Increased infrastructure backlog
  - While mitigating the impact of financial increases on residents and businesses, taking 10 years to reach the targeted funding levels means 10 years of sub-optimal lifecycle management of assets. Being unable to complete strategic lifecycle interventions and replacements may result in increased asset failures, reduced reliability, and the potential for costly unbudgeted repairs to maintain services.
- Missed opportunities for efficiencies
  - While analyzing Scenario 3, no alternative lifecycle strategies were proposed. Mid-lifecycle interventions, such as asphalt overlays and sewer lining, can result in extended lifespans of assets and reduced costs over the lifetime of the assets. By relying on existing lifecycle strategies, the Township risks paying more than necessary to maintain their asset inventory.
- Reliance on Grants
  - As Scenario 3 achieves a position of 93% of recommended funding levels, the Township will be more reliant on conditional grants, as they become available. While these are beneficial to all municipalities to secure to reduce their tax/rate burden on residents, they are considered an unsustainable revenue source. The Township will be more vulnerable to changes in provincial and federal policy and funding programs.

Category Analysis: Core Assets

5. Road Network

The Road Network is a critical component of the provision of safe and efficient transportation services and represents the highest value asset category in the Township's asset portfolio. It includes all municipally owned and maintained roadways in addition to supporting roadside infrastructure including guiderails, streetlights, signs, and sidewalks located in the Villages.

The Township's roads and sidewalks are maintained by the Public Works crew, who are also responsible for winter snow clearing, ice control and snow removal operations.

For this AMP, the current asset inventory for roads was refined and consolidated with asset data from the 2020 Road Needs Study to produce a centralized road inventory for the Township.

5.1 Inventory & Valuation

Table 9 summarizes the quantity and current replacement cost of the Township's various road network assets as managed in its primary asset management register, Citywide.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
HCB Roads	79	kms	$38,371,000	Cost/Unit
LCB Roads	93	kms	$17,798,000	Cost/Unit
Roadside Appurtenances	21	Quantity	$362,000	CPI
Streetlights	170	Quantity	$258,000	CPI
Gravel Roads	153	kms	Not Planned for Replacement	
TOTAL			**$56,790,000**	

Table 9 Detailed Asset Inventory: Road Network

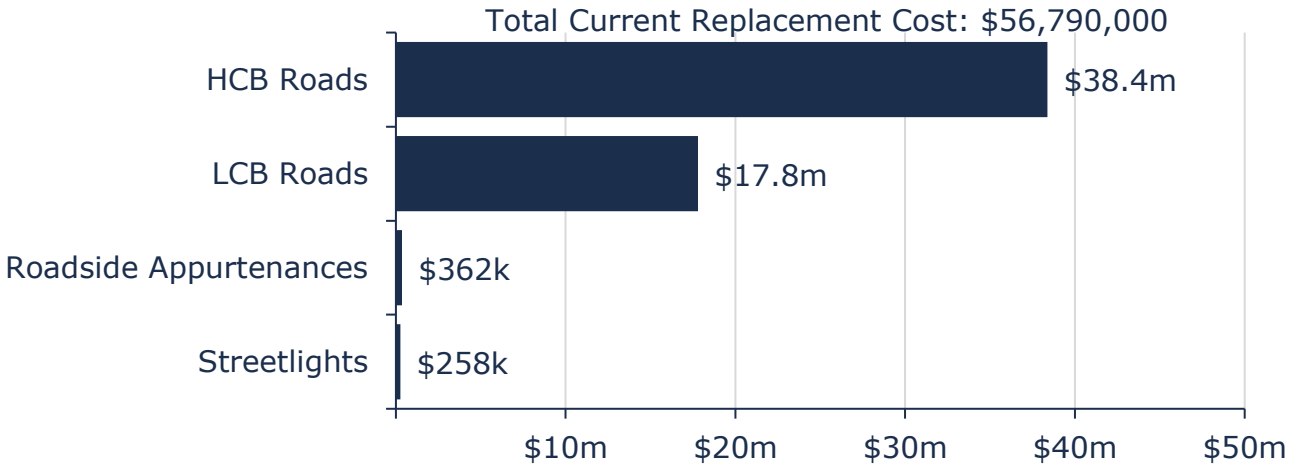


Figure 19 Portfolio Valuation: Road Network

5.2 Asset Condition

Figure 20 summarizes the replacement cost-weighted condition of the Township's road network. Based on a combination of field inspection data and age, 67% of assets are in fair or better condition; the remaining 33% of assets are in poor to very poor condition. Condition assessments were available for 100% of paved roads and 51% of roadside appurtenances, 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.

Assets in poor or worse condition may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. As illustrated in Figure 20, the majority of the Township's road network assets are in fair or better condition.

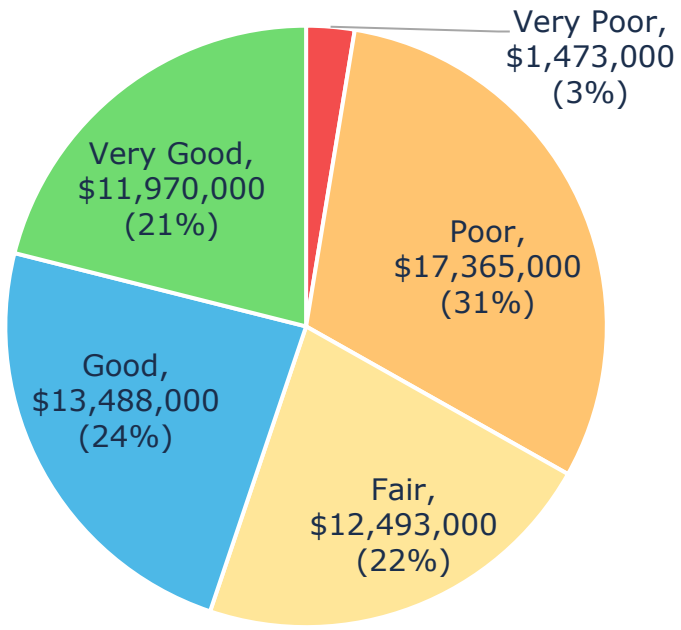


Figure 20 Asset Condition: Road Network Overall

As illustrated in Figure 21, based on condition assessments, the majority of the Township's paved road network is in fair or better condition; however, 49% of HCB roads are in poor or worse condition.

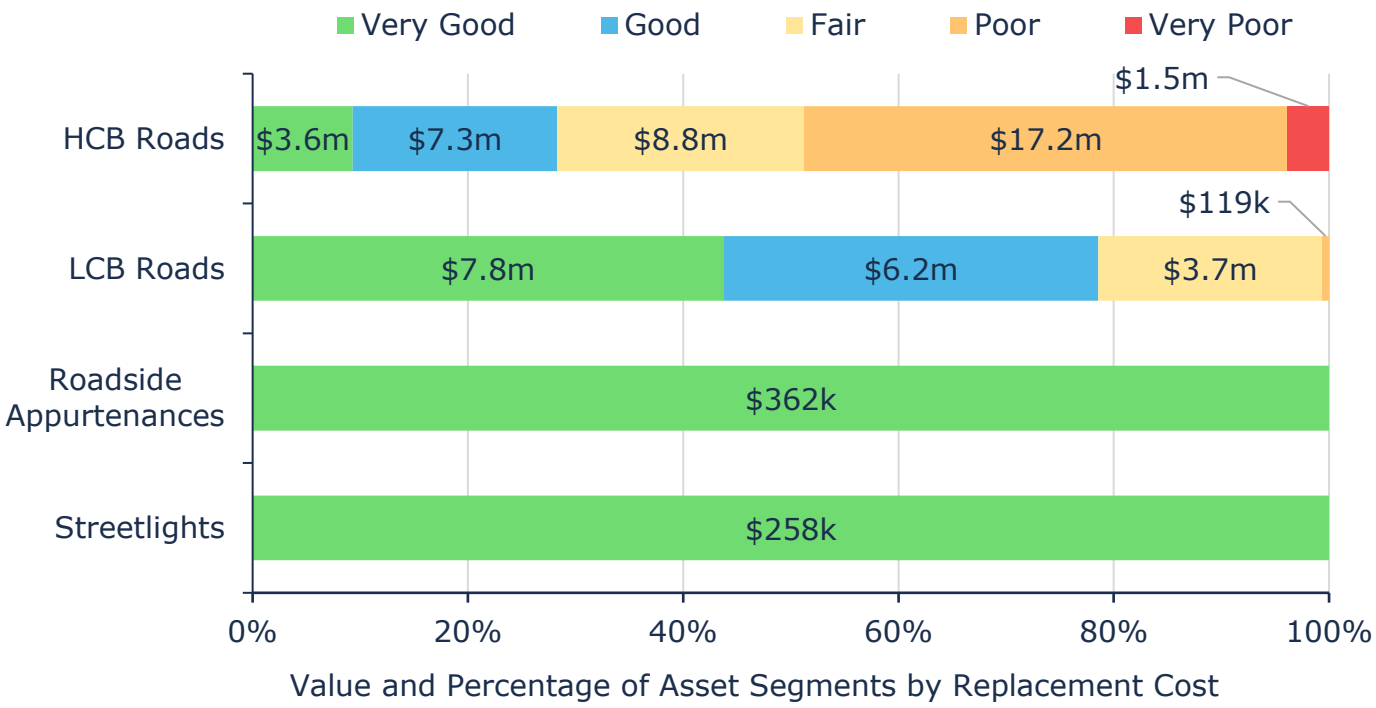


Figure 21 Asset Condition: Road Network by Segment

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 long-term replacement spikes.

Figure 22 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.

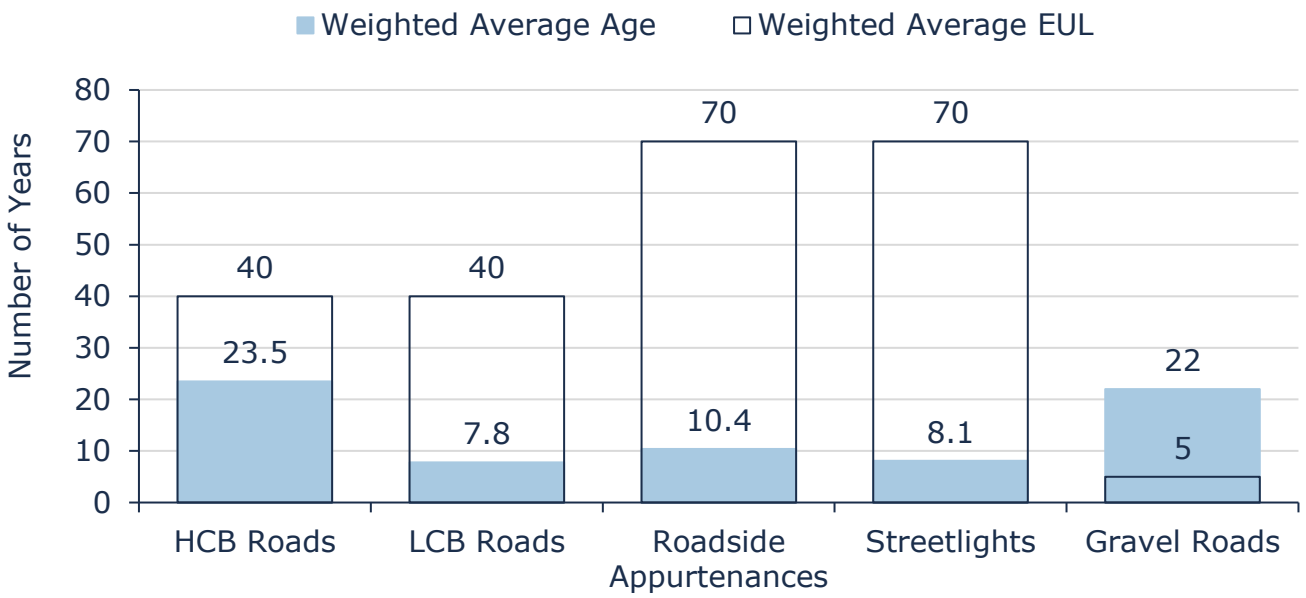


Figure 22 Estimated Useful Life vs. Asset Age: Road Network

Age analysis shows that most paved roads are in the early to mid-stages of their expected useful life, with an average age of 24 years against a design life of 40 years. Roadside appurtenances and streetlights continue to remain in the early stages of their expected useful life. Gravel roads can be maintained on a perpetual cycle through the operational maintenance budget with a regular roadway granular replacement program.

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

5.4 Current Approach to Lifecycle Management

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

The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of HCB, LCB roads and gravel 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.

Urban Roads (HCB)		
Event Name	**Event Class**	**Event Trigger**
Crack Sealing (6 Treatments)	Preventative Maintenance	85 Condition
Microsurface (4 Treatments)	Rehabilitation	70 Condition
Mill & Pave	Rehabilitation	50 Condition
Full Reconstruction	Replacement	20 Condition

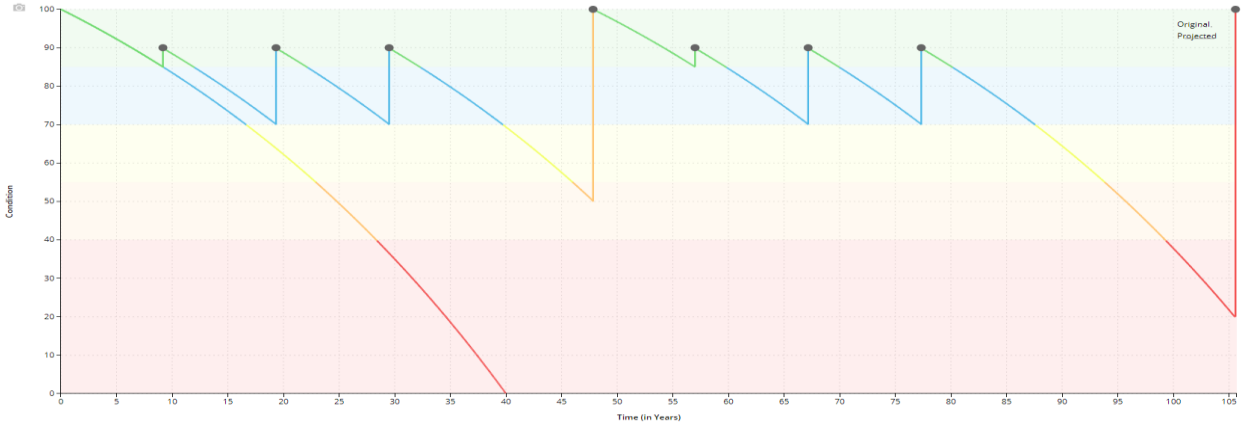


Table 10 Lifecycle Management Strategy: Road Network (Urban HCB Roads)

Rural & Semi-Urban Roads (HCB)		
Event Name	**Event Class**	**Event Trigger**
Crack Sealing (6 Treatments)	Preventative Maintenance	85 Condition
Microsurface (4 Treatments)	Rehabilitation	70 Condition
Full Depth Reclamation	Rehabilitation	40 Condition
Full Reconstruction	Replacement	20 Condition

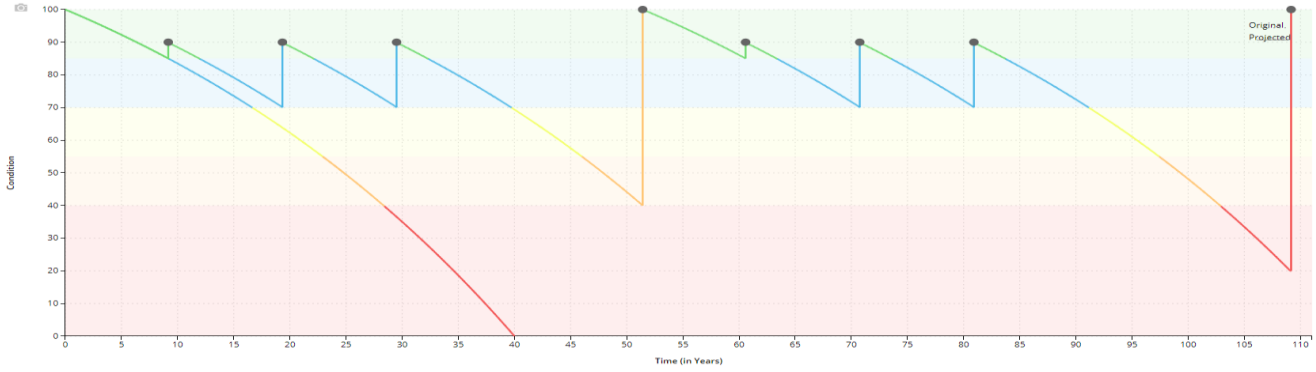


Table 11 Lifecycle Management Strategy: Road Network (Rural & Semi-Urban HCB Roads)

Rural Roads (LCB)		
Event Name	**Event Class**	**Event Trigger**
Seal Coat (4 Treatments)	Maintenance	Every 5 years
Full Reconstruction	Replacement	At 10 Condition

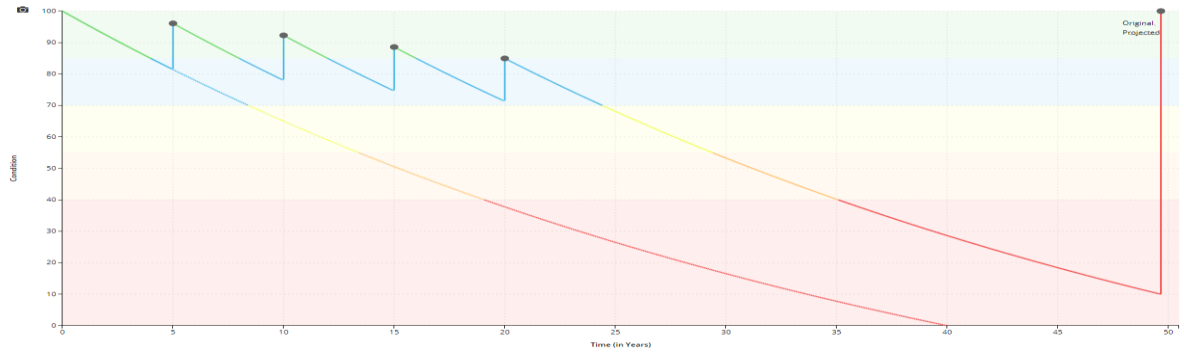


Table 12 Lifecycle Management Strategy: Road Network (Rural LCB Roads)

Gravel Roads		
Event Name	**Event Class**	**Event Trigger**
Dust Suppressant, Grading and Mowing	Maintenance	Annually
Brushing (10 Treatments)	Maintenance	Every 3 years
Gravelling (3 Treatments)	Preventative Maintenance	Every 3 years
Ditching (10 Treatments)	Maintenance	Every 10 years
Full Reconstruction	Replacement	At 10 Condition

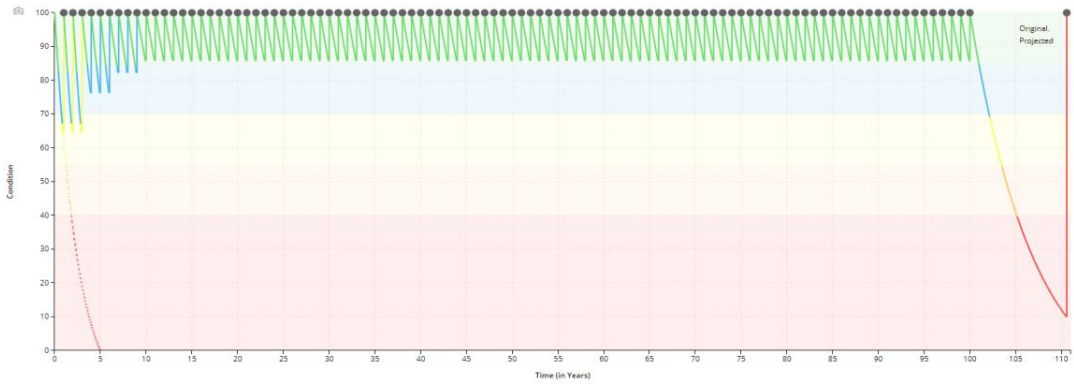


Table 13 Lifecycle Management Strategy: Road Network (Gravel Roads)

Gravel Roads – AADT 201+ (candidates for surface upgrade)		
Event Name	**Event Class**	**Event Trigger**
Dust Suppressant, Grading and Mowing	Maintenance	Annually
Brushing (10 Treatments)	Maintenance	Every 3 years
Gravelling (3 Treatments)	Preventative Maintenance	Every 3 years
Ditching (10 Treatments)	Maintenance	Every 10 years
Full Reconstruction	Replacement	At 10 Condition

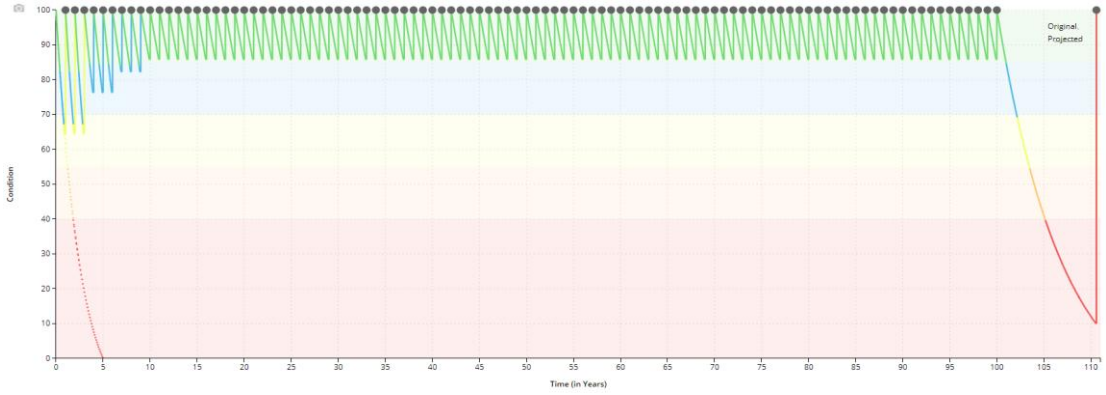


Table 14 Lifecycle Management Strategy: Road Network (Gravel Roads – AADT 201+)

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

Activity Type	Description of Current Strategy
Inspection	A Road Needs Study was completed in 2020 that included a detailed assessment of the condition of each road segment
	Hard surface roads are inspected in the fall, and gravel roads in the summer
	Network-wide condition assessments are expected to be completed every two years internally moving forward
	Road network assets are inspected as per O. Reg. 239/02: Minimum Maintenance Standards for Municipal Highways

Table 15 Lifecycle Management Strategy: Road Network

5.5 Forecasted Long-Term Replacement Needs

Figure 23 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's road network. This analysis was run until 2074.The Township's average annual requirements (red dotted line) total $1.4 million for all assets in the road network. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

The chart illustrates substantial capital needs through the forecast period. These projections are based on asset replacement costs, age analysis, and condition data when available, as well as lifecycle modeling (roads only). They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

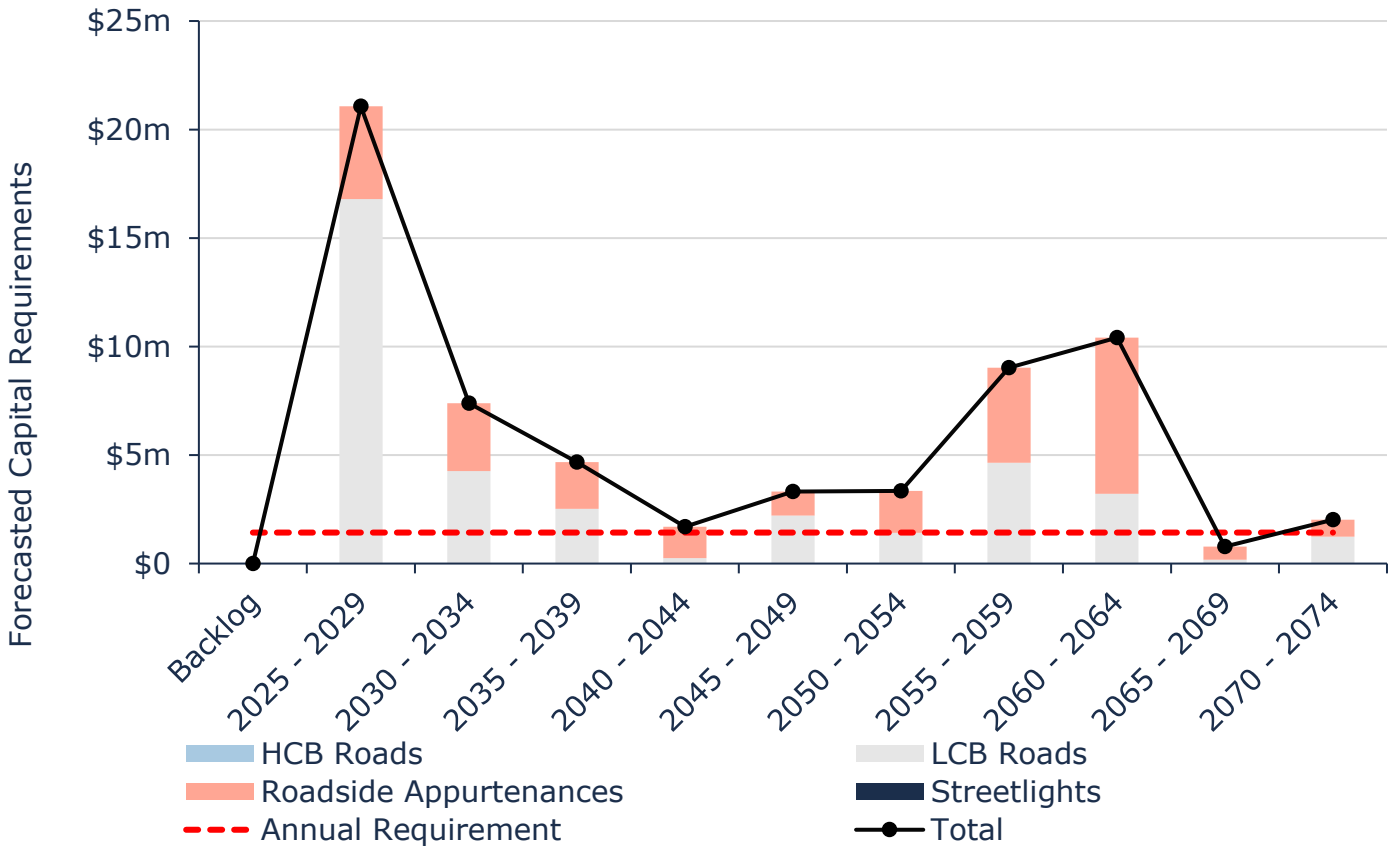


Figure 23 Forecasted Capital Replacement Needs: Road Network 2025-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. Regular pavement condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A summary of the 10-year replacement forecast can be found in Appendix B – 10-Year Capital Requirements.

5.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, base defect, replacement cost, AADT, roadside environment, speed limit and asset function. The risk ratings for assets without useful attribute data were calculated using only condition 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.

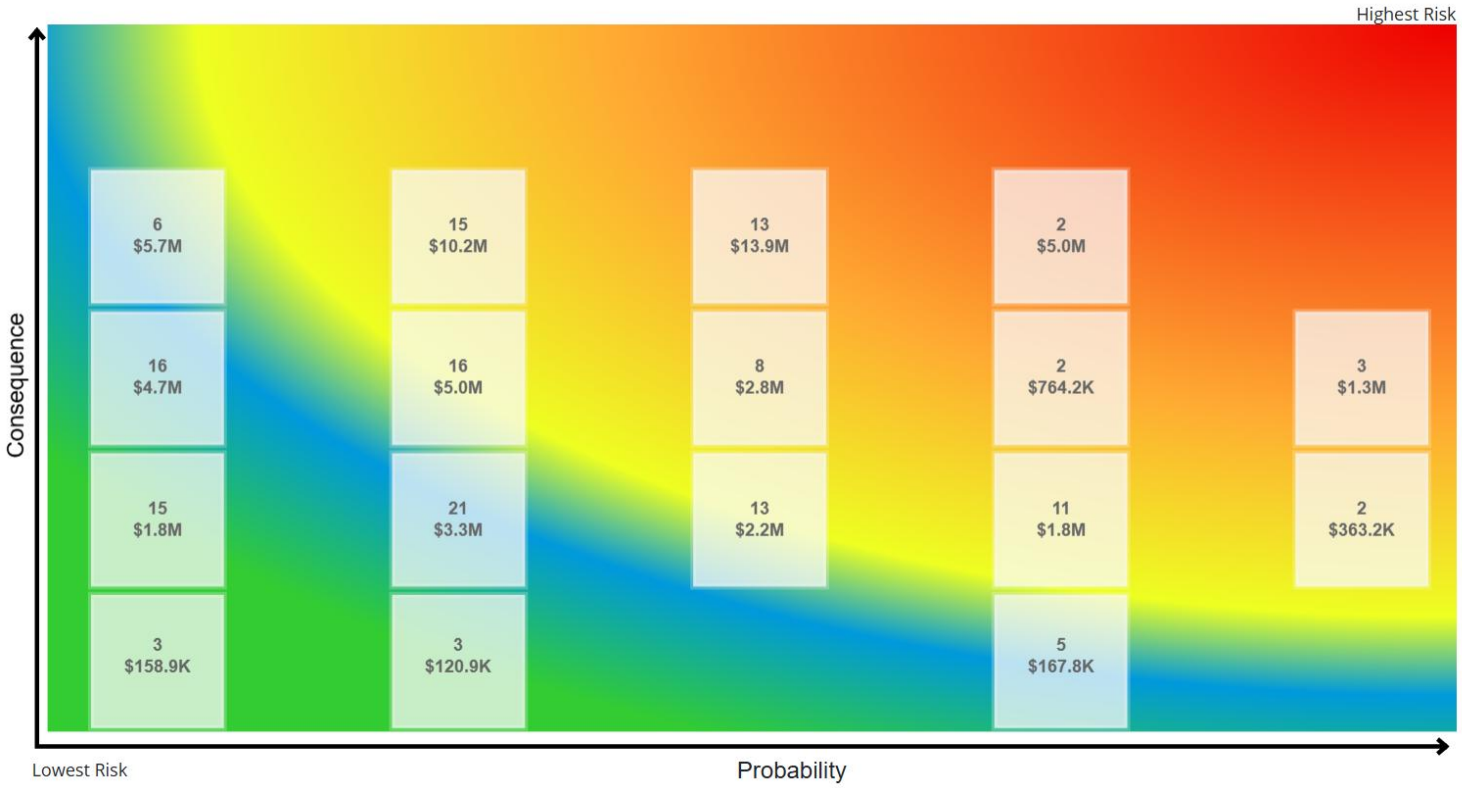


Figure 24 Risk Matrix: Road Network

5.7 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 selected for this AMP.

5.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	The Township's transportation network comprises of 318 centerline km of road, of which 153 km are gravel roads and 165 km are paved roads. The network mostly consists of roads with MMS classes of 4, 5 and 6. The network also consists of about 170 streetlight assets, and other roadside appurtenances.
Quality	Description or images that illustrate the different levels of road class pavement condition	Every road section receives a pavement quality index (PQI) rating (0-100). The rating incorporates pavement roughness measurements and surface distresses (type, quantity, severity). Ratings are categorized into 5 general qualitative descriptors as detailed below: 0-29 – Failed 30-49 – Poor 50-69 – Fair 70-89 – Good 90-100 – Excellent

Table 16 O. Reg. 588/17 Community Levels of Service: Road Network

5.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km^2)	0 km/km^2
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km^2)	0.35 km/km^2

Service Attribute	Technical Metric	Current LOS (2024)
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)	0.69 km/km^2
Quality	Average pavement condition index for paved roads in the Township	66%
	Average surface condition for unpaved roads in the Township (e.g. excellent, good, fair, poor)	Good
Performance	Capital reinvestment rate	1.99%
	Operating costs for unpaved (loose top) roads per lane kilometer	$1,380

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

5.8 Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the Township's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for the road network. Further PLOS analysis at the portfolio level can be found in Section *4. Proposed Levels of Service Analysis.*

5.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Maintain Current Funding Level	This scenario maintains existing capital funding levels for those categories that are underfunded. ♦ Road Network capital funding maintained at $1.13m/year
Scenario 2: Achieving 100% Target Funding in 10 Years	This scenario assumes gradual tax increases of ~0.6%/year, stabilizing at 100% funding across all asset categories in 10 years. ♦ Road Network capital funding gradually increases from $1.13m/year to $1.43m/year over a span of 10 years
Scenario 3: Achieving Midpoint Between Current and Target Funding in 10 Years	This scenario assumes gradual tax increases of ~0.3%/year, stabilizing at the midpoint between current and target funding across all asset categories in 10 years. ♦ Road Network capital funding gradually increases from $1.13m/year to $1.28m/year over a span of 10 years

Table 18 Road Network PLOS Scenario Descriptions

5.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1	Average Condition	66%	64%	57%	
	Average Asset Risk	10.4	10.4	12.2	
	Annual Investment Required		$1,129,000		This is the maintained parameter in this scenario
	Capital Reinvestment Rate		2.0%		
Scenario 2	Average Condition	66%	67%	67%	
	Average Asset Risk	10.4	9.9	10.8	
	Annual Investment Required		$1,427,000		This parameter is increased from $1.13M incrementally to reach a target portfolio investment of $1.43M over 10 years
	Capital Reinvestment Rate		2.5%		
Scenario 3	Average Condition	66%	65%	61%	
	Average Asset Risk	10.4	10.4	11.5	
	Annual Investment Required		$1,277,750		This parameter is increased from $1.13M incrementally to reach a target portfolio investment of $1.28M over 10 years
	Capital Reinvestment Rate		2.2%		

Table 19 Road Network PLOS Scenario Analysis

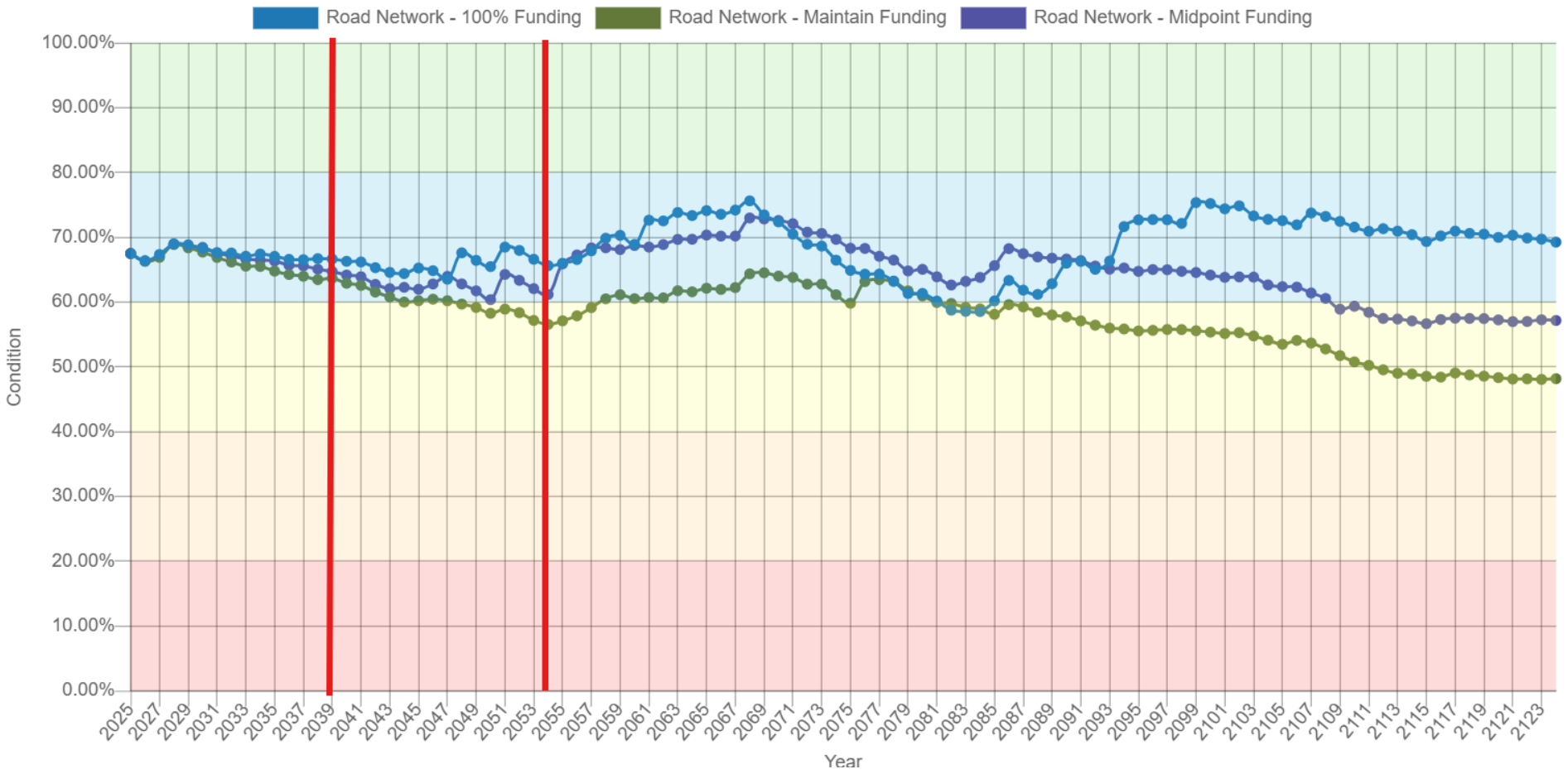


Figure 25 Road Network PLOS Scenario Condition Results

6. Bridges & Culverts

Bridges & Culverts represents a critical portion of the transportation services provided to the community. The Operations & Infrastructure department is responsible for the maintenance of all bridges and structural culverts located across municipal roads with the goal of keeping structures in an adequate state of repair and minimizing service disruptions.

For this AMP, the current asset inventory for bridges and structural culverts was refined and consolidated with asset data from the 2023 OSIM inspections.

6.1 Inventory & Valuation

Table 20 summarizes the quantity and current replacement cost of bridges and culverts. The Township owns and manages 10 bridges and 4 structural culverts.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Bridges	10	Quantity	$12,203,000	User-Defined
Structural Culverts	4	Quantity	$10,116,000	User-Defined
TOTAL			**$22,318,000**	

Table 20 Detailed Asset Inventory: Bridges & Culverts

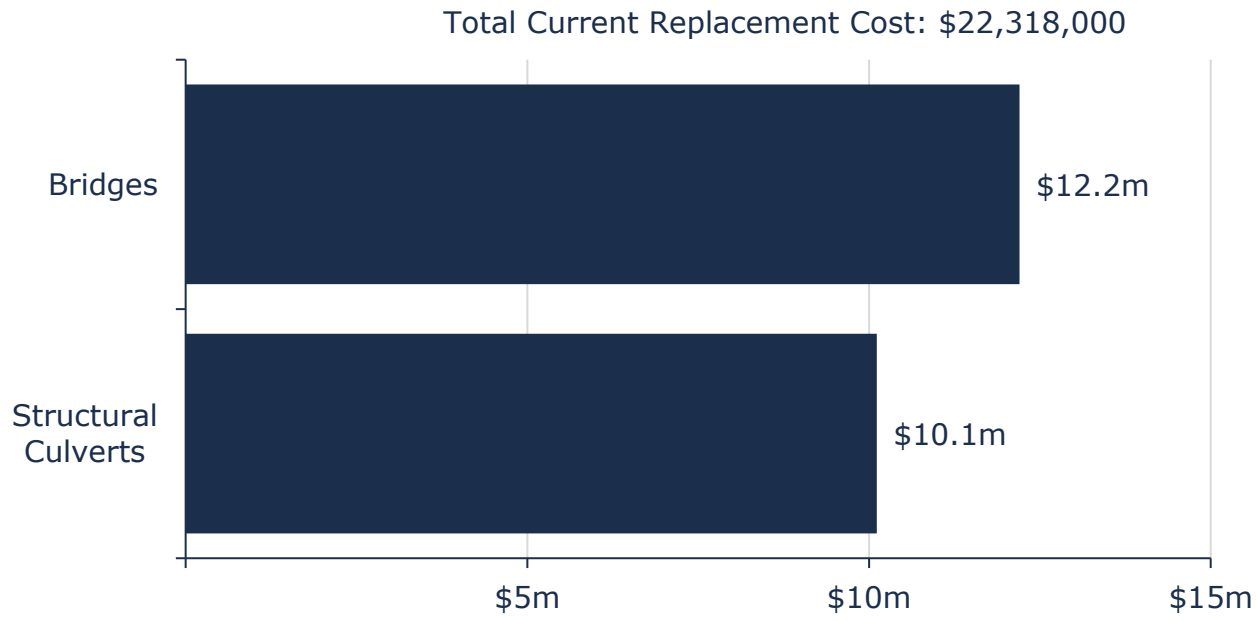


Figure 26 Portfolio Valuation: Bridges & Culverts

6.2 Asset Condition

Figure 27 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% of bridges and culverts are in fair or better condition. Some elements or components of these structures may be candidates for replacement or rehabilitation in the medium term and should be monitored for further degradation in condition.

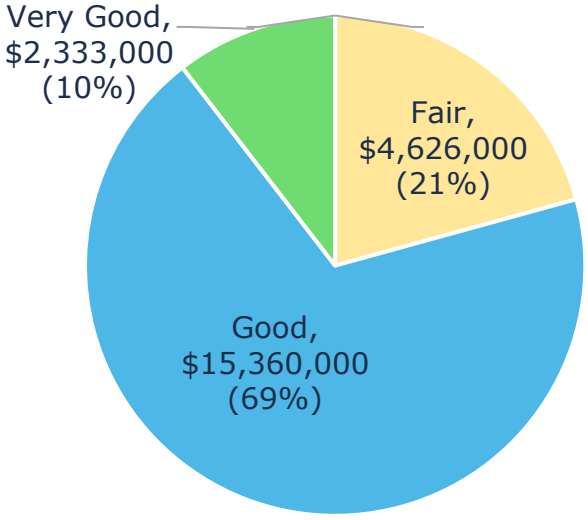


Figure 27 Asset Condition: Bridges & Culverts Overall

As further detailed in Figure 28, based on in-field condition assessments, $4.6 million of bridge and structural culvert assets were assessed as being in fair condition. The OSIM ratings are designed to identify repairs needed to elevate condition ratings to a fair or higher.

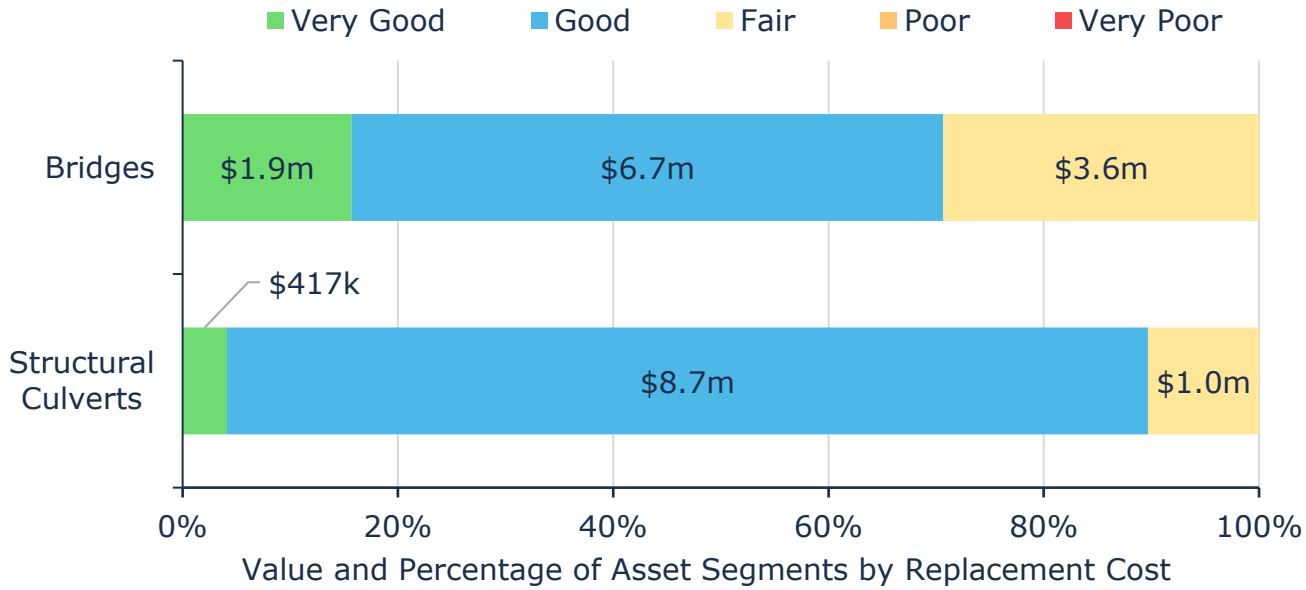


Figure 28 Asset Condition: Bridges & Culverts by Segment

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 replacement spikes.

Figure 29 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.

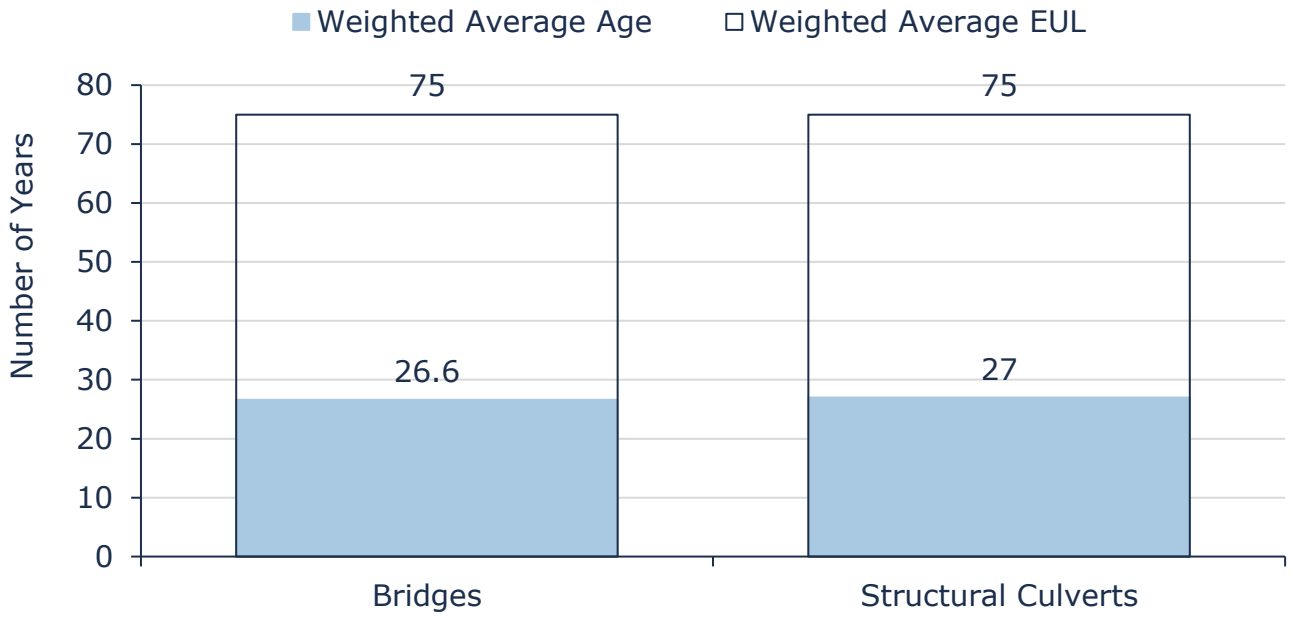


Figure 29 Estimated Useful Life vs. Asset Age: Bridges & Culverts

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 & Replacement	All lifecycle activities are driven by the results of mandated structural inspections competed according to the Ontario Structure Inspection Manual (OSIM). These are included in the capital forecasts for this asset category.
	Bridge cleaning happens once a year.
Inspection	Condition assessments of all bridges and culverts with a span greater than or equal to 3 meters are completed every 2 years in accordance with the Ontario Structure Inspection Manual (OSIM). The most recent inspection report was completed in 2023 by D.M. Wills Associates Limited.

Table 21 Lifecycle Management Strategy: Bridges & Culverts

6.5 Forecasted Long-Term Replacement Needs

Figure 30 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's bridges and culverts. This analysis was run until 2074. The Township's average annual requirements (red dotted line) for bridges and culverts total $357,000. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

These projections and estimates are based on asset replacement costs, age analysis, and condition data. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

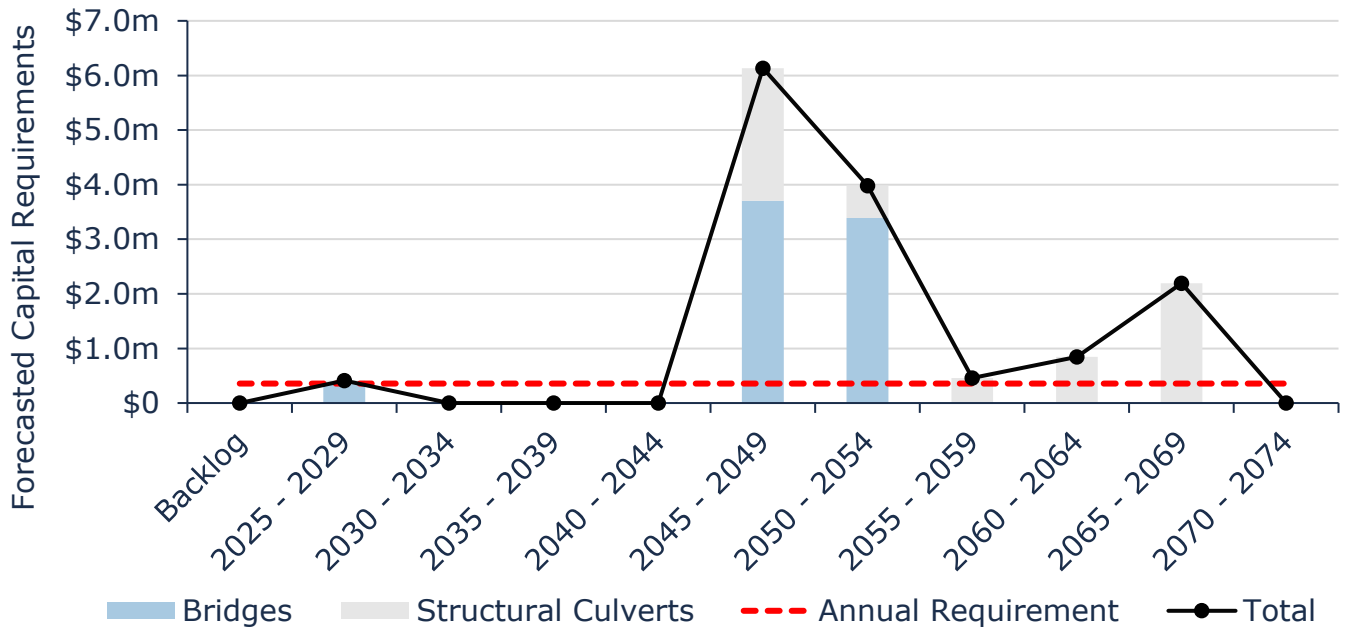


Figure 30 Forecasted Capital Replacement Needs: Bridges & Culverts 2025-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. OSIM condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A summary of the 10-year replacement forecast can be found in Appendix B – 10-Year Capital Requirements.

6.6 Risk Analysis

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

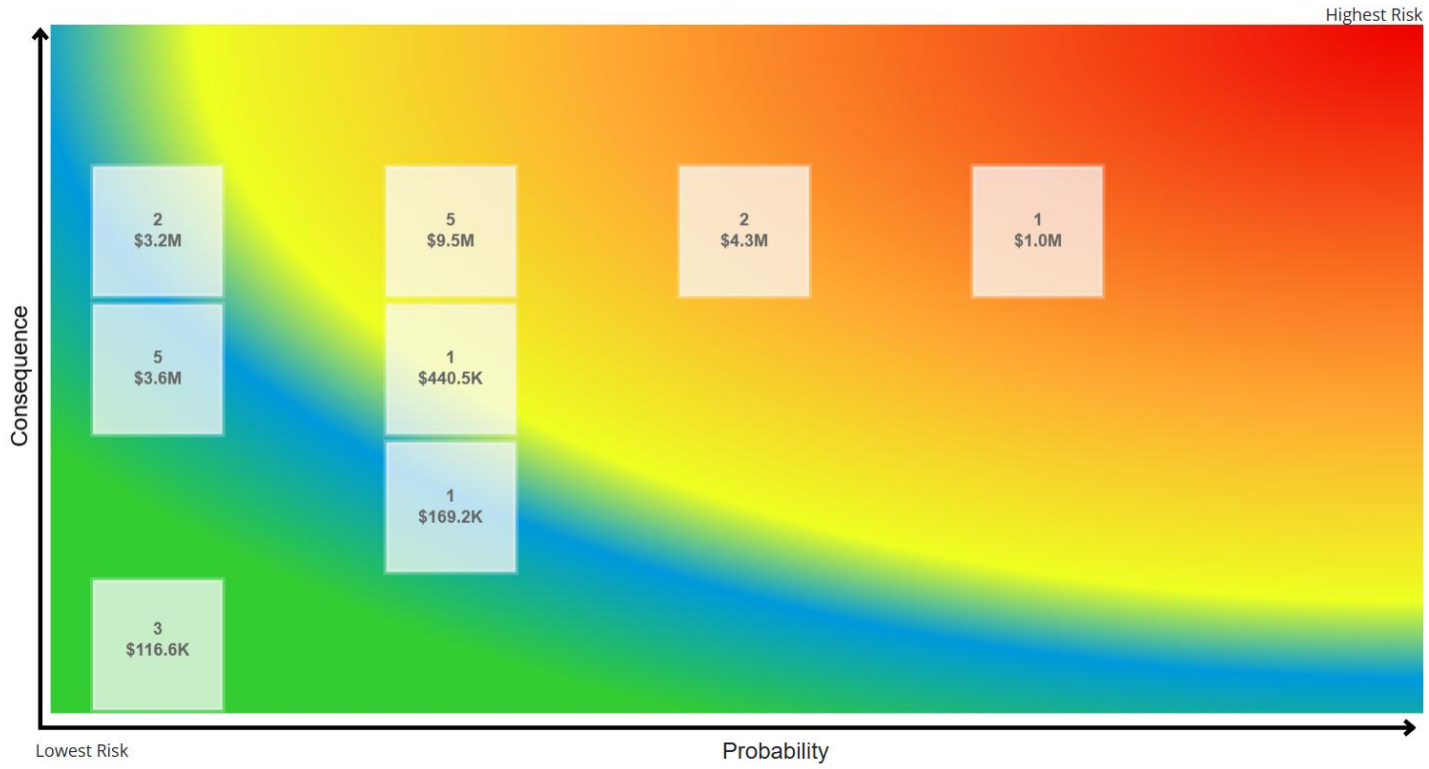


Figure 31 Risk Matrix: Bridges & Culverts

An asset's criticality rating, determined by the nature and magnitude of the consequences of its potential failure should be used to prioritize projects, particularly lifecycle management strategies. Using risk in conjunction with levels of service, and the recommended workplans in OSIM inspections, can assist in optimizing limited funds.

6.7 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.

6.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	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 bridges & culverts and how this would affect use of the bridges & culverts	See Appendix C – Level of Service Maps & Photos

Table 22 O. Reg. 588/17 Community Levels of Service: Bridges & Culverts

6.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of bridges in the Township with loading or dimensional restrictions	0%
Quality	Average bridge condition index value for bridges in the Township	71%
	Average bridge condition index value for structural culverts in the Township	75%
Performance	Capital reinvestment rate	1.67%
	Average duration of unplanned bridge closure	TBD

Table 23 O. Reg. 588/17 Technical Levels of Service: Bridges & Culverts

6.8 Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the Township's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for bridges and culverts. Further PLOS analysis at the portfolio level can be found in section *4. Proposed Levels of Service Analysis.*

6.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Maintain Current Funding Level	This scenario maintains existing capital funding levels for those categories that are underfunded. ♦ Bridges & Culverts capital funding maintained at $373k/year
Scenario 2: Achieving 100% Target Funding in 10 Years	This scenario assumes gradual tax increases of ~0.6%/year, stabilizing at 100% funding across all asset categories in 10 years. ♦ Bridges & Culverts capital funding gradually decreases from $373k/year to $357k/year over a span of 10 years
Scenario 3: Achieving Midpoint Between Current and Target Funding in 10 Years	This scenario assumes gradual tax increase of ~0.3%/year, stabilizing at the midpoint between the current and target funding across all asset categories in 10 years. ♦ Bridges & Culverts capital funding gradually decreases from $373k/year to $349/year over a span of 10 years

Table 24 Bridges & Culverts PLOS Scenario Descriptions

6.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1	Average Condition	73%	61%	77%	
	Average Asset Risk	8.9	11.9	9.1	
	Annual Investment Required		$373,000		This is the maintained parameter in this scenario
	Capital Reinvestment Rate		1.7%		
Scenario 2	Average Condition	73%	61%	74%	
	Average Asset Risk	8.9	11.9	9.8	
	Annual Investment Required		$357,000		This parameter is decreased from $373,000 incrementally to reach a target portfolio investment of $357,000 over 10 years
	Capital Reinvestment Rate		1.6%		
Scenario 3	Average Condition	73%	61%	74%	
	Average Asset Risk	8.9	11.9	9.7	
	Annual Investment Required		$349,000		This parameter is decreased from $373,000 incrementally to reach a target portfolio investment of $349,000 over 10 years
	Capital Reinvestment Rate		1.6%		

Table 25 Bridges & Culverts PLOS Scenario Analysis

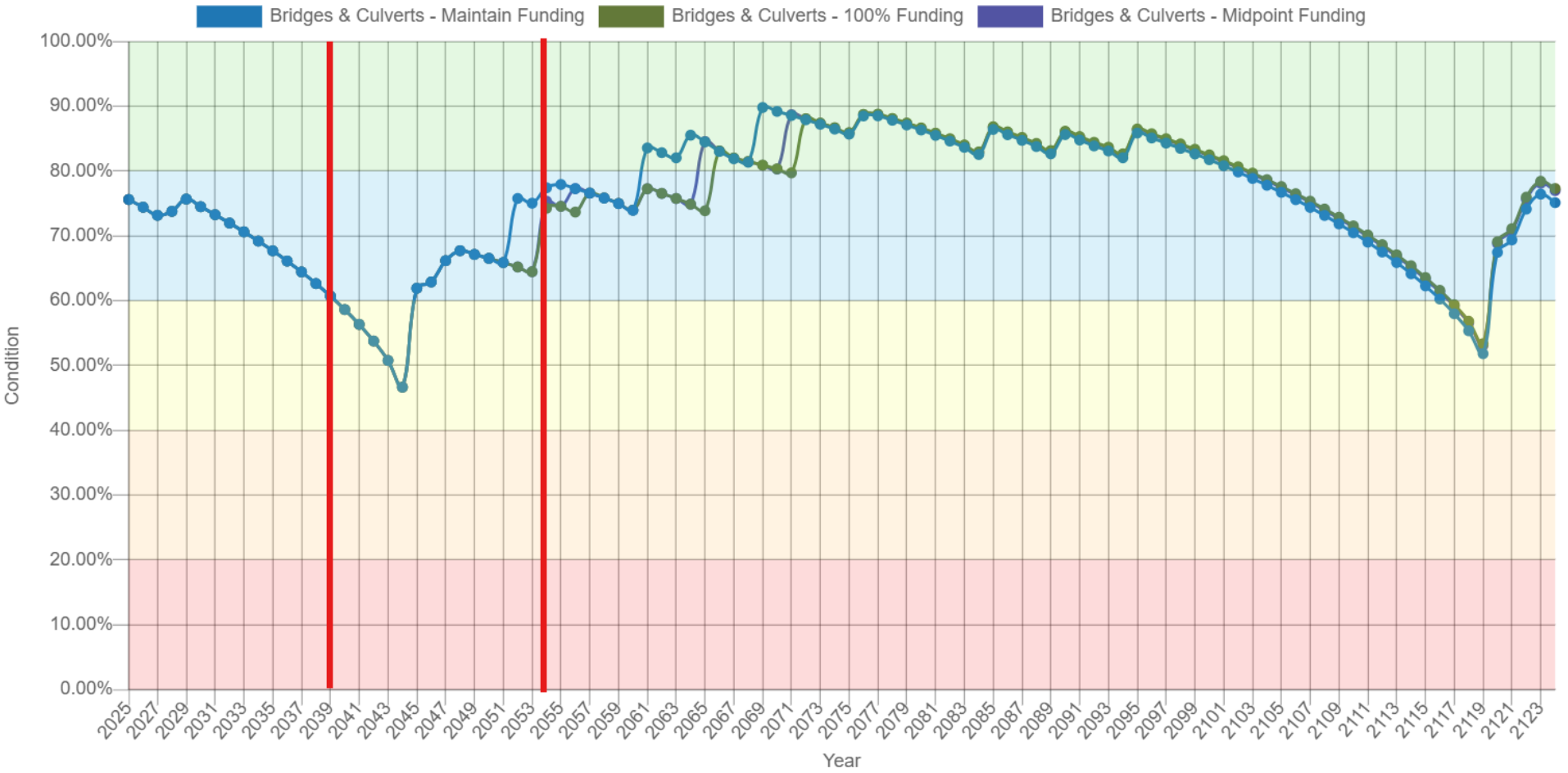


Figure 32 Bridges & Culverts PLOS Scenario Condition Results

7. Water System

Water in the Lansdowne's water system is drawn from two groundwater production wells. The Township is responsible for water distribution to the end users, consumer metering, and billing. The management of the water system is coordinated between the Ontario Clean Water Agency (OCWA) and the Township's Operations and Infrastructure Department.

Asset data from GIS data sources and the Township's financial software was gathered and consolidated into the Township's current asset inventory as a starting point to develop a centralized water system asset inventory.

7.1 Inventory & Valuation

Table 26 summarizes the quantity and current replacement cost of the Township's various water system assets as managed in its primary asset management register, Citywide Assets.

Segment	Quantity (# of components)	Unit of Measure	Replacement Cost	Primary RC Method
Hydrants	38	Quantity	$325,000	Cost/Unit
Lateral Lines	221	m	$75,000	Cost/Unit
Mains	5,296	m	$2,054,000	Cost/Unit
Water Meters	255	Quantity	$183,000	Cost/Unit
Water Tower	3	Quantity	$5,755,000	User-Defined
Wells	2 (463)	Quantity	$2,636,000	User-Defined
TOTAL			**$11,027,000**	

Table 26 Detailed Asset Inventory: Water System

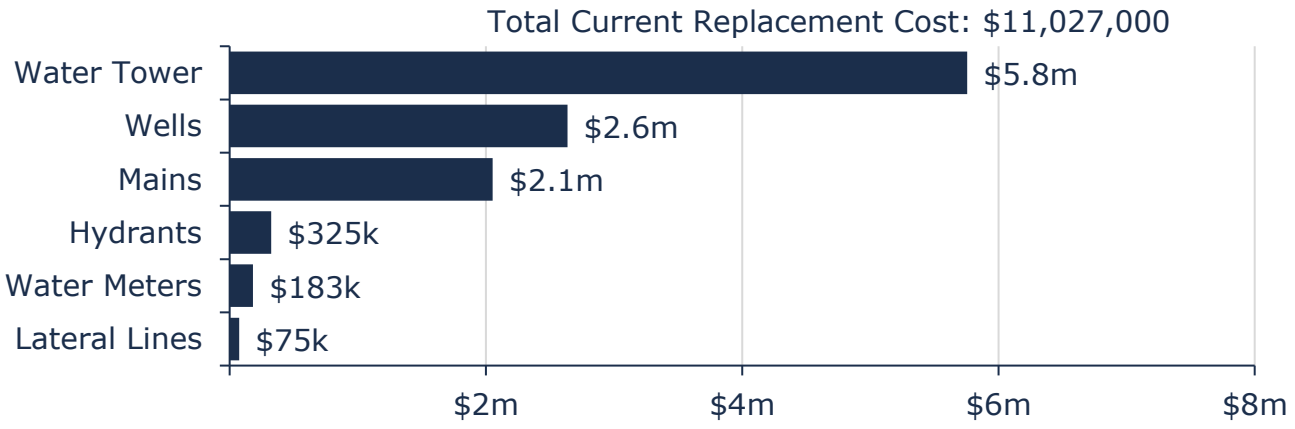


Figure 33 Portfolio Valuation: Water System

7.2 Asset Condition

Figure 34 summarizes the replacement cost-weighted condition of the Township's water system. Based primarily on age, 99% of assets are in fair or better condition; the remaining 1% of assets are in poor to very poor condition. Condition assessments were available for 9% of wells, 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 remainder of assets.

Assets in poor or worse condition may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. As illustrated in Figure 34, the majority of the Township's water system assets are in fair or better condition.

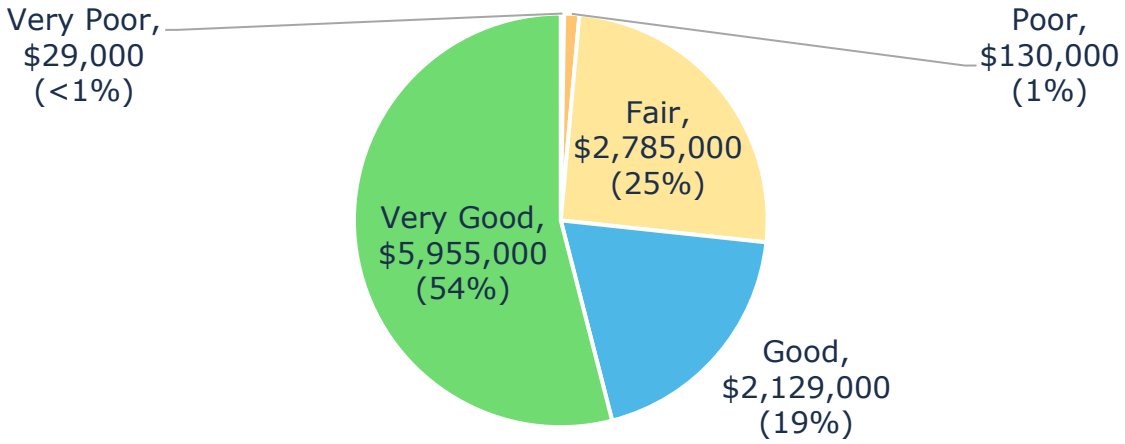


Figure 34 Asset Condition: Water System Overall

As illustrated in Figure 35, based on condition on age-based conditions, the majority of the Township's water mains are in good condition; however, 6% of wells are in poor or worse condition.

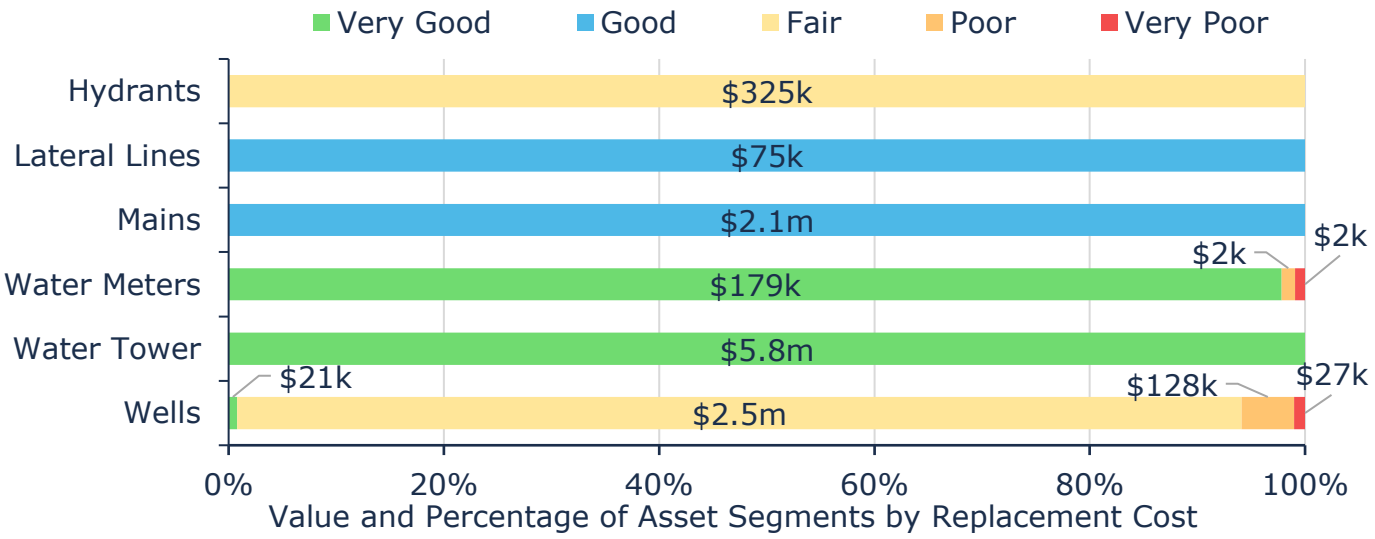


Figure 35 Asset Condition: Water System by Segment

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 36 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.

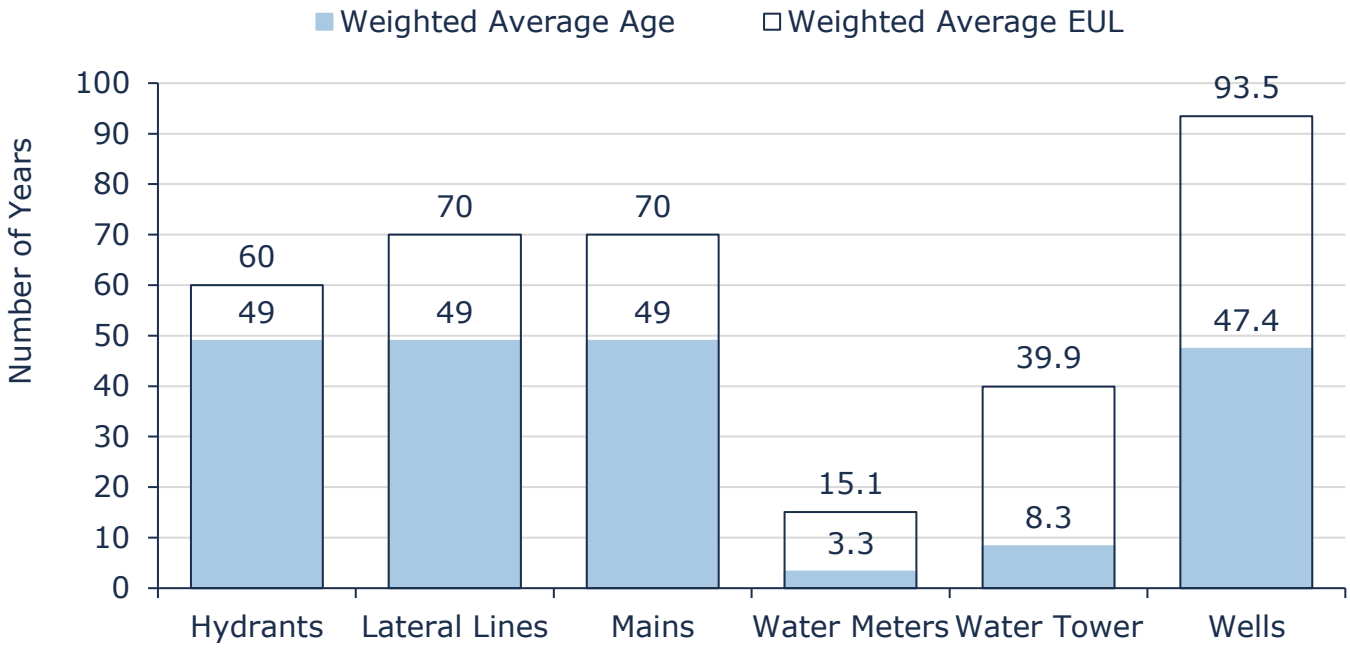


Figure 36 Estimated Useful Life vs. Asset Age: Water System

7.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Annual maintenance program includes valve exercising, water main flushing, hydrants inspections, and air relief valve and chamber inspections
Rehabilitation/ Replacement	Multi-year capital forecasts are provided by OCWA and further reviewed by municipal staff
	Replacement activities are identified based on an analysis of the main break rate as well as any issues identified during regular maintenance activities
	Reconstruction efforts have focused on older watermains and rely on an age-based assessment of current condition
	Similar to other sub-surface infrastructure staff attempt to coordinate water reconstruction projects with road reconstruction projects to produce cost efficiencies
Inspection	Staff primarily rely on the age and material of water mains to determine the projected condition of water mains
	While the age-based condition of the water meters is considered good, Staff have identified a significant portion of water meters that are not operating properly. A replacement program is in place to address the malfunctioning water meters. Going forward, Staff are also working on incorporating the assessed condition data of water meters, gathered through and based on actual operations of the water meters, into the asset management program in order to generate a more accurate condition
	Aside from the inspections required under O. Reg. 170/3 and multi-year forecasts from OCWA, there are no formal condition assessment programs in place in for the water system

Table 27 Lifecycle Management Strategy: Water System

7.5 Forecasted Long-Term Replacement Needs

Figure 37 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's water system. This analysis was run until 2074. The Township's average annual requirements (red dotted line) total $277,000 for all assets in the water system. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

These projections are based on asset replacement costs, age analysis, and condition data when available. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

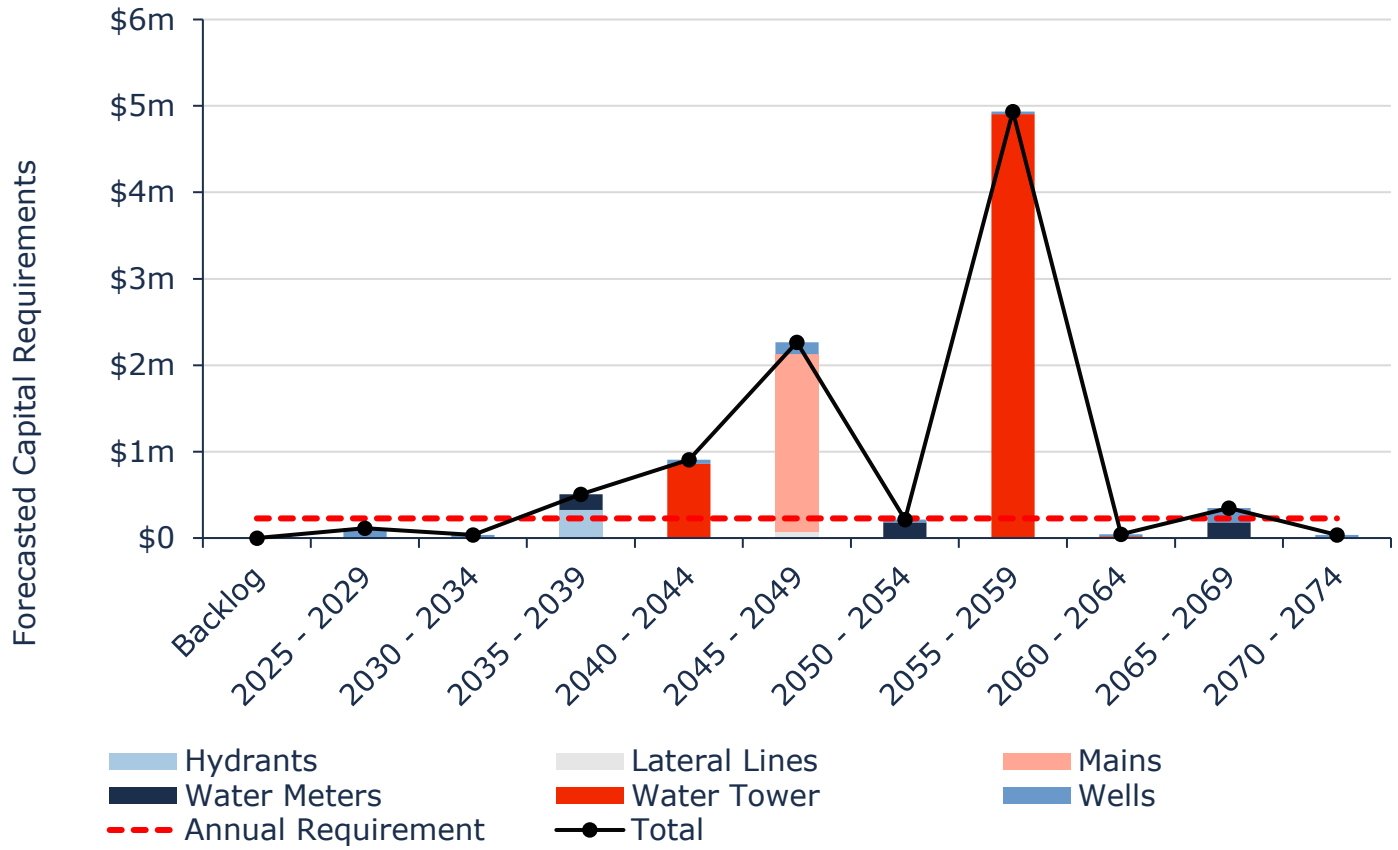


Figure 37 Forecasted Capital Replacement Needs: Water System 2025-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. Regular condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A summary of the 10-year replacement forecast can be found in Appendix B – 10-Year Capital Requirements.

7.6 Risk Analysis

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

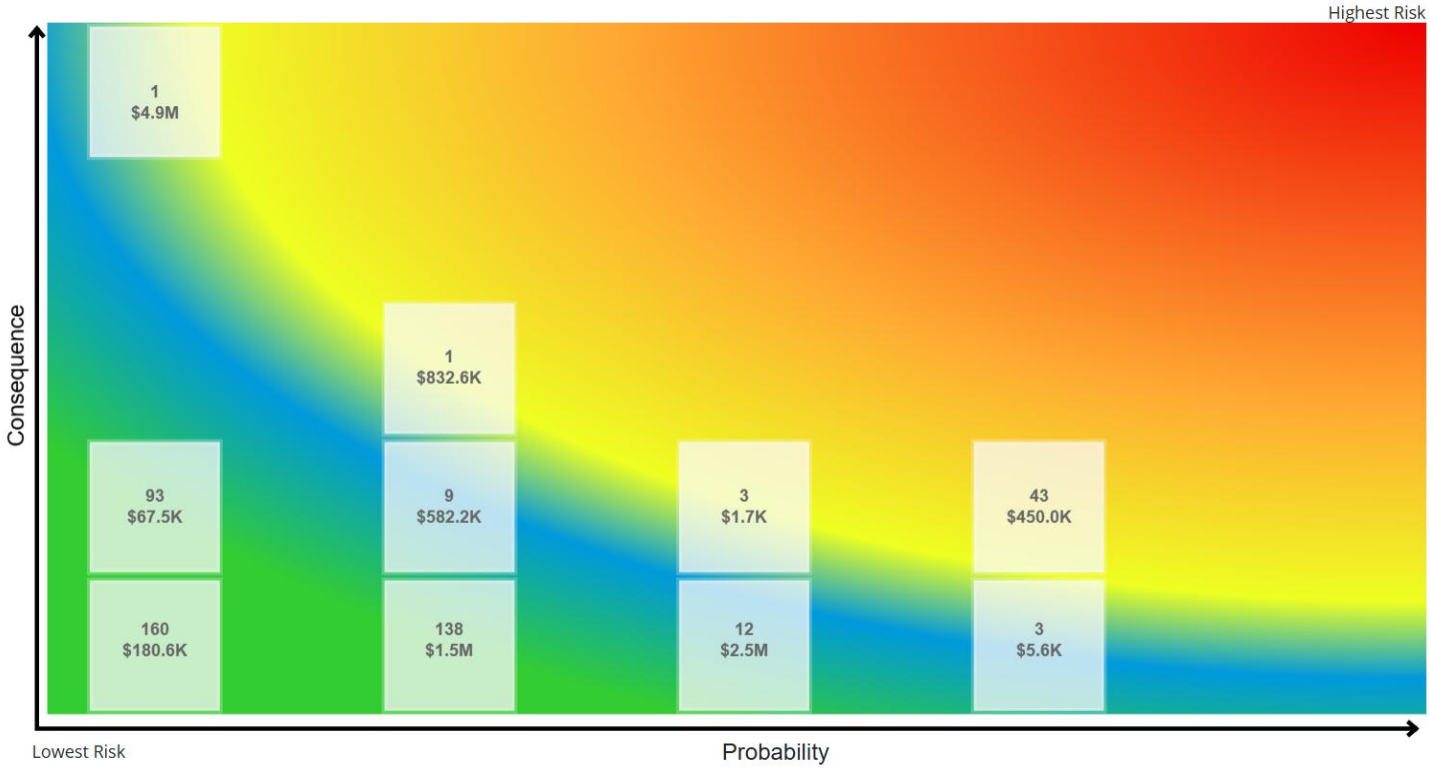


Figure 38 Risk Matrix: Water System

7.7 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.

7.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system	The current water system is limited to the village of Lansdowne. All households and businesses within this village are connected to the system. This distribution system has one standpipe located approximately 150 meters from the water treatment plant

Service Attribute	Qualitative Description	Current LOS (2024)
		with a storage capacity of approximately 2,700 m3.
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow	The standpipe provides for peak hour demands and fire flows.
Reliability	Description of boil water advisories and service interruptions	The Township experienced no boil water advisories or service interruptions in 2024. However, water service interruptions may occur due to main breaks, maintenance activities or reconstruction projects. Staff attend to these interruptions in a timely manner, when possible.

Table 28 O. Reg. 588/17 Community Levels of Service: Water System

7.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of properties connected to the municipal water system	5%
	% of properties where fire flow is available	5%
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 system	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 system	0
Performance	Capital reinvestment rate	0.83%

Table 29 O. Reg. 588/17 Technical Levels of Service: Water System

7.8 Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the Township's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for the water system. Further PLOS analysis at the portfolio level can be found in section *4. Proposed Levels of Service Analysis.*

7.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Maintain Current Funding Level	This scenario maintains existing capital funding levels for those categories that are underfunded. ♦ Water system capital funding maintained at $92k/year
Scenario 2: Achieving 100% Target Funding in 10 Years	This scenario assumes gradual water rate increases of ~3.3%/year, stabilizing at 100% funding across all asset categories in 10 years. ♦ Water system capital funding gradually increases from $92k/year to $227k/year over a span of 10 years
Scenario 3: Achieving Midpoint Between Current and Target Funding in 10 Years	This scenario assumes gradual water rate increases of ~1.8%/year, stabilizing at the midpoint between current and target funding across all asset categories in 10 years. ♦ Water system capital funding gradually increases from $92k/year to $160k/year over a span of 10 years

Table 30 Water System PLOS Scenario Descriptions

7.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1	Average Condition	79%	62%	46%	
	Average Asset Risk	4.1	4.8	8.9	
	Annual Investment Required		$92,000		This is the maintained parameter in this scenario
	Capital Reinvestment Rate		0.8%		
Scenario 2	Average Condition	79%	62%	57%	
	Average Asset Risk	4.1	4.8	8.4	
	Annual Investment Required		$227,000		This parameter is based on water rates increasing 3.3% annually for 10 years
	Capital Reinvestment Rate		2.1%		
Scenario 3	Average Condition	79%	62%	57%	
	Average Asset Risk	4.1	4.8	8.4	
	Annual Investment Required		$160,000		This parameter is based on water rates increasing 1.8% annually for 10 years
	Capital Reinvestment Rate		1.5%		

Table 31 Water System PLOS Scenario Analysis

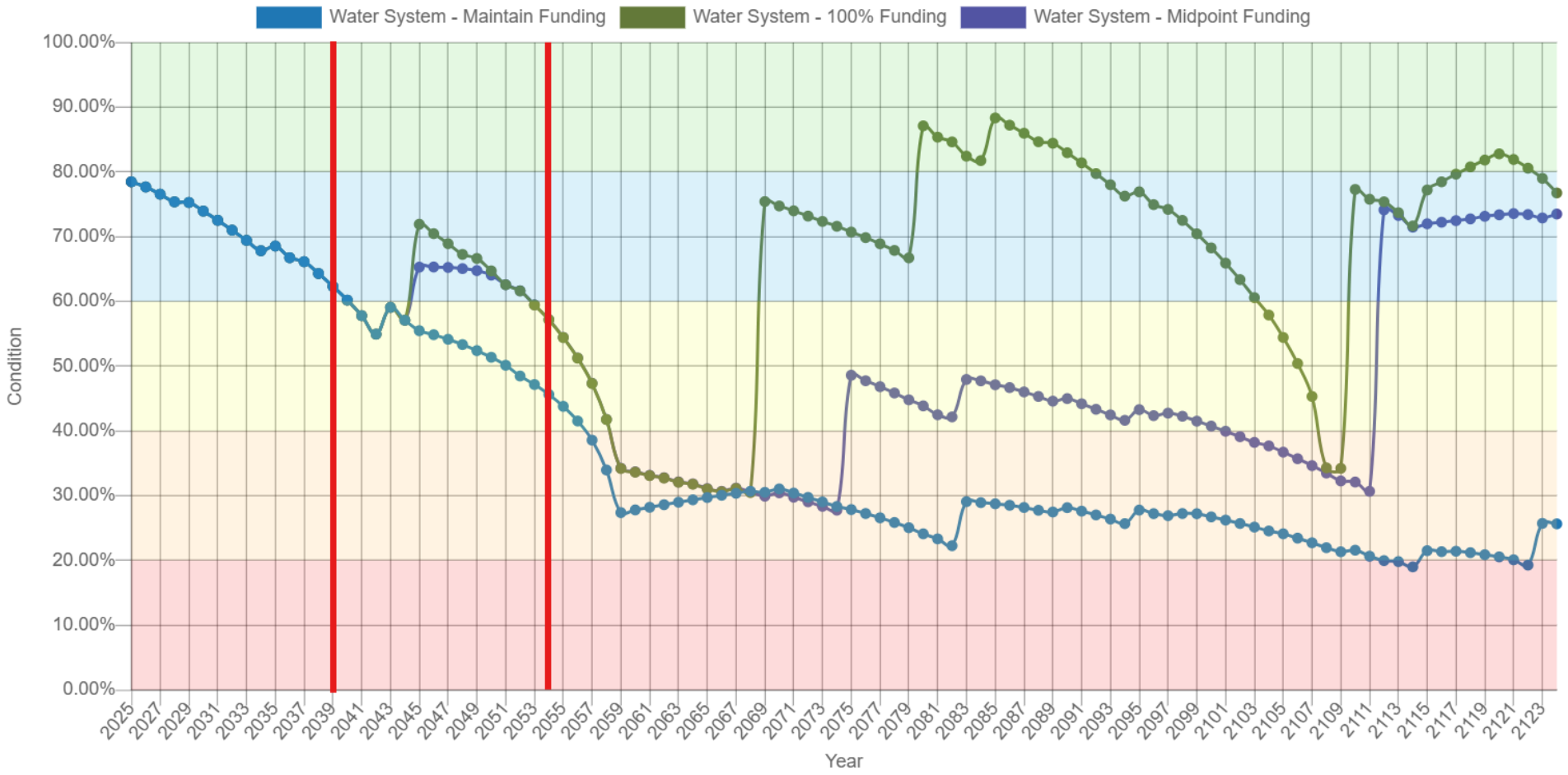


Figure 39 Water System PLOS Scenario Condition Results

8. Sanitary Sewer System

The Township is responsible for sanitary collection, storage and treatment. The management of the sanitary sewer system is coordinated between the Ontario Water Clean Agency (OCWA) and the Township's Operations and Infrastructure Department.

Asset data from GIS data sources was gathered and consolidated into the Township's current asset inventory as a starting point to develop a centralized sanitary sewer asset inventory for the Township.

8.1 Inventory & Valuation

Table 32 summarizes the quantity and current replacement cost of the Township's various sanitary sewer system assets as managed in its primary asset management register, Citywide Assets.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Mains	4,651	m	$1,544,000	Cost/Unit
Manholes	58	Quantity	$493,000	Cost/Unit
Pumping Station	1	Quantity	$300,000	Cost/Unit
Lagoons	2	Quantity	Not Planned for Replacement	
TOTAL			**$2,336,000**	

Table 32 Detailed Asset Inventory: Sanitary Sewer System

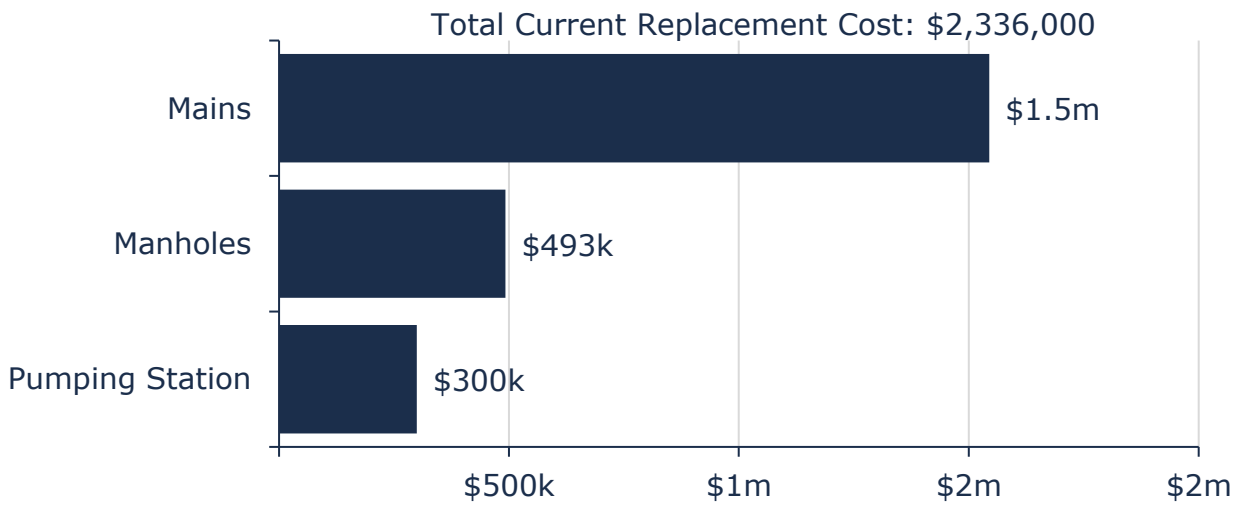


Figure 40 Portfolio Valuation: Sanitary Sewer System

8.2 Asset Condition

Figure 41 summarizes the replacement cost-weighted condition of the Township's sanitary sewer system. Based on a combination of field inspection data and age, 95% of assets are in fair or better condition; the remaining 5% of assets are in poor to very poor condition. Condition assessments were available for 100% of pumping stations 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 remainder of assets.

Assets in poor or worse condition may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. As illustrated in Figure 41 the majority of the Township's sanitary sewer system assets are in fair or better condition.

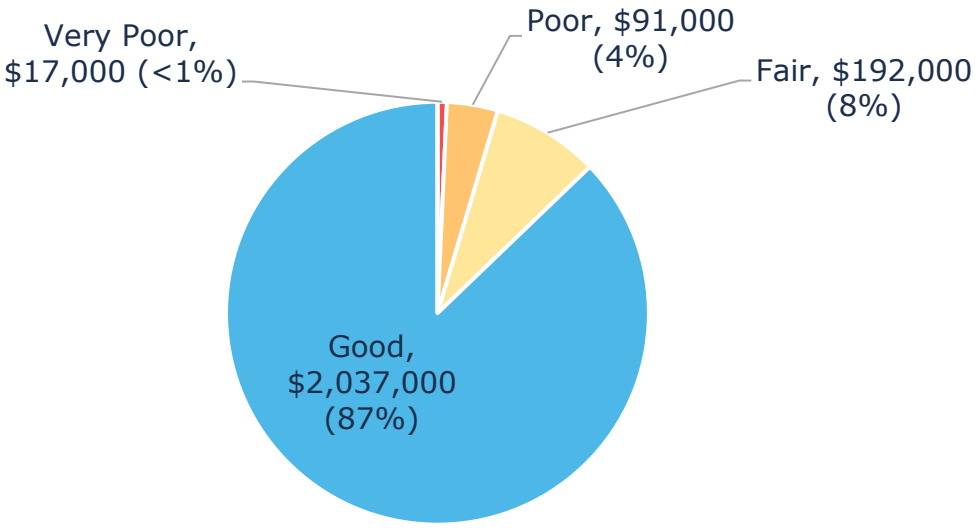


Figure 41 Asset Condition: Sanitary Sewer System Overall

As illustrated in Figure 42, based on condition assessments and age-based conditions, the majority of the Township's sanitary sewer mains are in very good condition however, 36% of pumping stations are in poor or worse condition.

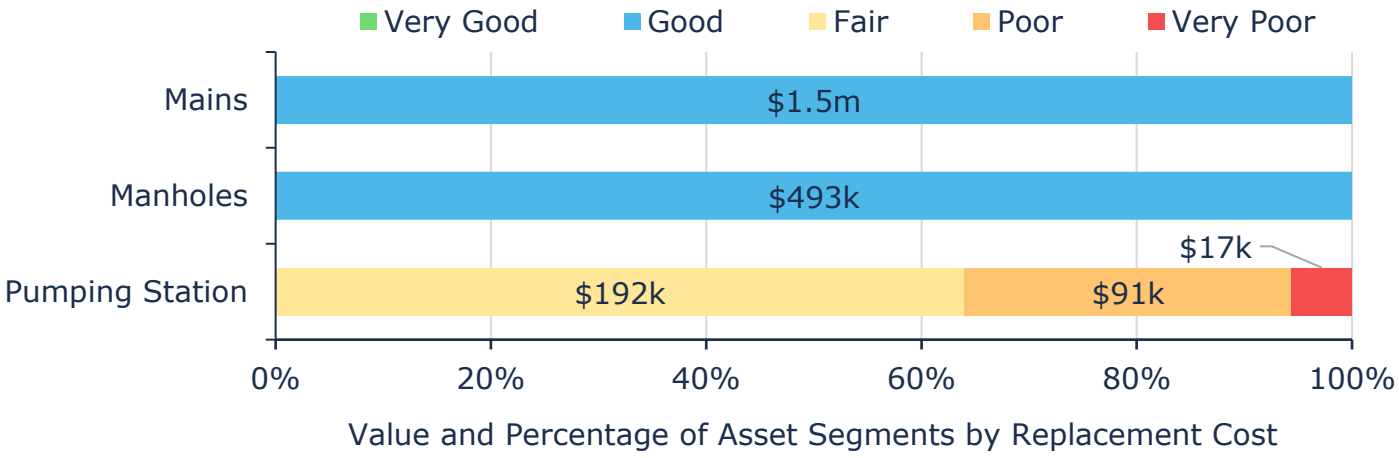


Figure 42 Asset Condition: Sanitary Sewer System by Segment

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 long-term replacement spikes.

Figure 43 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.

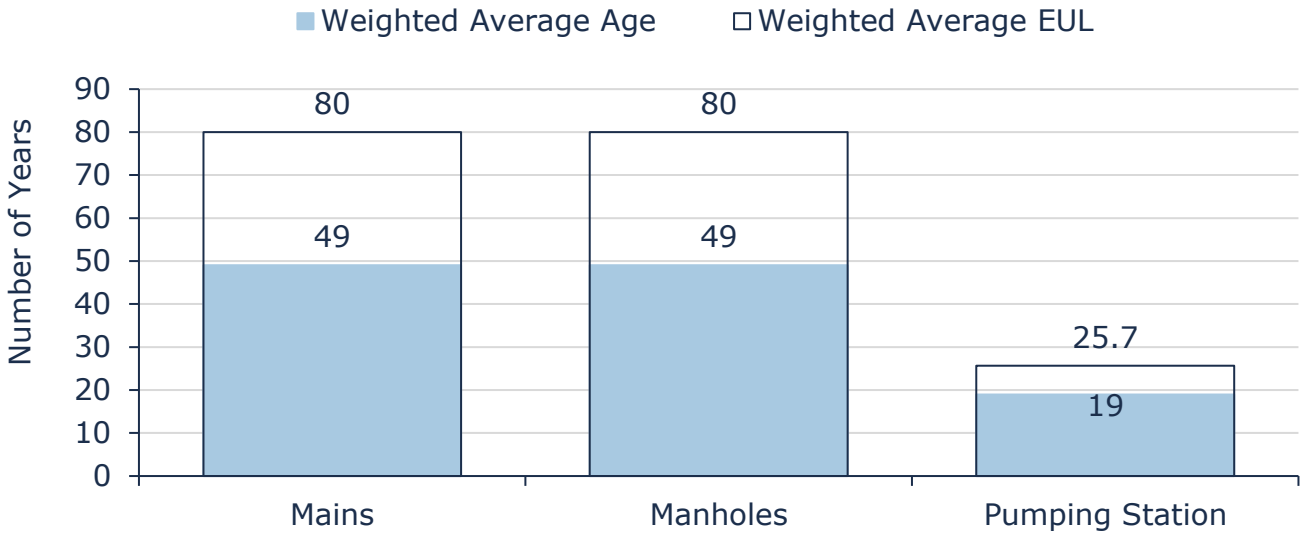


Figure 43 Estimated Useful Life vs. Asset Age: Sanitary Sewer System

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	Annual maintenance program includes manhole inspections,lining and grouting, sanitary main flushing, rodding and inspections.

Activity Type	Description of Current Strategy
Rehabilitation/ Replacement	Multi-year capital forecasts are provided by OCWA and further reviewed by municipal staff
	Unless there is structural failure, sanitary mains are typically left until replacement is required
	Similar to other sub-surface infrastructure staff attempt to coordinate water reconstruction projects with road reconstruction projects to produce cost efficiencies
Inspection	Camera/CCTV inspections are completed for on a regular cycle for sanitary sewer assets.
	Manholes and pumping station assets are inspected annually
	Mains are flushed and inspected annually

Table 33 Lifecycle Management Strategy: Sanitary Sewer System

8.5 Forecasted Long-Term Replacement Needs

Figure 44 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's sanitary sewer system. This analysis was run until 2174. The Township's average annual requirements (red dotted line) total $38,000 for all assets in the sanitary sewer network. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

The chart illustrates substantial capital needs throughout the forecast period. These projections are based on asset replacement costs, age analysis, and condition data when available. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

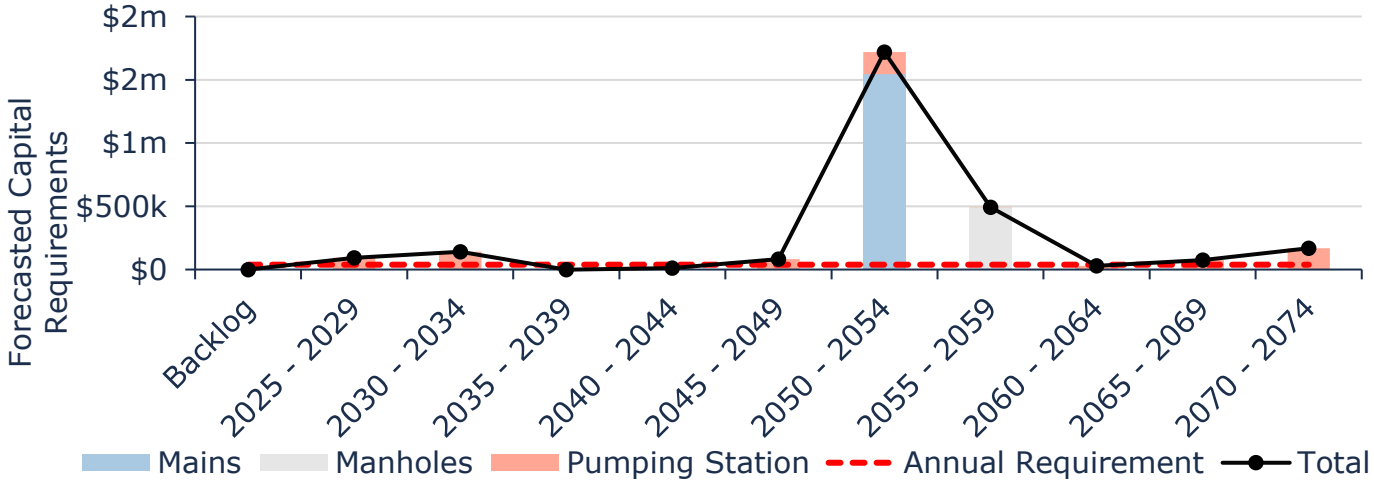


Figure 44 Forecasted Capital Replacement Needs: Sanitary Sewer System 2025-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. Regular condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A summary of the 10-year replacement forecast can be found in Appendix B – 10-Year Capital Requirements.

8.6 Risk Analysis

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

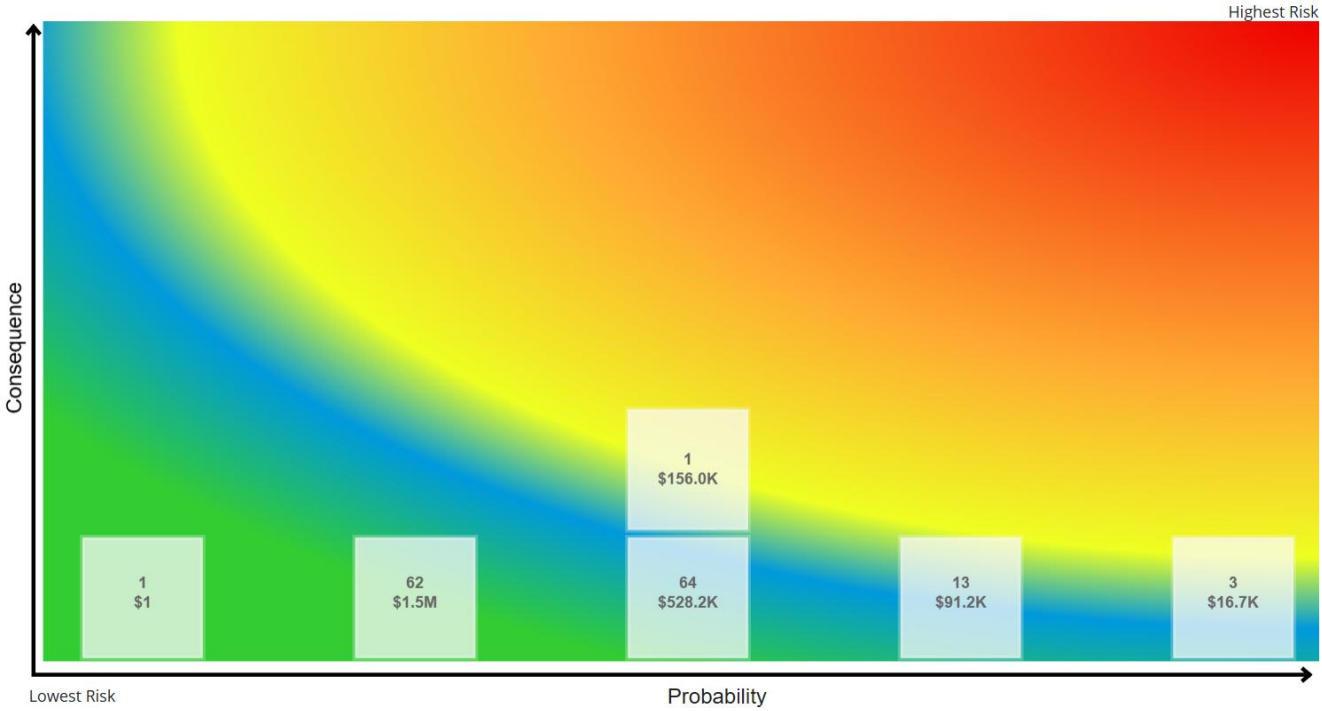


Figure 45 Risk Matrix: Sanitary Sewer System

8.7 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.

8.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system	The current sanitary sewer system is limited to the village of Lansdowne. All households and businesses within this village are connected to the system.
Reliability	Description of how combined sewers in the municipal wastewater system 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 system that occur in habitable areas or beaches	The Township does not own any combined sewers
	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, 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 system 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

Service Attribute	Qualitative Description	Current LOS (2024)
		minimization of sewage overflows and backups.
	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system	Effluent refers to water pollution that is discharged from a wastewater treatment plant, 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 34 O. Reg. 588/17 Community Levels of Service: Sanitary Sewer System

8.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of properties connected to the municipal wastewater system	5%
Reliability	# of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system	N/A
	# of connection-days per year having wastewater backups compared to the total number of properties connected to the municipal wastewater system	0
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	0
Performance	Capital reinvestment rate	3.52%

Table 35 O. Reg. 588/17 Technical Levels of Service: Sanitary Sewer System

8.8 Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the Township's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for the sanitary sewer system. Further PLOS analysis at the portfolio level can be found in Section *4. Proposed Levels of Service Analysis.*

8.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Maintain Current Funding Level	This scenario maintains existing capital funding levels for those categories that are underfunded. ♦ Sanitary sewer system capital funding maintained at $82k/year
Scenario 2: Achieving 100% Target Funding in 10 Years	This scenario assumes gradual sanitary rate decreases of ~1.3%/year, stabilizing at 100% funding across all asset categories in 10 years. ♦ Sanitary sewer system capital funding gradually decreases from $82k/year to $38k/year over a span of 10 years
Scenario 3: Achieving Midpoint Between Current and Target Funding in 10 Years	This scenario assumes gradual sanitary rate decreases of ~2.1%/year, stabilizing at the midpoint between the current and target funding across all asset categories in 10 years. ♦ Sanitary sewer system capital funding gradually decreases from $82k/year to $16k/year over a span of 10 years

Table 36 Sanitary Sewer System PLOS Scenario Descriptions

8.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1	Average Condition	74%	60%	79%	
	Average Asset Risk	3.4	3.1	3.2	
	Annual Investment Required		$82,200		This is the maintained parameter in this scenario
	Capital Reinvestment Rate		3.5%		
Scenario 2	Average Condition	74%	60%	54%	
	Average Asset Risk	3.4	3.1	4.2	
	Annual Investment Required		$38,000		This parameter is based on sanitary rates decreasing 1.3% annually for 10 years
	Capital Reinvestment Rate		1.6%		
Scenario 2	Average Condition	74%	60%	31%	
	Average Asset Risk	3.4	3.1	5.0	
	Annual Investment Required		$16,000		This parameter is based on sanitary rates decreasing 2.1% annually for 10 years
	Capital Reinvestment Rate		0.7%		

Table 37 Sanitary Sewer System PLOS Scenario Analysis

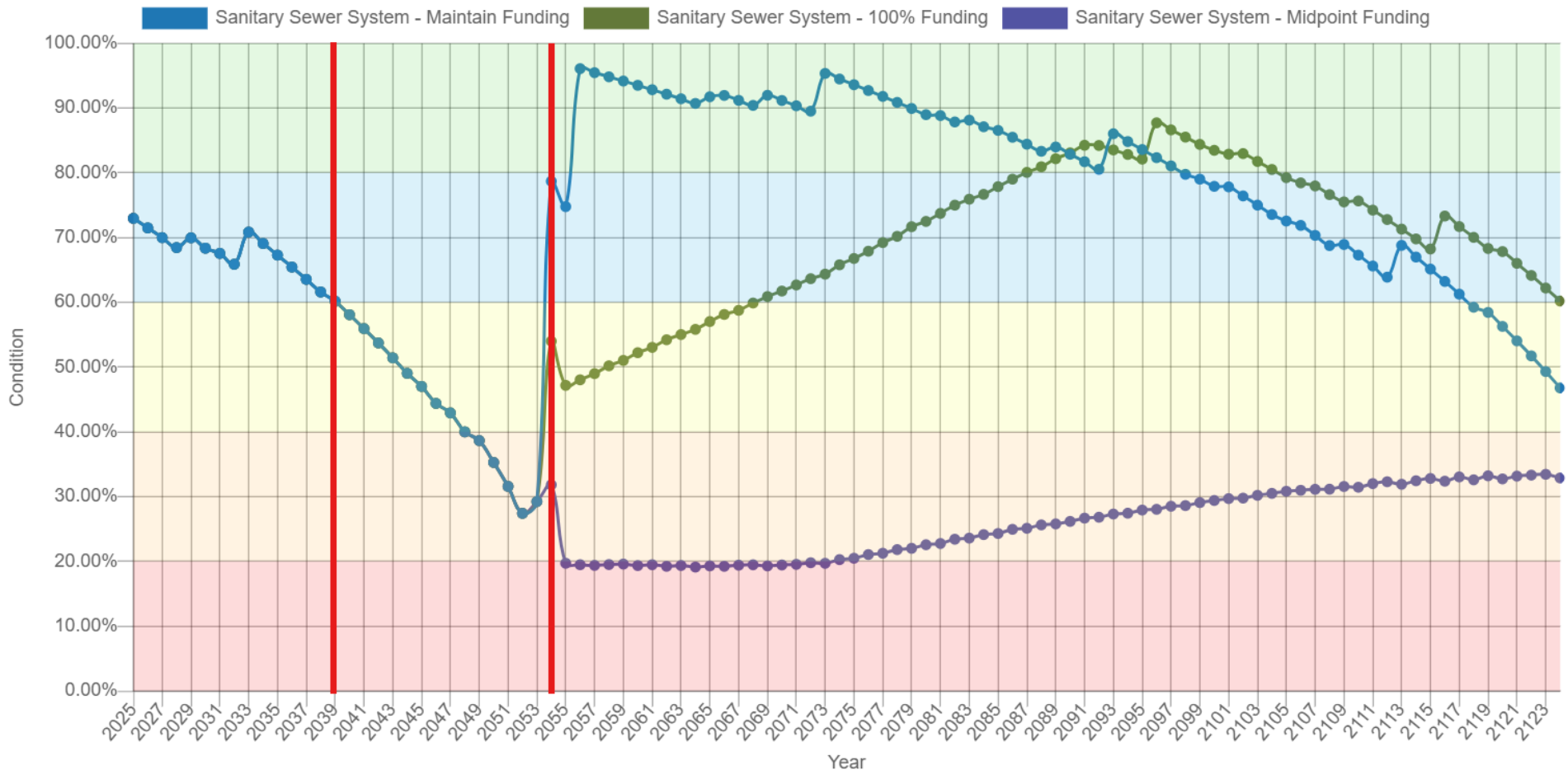


Figure 46 Sanitary Sewer System PLOS Scenario Condition Results

9. Storm Sewer System

The Storm Sewer system is designed to manage the flow of stormwater. The Operations & Infrastructure department is responsible for the maintenance of storm sewer system. In recent years, this asset category has become increasingly relevant due to the increasing intensity and frequency of extreme weather events and climate change.

Asset data from GIS data sources was gathered and consolidated into the Township's current asset inventory as a starting point to develop a centralized storm sewer asset inventory.

Staff are working towards improving the accuracy and reliability of their storm sewer system inventory to assist with long-term asset management planning

9.1 Inventory & Valuation

Table 38 summarizes the quantity and current replacement cost of all storm sewer system assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Catch Basins	90	Quantity	$416,000	Cost/Unit
Mains	118	Quantity	$4,775,000	Cost/Unit
Manholes	18	Quantity	$153,000	Cost/Unit
TOTAL			**$5,345,000**	

Table 38 Detailed Asset Inventory: Storm Sewer System

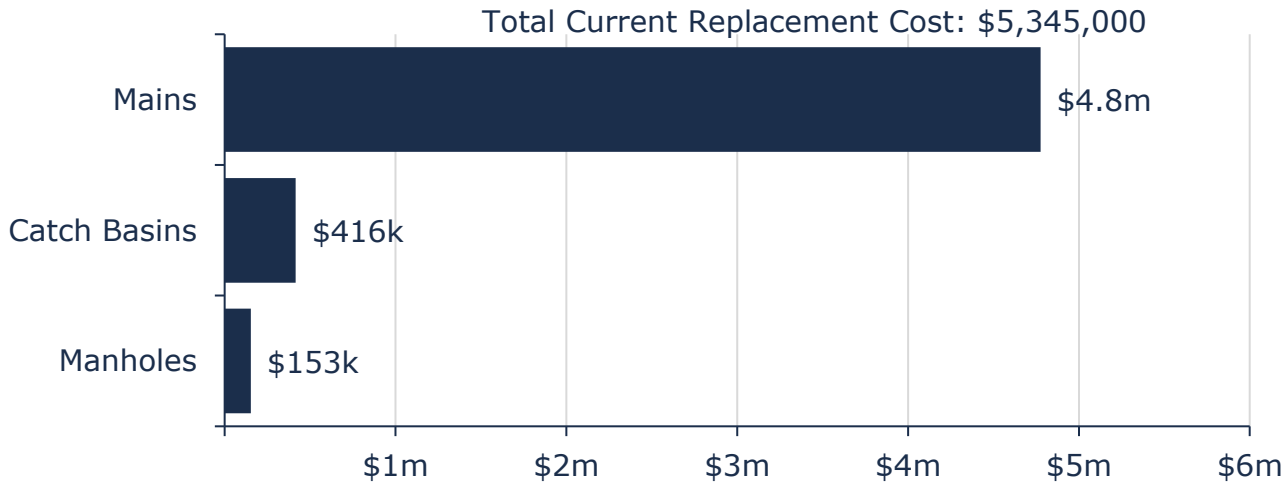


Figure 47 Portfolio Valuation: Storm Sewer System

9.2 Asset Condition

Figure 48 summarizes the replacement cost-weighted condition of the Township's storm sewer system assets. Based on age data only, 100% of 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.

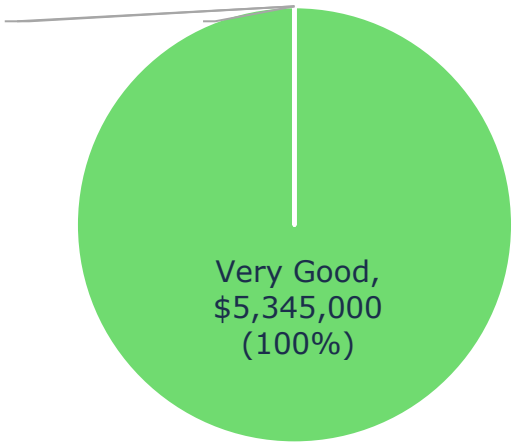


Figure 48 Asset Condition: Storm Sewer System Overall

Figure 49 summarizes the age-based condition of storm sewer system assets. The analysis illustrates that the majority of stormwater mains are in fair or better condition.

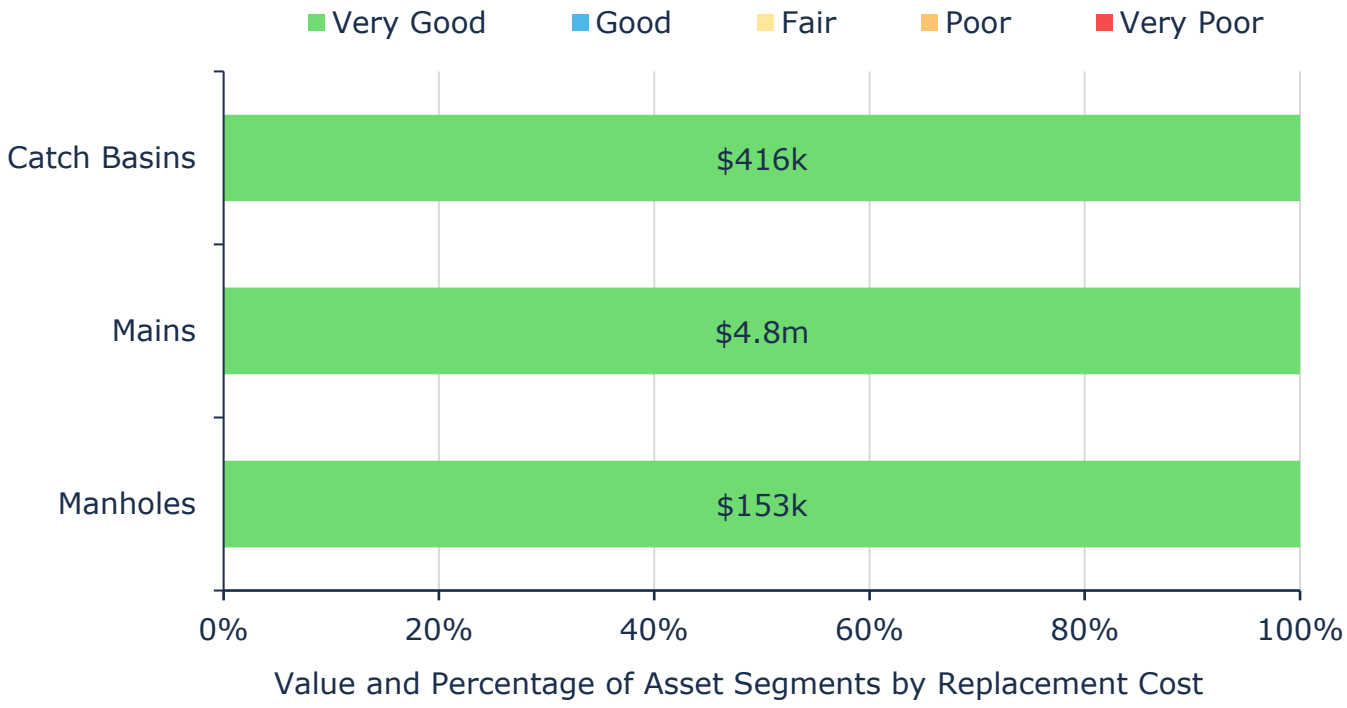


Figure 49 Asset Condition: Storm Sewer System by Segment

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 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.

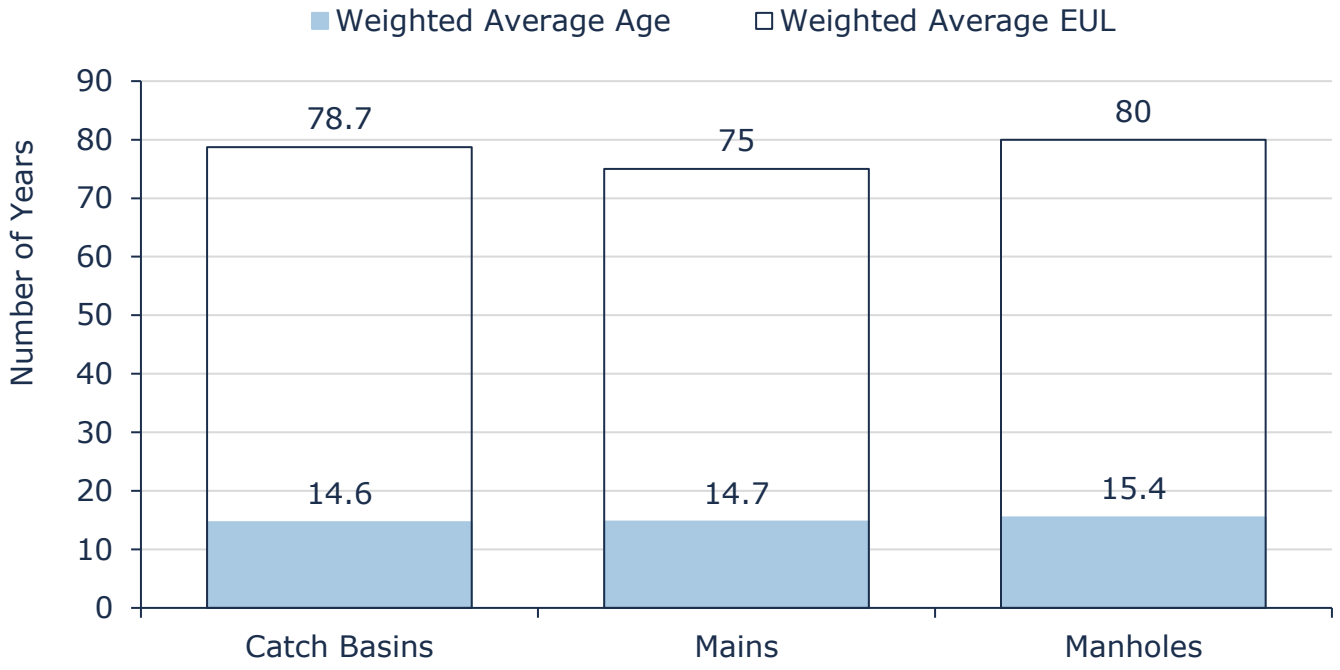


Figure 50 Estimated Useful Life vs. Asset Age: Storm Sewer System

9.4 Current Approach to Lifecycle Management

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

The following tables outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Storm sewer flushing is completed annually
	Catch Basins and outfalls are cleaned annually to clear blockages and ensure stormwater runoff is efficiently conveyed through the storm sewer system
	CCTV inspections and cleaning is completed as budget becomes available and this information will be used to drive forward rehabilitation and replacement plans
Rehabilitation	The general age of the storm infrastructure is fairly new, as such there are no renewal strategies currently in place
	Trenchless re-lining has the potential to reduce total lifecycle costs but would require a formal condition assessment program to determine viability
Replacement	Without the availability of up-to-date condition assessment information replacement activities are purely reactive in nature
Inspection	There are no formal condition assessment programs in place for the storm sewer system. As the Township refines the available asset inventory for the storm sewer system a regular assessment cycle should be established

Table 39 Lifecycle Management Strategy: Storm Sewer System

Storm Mains		
Event Name	**Event Class**	**Event Trigger**
Storm Flushing (20% of network annually)	Maintenance	Every 5 Years
Catch Basin Cleaning	Maintenance	Annual
Outfall Cleaning	Maintenance	Annual
Full Reconstruction	Replacement	At 10-20 Condition

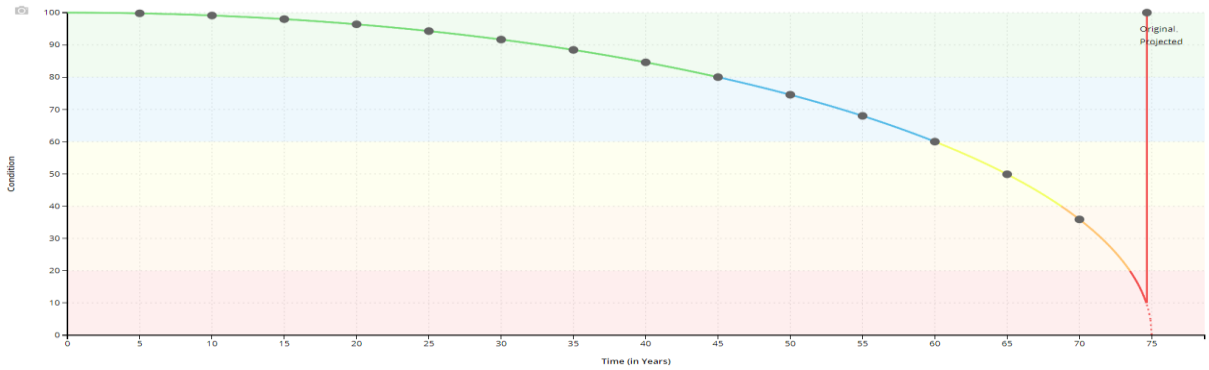


Table 40 Lifecycle Management Strategy: Storm Sewer System (Storm Mains)

9.5 Forecasted Long-Term Replacement Needs

Figure 51 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's storm sewer system assets. This analysis was run until 2074. The Township's average annual requirements (red dotted line) total $71,000 for all assets in the storm sewer system. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

These projections and estimates are based on asset replacement costs and age analysis. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

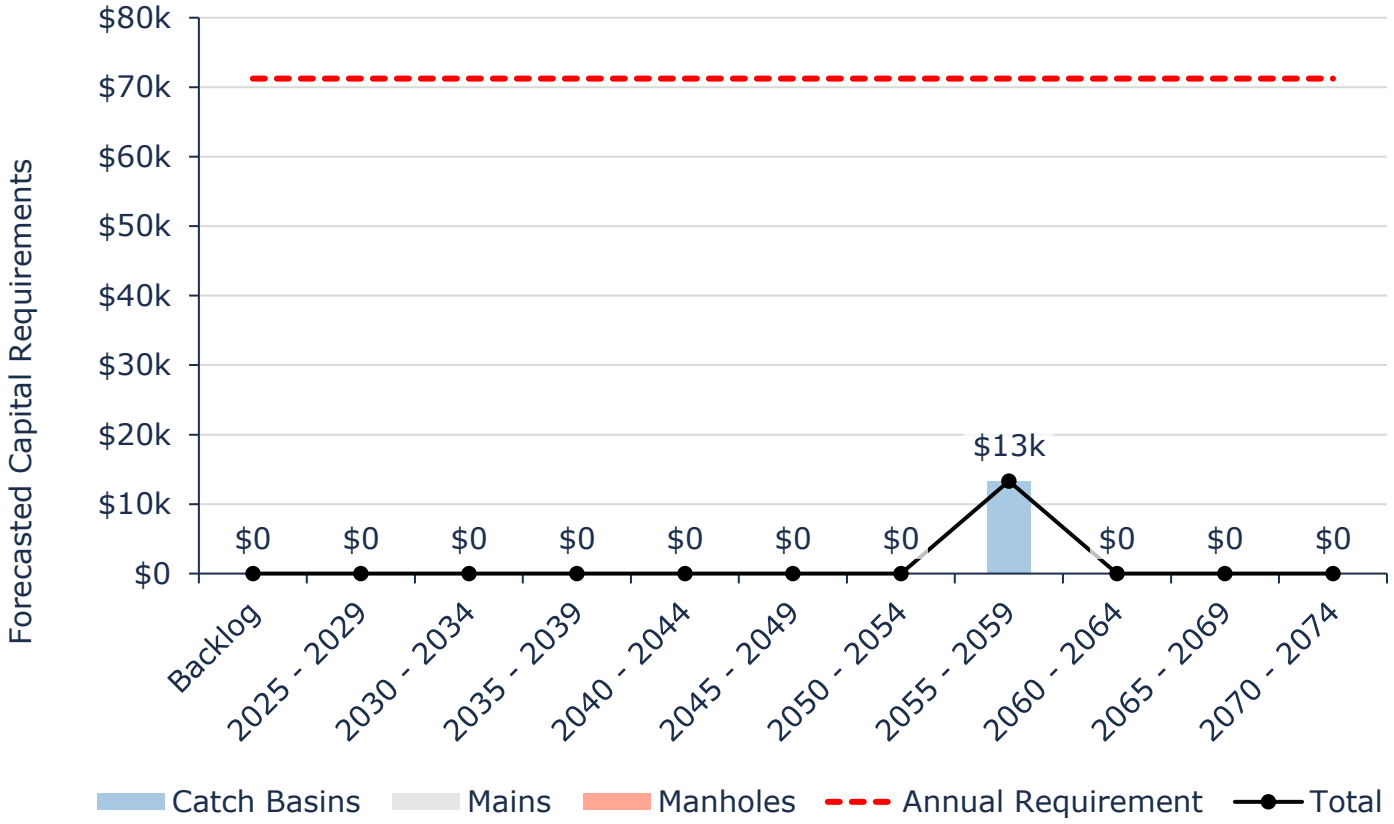


Figure 51 Forecasted Capital Replacement Needs Storm Sewer System 2025-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. In addition, a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A summary of the 10-year replacement forecast can be found in Appendix B – 10-Year Capital Requirements.

9.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, pipe material, replacement cost, pipe diameter and asset function. In the absence of attribute data, the risk ratings for assets were calculated using only 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.

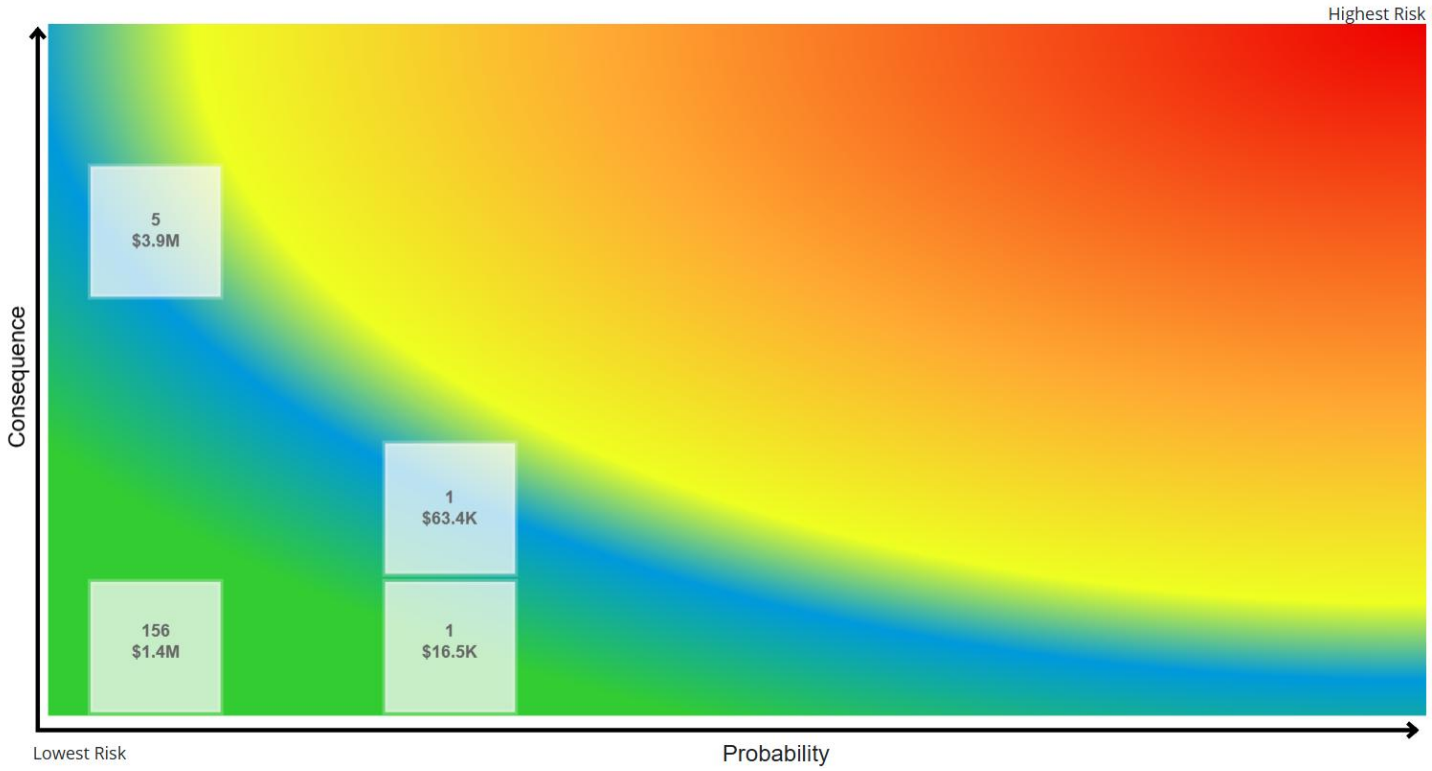


Figure 52 Risk Matrix: Storm Sewer System

9.7 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.

9.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description, which may include map, of the user groups or areas of the Township that are protected from flooding, including the extent of protection provided by the municipal storm water network	See Appendix C – Level of Service Maps & Photos

Table 41 O. Reg. 588/17 Community Levels of Service: Storm Sewer System

9.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of properties in municipality designed to be resilient to a 100-year storm	Relevant information not available at this time; staff will have this ready for the next iteration of the AMP.
	% of the municipal stormwater management system designed to be resilient to a 5-year storm	
Performance	Capital reinvestment rate	0%

Table 42 O. Reg. 588/17 Technical Levels of Service: Storm Sewer System

9.8 Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the Township's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for the storm sewer system. Further PLOS analysis at the portfolio level can be found in Section *4. Proposed Levels of Service Analysis.*

9.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Maintain Current Funding Level	This scenario maintains existing capital funding levels for those categories that are underfunded. ♦ Storm sewer system capital funding maintained at $0/year
Scenario 2: Achieving 100% Target Funding in 10 Years	This scenario assumes gradual tax increases of ~0.6%/year, stabilizing at 100% funding across all asset categories in 10 years. ♦ Storm sewer system capital funding gradually increases from $0/year to $71k/year over a span of 10 years
Scenario 3: Achieving Midpoint Between Current and Target Funding in 10 Years	This scenario assumes gradual tax increase of ~0.3%/year, stabilizing at the midpoint between current and target funding across all asset categories in 10 years. ♦ Storm sewer system capital funding gradually increases from $0/year to $36k/year over a span of 10 years

Table 43 Storm Sewer System PLOS Scenario Descriptions

9.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1	Average Condition	98%	92%	81%	
	Average Asset Risk	3.9	3.9	5.9	
	Annual Investment Required		$0		This is the maintained parameter in this scenario
	Capital Reinvestment Rate		0%		
Scenario 2	Average Condition	98%	92%	81%	
	Average Asset Risk	3.9	3.9	5.9	
	Annual Investment Required		$71,000		This parameter was increased from $0/year to $71k/year gradually over 10 years.
	Capital Reinvestment Rate		1.3%		
Scenario 2	Average Condition	98%	92%	81%	
	Average Asset Risk	3.9	3.9	5.9	
	Annual Investment Required		$35,500		This parameter was increased from $0/year to $36k/year gradually over 10 years.
	Capital Reinvestment Rate		0.6%		

Table 44 Storm Sewer System PLOS Scenario Analysis

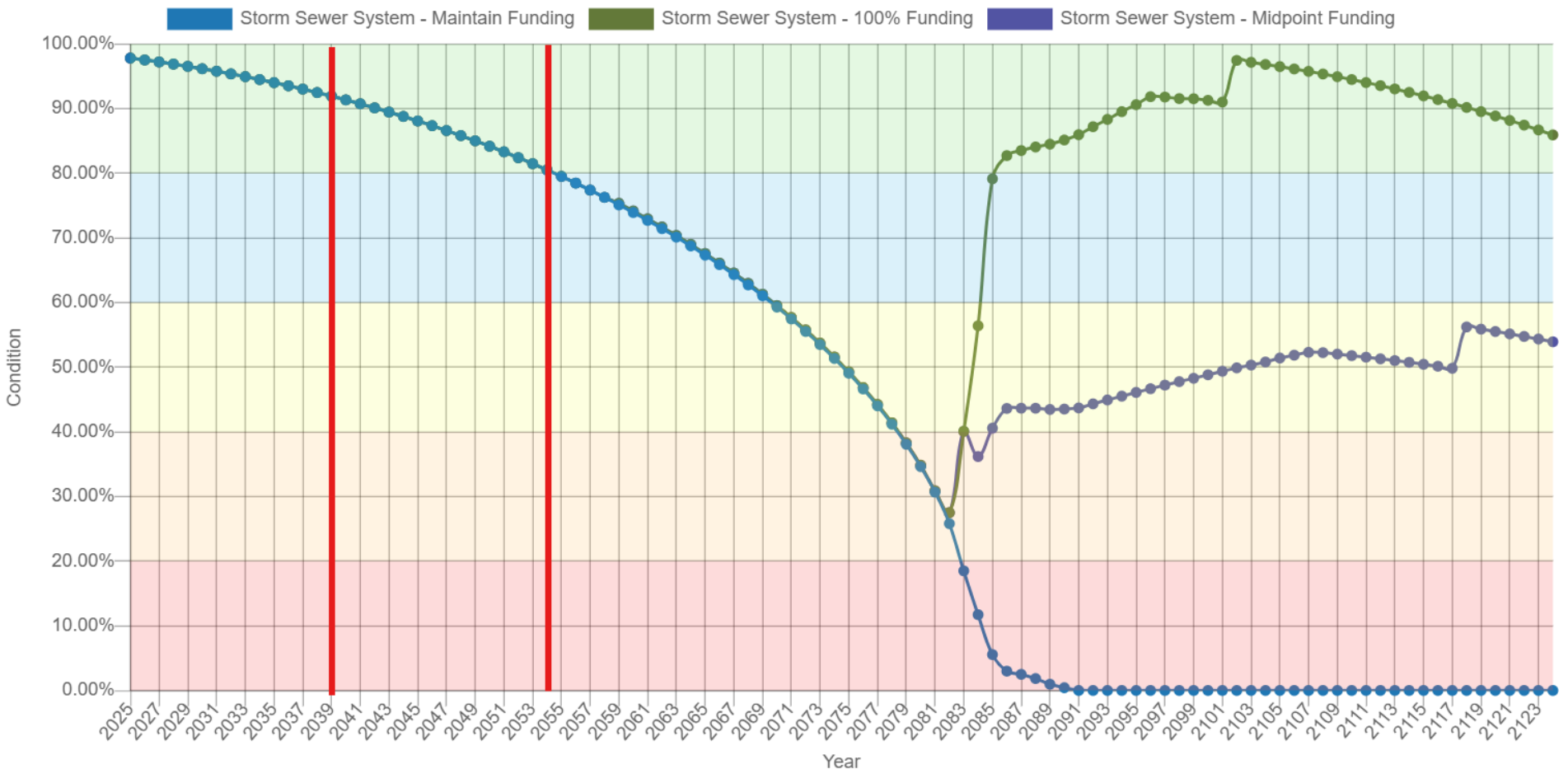


Figure 53 Storm Sewer System PLOS Scenario Condition Results

Category Analysis: Non-Core Assets

10. Buildings & Facilities

The Township owns and maintains several facilities and recreation centres that provide key service to the community. These include:

- Municipal offices and public libraries
- Fire stations and associated offices and facilities
- Community halls and recreational facilities
- Public works garages, equipment depot and storage sheds

A Building Condition Assessment (BCA) of the Township's facilities was conducted in 2021 which provided a condition assessment of the facilities, a componentized breakdown of assets, and capital forecasting.

10.1 Inventory & Valuation

Table 45 summarizes the quantity and current replacement cost of all buildings assets available in the Township's asset register.

Segment	Quantity (# of components)	Unit of Measure	Replacement Cost	Primary RC Method
Fire Stations	4 (153)	Quantity	$23,313,000	User-Defined
Historical & Cultural	5 (75)	Quantity	$2,469,000	User-Defined
Libraries	2 (64)	Quantity	$812,000	User-Defined
Office Building, Storage & Garage	9 (113)	Quantity	$5,828,000	User-Defined
Recreational	11 (243)	Quantity	$15,316,000	User-Defined
TOTAL			**$47,738,000**	

Table 45 Detailed Asset Inventory: Buildings & Facilities

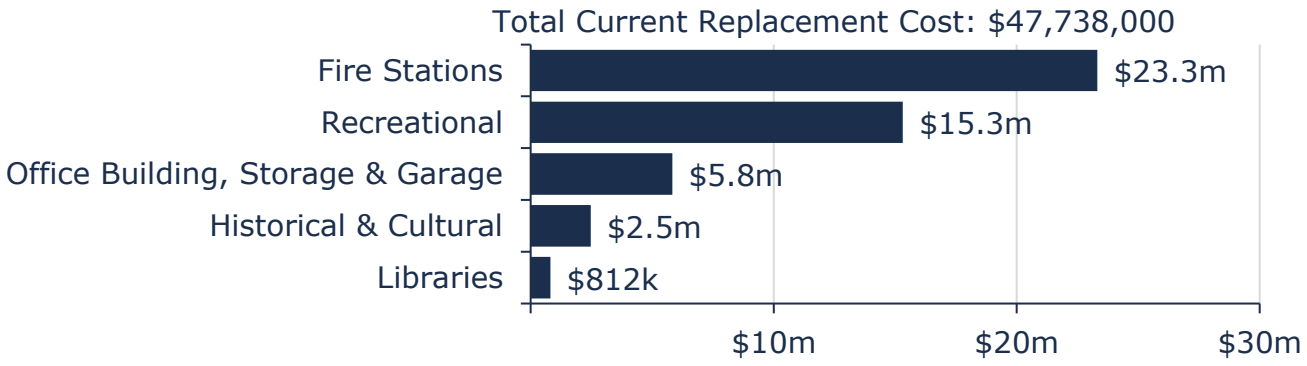


Figure 54 Portfolio Valuation: Buildings & Facilities

10.2 Asset Condition

Figure 61 summarizes the replacement cost-weighted condition of the Township's buildings and facilities portfolio. Based only on age data, 62% of buildings and facilities assets are in fair or better condition; however, 38%, with a current replacement cost of more than $18 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.

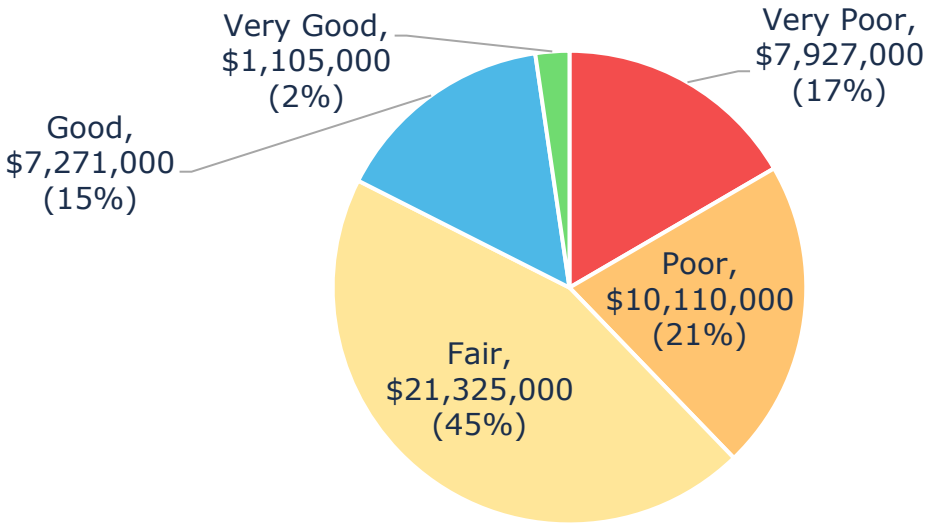


Figure 55 Asset Condition: Buildings & Facilities Overall

Figure 56 summarizes the age-based condition of buildings and facilities by each department. A substantial portion of historical and cultural, and recreational assets are in poor to worse condition.

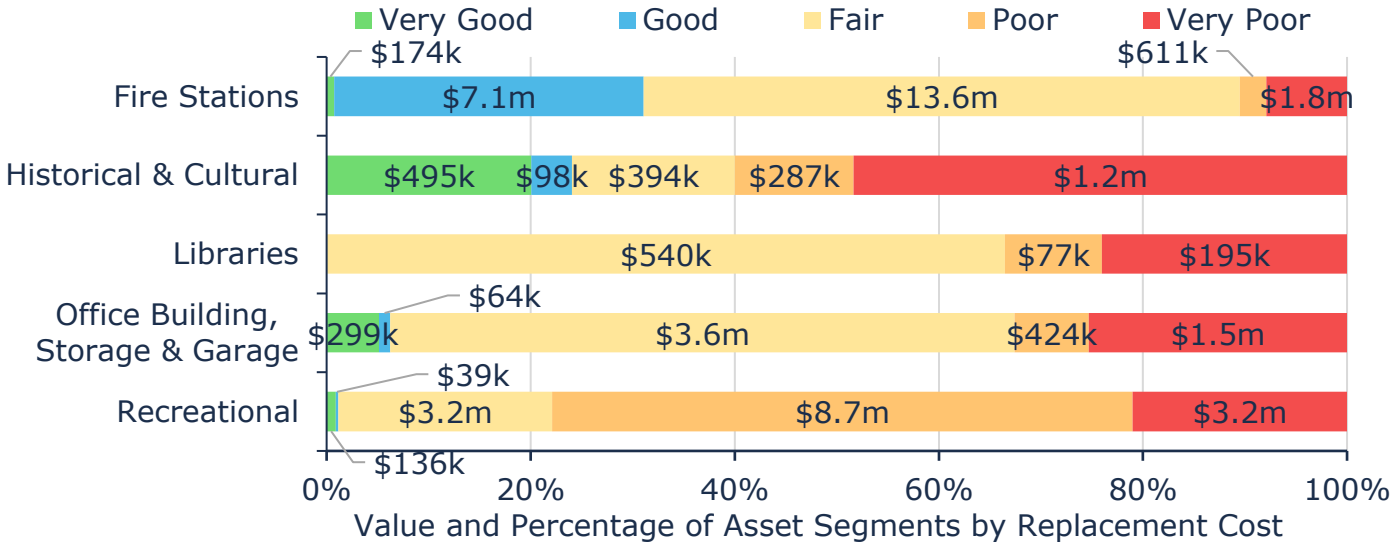


Figure 56 Asset Condition: Buildings & Facilities by Segment

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 57 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.

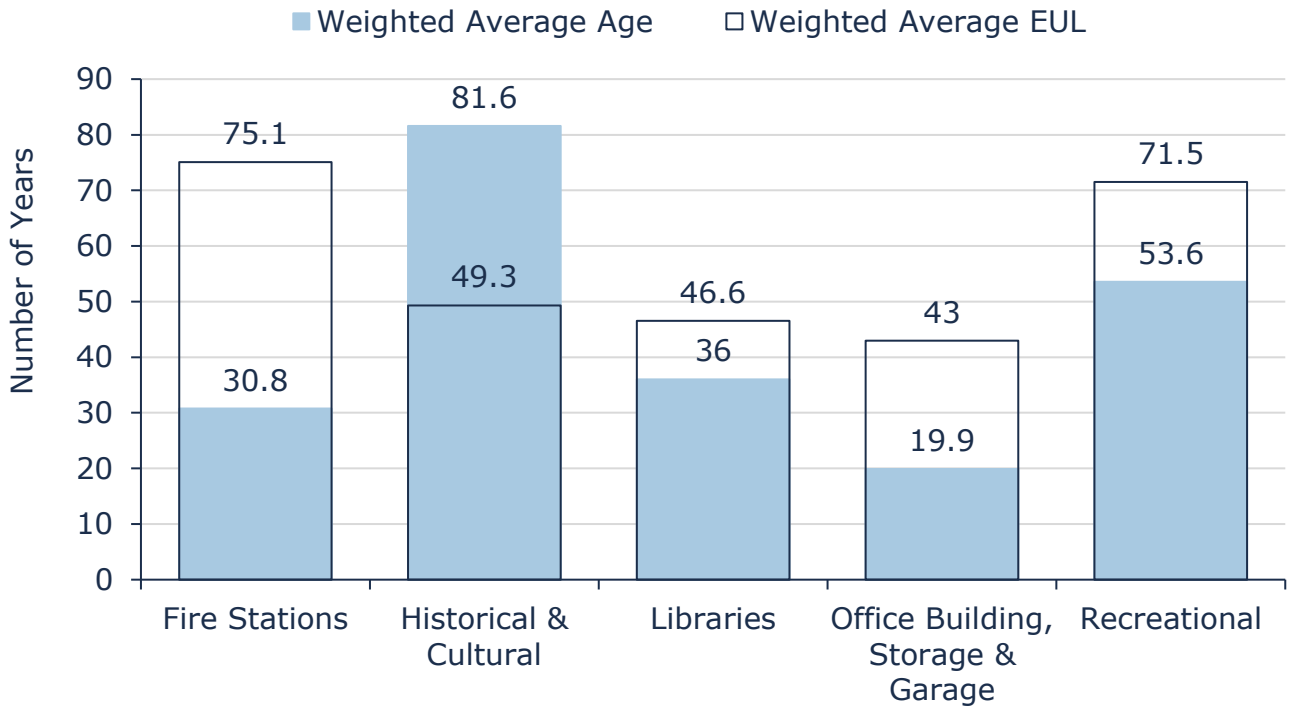


Figure 57 Estimated Useful Life vs. Asset Age: Buildings & Facilities

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 46 outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Routine inspections are completed monthly, identifying required maintenance activities based on deficiencies present
	HVAC maintenance is completed annually
	Fire monitoring inspections are completed annually in compliance with fire regulations
Rehabilitation	Rehabilitation activities include HVAC updates, roof replacements, flooring replacements, etc.
	The Building Condition Assessment completed in 2021 identifies the rehabilitation activities required, along with deficiencies identified in monthly inspections
Replacement	Assets nearing the end of their service life are prioritized for replacement, as well as those incurring frequent and costly repairs
Inspections	A building condition assessment was completed by an external contractor in 2021 which included a condition assessment of facilities, a componentized breakdown of assets, and capital forecasting
	Buildings are also subject to regular health and safety inspections by internal staff members to identify deficiencies and safety hazards

Table 46 Lifecycle Management Strategy: Buildings & Facilities

10.5 Forecasted Long-Term Replacement Needs

Figure 58 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's buildings and facilities portfolio. This analysis was run until 2074. The Township's average annual requirements (red dotted line) total $1.1 million for all buildings and facilities. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

The chart also illustrates a backlog of more than $302,000, dominated by historical and cultural facilities, and comprising assets that have reached the end of their useful life but still remain in operation. These projections and estimates are based on current asset records, their replacement costs, and age analysis. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

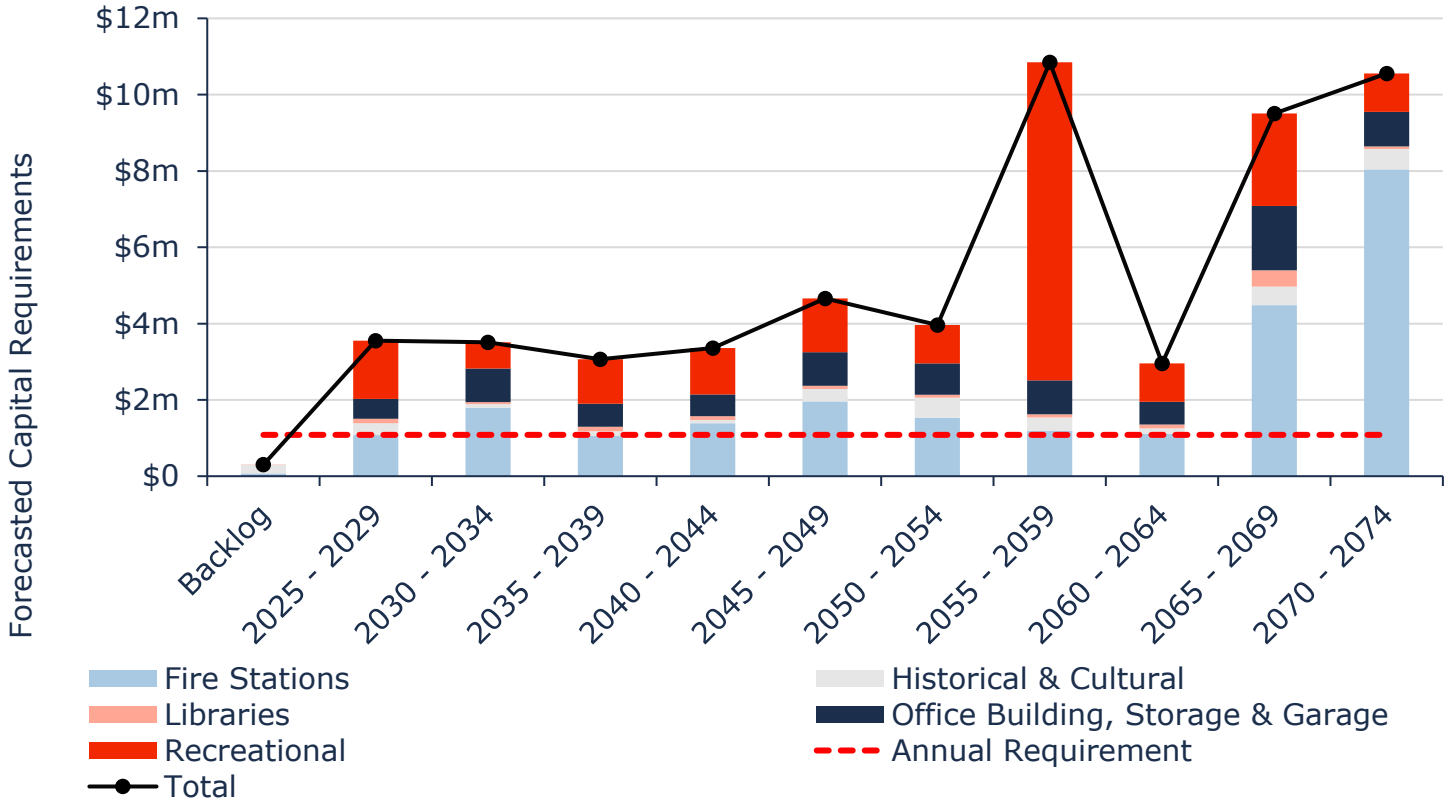


Figure 58 Forecasted Capital Replacement Needs Buildings & Facilities 2025-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. In addition, a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements

A summary of the 10-year replacement forecast can be found in Appendix B – 10-Year Capital Requirements.

10.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition, replacement cost, and asset function. The risk ratings for assets without useful attribute data were calculated using only condition, 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.

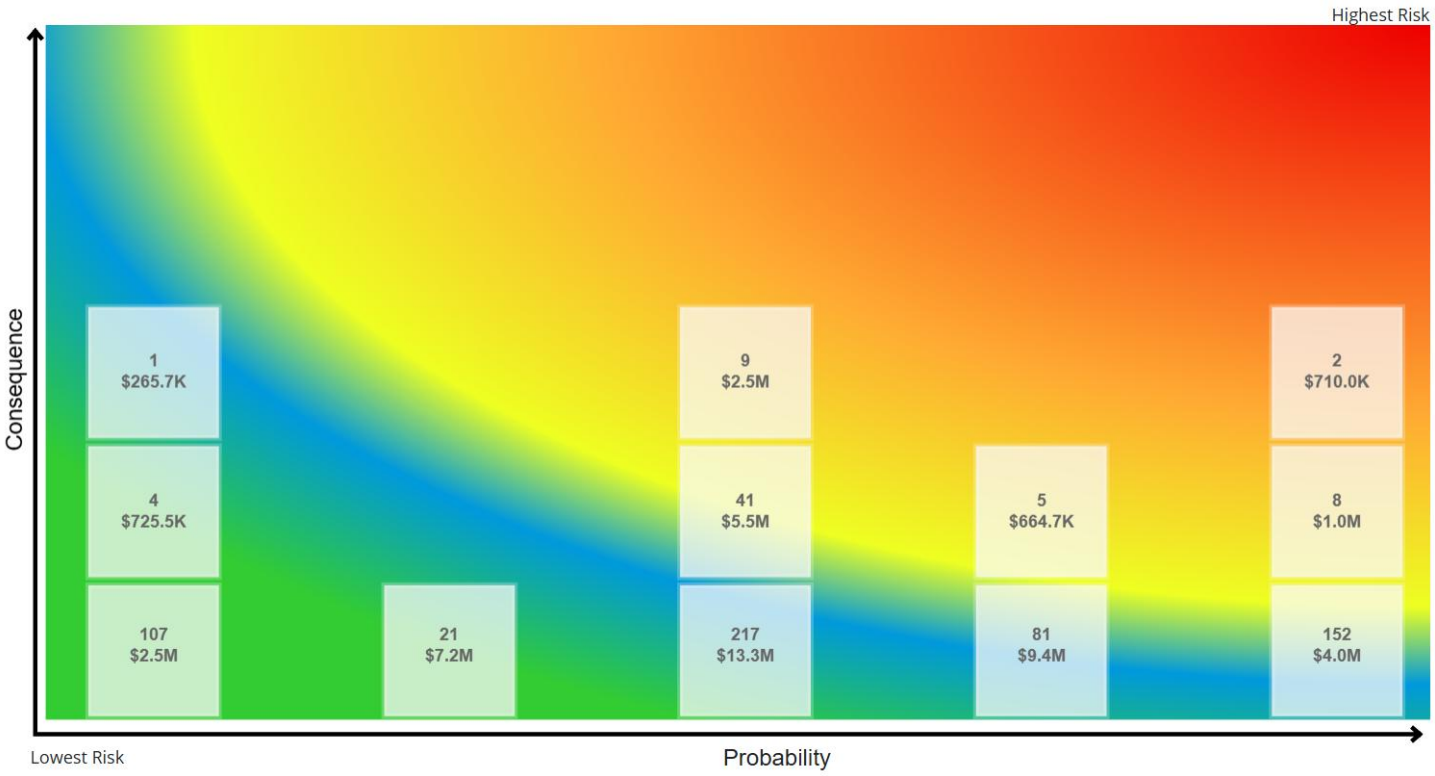


Figure 59 Risk Matrix: Buildings & Facilities

10.7 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.

10.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description of monthly and annual facilities inspection process	A building condition Assessment was last completed in 2021 by an external agency. Monthly inspections are completed by internal staff to identify deficiencies. The condition data collected is the main source of data for generating the capital budget and prioritizing projects.

Service Attribute	Qualitative Description	Current LOS (2024)
	Description of the current condition of municipal facilities and the plans that are in place to maintain or improve the provided level of service	The average building condition Index for municipally owned facilities is 46%, indicating the Municipal Facilities are in a good state of repair. There are currently plans in place to construct a new fire hall to increase the level of service provided to residents.

Table 47 Community Levels of Service: Buildings & Facilities

10.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	Square footage of libraries per population	0.54 sqft/peron
	% of facilities inspected monthly	100%
Performance	% of facilities in fair or better condition	62%
	% of facilities in poor or very poor condition	38%
	Annual capital reinvestment rate	1.38%

Table 48 Technical Levels of Service: Buildings & Facilities

10.8 Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the Township's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for buildings and facilities. Further PLOS analysis at the portfolio level can be found in Section *4. Proposed Levels of Service Analysis.*

10.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Maintain Current Funding Level	This scenario maintains existing capital funding levels for those categories that are underfunded. ♦ Buildings capital funding maintained at $659k/year
Scenario 2: Achieving 100% Target Funding in 10 years	This scenario assumes gradual tax increases of ~0.6%/year, stabilizing at 100% funding across all asset categories in 10 years. ♦ Buildings' capital funding gradually increases from $659k/year to $1.1m/year over a span of 10 years
Scenario 3: Achieving Midpoint Between Current and Target Funding in 10 Years	This scenario assumes gradual tax increase of ~0.3%/year, stabilizing at the midpoint between current and target funding across all asset categories in 10 years. ♦ Buildings' capital funding gradually increases from $659k/year to $871k/year over a span of 10 years

Table 49 Buildings & Facilities PLOS Scenario Descriptions

10.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1	Average Condition	42%	37%	29%	
	Average Asset Risk	4.1	4.9	5.1	
	Annual Investment Required		$659,000		This is the maintained parameter in this scenario
	Capital Reinvestment Rate		1.4%		
Scenario 2	Average Condition	42%	43%	35%	
	Average Asset Risk	4.1	4.5	4.8	
	Annual Investment Required		$1,083,000		This parameter is increased from $659k/year incrementally to reach a target portfolio investment of $1.1m/year over 10 years
	Capital Reinvestment Rate		2.3%		
Scenario 3	Average Condition	42%	41%	35%	
	Average Asset Risk	4.1	4.7	4.8	
	Annual Investment Required		$871,000		This parameter is increased from $659k/year incrementally to reach a target portfolio investment of $871k/year over 10 years
	Capital Reinvestment Rate		1.8%		

Table 50 Buildings & Facilities PLOS Scenario Analysis

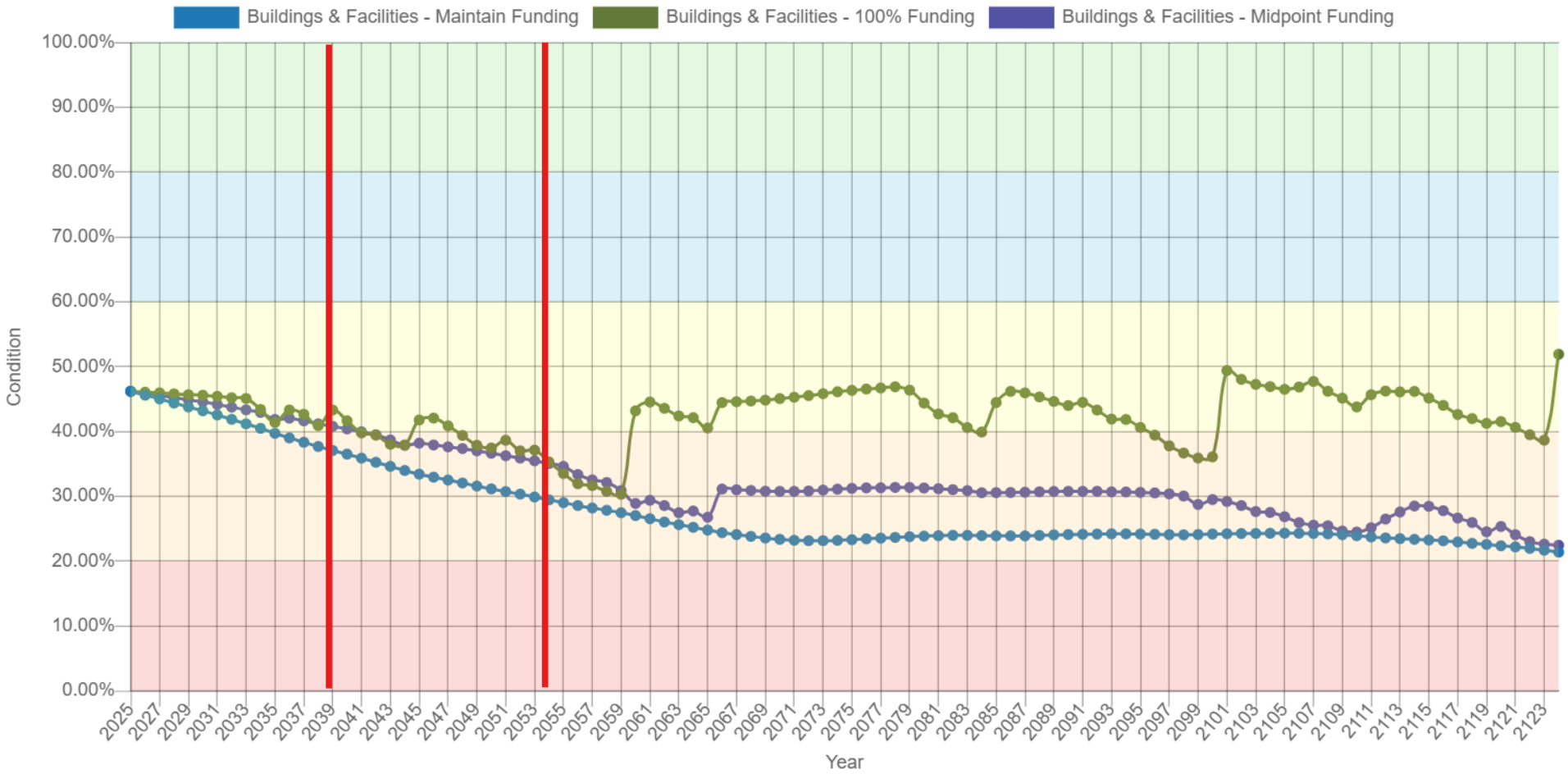


Figure 60 Buildings & Facilities PLOS Scenario Condition Results

11. Parks & Land Improvements

The Township owns and operates a number of assets that are categorized under the Parks & Land Improvements category and assist in providing the Township with community recreation and natural outdoor space. This includes:

- Marina facilities
- Playground equipment and splashpad
- Parklands and trails
- Landfills

11.1 Inventory & Valuation

Table 51 summarizes the quantity and current replacement cost of all parks and land improvements assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Boat Launches	3	Quantity	$299,000	CPI
Docks & Piers	10	Quantity	$2,969,000	CPI
Playground Equipment	6	Quantity	$490,000	User-Defined
Site Works	11	Quantity	$828,000	CPI
Splashpad	1	Quantity	$504,000	CPI
Trails	2	Quantity	$126,000	CPI
Landfills	3	Quantity	Not Planned for Replacement	
TOTAL			**$5,216,000**	

Table 51 Detailed Asset Inventory: Land Improvements

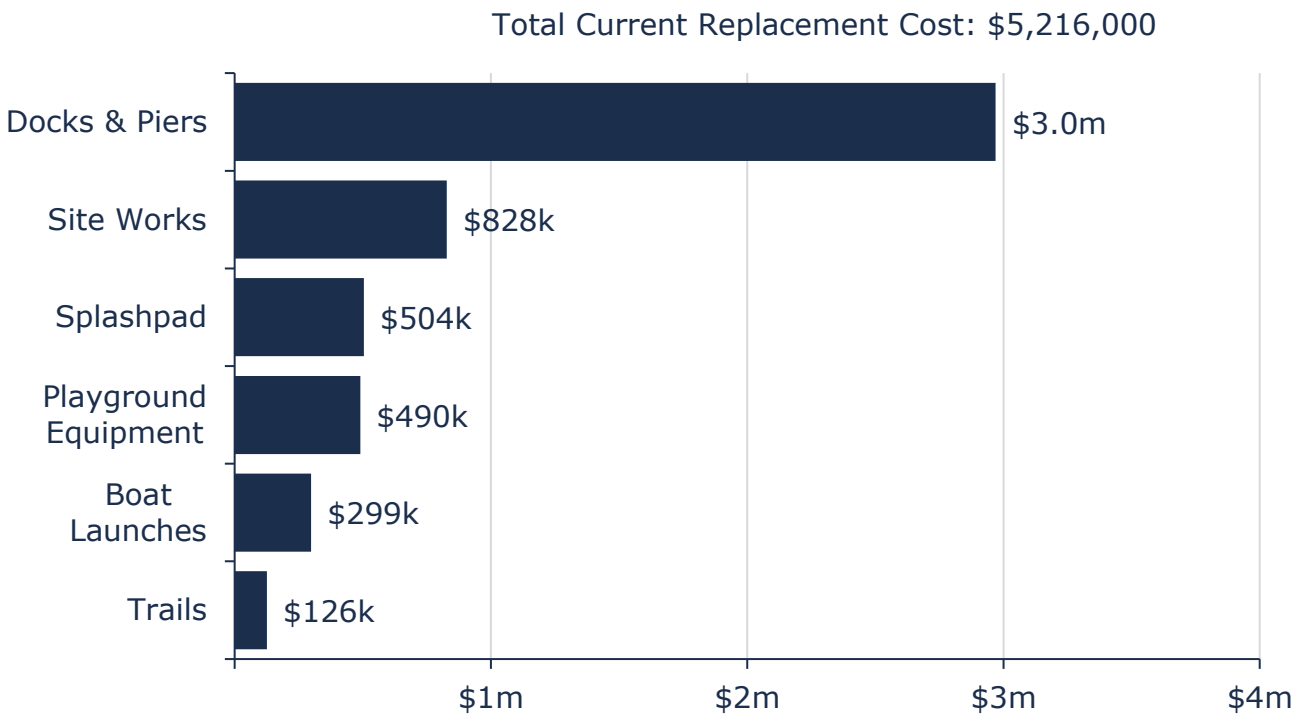


Figure 61 Portfolio Valuation: Parks & Land Improvements

11.2 Asset Condition

Figure 62 summarizes the replacement cost-weighted condition of the Township's parks and land improvements portfolio. Based primarily on age data, 87% of assets are in fair or better condition, the remaining 13% 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.

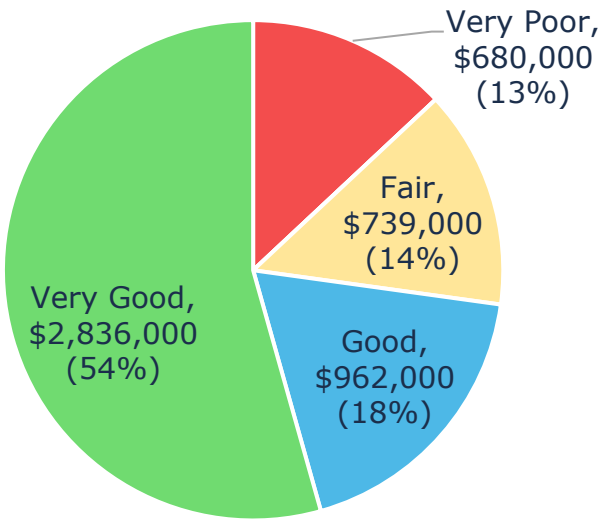


Figure 62 Asset Condition: Parks & Land Improvements Overall

Figure 63 summarizes the age-based condition of parks and land improvements by each department. Assets in poor or worse condition are concentrated primarily in playground equipment and site works.

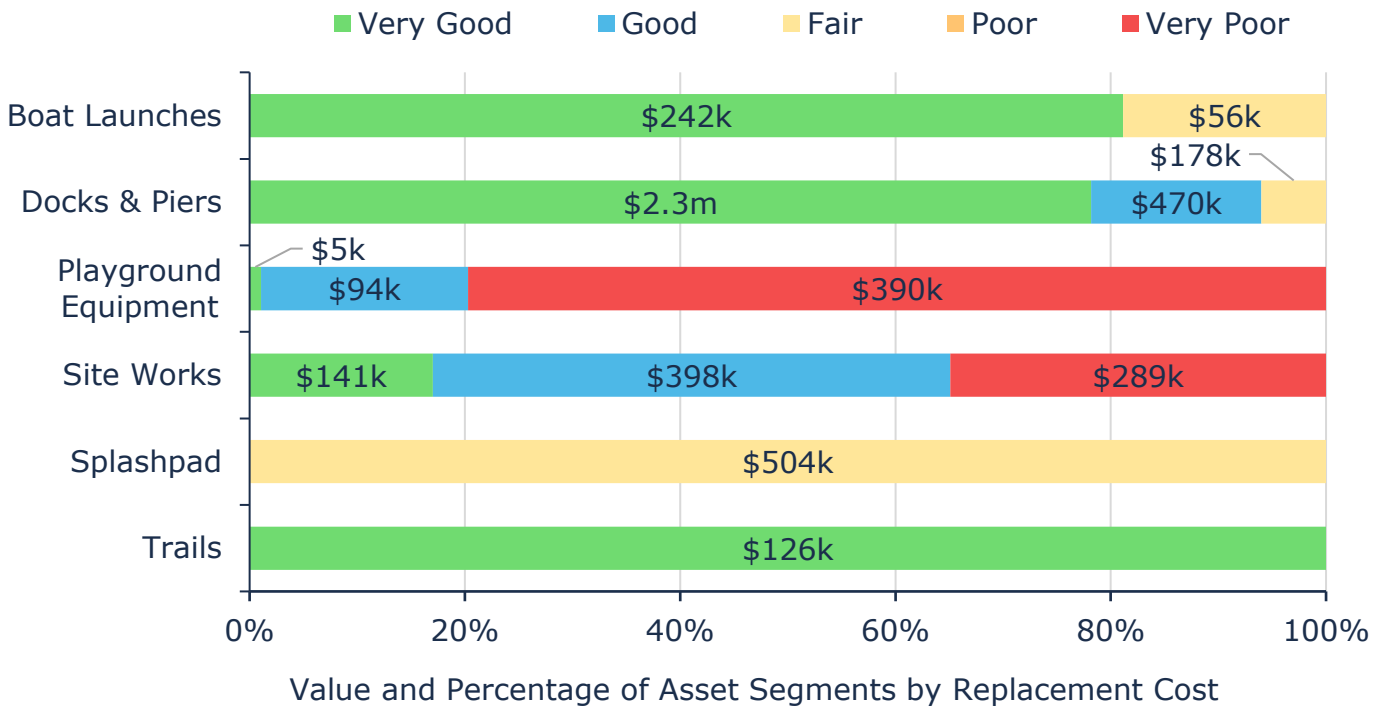


Figure 63 Asset Condition: Parks & Land Improvements by Segment

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 64 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.

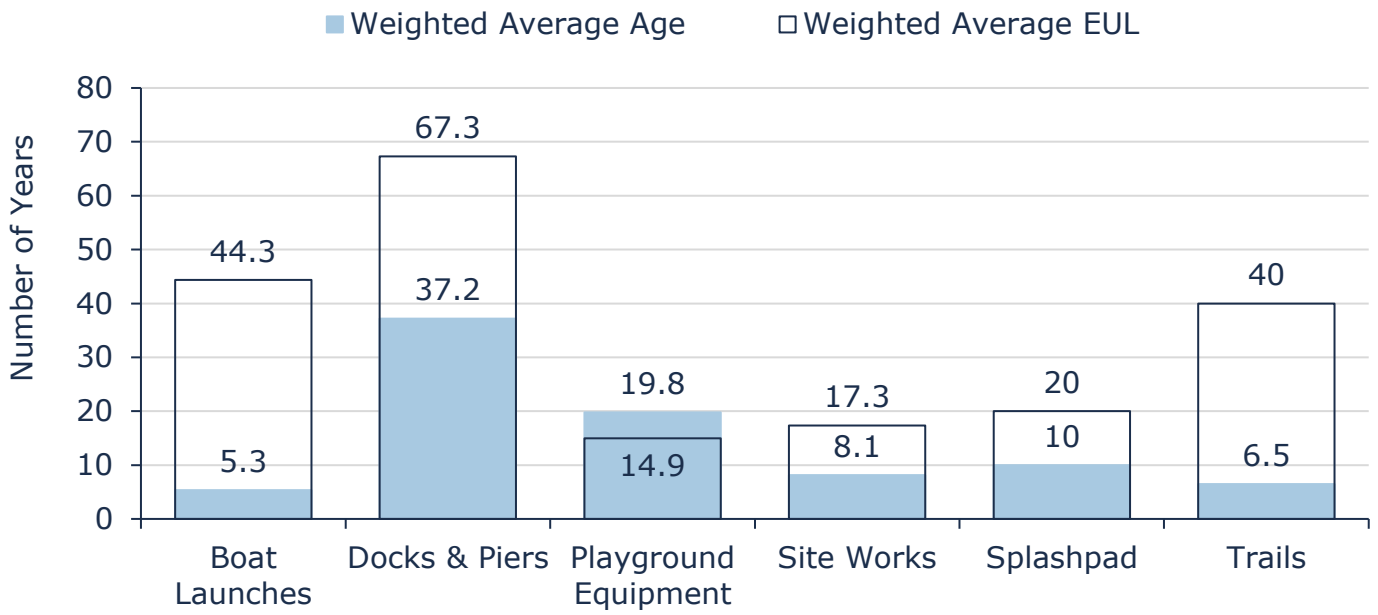


Figure 64 Estimated Useful Life vs. Asset Age: Parks & Land Improvements

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.

Table 52 outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Parks and trails are assessed monthly during the open months (From May 24th weekend – Thanksgiving) identifying safety and structural issues that require maintenance activities
	Cleaning, minor repairs, and vegetation management are performed when opening the parks and trails, and on an as-needed basis throughout the season
Replacement	Replacement is considered when an asset's condition has deteriorated significantly, and maintenance is no longer cost-effective
Inspections	Staff complete regular visual inspections on park and land improvement assets to ensure they are in state of adequate repair. Playgrounds are inspected according to CSA standards

Table 52 Lifecycle Management Strategy: Parks & Land Improvements

11.5 Forecasted Long-Term Replacement Needs

Figure 65 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's parks and land improvements portfolio. This analysis was run until 2074. The Township's average annual requirements (red dotted line) total $333,000 for all parks and land improvements. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

These projections and estimates are based on asset replacement costs and age analysis. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

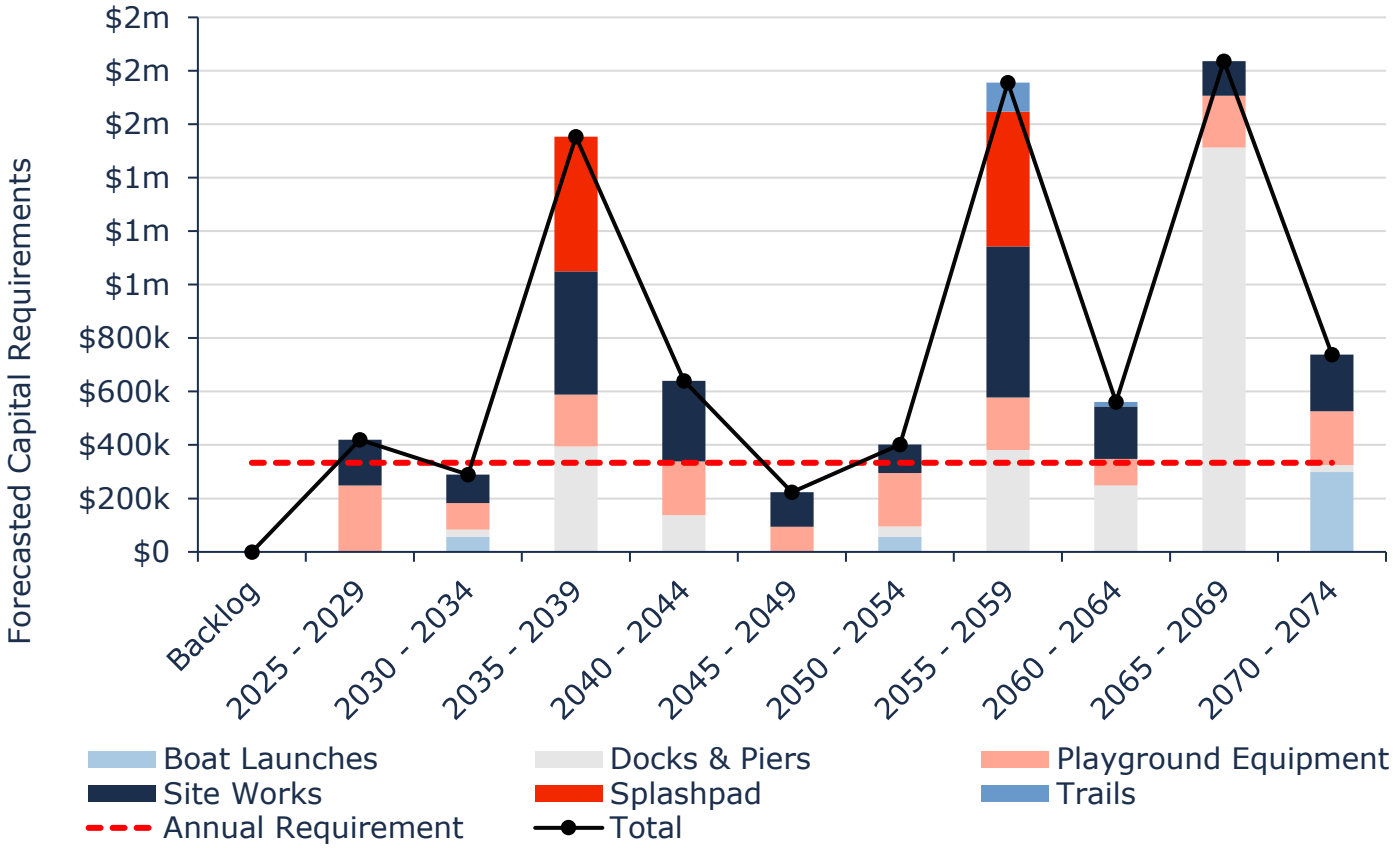


Figure 65 Forecasted Capital Replacement Needs: Parks & Land Improvements 2025-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. In addition, a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A summary of the 10-year replacement forecast can be found in Appendix B – 10-Year Capital Requirements.

11.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition, replacement cost and asset function. The risk ratings for assets without useful attribute data were calculated using only condition 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.

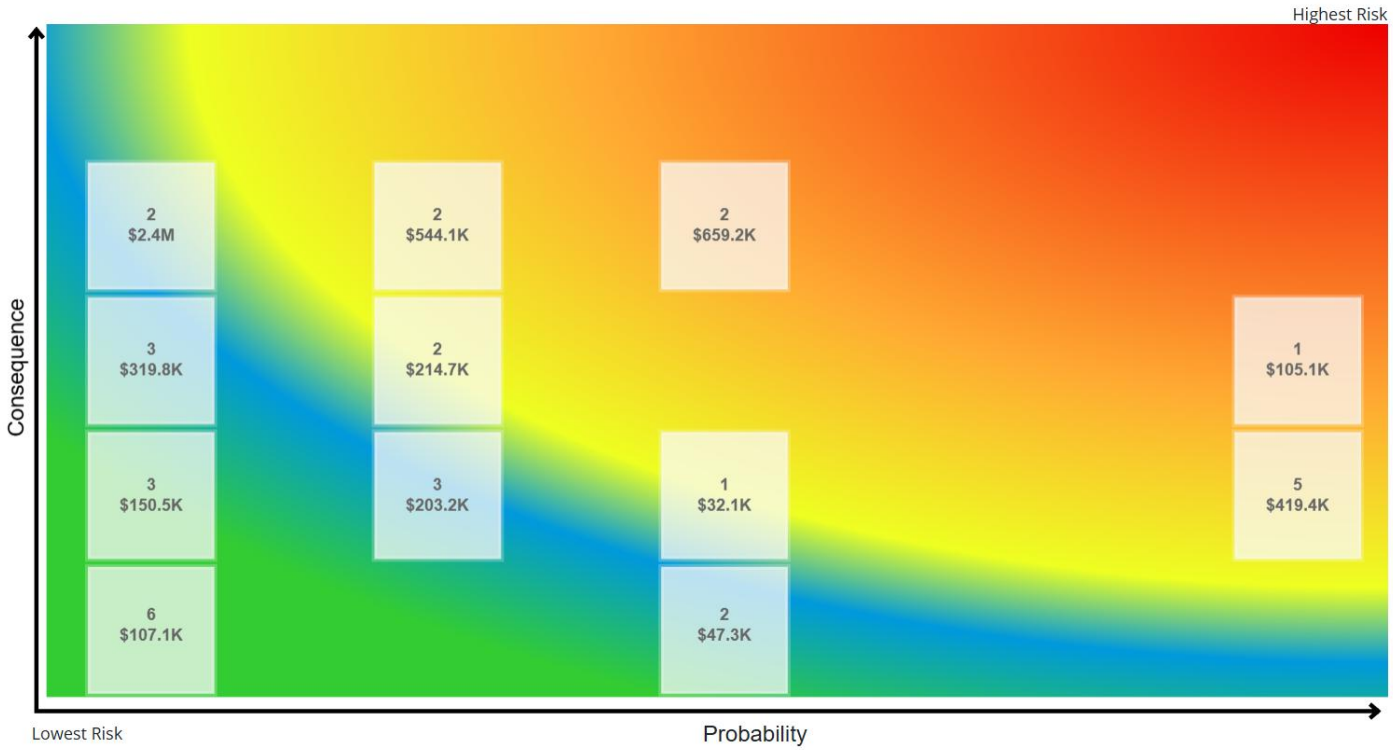


Figure 66 Risk Matrix: Parks & Land Improvements

11.7 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.

11.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description of monthly and annual parks and trails inspection process	Parks and trails are assessed monthly during operating months by internal staff and given a rating of pass of fail. This data plays a crucial role in budget allocation, allowing the Township to prioritize assets based on asset condition and critical needs.
	Description of the current condition of the parks and land improvements, and the plans that are in place to maintain or improve the provided level of service	The parks and land improvements are in an overall fair state of repair. Assets in poor or very poor condition are prioritized for repair through the capital planning process.

Table 53 Community Levels of Service: Parks & Land Improvements

11.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	# of identified parks/playground defects annually	4
	% of parks inspected monthly	100%
Performance	% of parks and recreation assets in fair or better condition	87%
	% of parks and recreation assets in poor or very poor condition	13%
	Annual capital reinvestment rate	2.98%

Table 54 Technical Levels of Service: Parks & Land Improvements

11.8 Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the Township's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for parks and land improvements. Further PLOS analysis at the portfolio level can be found in section *4. Proposed Levels of Service Analysis.*

11.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Maintain Current Funding Level	This scenario maintains existing capital funding levels for those categories that are underfunded. ♦ Parks & land improvements capital funding maintained at $155,000/year
Scenario 2: Achieving 100% Target Funding in 10 years	This scenario assumes gradual tax increases of ~0.6%/year, stabilizing at 100% funding across all asset categories in 10 years. ♦ Parks & land improvements capital funding gradually increases from $155,000/year to $333,000/years over a span of 10 years
Scenario 3: Achieving Midpoint Between Current and Target Funding in 10 Years	This scenario assumes gradual tax increases of ~0.3%/year, stabilizing at the midpoint between current and target funding across all asset categories in 10 years. ♦ Parks & land improvements capital funding gradually increases from $155,000/year to $244,000/year over a span of 10 years

Table 55 Parks & Land Improvements PLOS Scenario Descriptions

11.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1	Average Condition	66%	61%	42%	
	Average Asset Risk	6.9	9.7	13.7	
	Annual Investment Required		$155,400		This is the maintained parameter in these scenario
	Capital Reinvestment Rate		3.0%		
Scenario 2	Average Condition	66%	57%	41%	
	Average Asset Risk	6.9	10.2	13.8	
	Annual Investment Required		$333,000		This parameter was increased from $155,400/year to $333,000/year gradually over 10 years.
	Capital Reinvestment Rate		6.4%		
Scenario 3	Average Condition	66%	69%	40%	
	Average Asset Risk	6.9	8.3	14.0	
	Annual Investment Required		$244,000		This parameter was increased from $155,400/year to $244,000/year gradually over 10 years.
	Capital Reinvestment Rate		4.7%		

Table 56 Parks & Land Improvements PLOS Scenario Analysis

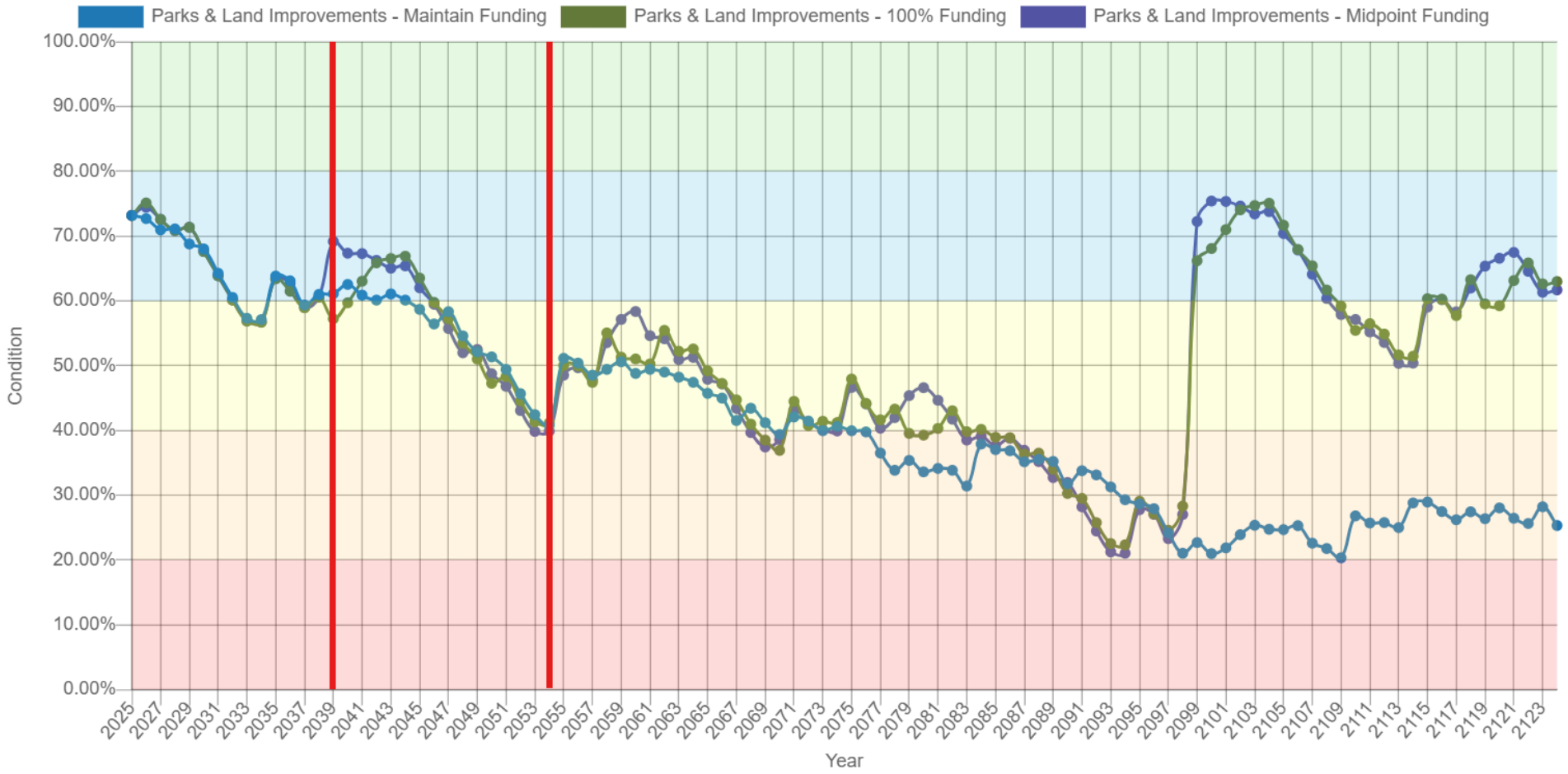


Figure 67 Parks & Land Improvements PLOS Scenario Condition Results

12. Fleet

Like machinery & equipment, fleet assets assist staff in maintaining the high quality of public infrastructure and support in the delivery of core services. This includes:

- Light-duty, medium-duty, & heavy-duty vehicles to support the maintenance of municipal infrastructure, delivery of administrative services, and address service requests,
- fire rescue vehicles that support emergency services, and
- heavy-duty machinery to support the construction and rehabilitation of vital infrastructure, and removal of critical infrastructure.

Keeping fleet assets in an adequate state of repair and readiness is important to support staff in the delivery of core services.

12.1 Inventory & Valuation

Table 57 summarizes the quantity and current replacement cost of all fleet assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Administrative	5	Quantity	$284,000	CPI
Fire & Emergency	22	Quantity	$10,294,000	User-Defined
Public Works	34	Quantity	$7,322,000	User-Defined
TOTAL			**$17,900,000**	

Table 57 Detailed Asset Inventory: Fleet

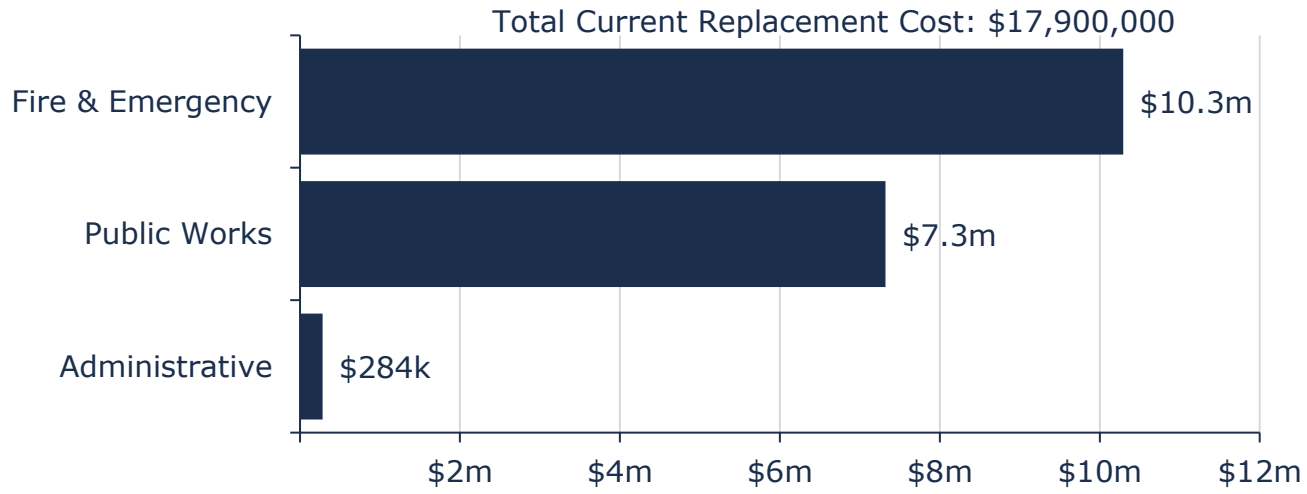


Figure 68 Portfolio Valuation: Fleet

12.2 Asset Condition

Figure 69 summarizes the replacement cost-weighted condition of the Township's fleet portfolio. Based primarily on assessed condition data, 57% of fleet are in fair or better condition, with the remaining 43% 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.

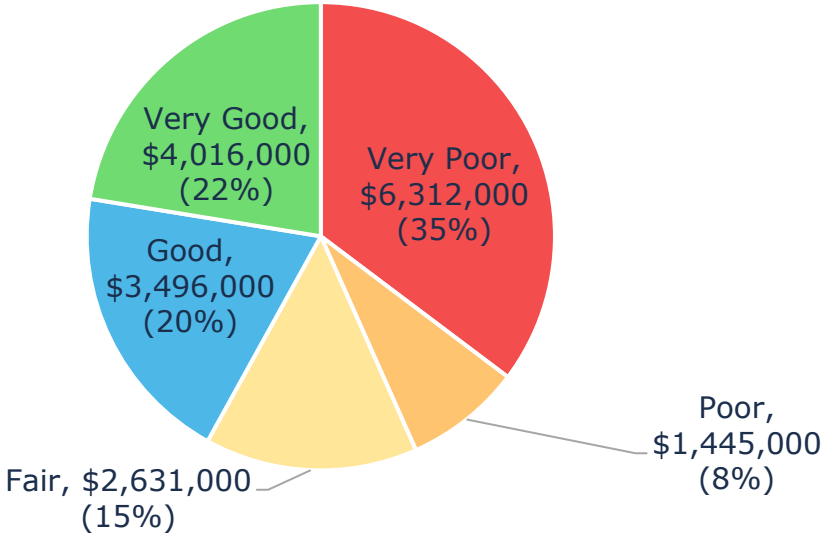


Figure 69 Asset Condition: Fleet Overall

Figure 70 summarizes the condition of fleet by each department.

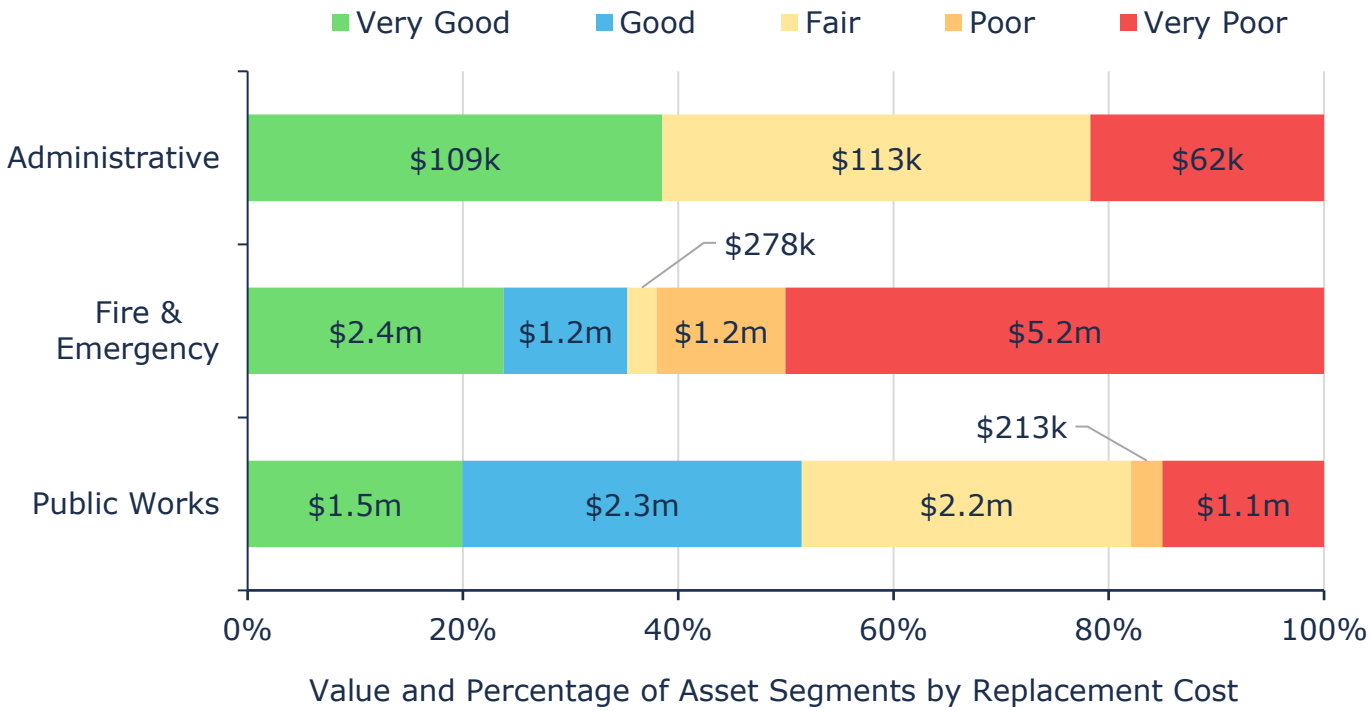


Figure 70 Asset Condition: Fleet by Segment

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 71 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.

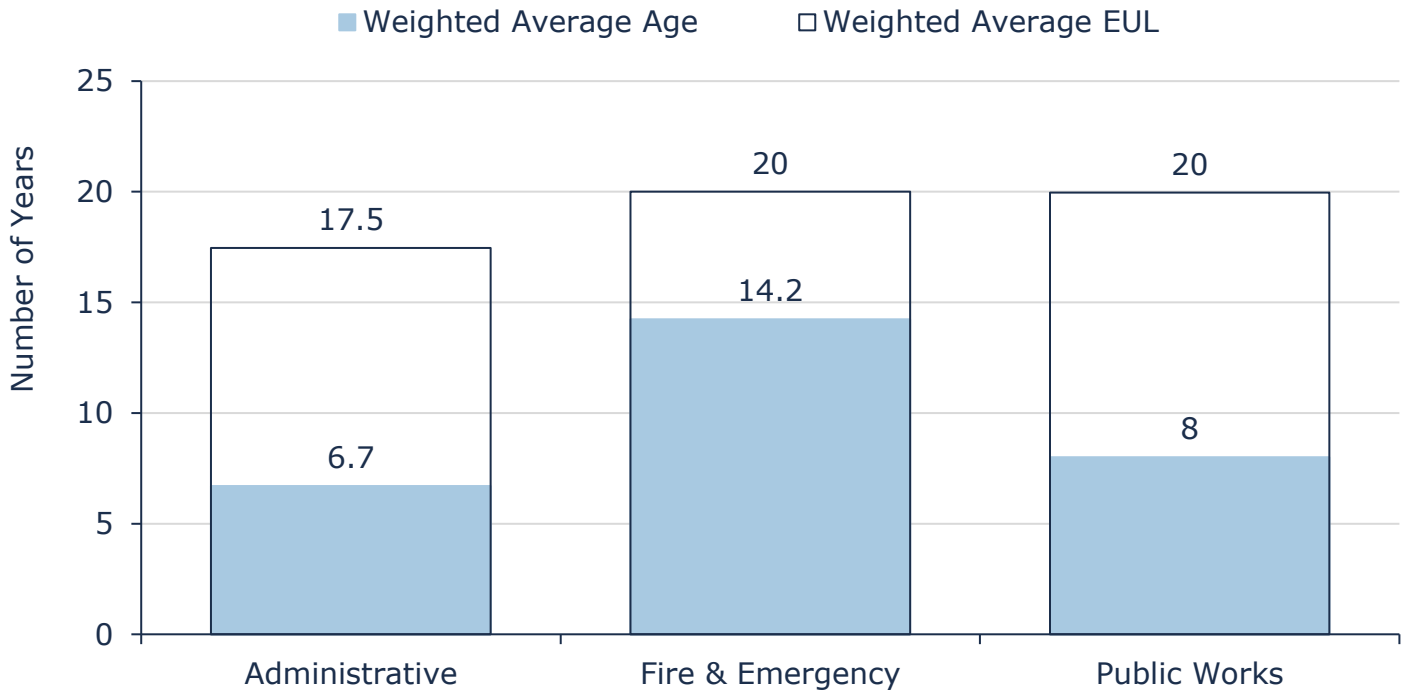


Figure 71 Estimated Useful Life vs. Asset Age: Fleet

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	Routine maintenance activities include tire replacement, oil changes, and minor repairs identified through daily circle checks
	Heavy licensed fleet are formally inspected once a year. Servicing is completed semi-annually
Replacement	Vehicles are replaced at the end of their prescribed useful life. Fire vehicles have a higher priority for replacement than other fleet assets
Inspections	Staff complete regular visual inspections of vehicles to ensure they are in state of adequate repair prior to operation
	Condition assessments are conducted on vehicles in accordance with regulations for health and safety regulations including National Fire Protection Association (NFPA) codes and standards for fire service-related vehicles

Table 58 Lifecycle Management Strategy: Fleet

12.5 Forecasted Long-Term Replacement Needs

Figure 72 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's fleet portfolio. This analysis was run until 2074. The Township's average annual requirements (red dotted line) total $939,000 for all vehicles. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

These projections and estimates are based on asset replacement costs and age analysis. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

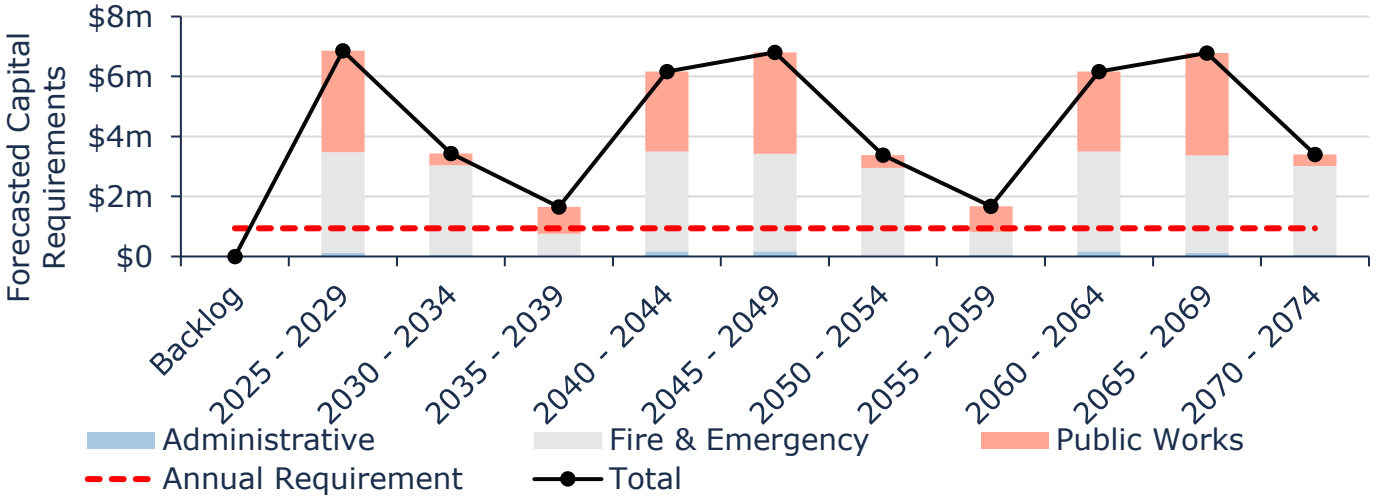


Figure 72 Forecasted Capital Replacement Needs: Fleet 2025-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. In addition, a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A summary of the 10-year replacement forecast can be found in Appendix B – 10-Year Capital Requirements.

12.6 Risk Analysis

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

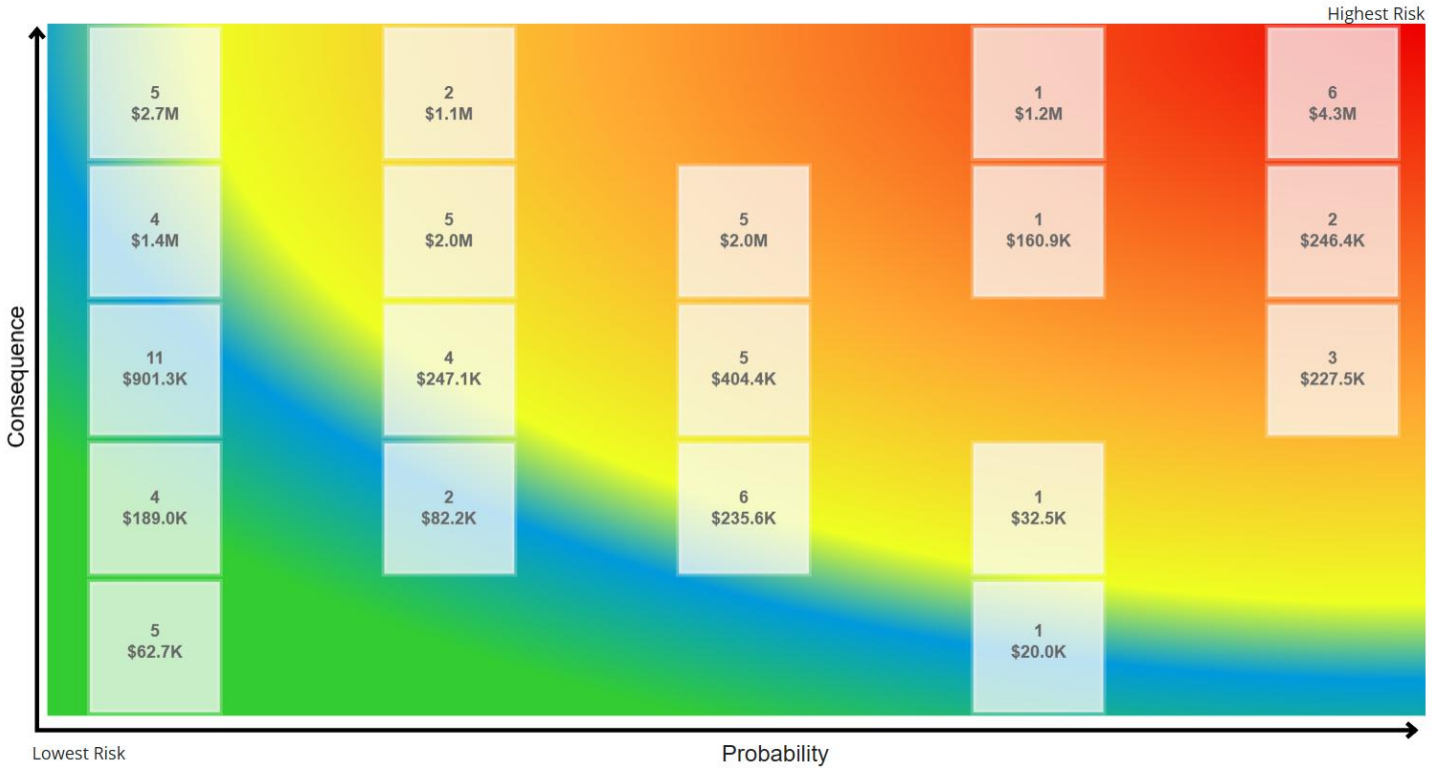


Figure 73 Risk Matrix: Fleet

12.7 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.

12.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description of the fleet management and safety program	Vehicles inspections for heavy licensed fleet are formally performed once per year. Informal inspections are performed during maintenance intervals, and through daily circle checks by internal staff. Lifecycle time frames of vehicles inform capital investments in the budgets. Fire vehicles are replaced based on regulatory requirements.
	Description of the current condition of municipal vehicles and the plans that are in place to maintain or improve the provided level of service	There is a long-term capital forecast completed by the fleet department in line with the Township's AM planning software to ensure that they are able to efficiently manage the fleet. Fire department vehicles are replaced as per condition and regulatory requirements.

Table 59 Community Levels of Service: Fleet

12.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of heavy vehicle inspections completed annually	100%
Performance	% of fire vehicles in fair or better condition	38%
	% of fire vehicles in poor or very poor condition	62%
	% of other vehicles in fair or better condition	80%
	% of other vehicles in poor or very poor condition	20%
	Annual capital reinvestment rate	5.96%

Table 60 Technical Levels of Service: Fleet

12.8 Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the Township's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for fleet. Further PLOS analysis at the portfolio level can be found in section *4. Proposed Levels of Service Analysis.*

12.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Maintain Current Funding Level	This scenario maintains existing capital funding levels for those categories that are underfunded. ♦ Fleet capital funding maintained at $1,066,000/year
Scenario 2: Achieving 100% Target Funding in 10 years	This scenario assumes gradual tax increases of ~0.6%/year, stabilizing at 100% funding across all asset categories in 10 years. ♦ Fleet capital funding will gradually decrease from $1,066,000/year to $939,000/year over a span of 10 years
Scenario 3: Achieving Midpoint Between Current and Target Funding in 10 Years	This scenario assumes gradual tax increases of ~0.3%/year, stabilizing at the midpoint between current and target funding across all asset categories in 10 years. ♦ Fleet capital funding gradually decreases from $1,066,000/year to $875,000/year over a span of 10 years

Table 61 Fleet PLOS Scenario Descriptions

12.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1	Average Condition	46%	46%	45%	
	Average Asset Risk	13.5	14.2	14.4	
	Annual Investment Required		$1,066,200		This is the maintained parameter in this scenario
	Capital Reinvestment Rate		5.9%		
Scenario 2	Average Condition	46%	48%	47%	
	Average Asset Risk	13.5	14.0	14.0	
	Annual Investment Required		$939,000		This parameter was decreased from $1,066,200/year to $939,000/year gradually over 10 years.
	Capital Reinvestment Rate		5.2%		
Scenario 3	Average Condition	46%	47%	46%	
	Average Asset Risk	13.5	14.1	14.1	
	Annual Investment Required		$875,000		This parameter was decreased from $1,066,200/year to $875,000/year gradually over 10 years.
	Capital Reinvestment Rate		4.9%		

Table 62 Fleet PLOS Scenario Analysis

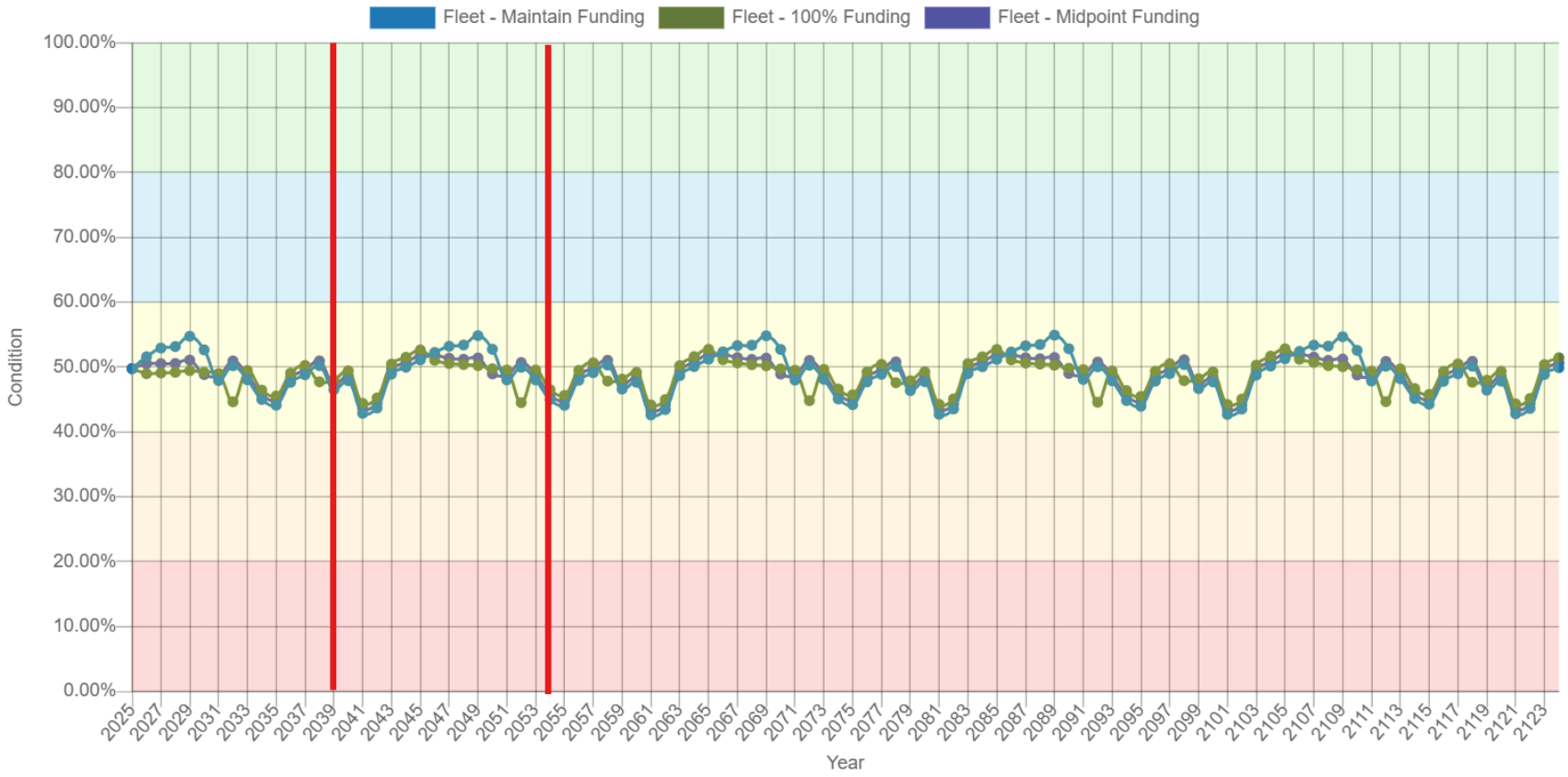


Figure 74 Fleet PLOS Scenario Condition Results

13. Machinery & Equipment

In order to maintain the high quality of public infrastructure and support the delivery of core services, municipal staff own and operate various types of machinery and equipment. This includes:

- emergency services equipment to support first responders,
- furniture & fixtures for facilities, offices, and buildings,
- IT equipment for communication, data management, and
- tools, shop & garage machinery equipment to ensure proper maintenance of vehicles and machinery.

Keeping machinery and equipment assets in an adequate state of repair is important to support staff in the delivery of core services.

13.1 Inventory & Valuation

The following figures summarize the quantity and current replacement cost of all machinery and equipment assets available in the Township's asset register.

13.1.1 Machinery

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Fire & Emergency	147	Quantity	$1,866,000	CPI
Public Works	28	Quantity	$459,000	CPI
TOTAL			**$2,325,000**	

Table 63 Detailed Asset Inventory: Machinery

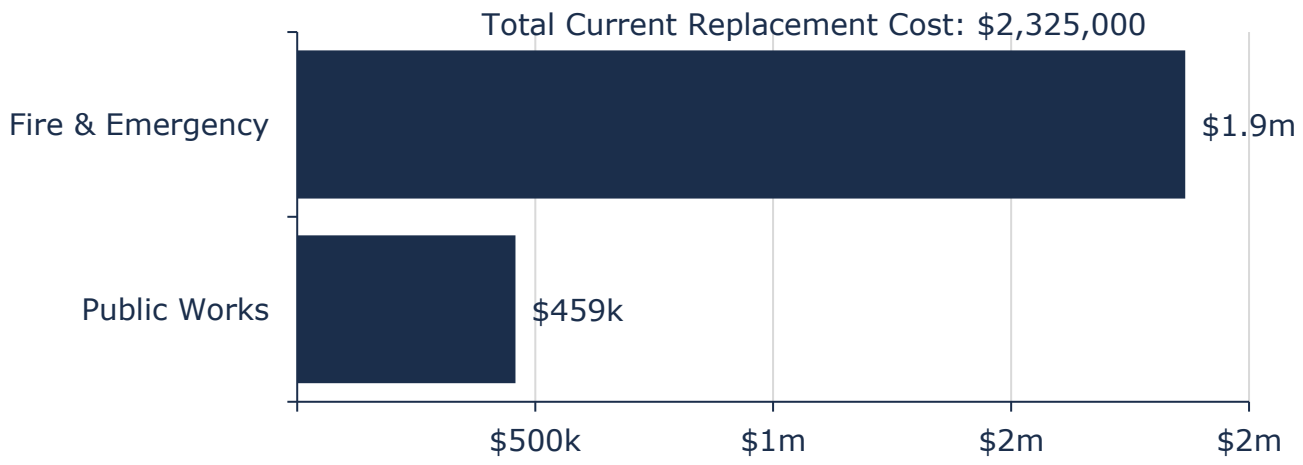


Figure 75 Portfolio Valuation: Machinery

13.1.2 Furniture & Fixtures

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Admin/Corporate	2	Quantity	$274,000	CPI
Library	1	Quantity	$23,000	CPI
Parks & Recreation	16	Quantity	$109,000	CPI
TOTAL			**$407,000**	

Table 64 Detailed Asset Inventory: Furniture & Fixtures

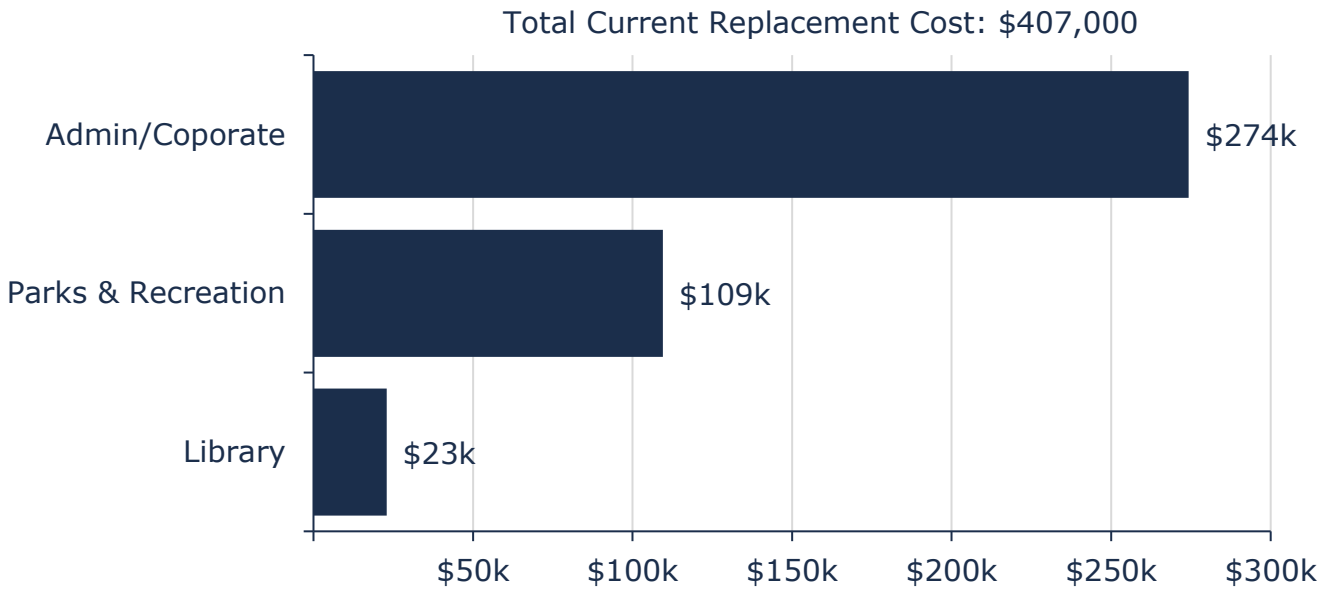


Figure 76 Portfolio Valuation: Furniture & Fixtures

13.1.3 Information Technology

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Computers & Laptops	51	Quantity	$92,000	CPI
Security Cameras/Systems	4	Quantity	$112,000	CPI
Severs & Networks	3	Quantity	$61,000	CPI
TOTAL			**$265,000**	

Table 65 Detailed Asset Inventory: Information Technology

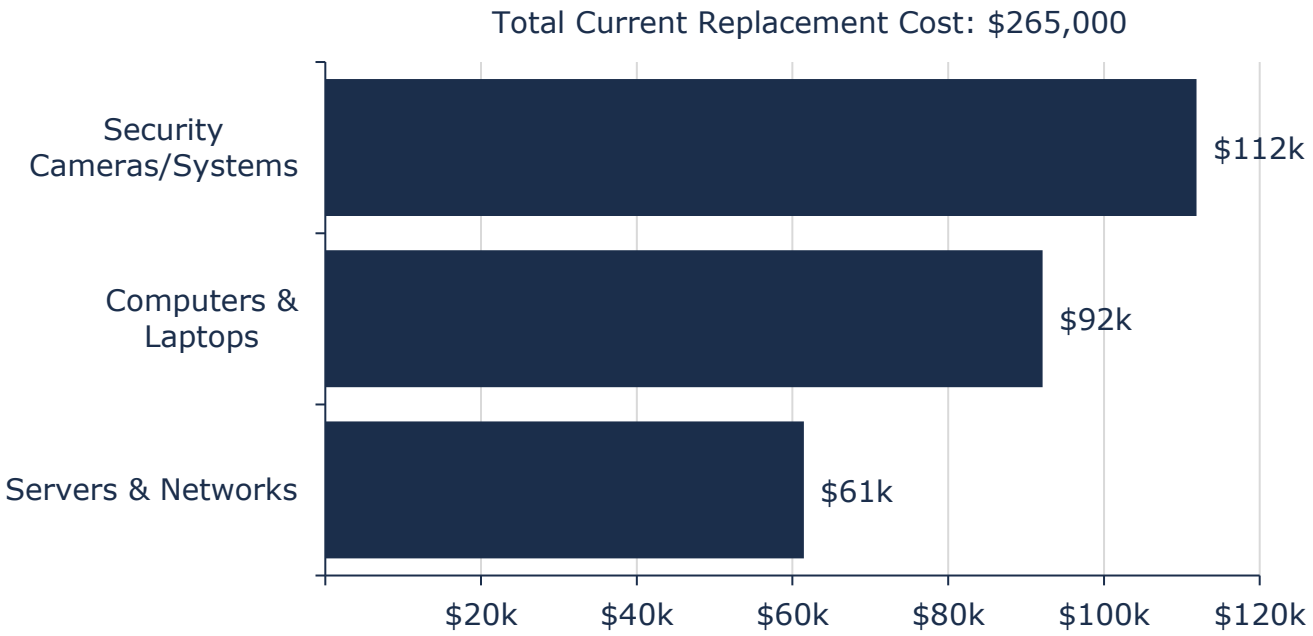


Figure 77 Portfolio Valuation: Information Technology

13.2 Asset Condition

The following figures summarize the replacement cost-weighted condition of the Township's machinery and equipment portfolio.

13.2.1 Machinery

Based only on age data, 55% of assets are in fair or better condition; the remaining 45% 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.

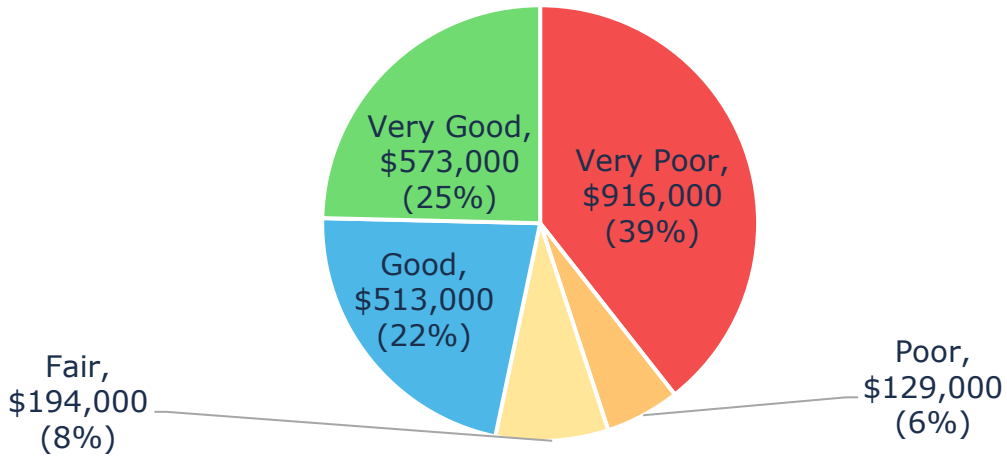


Figure 78 Asset Condition: Machinery Overall

Figure 79 summarizes the age-based condition of machinery by each segment.

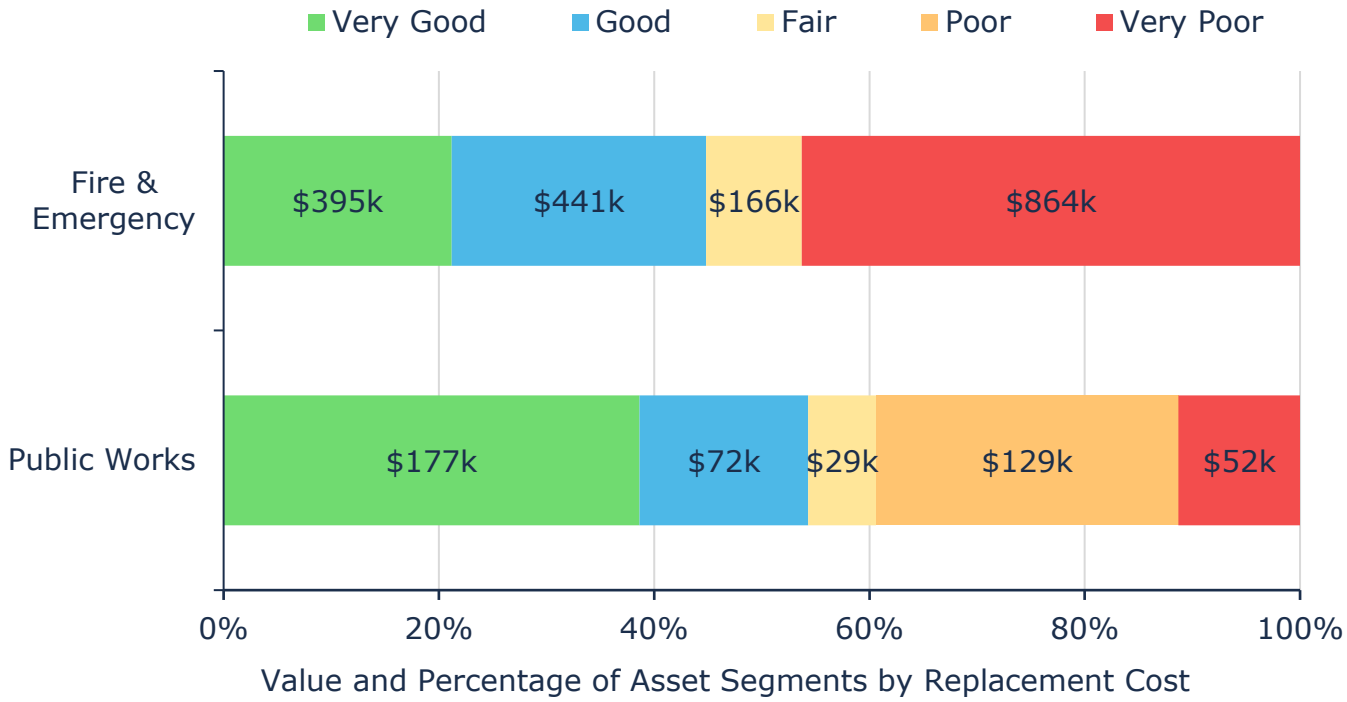


Figure 79 Asset Condition: Machinery by Segment

13.2.2 Furniture & Fixtures

Based only on age data, 18% of assets are in fair or better condition; the remaining 82% 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.

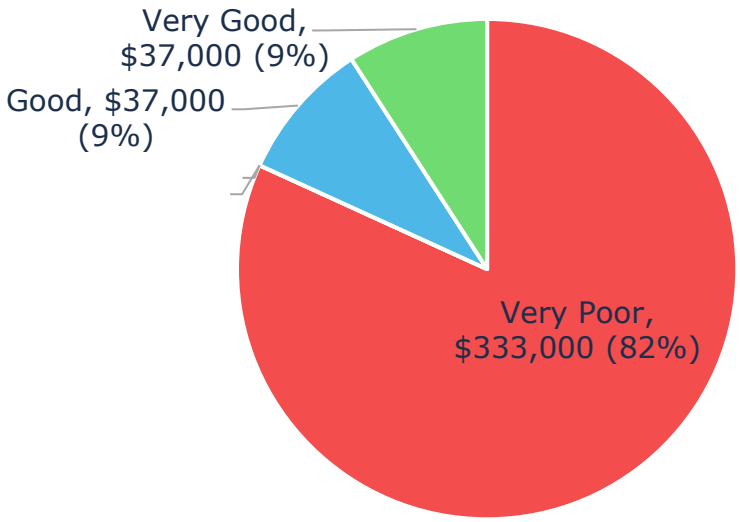


Figure 80 Asset Condition: Furniture & Fixtures Overall

The figure below summarizes the age-based condition of furniture and fixtures by each segment.

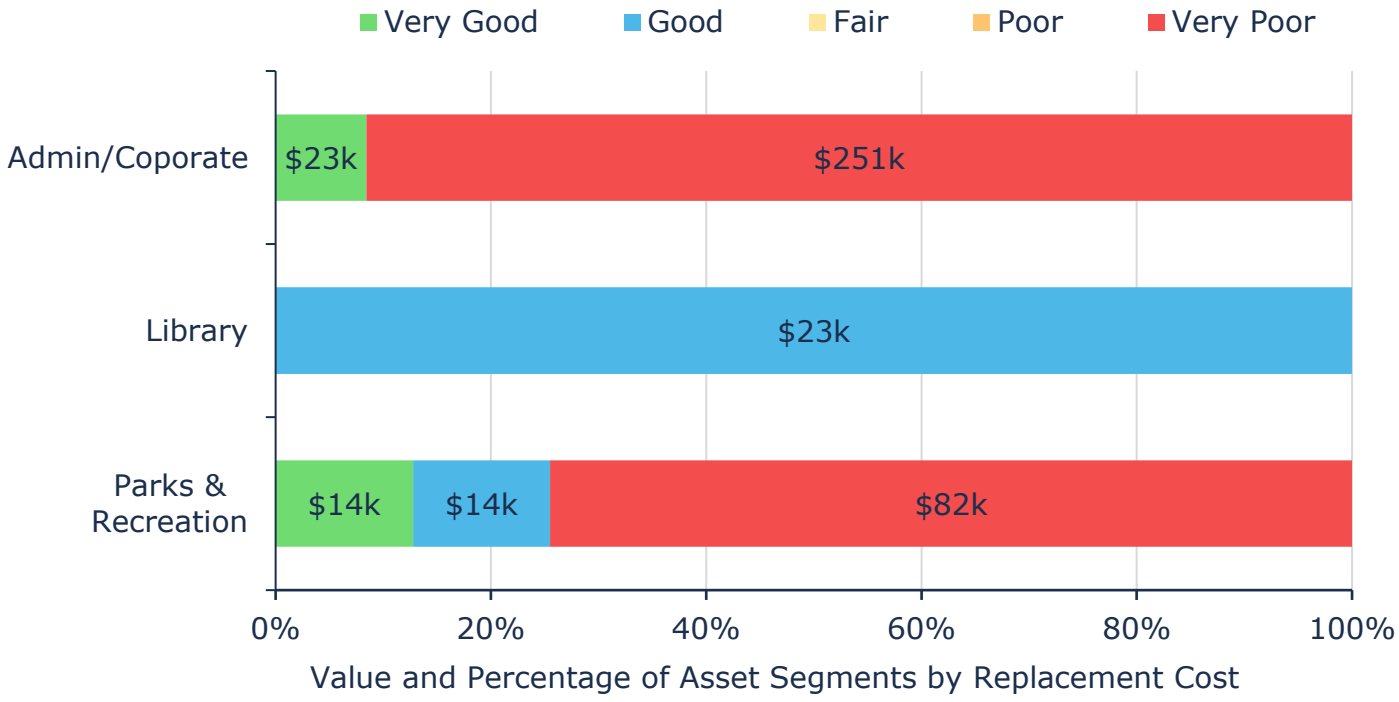


Figure 81 Asset Condition: Furniture & Fixtures by Segment

13.2.3 Information Technology

Based only on age data, 92% of assets are in fair or better condition; the remaining 8% 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.

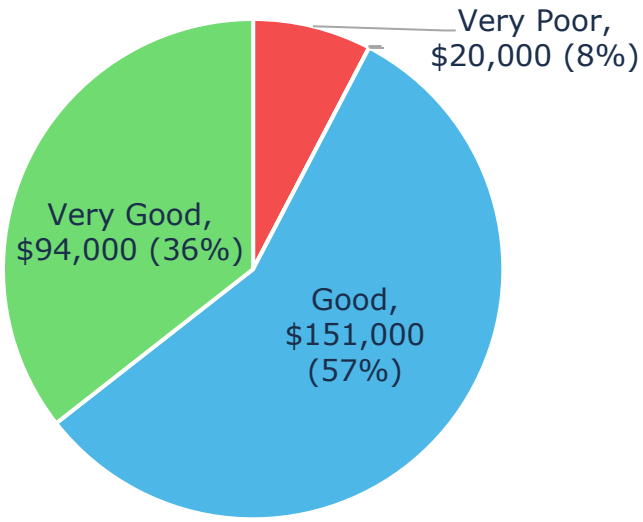


Figure 82 Asset Condition: Information Technology Overall

The figure below summarizes the age-based condition of information technology by each segment.

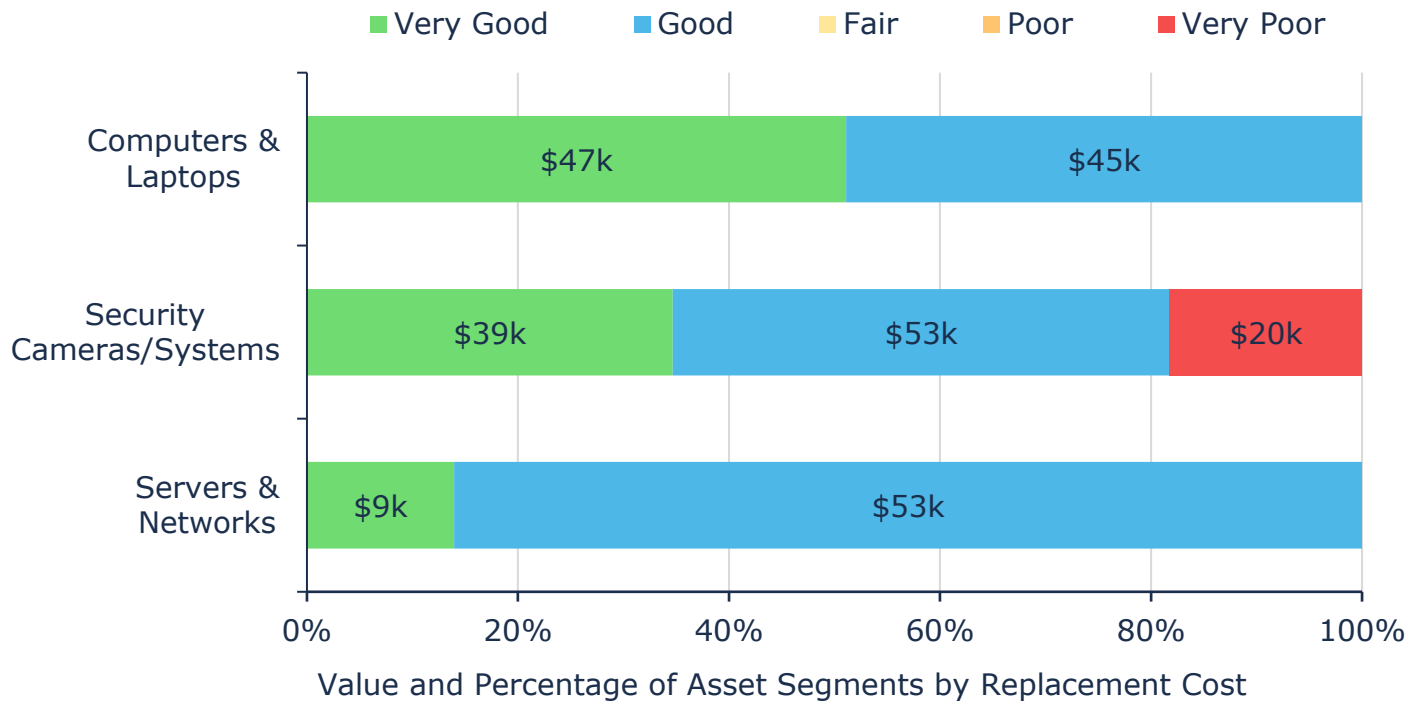


Figure 83 Asset Condition: Information Technology by Segment

13.3 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.

The following figures illustrate the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

13.3.1 Machinery

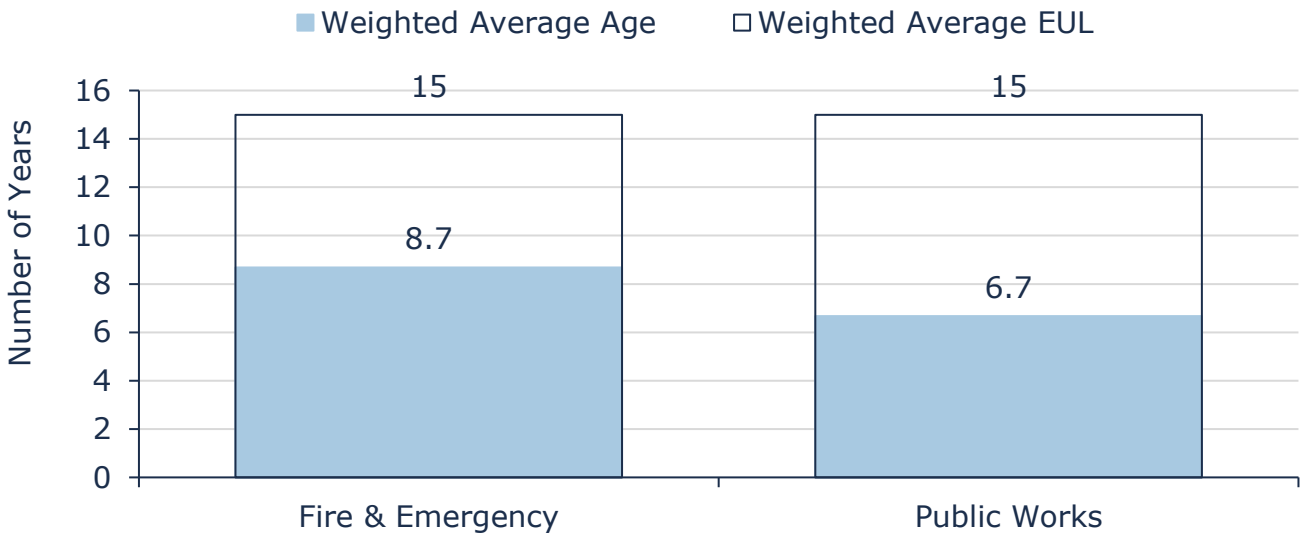


Figure 84 Estimated Useful Life vs. Asset Age: Machinery

13.3.2 Furniture & Fixtures

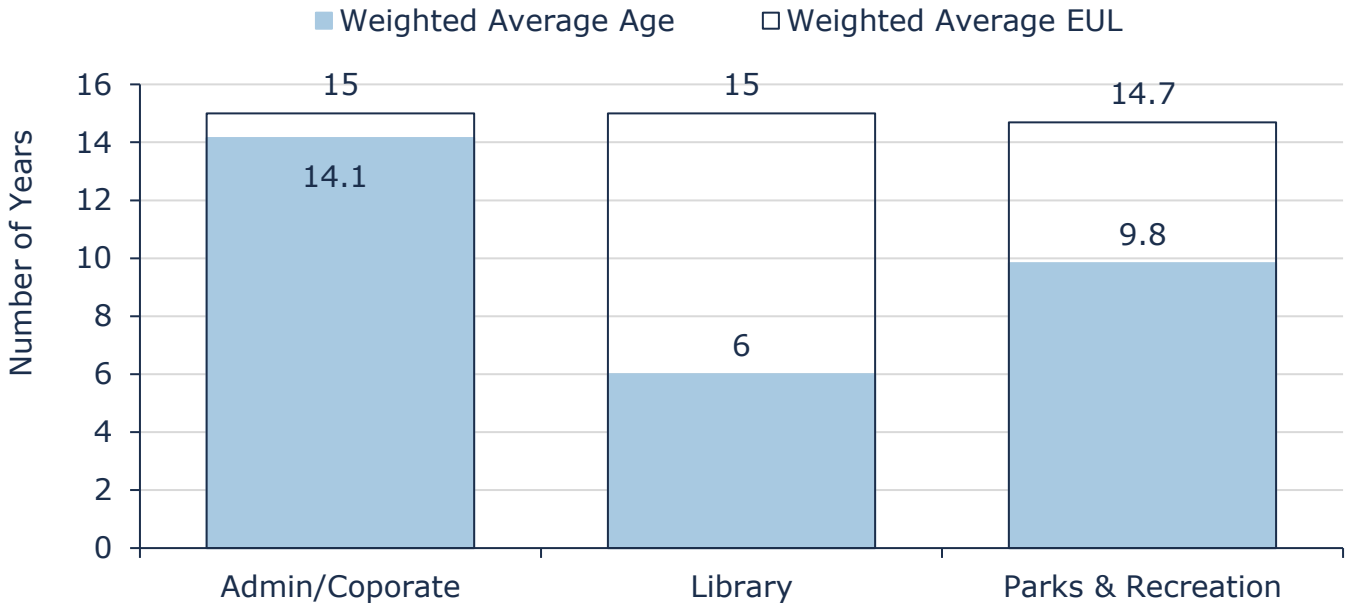


Figure 85 Estimated Useful Life vs. Asset Age: Furniture & Fixtures

13.3.3 Information Technology

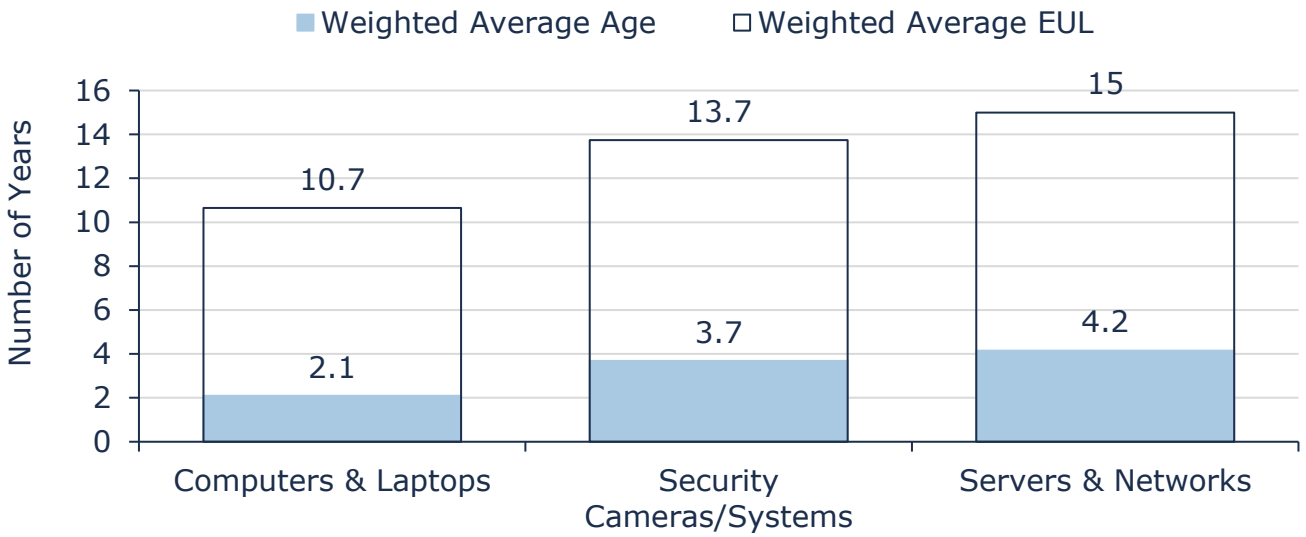


Figure 86 Estimated Useful Life vs. Asset Age: Information Technology

13.4 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	Routine maintenance activities include inspections, minor repairs, and oil changes
	Heavy equipment is inspected annually by external contractors, and repairs are completed at the time of the inspection
Replacement	Replacement is considering when an asset is nearing the end of it's service life, or incurring frequent and costly repairs
Inspections	Staff complete regular visual inspections of their machinery & equipment to ensure they are structurally and functionally sound. Assets typically stay true to their estimated useful life and are replaced at end of life
	Heavy equipment is inspected annually by external contractors and given a rating of pass or fail

Table 66 Lifecycle Management Strategy: Machinery & Equipment

13.5 Forecasted Long-Term Replacement Needs

The following figures illustrate the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's machinery and equipment portfolio. This analysis was run until 2074. The Township's average annual requirements (red dotted line) total $207,000 for all machinery and equipment. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

These projections and estimates are based on asset replacement costs and age analysis. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

13.5.1 Machinery

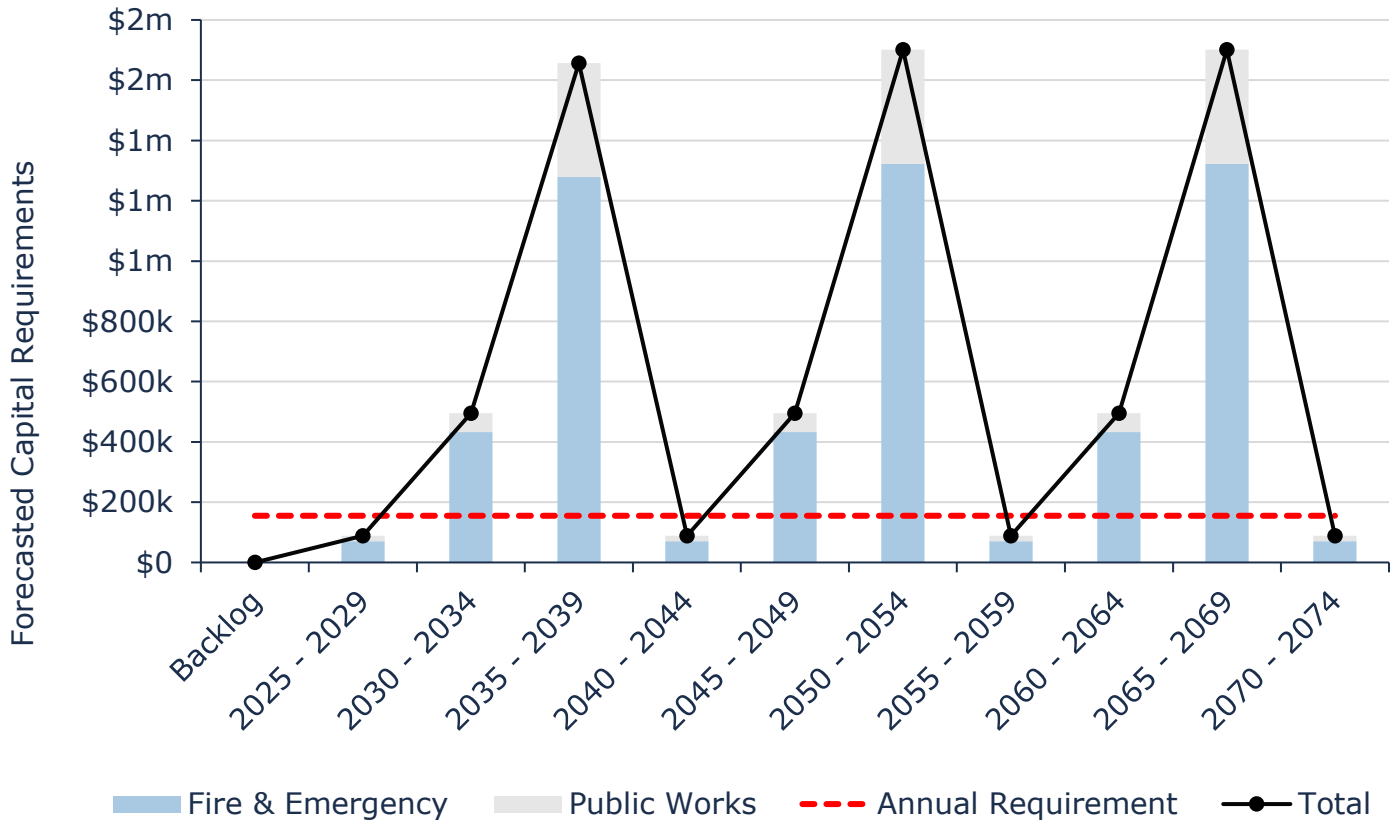


Figure 87 Forecasted Capital Replacement Needs: Machinery 2025-2074

13.5.2 Furniture & Fixtures

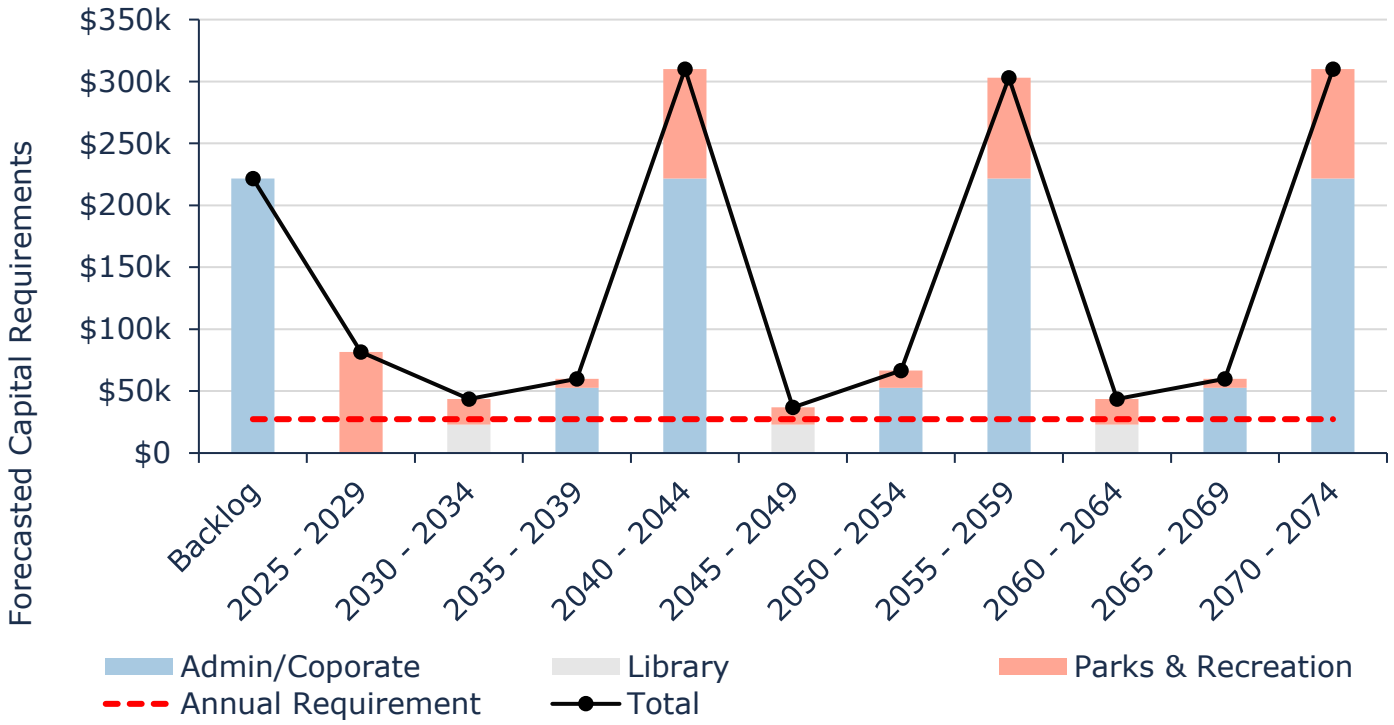


Figure 88 Forecasted Capital Replacement Needs: Furniture & Fixtures 2025-2074

13.5.3 Information Technology

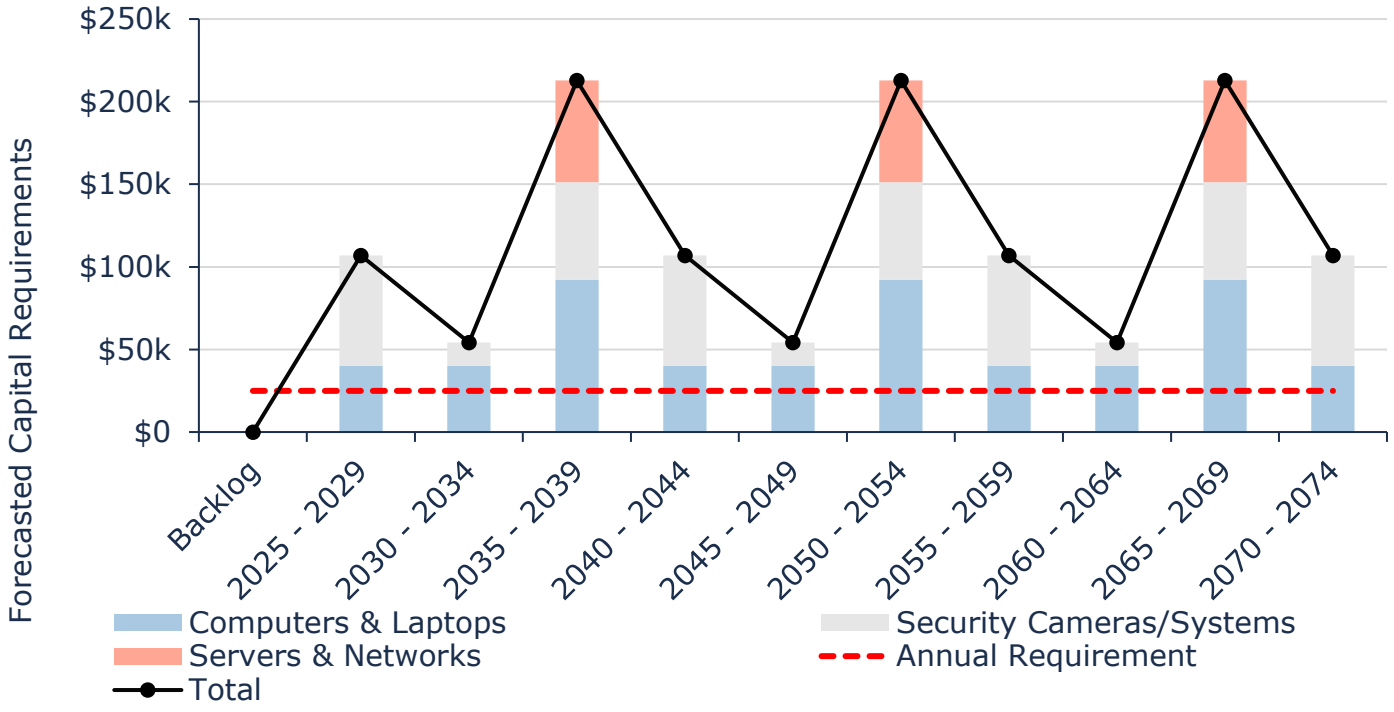


Figure 89 Forecasted Capital Replacement Needs: Information Technology 2025-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. In addition, a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A summary of the 10-year replacement forecast can be found in Appendix B – 10-Year Capital Requirements.

13.6 Risk Analysis

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

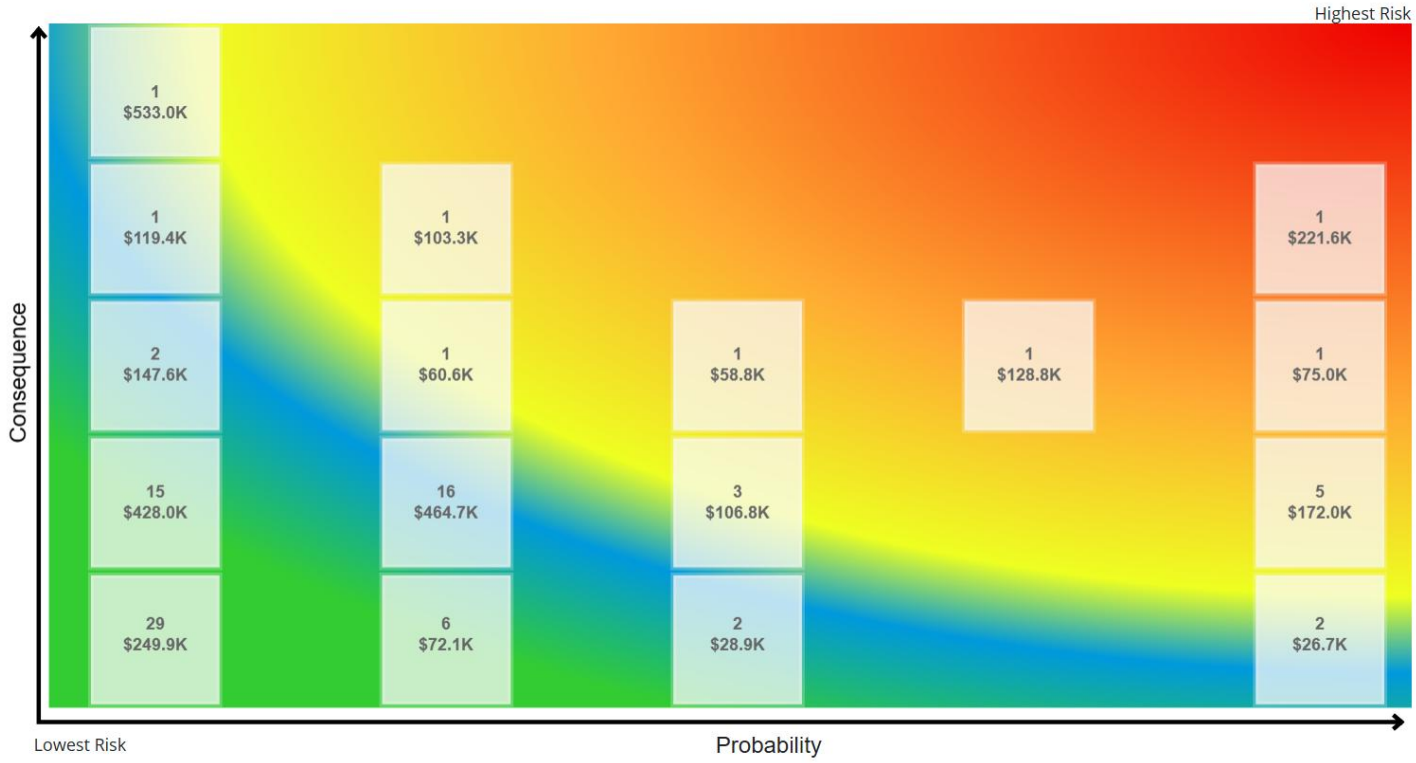


Figure 90 Risk Matrix: Machinery & Equipment

13.7 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.

13.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description of the machinery & equipment inspection process	Heavy equipment is inspected annually by external contractors and given a rating of pass or fail. Repairs required are completed at the time of inspection. Fire Equipment inspections are completed as per regulatory requirements and repaired as required.
	Description of the current condition of machinery & equipment and the plans that are in place to maintain or improve the provided level of service	There is a long-term capital forecast completed by the Township's departments in line with the Township's AM planning software to ensure that they are able to efficiently manage the fleet. Fire department equipment is replaced as per condition and regulatory requirements.

Table 67 Community Levels of Service: Machinery & Equipment

13.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of annual public works equipment test completed	100%
	% of annual fire equipment tests completed	100%
Performance	% of fire equipment in fair or better condition	54%
	% of fire equipment in poor or very poor condition	46%
	% of public works equipment in fair or better condition	61%
	% of public works equipment in poor or very poor condition	39%
	Annual capital reinvestment rate	6.90%

Table 68 Technical Levels of Service: Machinery & Equipment

13.8 Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the Township's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for machinery and equipment. Further PLOS analysis at the portfolio level can be found in Section *4. Proposed Levels of Service Analysis.*

13.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Maintain Current Funding Level	This scenario maintains existing capital funding levels for those categories that are underfunded. ♦ Fleet capital funding maintained at $1,066,000/year
Scenario 2: Achieving 100% Target Funding in 10 years	This scenario assumes gradual tax increases of ~0.6%/year, stabilizing at 100% funding across all asset categories in 10 years. ♦ Fleet capital funding will gradually decrease from $1,066,000/year to $939,000/year over a span of 10 years
Scenario 3: Achieving Midpoint Between Current and Target Funding in 10 Years	This scenario assumes gradual tax increases of ~0.3%/year, stabilizing at the midpoint between current and target funding across all asset categories in 10 years. ♦ Fleet capital funding gradually decreases from $1,066,000/year to $875,000/year over a span of 10 years

Table 69 Machinery & Equipment PLOS Scenario Descriptions

13.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1	Average Condition	46%	46%	45%	
	Average Asset Risk	13.5	14.2	14.4	
	Annual Investment Required		$1,066,200		This is the maintained parameter in this scenario
	Capital Reinvestment Rate		5.9%		
Scenario 2	Average Condition	46%	48%	47%	
	Average Asset Risk	13.5	14.0	14.0	
	Annual Investment Required		$939,000		This parameter was decreased from $1,066,200/year to $939,000/year gradually over 10 years.
	Capital Reinvestment Rate		5.2%		
Scenario 3	Average Condition	46%	47%	46%	
	Average Asset Risk	13.5	14.1	14.1	
	Annual Investment Required		$875,000		This parameter was decreased from $1,066,200/year to $875,000/year gradually over 10 years.
	Capital Reinvestment Rate		4.9%		

Table 70 Machinery & Equipment PLOS Scenario Analysis

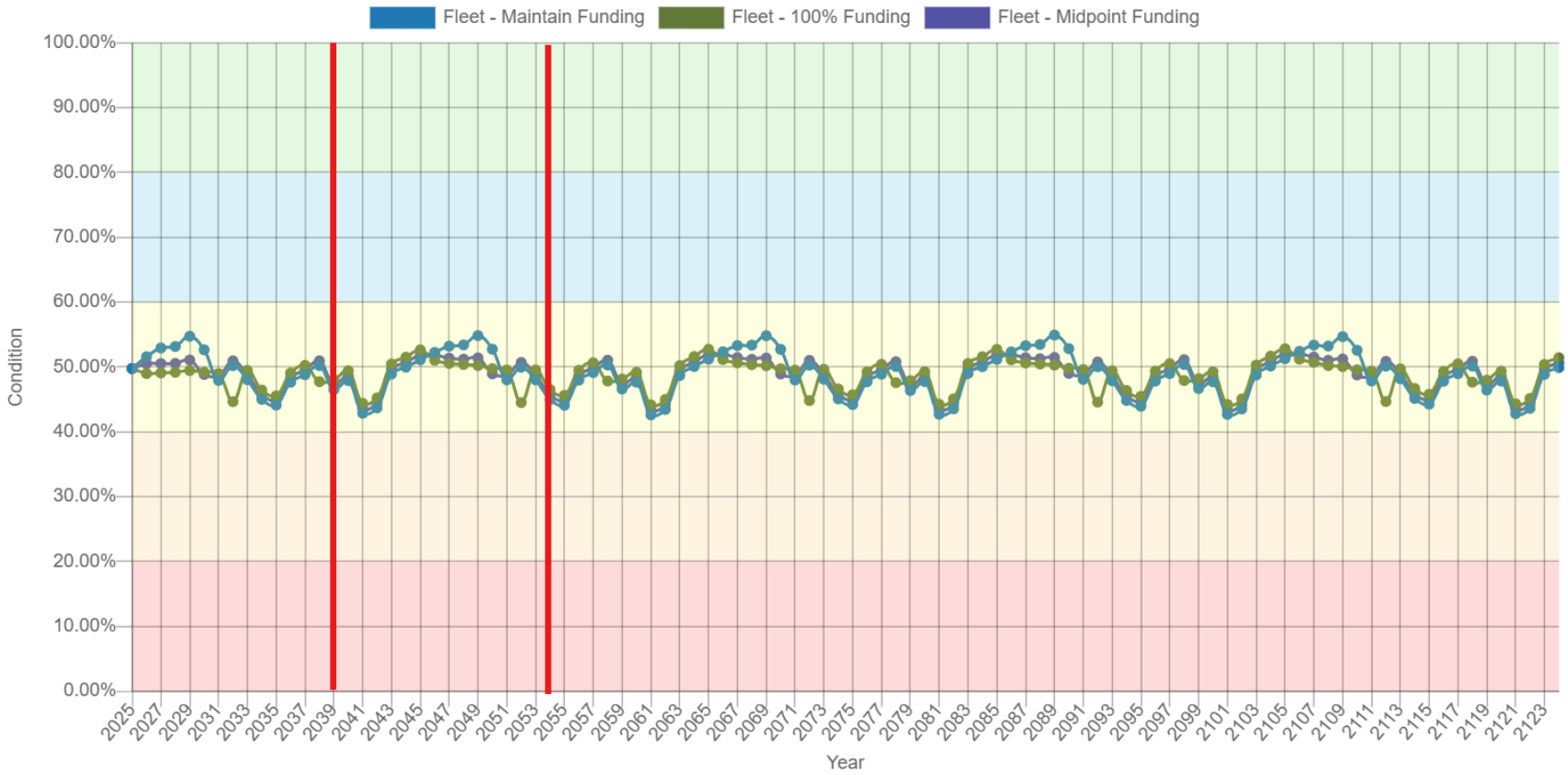


Figure 91 Machinery & Equipment PLOS Scenario Condition Results

Strategies

14. 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.

14.1 Growth Assumptions

14.1.1 Township's Official Plan (September 2018)

The Township of Leeds and the Thousand Islands Official Plan is consistent with the 2014 Provincial Policy Statement, conforms to the United Counties of Leeds and Grenville Official Plan, incorporates new legislation and addresses matters of provincial interest. The Official Plan will balance development with the wider interests and objectives of the township and the upper-tier municipality of the United Counties of Leeds and Grenville. The Official Plan is intended to guide the future development of the Township to the year 2031.

The Official Plan was adopted by Township Council on September 10th, 2018 and the United Counties of Leeds and Grenville on November 22, 2018.

As per the plan objectives, growth and development shall be focused and encouraged within the settlement areas to strengthen their role as local industrial, commercial, residential, social, and cultural centers for the Township, as well as to enhance their function in providing services and facilities that cater to tourists.

This plan includes the growth forecasts in terms of population, occupied housing units and employment for which the Township will be required to provide services.

The following table outlines the population and employment forecasts allocated to Leeds and Thousand Islands.

Year	Population	Housing Units	Employment
2011	9,505	3,700	1,860
2021	9,770	3,900	1,960
2031	9,990	4,100	1,840

Figure 92 Population, Employment and Housing Forecasts

14.2 Impact of Growth on Lifecycle Activities

Planning for forecasted population growth may require the expansion of existing infrastructure and services. As growth-related assets are constructed or acquired, they should be integrated into the Township's AMP. While the addition of residential units will add to the existing assessment base and offset some of the costs associated with growth, the Township will need to review the lifecycle costs of growth-related infrastructure. These costs should be considered in long-term funding strategies that are designed to, at a minimum, maintain the current level of service.

For the near- to mid-term, the projected population growth in Leeds and Thousand Islands is not expected to significantly impact the current portfolio of assets required by the Township to maintain acceptable service levels.

15. 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 Leeds and Thousand Islands to identify the financial resources required for sustainable asset management based on existing asset inventories, desired levels of service, and projected growth requirements.

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

1. The financial requirements for:
    a. Existing assets
    b. Existing service levels
    c. Requirements of contemplated changes in service levels (none identified for this plan)
    d. Requirements of anticipated growth (none identified for this plan)
2. Use of traditional sources of municipal funds:
    a. Tax levies
    b. User fees
    c. Debt
    d. Development charges
3. Use of non-traditional sources of municipal funds:
    a. Reallocated budgets
    b. Partnerships
    c. Procurement methods
4. Use of Senior Government Funds:
    a. Canada Community-Building Fund (CCBF)
    b. Annual grants

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

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

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

b. Do user fees reflect the cost of the applicable service? If not, increased user fees should be considered.

15.1 Annual Requirements & Capital Funding

15.1.1 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 $4.7 million annually to address capital requirements for the assets included in this AMP.

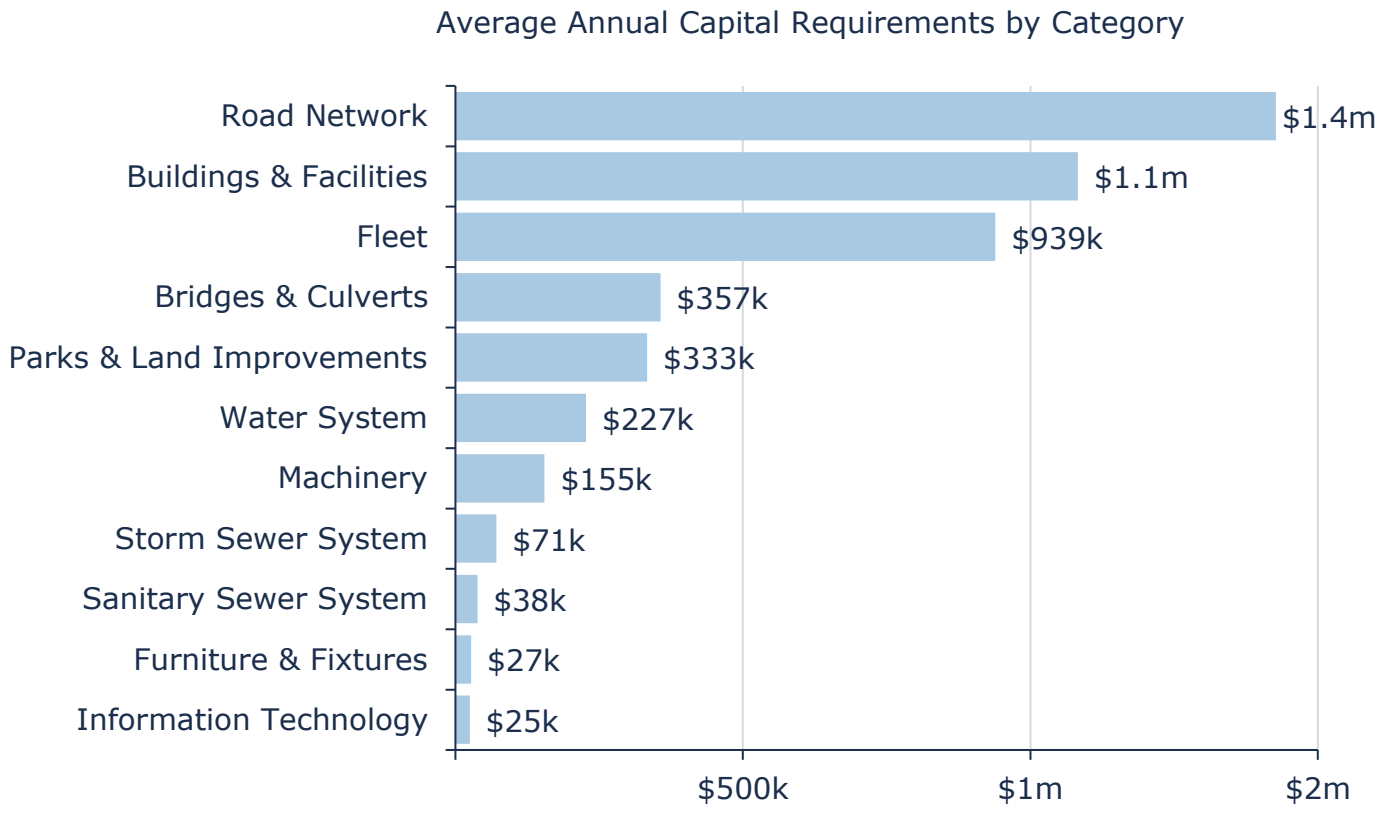


Figure 93 Annual Capital Funding Requirements by Asset Category

For most asset categories the annual requirement has been calculated based on a "replacement only" scenario, in which capital costs are only incurred at the construction and replacement of each asset.

However, for the Road Network, lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal of the Township's roads. The development of these strategies allows for a comparison of potential cost avoidance if the strategies were to be implemented.

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

15.1.2 Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $3.76 million towards capital projects per year. Given the annual capital requirement of $4.68 million, there is currently a funding gap of $920,000 annually.

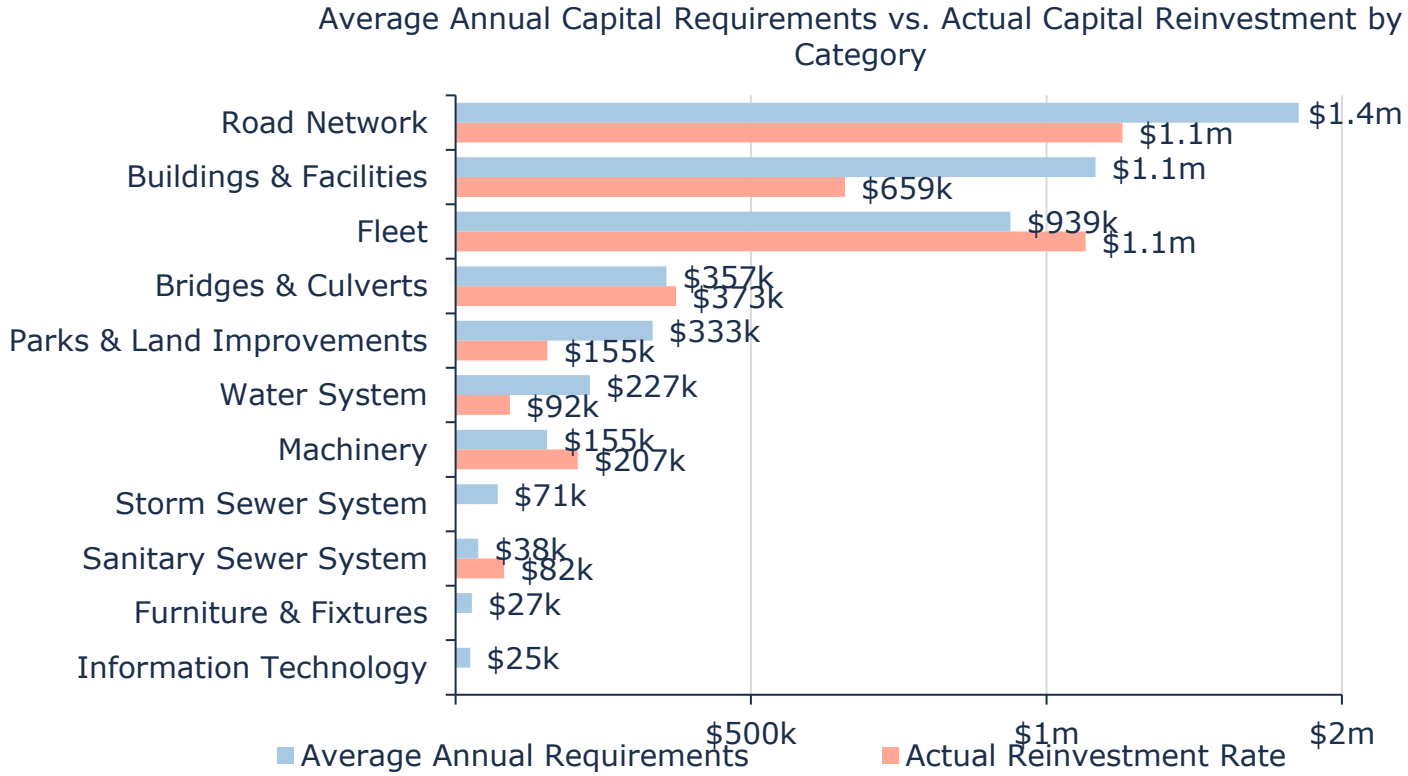


Figure 94 Annual Requirements vs. Capital Funding Available

15.2 Funding Objective

We have developed a scenario that would enable Township of Leeds and Thousand Islands to achieve full funding within 10 years for the following assets:

1. **Tax Funded Assets:** Road Network, Storm Sewer System, Bridges & Culverts, Buildings & Facilities, Machinery & Equipment, Parks & Land Improvements, Fleet

For the purposes of this AMP, the Township has chosen to continue to maintain current funding levels for the water and sanitary sewer system, therefore no rate increases have been noted. The Township will be performing a rate study to determine the rate increase that should be implemented in order to continue to provide the current level of service.

Note: For the purposes of this AMP, we have excluded gravel roads since they are a perpetual maintenance asset and end of life replacement calculations do not normally apply. If gravel roads are maintained properly, they can theoretically have a limitless service life.

For each scenario developed we have included strategies, where applicable, regarding the use of cost containment and funding opportunities.

15.3 Financial Profile: Tax Funded Assets

15.3.1 Current Funding Position

The following tables show, by asset category, Leeds and Thousand Islands'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
		Taxes	CCBF	OCIF	Total Available	
Road Network	1,427,000	497,300	312,100	310,100	1,128,500	298,500
Storm Sewer System	71,000	0	0	0	0	71,000
Bridges & Culverts	357,000	372,900	0	0	372,900	-15,900
Buildings & Facilities	1,083,000	658,900	0	0	658,900	424,100
Machinery & Equipment	207,000	207,000	0	0	207,000	0
Parks & Land Improve-ments	333,000	155,400	0	0	155,400	177,600
Fleet	939,000	1,066,200	0	0	1,066,200	-127,200
Total	**4,417,000**	**2,957,700**	**321,100**	**0**	**3,588,900**	**828,100**

Table 71 Annual Available Funding for Tax Funded Assets

The average annual investment requirement for the above categories is $4.42 million. Annual revenue currently allocated to these assets for capital purposes is $3.59 million leaving an annual deficit of $828,000. Put differently, these infrastructure categories are currently funded at 81.3% of their long-term requirements.

15.3.2 Full Funding Requirements

In 2024, the Township of Leeds and Thousand Islands had budgeted annual tax revenues of approximately $12.9 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
Road Network	2.3%
Storm Sewer Network	0.5%
Bridges & Culverts	-0.1%
Buildings & Facilities	3.3%
Machinery & Equipment	0.0%
Parks & Land Improvements	1.4%
Fleet	-1.0%
Total	**6.4%**

Table 72 Tax Increase Requirements for Full Funding

The following changes in costs and/or revenues over the next number of years should also be considered in the financial strategy:

a) Leeds and Thousand Islands's debt payments for these asset categories will be decreasing $68,000 over the next 15 years.

Our scenario modeling 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	828,100	828,100	828,100	828,100
Change in Debt Costs	-22,667	-68,306	-68,306	-68,306
Resulting Infrastructure Deficit:	**805,433**	**759,794**	**759,794**	**759.794**
Tax Increase Required	6.2%	5.9%	5.9%	5.9%
Annually:	**1.3%**	**0.6%**	**0.4%**	**0.3%**

Table 73 Tax Increase Options 5-20 Years

15.3.3 Financial Strategy Recommendations

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

a) increasing tax revenues by 0.6% 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.
b) allocating the current CCBF and OCIF revenue as outlined previously.
c) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
d) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

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

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 a pent-up investment demand of $302,000 for Buildings & Facilities and $222,000 for Machinery & Equipment.

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

15.4 Financial Profile: Rate Funded Assets

15.4.1 Current Funding Position

The following tables show, by asset category, Leeds and Thousand Islands's average annual asset investment requirements, current funding positions, and funding increases required to achieve full funding on assets funded by rates.

[2] 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.

Asset Category	Avg. Annual Require-ment	Annual Funding Available				Annual Deficit
		Rates	To Oper	OCIF	Total Available	
Water System	227,000	361,300	-269,300	0	92,000	135,000
Sanitary Sewer System	38,000	361,300	-279,100	0	82,200	-44,200
Total	**265,000**	**722,600**	**-548,400**	**0**	**174,200**	**90,800**

Table 74 Annual Available Funding for Rate Funded Assets

The average annual investment requirement for the above categories is $265,000. Annual revenue currently allocated to these assets for capital purposes is $174,000 leaving an annual deficit of $91,000. Put differently, these infrastructure categories are currently funded at 65.7% of their long-term requirements.

15.4.2 Full Funding Requirements

Averaging from 2021-2023, Leeds and Thousand Islands had annual sanitary revenues of $361,000 and annual water revenues of $361,000. 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 System	37.4%
Sanitary Sewer System	-12.2%

Table 75 Rate Increase Requirements for Full Funding

As Citywide capital forecasting for the water and sanitary sewer systems rely heavily on age-based data, the Township has opted to undertake an external rate study to determine the rate increases that should be implemented annually in order to maintain the current level of service. Due to this, the Township has chosen to maintain current funding levels for the water and sanitary sewer systems pending the recommendations of the rate study.

15.4.3 Financial Strategy Recommendations

Considering all of the above information, we recommend maintaining current funding levels for the water and sanitary sewer system. This includes:

a) Maintain current funding levels for the purpose of achieving the proposed level of service for the asset categories covered in this section of the AMP.
b) increasing existing and future infrastructure budgets by the applicable annual increases recommended by the rate study.

Notes:

1. 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.
2. 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.
3. Any increase in rates required for operations would be in addition to the above recommendations.
4. A rate study is being completed for the water and sanitary sewer rates and any adjustments to rates should be supplemented with recommendations from this study.

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

15.5 Use of Debt

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

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

Debt management policies and procedures with limitations and monitoring practices should be considered when reviewing debt as a funding option. In efforts to mitigate increasing commodity prices and inflation, interest rates have been rising. Sustainable funding models that include debt need to incorporate the now current realized risk of rising interest rates. The following graph shows the historical changes to the lending rates:

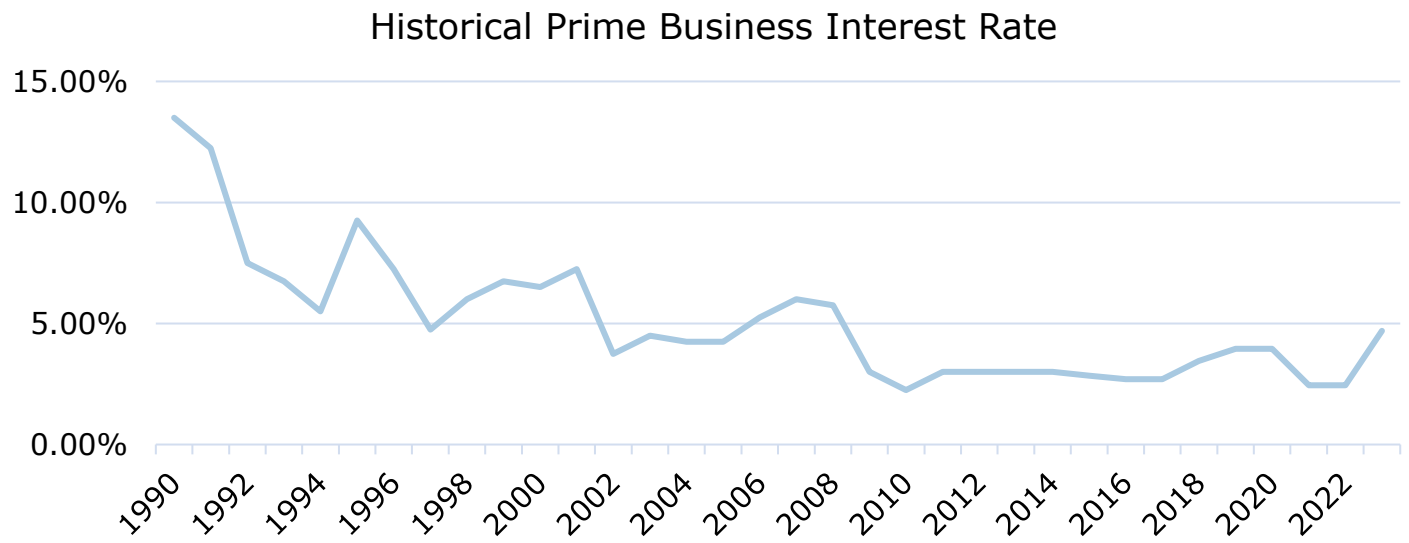


Figure 95 Historical Prime Rate

A change in 15-year rates from 5% to 7% would change the premium from 45% to 65%. Such a change would have a significant impact on a financial plan.

For reference purposes, the following table outlines the premium paid on a project if financed by debt. For example, a $1 million project financed at 3.0%[3] over 15 years would result in a 26% premium or $260 thousand of increased costs due to interest payments. For simplicity, the table does not consider the time value of money or the effect of inflation on delayed projects.

[3] Current municipal Infrastructure Ontario rates for 15-year money is 4.03%.

Interest Rate	Number of Years Financed					
	5	10	15	20	25	30
7.0%	22%	42%	65%	89%	115%	142%
6.5%	20%	39%	60%	82%	105%	130%
6.0%	19%	36%	54%	74%	96%	118%
5.5%	17%	33%	49%	67%	86%	106%
5.0%	15%	30%	45%	60%	77%	95%
4.5%	14%	26%	40%	54%	69%	84%
4.0%	12%	23%	35%	47%	60%	73%
3.5%	11%	20%	30%	41%	52%	63%
3.0%	9%	17%	26%	34%	44%	53%
2.5%	8%	14%	21%	28%	36%	43%
2.0%	6%	11%	17%	22%	28%	34%
1.5%	5%	8%	12%	16%	21%	25%
1.0%	3%	6%	8%	11%	14%	16%
0.5%	2%	3%	4%	5%	7%	8%
0.0%	0%	0%	0%	0%	0%	0%

Table 76 Interest Premiums Paid

The following tables outline how Leeds and Thousand Islands has historically used debt for investing in the asset categories as listed. As of year-end 2024, there is currently $345,000 of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of $78,000, well within its provincially prescribed maximum of $3.5 million.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2019	2020	2021	2022	2023
Road Network	0	0	0	0	0	0
Storm Sewer System	0	0	0	0	0	0
Bridges & Culverts	0	0	0	0	0	0
Buildings & Facilities	345,240	76,072	66,965	75,019	72,901	71,370
Machinery & Equipment	0	0	0	0	0	0
Land Improvements	0	0	0	0	0	0
Fleet	0	0	0	0	0	0
Total Tax Funded	**345,240**	**76,072**	**66,965**	**75,019**	**72,901**	**71,370**
Water System	0	0	0	0	0	0
Sanitary Sewer System	0	0	0	0	0	0
Total Rate Funded	**0**	**0**	**0**	**0**	**0**	**0**

Table 77 Leeds and Thousand Islands Use of Debt 2019-2023

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2025	2026	2027	2028	2029	2030	2035
Road Network	0	0	0	0	0	0	0
Storm Sewer System	0	0	0	0	0	0	0
Bridges & Culverts	0	0	0	0	0	0	0
Buildings & Facilities	68,306	66,774	65,243	63,711	62,179	45,639	0
Machinery & Equipment	0	0	0	0	0	0	0
Land Improvements	0	0	0	0	0	0	0
Fleet	0	0	0	0	0	0	0
Total Tax Funded	**68,306**	**66,774**	**65,243**	**63,711**	**62,179**	**45,639**	**0**
Water System	0	0	0	0	0	0	0
Sanitary Sewer System	0	0	0	0	0	0	0
Total Rate Funded	0	0	0	0	0	0	0

Table 78 Leeds and Thousand Islands Principal and Interest Payments

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

15.6 Use of Reserves

15.6.1 Available Reserves

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

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

By asset category, the table below outlines the details of the reserves currently available to Leeds and Thousand Islands.

Asset Category	Balance at December 31, 2024
Road Network	3,967,296
Storm Sewer System	145,000
Bridges & Culverts	495,375
Buildings & Facilities	1,900,600
Machinery & Equipment	47,966
Land Improvements	574,544
Fleet	217,586
Total Tax Funded:	7,348,371
Water System	606,560
Sanitary Sewer System	852,732
Total Rate Funded:	**1,459,293**

Table 79 Leeds and Thousand Islands 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 take into account when determining their capital reserve requirements include:

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

These reserves are available for use by applicable asset categories during the phase-in period to full funding. This coupled with Leeds and Thousand Islands'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.

15.6.2 Recommendation

In 2025, Ontario Regulation 588/17 required Leeds and Thousand Islands to integrate proposed levels of service for all asset categories in its asset management plan update. We recommend that future planning should reflect adjustments to service levels and their impacts on reserve balances.

16. Recommendations & Key Considerations

16.1 Financial Strategies

1. Review the feasibility of adopting a full-funding scenario to achieve 100% of average annual funding requirement for the asset categories analyzed. This includes:
    a. Increasing taxes by 0.6% per year over a period of 10 years;

2. Continued allocation of OCIF and CCBF funding as previously outlined.

3. Reallocating appropriate revenue from categories in a surplus position to those in a deficit position.

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

5. Continue to apply for project specific grant funding to supplement sustainable funding sources.

16.2 Asset Data

1. Continuously review, refine, and calibrate lifecycle and risk profiles to better reflect actual practices and improve capital projections. In particular:
    a. the timing of various lifecycle events, the triggers for treatment, anticipated impacts of each treatment, and costs
    b. the various attributes used to estimate the likelihood and consequence of asset failures, and their respective weightings

2. Asset management planning is highly sensitive to replacement costs. Periodically update replacement costs based on recent projects, invoices, or estimates, as well as condition assessments, or any other technical reports and studies. Material and labour costs can fluctuate due to local, regional, and broader market trends, and substantially so during major world events. Accurately estimating the replacement cost of like-for-like assets can be challenging. Ideally, several recent projects over multiple years should be used. Staff judgement and historical data can help attenuate extreme and temporary fluctuations in cost estimates and keep them realistic.

3. Like replacement costs, an asset's established serviceable life can have dramatic impacts on all projections and analyses, including condition, long-range forecasting, and financial recommendations. Periodically reviewing and updating these values to better reflect in-field performance and staff judgement is recommended.

16.3 Risk & Levels of Service

1. Risk models and matrices can play an important role in identifying high-value assets, and developing an action plan which may include repair, rehabilitation, replacement, or further evaluation through condition assessments. As a result, project selection and the development of multi-year capital plans can become more strategic and objective. Initial models have been built into Citywide for all asset groups. These models reflect current data, which was limited. As the data evolves and new attribute information is obtained, these models should also be refined and updated.

2. Available data on current performance should be centralized and tracked to support any calibration of service levels in accordance with O. Reg. 588's 2025 requirements on proposed levels of service.

3. Staff should monitor evolving local, regional, and environmental trends to identify factors that may shape the demand and delivery of infrastructure programs. These can include population growth, and the nature of population growth; climate change and extreme weather events; and economic conditions and the local tax base. This data can also be used to review service level targets.

Appendices

Appendix A – Infrastructure Report Card

Asset Category	Replacement Cost	Average Condition	Financial Capacity		% Funded
Road Network	**$56.8 m**	**Good**	Annual Requirement:	$1,427,000	79%
			Funding Available:	$1,129,000	
			Annual Deficit:	**$299,000**	
Bridges & Culverts	**$22.3 m**	**Good**	Annual Requirement:	$357,000	96%
			Funding Available:	$373,000	
			Annual Deficit:	**$71,000**	
Water System	**$11.0 m**	**Good**	Annual Requirement:	$227,000	41%
			Funding Available:	$92,000	
			Annual Deficit:	**$135,000**	
Sanitary Sewer System	**$2.3 m**	**Good**	Annual Requirement:	$38,000	216%
			Funding Available:	$82,000	
			Annual Deficit:	**-$44,000**	
Storm Sewer System	**$5.3 m**	**Very Good**	Annual Requirement:	$71,000	0%
			Funding Available:	$0	
			Annual Deficit:	**$71,000**	
Buildings & Facilities	**$47.7 m**	**Fair**	Annual Requirement:	$1,083,000	61%
			Funding Available:	$659,000	
			Annual Deficit:	**$424,000**	
Parks & Land Improvements	**$5.2 m**	**Good**	Annual Requirement:	$333,000	47%
			Funding Available:	$155,000	
			Annual Deficit:	**$178,000**	
Fleet	**$17.9 m**	**Fair**	Annual Requirement:	$939,000	114%
			Funding Available:	$1,066,000	
			Annual Deficit:	**-$127,000**	
Machinery & Equipment	**$3.0 m**	**Fair**	Annual Requirement:	$207,000	100%
			Funding Available:	$207,000	
			Annual Deficit:	**$0**	

Appendix B – 10-Year Capital Requirements

Current Levels of Service (No consideration of available capital funding)

Road Network											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
HCB Roads	-	$3.4m	$1.6m	$2.8m	$6.8m	$2.2m	$619k	$2.3m	$933k	$420k	-
LCB Roads	-	$890k	$1.1m	$1.4m	$410k	$495k	$1.0m	$284k	$954k	$324k	$558k
Roadside Appurtenances	-	-	-	-	-	-	-	-	-	-	-
Streetlights	-	-	-	-	-	-	-	-	-	-	-
TOTAL	**-**	**$4.3m**	**$2.6m**	**$4.2m**	**$7.2m**	**$2.7m**	**$1.6m**	**$2.6m**	**$1.9m**	**$744k**	**$558k**

Bridges & Culverts											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Bridges	-	$80k	-	-	-	$265k	-	-	-	-	-
Structural Culverts	-	-	-	-	$65k	-	-	-	-	-	-
TOTAL	**-**	**$80k**	**-**	**-**	**$65k**	**$265k**	**-**	**-**	**-**	**-**	**-**

Storm Sewer System											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Catch Basins	-	-	-	-	-	-	-	-	-	-	-
Mains	-	-	-	-	-	-	-	-	-	-	-
Manholes	-	-	-	-	-	-	-	-	-	-	-
TOTAL	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Buildings & Facilities											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Fire Stations	$75k	$457k	$325k	$98k	$83k	$115k	$54k	$209k	$659k	$597k	$277k
Historical & Cultural	$222k	$60k	$98k	$155k	-	-	$33k	$8k	$39k	$14k	-
Libraries	$5k	$5k	$42k	$52k	$2k	$12k	$5k	$23k	$16k	$12k	-
Office Building, Storage & Garage	-	$409k	$25k	$81k	$5k	-	$427k	-	$172k	$50k	$225k
Recreational	-	$2k	$564k	$450k	$430k	$84k	$49k	$333k	$151k	$100k	$56k
TOTAL	**$302k**	**$932k**	**$1.1m**	**$835k**	**$520k**	**$211k**	**$567k**	**$574k**	**$1.0m**	**$773k**	**$558k**

Parks & Land Improvements											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Boat Launches	-	-	-	-	-	-	-	-	-	-	$56k
Docks & Piers	-	-	-	-	-	-	-	-	-	$27k	-
Playground Equipment	-	$150k	-	-	-	$98k	$94k	-	-	-	$5k
Site Works	-	-	-	-	$105k	$66k	-	-	-	-	$106k
Splashpad	-	-	-	-	-	-	-	-	-	-	-
Trails	-	-	-	-	-	-	-	-	-	-	-
TOTAL	**-**	**$150k**	**-**	**-**	**$105k**	**$164k**	**$94k**	**-**	**-**	**$27k**	**$168k**

Machinery											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Fire & Emergency	-	-	-	$48k	$22k	-	-	$126k	-	$59k	$248k
Public Works	-	-	-	$18k	-	-	-	-	$9k	$20k	$34k
TOTAL	**-**	**-**	**-**	**$66k**	**$22k**	**-**	**-**	**$126k**	**$9k**	**$79k**	**$282k**

Furniture & Fixtures											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Admin/Corporate	$222k	-	-	-	-	-	-	-	-	-	-
Library	-	-	-	-	-	-	-	-	-	-	$23k
Parks & Recreation	-	-	-	-	$82k	-	-	-	-	-	$21k
TOTAL	**$222k**	**-**	**-**	**-**	**$82k**	**-**	**-**	**-**	**-**	**-**	**$44k**

Information Technology											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Computers & Laptops	-	-	-	-	$40k	-	-	-	-	$40k	-
Security Cameras/Systems	-	-	-	-	$53k	$14k	-	-	-	-	$14k
Servers & Networks	-	-	-	-	-	-	-	-	-	-	-
TOTAL	**-**	**-**	**-**	**-**	**$93k**	**$14k**	**-**	**-**	**-**	**$40k**	**$14k**

Fleet											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Administrative	-	$62k	$51k	-	-	-	-	-	$60k	-	-
Fire & Emergency	-	$832k	$1.1m	$467k	$877k	$77k	$950k	$800k	$1.2m	-	-
Public Works	-	$380k	$543k	$765k	$998k	$692k	-	$330k	-	-	$59k
TOTAL	**-**	**$1.3m**	**$1.7m**	**$1.2m**	**$1.9m**	**$769k**	**$950k**	**$1.1m**	**$1.3m**	**-**	**$59k**

Water System											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Hydrants	-	-	-	-	-	-	-	-	-	-	-
Lateral Lines	-	-	-	-	-	-	-	-	-	-	-
Mains	-	-	-	-	-	-	-	-	-	-	-
Water Meter	-	$2k	-	-	-	-	-	-	-	-	-
Water Tower	-	-	-	-	-	-	-	-	-	-	-
Wells	-	-	-	-	-	$110k	-	$6k	-	$6k	$26k
TOTAL	**-**	**$2k**	**-**	**-**	**-**	**$110k**	**-**	**$6k**	**-**	**$6k**	**$26k**

Sanitary Sewer System											
Asset Segment	**Backlog**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Mains	-	-	-	-	-	-	-	-	-	-	-
Manholes	-	-	-	-	-	-	-	-	-	-	-
Pumping Station	-	$11k	-	$72k	$5k	$5k	-	-	-	$140k	-
TOTAL	**-**	**$11k**	**-**	**$72k**	**$5k**	**$5k**	**-**	**-**	**-**	**$140k**	**-**

Proposed Levels of Service (Based on available capital funding, following recommended financial strategy)

Categories	Available Capital Funding									
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tax-Funded	$3.66m	$3.74m	$3.82m	$3.90m	$3.98m	$4.06m	$4.14m	$4.22m	$4.34m	$4.42m
Rate-Funded (Water)	$92k	$92k	$92k	$92k	$92k	$92k	$92k	$92k	$92k	$92k
Rate-Funded (Sanitary)	$82k	$82k	$82k	$82k	$82k	$82k	$82k	$82k	$82k	$82k

Appendix C – Level of Service Maps & Photos

Images of Bridge in Very Good Condition

LTI14 – Mountain Street Bridge

Inspected: August 6, 2021

North Elevation

South Elevation

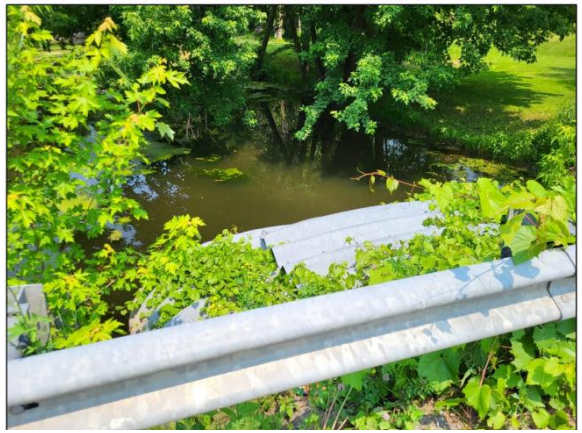
Barrel Ends looking north

Barrel Ends looking south

Images of Culvert in Good Condition

LTI05 – Maple Grove Rd. Pipe Arch

Inspected: August 8, 2021



Barrel inlet (upstream)

North elevation (deformation at culvert obvert)

Looking north through barrel

Barrel outlet (downstream)

Images of Bridge in Fair Condition

LTI4 – Covey Bridge

Inspected: August 8, 2021

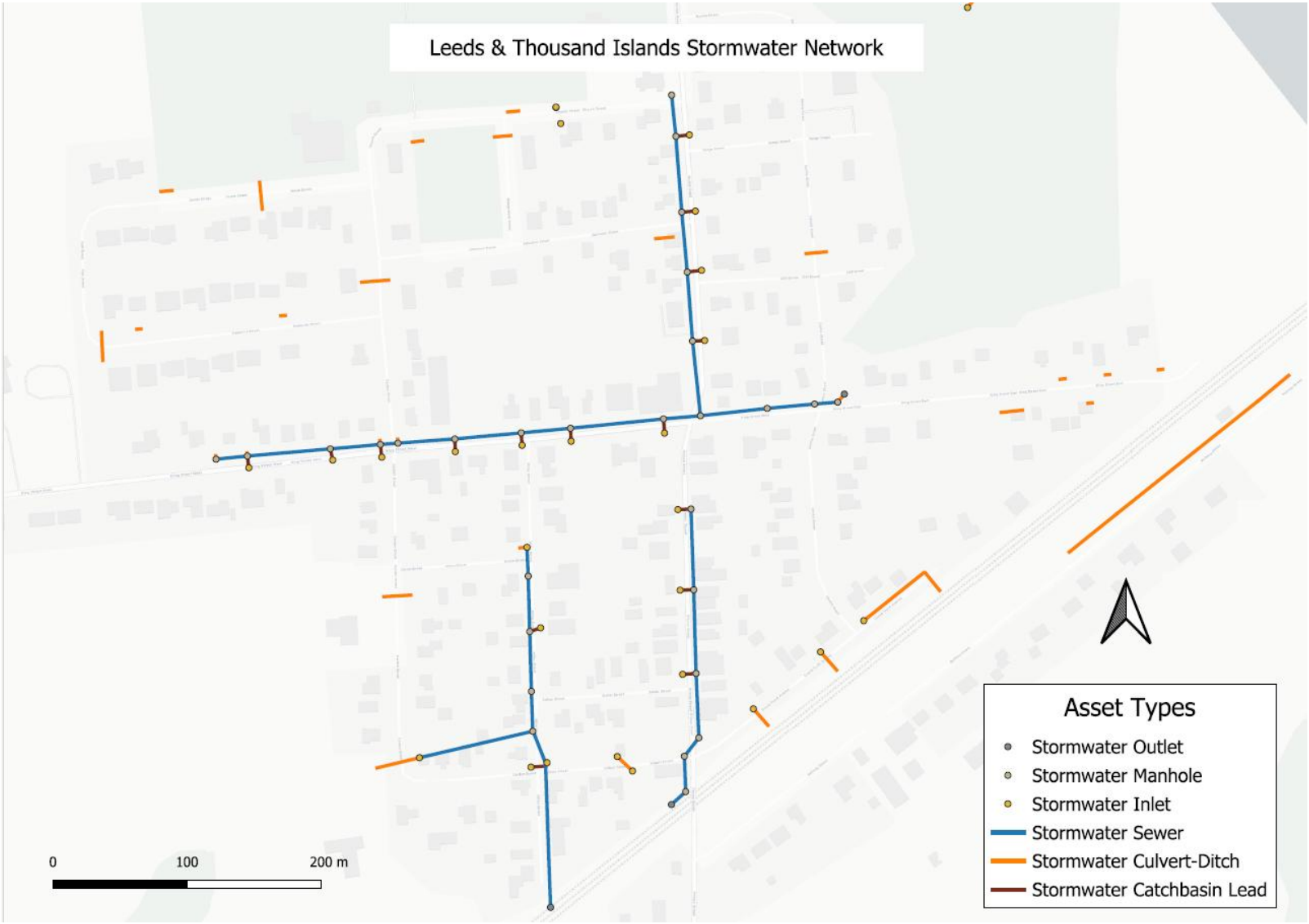
Deck Soffit & Girders

North Barrier (Thrie Beam)

West Abutment

SW Wingwall

Stormwater Network Map – Lansdowne



Appendix D – Risk Rating Criteria

Probability of Failure

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Road Network (Roads)	Condition	75%	85-100	1
			70-84	2
			55-69	3
			40-54	4
			0-39	5
	Service Life Remaining %	20%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Base Defect	5%	Yes	2
			No	4
Bridges & Culverts	Condition	75%	80-100	1
			70-79	2
			60-69	3
			50-59	4
			0-49	5
	Service Life Remaining %	25%	80-100	1
			60-79	2

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
			40-59	3
			20-39	4
			0-19	5
Storm Sewer System Water System (Other) Sanitary Sewer System Buildings & Facilities Machinery & Equipment Fleet Parks & Land Improvements	Condition	100%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
Sanitary Sewer System (Mains)	Condition	50%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Service Life Remaining %	40%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Pipe Material	10%	Concrete	4

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
			Ductile Iron	3
			PVC	2
Water System (Mains)	Condition	50%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Service Life Remaining %	40%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Pipe Material	10%	Ductile Iron	3
			PVC	2
Storm Sewer System (Mains)	Condition	50%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Service Life Remaining %	40%	80-100	1
			60-79	2

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
			40-59	3
			20-39	4
			0-19	5
	Pipe Material	10%	Concrete	4
			Ductile Iron	3
			PVC	2

Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Road Network (Roads)	Economic (70%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$150,000	2
			$150,000-$300,000	3
			$300,000-$500,000	4
			$500,000+	5
	Social (15%)	AADT (80%)	0-50	1
			51-200	2
			201-500	3
			501-1000	4
			1001-2000	5
		Roadside Environment (20%)	Rural	2
			Semi-Urban	3
			Urban	4
	Health & Safety (5%)	Speed Limit (100%)	0-40	1
			50	2
			70	4
			80	5
	Strategic (10%)	Asset Function Risk (100%)	Insignificant	1
			Minor	2
			Moderate	3

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
			Major	4
			Severe	5
Bridges & Culverts	Economic (75%)	Replacement Cost (100%)	$0-$100,000	1
			$100,000-$250,000	2
			$250,000-$500,000	3
			$500,000-$1,000,000	4
			$1,000,000+	5
	Social (20%)	AADT (100%)	0-150	1
			151-300	2
			301-600	3
			601-1000	4
			1001-2000	5
	Strategic (5%)	Asset Function Risk (100%)	Insignificant	1
			Minor	2
			Moderate	3
			Major	4
Buildings & Facilities Machinery & Equipment Fleet Parks & Land Improvements	Economic (90%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$350,000	2
			$350,000-$1,000,000	3
			$1,000,000-$2,000,000	4
			$2,000,000+	5

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Sanitary Sewer System (Mains)	Strategic (10%)	Asset Function Risk (100%)	Insignificant	1
			Minor	2
			Moderate	3
			Major	4
			Severe	5
	Economic (75%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$100,000	2
			$100,000-$150,000	3
			$150,000-$250,000	4
			$250,000+	5
	Strategic (5%)	Asset Function Risk (100%)	Insignificant	1
			Minor	2
			Moderate	3
			Major	4
			Severe	5
	Operational (20%)	Pipe Diameter (100%)	0-50	1
			51-150	2
			151-250	3
			251-450	4
			451-1000	5

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Water System (Mains)	Economic (75%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$100,000	2
			$100,000-$150,000	3
			$150,000-$250,000	4
			$250,000+	5
	Operational (20%)	Pipe Diameter (100%)	0-50	1
			51-150	2
			151-250	3
			251-450	4
			451-1000	5
	Strategic (5%)	Asset Function Risk (100%)	Insignificant	1
			Minor	2
			Moderate	3
			Major	4
			Severe	5
Storm Sewer System (Mains)	Economic (75%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$100,000	2
			$100,000-$150,000	3
			$150,000-$250,000	4
			$250,000+	5

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Storm Sewer System Water System Sanitary Sewer System	Operational (20%)	Pipe Diameter (100%)	0-50	1
			51-150	2
			151-250	3
			251-450	4
			451-1000	5
			451-1000	5
	Strategic (5%)	Asset Function Risk (100%)	Insignifcant	1
			Minor	2
			Moderate	3
			Major	4
			Severe	5
	Economic (90%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$150,000	2
			$150,000-$250,000	3
			$250,000-$500,000	4
			$500,000+	5
	Strategic (10%)	Asset Function Risk (100%)	Insignifcant	1
			Minor	2
			Moderate	3
			Major	4
			Severe	5