Asset Management Plan 2024

Township of Guelph/Eramosa

July 2025

psdcitywide

This Asset Management Plan was prepared by:

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

Key Statistics

$300m	2023 Replacement Cost of Asset Portfolio
$61k	Replacement Cost of Infrastructure Per Household
89%	Percentage of Assets in Fair or Better Condition
58%	Percentage of Assets with Assessed Condition Data
$3.1m	Annual Capital Infrastructure Deficit
15 Years	Recommended Timeframe for Eliminating Annual Infrastructure Deficit
2.35%	Target Investment Rate
1.34%	Actual Investment Rate

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Glossary of Terms

- **Asset**
  A physical item or piece of infrastructure owned or managed by the organization that provides a service or function, has value, and requires maintenance or replacement over time.
- **Actual Reinvestment Rate**
  The actual percentage of total asset value that is being reinvested annually, used to compare with the target rate and identify funding gaps.
- **Asset Management Plan (AMP)**
  A strategic document that outlines how physical assets are managed to provide sustainable service delivery, including current conditions, risks, levels of service, and long-term funding requirements.
- **Asset Management Policy**
  A high-level document that outlines the organization's commitment, principles, and responsibilities for asset management. It provides the foundation for consistent decision-making.
- **Asset Management Strategy**
  A tactical plan that defines how the asset management policy will be implemented, including long-term objectives, governance structure, and improvement initiatives.
- **Average Annual Requirement (AAR)**
  The estimated average annual investment required over the lifecycle of an asset or asset class to maintain current levels of service and performance.
- **Condition Assessment**
  The process of evaluating the physical state of an asset to determine its performance, remaining life, and need for repair or replacement.
- **Consequence of Failure (CoF)**
  The impact or severity of outcomes resulting from an asset failure, including safety, financial, environmental, or service disruptions.
- **Estimated Useful Life (EUL)**
  The expected period over which an asset is anticipated to provide service before requiring replacement or major rehabilitation.
- **Key Performance Indicator (KPI)**
  A quantifiable metric used to evaluate how effectively asset management objectives or service levels are being achieved.
- **Lifecycle Management Strategy**
  A coordinated approach for managing assets throughout their entire lifecycle—from acquisition, operation, maintenance, and rehabilitation to disposal.
- **Level of Service (LOS)**
  The defined quality or performance standard for an asset or service, based on customer expectations, regulatory requirements, and organizational goals.
- **Probability of Failure (PoF)**
  The likelihood that an asset will fail within a specific period, based on condition, age, usage, and other factors.

- **Replacement Cost**
  The current cost to replace an asset with a similar asset of equivalent capacity and functionality.
- **Risk**
  The potential for loss or undesirable outcomes resulting from the combination of the Probability of Failure and the Consequence of Failure of an asset.
- **Service Life Remaining (SLR)**
  The estimated remaining time an asset is expected to perform its intended function before reaching the end of its useful life.
- **State of the Infrastructure (SOTI)**
  A high-level assessment or summary of the condition, performance, and replacement value of assets, used to identify investment priorities.
- **Tangible Capital Asset (TCA)**
  A physical asset recorded in the municipality's financial statements that provides benefits beyond one fiscal year, such as roads, buildings, or equipment.
- **Target Reinvestment Rate**
  The ideal or recommended percentage of total asset value that should be reinvested annually to maintain desired service levels and sustainability.
- **Unit of Measure**
  The standard metric used to quantify an asset (e.g., meters of pipe, square meters of pavement, number of streetlights).

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 Guelph/Eramosa can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP includes the following asset categories:

Figure 1 Core and Non-Core Asset Categories

1.2 O. Reg. 588/17 Compliance

With the development of this AMP the Township has achieved compliance with July 1, 2024, requirements under O. Reg. 588/17. This includes requirements for levels of service and inventory reporting for all asset categories. More details on compliance can be found in section *2.5.1 O. Reg. 588/17 Compliance Review*.

1.3 Findings

The overall replacement cost of the asset categories included in this AMP totals $300 million. 89% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 58% of assets. For the remaining 42% 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 (paved 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 $7.1 million. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $4 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $3.1 million.

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 15-year plan:

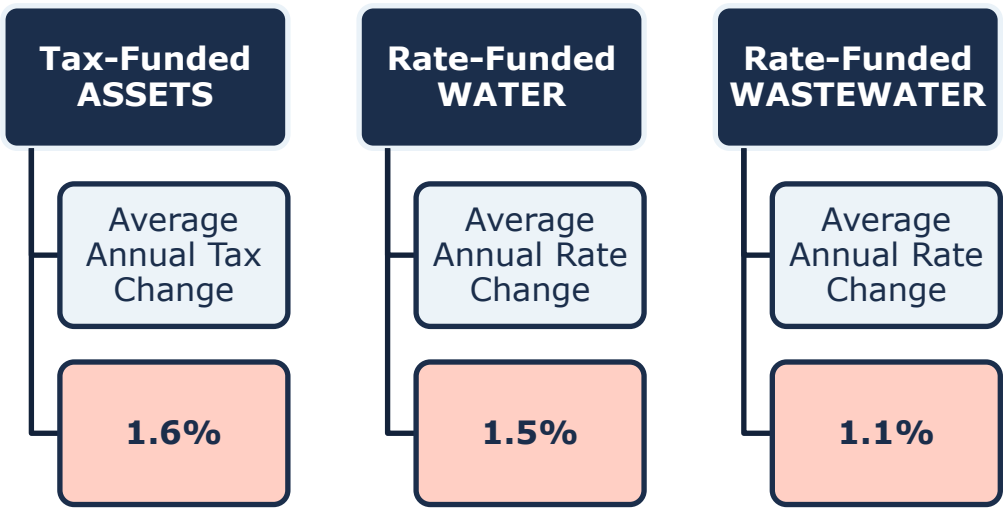

Figure 2 Proposed Tax/Rate Changes

2. Introduction & Context

2.1 Community Profile

Census Characteristic	Township of Guelph/Eramosa	Ontario
Population 2021	13,904	14,223,942
Population Change 2016-2021	8.2%	6%
Total Private Dwellings	4,993	5,929,250
Population Density	47.5/km^2	15.9/km^2
Land Area	292.8 km^2	892,411.76 km^2

Table 1 Township of Guelph/Eramosa Community Profile

The Township of Guelph/Eramosa is in the southern part of Wellington County, Ontario. It is a unique blend of urban and rural areas, benefiting from its proximity to several major urban centers.

Originally settled in the late 1700s, the area became known for its agricultural prominence throughout the 19th and 20th centuries, driven by rural and agricultural education institutions. Like many rural townships, Guelph/Eramosa was formed through the amalgamation of several municipalities in the late 1990s.

Rockwood is the primary community in the Township of Guelph/Eramosa, located along Highway 7 between Acton and the City of Guelph. The Eramosa River flows through the heart of the village, and early Anglo-European settlers were drawn to the area for its river, which powered mills that became the foundation of the local economy.

In addition to milling, limestone extraction was a key industry in the region. Today, the former quarry and mining sites are preserved within the Rockwood Conservation Area, which serves as a popular recreational destination. Notable features of the area include a small reservoir on the Eramosa River, unique karst formations, and caves.

The Township's proximity to the technology-driven Waterloo region has fostered a diverse and highly skilled workforce, with residents engaged in various sectors, including technology, agriculture, and other specialized industries.

Municipal staff are actively refining the asset management process, enhancing the centralized asset inventory, and addressing gaps in infrastructure data. These efforts aim to improve decision-making and prioritize projects based on risk, a critical step for capital planning, especially given the reliance on grant funding for major infrastructure initiatives.

Both staff and Council are committed to supporting the Township's planned growth by investing in vital infrastructure and further advancing the asset management program.

2.2 Climate Change

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

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

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

2.2.1 Guelph/Eramosa Climate Profile

The Township of Guelph/Eramosa is expected to experience notable effects of climate change which include increased average annual temperatures, an increase in total annual precipitation, and an increase in the frequency and severity of extreme events. According to Climatedata.ca – a collaboration supported by Environment and Climate Change Canada (ECCC) – the Township of Guelph/Eramosa will likely experience the following trends:

Higher Average Annual Temperature:

- Between the years 1971 to 2000 the annual average temperature was 6.5 ºC
- Under a high emissions scenario, the annual average temperatures are projected to reach 9.3 ºC between the years 2021 to 2050, 11.4°C for the 2052-2080 period, and 13.2 ºC for the last 30 years of the century.

Increase in Total Annual Precipitation:

- Under a high emissions scenario, Guelph-Eramosa is projected to experience a 11% increase in precipitation by the year 2050 and a 16% increase by the end of the century.

Increase in Frequency of Extreme Weather Events:

- It is expected that the frequency and severity of extreme weather events will change.
- In some areas, extreme weather events will occur with greater frequency and severity than others.

2.2.2 Integration of Climate change and Asset Management

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

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

2.3 Asset Management Overview

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

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

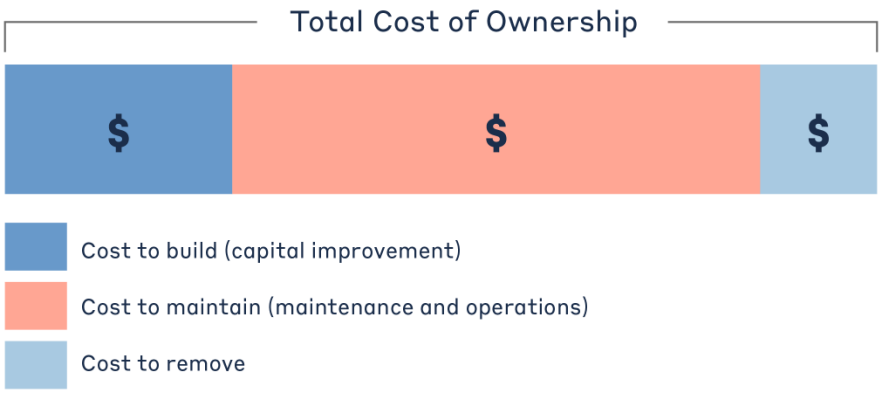

Figure 3 Total Cost of Asset Ownership

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

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

2.3.1 Foundational Asset Management Documentation

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

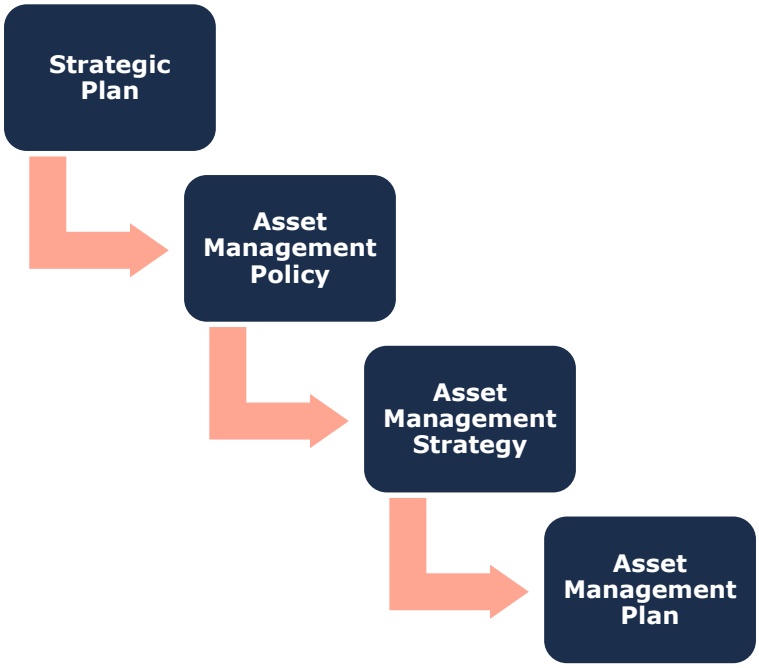

Figure 4 Foundational Asset Management Documents

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Asset Management Policy

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

The Township adopted their Strategic Asset Management Policy on June 19, 2019 (CAO Report 19-06) in accordance with Ontario Regulation 588/17. The policy provides a foundation for the development of an asset management program within the Township. It covers key components that define a comprehensive asset management policy:

- The policy's purpose dictates the use of asset management practices to ensure all assets meet the agreed levels of service in the most efficient and effective manner;
- the policy commits to, where appropriate, incorporating asset management in the Township's other plans;
- there are formally defined roles and responsibilities of internal staff and stakeholders.
- the guiding principles include the use of a cost/benefit analysis in the management of risk; and
- the policy statements are well defined.

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.

The Township's last iteration of the AMP was completed in 2023 and utilized 2022 year end data. Since then, the asset inventory has undergone revisions and updates. This document is an AMP that uses the updated asset inventory and has been prepared in accordance with O. Reg. 588/17.

2.3.2 Key Concepts in Asset Management

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

Lifecycle Management Strategies

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

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

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

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

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

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

Table 2 Lifecycle Management: Typical Lifecycle Interventions

The 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.

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.

Figure 5 Risk Equations

Probability of Failure

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

Consequence of Failure

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

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

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

Table 3 Risk Analysis: Types of Consequences of Failure

This AMP includes a preliminary evaluation of asset risk and criticality. Each asset has been assigned a probability of failure score and consequence of failure score based on available asset data. These risk scores can be used to prioritize maintenance, rehabilitation, and replacement strategies for critical assets.

These models have been built in Citywide Assets 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, and Stormwater) the province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP. For non-core asset categories, each municipality may incorporate community levels of service they find useful.

Technical Levels of Service

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

For core asset categories as applicable (Roads, Bridges & Culverts, Water, Sanitary, and Stormwater) the province, through O. Reg. 588/17, has also provided technical metrics that are required to be included in this AMP. For non-core asset categories, each municipality may incorporate technical levels of service they find useful.

Current and Proposed Levels of Service

This AMP focuses on measuring the current level of service provided to the community. Once current levels of service have been measured, the Township plans to establish proposed levels of service over a 10-year period, in accordance with O. Reg. 588/17, as part of the 2025 requirements.

Proposed levels of service should be realistic and achievable within the timeframe outlined by the Township. They should also be determined with consideration of a variety of community expectations, fiscal capacity, regulatory requirements, corporate goals and long-term sustainability. Once proposed levels of service have been established, and prior to July 2025, the Township must identify a lifecycle management and financial strategy which allows these targets to be achieved.

2.4 Scope & Methodology

2.4.1 Asset Categories for this AMP

This asset management plan for the Township is produced in compliance with O. Reg. 588/17. The July 2024 deadline under the regulation—the second of three AMPs—requires analysis of core and non-core asset categories.

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 Asset Categories

2.4.2 Data Effective Date

It is important to note that this plan is based on data as of **December 2023**; 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.

2.4.3 Deriving Replacement Costs

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

User-Defined Cost and Cost Per Unit

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

Cost Inflation / CPI Tables

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

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

2.4.4 Estimated Service Life & Service Life Remaining

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

By using 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

2.4.5 Reinvestment Rate

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

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

Figure 8 Target Reinvestment Rate Calculation

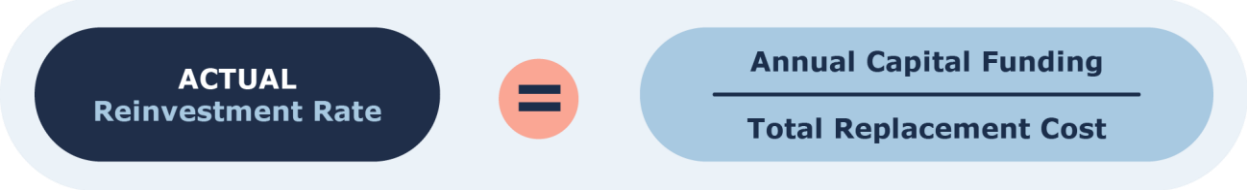


Figure 9 Actual Reinvestment Rate Calculation

2.4.6 Deriving Asset Condition

An incomplete or limited understanding of asset conditions 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, for most asset categories. Where different rating criteria is selected for certain asset categories, a table is provided in the relevant section. 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	60-79
Fair	Requires attention	Signs of deterioration, some elements exhibit significant deficiencies	40-59
Poor	Increasing potential of affecting service	Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration	20-39
Very Poor	Unfit for sustained service	Near or beyond expected service life, widespread signs of advanced deterioration, some assets may be unusable	0-19

Table 4 Standard Condition Rating Scale

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

2.5 Ontario Regulation 588/17

As part of the Infrastructure for Jobs and Prosperity Act, 2015, the Ontario government introduced Regulation 588/17 - Asset Management Planning for Municipal Infrastructure (O. Reg 588/17)[1]. Along with creating better performing organizations, more liveable and sustainable communities, regulation is a key, mandated driver of asset management planning and reporting. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them.

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

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

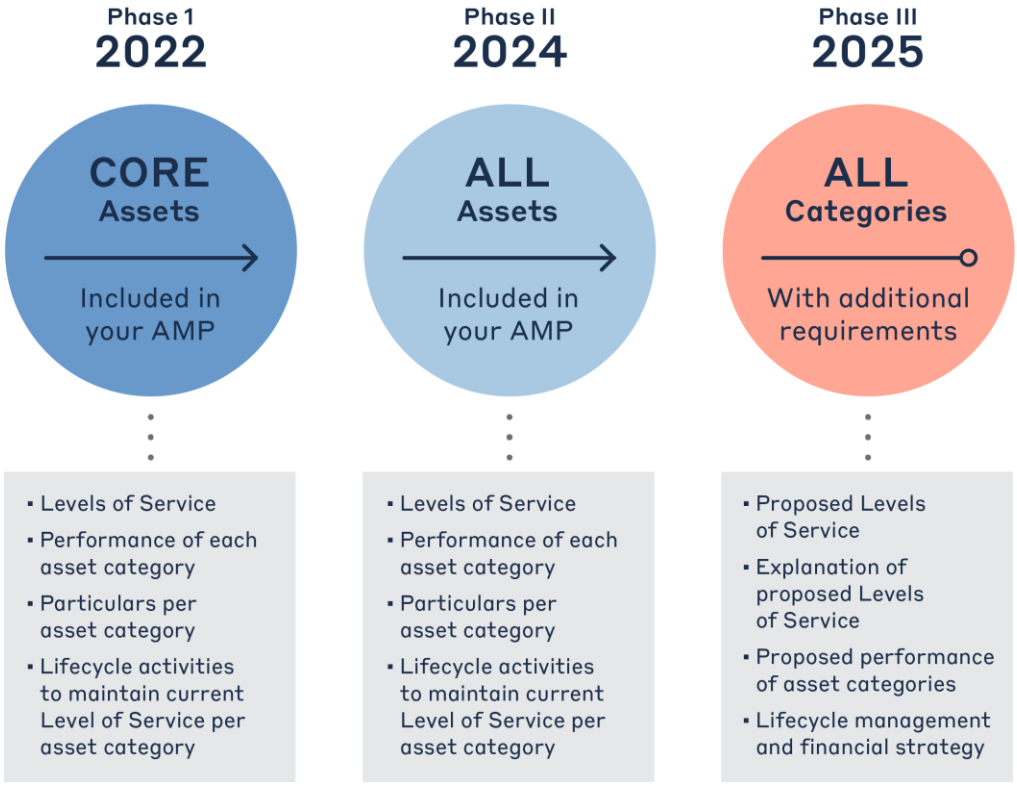


Figure 10 O. Reg. 588/17 Requirements and Reporting Deadlines

2.5.1 O. Reg. 588/17 Compliance Review

The table below summarizes the reporting elements necessary to ensure compliance with O.Reg 588/17, with corresponding references to the relevant sections of both the regulation and this Asset Management Plan (AMP).

Requirement	O. Reg. 588/17 Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	4.1 – 12.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1 – 12.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.3 – 12.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.2 – 12.2	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.4 – 12.4	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	4.7 – 12.7	Complete
Current performance measures in each category	S.5(2), 2	4.7 – 12.7	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.4 – 12.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	Appendix B	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	13.1 – 13.2	Complete

Table 5 O. Reg. 588/17 Compliance Review

3. Portfolio Overview – State of the Infrastructure

The state of the infrastructure (SOTI) summarizes the inventory, condition, age profiles, and other key performance indicators for the 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 $300 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 26% of the total portfolio, the road corridor comprises the largest share of the Township's asset portfolio, followed by the water network at 16%.

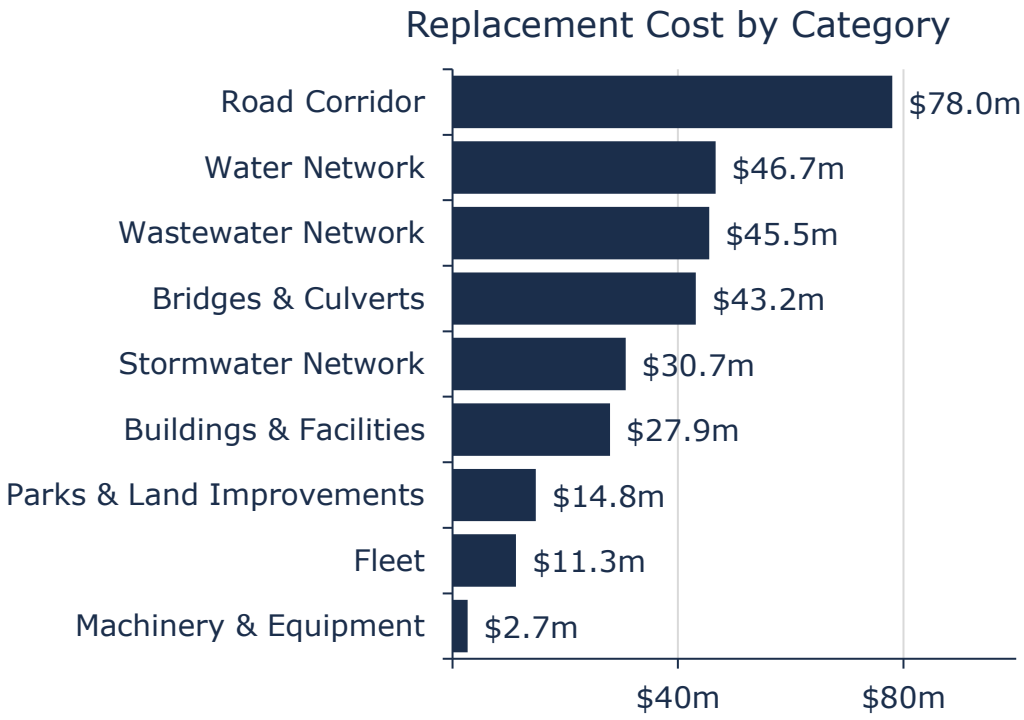


Figure 12 Current Replacement Cost by Asset Category

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 $7.1 million, for a target portfolio reinvestment rate of 2.35%. Currently, annual investment from sustainable revenue source is $4 million, for a current portfolio reinvestment rate of 1.34%. Target and current re-investment rates by asset category are detailed below.

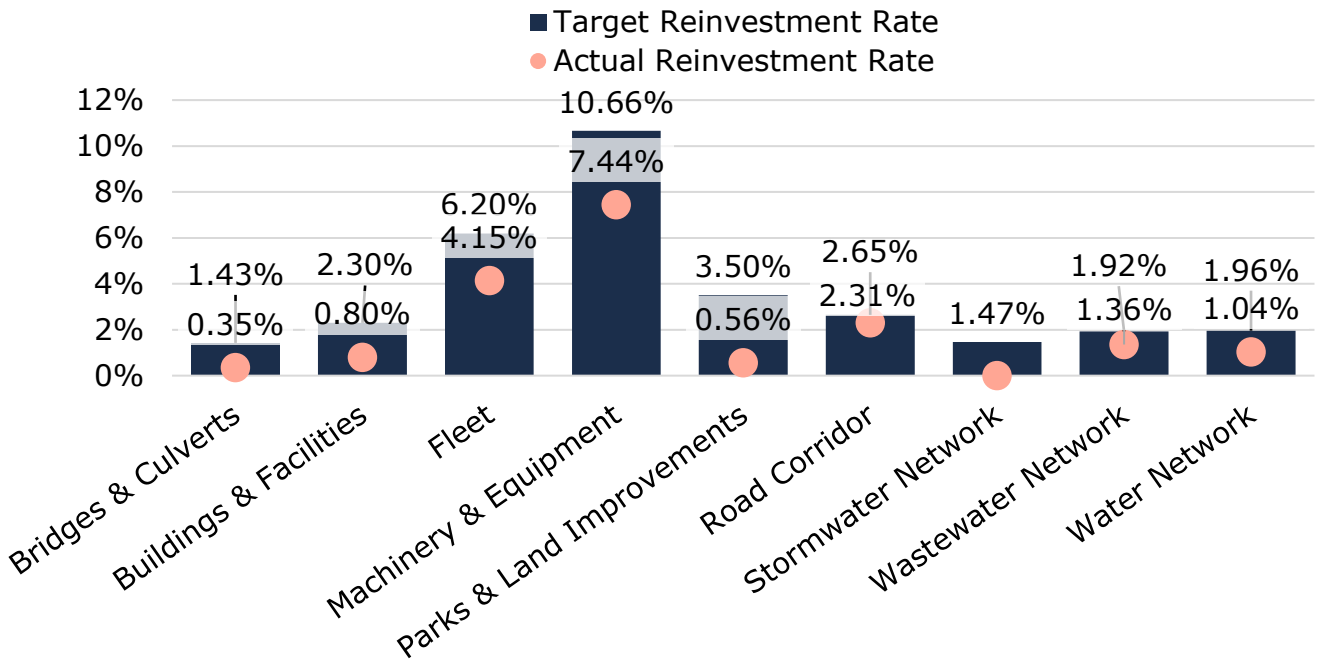


Figure 13 Current Vs. Target Reinvestment Rate

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, 89% of the Township's infrastructure portfolio is in fair or better condition, with the remaining 11% 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 corridor, all bridges and culverts, all buildings and facilities, and all water and wastewater facilities. For all remaining assets, including major infrastructure such as storm, water, and sanitary 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 assessed condition data was available, it was projected to current year (2023). This 'projected condition' can generate lower condition ratings than those established at the time of the condition assessment. The rate of this deterioration will also depend on lifecycle curves used to project condition over time.

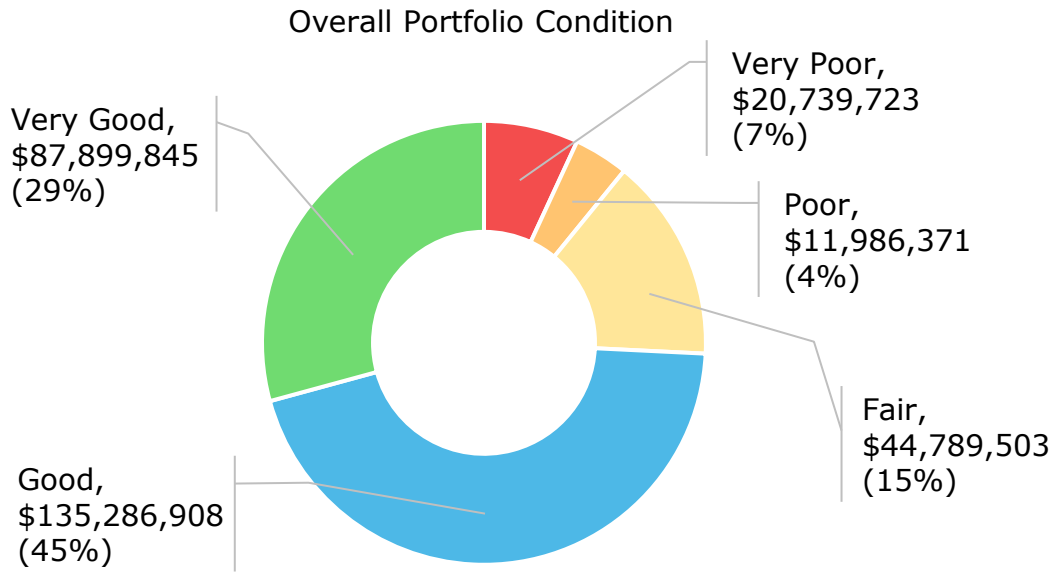


Figure 14 Asset Condition: Portfolio Overview

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 6 for details on how condition data was derived for each asset segment.

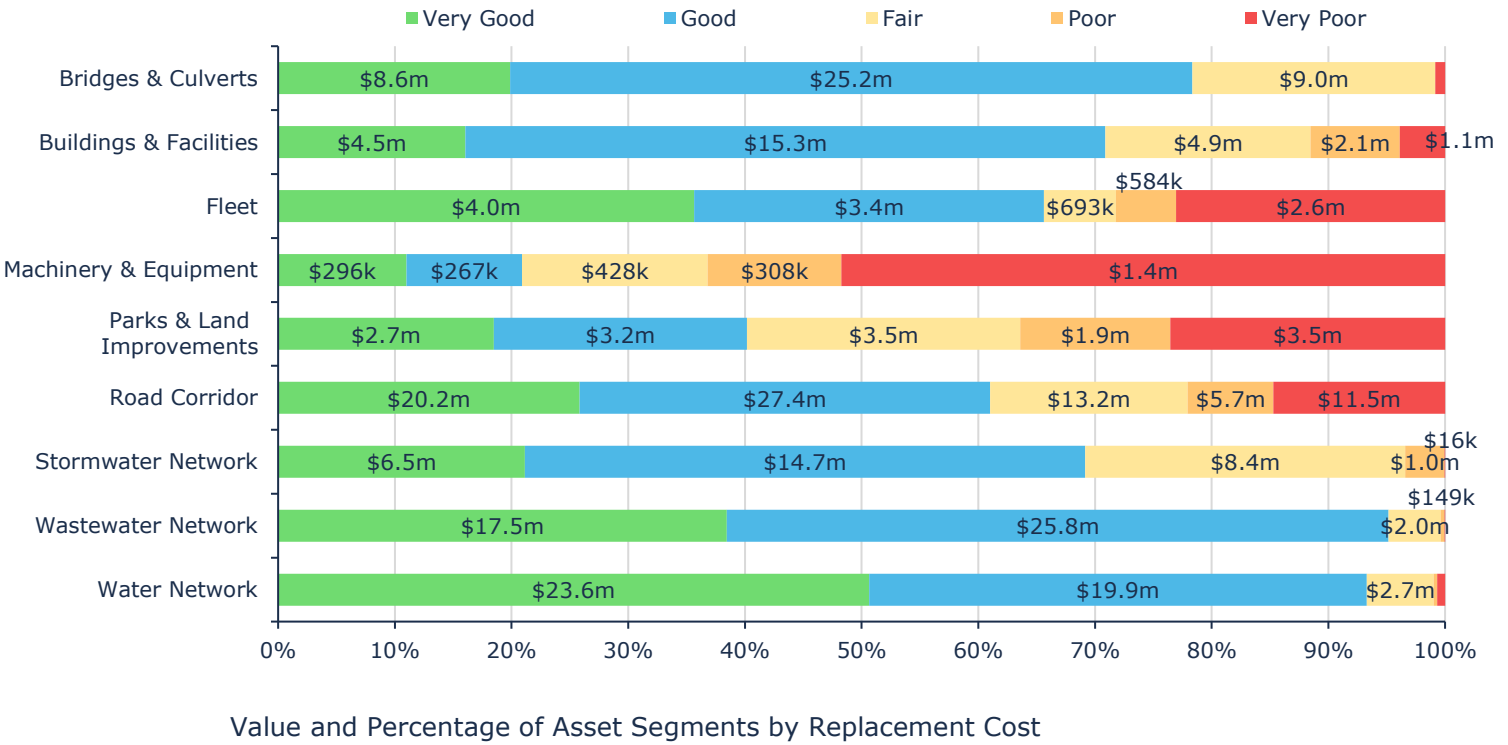


Figure 15 Asset Condition by Asset Category

Source of Condition Data

This AMP relies on assessed condition for 58% 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 6 below identifies the source of condition data used throughout this AMP as available within the Citywide database. Several segments under Road Corridor, Parks & Land Improvement, Fleet, and Machinery & Equipment are inspected regularly by regulation in alignment with maintenance standards which have not historically been uploaded into Citywide.

Asset Category	Asset Segment(s)	% of Assets with Assessed Conditions	Source of Condition Data
Road Corridor	Guiderails	0%	Age-Based
	Retaining Walls	0%	Age-Based
	Rural Roads	100%	2022 Road Needs Study
	Semi-Urban Roads	100%	2022 Road Needs Study
	Sidewalks	0%	Age-Based
	Signs	0%	Age-Based
	Streetlight Fixtures	0%	Age-Based
	Streetlight Poles	0%	Age-Based
	Unpaved Roads	100%	2022 Road Needs Study
	Urban Roads	100%	2022 Road Needs Study
Bridges & Culverts	Bridges	100%	2024 OSIM Inspections
	Culverts	100%	2024 OSIM Inspections
Stormwater Network	All Segments	0%	Age-Based
Water Network	Water Facilities	100%	2024 RJ Burnside Facilities Assessment
	All other segments	0%	Age-Based
Wastewater Network	Wastewater Facilities	100%	2024 RJ Burnside Facilities Assessment
	All other segments	0%	Age-Based
Buildings & Facilities	All Segments	100%	2024 RJ Burnside Facilities Assessment
Parks & Land Improvements[2]	Park Furnishing & Fencing	1%	2024 RJ Burnside Facilities Assessment

[2] Some park facilities were assessed as a part of the condition assessments conducted by RJ Burnside & Associates in 2024.

Asset Category	Asset Segment(s)	% of Assets with Assessed Conditions	Source of Condition Data
	Light Standard and Fixtures	0%	Age-Based
	Park Shelters & Structures	21%	2024 RJ Burnside Facilities Assessment
	Park Utilities	0%	Age-Based
	Parklands, Paths, Trails & Parking Lots	28%	2024 RJ Burnside Facilities Assessment
	Playground, Splashpad & Features	0%	Age-Based
	Sport fields & courts	2%	2024 RJ Burnside Facilities Assessment
Fleet	All segments	0%	Age-Based
Machinery & Equipment	All segments	0%	Age-Based

Table 6 Source of Condition Data

3.2.4 Risk Analysis

Qualitative Risk

Qualitative risk assessment involves the documentation of risks to the delivery of services that the municipality faces given the current state of the infrastructure and asset management strategies. These risks can be understood as corporate level risks. Through discussions and workshops during this project, the following potential qualitative risks have been identified:

	Risk Type	Description
	Asset Data Confidence	As the Township's asset management program matures, the Township is gaining more confidence in their asset data. A lack of confidence in asset data can result in a lack of confidence in the results of the asset management plan and subsequently result in uncertainty in funding requirements for the future.
	Lifecycle Management Strategies	In addition to asset level risk, the Township may also face risk associated with not executing key lifecycle activities, including repairs, rehabilitation, and replacement of critical assets. These include: - missed opportunities for cost savings and increases in lifecycle costs; - deferral of vital projects, or further lending and borrowing;

	Risk Type	Description
		- accelerated asset deterioration and premature failure
	Organizational Cognizance/Capacity	The Township is invested and actively engaged in asset management; however, current capacity constraints limit the ability to fully implement best practices. Ongoing training and increased staff capacity are needed to support informed and high level asset management in the future.
	Infrastructure Design/Installation	Concerns with the past design and/or materials used for some types of infrastructure may result in premature deterioration. Projects should consider all future impacts during the design process.
	Aging Infrastructure	The Township's current state of infrastructure shows the majority of infrastructure in moderate stages of their estimated useful lives. Ongoing infrastructure replacement should aim to maintain these moderate levels and avoid significant portions of the infrastructure reaching the end of their useful lives at the same time.
	Climate Change & Extreme Weather Events	Climate and extreme weather events have an impact on infrastructure service life as well as functionality. Examples of these impacts include accelerated degradation of road surfaces due to increase freeze/thaw cycles and minimized capacity in storm systems due to increased intensity of rainfall events.
	Growth	Modest growth is expected to continue in the Township. It is critical to consider growth when planning long-term infrastructure replacements to ensure infrastructure is not required to be replaced prematurely due to capacity issues.
	Infrastructure Reinvestment	The majority of the Townships' assets are in fair or better condition, however, current levels of investment in infrastructure need to be reviewed to ensure they are meeting expected lifecycle requirements to maintain a good state of repair. Underfunding or underestimating infrastructure replacement may lead to detrimental impacts in the future requiring significant changes to service levels.

Table 7: Qualitative Risks

Risk Matrix

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

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$172,163,600 (58%)	$58,885,570 (20%)	$28,724,179 (10%)	$21,394,187 (7%)	$17,559,521 (6%)

Figure 16 Risk Matrix: All Assets

The analysis shows that based on current risk models, approximately 6% of the Township's assets, with a current replacement cost of approximately $17.5 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.

3.2.5 Forecasted Capital Requirements

Aging assets require maintenance, rehabilitation, and replacement. Figure 17 below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for all asset categories analyzed in this AMP over a 150-year time horizon. On average, $7.1 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 around $6.4 million, 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.

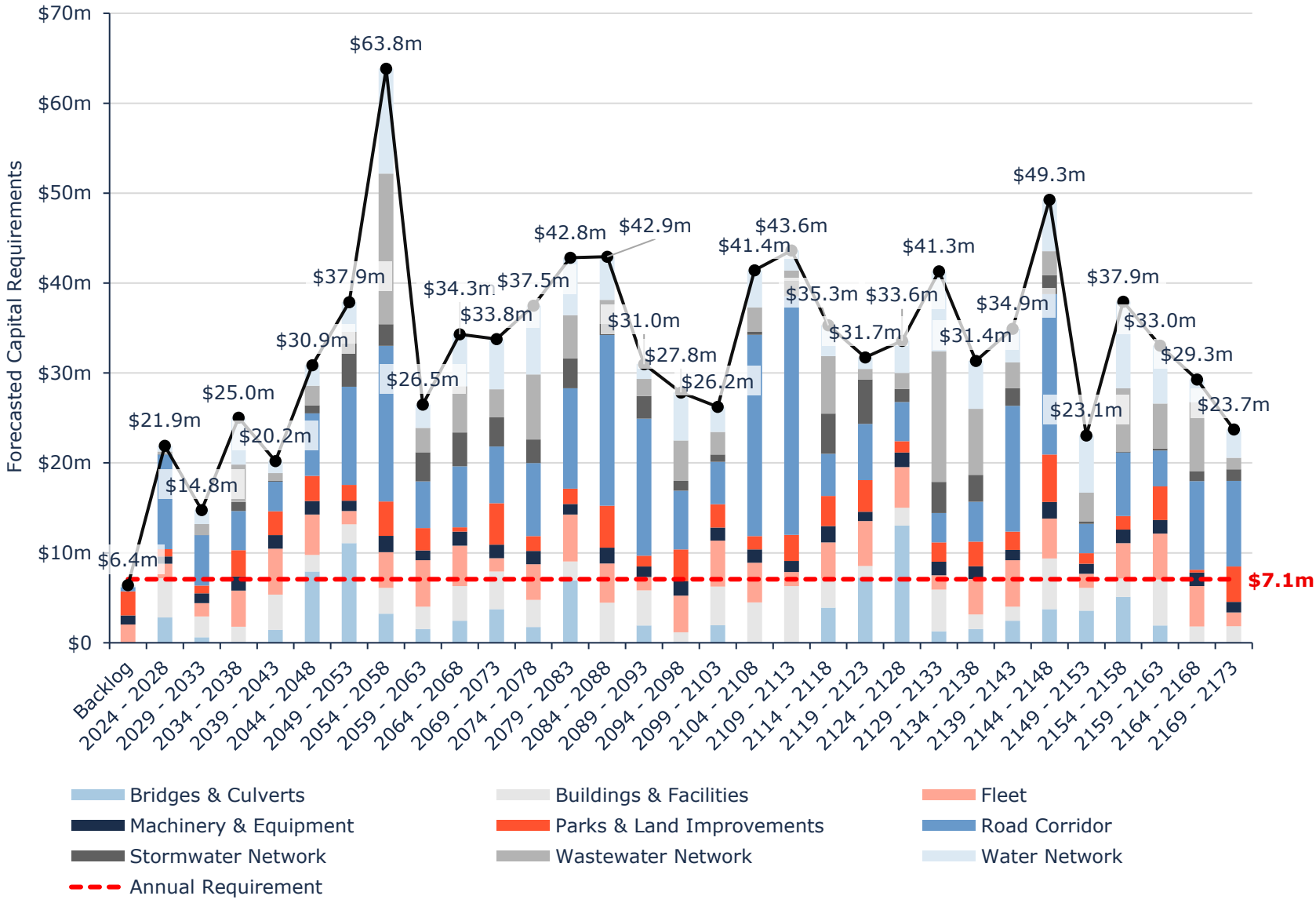


Figure 17 Capital Replacement Needs: 150-year horizon

Core Assets

Road Corridor

Bridges & Culverts

Water Network

Wastewater Network

Stormwater Network

4. Road Corridor

Road corridor assets are vital to delivering safe and efficient transportation services, connecting the Township's hamlets and rural communities. Representing the highest-value asset category in the Township's infrastructure portfolio, these assets include all municipally owned and maintained roadways, along with supporting roadside infrastructure.

The Public Works Department is responsible for managing these assets through regular maintenance, rehabilitation, and reconstruction activities. This includes year-round operations such as snow clearing, ice control, and snow removal during the winter months.

The Township's road corridor constitutes a significant portion of its infrastructure, with a current replacement value exceeding $77 million.

4.1 Inventory & Valuation

Table 8 and Figure 18 summarize the quantity and current replacement cost of the Township's various road corridor assets as managed in its primary asset management register, Citywide Assets.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Guiderails	10[3]	Assets	$442,616	CPI Tables
Retaining Walls	52[4]	Meters	$178,960	CPI Tables
Rural Roads	133,120	Meters	$47,558,160	Cost/ Unit
Semi-Urban Roads	18,260	Meters	$6,769,720	Cost/ Unit
Sidewalks	29,169	Square Meters	$3,120,465	Cost/ Unit
Signs	61	Assets (pooled)	$163,824	CPI Tables
Streetlight Fixtures	705	Assets	$1,133,487	CPI Tables
Streetlight Poles	514	Assets	$1,194,410	CPI Tables
Unpaved Roads	47,061	Meters	$9,412,200	Cost/ Unit
Urban Roads	22,431	Meters	$8,016,120	Cost/ Unit
TOTAL			**$77,989,962**	

Table 8 Detailed Asset Inventory: Road Corridor

[3] There is no record of inventory for Guiderails prior to 2012, therefore current inventory and replacement cost is underestimated and requires further review and refinement.
[4] There is no record of inventory for Retaining Walls prior to 2016, therefore current inventory and replacement is underestimated and requires further review and refinement.

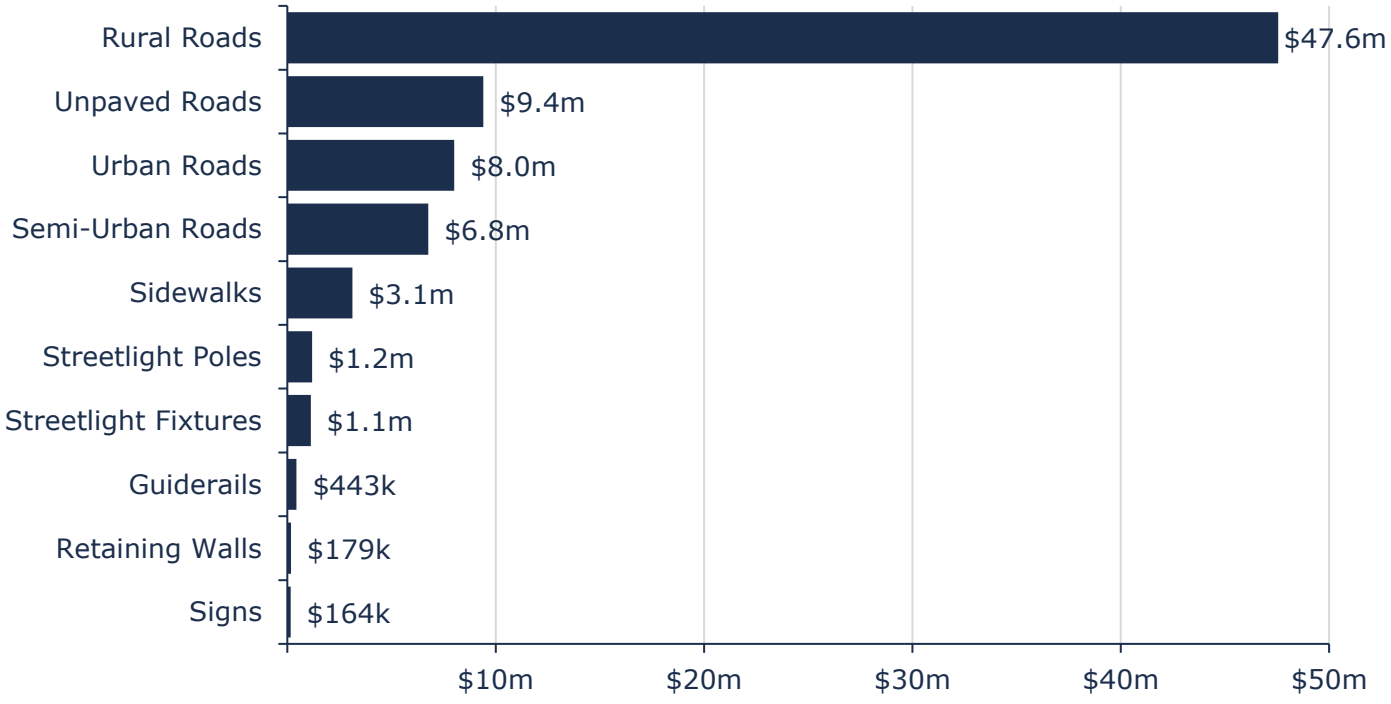


Figure 18 Portfolio Valuation: Road Corridor

4.2 Asset Condition

Figure 19 summarizes the replacement cost-weighted condition of the Township's road corridor. Based on a combination of field inspection data and age, 78% of assets are in fair or better condition; the remaining 22% of assets are in poor to very poor condition. Condition assessments were available for 100% of roads 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 19, the majority of the Township's road corridor assets are in fair or better condition.

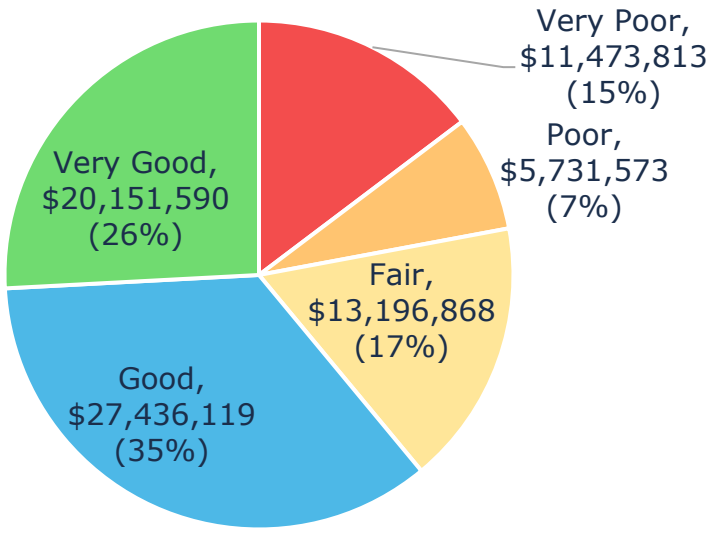
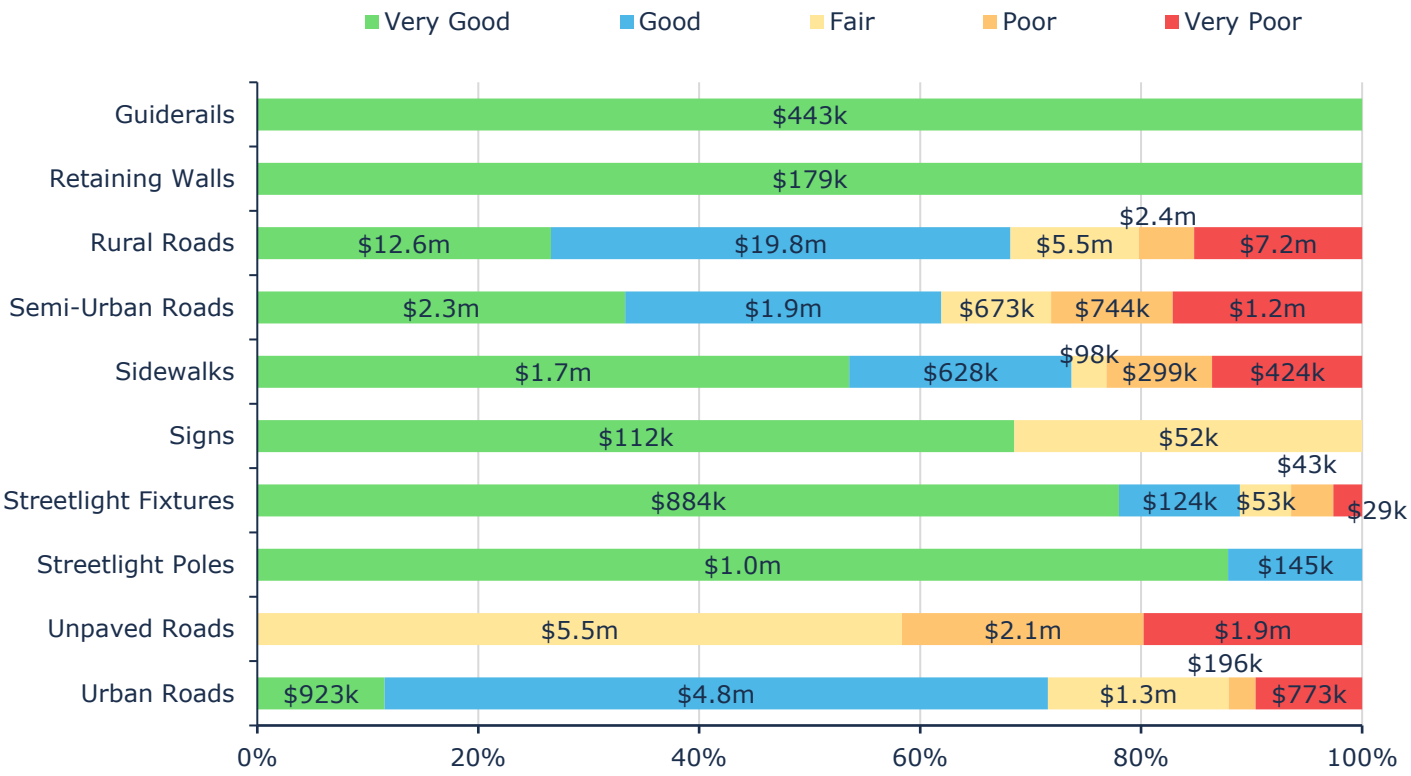


Figure 19 Asset Condition: Road corridor Overall

As illustrated in Figure 20, based on condition assessments, the majority of the Township's paved roads are in fair or better condition; however, about 40% of the unpaved roads are in poor or worse condition.



Value and Percentage of Asset Segments by Replacement Cost

Figure 20 Asset Condition: Road Corridor by Segment

4.3 Age Profile

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

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

Figure 21 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.

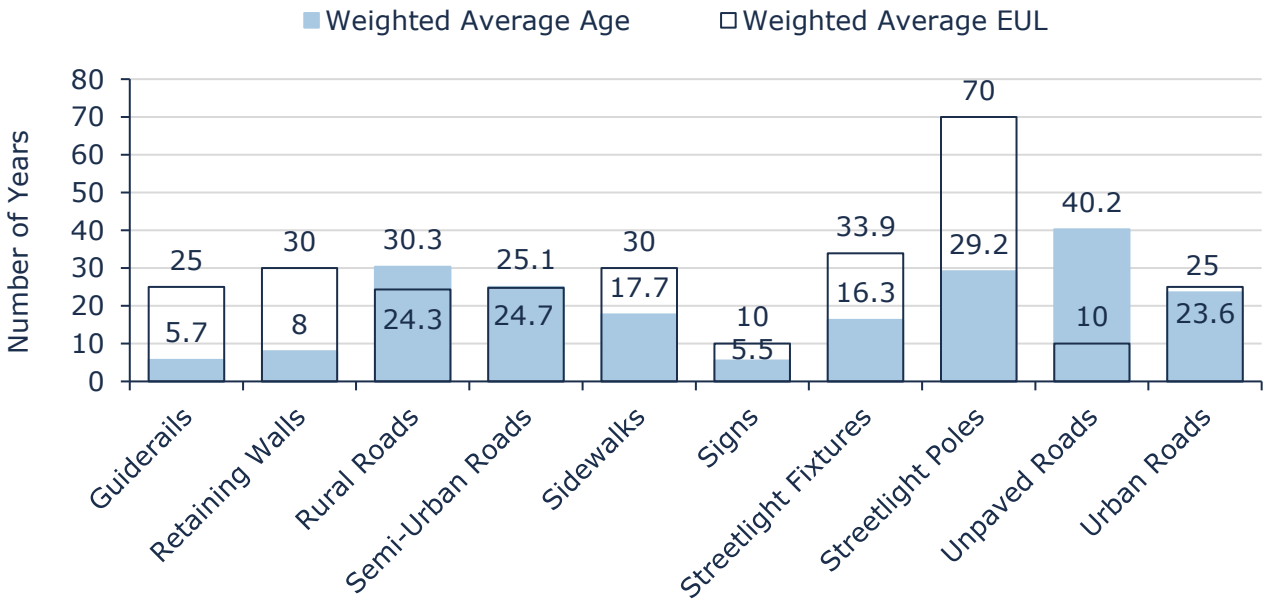


Figure 21 Estimated Useful Life vs. Asset Age: Road Corridor

Age analysis shows that all road types, except Urban Roads, have exceeded their estimated useful lives, while Urban Roads are nearing the end of theirs. Other asset categories are generally around the midpoint of their expected service life. Unpaved roads, however, can be sustained indefinitely through regular granular replacement funded by the operational maintenance budget.

While asset age is a valuable metric for long-term planning, condition assessments offer a more accurate reflection of actual asset needs.

4.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Pothole repairs are completed annually based on deficiencies identified through regular road patrols and feedback from the public.
	Seasonal maintenance activities include asphalt patching, graveling, and tree cutting.
	Summer maintenance activities include sidewalk repairs, grading, re-gravelling, dust control, ditching, roadside mowing, tree trimming, brush cleanup, road sign installation/maintenance, and line painting.
	Winter maintenance activities include snow plowing, slating, and snow removal.
	A crack seal program is in place for asphalt roads
Rehabilitation	Rehabilitation activities include: pulverize & pave, asphalt overlay, and surface treatments.
	Road replacement prioritization is determined by consideration of growth, risk, condition, health and safety, and social impact.
Replacement	Road reconstruction projects (that include road base & surface components) are identified based on road condition, risk, and sub-surface asset requirements (water/sanitary/storm water).
Inspection	A road needs study through an external consultant is conducted every 5 years. Staff also conduct visual inspections during road patrol.
	Routine road patrols are undertaken weekly, granular roads are also visually inspected during grading activities.
	Other road corridor assets are inspected as per O.Reg. 239/02

Table 9 Lifecycle Management Strategy: Road corridor

4.4.1 Condition Assessments

Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. In the above table, the Townships current approach to assessments is described under the Inspection activity.

The following rating criteria are used to determine the current condition of asphalt and surface treated road segments and forecast future capital requirements:

Condition (Roads)	PCI Rating
Very Good	90-100
Good	70-89
Fair	50-69
Poor	40-49
Very Poor	0-39

Table 10: Paved Road Condition Rating Criteria

4.4.2 Lifecycle Strategies

The following tables and figures outline the lifecycle strategies that have been developed to manage the lifecycle of asphalt, surface treated 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.

Asphalt Roads		
Event Name	**Event Class**	**Event Trigger**
General Maintenance	Maintenance	As needed
Crack Sealing	Maintenance	Condition: 80
Micro surfacing	Preventative Maintenance	Condition: 70 - 80
Asphalt Overlay	Rehabilitation	Condition: 55 - 69
Pulverize and Pave	Rehabilitation	Condition: 45 - 60
Full Reconstruction	Replacement	Condition: 35

Table 11 Lifecycle Strategy: Asphalt Roads

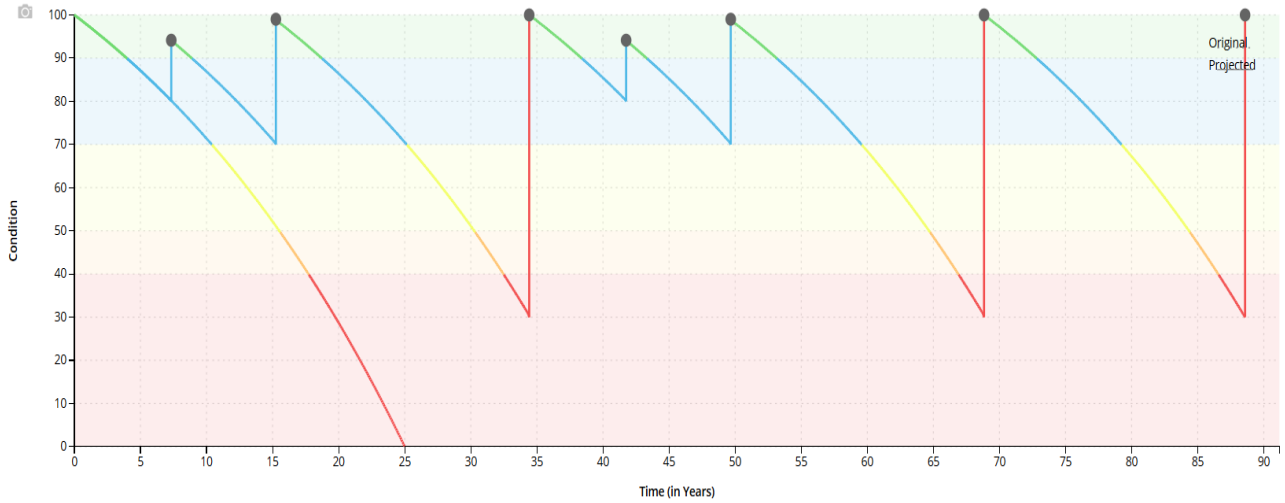


Figure 22:Lifecycle Strategy: Asphalt Roads

Surface Treated Roads		
Event Name	**Event Class**	**Event Trigger**
General Maintenance	Maintenance	As needed
Surface Treatment – Single Lift	Rehabilitation	4 Treatments
Surface Treatment – Double Lift	Rehabilitation	4 Treatments
Full Reconstruction	Replacement	Condition: 35

Table 12 Lifecycle Strategy: Surface Treated Roads

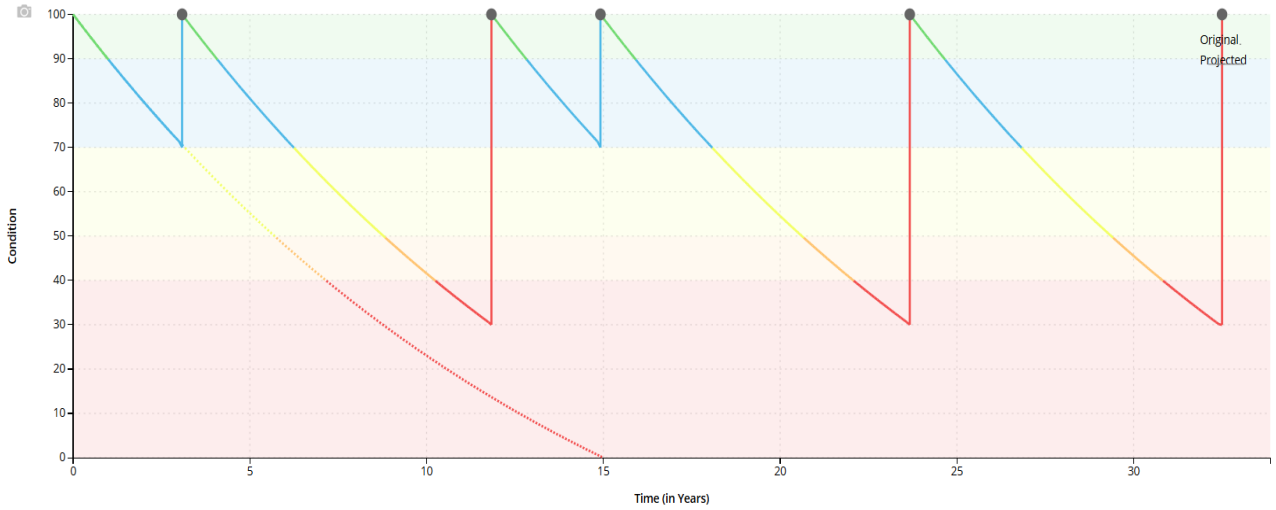


Figure 23: Lifecycle Strategy: Surface Treated Roads

Gravel Roads		
Event Name	**Event Class**	**Event Trigger**
General Maintenance	Maintenance	As needed
Dust Control/Suppressant	Maintenance	Localized
Gravelling	Maintenance	Every 3 Years
Spot Repairs and Regrading	Maintenance	Annually
Full Reconstruction	Replacement	Condition: 35

Table 13: Lifecycle Strategy: Gravel Roads

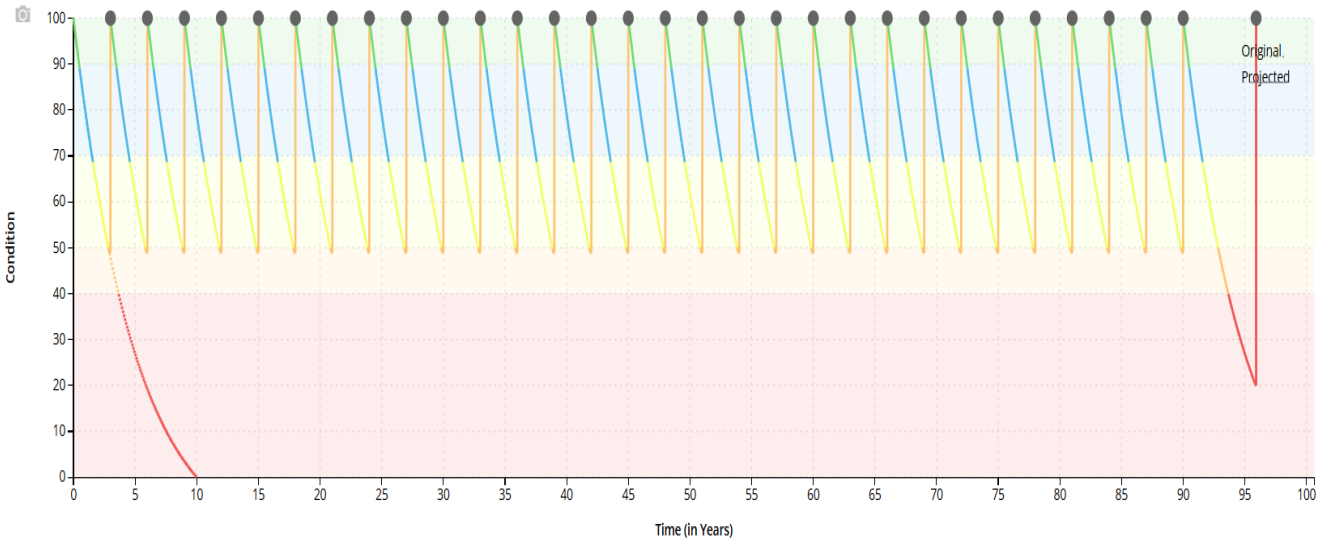


Figure 24: Lifecycle Strategy: Gravel Roads

4.5 Forecasted Long-Term Replacement Needs

Figure 25 illustrates the cyclical short, medium, and long-term infrastructure rehabilitation and replacement needs for the Township's road corridor assets, extending to 2113 to capture at least one full replacement cycle for the longest-lived assets, as tracked in Citywide Assets, the Township's asset management system.

The chart illustrates annual capital requirements of $2.1 million (indicated by the red dotted line). A backlog of $453,000 is primarily attributed to sidewalks. Significant investment peaks are projected in 2024 to 2028 ($10.5 million), 2054 to 2058 ($17.3 million), 2084 to 2088 ($19.0 million), and 2109 to 2113 ($26.5 million), driven mainly by the end-of-life replacement needs of rural and semi urban roads. Although actual annual expenditures may fluctuate, these projections derived from replacement costs, asset age, condition data where available, and lifecycle modeling underscore a persistent long term funding gap.

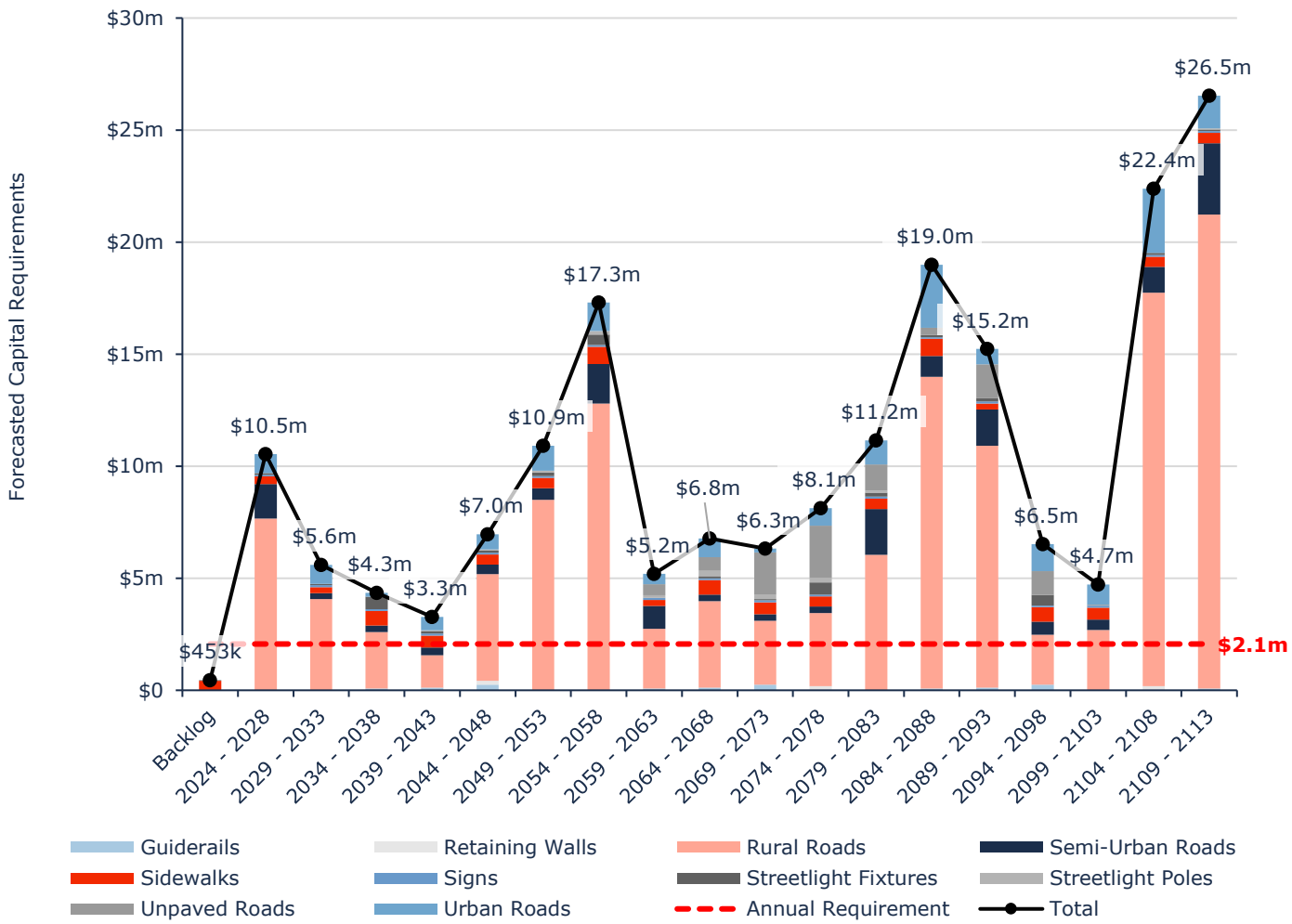


Figure 25 Forecasted Capital Replacement Needs: Road corridor: 90-Year Horizon

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.

Tables summarizing the projected lifecycle activities (rehabilitation and replacements) that may be undertaken in the next 10 years to support current levels of service can be found in Appendix B – 10-Year Capital Requirements.

4.6 Risk Analysis

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

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

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

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$36,390,318 (48%)	$15,603,351 (20%)	$7,566,660 (10%)	$7,868,553 (10%)	$8,847,360 (12%)

Figure 26 Risk Matrix: Road corridor

4.7 Levels of Service

The following tables summarize the current levels of service that adheres to the Ontario Regulation 588/17, as well as any additional performance measures that the Township has selected for this AMP.

4.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description, which may include maps of the road corridor in the municipality and its level of connectivity	The Township's road corridor spans a total of 221 km, situated primarily within a rural setting, with areas of semi-urban and urban development. The road corridor also contains roadside appurtenances such as sidewalks, streetlights, and signs.
Quality	Description or images that illustrate the different levels of road class pavement condition	Every road segment receives a pavement condition index (PCI) 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 to 29 – Failed • 30 to 49 – Poor • 50 to 69 – Fair • 70 to 89 – Good • 90 to 100 – Very Good

Table 14 O. Reg. 588/17 Community Levels of Service: Road corridor

4.7.2 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)	0.0 km/km^2
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)	0.30 km/km^2
Quality	Average pavement condition index for paved roads in the Township	79.21% (Good)
	Average surface condition for unpaved roads in the Township (e.g. excellent, good, fair, poor)	71.83% (Good)
Performance	Target reinvestment rate	2.65%
	Actual reinvestment rate	2.31%

Table 15 O. Reg. 588/17 Technical Levels of Service: Road corridor

5. Bridges & Culverts

The Township's transportation network also includes bridges and structural culverts, with a current replacement cost of $43.1 million. Bridges and culverts represent a critical portion of the transportation services provided to the community. The Township is responsible for the maintenance of all bridges and structural culverts (≥3m in span) located across municipal roads with the goal of keeping structures in an adequate state of repair and minimizing service disruptions.

5.1 Inventory & Valuation

Table 16 and Figure 27 summarize the quantity and current replacement cost of bridges and culverts. The Township owns and manages 21 bridges and 14 structural culverts.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Bridges	21	Assets	$30,489,000	2024 OSIM
Structural Culverts	14	Assets	$12,668,000	2024 OSIM
TOTAL			**$43,157,000**	

Table 16 Detailed Asset Inventory: Bridges & Culverts

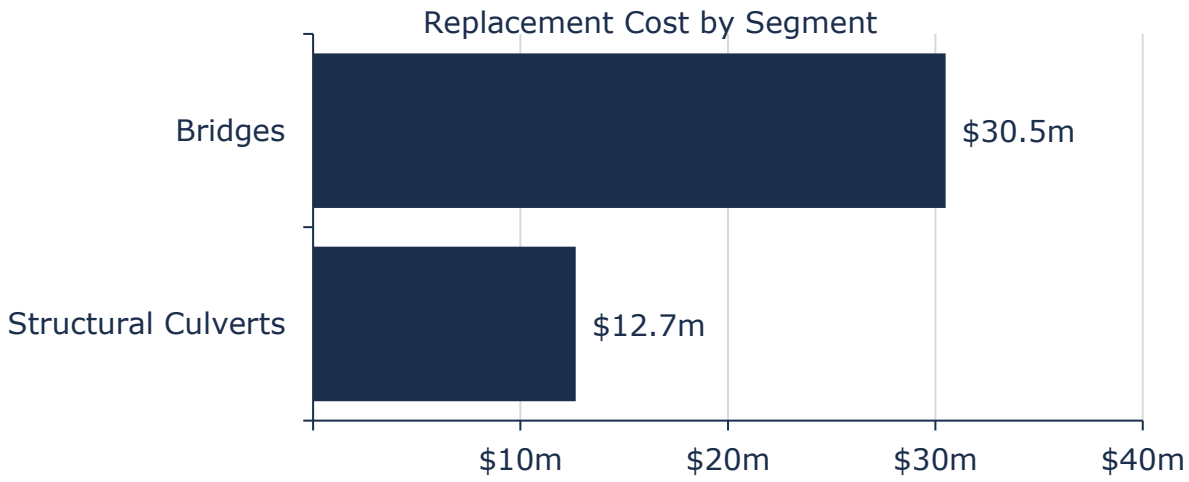


Figure 27 Portfolio Valuation: Bridges & Culverts

5.2 Asset Condition

Figure 28 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, almost all 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.

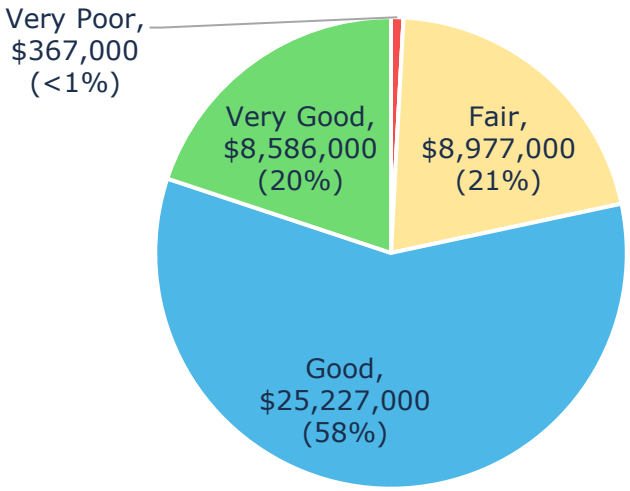


Figure 28 Asset Condition: Bridges & Culverts Overall

As further detailed in Figure 29, based on in-field condition assessments, $367,000 of culvert assets were assessed as being in a very poor condition. Bridges and structures with a poor or worse rating (i.e., bridge condition index of less than 55) are not necessarily unsafe for regular use. The OSIM ratings are designed to identify repairs needed to elevate condition ratings to fair or higher.

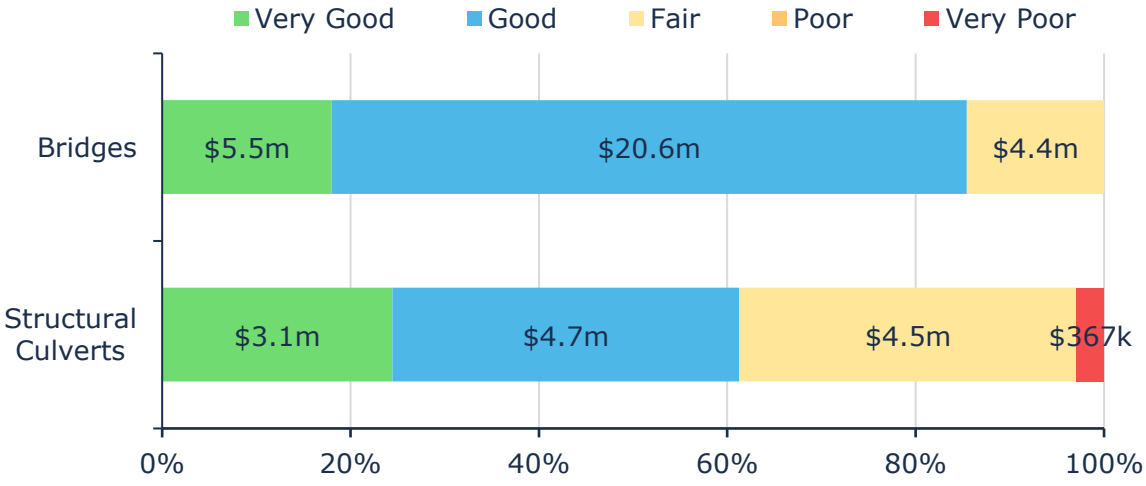


Figure 29 Asset Condition: Bridges & Culverts by Segment

5.3 Age Profile

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

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

Figure 30 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

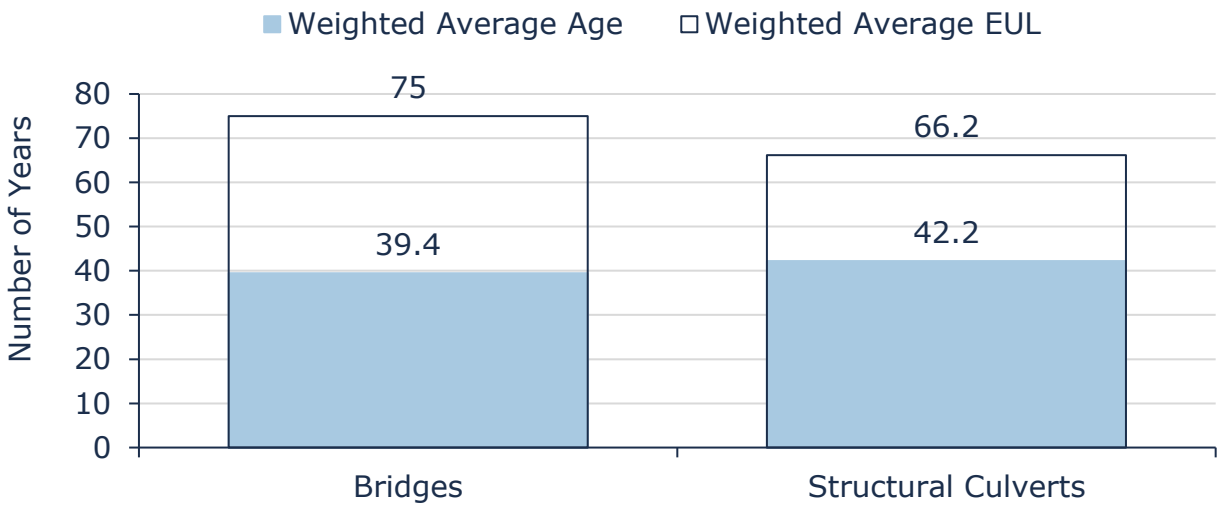


Figure 30 Estimated Useful Life vs. Asset Age: Bridges & Culverts

Age analysis reveals that both bridges and culverts are half way through their expected useful lives. OSIM assessments should continue to be used in conjunction with age and asset criticality to prioritize capital and maintenance expenditures.

5.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Typical maintenance includes: • Obstruction removal • Cleaning/sweeping • Erosion control • Brush/tree removal
	Biennial OSIM inspection reports include a list of recommended maintenance activities that the Township considers and completes according to cost and urgency.
Rehabilitation / Replacement	Biennial OSIM inspection reports include a Capital Needs List identifying recommended rehabilitation and replacement activities with estimated costs.
Inspection	The most recent Bridge and Culvert inspection reports were prepared in 2024 by R.J. Burnside & Associates Ltd

Table 17 Lifecycle Management Strategy: Bridges & Culverts

5.4.1 Condition Assessments

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

- 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 bridge and culvert inspection was conducted in 2024 by R.J. Burnside & Associates Limited.
- Bridge and culvert assets are visually inspected by municipal staff as needed

In this AMP and as per the OSIM reports, the bridge condition index (BCI) rating criteria is used to determine the current condition of assets and forecast future capital requirements:

Condition (Bridges)	BCI Rating
Very Good	90-100
Good	70-89
Fair	50-69
Poor	40-49
Very Poor	0-39

Table 18: Bridges: Condition Rating Criteria

5.5 Forecasted Long-Term Replacement Needs

Figure 31 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 2083 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) for bridges and culverts total $616,000. 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.

Although no major replacement spikes are anticipated for the next 20 years, capital needs will starkly rise between 2049 and 2053 with a peak at $11.1 million as assets reach the end of their useful life. 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.

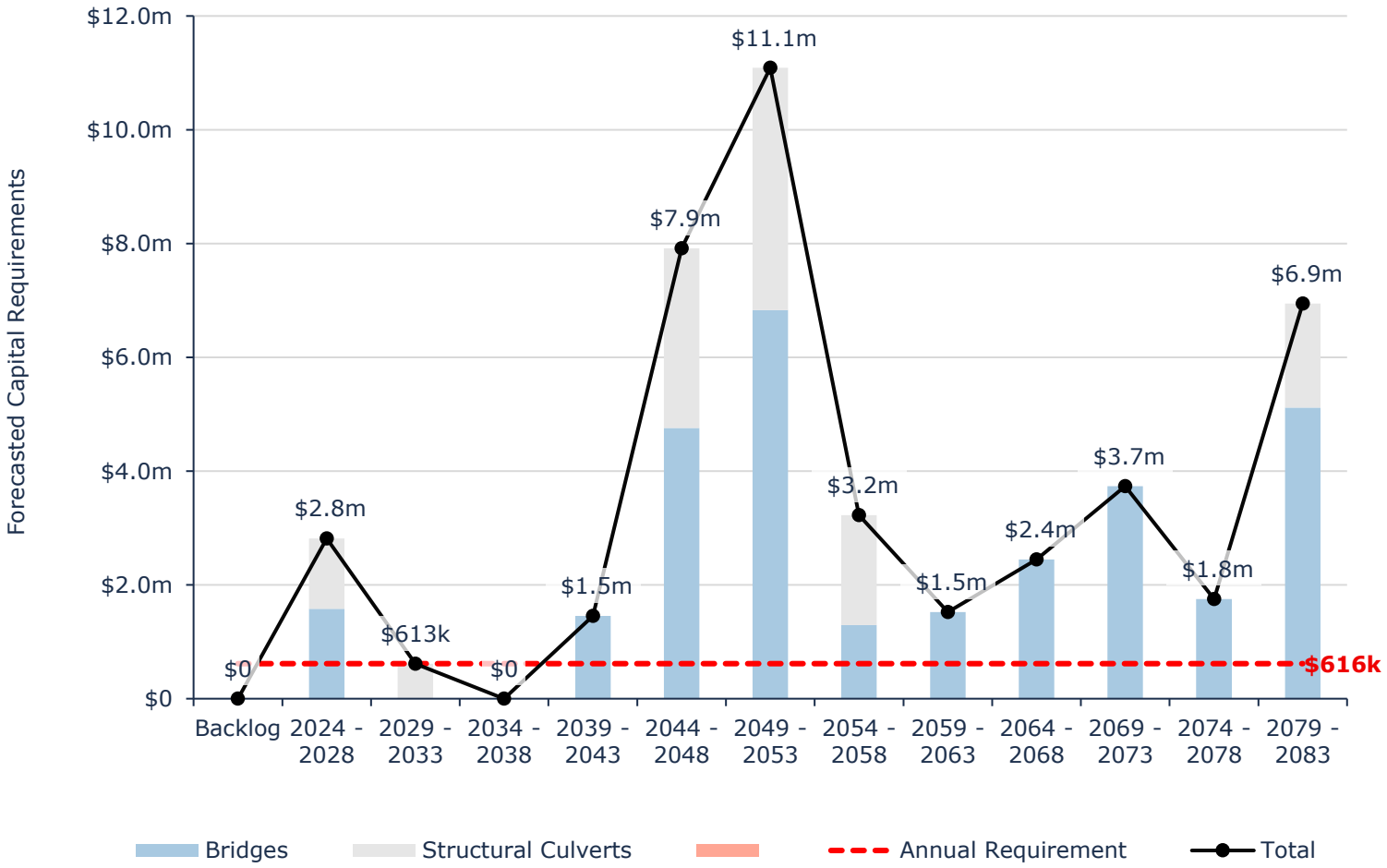


Figure 31 Forecasted Capital Replacement Needs: Bridges & Culverts: 70 Year Horizon

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.

Tables summarizing the projected lifecycle activities (rehabilitation and replacements) that may be undertaken in the next 10 years to support current levels of service 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, replacement costs, posted speed and deck length. The risk ratings for assets without useful attribute data were calculated using only condition, service life remaining, and their replacement costs.

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

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

1 - 4 **Very Low** $36,509,000 (85%)	5 - 7 **Low** $4,493,000 (10%)	8 - 9 **Moderate** $1,788,000 (4%)	10 - 14 **High** - (0%)	15 - 25 **Very High** $367,000 (<1%)

Figure 32 Risk Matrix: Bridges & Culverts

5.7 Levels of Service

The following tables summarize the current levels of service that adheres to the Ontario Regulation 588/17, as well as any additional performance measures that the Township has selected for this AMP.

5.7.1 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,	The traffic on bridges and structural culverts is generally light, but certain rural structures do support heavy vehicle

Service Attribute	Qualitative Description	Current LOS (2024)
	motor vehicles, emergency vehicles, pedestrians, cyclists)	traffic, such as construction vehicles, agricultural machinery and equipment.
Quality	Description or images of the condition of bridges & culverts and how this would affect use of the bridges & culverts	**Good (BCI 70-100):** Generally considered to be in good-excellent condition, and repair or rehabilitation work is not usually required within the next 5 years. Routine maintenance, such as sweeping, cleaning, and washing are still recommended. **Fair (BCI 50-70):** Generally considered to be in good-fair condition. Repair or rehabilitation work recommended is ideally scheduled to be completed within the next 5 years. **Poor (BCI Less than 50):** Generally considered poor with lower numbers representing structures nearing the end of their service life. The repair or rehabilitation of these structures is ideally best scheduled to be completed within approximately 1 year. However, if it is determined that the replacement of the structure would be a more viable, the structure can be identified for continued monitoring and scheduled for replacement within the short-term.

Table 19 O. Reg. 588/17 Community Levels of Service: Bridges & Culverts

5.7.2 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	74.6%
	Average bridge condition index value for structural culverts in the Township	77.4%
Performance	Target reinvestment rate	1.43%
	Capital reinvestment rate	0.35%

Table 20 O. Reg. 588/17 Technical Levels of Service: Bridges & Culverts

6. Stormwater Network

The Township is responsible for owning and maintaining a stormwater network comprised of storm mains, catch basins, oil grit separators, maintenance holes and stormwater management (SWM) ponds.

Stormwater infrastructure generally poses the greatest uncertainty for municipalities, including Guelph-Eramosa. Staff continue to work to improve the accuracy and reliability of the stormwater infrastructure data to assist with long-term asset management planning.

6.1 Inventory & Valuation

Table 21 and Figure 33 summarize the quantity and current replacement cost of the Township's various stormwater network assets as managed in its primary asset management register, Citywide.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Catch Basins	49[5]	Assets	$274,384	Cost/ Unit
Mains	25,283	Meters	$23,232,064[6]	Cost/ Unit
Maintenance Holes	461	Assets	$4,610,000	Cost/ Unit
Oil Grit Separators	2	Assets	$80,000	Cost/ Unit
Stormwater Management Ponds	10	Assets	$2,500,000	User-Defined
TOTAL			**$30,696,448**	

Table 21 Detailed Asset Inventory: Stormwater Network

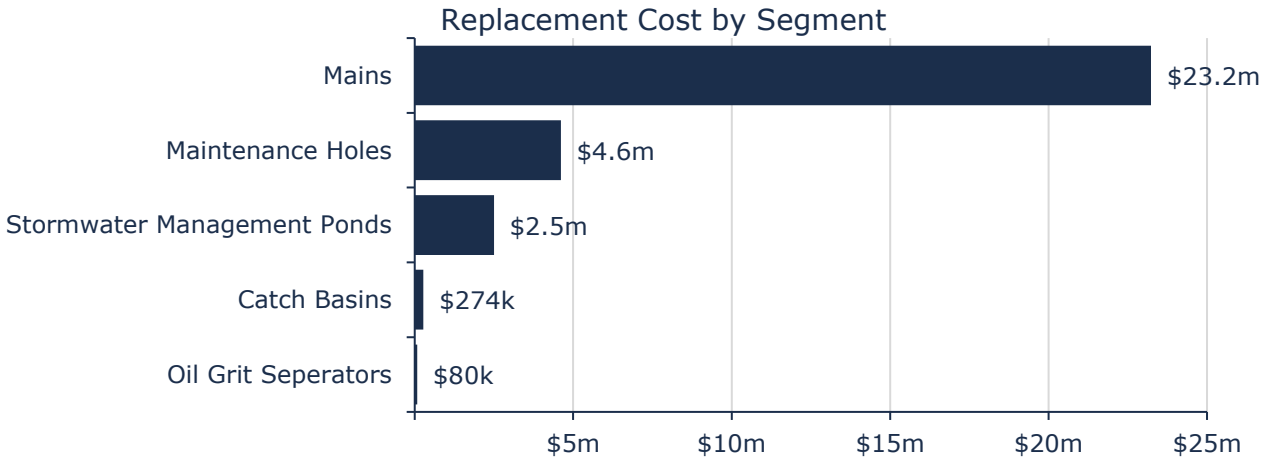


Figure 33 Portfolio Valuation: Stormwater Network

[5] Current inventory for catch basins in Citywide only includes initial upstream structures (Maintenance Holes) directly connected to mains.
[6] Replacement costs for Mains includes allowance for inline catch basins and leads.

6.2 Asset Condition

Figure 34 summarizes the replacement cost-weighted condition of the Township's stormwater management assets. Based on primarily age data, approximately 96% of assets are in fair or better conditions. Assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

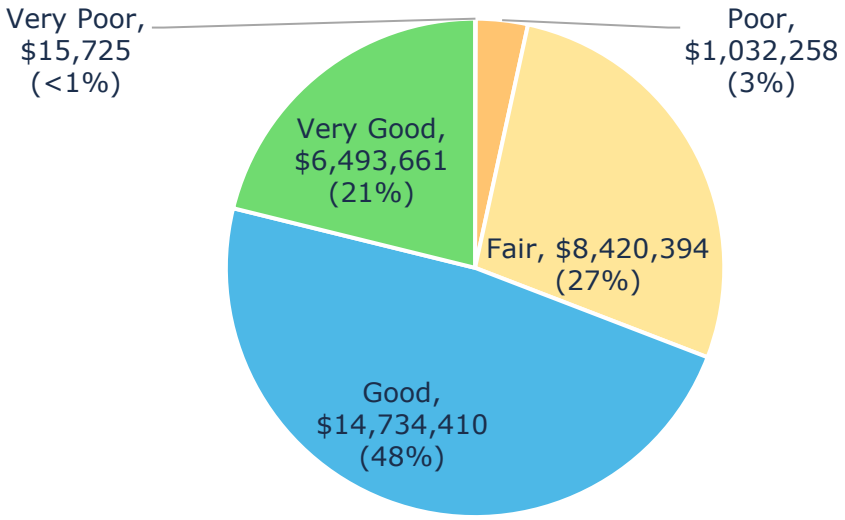


Figure 34 Asset Condition: Stormwater Network Overall

Figure 35 summarizes the mostly age-based condition of stormwater assets. The analysis illustrates that the majority of stormwater mains are in fair or better condition. However <10% of storm mains, with a current replacement cost of $1 million, are in poor or worse condition.

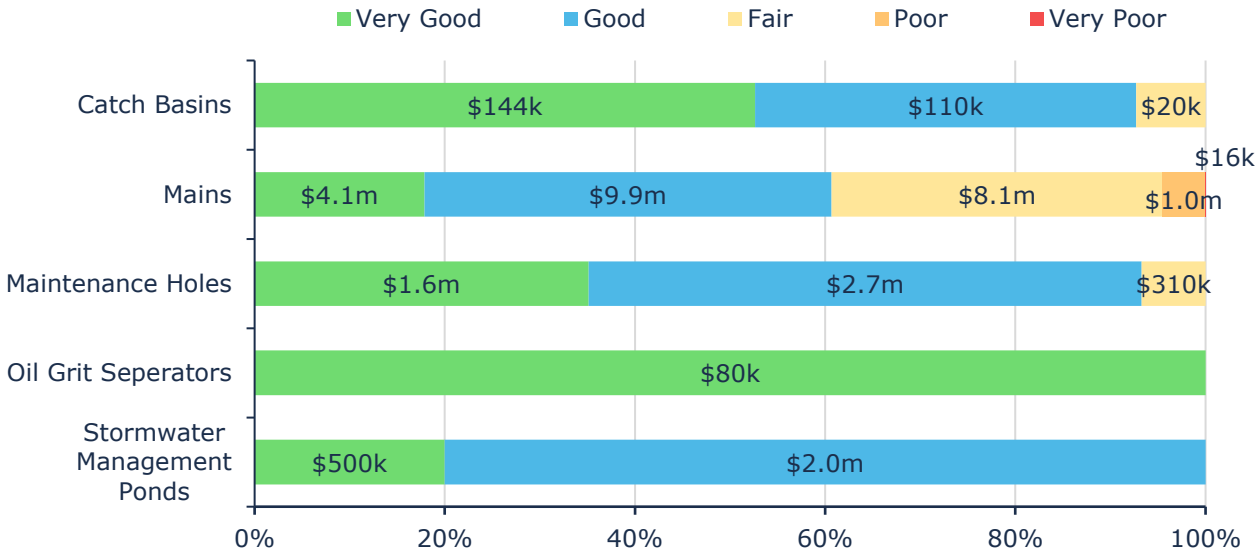


Figure 35 Asset Condition: Stormwater Network by Segment

6.3 Age Profile

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

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

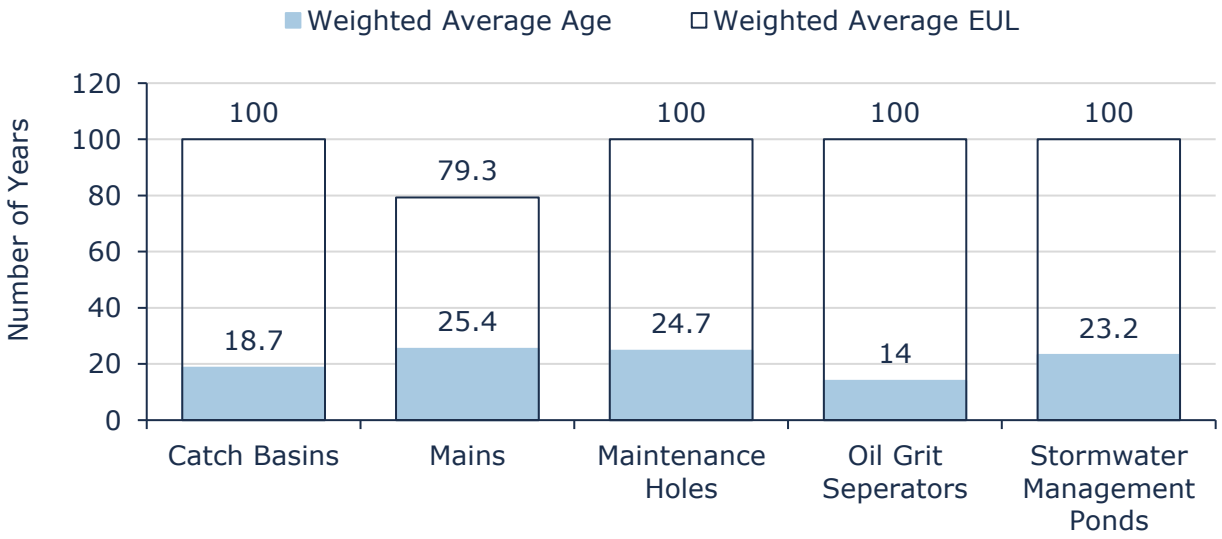


Figure 36 Estimated Useful Life vs. Asset Age: Stormwater Network

Age analysis reveals that on average, all stormwater assets are still in the early stages of their expected useful lives. Age profiles and regular, proactive CCTV inspections will help to identify mains in need of replacements and/or upgrades.

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	Maintenance activities are completed to a lesser degree compared to other asset systems
	Primary activities include catch basin cleaning and storm main flushing
	All other maintenance activities are completed on a reactive basis when operational issues are identified (e.g., blockages, backups)
Rehabilitation	Trenchless re-lining has the potential to reduce total lifecycle costs but would require a formal condition assessment program to determine viability
Replacement	Staff attempt to coordinate stormwater capital projects with road reconstruction projects to produce cost efficiencies

Table 22 Lifecycle Management Strategy: Stormwater Network

6.4.1 Condition Assessments

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

- There are no formal condition assessment programs in place for stormwater infrastructure
- Currently age-based estimates are used to determine asset conditions, although confidence in the accuracy of these estimates is low
- As the Township refines the available asset inventory for stormwater assets, a regular condition assessment cycle should be established

6.4.2 Lifecycle Strategies

The following lifecycle strategy has been documented to formalize the current strategy used to manage the lifecycle of stormwater network assets.

Stormwater Mains		
Event Name	**Event Class**	**Event Trigger**
CCTV/Zoom Camera Inspection	Preventative Maintenance	As needed
Flushing/Cleaning (50% of network per year)	Maintenance	Annually
Full Replacement	Replacement	Condition: 20

Table 23 Lifecycle Strategy: Stormwater Mains

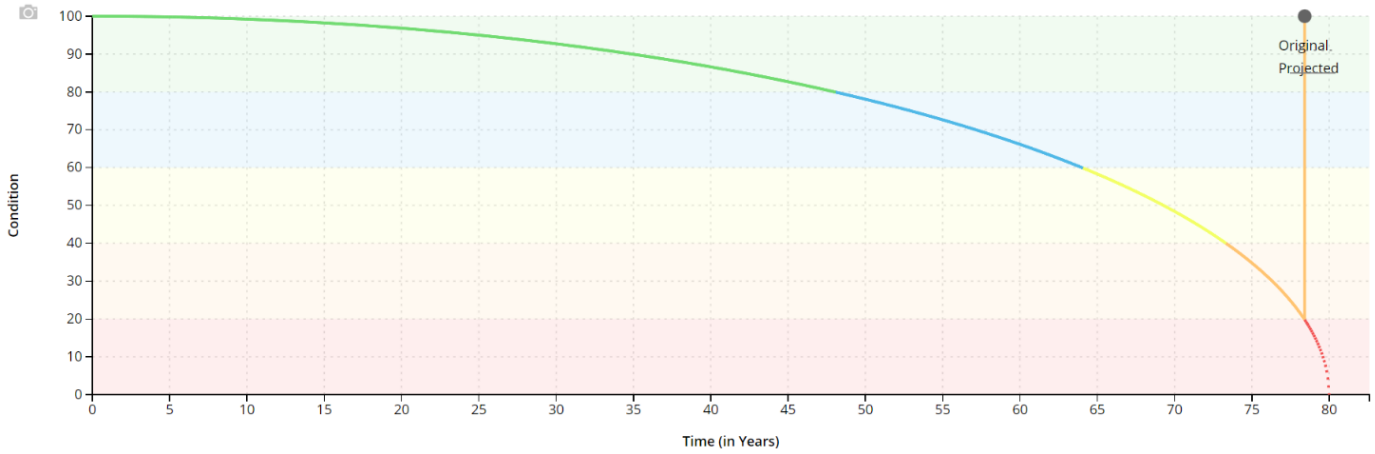


Figure 37 Lifecycle Strategy: Stormwater Mains

6.5 Forecasted Long-Term Replacement Needs

Figure 38 illustrates the cyclical short, medium and long-term infrastructure replacement requirements for the Township's storm network assets. This analysis was run until 2113 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $450,000 for all assets in the stormwater 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 there is no infrastructure backlog. The largest replacement spike of $4.8 million is forecasted in 2044-2048 as mains reach the end of their expected design life. 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.

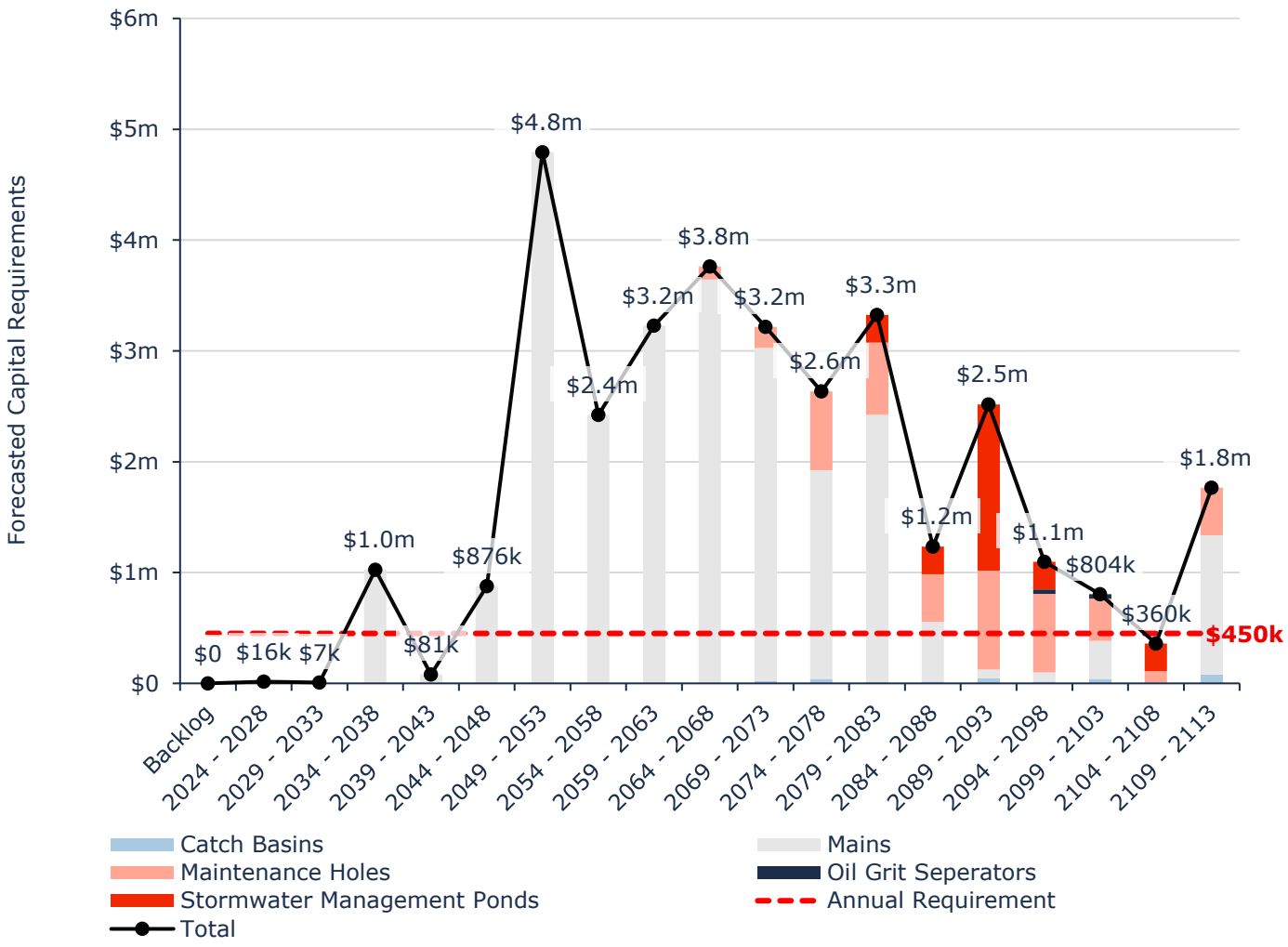


Figure 38 Forecasted Capital Replacement Needs Stormwater Network: 90-year Horizon

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. CCTV inspections may reveal a higher or lower backlog. The inspections may also help reduce long-term projections by providing more accurate condition data for mains than age. In addition, a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

Tables summarizing the projected lifecycle activities (rehabilitation and replacements) that may be undertaken in the next 10 years to support current levels of service 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, pipe diameter and surface material.

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

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

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$20,711,840 (68%)	$5,289,815 (17%)	$2,319,623 (8%)	$1,572,398 (5%)	$541,200 (2%)

Figure 39 Risk Matrix: Stormwater Network

6.7 Levels of Service

The following tables summarize the current levels of service that adheres to the 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, 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	Engineered municipal Stormwater systems are found in 4 hamlet areas: Rockwood, Hamilton Drive, Gazer Mooney and Cedar Brae. Systems have been designed to convey minor events up to 5 years in the piped system and major events (100-year) overland within the right of way safely to a natural outlet or an engineered stormwater management pond.

Table 24 O. Reg. 588/17 Community Levels of Service: Stormwater Network

6.7.2 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	100%
	% of the municipal stormwater management system designed to be resilient to a 5-year storm	100%
Performance	Target reinvestment rate	1.47%
	Actual reinvestment rate	0%

Table 25 O. Reg. 588/17 Technical Levels of Service: Stormwater Network

7. Wastewater Network

The Township is responsible for providing sanitary sewer services to residents through the collection, storage, and treatment of sanitary sewage. Wastewater infrastructure is managed by the Public Works department and consists of:

- a wastewater treatment facility in Rockwood.
- 35 km of sanitary mains.
- 372 maintenance holes.
- lift stations as well as a monitoring station; and
- vehicles, specialized machinery and equipment to support in the management and delivery of wastewater services.

7.1 Inventory & Valuation

Table 26 and Figure 40 summarize the quantity and current replacement cost of the Township's various wastewater network assets as managed in its primary asset management register, Citywide.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Fleet	2	Assets	$197,000	User-Defined
Force Mains	9,719	Meters	$9,506,350	Cost/ Unit
Mains	25,500	Meters	$15,987,756	Cost/ Unit
Maintenance Holes	372	Assets	$3,720,000	Cost/ Unit
Wastewater Facilities	9 (214)	Facilities (Assets)	$16,109,000	User-Defined
TOTAL			**$45,520,106**	

Table 26 Detailed Asset Inventory: Wastewater Network

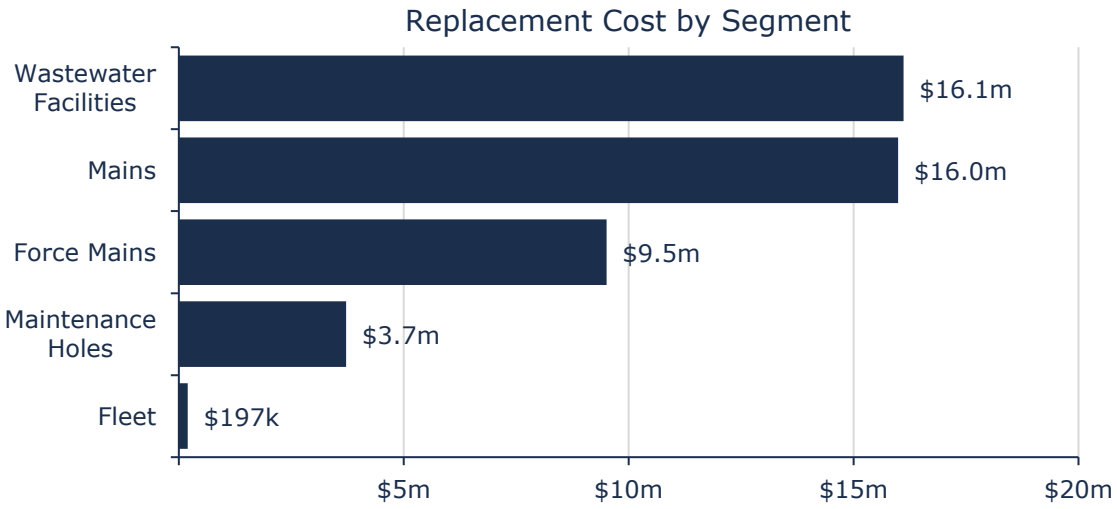


Figure 40 Portfolio Valuation: Wastewater Network

7.2 Asset Condition

Figure 41 summarizes the replacement cost-weighted condition of the Township's wastewater network. Over 98% of assets are in fair or better condition; the remaining 2% of assets are in poor to very poor condition. Condition assessments were available for 100% of wastewater buildings, but no assessments were available for the other segments included in the wastewater network. This condition data was projected from inspection date to current year to estimate their condition today.

Assets in poor or worse condition may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

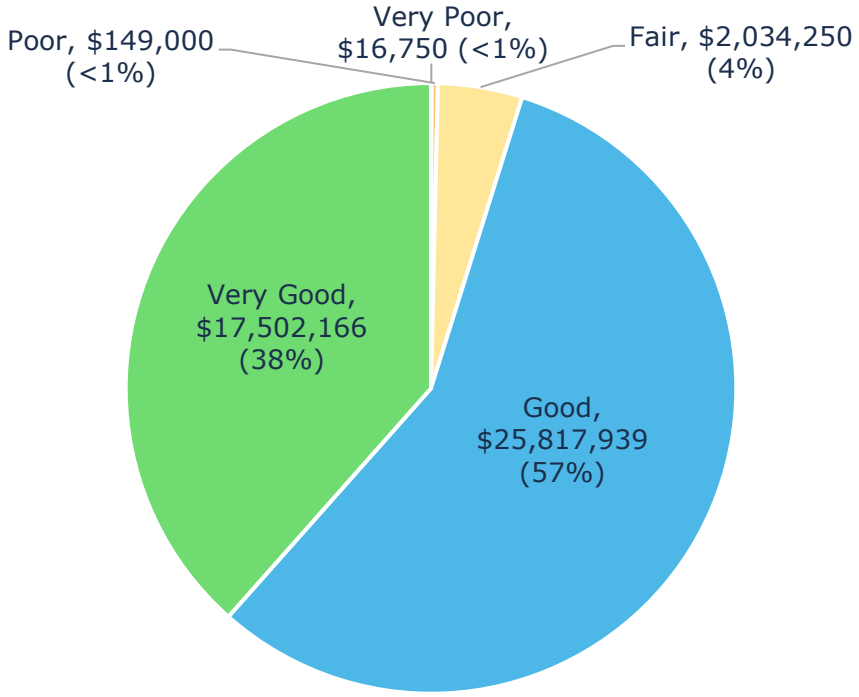
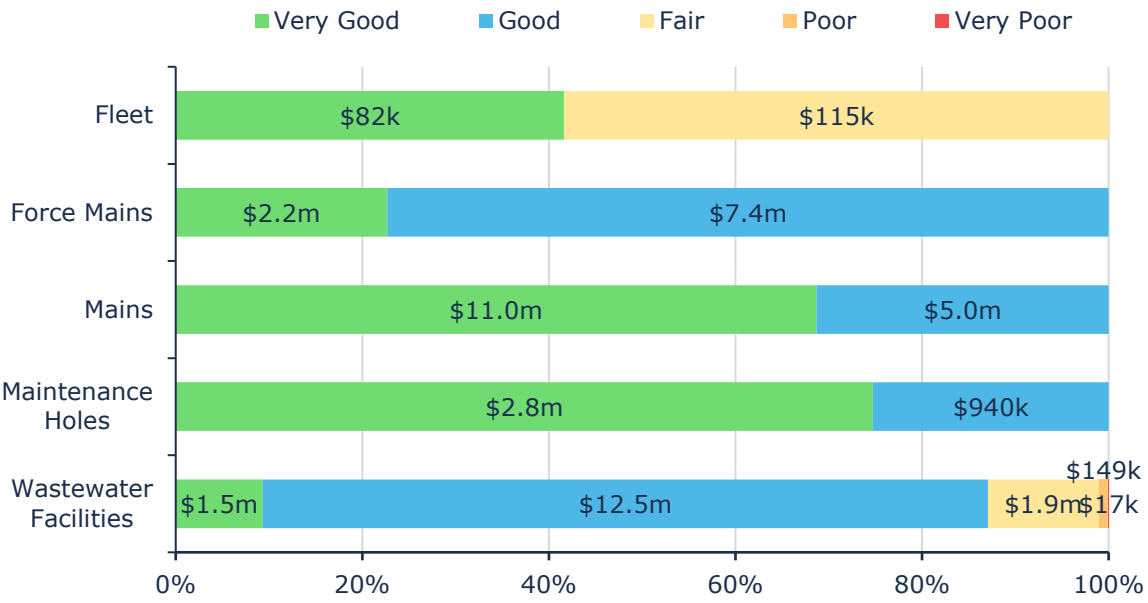


Figure 41 Asset Condition: Wastewater Network Overall

As illustrated in Figure 42, based on condition assessments and age-based conditions, the majority of the Township's sanitary sewer mains are in good to very good condition. Only some wastewater facilities' assets worth slightly above $160,000 are in poor or worse conditions.



Value and Percentage of Asset Segments by Replacement Cost

Figure 42 Asset Condition: Wastewater Network by Segment

7.3 Age Profile

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

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

Figure 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.

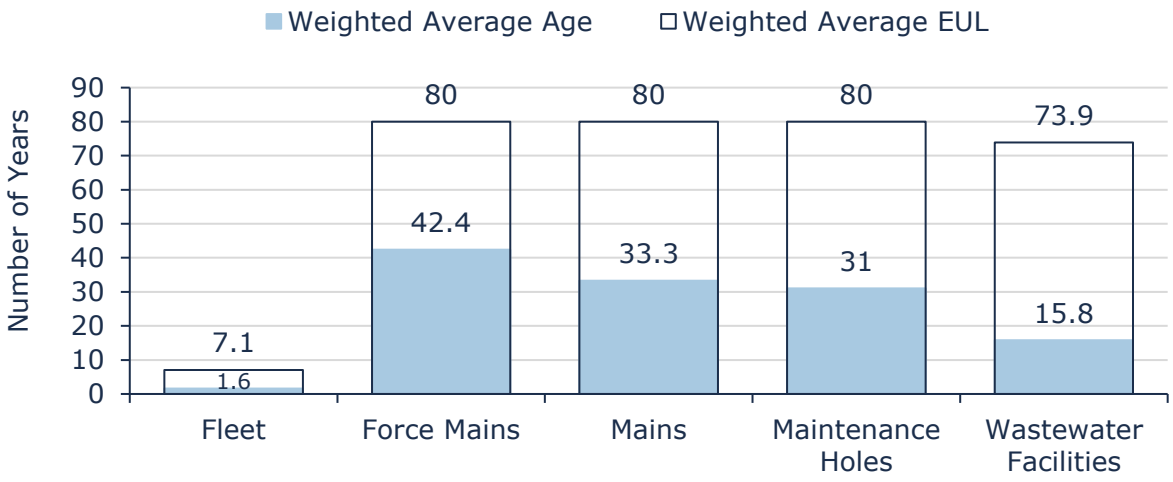


Figure 43 Estimated Useful Life vs. Asset Age: Wastewater Network

Age analysis reveals that on average, wastewater assets still have over half of their life expectancy remaining. Age profiles and CCTV inspections will help to identify mains in need of replacements and/or upgrades. Extensions to EULs for mains may also be considered based on performance history to date.

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
Inspection/ Maintenance	Annual maintenance of mains that consists of main flushing, and inspections
	Annual maintenance of manholes that consists of manhole inspection, lid replacement, lining and grouting
	Inspection and maintenance of sanitary facilities is determined through the SCADA system
Rehabilitation	Trenchless re-lining has the potential to reduce total lifecycle costs and should be considered as a rehabilitative activity
Replacement	Similar to other sub-surface infrastructure, staff attempt to coordinate wastewater capital projects with road reconstruction projects in order to produce cost efficiencies

Table 27 Lifecycle Management Strategy: Wastewater Network

7.4.1 Condition Assessments

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

- CCTV inspections are conducted on as-needed basis as well as in coordination with road and/or other subsurface construction projects
- Sanitary facilities are inspected under an established schedule and deficiencies are tracked through the Supervisory Control and Data Acquisition (SCADA) system
- Staff rely on a variety of metrics including age, pipe material and diameter, location, and available CCTV assessments to determine the projected condition of linear assets

7.4.2 Lifecycle Strategies

The following lifecycle strategy has been documented to formalize the current strategy used to manage the lifecycle of wastewater mains.

Wastewater Mains		
Event Name	**Event Class**	**Event Trigger**
CCTV/Zoom Camera Inspection	Preventative Maintenance	As needed
Flushing/Cleaning (50% of network per year)	Maintenance	Annually
Full Replacement	Replacement	Condition: 10

Table 28 Lifecycle Strategy: Wastewater Mains

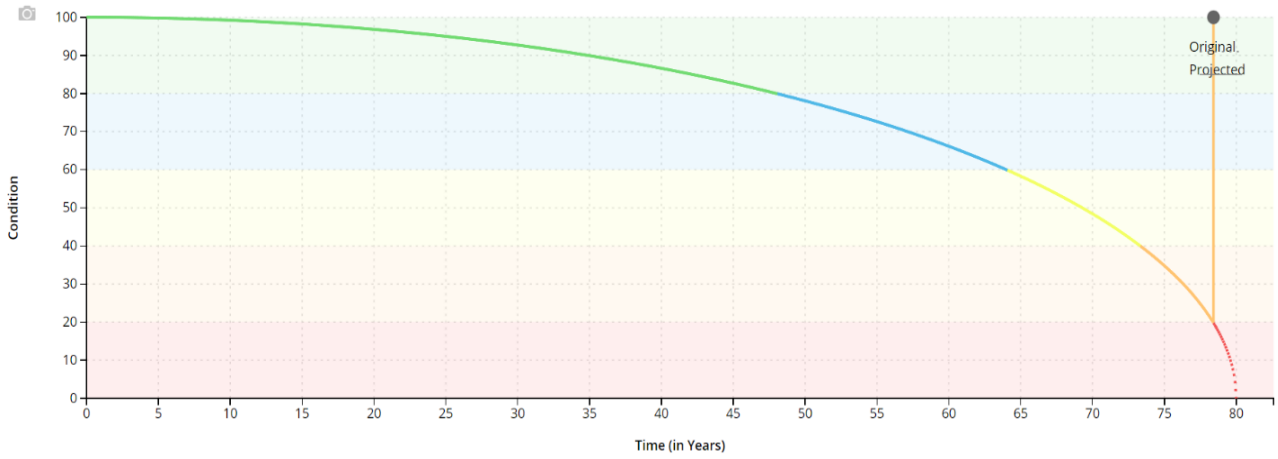


Figure 44 Lifecycle Strategy: Wastewater Mains

7.5 Forecasted Long-Term Replacement Needs

Figure 45 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's wastewater network. This analysis was run until 2168 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $875,000 for all assets in the wastewater 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 moderate to substantial capital needs throughout the forecast period. Expenditures are expected to peak at $16.7 million between 2054 and 2058, primarily due to the replacement of force mains and gravity mains. These projections are based on asset replacement costs, age analysis, and condition data where available. They provide a long-term portfolio level view of capital requirements and are intended to support enhanced financial planning over several decades.

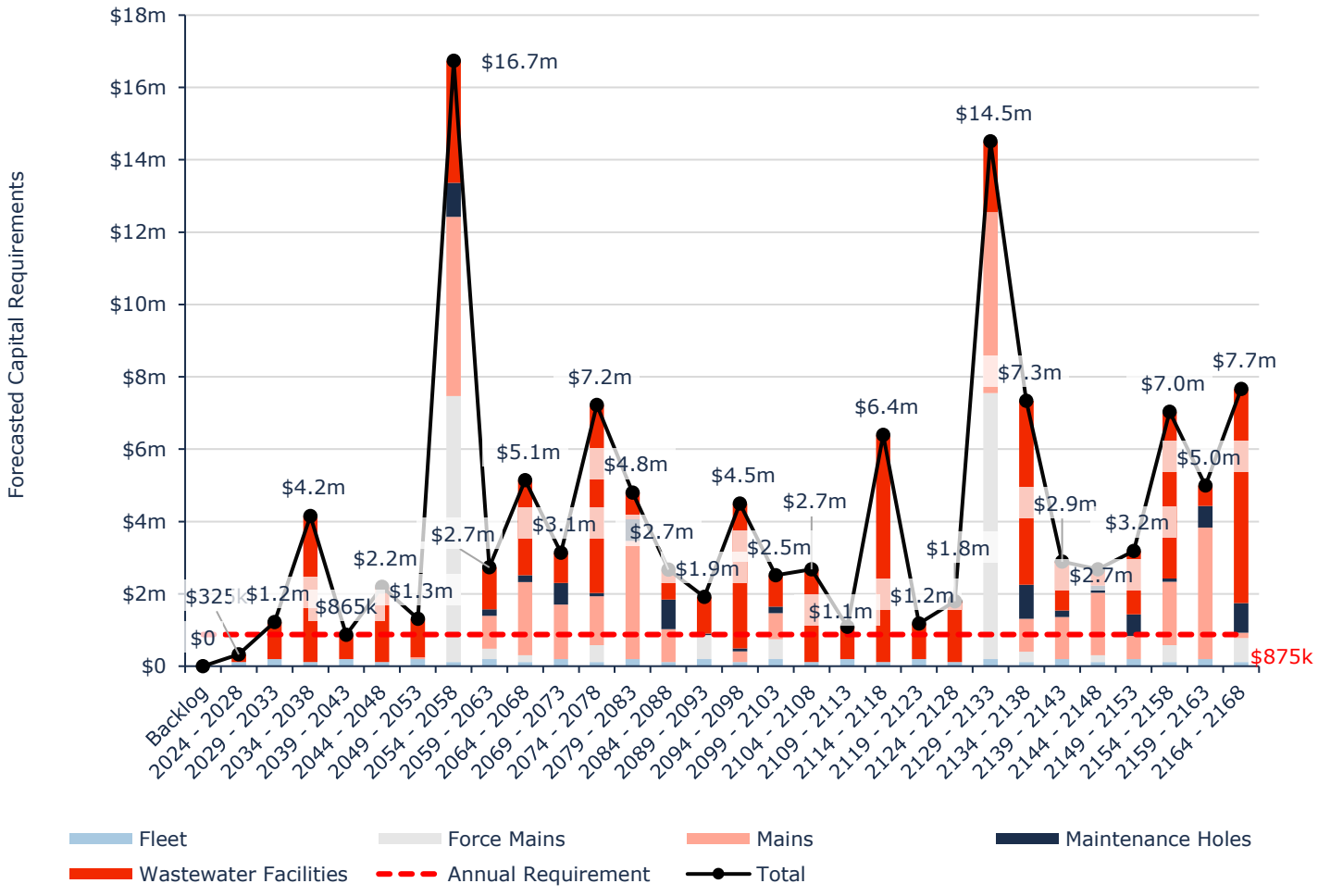


Figure 45 Forecasted Capital Replacement Needs: Wastewater Network :145-Year Horizon

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.

Tables summarizing the projected lifecycle activities (rehabilitation and replacements) that may be undertaken in the next 10 years to support current levels of service 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 diameter, and surface material. The risk ratings for assets without useful attribute data were calculated using only condition, service life remaining, and their replacement costs.

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

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

1 - 4 **Very Low**	5 - 7 **Low**	8 - 9 **Moderate**	10 - 14 **High**	15 - 25 **Very High**
$24,316,332 (53%)	$13,186,197 (29%)	$6,180,955 (14%)	$1,836,622 (4%)	- (0%)

Figure 46 Risk Matrix: Wastewater Network

7.7 Levels of Service

The following tables summarize the current levels of service that adheres to the 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	The Village of Rockwood is the serviced by Collection System consists of gravity sanitary sewers, 5 sewage pumping stations, a pre-treatment plant with [6500] meters of force main which

Service Attribute	Qualitative Description	Current LOS (2024)
	connected to the municipal wastewater system	conveys the sewage from the Alma Street Pre-treatment Transfer Station to the City of Guelph. Four of the [5] sewage pumping stations service approximately two-thirds of the Village. Wastewater flows being collected at the Lou's Blvd., Mill Run, and Ridge Road Sewage Pumping Stations. The Valley Road Sewage Pumping Station (SPS) collects wastewater from these three [3] SPS and from a gravity portion of the sanitary sewer network. From the north, Rockwood SPS [5th SPS) discharges into the existing gravity sanitary sewer system and is conveyed to Alma pre-treatment transfer station. The Gazer Mooney subdivision area is serviced by gravity sanitary sewers and one sewage pumping system and force main which discharges into the City of Guelph sanitary sewer system.
	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	There are no combined sewers within the Township
	Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches	
Reliability	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes	No backups or overflows recorded in recent years. There are some combined flows due to foundation drain connections and infiltration on all three systems. The full extent is unknown.
	Description of how sanitary sewers in the municipal wastewater system are	Major facilities such as pumping stations and treatment facilities are equipped with emergency overflows.

Service Attribute	Qualitative Description	Current LOS (2024)
	designed to be resilient to stormwater infiltration	
	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system	All three treatment facilities generally meet all effluent requirements.

Table 29 O. Reg. 588/17 Community Levels of Service: Wastewater Network

7.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of properties connected to the municipal wastewater system	100%
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	0.0005
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	0
Performance	Target reinvestment rate	1.92%
	Actual reinvestment rate	1.36%

Table 30 O. Reg. 588/17 Technical Levels of Service: Wastewater Network

8. Water Network

The Township is responsible for providing water services to residents through the collection, storage, and distribution of water. Water infrastructure operated and managed by the Public Works department and consists of:

- 2 distribution systems located in Hamilton Drive and Rockwood.
- 34 km of water mains.
- 227 hydrants.
- a standpipe and booster pumping station.
- pumphouses and groundwater wells.
- vehicles, specialized machinery and equipment to support in the management and delivery of water services.

The Township also owns the Gazer/Mooney system; however, it is operated by the City of Guelph.

8.1 Inventory & Valuation

Table 31 and Figure 47 summarize the quantity and current replacement cost of the Township's various water network assets as managed in its primary asset management register, Citywide.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Fleet	5	Assets	$245,662	CPI Tables
Hydrants	227	Assets	$1,816,000	Cost/ Unit
Mains	33,934	Meters	$29,611,462	Cost/ Unit
Water Facilities	7 (221)	Facilities (Assets)	$14,638,312	User-Defined
Water Meters	663[7]	Assets	$358,590	CPI Tables
TOTAL			**$46,670,026**	

Table 31 Detailed Asset Inventory: Water Network

[7] Current inventory in Citywide is considered underestimated, current estimates suggest a total of 2,416 water meters. Inventory and replacement costs will be validated and updated with in the asset register.

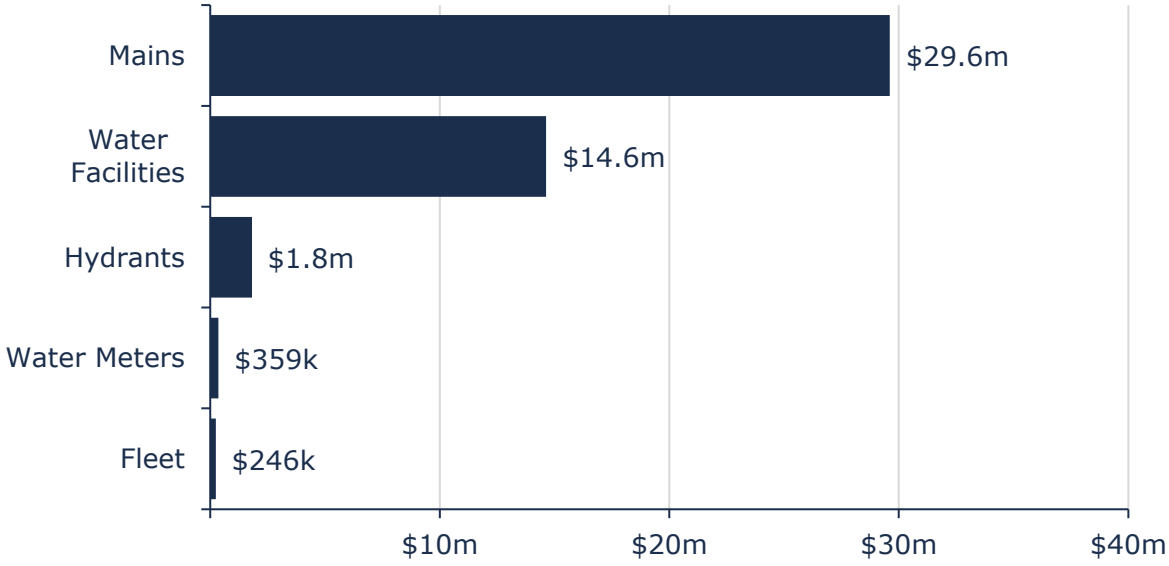


Figure 47 Portfolio Valuation: Water Network

8.2 Asset Condition

Figure 48 summarizes the replacement cost-weighted condition of the Township's water network. Based on a combination of field inspection data and age, 98% of assets are in fair or better condition; the remaining 2% of assets are in poor to very poor condition. Condition assessments were available for 100% of water facilities, but no assessments were available for the other segments included in the water network. This condition data was projected from inspection date to current year to estimate their condition today.

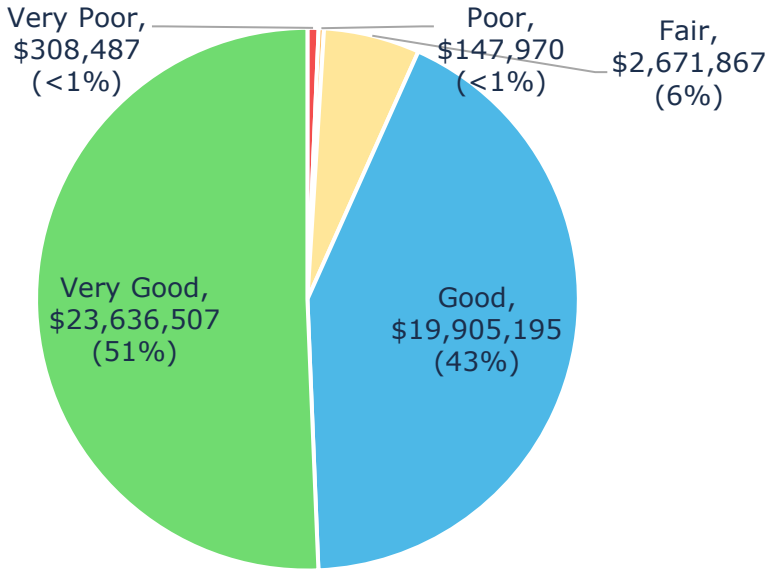


Figure 48 Asset Condition: Water Network Overall

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 49, based on condition assessments and age-based conditions, the majority of the Township's water mains and water facilities are in fair or better conditions; however, 50% of Fleet and 25% of water meters are in poor or worse condition.

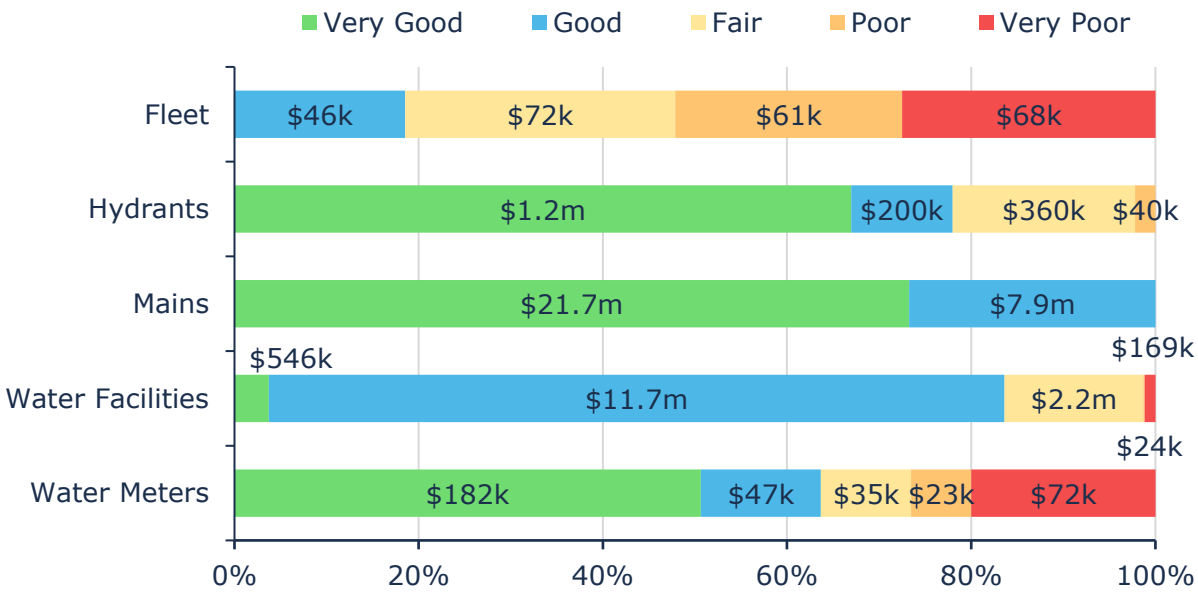


Figure 49 Asset Condition: Water Network by Segment

8.3 Age Profile

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

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

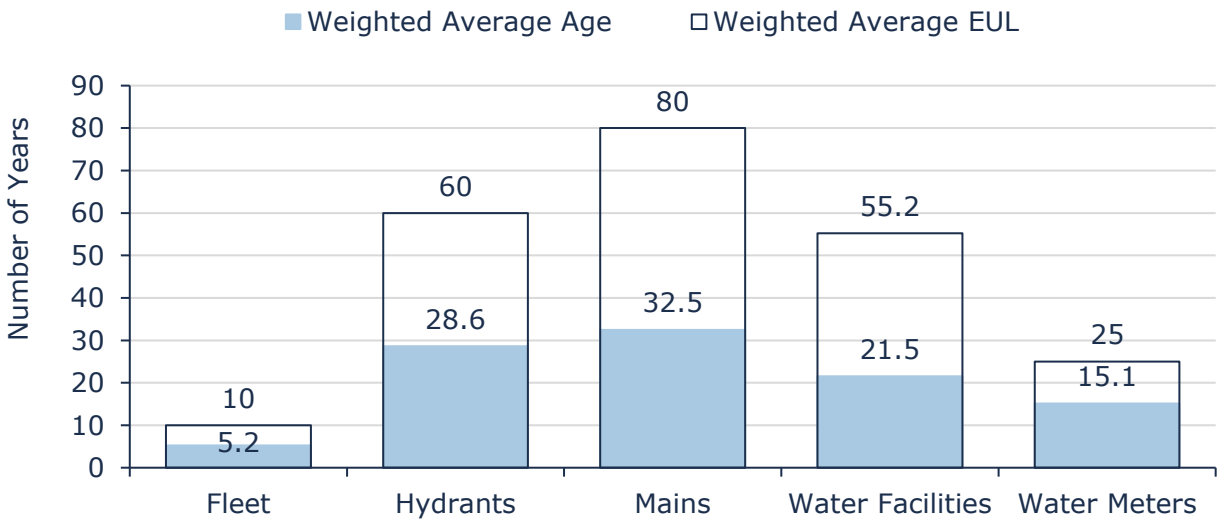


Figure 50 Estimated Useful Life vs. Asset Age: Water Network

Age analysis reveals that on average, water network assets still have over half of their life expectancy remaining. Age profiles and condition assessments will help to identify mains in need of replacements and/or upgrades. Extensions to EULs for mains may also be considered based on performance history to date.

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	Valves undergo annual maintenance as part of preventative maintenance
	Wells and pumps are inspected and undergo maintenance under a formal schedule
	Main flushing of the entire network is conducted twice a year
	Periodic pressure testing occurs in order to identify deficiencies and potential leaks
Rehabilitation/ Replacement	In the absense of mid-lifecycle rehabilitative activities, most mains are simply maintained with the goal of full replacement once service life is exceeded

Activity Type	Description of Current Strategy
	Water main replacement is prioritized based on an analysis of the main break rate, asset functionality and design capacity as well as any issues identified during maintenance activities
	Similar to other sub-surface infrastructure, Staff coordinate water replacement projects with road reconstruction projects in order to produce cost efficiencies

Table 32 Lifecycle Management Strategy: Water Network

8.4.1 Condition Assessment

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

- CCTV inspections are conducted on as-needed basis as well as in coordination with road and/or other subsurface construction projects
- Inspections are conducted as required under O. Reg. 170/3: Drinking Water Systems
- Wells and pumps are monitored under an established schedule and deficiencies are tracked through the SCADA system
- Staff rely on a variety of metrics including age, pipe material and diameter, location, and available CCTV assessments to determine the projected condition of linear assets

8.4.2 Lifecycle Strategies

The following lifecycle strategy has been documented to formalize the current strategy used to manage the lifecycle of water mains.

Water Mains		
Event Name	**Event Class**	**Event Trigger**
Hydrant/Dead End Flushing	Maintenance	Annually
Valve Turning	Maintenance	Annually
Full Reconstruction	Replacement	Condition: 20

Table 33 Lifecycle Strategy: Water Mains

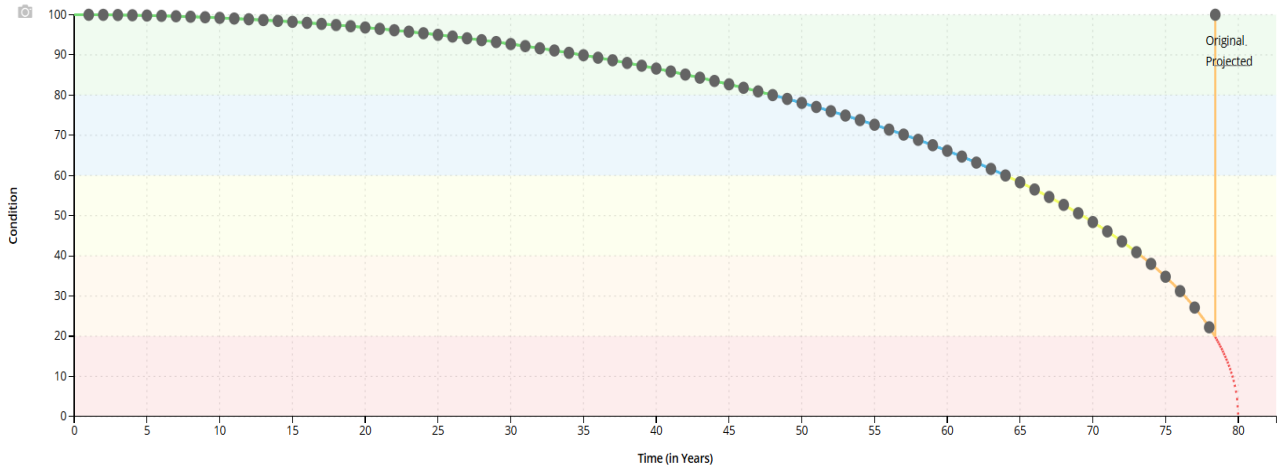


Figure 51 Lifecycle Strategy: Water Mains

8.5 Forecasted Long-Term Replacement Needs

Figure 52 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's water network. This analysis was run until 2173 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $915,000 for all assets in the water 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 moderate to substantial capital needs throughout the forecast period. The expenditure is expected to peak at $11.7 million between 2054-2058 due to anticipated replacement of water mains and facilities. 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.

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.

Tables summarizing the projected lifecycle activities (rehabilitation and replacements) that may be undertaken in the next 10 years to support current levels of service can be found in Appendix B – 10-Year Capital Requirements.

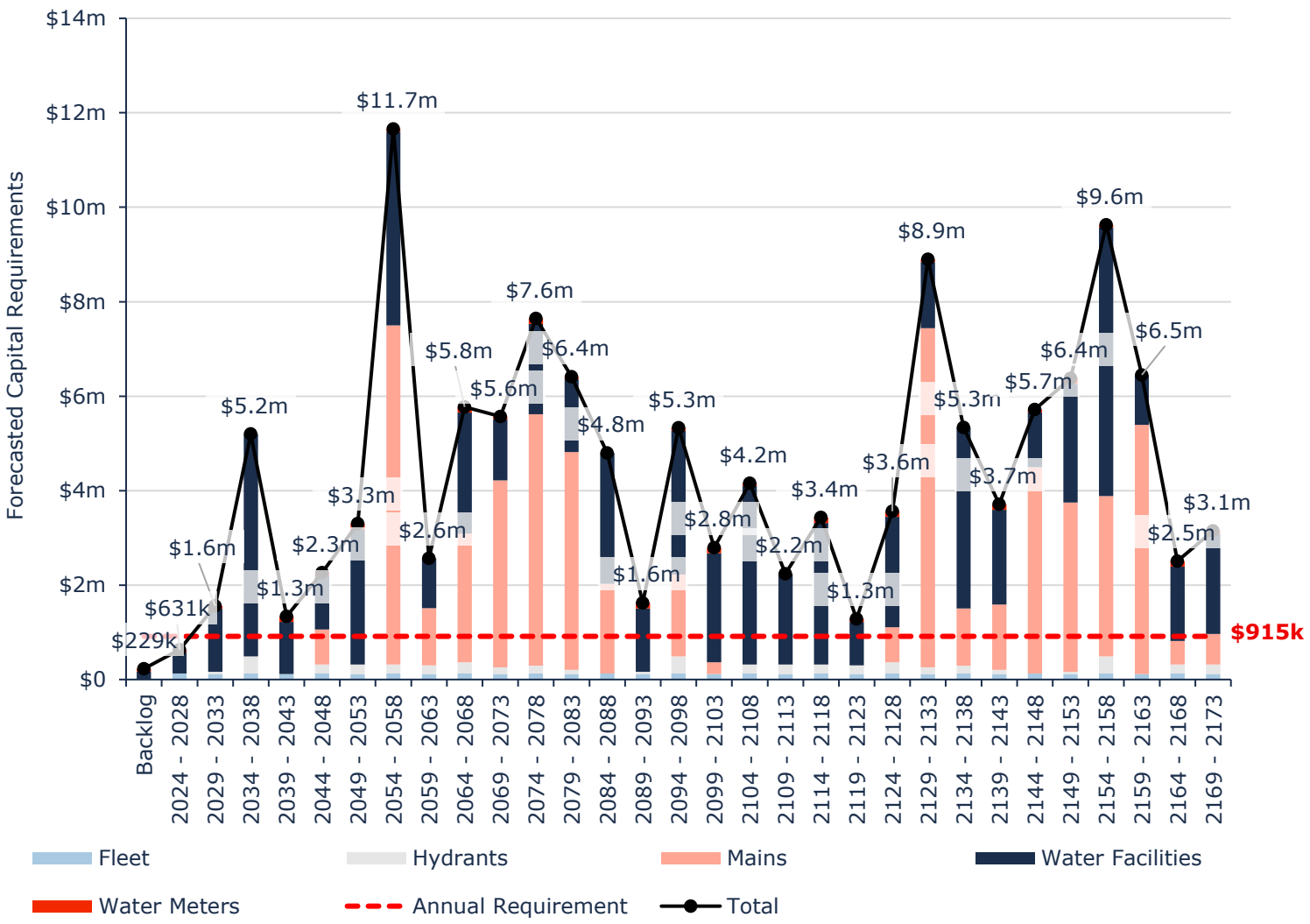


Figure 52 Forecasted Capital Replacement Needs: Water Network: 150-Year Horizon

8.6 Risk Analysis

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

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

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

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$31,044,085 (67%)	$10,062,181 (22%)	$1,972,080 (4%)	$2,391,680 (5%)	$1,200,000 (3%)

Figure 53 Risk Matrix: Water Network

8.7 Levels of Service

The following tables summarize the current levels of service that adheres to the 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 water system	The Rockwood (RWD) Water Supply System is a Class I Water Treatment Subsystem and a Class II Water Distribution Subsystem consisting of four municipal groundwater wells, a booster pumping station/standpipe and distribution system. The system includes two pressure zones. A Supervisory Control and Data Acquisition (SCADA) system monitors and controls the operation of the system. The system provides potable water and fire protection to the entire serviced area of Rockwood. The Hamilton Drive Water Supply System is a Class II Water Distribution and Supply Subsystem consisting of two municipal wells and standpipe reservoir. The system consists of one pressure zone is controlled via a SCADA system. The system provided potable water and fire protection to the Hamilton Drive Hamlet bounded by Victoria Road to the east, Conservation Road to the north, Highway 6 to the west and the Speed River to the south. The Gazer/Mooney Subdivision Distribution System is a Class 1 Distribution Subsystem serving the Promenade Park Hamlet located in the Township of Guelph/Eramosa. It has approximately 72 metered water service connections, 1.5 kilometers of underground watermains, six fire hydrants and an approximate population of 216 residents. All the water for the Gazer/Mooney Subdivision Distribution System is supplied from the Guelph Drinking Water System. All water is treated to provincial standards in the Guelph Drinking Water System and no further treatment chemicals are added to the Gazer/Mooney Subdivision Distribution

Service Attribute	Qualitative Description	Current LOS (2024)
		System. The system is operated by agreement by City of Guelph Water Services.
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow	All areas serviced by the municipal water infrastructure have fire flow.
Reliability	Description of boil water advisories and service interruptions	Boil water advisories are rare. They are triggered by adverse water samples, watermain breaks, massive flooding, or pump/equipment failures. The highest risk system is a small rural area servicing 35 homes. There have been no boil water advisories in the past 2 years.

Table 34 O. Reg. 588/17 Community Levels of Service: Water Network

8.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of properties connected to the municipal water system	98%
	% of properties where fire flow is available	100%
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	0.001
Performance	Target reinvestment rate	1.96%
	Actual reinvestment rate	1.04%

Table 35: O.Reg. 588/17 Technical Levels of Service: Water Network

Non-Core Assets

Buildings & Facilities

Parks & Land Improvements

Fleet

Machinery & Equipment

9. Buildings & Facilities

The Township's buildings portfolio includes fire halls, various administrative and public works facilities, libraries, and recreational facilities. The total current replacement of buildings is estimated at almost $28 million.

9.1 Inventory & Valuation

Table 36 and Figure 54 summarize the quantity and current replacement cost of the Township's various building and facilities assets as managed in its primary asset management register, Citywide. Within the asset management database, buildings and facilities have been componentized through a recent building condition assessment conducted by R.J Burnside & Associates Ltd in October 2024. The quantity listed represents the number of asset records currently available for each department not the total component count.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Administration	1 (76)	Facilities (Assets)	$3,017,000	User-Defined
Fire & Emergency	1 (51)	Facilities (Assets))	$2,447,881	User-Defined
Parks & Recreation	15 (482)	Facilities (Assets)	$20,007,500	User-Defined
Roads	3 (74)	Facilities (Assets)	$2,447,000	User-Defined
TOTAL			**$27,919,381**[8]	

Table 36 Detailed Asset Inventory: Buildings & Facilities

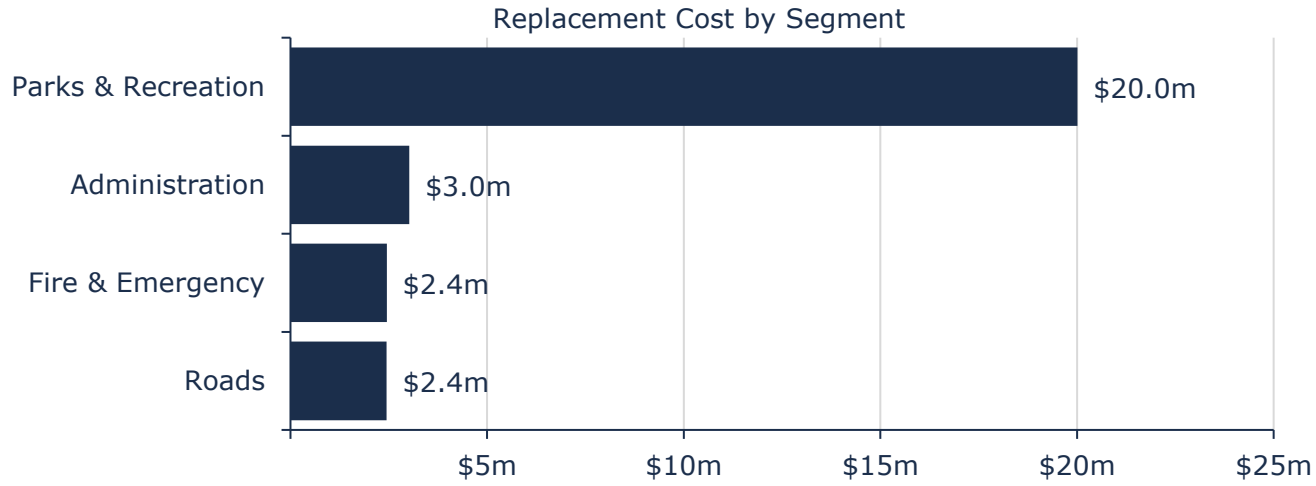


Figure 54 Portfolio Valuation: Buildings & Facilities

[8] The replacement costs presented in the Inventory and Valuation Table for Roads buildings are based on replacements only. They do not reflect costs resulting from changes in the Ontario Building Code. True replacement would require changes to life safety equipment, fire ratings and impact accessibility requirements increasing the actual cost of a similar sized replacement. They are also based on the same size and would not reflect increases in level of service for additional square footage.

9.2 Asset Condition

Figure 55 summarizes the replacement cost-weighted condition of the Township's buildings portfolio. Based on formal assessment carried out in October 2024, 88% of building assets are in fair or better condition; however, the remaining 12% 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. As buildings are componentized, condition data is representative of the overall average condition of each facility which considers each condition value for all components. This method provides a more accurate representation of the condition overall.

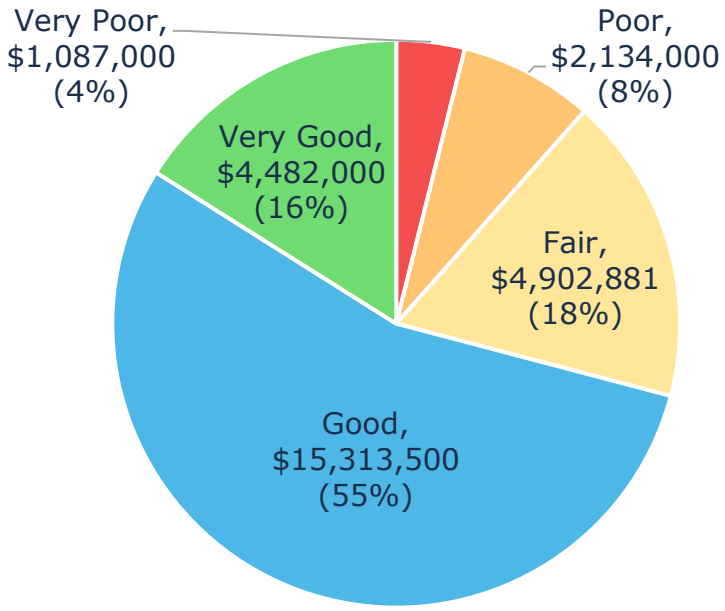
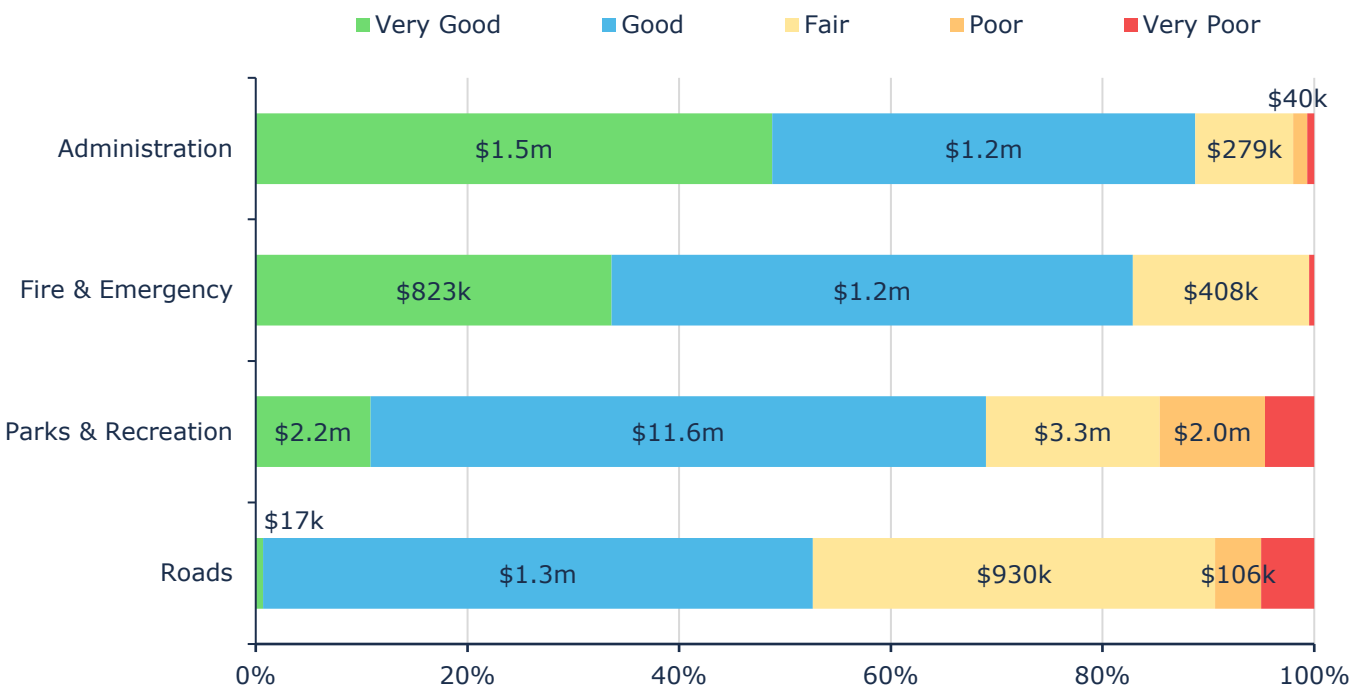


Figure 55 Asset Condition: Buildings & Facilities Overall

Figure 56 summarizes the assessed condition of buildings by each department. Over 10% of Park and Recreation Facilities, and buildings used by Roads departments are in poor or worse conditions. Componentization of assets and integration of condition assessments has provided an accurate and reliable estimation of the condition of various facilities.



Value and Percentage of Asset Segments by Replacement Cost

Figure 56 Asset Condition: Buildings & Facilities by Segment

9.3 Age Profile

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

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

Figure 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.

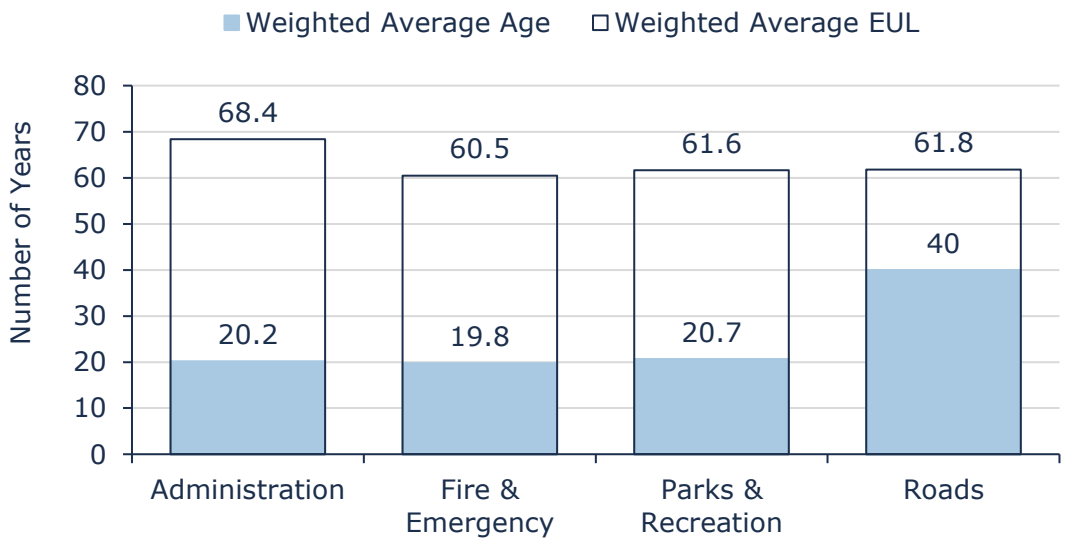


Figure 57 Estimated Useful Life vs. Asset Age: Buildings & Facilities

Age analysis reveals that, on average, most buildings & facility assets are in the earlier stages of their serviceable life.

9.4 Current Approach to Lifecycle Management

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

Table 37 outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	• Maintenance is triggered by internal inspections, complaints, and observed deficiencies during routine operations. • Routine/preventative maintenance is performed on assets such as HVAC systems, elevators, fire prevention systems, and generators at scheduled intervals. • All other maintenance activities are completed on a reactive basis as issues arise.
Rehabilitation/ Replacement	• Rehabilitations such as HVAC, roof, or window replacements are considered based on asset condition, increased maintenance needs, and external assessments. • Asset replacement is primarily driven by the end of useful life, safety concerns, operational inefficiency, or funding availability. • Contingency funds are built into budgets for urgent or emergency replacements.

Activity Type	Description of Current Strategy
Inspections	• External building condition assessments are completed approximately every 10 years, with the most recent conducted in 2024. • Internal inspections are conducted monthly or seasonally by departmental staff, covering safety systems, building components, and general maintenance. • Monthly Health & Safety Committee walkthroughs are also conducted for all facilities.

Table 37 Lifecycle Management Strategy: Buildings & Facilities

9.5 Forecasted Long-Term Replacement Needs

Figure 58 illustrates the cyclical short, medium and long-term infrastructure replacement requirements for the Township's buildings portfolio. This analysis was run until 2113 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $642,000 for all buildings. 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.

Replacement needs are forecasted to remain moderate to significant over the next 50 years, dominated by Parks and Recreation Buildings & Facilities. These projections and estimates are based on current asset records, condition, replacement costs, and recommendations provided in the 2024 building condition assessments. 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.

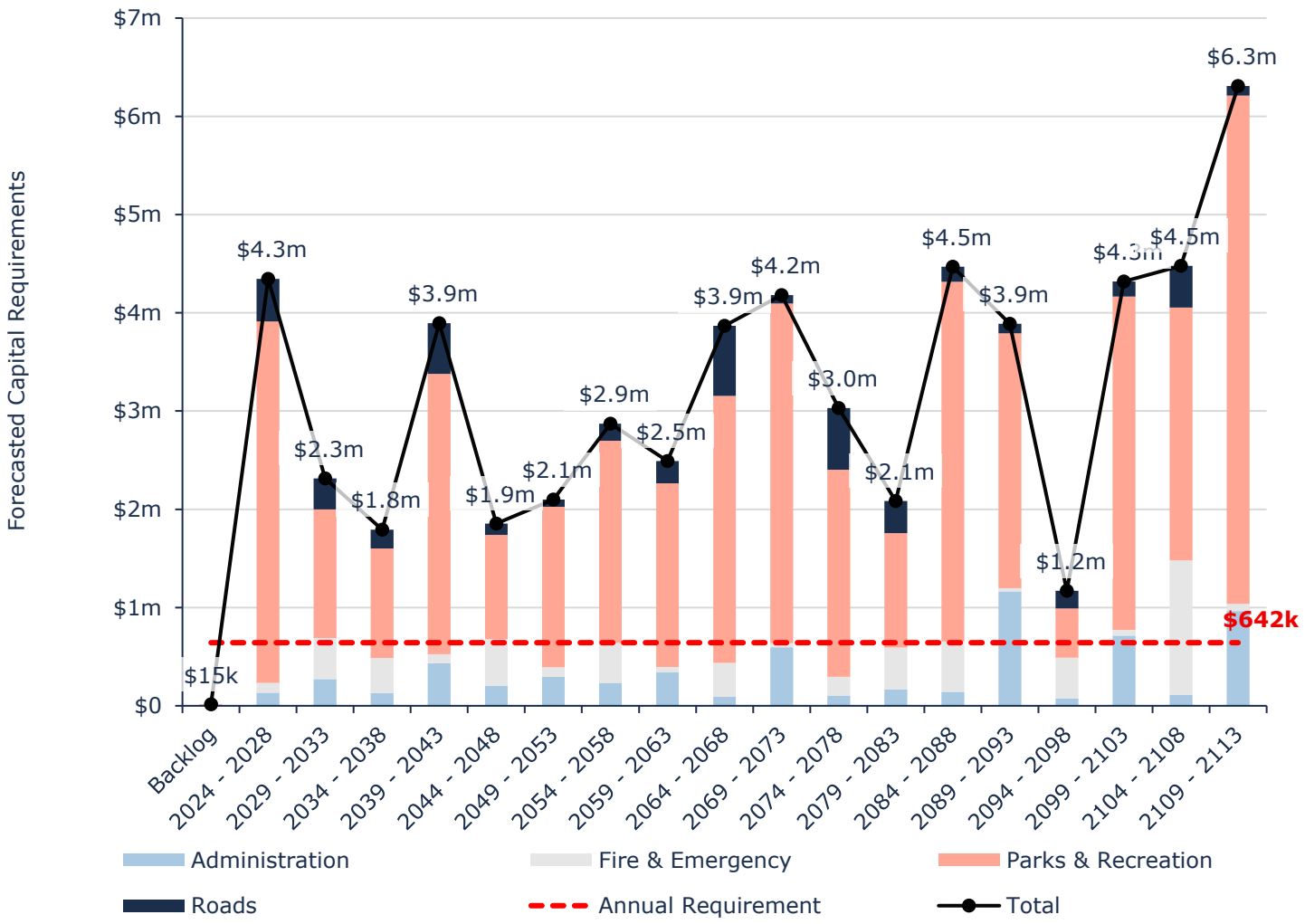


Figure 58 Forecasted Capital Replacement Needs Buildings & Facilities: 90-Year Horizon

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. In the case of buildings and facilities, detailed componentization is necessary to develop reliable lifecycle forecasts that reflect the needs of individual elements and components.

Tables summarizing the projected lifecycle activities (rehabilitation and replacements) that may be undertaken in the next 10 years to support current levels of service 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 service life remaining, replacement costs, condition and building type. The risk ratings for assets

without useful attribute data were calculated using only age, service life remaining, and their replacement costs.

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

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

1 - 4 **Very Low**	5 - 7 **Low**	8 - 9 **Moderate**	10 - 14 **High**	15 - 25 **Very High**
$16,548,381 (59%)	$5,491,000 (20%)	$1,580,000 (6%)	$1,700,000 (6%)	$2,600,000 (9%)

Figure 59 Risk Matrix: Buildings & Facilities

9.7 Levels of Service

The following tables summarize the current levels of service that adheres to the 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 maps of the types of facilities that the municipality operates and maintains	The Township of Guelph/Eramosa has a diverse infrastructure to support its various municipal services, consisting of 20 buildings. Administration, by-law enforcement, and the building department are all supported by a municipal office. Fire services are provided through a single fire hall. The roads division is supported by two garages, which house all the necessary fleet and equipment, as well as a salt storage facility for winter road maintenance. Parks and Recreation services are offered through a range of facilities, including three community centers, one of which is operated by a third party, one recreation center, and one older adult center. Additionally, the parks and recreation department have three leased facilities that are rented out to organizations, one chapel with Rockwood Cemetery along with two

Service Attribute	Qualitative Description	Current LOS (2024)
		garages that store the equipment and fleet for maintaining parks and recreational spaces Location map of the Buildings & Facilities is available in Appendix C
Quality	Describe criteria for rehabilitation and replacement decisions and any related long term forecasts	The municipality utilizes formal BCA (Building Condition Assessment) reports as key reference points to guide long-term planning for asset replacements, as recommended in the reports. These reports are complemented by building inspections conducted by internal staff, which help identify needs for upcoming rehabilitation projects and ensure that repairs are made in a timely manner to maintain high standards for the public and its users. Regular maintenance on all facilities is also carried out to extend their service life. Additionally, project priorities are influenced by the availability of funding opportunities.

Table 38 Community Levels of Service: Buildings & Facilities

9.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	Square feet of indoor recreation facility space per 1,000 residents	5388.5 sqft
Quality	Average facility condition value for facilities in the municipality	71
Affordable	Capital reinvestment rate	0.80%

Table 39 Technical Levels of Service: Buildings & Facilities

10. Parks & Land Improvements

The Township's parks and land improvements portfolio includes parking lots, various sports fields and courts, paths & trails, water play features, park utilities, and park furnishings & fencing. The total current replacement of land improvements is estimated at approximately $15 million.

10.1 Inventory & Valuation

Table 40 and Figure 60 summarize the quantity and current replacement cost of the Township's various parks and land improvement assets as managed in its primary asset management register, Citywide. Sport fields and courts account for the largest share of the land improvements asset group.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Light Standards & Fixtures	3	Assets (pooled)	$598,575	CPI Tables
Park Furnishings & Fencing	18	Assets (pooled)	$491,960	CPI Tables
Park Shelters & Structures	19	Assets	$2,049,094	User-Defined
Park Utilities	9	Assets	$2,393,502	CPI Tables
Parklands, Paths, Trails & Parking Lots	26	Assets	$4,102,717	CPI Tables
Playgrounds, Splashpad & Features	13	Assets	$1,559,434	User-Defined
Sport fields & Courts	20	Assets	$3,583,061	CPI Tables
TOTAL			**$14,778,343**	

Table 40 Detailed Asset Inventory: Parks & Land Improvements

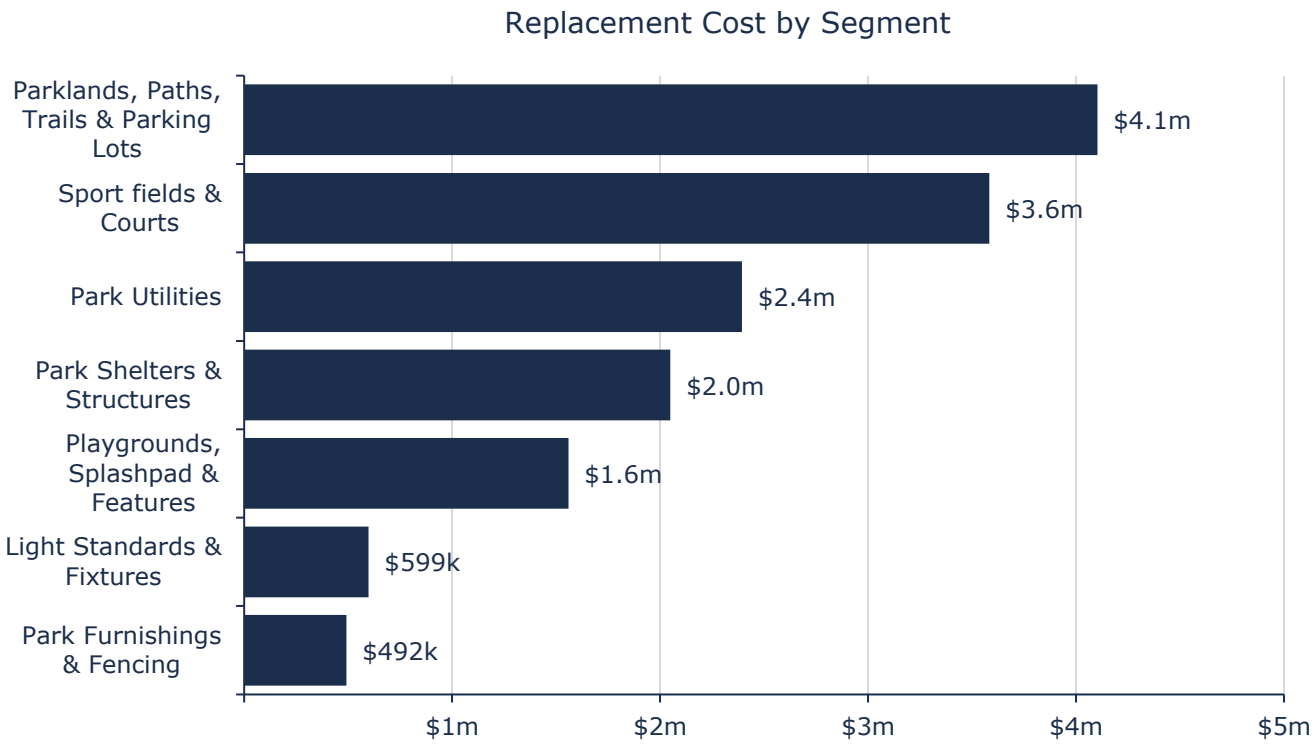


Figure 60 Portfolio Valuation: Parks & Land Improvements

10.2 Asset Condition

Figure 61 summarizes the replacement cost-weighted condition of the Township's parks and land improvement portfolio. Based on a combination of age-based and assessed conditions, 63% of assets are in fair or better condition. As assets deteriorate into poor condition, they 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.

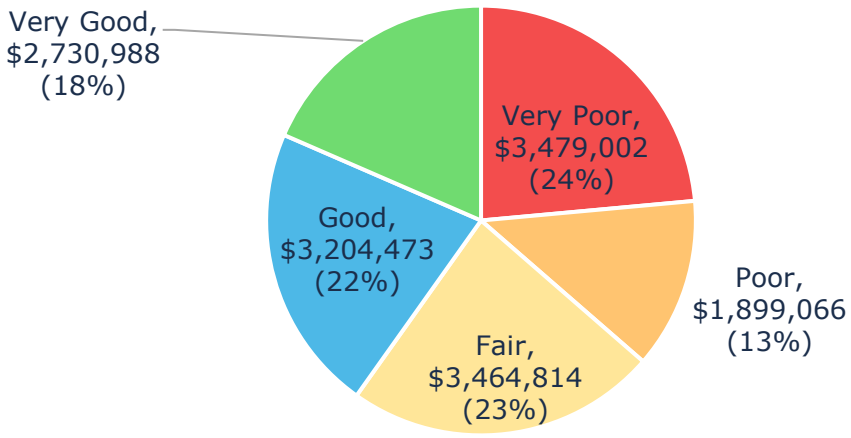


Figure 61 Asset Condition: Parks & Land Improvements Overall

Figure 62 summarizes the condition of parks and land improvement assets by segment. A majority of light standards & fixtures, park furnishings, park utilities, parklands, paths, trails, and parking lots are in fair or better condition. On the contrary, more than 50% of park shelters, structures, playgrounds, splash pads, sport fields and courts are in poor or worse condition.

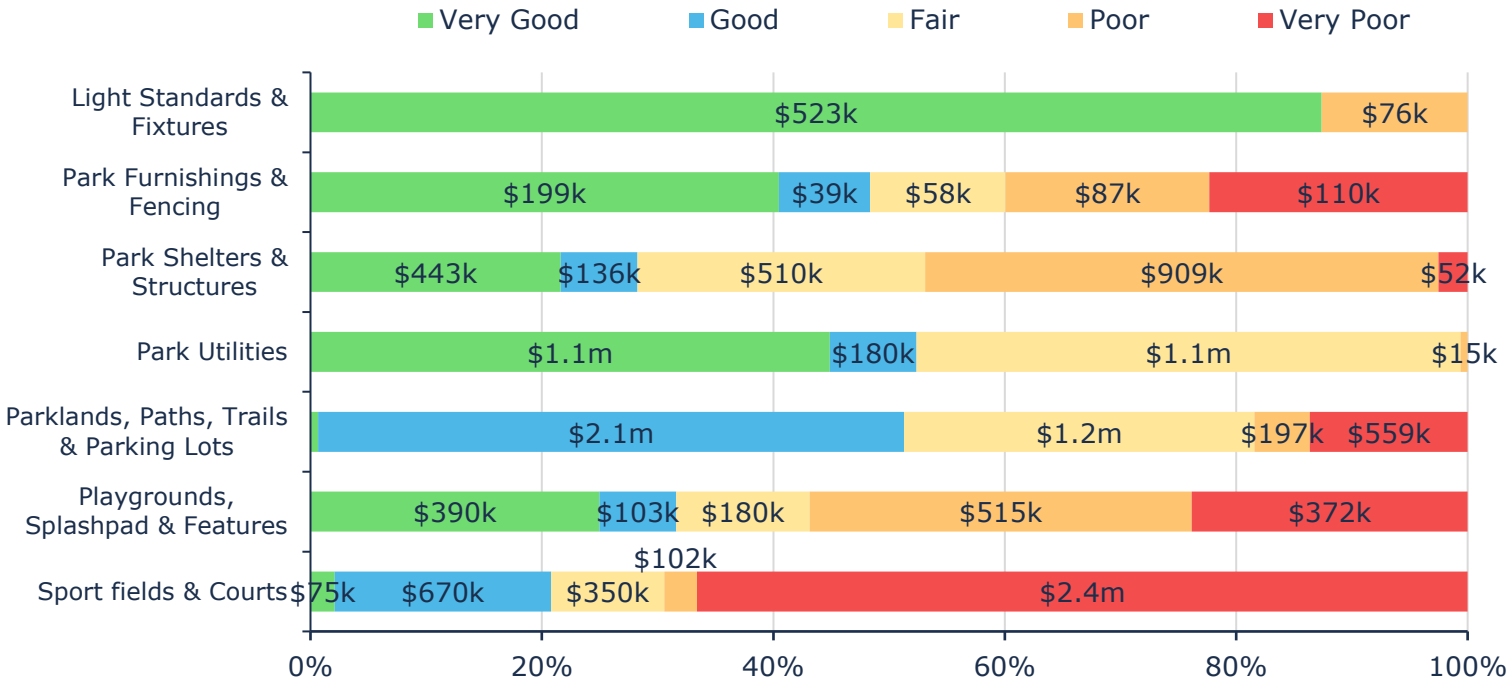


Figure 62 Asset Condition: Parks & Land Improvements by Segment

10.3 Age Profile

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

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

Figure 63 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.

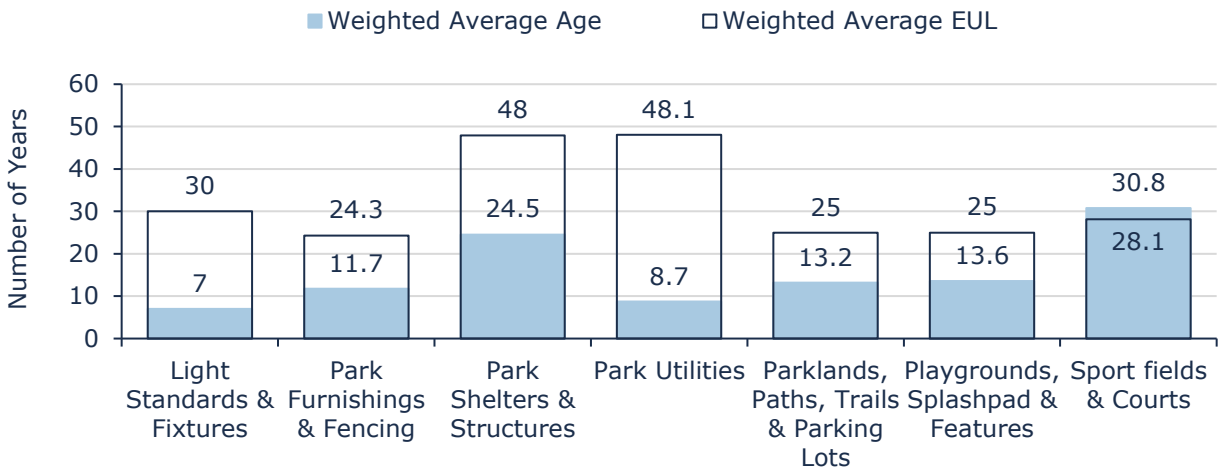


Figure 63 Estimated Useful Life vs. Asset Age: Parks & Land Improvements

Age analysis indicates that the majority of assets are still within the early to mid stages of their expected useful life. The only exception is sports fields and courts, which have, on average, exceeded their estimated useful lives.

10.4 Current Approach to Lifecycle Management

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

The Township commissioned and received a comprehensive Parks & Recreation Master Plan in 2023. The report provides the Township with a detailed policy document that will guide the Townships planning and development of programs and services over the next 10 years.

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

Activity Type	Description of Current Strategy
Maintenance	• Maintenance is triggered by inspections or when safety concerns are reported. Parks staff conduct informal and scheduled inspections depending on the asset and season. • Daily to quarterly checks are performed across various assets including playgrounds, trails, splash pads, and skate parks. • Maintenance tasks include vegetation management, infrastructure cleaning, minor repairs, equipment checks, and seasonal clean-up. • Annual budget is approximately $522,120 including labor.
Rehabilitation / Replacement	• Rehabilitation is performed on an as-needed basis and includes tasks like board replacements on picnic tables, painting infrastructure, and regrading sports fields. These are infrequent

Activity Type	Description of Current Strategy
	• but initiated when determined more cost-effective than replacement. • Replacement is prioritized when assets become unsafe, or maintenance is no longer viable. Criteria include age, frequency of repairs, and user safety. • Budget remains consistent year-to-year, with emergency reserves available.
Inspections	• Inspections are informally conducted by the Parks Manager and staff based on asset type and use. Examples include bi-weekly to monthly playground checks, seasonal sports field inspections, and quarterly trail inspections. • Annual third-party audits are completed for playgrounds, and formal condition assessments are desired but limited by staffing capacity. • A rating scale (Very Good to Very Poor) exists but is not yet formally applied due to resource constraints.

Table 41 Lifecycle Management Strategy: Parks & Land Improvements

10.5 Forecasted Long-Term Replacement Needs

Figure 64 illustrates forecasted capital requirements for parks and land improvements across several asset categories from 2024 through 2108. This analysis was run until 2108 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $517,000 for all 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.

The Capital needs are highly variable by period, with significant peaks in 2074–2078 ($4.6 million) and 2089–2093 ($4.7 million). Major cost drivers in peak years include parklands, paths, trails, parking lots, and sport fields & courts. A notable backlog of $2.7 million also exists. Overall trend suggests periodic spikes in capital demand driven by aging infrastructure. The data underscores the importance of long-term planning and consistent funding to manage lifecycle costs effectively.

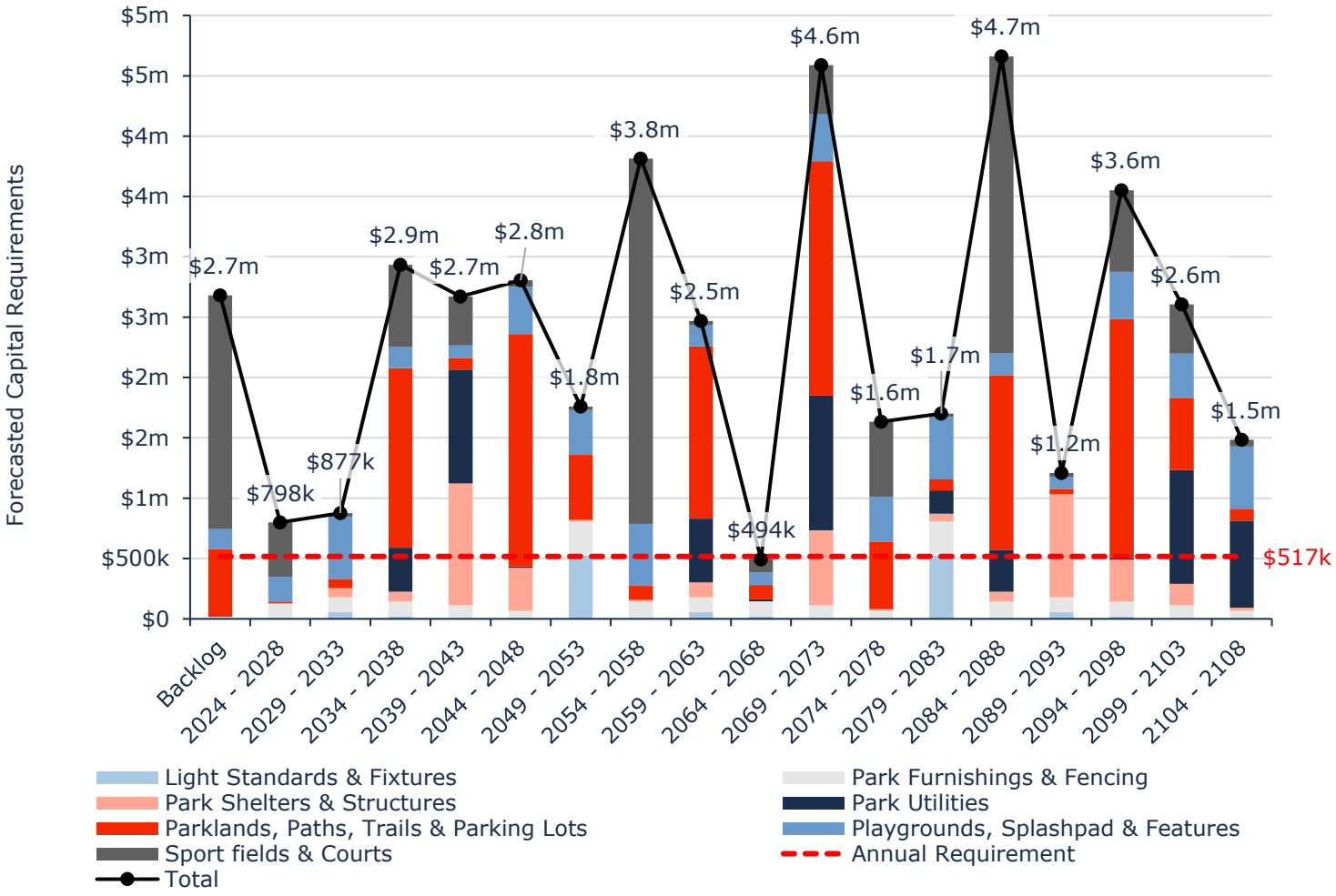


Figure 64 Forecasted Capital Replacement Needs: Parks Land Improvements 2024-2078

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.

Tables summarizing the projected lifecycle activities (rehabilitation and replacements) that may be undertaken in the next 10 years to support current levels of service 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, service-life remaining and replacement costs.

The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets

with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the Township may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

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

1 - 4 Very Low $3,831,794 (26%)	5 - 7 Low $2,633,970 (18%)	8 - 9 Moderate $3,168,075 (21%)	10 - 14 High $2,900,914 (20%)	15 - 25 Very High $2,243,590 (15%)

Figure 65 Risk Matrix: Parks & Land Improvements

10.7 Levels of Service

The following tables summarize the current levels of service that adheres to the Ontario Regulation 588/17, as well as any additional 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, which may include maps of the outdoor recreational facilities that the municipality operates and maintains	The municipality, through its Parks and Recreation Department, offers and maintains a diverse range of parkland, providing both passive and active recreational opportunities for the community. These amenities include outdoor sports fields, courts, ball diamonds, play structures, splash pads, walking trails, covered pavilions, benches, picnic tables, and parking facilities associated with the parks. In addition to these recreational spaces, the Parks and Recreation Department is responsible for the management and operation of two active cemeteries and two non-active cemeteries within the Township. Please refer to Appendix C for photos of Parks & Land Improvement assets.
Quality	Describe criteria for rehabilitation and replacement decisions and any related long-term forecasts	Internal routine inspections and maintenance are conducted regularly on parks, playgrounds, sports fields, trails, structures, parking lots and other related parks assets to assess necessary repairs and assist in forecasting long term upgrade projects. Prior to seasonal assets opening

Service Attribute	Qualitative Description	Current LOS (2024)
		in the spring a thorough inspection is completed to ensure a high standard level is achieved. Third party inspections are completed on all Township owned playgrounds, with deficiencies being repaired in a timely manner. The Parks and Recreation Masterplan, in conjunction with budget allocations and funding opportunities, guides the prioritization of land improvement projects.

Table 42 Community Levels of Service: Parks & Land Improvements

10.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	Hectares of active parkland facility space per 1,000 residents	3.9ha
Quality	Average condition of outdoor recreation facilities and land improvements in the municipality	50%
	% of parks and land improvement assets in fair or better condition	64%
	% of parks and land improvement assets in poor or worse condition	36%
Affordable	Capital reinvestment rate	0.56%

Table 43 Technical Levels of Service: Parks & Land Improvements

11. Fleet

The Township's fleet portfolio includes 47 assets that support a variety of general and essential services, including public works, administration, recreation, and fire services. The total current replacement of fleet assets is estimated at approximately $11.3 million.

11.1 Inventory & Valuation

Table 44 and Figure 66 summarize the quantity and current replacement cost of the Township's various fleet assets as managed in its primary asset management register, Citywide. Fire & Emergency, and Roads departments account for the largest share of the fleet portfolio.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Administration[9]	2	Assets	$90,224	CPI Tables
Fire & Emergency	9	Assets	$6,426,008	User-Defined
Parks & Recreation	18	Assets	$1,235,479	User-Defined
Roads	18	Assets	$3,525,806	User-Defined
TOTAL			**$11,277,517**	

Table 44 Detailed Asset Inventory: Fleet

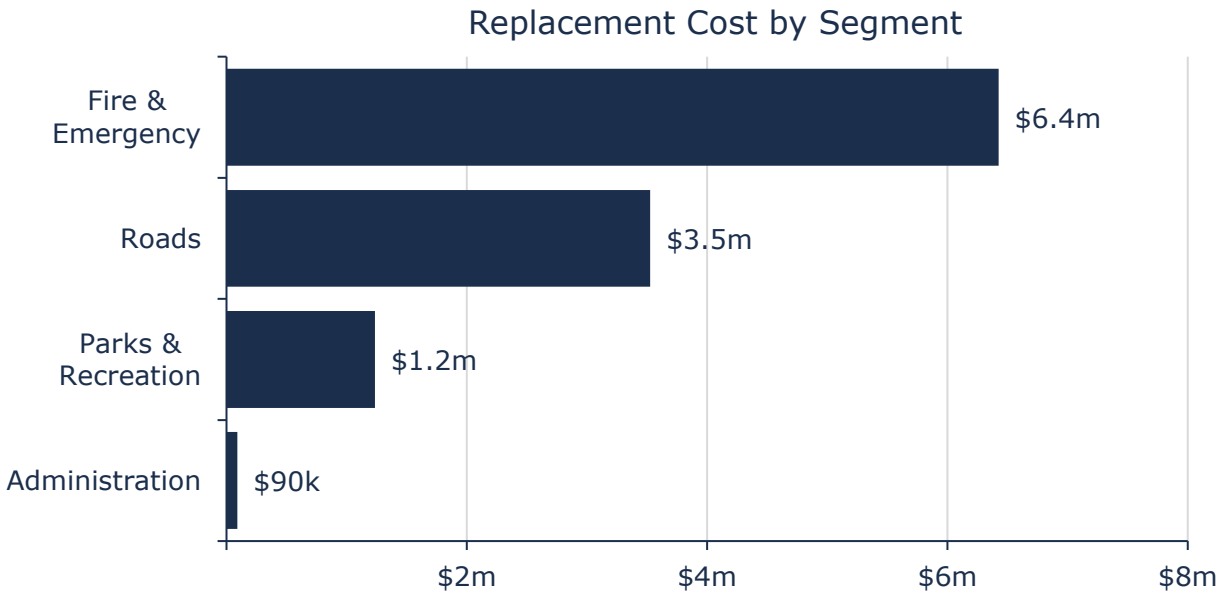


Figure 66 Portfolio Valuation: Fleet

[9] Administration contains assets owned by Buildings & By-Law

11.2 Asset Condition

Figure 67 summarizes the replacement cost-weighted condition of the Township's fleet portfolio. Based on aged-based condition data, 72% of fleet assets are in fair or better condition, with the remaining 28% 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.

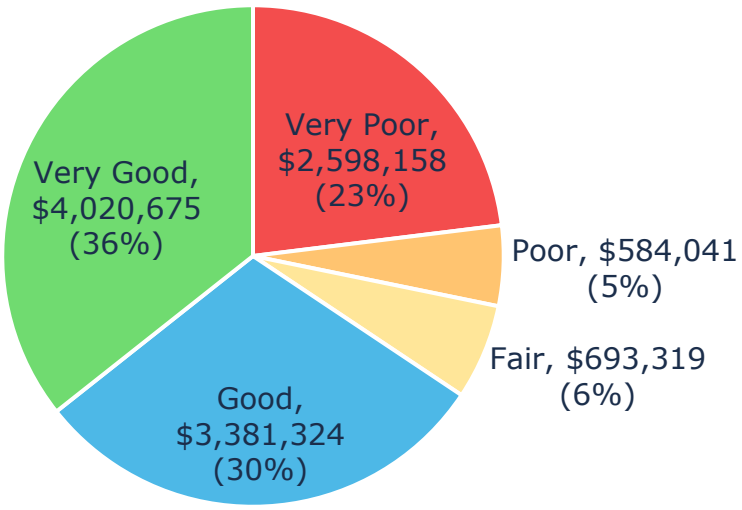


Figure 67 Asset Condition: Fleet Overall

Figure 68 summarizes the condition of fleet assets by department. Approximately 50% of the Parks & Recreation fleet, 20% of the Fire & Emergency Services fleet, and 35% of the Roads fleet are rated in poor or worse condition.

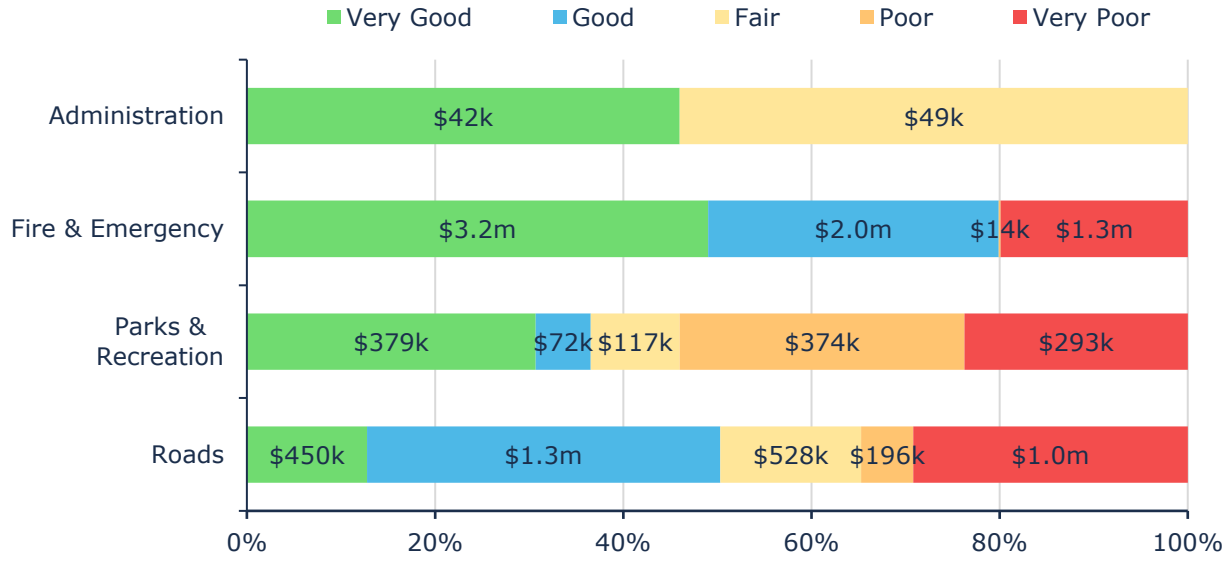


Figure 68 Asset Condition: Fleet by Segment

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 69 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.

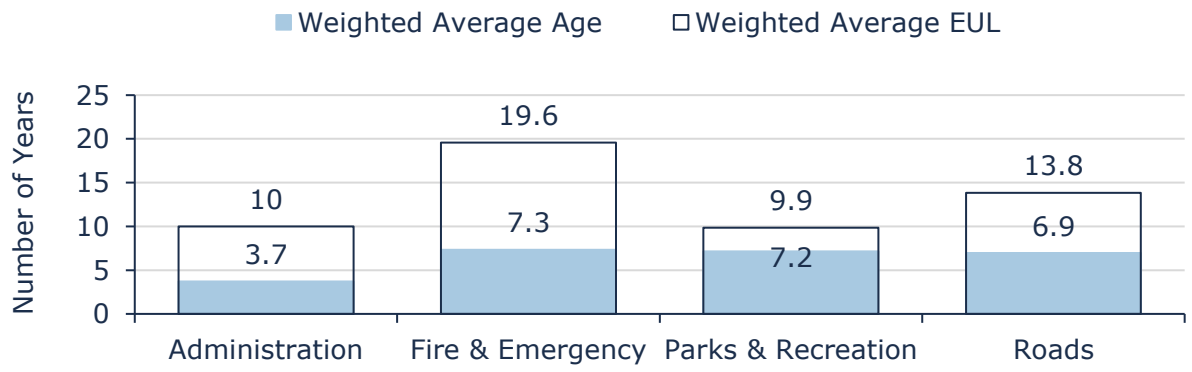


Figure 69 Estimated Useful Life vs. Asset Age: Fleet

Age analysis reveals that, on average, most fleet assets are in moderate stages of their expected life. Fleet assets in fire & emergency are approaching the end of their expected lives.

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.

This lifecycle management summary for fleet assets is informed by the Township of Guelph/Eramosa's Fleet Replacement Policy (Policy No: COR-0114), which outlines the procedures, evaluation criteria, and approval processes for the maintenance, replacement, and lifecycle planning of all municipally owned fleet assets. Furthermore, the Township follow guidelines as prescribed by Ministry of Transportation (MTO) in determining the estimated useful life for fleet assets.

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

Activity Type	Description of Current Strategy
Maintenance	• Oil changes and routine maintenance is completed as per manufacturer recommendations • Ongoing maintenance and repair costs are monitored and factored into lifecycle decisions. Maintenance history helps determine economic serviceability.
Replacement	Replacement is based on: • Age (in-service date) • Usage (km/hours) • Reliability and repair history • Body condition (rust, interior, accident history) • Operational necessity • Safety • Availability of funding. (Assets may be retained beyond expected service life if still cost-effective.)
Inspections	• Fleet condition is regularly reviewed based on age, usage (km/hours), and condition factors (e.g., rust, accident history). • Evaluations are overseen by the applicable department Director and conducted as part of the annual capital budget process.

Table 45 Lifecycle Management Strategy: Fleet

11.5 Forecasted Long-Term Replacement Needs

Figure 70 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's fleet portfolio. This analysis was run until 2048 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $699,000 for all fleet assets. 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.

Replacement needs are forecasted to rise over the next two decades, peaking at $5.1 million between 2039 and 2043 as fleet reach the end of their useful life. 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.

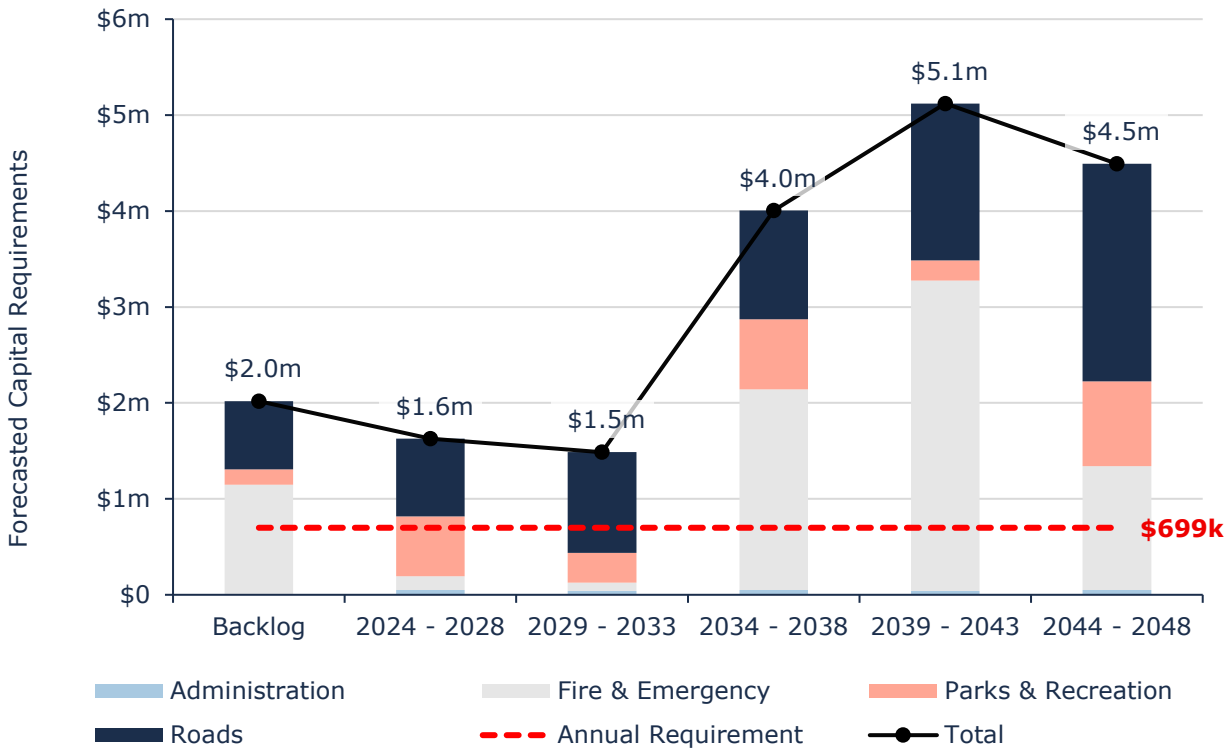


Figure 70 Forecasted Capital Replacement Needs: Fleet: 25-Year Horizon

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.

Tables summarizing the projected lifecycle activities (rehabilitation and replacements) that may be undertaken in the next 10 years to support current levels of service 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, service life remaining, and replacement costs.

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

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

1 - 4 Very Low $2,155,494 (19%)	5 - 7 Low $1,370,069 (12%)	8 - 9 Moderate $3,945,352 (35%)	10 - 14 High $2,706,602 (24%)	15 - 25 Very High $1,100,000 (10%)

Figure 71 Risk Matrix: Fleet

11.7 Levels of Service

The following tables summarize the current levels of service that adheres to the Ontario Regulation 588/17, as well as any additional 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 or images of the types of vehicles that the municipality operates and the services that they help to provide to the community	The fire department's fleet includes water tankers, pumpers, service and rescue trucks, as well as an all-terrain vehicle, ensuring full preparedness for emergency response. The Parks and Recreation department operates a diverse array of vehicles, including a passenger van, light- and medium-duty pickup trucks, a dump truck, mowers, a compact tractor with a loader, a backhoe, and various trailers to support maintenance and operations. The Roads department is equipped with pickup trucks, snowplows with sanders, backhoes, front-end loaders, graders, and trailers, all essential for maintaining safe road conditions and infrastructure, especially during adverse weather. The By-law and Building departments each utilize a passenger vehicle to perform enforcement and building-related duties.
Quality	Describe criteria for rehabilitation and replacement decisions and any related long-term forecasts	Repair activities are initiated when deficiencies are identified through a comprehensive preventative maintenance program, as well as in response to unforeseen breakdowns. Replacements are carefully planned based on in-depth assessments, including the estimated service life of the asset, its condition, and whether it is still economically serviceable. The department head's judgment also plays a crucial role in determining the need for replacement. The estimated useful service life of assets ranges from 8 to 20 years,

Service Attribute	Qualitative Description	Current LOS (2024)
		depending on the asset classification. This classification follows the guidelines set by the Ministry of Transportation and incorporates best practices from surrounding municipalities.

Table 46 Community Levels of Service: Fleet

11.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Quality	Average condition of vehicles	60%
Affordable	Capital reinvestment rate	4.15%

Table 47 Technical Levels of Service: Fleet

12. Machinery & Equipment

The Township's Machinery & Equipment portfolio includes that support a variety of general and essential services, including recreation and fire. The total current replacement of the machinery & equipment assets is estimated at approximately $2.7 million.

12.1 Inventory & Valuation

Table 48 and Figure 72 summarize the quantity and current replacement cost of the Township's various machinery and equipment assets as managed in its primary asset management register, Citywide.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Fire & Emergency	237	Assets	$1,137,002	CPI Tables
Furniture & Fixtures	13	Assets	$186,305	CPI Tables
IT Equipment	91	Assets	$567,871	CPI Tables
Parks & Recreation	89	Assets	$466,019	CPI Tables
Roads	41	Assets	$336,370	CPI Tables
TOTAL			**$2,693,567**	

Table 48 Detailed Asset Inventory: Machinery & Equipment

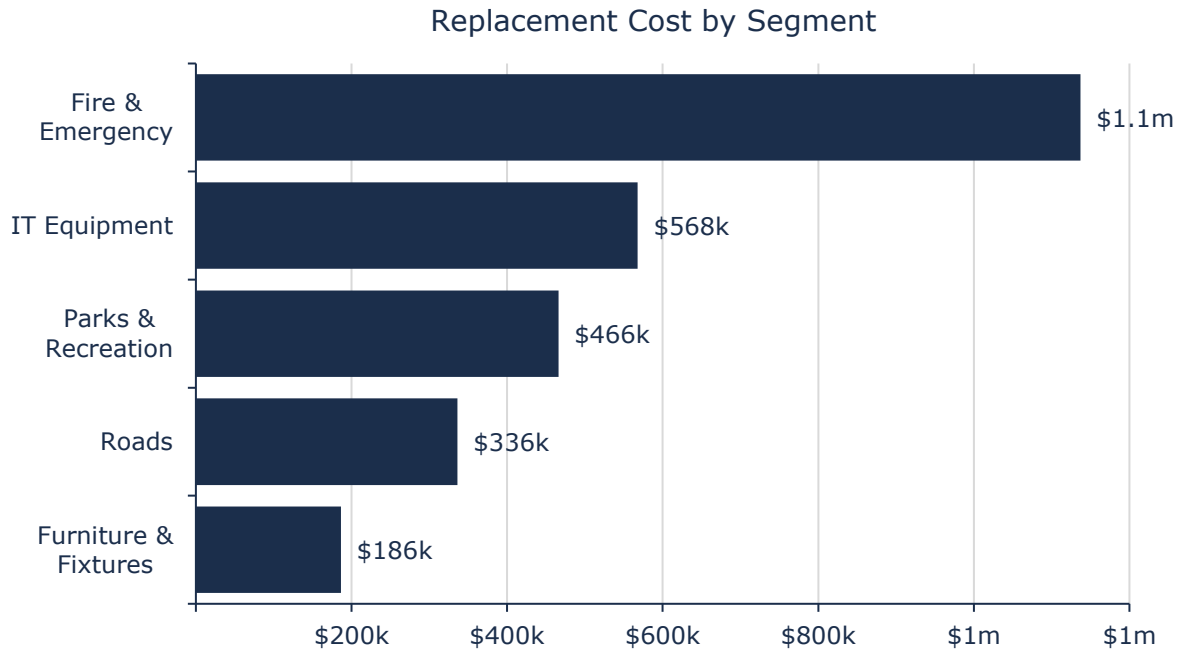


Figure 72 Portfolio Valuation: Machinery & Equipment

12.2 Asset Condition

Figure 73 summarizes the replacement cost-weighted condition of the Township's machinery and equipment portfolio. Based partially on age data and partially on assessed conditions, 37% of assets are in fair or better condition; the remaining 63% 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.

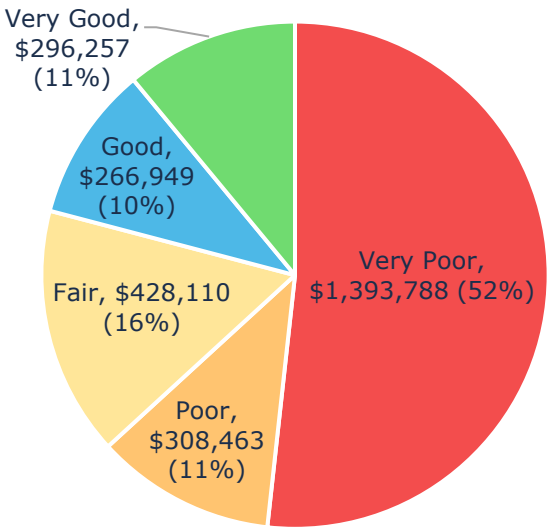


Figure 73 Asset Condition: Machinery & Equipment Overall

Figure 74 summarizes the age-based condition of machinery & equipment by each department. The majority of assets across all departments are in poor or worse condition.

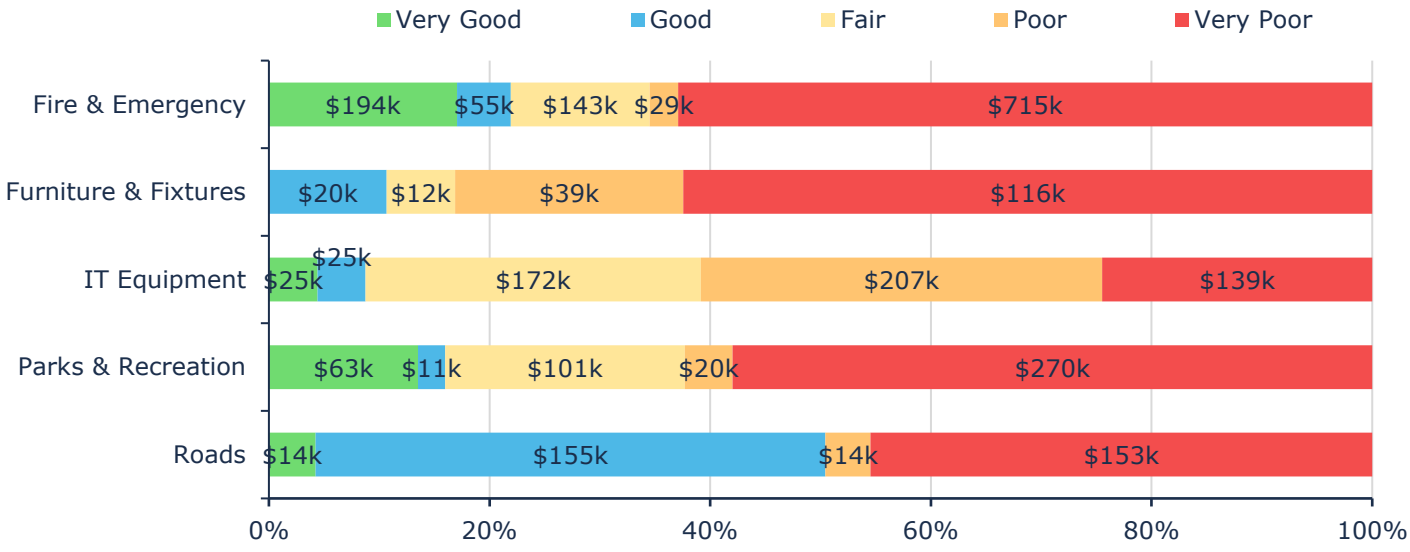


Figure 74 Asset Condition: Machinery & Equipment by Segment

12.3 Age Profile

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

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

Figure 75 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.

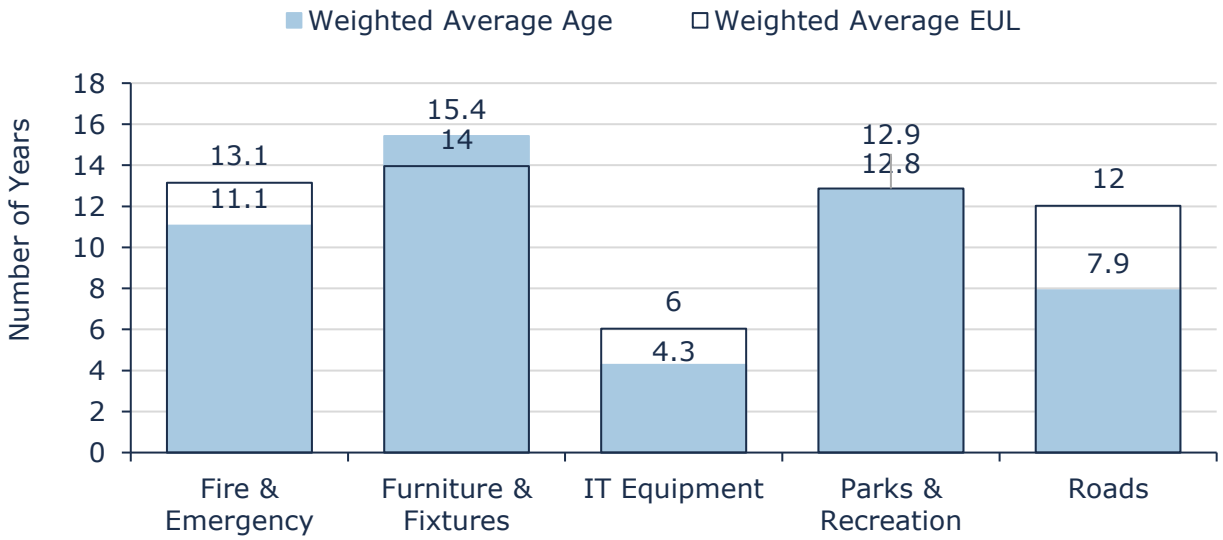


Figure 75 Estimated Useful Life vs. Asset Age: Machinery & Equipment

Age analysis shows that most machinery and equipment assets are, on average, in the later stages of their expected useful life, with Furniture & Fixtures, and Parks & Recreation having already surpassed it.

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 tasks include greasing bearings, oil and filter changes, and replacing worn parts. • Maintenance is performed as needed, triggered by pre-use inspections or breakdowns. • Departments estimate an annual combined maintenance cost of ~$180,000.
Replacement	• No rehabilitation is conducted for machinery and equipment. Assets are either maintained or replaced when they are no longer cost-effective or safe to use. • Replacement is considered when equipment becomes unreliable, inefficient, costly to repair, or non-compliant with safety standards. • Priority is given to equipment critical to operations and public safety. • Replacement planning is informed by staff experience and known equipment lifespans.
Inspections	• There is no formal assessment schedule. • Staff conduct pre-use inspections daily to identify issues. • Equipment requiring legal inspection (e.g., calibrations) is maintained per relevant legislation. • Informal annual reviews are done for small items like trimmers and mowers.

Table 49 Lifecycle Management Strategy: Machinery & Equipment

12.5 Forecasted Long-Term Replacement Needs

Figure 76 illustrates the cyclical short, medium and long-term infrastructure replacement requirements for the Township's machinery and equipment portfolio. This analysis was run until 2043 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $287,000 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.

Replacement needs are forecasted to remain relatively consistent over the next 20-year projection period, peaking at $1.6 million between 2034 and 2038. 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.

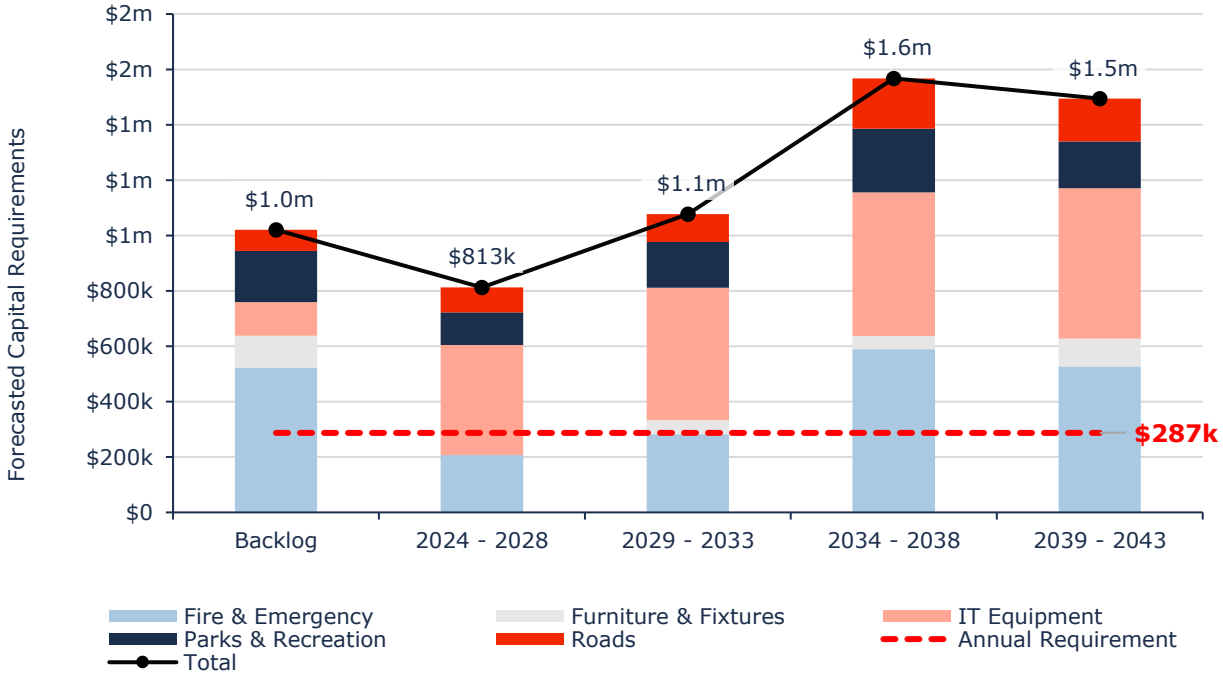


Figure 76 Forecasted Capital Replacement Needs: Machinery & Equipment: 20-Year Horizon

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.

Tables summarizing the projected lifecycle activities (rehabilitation and replacements) that may be undertaken in the next 10 years to support current levels of service 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, and replacement costs.

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

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

1 - 4 **Very Low** $656,356 (24%)	5 - 7 **Low** $755,987 (28%)	8 - 9 **Moderate** $203,434 (8%)	10 - 14 **High** $417,419 (15%)	15 - 25 **Very High** $660,371 (25%)

Figure 77 Risk Matrix: Machinery & Equipment

12.7 Levels of Service

The following tables summarize the current levels of service that adheres to the Ontario Regulation 588/17, as well as any additional 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, which may include images of the types of equipment that the municipality operates and the services that they help to provide to the community	The administration is equipped with a variety of tools to ensure smooth operations, including office furniture, computers, tablets, monitors, software, printers, and audiovisual equipment. The Fire Department is supported by essential gear such as extrication equipment, SCBAs (self-contained breathing apparatus), bunker suits, personal protection equipment, training tools, IT infrastructure, and radio systems. The Parks and Recreation Department relies on equipment like trimmers, push mowers, backpack blowers, chainsaws, sports field line painters, IT software, computers, tablets, printers, and specialized tractor attachments, including aerators, rollers, and slit seeding machines. The Roads Department utilizes radio equipment, plate compactors, mobile tower lights, road marking line painters, pressure washers, chainsaws, trimmers, blowers, and an asphalt hot box trailer to maintain and improve roadways. Bylaw enforcement is supported by IT software, computers, a ticketing system, and personal protective equipment. The Building Department uses IT Software, computers and a permit tracking system for all building related matters.
Quality	Describe criteria for rehabilitation and replacement decision and any related long term forecasts	Replacement and repair activities are proactively planned and executed as deficiencies are identified through a comprehensive in-house preventative maintenance program. Any machinery or equipment that requires inspection or servicing as mandated by legislation is maintained in strict compliance with those regulations. For equipment such as trimmers and backpack blowers, which have a lower financial impact, a life-cycle replacement schedule is followed to ensure they are replaced before significant repairs are necessary.

Table 50 Community Levels of Service: Machinery & Equipment

12.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Quality	Average condition of equipment	30%
Performance	% of machinery & equipment in fair or better condition	37%
	% of machinery & equipment in poor or worse condition	63%
Affordable	Capital reinvestment rate	7.44%

Table 51 Technical Levels of Service: Machinery & Equipment

Strategies

Growth

Financial Strategies

13. Growth

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

13.1.1 Official Plan: Wellington County, July 2024

Wellington County is a diverse community with a population of approximately 89,500 people (as of 2006) spread across an area of more than 1,000 square miles. Located between the Greater Toronto Area and the Kitchener-Waterloo region, the County's mix of small towns, rural landscapes, and the separate City of Guelph in the southern part of the County creates both opportunities and challenges. While these larger urban centers contribute to growth pressures, the County's rich farmland, expansive natural areas, and small urban places make it an attractive area for people and businesses seeking a balance between rural and urban lifestyles.

Wellington County's Official Plan, initially adopted in 1999 and most recently updated in 2024, provides the framework for policy development and physical planning across the County and its local municipalities. The plan sets broad directions for managing growth, land use, and community development within the County over the coming decades.

The growth forecast, developed by Watson and Associates Economists Ltd., projects the distribution of growth over the next 30 years. According to the forecast, 89% of population growth in Wellington County is expected to take place in 12 primary urban centers, with the remainder directed to 2 secondary urban centers, hamlets, and secondary agricultural areas. This forecast will guide all municipalities and government agencies in planning for growth and related infrastructure needs.

As of 2021, the population of Wellington County was approximately 100,800, and it is projected to grow to about 160,000 by 2051, adding approximately 59,000 new residents. The County plans to accommodate this growth through a strategy focused on development patterns that are cost-efficient, environmentally sustainable, compatible with existing uses, and that preserve the region's small-town character and resource lands. Additionally, the County aims to ensure that growth provides access to necessary community services and facilities.

For the Township of Guelph/Eramosa, the Official Plan serves as the primary framework for long-term planning. The Township's vision focuses on the stewardship of its diverse landscape, the protection of its community identity, and the enhancement of its sense of place within the larger context of Wellington County. Table 2 provides growth forecasts for the Township of Guelph/Eramosa, as presented in the official plan.

Category	2021	2051
Population	13,600	14,700
Households	4,650	5,110
Total Employment	6,000	6,800

Table 52: Guelph/Eramosa Growth Forecasts, as presented in the 2024 Official Plan

Wellington County plays a central role in managing the distribution of growth across its local municipalities. The County considers local planning policies, historical and current growth trends, market demand, and the capacity of available land and infrastructure to support future development. By overseeing growth in this coordinated manner, the County aims to create a balanced, sustainable future for its communities.

14. Financial Strategy

14.1 Financial Strategy Overview

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 Guelph/Eramosa 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
3. Use of non-traditional sources of municipal funds:
    a. Reallocated budgets
4. Use of Senior Government Funds:
    a. 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.

14.1.1 Annual Requirements & Capital Funding

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 $7.1 million annually to address capital requirements for the assets included in this AMP.

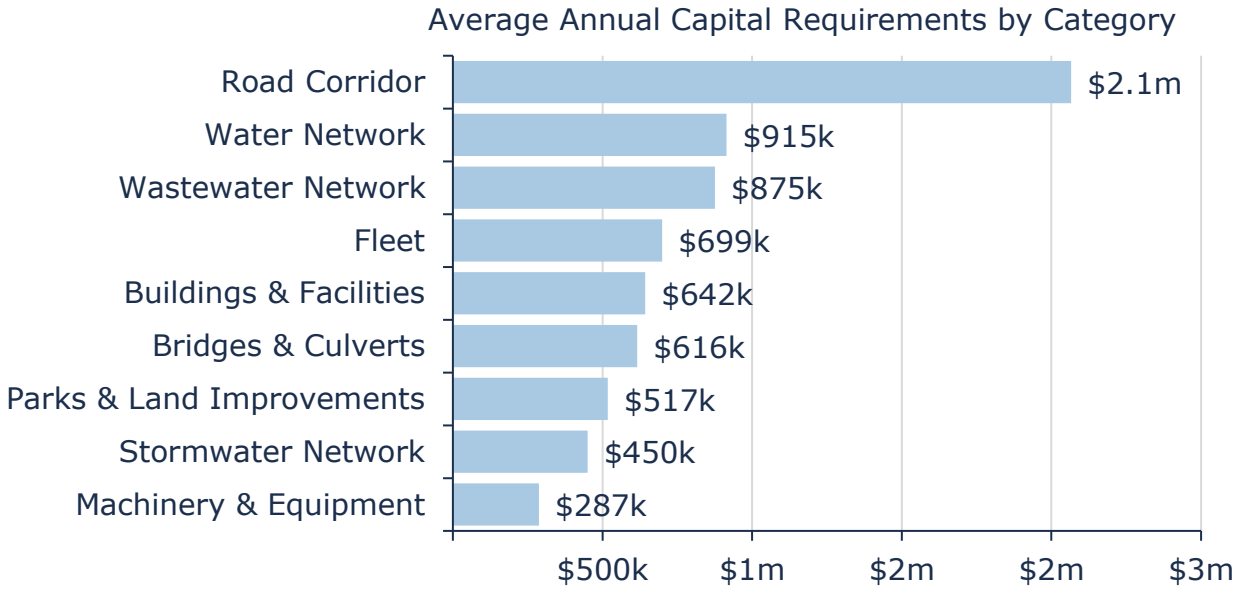


Figure 78 Average Annual Capital Requirements by Asset Category

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 corridor, 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. The following table compares two scenarios for the Road corridor:

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.

Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Road Corridor	$3,723,000	$2,065,000	$1,658,000

Table 53 Replacement Only vs. Lifecycle Strategies Cost Savings

The implementation of a proactive lifecycle strategy for roads leads to potential annual cost avoidance of $1.66 million for the Road Corridor. This represents an overall reduction of the annual requirements by 45%. As the lifecycle strategy scenario represents the lowest cost option available to the Township, we have used these annual requirements in the development of the financial strategy.

Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $4 million towards capital projects per year. Given the annual capital requirement of $7 million, there is currently a funding gap of $3 million annually.

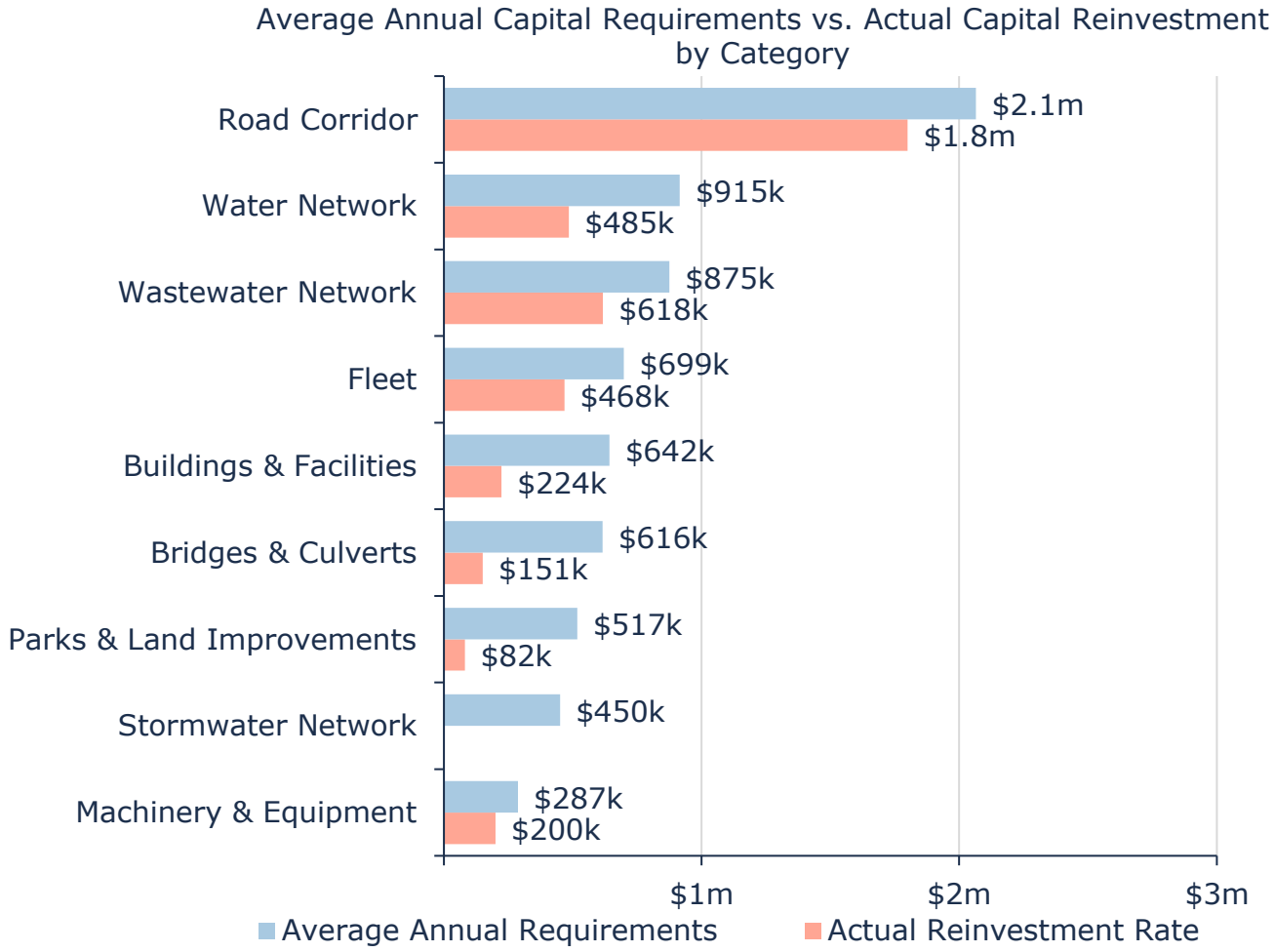


Figure 79 Annual Capital Requirements vs. Available Funding

14.2 Funding Objective

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

1. **Tax Funded Assets:** Road Corridor, Stormwater Network, Bridges & Culverts, Buildings, Machinery & Equipment, Parks & Land Improvements, and Fleet
2. **Rate-Funded Assets:** Water Network, Wastewater Network

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

14.3 Financial Profile: Tax Funded Assets

14.3.1 Current Funding Position

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

Asset Category	Avg. Annual Requirement	Annual Funding Available				Annual Deficit
		Taxes	CCBF	OCIF	Total Available	
Road Corridor	2,065,245	588,417	423,400	788,000	1,799,854	265,391
Bridges & Culverts	615,874	150,667	-	-	150,667	465,207
Stormwater Network	450,460	-	-	-	-	450,460
Buildings & Facilities	642,365	223,743	-	-	223,743	418,622
Parks & Land Improvements	517,381	82,026	-	-	82,026	435,355
Fleet	698,772	467,539	-	-	467,539	231,233
Machinery & Equipment	287,189	200,374	-	-	200,374	86,815
Total	**5,277,286**	**1,712,765**	**423,400**	**788,000**	**2,924,203**	**2,353,083**

Table 54 Annual Funding Available for Tax Funded Assets

The average annual investment requirement for the above categories is $5.28 million. The annual revenue currently allocated to these assets for capital purposes is $2.93 million leaving an annual deficit of $2.35 million. Put differently, these infrastructure categories are currently funded at 55.4% of their long-term requirements.

14.3.2 Full Funding Requirements

In 2024, the Township of Guelph/Eramosa budgeted annual tax revenues of $8.7 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 Corridor	3.0%
Bridges & Culverts	5.3%
Stormwater Network	5.2%
Buildings & Facilities	4.8%
Parks & Land Improvements	5.0%
Fleet	2.6%
Machinery & Equipment	1.0%
Total	**26.9%**

Table 55 Full Funding Tax Increases for Tax Funded Categories

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

a) debt payments for these asset categories will decrease by $16,000 over the next 5 years, $140,000 over the next 10, 15 and 20 years.

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

	Tax Increases Without Capturing Changes			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	2,353,083	2,353,083	2,353,083	2,353,083
Debt Reallocation	-	-	-	-
Resulting Infrastructure Deficit:	**2,353,083**	**2,353,083**	**2,353,083**	**2,353,083**
Tax Increase Required	26.9%	26.9%	26.9%	26.9%
Annually:	**4.9%**	**2.5%**	**1.7%**	**1.2%**

Table 56 Annual Tax Increase Requirements without Debt Reallocation

	Tax Increases With Capturing Changes			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	2,353,083	2,353,083	2,353,083	2,353,083
Debt Reallocation	**-16,369**	**-139,757**	**-139,757**	**-139,757**
Resulting Infrastructure Deficit:	**2,336,715**	**2,213,326**	**2,213,326**	**2,213,326**
Tax Increase Required	26.8%	25.3%	25.3%	25.3%
Annually:	**4.9%**	**2.3%**	**1.6%**	**1.1%**

Table 57 Annual Tax Increase Requirements with Debt Reallocation

14.3.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 15-year option. This involves full funding being achieved over 15 years by:

a) when realized, reallocating the debt cost reductions of $140,000 to the infrastructure deficit as outlined above.
b) increasing tax revenues by 1.6% each year for the next 15 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
c) allocating the current CCBF and OCIF contributions revenue as outlined previously.
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[10].
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 15 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available.

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.

[10] 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.

14.4 Financial Profile: Rate Funded Assets

14.4.1 Current Funding Position

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

Asset Category	Avg. Annual Req.	Annual Funding Available					Annual Deficit
		Rates	To Ops	CCBF	OCIF	Total	
Water Network	914,636	1,573,210	-1,087,971	-	-	485,239	429,397
Wastewater Network	875,334	1,600,963	-983,439	-	-	617,524	257,810
Total	**1,789,970**	**3,174,172**	**-2,071,410**	-	-	**1,102,763**	**687,207**

Table 58 Annual Funding Available for Rate Funded Assets

The average annual investment requirement for the above categories is $1.8 million. Annual revenue currently allocated to these assets for capital purposes is $1.1 million leaving an annual deficit of $687 thousand. Put differently, these infrastructure categories are currently funded at 62% of their long-term requirements.

14.4.2 Full Funding Requirements

In 2024, Guelph/Eramosa budgeted annual water revenues of $1.57 million and annual wastewater revenues of $1.6 million. As illustrated in the table below, without consideration of any other sources of revenue, full funding would require the following changes over time:

Asset Category	Rate Change Required for Full Funding
Water Network	27.3%
Wastewater Network	16.1%

Table 59 Full Funding Rate Increases for Rate Funded Categories

In the following tables, we have expanded the above scenario to present multiple options to phase in the increase required. These options are presented in 5 year intervals.

	Water Network Rate Increases			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	429,397	429,397	429,397	429,397
Debt Reallocation	**-**	**-39,123**	**-43,128**	**-43,128**
Resulting Infrastructure Deficit:	**429,397**	**390,724**	**386,269**	**386,269**
Rate Increase Required	27.3%	24.8%	24.6%	24.6%
Annually:	**5.0%**	**2.3%**	**1.5%**	**1.2%**

Table 60 Annual Rate Increase Requirements: Water Network

	Wastewater Network Rate Increases			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	257,810	257,810	257,810	257,810
Debt Reallocation	-	-	-	-
Resulting Infrastructure Deficit:	**257,810**	**257,810**	**257,810**	**257,810**
Rate Increase Required	16.1%	16.1%	16.1%	16.1%
Annually:	**3.1%**	**1.6%**	**1.1%**	**0.8%**

Table 61 Annual Rate Increase Requirements: Wastewater Network

14.4.3 Financial Strategy Recommendations

Considering all of the above information, we recommend the 15-year option that includes debt cost reallocations. This involves full funding being achieved over 15 years by:

a) when realized, reallocating the debt cost reductions of $43,000 for water services to the applicable infrastructure deficit. This reduces the overall rate increase requirement by 2.7%.
b) increasing rate revenues by 1.5% for water services and 1.1% for sanitary services each year for the next 15 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
c) 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. 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.

Although this option achieves full funding on an annual basis in 15 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available.

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.

14.5 Use of Debt

The following tables outline how the Township of Guelph/Eramosa has historically used debt for investing in the asset categories as listed. There is currently a $1.3 million debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of $183,000, well within its provincially prescribed maximum of $3.2 million.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2019	2020	2021	2022	2023
Road Corridor	-	-	-	-	-	-
Bridges & Culverts	-	-	-	-	-	-
Stormwater Network	-	-	-	-	-	-
Buildings & Facilities	167,200	-	-	-	192,920	-
Parks & Land Improvements	-	-	-	-	-	-
Fleet	742,500	-	-	-	825,000	-
Machinery & Equipment	-	-	-	-	-	-
Total Tax Funded:	**909,700**	-	-	-	**1,017,920**	-
Water Network	392,160	-	-	-	435,285	-
Wastewater Network	-	-	-	-	-	-
Total Rate Funded:	**1,301,856**	-	-	-	**1,453,200**	-

Table 62 Use of Debt 2019-2023

Beyond 2034, Guelph/Eramosa does not have any scheduled debt payments. The longest outstanding debt will be fully repaid by 2033 as outlined in Table 63 below. The revenue options outlined in this plan allow Guelph/Eramosa to fully fund its long-term infrastructure requirements without further use of debt.

Asset Category	Summary of Principal & Interest Payments									
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Road Corridor	-	-	-	-	-	-	-	-	-	-
Bridges & Culverts	-	-	-	-	-	-	-	-	-	-
Stormwater Network	-	-	-	-	-	-	-	-	-	-
Buildings & Facilities	29,250	28,695	28,129	27,565	27,008	26,428	13,003	-	-	-
Parks & Land Improvements	-	-	-	-	-	-	-	-	-	-
Fleet	107,498	104,858	102,094	99,268	96,381	93,411	93,358	87,244	87,008	-
Machinery & Equipment	-	-	-	-	-	-	-	-	-	-
Total Tax Funded:	**136,748**	**133,553**	**130,223**	**126,833**	**123,389**	**119,839**	**103,361**	**90,358**	**87,243**	**-**
Water Network	43,128	43,128	43,128	43,128	43,128	43,128	43,128	43,128	43,128	4,005
Wastewater Network	-	-	-	-	-	-	-	-	-	-
Total Rate Funded:	**43,128**	**43,128**	**43,128**	**43,128**	**43,128**	**43,128**	**43,128**	**43,128**	**43,128**	**4,005**

Table 63 Summary of Principal and Interest Payments

14.6 Use of Reserves and Reserve Funds

14.6.1 Available Reserves and Reserve Funds

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

Table 64 below outlines the details of the reserve and reserve funds currently available to Guelph/Eramosa.

Reserve and Reserve Funds	Balance at December 31, 2023
General Administration	$450,023.00
Protection to Person and Property	$691,267.00
Transportation Services	$1,795,264.00
Environmental Service	$5,076,883.00
Park and Recreation	$779,670.00
Economic Development	$144,005.00
Heritage	$3,000.00
Reserve - Working Fund	$877,665.00
Reserve Fund-Rockwood Hydro Fund	$851,875.00
Reserve Fund - COVID Recovery/Safe Restart	$129,842.00
Reserve Fund - Modernization Grant	$397,765.00
Reserve Fund - Dolime	$1,731,742.00
Total Reserve and Reserve Funds Balance:	**$12,929,361.00**

Table 64 Reserves and Reserve Funds

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 the Townships' 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.

14.6.2 Recommendation

In 2025, Ontario Regulation 588/17 will require the Township 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.

15. Recommendations & Key Considerations

15.1 Financial Strategies

- Review the feasibility of adopting a full-funding scenario to achieve 100% of the average annual funding requirement for all asset categories. This includes:
    - Increasing taxes by 1.6% per year over a period of 15 years.
    - Increasing wastewater rates by 1.1% per year over a period of 15 years; and
    - Increasing water rates by 1.5% per year over a period of 15 years; and making necessary adjustments based on future rate studies and recommended changes.
- Continue allocating OCIF and CCBF funding according to existing strategies, including support for capital replacement of core infrastructure like roads, bridges, and stormwater assets.
- Consider revenue reallocation from categories in surplus to those in deficit where applicable.
- Apply inflation adjustments annually to infrastructure budgets using relevant indices, including construction-specific inflation rates, to maintain purchasing power and address any infrastructure funding deficits.
- Pursue project-specific grants proactively, especially for significant infrastructure upgrades (e.g., bridge rehabilitation/replacement), to reduce the reliance on local funding sources.
- Revisit the Capital Funding Template (CFT) to ensure it reflects actual allocation figures. Develop and review current procedures and ensure there are policies in place to maintain and secure future reserve allocations.

15.2 Asset Data

- Address persistent data gaps in the asset inventory that have been discovered through this review.
    - Review and adjust quantities where needed, and especially within pooled assets to reflect actual quantities or consider segmenting the asset. (i.e. water meters, light standards and fixtures).
    - Review units of measure and ensure alignment with current costing methods.
        - For example, track height and area for retaining walls instead of just using meters as a preferred unit of measure.
- Address discrepancies in existing condition data, especially where recorded condition values do not align with field assessments or recent inspection results. Flag these discrepancies for further review and correction in future AMP updates. (i.e. recording inspection results within database for fleet, machinery & equipment, etc.)
- Continuously refine lifecycle strategies and risk profiles, particularly in areas where inventory or classifications have been recently updated or are under refinement (e.g., guiderails, retaining walls, catch basins, water meters, fleet). This includes

validating the timing, cost, and effectiveness of treatments as more field data becomes available.

- Update replacement costs regularly, especially for high-value or complex assets such as buildings, bridges, and road shops. Notably:
    - Use realistic unit costs based on recent projects (e.g., $250/sq.ft for buildings).
    - For buildings, historical estimates may be undervalued due to changes in building code requirements (e.g., ventilation, fire safety, energy performance standards).
- Periodically review and update estimated useful life (EUL) values, particularly for underground infrastructure such as water, stormwater and wastewater systems. Refining EUL based on pipe material, diameter, and historical performance will help improve asset maturity assessments.
- Conduct CCTV inspections for underground utility infrastructure, particularly water, storm and wastewater, to support more accurate condition ratings and risk assessments. This data can directly inform lifecycle strategies, rehabilitation priorities, and capital planning.
- Conduct in-house inspections for non-core assets and record these within the database, particularly for Parks & Land Improvements, Fleet, and Machinery & Equipment.

15.3 Risk & Levels of Service

- Continue refining risk models and matrices to better prioritize capital planning and identify high-priority assets. Use OSIM data for bridges & culverts and integrate asset specific risk where condition data is available.
- Centralize and monitor performance data, for both core and non-core assets. This will support the calibration of proposed levels of service ahead of O. Reg. 588/17's 2025 requirement.
- Support staff with standardized LOS templates to confirm current levels and define future service targets for both core and non-core asset categories. Community and technical LOS work is ongoing and should be formally documented.
- Monitor environmental and demographic trends, including extreme weather events and population growth, that could affect service delivery expectations. Consider how these might influence lifecycle strategies, especially for unpaved roads, storm infrastructure, and parks.
- Clarify lifecycle strategies for certain assets:
    - Unpaved roads: consider reporting as perpetual maintenance, not scheduled for replacement.

Appendices

Appendix A – Infrastructure Report Card

Appendix B – 10-Year Capital Requirements

Appendix C – Level of Service Images

Appendix D – Risk Rating Criteria

Appendix A – Infrastructure Report Card

The infrastructure report card summarizes the replacement cost, condition and financial requirements for each of the asset categories included within this report.

Asset Category	Replacement Cost	Asset Condition	Financial Capacity	
Road Corridor	**$77,989,962**	**66%**	Annual Requirement:	$2,065,245
			Funding Available:	$1,799,854
			Annual Deficit:	**$265,391**
Bridges & Culverts	**$43,157,000**	**71%**	Annual Requirement:	$615,874
			Funding Available:	$150,667
			Annual Deficit:	**$465,207**
Water Network	**$46,670,026**	**83%**	Annual Requirement:	$914,636
			Funding Available:	$485,239
			Annual Deficit:	**$429,397**
Wastewater Network	**$45,520,106**	**82%**	Annual Requirement:	$875,334
			Funding Available:	$617,524
			Annual Deficit:	**$257,810**
Storm Water Network	**$30,696,448**	**70%**	Annual Requirement:	$450,460
			Funding Available:	$0
			Annual Deficit:	**$450,460**
Buildings & Facilities	**$27,919,381**	**71%**	Annual Requirement:	$642,365
			Funding Available:	$223,743
			Annual Deficit:	**$418,622**
Parks & Land Improvements	**$14,778,343**	**50%**	Annual Requirement:	$517,381
			Funding Available:	$82,026
			Annual Deficit:	**$435,355**
Fleet	**$11,277,517**	**57%**	Annual Requirement:	698,772
			Funding Available:	467,539
			Annual Deficit:	**$231,233**
Machinery & Equipment	**$2,693,567**	**30%**	Annual Requirement:	287,189
			Funding Available:	200,374
			Annual Deficit:	**$86,815**
Overall	**$300,702,350**	**72%**	Annual Requirement:	$7,067,256
			Funding Available:	$4,026,966
			Annual Deficit:	**$3,040,290**

Appendix B – 10-Year Capital Requirements

The tables below summarize the projected cost of lifecycle activities (rehabilitation and replacements) that may be undertaken over the next 10 years to support current levels of service.

These projections are generated in Citywide and rely on the data available in the asset register. Assessed condition data and replacement costs were used to assist in forecasting replacement needs for roads. For all remaining assets, only age was used to determine forthcoming replacement needs.

The projections can be different from actual capital forecasts. Consistent data updates, particularly condition, replacement costs, and regular upkeep of lifecycle models, will improve the alignment between the system generated expenditure requirements, and the Township's capital expenditure forecasts.

Road Corridor

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Guiderails	-	-	-	-	-	-	-	-	-	-	-
Retaining Walls	-	-	-	-	-	-	-	-	-	-	-
Rural Roads	-	$5.4m	$762k	$406k	$607k	$450k	$424k	$1.1m	$422k	$1.4m	$715k
Semi-Urban Roads	-	$728k	$194k	$373k	$34k	$204k	$57k	$54k	$96k	$22k	$43k
Sidewalks	$424k	$15k	$284k	-	-	$43k	$55k	-	$14k	$160k	$36k
Signs	-	$41k	$10k	-	-	$26k	$10k	$20k	$15k	$30k	$12k
Streetlight Fixtures	$29k	$9k	$26k	$9k	$11k	$15k	$9k	$9k	$9k	$19k	$10k
Streetlight Poles	-	-	-	-	-	-	-	-	-	-	-
Unpaved Roads	-	-	-	-	-	-	-	-	-	-	-
Urban Roads	-	$532k	$137k	$51k	$109k	$20k	$32k	$343k	$71k	$331k	$76k
Total	**$453k**	**$6.8m**	**$1.4m**	**$839k**	**$761k**	**$757k**	**$586k**	**$1.5m**	**$626k**	**$2.0m**	**$891k**

Table 65 System Generated 10-Year Capital Replacement Forecast: Road Corridor

Bridges & Culverts

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bridges	-	-	$1.6m	-	-	-	-	-	-	-	-
Structural Culverts	-	-	-	-	$1.2m	-	$613k	-	-	-	-
Total	-	-	**$1.6m**	**-**	**$1.2m**	**-**	**$613k**	-	-	-	-

Table 66 System Generated 10-Year Capital Replacement Forecast: Bridges & Culverts

Water Network

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Fleet	-	-	-	$68k	-	$61k	-	$72k	-	$46k	-
Hydrants	-	-	-	-	-	-	$40k	-	-	-	$8k
Mains	$169k	-	$3k	$127k	$313k	-	$567k	$340k	-	$101k	$325k
Water Facilities	$60k	$12k	$12k	$12k	$12k	$12k	$12k	$12k	$12k	$12k	$12k
Water Meters	$229k	$12k	$15k	$207k	$325k	$72k	$618k	$424k	$12k	$158k	$345k
Total	**$457k**	**$24k**	**$29k**	**$414k**	**$650k**	**$145k**	**$1.2m**	**$848k**	**$23k**	**$316k**	**$689k**

Table 67 System Generated 10-Year Capital Replacement Forecast: Water Network

Wastewater Network

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Fleet	-	-	-	-	$115k	-	-	-	-	$115k	$82k
Force Mains	-	-	-	-	-	-	-	-	-	-	-
Mains	-	-	-	-	-	-	-	-	-	-	-
Maintenance Holes	-	-	-	-	-	-	-	-	-	-	-
Wastewater Facilities	-	-	$14k	$131k	$17k	$49k	$379k	$145k	$10k	$468k	$21k
Total	**-**	**-**	**$14k**	**$131k**	**$132k**	**$49k**	**$379k**	**$145k**	**$10k**	**$583k**	**$103k**

Table 68 System Generated 10-Year Capital Replacement Forecast: Wastewater Network

Stormwater Network

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Catch Basins											
Mains	-	$16k	-	-	-	-	$7k	-	-	-	-
Maintenance Holes											
Oil Grit Separators											
Stormwater Management Ponds											
Total	**-**	**$16k**	**-**	**-**	**-**	**-**	**$7k**	**-**	**-**	**-**	**-**

Table 69 System Generated 10-Year Capital Replacement Forecast: Stormwater Network

Buildings

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Administration	-	$17k	$29k	$30k	-	$58k	$94k	$15k	-	$17k	$147k
Fire & Emergency	-	$2k	$44k	$54k	-	-	$417k	-	-	-	-
Parks & Recreation	$15k	$50k	$1.3m	$214k	$113k	$2.0m	$216k	$758k	$171k	$119k	$44k
Roads	-	$5k	$242k	$153k	$23k	$9k	$233k	$20k	-	$53k	$11k
Total	**$15k**	**$74k**	**$1.6m**	**$451k**	**$136k**	**$2.1m**	**$960k**	**$793k**	**$171k**	**$189k**	**$202k**

Table 70 System Generated 10-Year Capital Replacement Forecast: Buildings and Facilities

Fleet

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Buildings	-	-	-	-	-	$49k	-	-	-	-	$42k
Fire & Emergency	$1.1m	$85k	$45k	$14k	-	-	-	$85k	-	-	-
Parks & Recreation	$161k	$324k	$35k	$122k	$60k	$82k	-	$72k	$35k	$89k	$114k
Roads	$710k	-	-	$400k	$215k	$196k	-	$366k	$78k	$135k	$471k
Total	**$2.0m**	**$409k**	**$80k**	**$536k**	**$275k**	**$327k**	**-**	**$523k**	**$113k**	**$224k**	**$627k**

Table 71 System Generated 10-Year Capital Replacement Forecast: Fleet

Parks & Land Improvements

Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Light Standards & Fixtures	-	-	-	-	-	-	-	-	-	-	$57k
Park Furnishings & Fencing	$17k	-	$92k	$12k	-	$24k	$58k	-	$12k	-	$53k
Park Shelters & Structures	-	-	-	-	-	-	$12k	$52k	$12k	-	-
Park Utilities	-	-	-	-	-	-	-	-	-	-	-
Parklands, Paths, Trails & Parking Lots	$559k	-	-	-	$15k	-	-	-	$52k	$3k	$22k
Playgrounds, Splashpad & Features	$167k	-	-	-	-	$205k	-	-	-	-	$515k
Sport fields & Courts	$1.9m	$414k	-	$36k	-	-	-	-	$30k	-	-
Total	**$2.7m**	**$414k**	**$92k**	**$48k**	**$15k**	**$229k**	**$69k**	**$52k**	**$106k**	**$3k**	**$646k**

Table 72 System Generated 10-Year Capital Replacement Forecast: Parks & Land Improvements

Machinery & Equipment

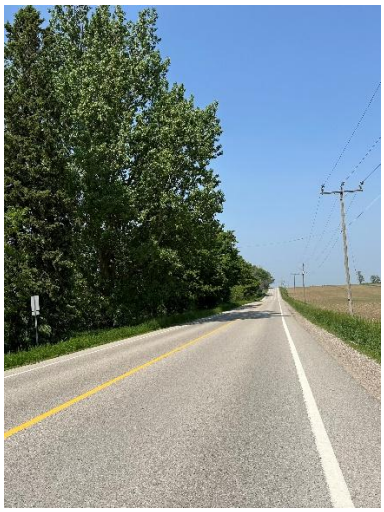
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Fire & Emergency	$522k	$105k	$73k	$15k	$14k	-	$18k	$29k	-	$37k	$199k
Furniture & Fixtures	$116k	-	-	-	-	-	$25k	$25k	-	-	-
IT Equipment	$120k	$9k	$9k	$207k	$158k	$15k	$138k	$19k	$175k	$116k	$31k
Parks & Recreation	$185k	$43k	$12k	$7k	$55k	-	$59k	$40k	$18k	-	$48k
Total	**$1.0m**	**$234k**	**$95k**	**$229k**	**$241k**	**$15k**	**$240k**	**$113k**	**$194k**	**$238k**	**$292k**

Table 73 System Generated 10-Year Capital Replacement Forecast: Machinery & Equipment

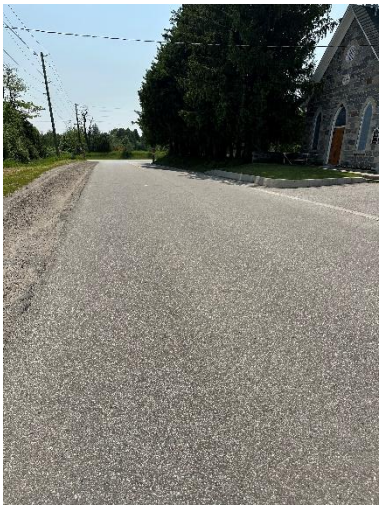
Appendix C – Level of Service Images

Road Corridor

Examples of Roads in Fair or Better Conditions



Mill Road (East of Watson Road
Condition: Good



Barden Street
Condition: Fair

Marden Road
Condition: Fair (Satisfactory)

Examples of Roads in Poor or Worse Conditions

Eastview Road
Condition: Poor

Watson Road
Condition: Poor (Serious)

Mill Road (West of Watson Road)
Condition: Very Poor

Bridges & Culverts

Example of a Bridge in Good Condition

Bridge 005 – Sixth Line
BCI – 72.95

West Elevation

North Approach

Example of a Bridge in Fair Condition

Bridge 002 – Seventh Line
BCI – 59.9

East Elevation

Delamination at Northwest Wingwall

Example of a Culvert in Very Good Condition

Structure 3012 – Conservation Road Culvert
BCI – 99.74

Barrel-South

Barrel South – Light Construction Damage

Example of a Culvert in Poor Condition

Structure 3014 – Marden Park Culverts
BCI – 36.26

North Elevation

Barrel – South (West Cell) – Severe Deformation

Bridges & Culverts Location Map

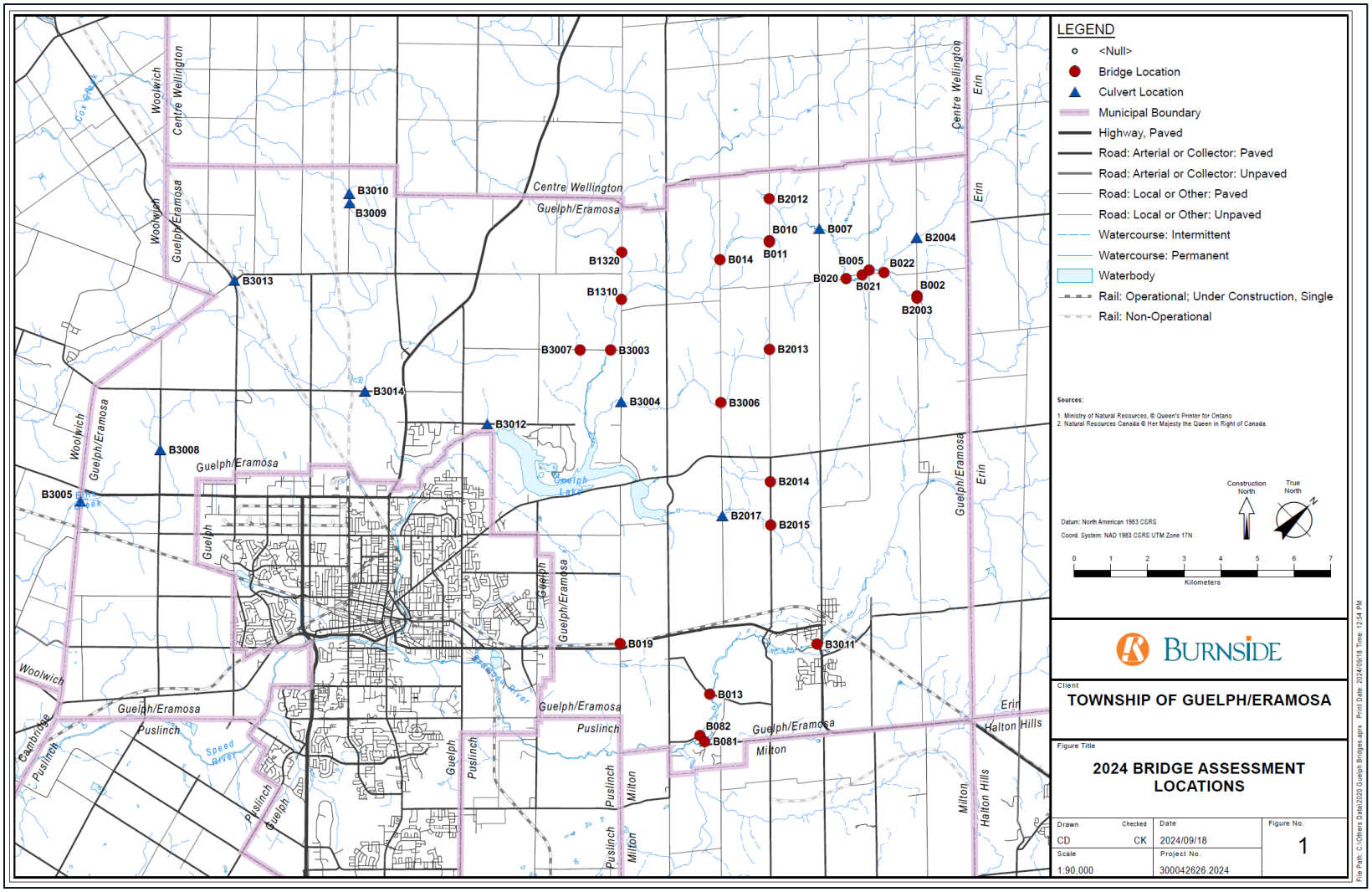


Figure 80: Bridges & Culverts Location Map

Stormwater Management Ponds

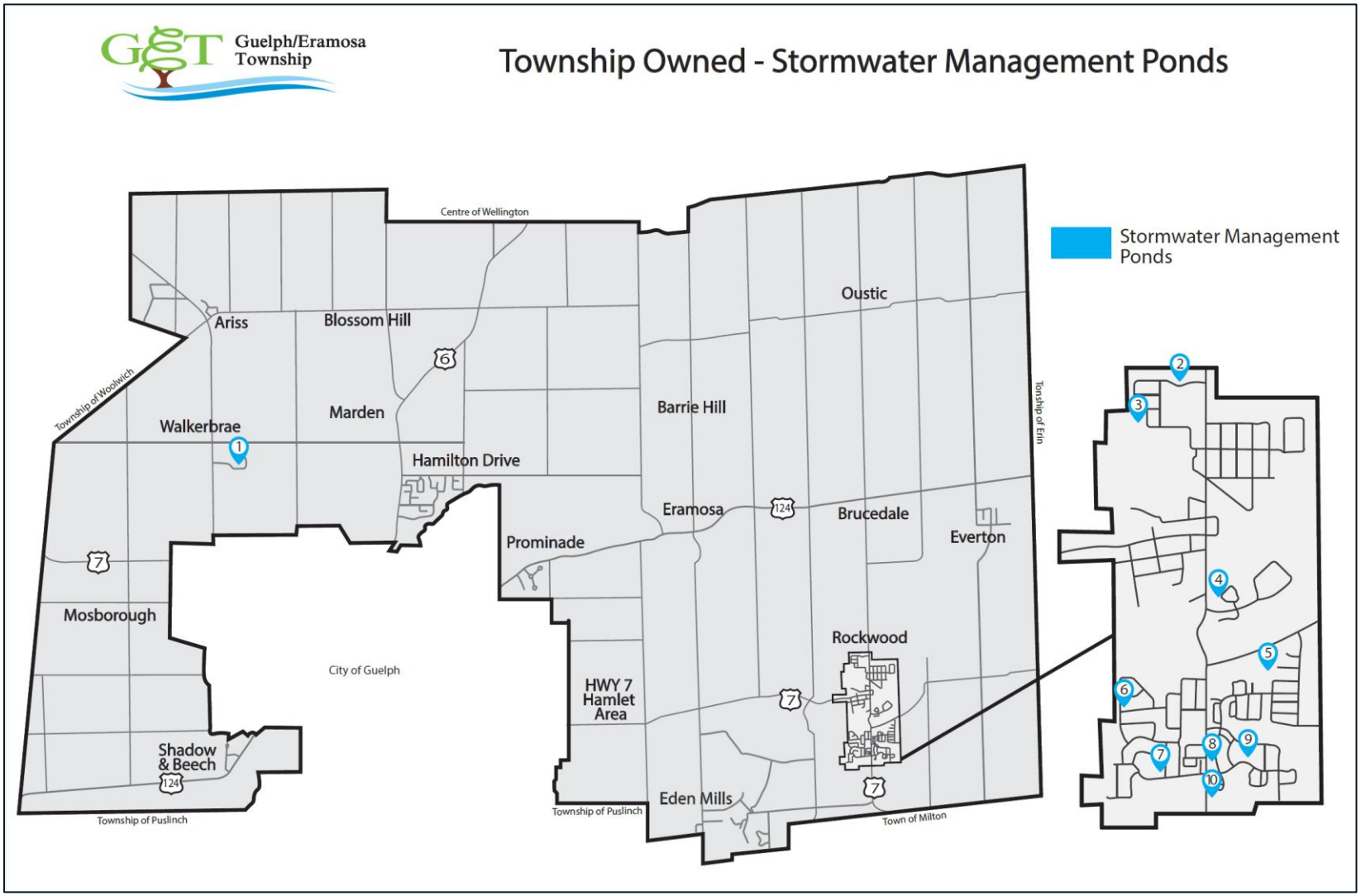


Figure 81 Township Owned – Stormwater Management Ponds

Location of Buildings & Facilities

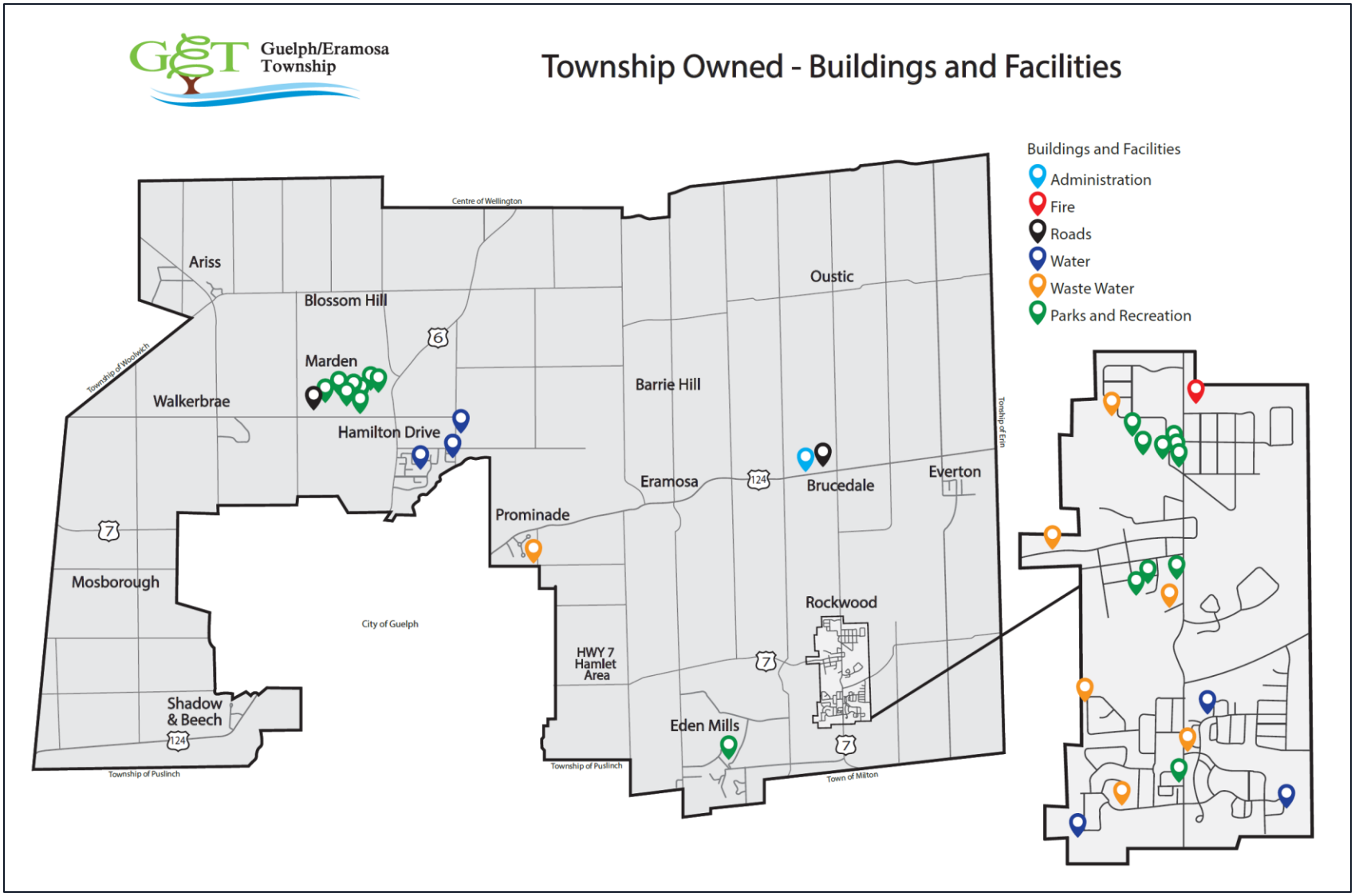


Figure 82 Township Owned – Buildings & Facilities

Buildings & Facilities

Athletic Performance Centre

Municipal Office

Marden Park House

Rockwood Fire Hall

Figure 83: Images of Buildings and Facilities Assets

Parks, Open Spaces, Woodlots & Cemeteries

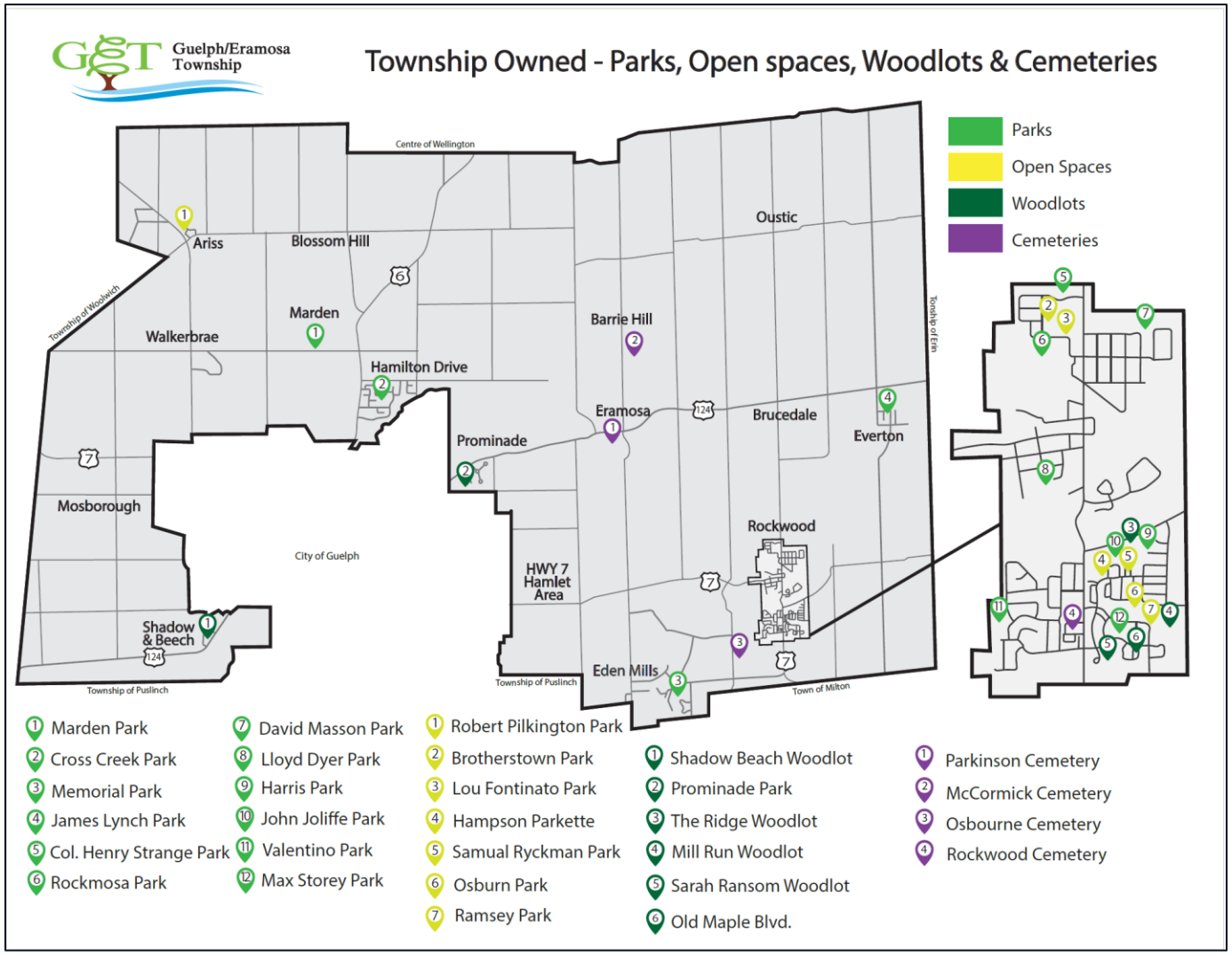


Figure 84 Township Owned – Parks, Open Spaces, Woodlots & Cemeteries

Parks & Land Improvements

Pavillion

Playground

Sports Fields

Figure 85: Images of Parks & Land Improvements Assets

Fleet

Figure 86: Guelph-Eramosa: Fire Truck

Figure 87: Guelph-Eramosa: Plow Truck

Machinery & Equipment

Equipment – Parks & Recreation

Equipment – Public Works

Equipment – Roads Department

Equipment – Fire Department

Figure 88: Images of Parks & Land Improvements Assets

Appendix D – Risk Rating Criteria

The following tables outline the risk rating criteria that informed the analysis for this asset management plan. These criteria help to prioritize asset based on the likelihood of failure and the potential impacts, the consequences of failure.

Probability of Failure (PoF)

Asset Category	Risk Classification	Risk Critera	Value/Range	PoF Score
Roads (Asphalt, Surface-treated, and Gravel) Bridges & Culverts	Performance (85%)	Condition	90 - 100	1
			70- 89	2
			50 - 69	3
			40 - 49	4
			0 - 39	5
	Operational (15%)	Service Life Remaining	40+	1
			30- 39	2
			20 - 29	3
			10 - 19	4
			0 - 9	5

Table 74: Roads, Bridges & Culverts (PoF) Risk Criteria

Asset Category	Risk Classification	Risk Critera	Value/Range	PoF Score
Water (Mains) Wastewater (Mains) Stormwater (Mains)	Performance (60%)	Condition	80 - 100	1
			60- 79	2
			40 - 59	3
			20 - 39	4
			0 - 19	5
	Operational (40%)	Service Life Remaining	40+	1
			30- 39	2
			20 - 29	3
			10 - 19	4
			0 - 9	5

Table 75: Water, Wastewater and Storm (PoF) Risk Criteria

Asset Category	Risk Classification	Risk Critera	Value/Range	PoF Score
All other asset types	Performance (85%)	Condition	80 - 100	1
			60- 79	2
			40 - 59	3
			20 - 39	4
			0 - 19	5
	Operational (15%)	Service Life Remaining	80 - 100	1
			60- 79	2
			40 - 59	3
			20 - 39	4
			0 - 19	5

Table 76: All Other Asset Types (PoF) Risk Criteria

Consequence of Failure (CoF)

Asset Category	Risk Classification	Risk Criteria	Value/Range	CoF Score
Roads (Asphalt, Surface-treated, and Gravel)	Economic (60%)	Surface Material	Earth/ Dirt	1
			G/S	2
			LCB	3
			HCB	4
	Operational (40%)	Posted Speed (km/h)	0-39	1
			40-49	2
			50-59	3
			60-70	4
			80+	5
			Rural	2
			Semi-Urban	3
			Urban	4
		AADT	0-499	1
			500-999	2
			1000-1999	3
			2000-4999	4
			5000+	5

Table 77: Roads (CoF) Risk Criteria

Asset Category	Risk Classification	Risk Criteria	Value/Range	CoF Score
Bridges & Culverts	Economic (60%)	Replacement Cost	0-124,999	1
			125,000-249,000	2
			250,000-499,000	3
			500,000-999,999	4
			1,000,000+	5
	Operational (40%)	Posted Speed (km/h) (50%)	<40	1
			50	2
			60	3
			70	4
			80+	5
		Total Deck Length (m) (50%)	<4	1
			4-9	2
			10-15	3
			16-20	4
			21-30	5

Table 78: Bridges & Culverts (CoF) Risk Criteria

Asset Category	Risk Classification	Risk Criteria	Value/Range	CoF Score
Water (Mains) Wastewater (Mains) Stormwater (Mains)	Operational (40%)	Surface Material	Earth/ Dirt	1
			G/S	2
			LCB	3
			HCB	4
	Economic (60%)	Diameter (mm)	0-249	1
			250-499	2
			500-799	3
			800-1149	4
			1150-2000	5

Table 79:Water, Wastewater and Stormwater (CoF) Risk Criteria

Asset Category	Risk Classification	Risk Criteria	Value/Range	CoF Score
Buildings & Facilities	Economic (80%)	Replacement Cost	0-124,999	1
			125,000-249,000	2
			250,000-499,000	3
			500,000-999,999	4
			1,000,000+	5
	Operational (20%)	AMP Segment	Administration	3
			Fire & Emergency	5

Table 80: Buildings & Facilities (CoF) Risk Criteria

Asset Category	Risk Classification	Risk Criteria	Value/Range	CoF Score
All other assets	Economic	Replacement Cost	0-85,000	1
			85,001-250,000	2
			250,001-500,000	3
			500,001-750,000	4
			750,001-1,000,001	5

Table 81: All Other Assets (CoF) Risk Criteria