Asset Management Plan 2025

Township of Alfred and Plantagenet

September 2025 v2

psdcitywide

This Asset Management Plan was prepared by:

psdcitywide

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Disclaimer

This Asset Management Plan (AMP) was developed to meet the 2025 requirements as outlined in Ontario Regulation 588/17 and is intended to be posted on the municipal website for public availability, once approved by the Township's Council.

The purpose of this document is to provide the Township's Council with infrastructure data and recommendations to assist them in making informed infrastructure decisions.

This AMP is intended to comprise one component of several important considerations including changing taxpayer needs (financial or service related), grant opportunities, master plan recommendations, future development, changing political environments (municipal, provincial, federal, and global), and many others.

Full control of the municipal budget remains with the Township's Council through the budget deliberation process.

Key Statistics

$231m	2023 Replacement Cost of Asset Portfolio
$54k	Replacement Cost of Infrastructure Per Household
80%	Percentage of Assets in Fair or Better Condition
60%	Percentage of Assets with Assessed Condition Data
$4.3m	Annual Capital Infrastructure Deficit
15 Years	Recommended Timeframe to reach Proposed Levels of Service
2.9%	Target Investment Rate to meet Proposed Levels of Service
1.1%	Actual Investment Rate

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1. Executive Summary

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

1.1 Scope

This Asset Management Plan (AMP) identifies the 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 Alfred and Plantagenet can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP includes the following asset categories:

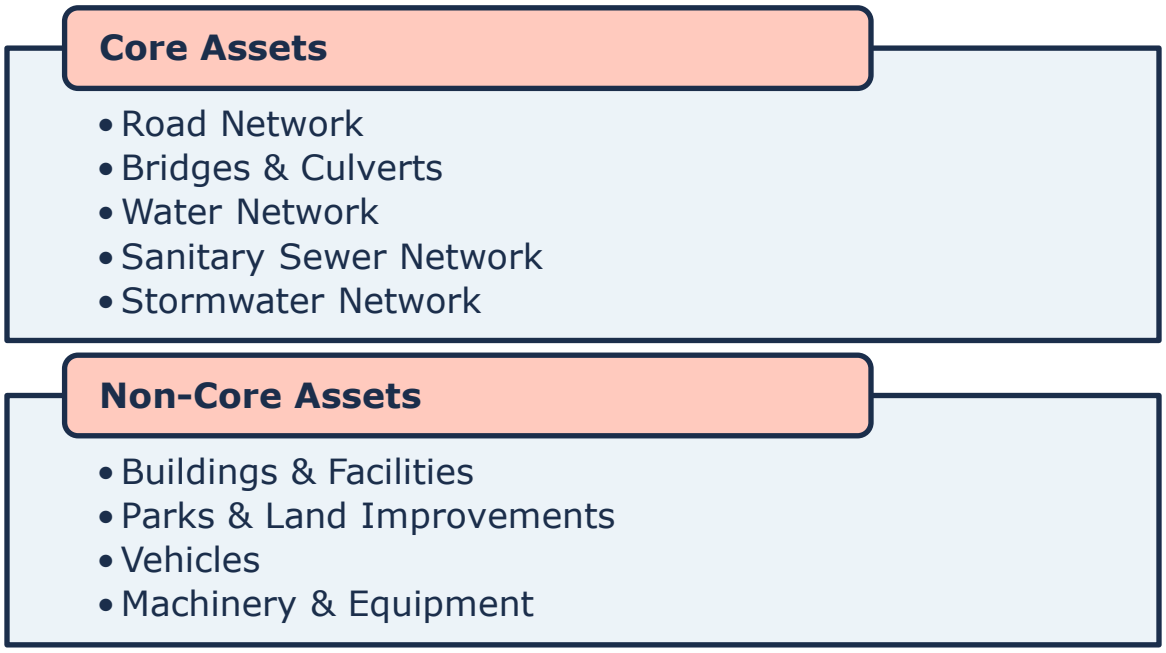


Figure 1 Core and Non-Core Asset Categories

1.2 Compliance

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

1.3 Findings

The overall replacement cost of the asset categories included in this AMP totals $231 million. 80% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 60% of assets. For the remaining 40% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (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 $6.8 million. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $2.5 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $4.3 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:

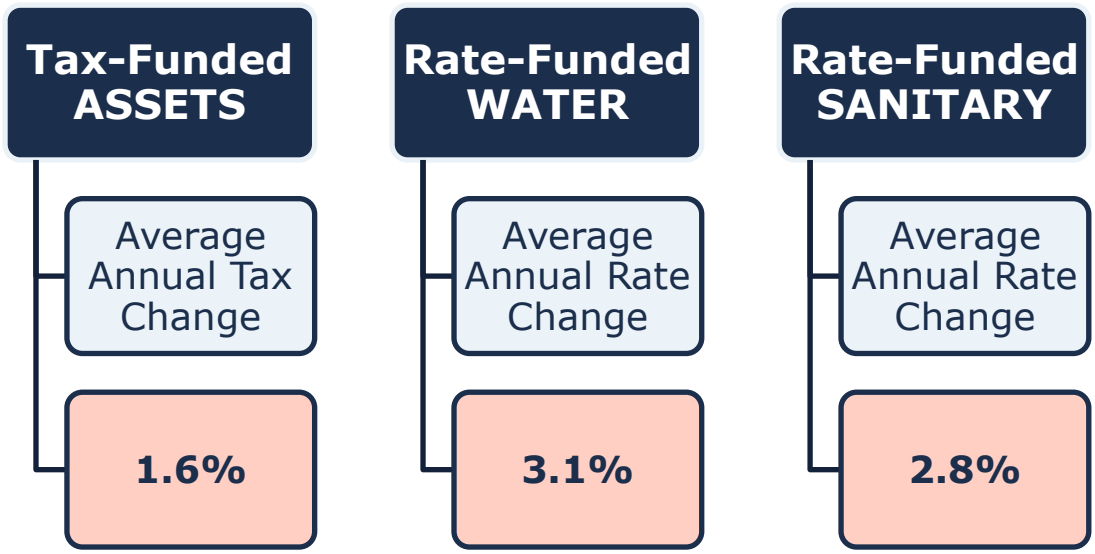


Figure 2 Proposed Tax/Rate Changes

2. Introduction & Context

2.1 Community Profile

Census Characteristic	Township of Alfred and Plantagenet	Ontario
Population 2021	9,949	14,223,942
Population Change 2016-2021	2.8%	5.8%
Total Private Dwellings	4,297	5,929,250
Population Density	25.4/km^2	15.9/km^2
Land Area	391.79km^2	892,411.76 km^2

Table 1 Township of Alfred and Plantagenet Community Profile

The Township of Alfred and Plantagenet is a lower-tier Township and part of the United Counties of Prescott and Russell within eastern Ontario. Alfred and Plantagenet borders the Ottawa River to the north, separating it from the province of Quebec.

The Township of Alfred and Plantagenet was formed in 1997 through the amalgamation of the Township of Alfred and the Township of North Plantagenet. It encompasses several smaller communities and hamlets, each with its own unique character and history. The Township's population is predominantly francophone, reflecting its cultural heritage.

The Township is characterized by its rural landscapes, agricultural lands, and scenic natural features. It offers a peaceful, country lifestyle that is appreciated by both residents and visitors. Historically, agriculture has played a significant role in the Township's economy and way of life. This agricultural heritage is still evident in the rural landscape and lifestyle of its residents. Like many small, rural townships, Alfred and Plantagenet is known for its close-knit community, where local events and gatherings play an important role in social life.

Demand in Alfred and Plantagenet is driven by agricultural needs, including farm equipment, supplies, and services that support the local farming community, given its historical roots in agriculture. The rural and natural setting of the Township offers numerous outdoor activities, such as hiking, fishing, and enjoying the tranquil countryside. Furthermore, as urban areas become more crowded and expensive, people often look to rural communities like Alfred and Plantagenet for more affordable and spacious living options. The demand for housing can be driven by those seeking a quieter, more scenic lifestyle away from city centers.

The Township's infrastructure priorities focus on expanding and upgrading urban infrastructure to support a higher density of population and employment in western parts of the County, while managing rural development in a sustainable manner.

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 Alfred and Plantagenet Climate Profile

The Township of Alfred and Plantagenet is located in eastern Ontario within United Counties of Prescott and Russell County. The Township is expected to experience notable effects of climate change which include higher average annual temperatures, an increase in total annual precipitation, and an increase in the frequency and severity of extreme events. According to Climatedata.ca – a collaboration supported by Environment and Climate Change Canada (ECCC) – the Township of Alfred and Plantagenet may experience the following trends:

Higher Average Annual Temperature

- Between the years 1971 and 2000 the annual average temperature was 5.6 ºC
- Under a high emissions scenario, the annual average temperatures are projected to increase by 4.7ºC by the year 2050 and over 6.6 ºC by the end of the century.

Increase in Total Annual Precipitation

- Under a high emissions scenario, Alfred and Plantagenet is projected to experience an 13% increase in precipitation by the year 2051 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.

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

2.3 Asset Management Overview

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

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

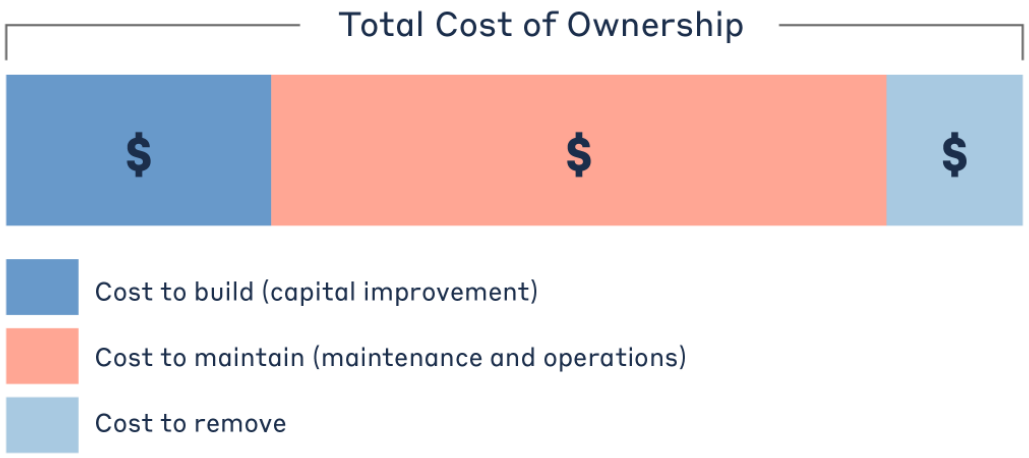


Figure 3 Total Cost of Asset Ownership

These costs can span decades, requiring planning and foresight to ensure financial responsibility is spread equitably across generations. An asset management plan is critical to this planning, and an essential element of broader asset management program.

2.3.1 Foundational Asset Management Documentation

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

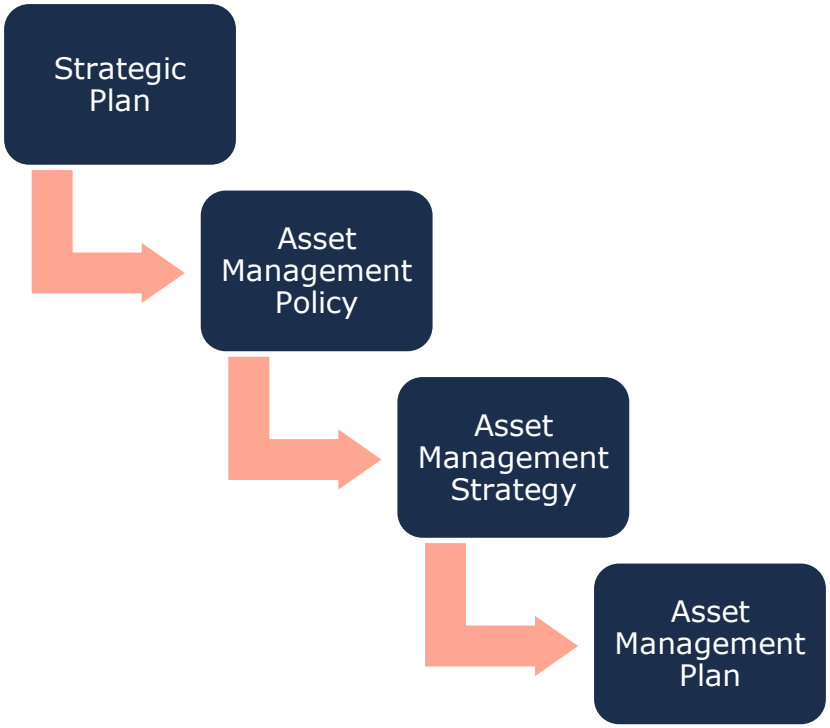


Figure 4 Foundational Asset Management Documents

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

Asset Management Policy

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

The Township of Alfred and Plantagenet adopted Strategic Asset Management Policy on June 18, 2019 (resolution #2019-334), 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.

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.

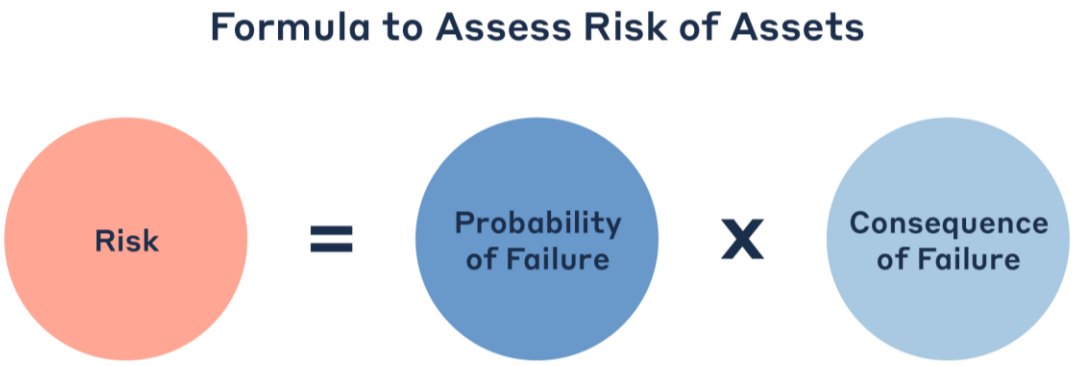


Figure 5 Risk Equations

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

Probability of Failure

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

Consequence of Failure

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

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

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

Table 3 Risk Analysis: Types of Consequences of Failure

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

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

Levels of Service

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

The Township measures the level of service provided at two levels: Community Levels of Service, and Technical Levels of Service.

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 and Culverts, Water, Sanitary, Stormwater) the province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP.

Technical Levels of Service

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

For core asset categories as applicable, the province, through O. Reg. 588/17, has also provided technical metrics that are required to be included in this AMP.

Current and Proposed Levels of Service

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

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

2.4 Scope & Methodology

2.4.1 Asset Categories for this AMP

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

The AMP summarizes the state of the infrastructure for the Township's asset portfolio, establishes current levels of service and the associated technical and customer oriented key metrics, outlines lifecycle strategies for optimal asset management and performance, and provides financial strategies to reach sustainability for the asset categories listed below.

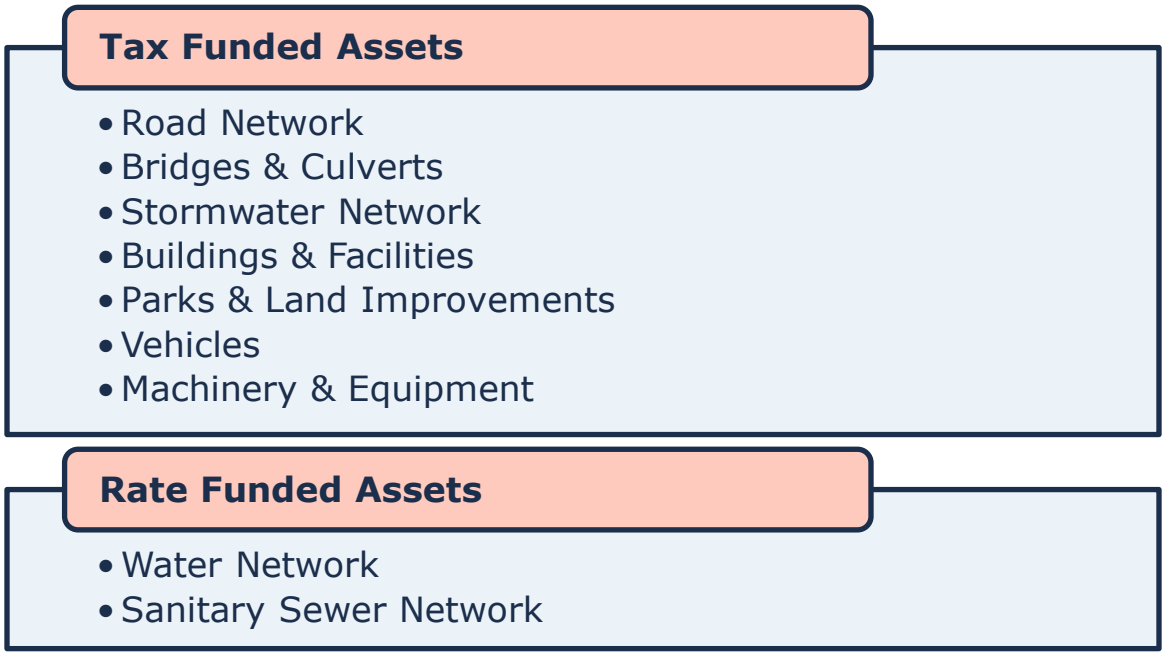


Figure 6 Tax Funded and Rate Funded Asset Categories

2.4.2 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

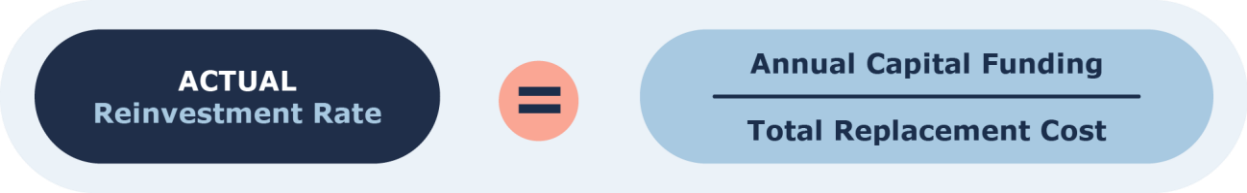


Figure 9 Actual Reinvestment Rate Calculation

2.4.6 Deriving Asset Condition

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

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

Condition	Description	Criteria	Service Life Remaining (%)
Very Good	Fit for the future	Well maintained, good condition, new or recently rehabilitated	80-100
Good	Adequate for now	Acceptable, generally approaching mid-stage of expected service life	60-79
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, the regulation is a key, mandated driver of asset management planning and reporting. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them.

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

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

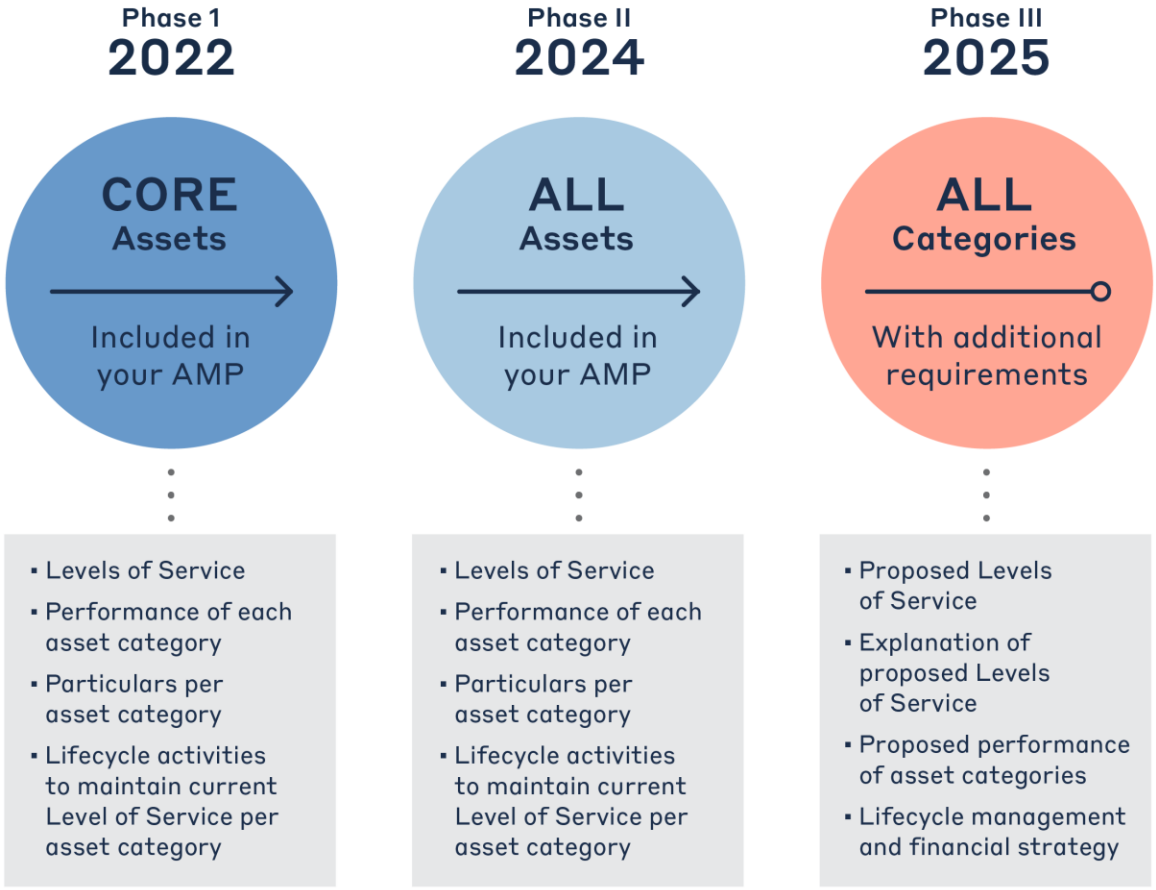


Figure 10 O. Reg. 588/17 Requirements and Reporting Deadlines

2.5.1 O. Reg. 588/17 Compliance Review

Requirement	O. Reg. 588/17 Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	5.1 – 13.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	5.1 – 13.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	5.3 – 13.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	5.2 – 13.2	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	5.4 – 13.4	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	5.7 – 13.7	Complete
Current performance measures in each category	S.5(2), 2	5.7 – 13.7	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	5.4 – 13.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	5.5 – 13.5	Complete
Growth considerations	S.6(1), 5	14.1 – 14.2	Complete
Proposed levels of service for each category for next 10 years	S.6(1), 1(i-ii)	5.8 – 13.8	Complete
Explanation of appropriateness of proposed levels of service	S.6(1), 2(i-iv)	4.3	Complete
Lifecycle management activities for proposed levels of service	S.6(1), 4(i)	4.3	Complete
10-year capital costs for proposed levels of service	S.6(1), 4(ii)	Appendix B	Complete
Annual funding availability projections	S.6(1), 4(iii)	4.3	Complete

Table 5 O. Reg. 588/17 Compliance Review

Portfolio Overview

3. State of the Infrastructure

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

3.1 Asset Hierarchy & Data Classification

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Key category details are summarized at asset segment level.

Figure 11 Asset Hierarchy and Data Classification

3.2 Portfolio Overview

3.2.1 Total Replacement Cost of Asset Portfolio

The nine asset categories analyzed in this Asset Management Plan have a total current replacement cost of $231 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 54% of the total portfolio, the water and sanitary sewer networks form the largest share of the Township's asset portfolio, followed by the road network at 19%.

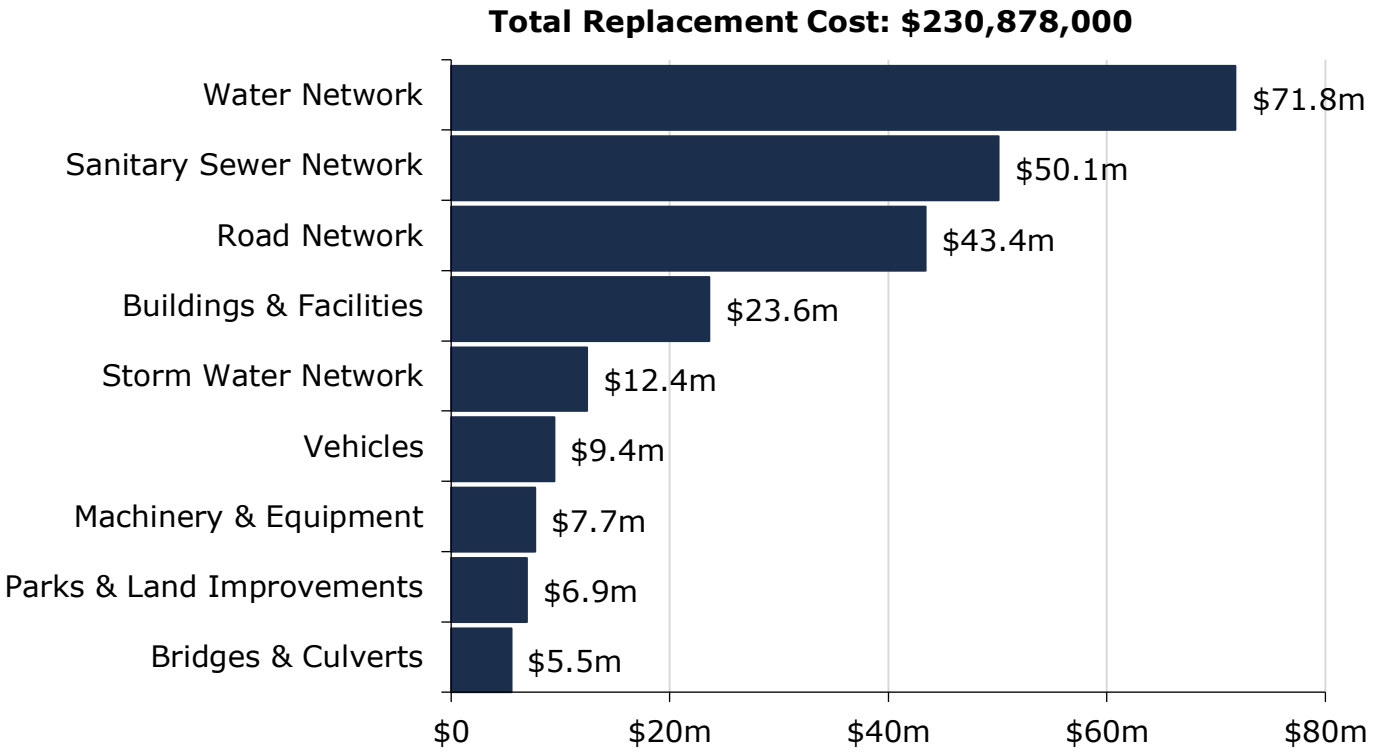


Figure 12 Current Replacement Cost by Asset Category

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 $6.8 million, for a target portfolio reinvestment rate of 2.9%. Currently, annual investment from sustainable revenue source is $2.5 million, for a current portfolio reinvestment rate of 1.1%. Target and current re-investment rates by asset category are detailed below.

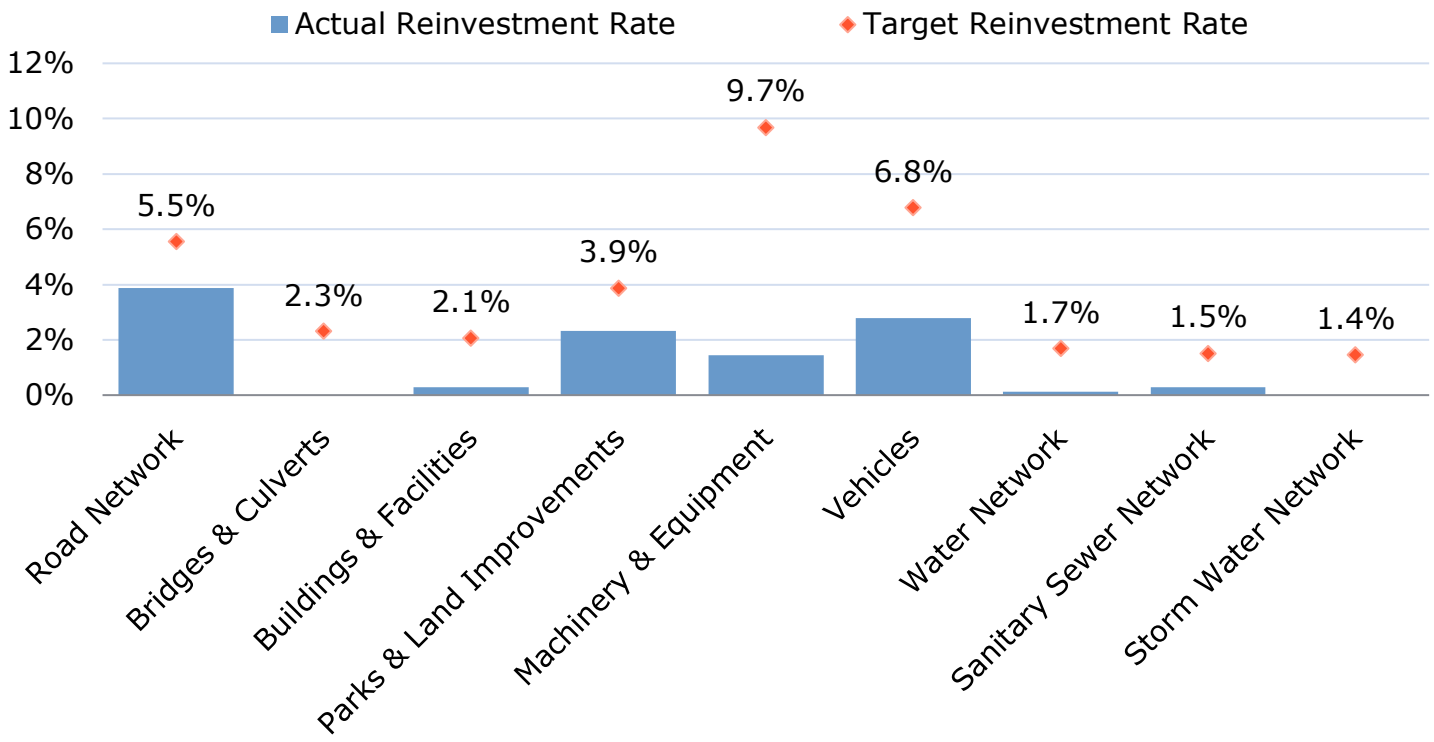


Figure 13 Current Vs. Target Reinvestment Rate

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, 80% of the Township's infrastructure portfolio is in fair or better condition, with the remaining 20% in poor or worse condition. Typically, assets in poor or worse condition may require replacement or major rehabilitation in the immediate or short-term. Targeted condition assessments may help further refine the list of assets that may be candidates for immediate intervention, including potential replacement or reconstruction.

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

Condition data was available for majority of the road network and all bridges. Buildings, parks and land improvements, and approximately half of vehicles and equipment had staff estimated conditions provided. 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 past assessed condition data was available, it was projected to the current year-end (2023). This 'projected condition' can generate lower condition ratings than those established at the time of the original condition assessment. The rate of this deterioration will also depend on lifecycle curves used to project condition over time.

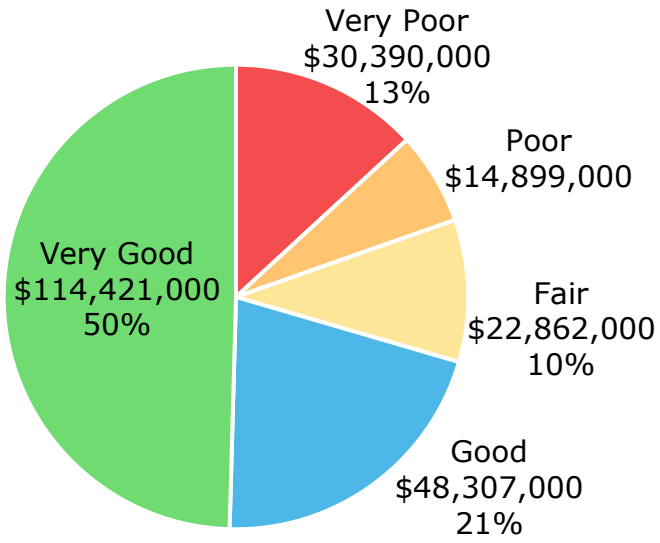


Figure 14 Asset Condition: Portfolio Overview

As further illustrated in Figure 15 at the category level, the majority of major, core infrastructure including roads, bridges, and structural culverts are in fair or better condition, based on in-field condition assessment data. Most vehicles and machinery are poor or worse condition, based on recent condition assessments. See Table 6 for details on how condition data was derived for each asset segment.

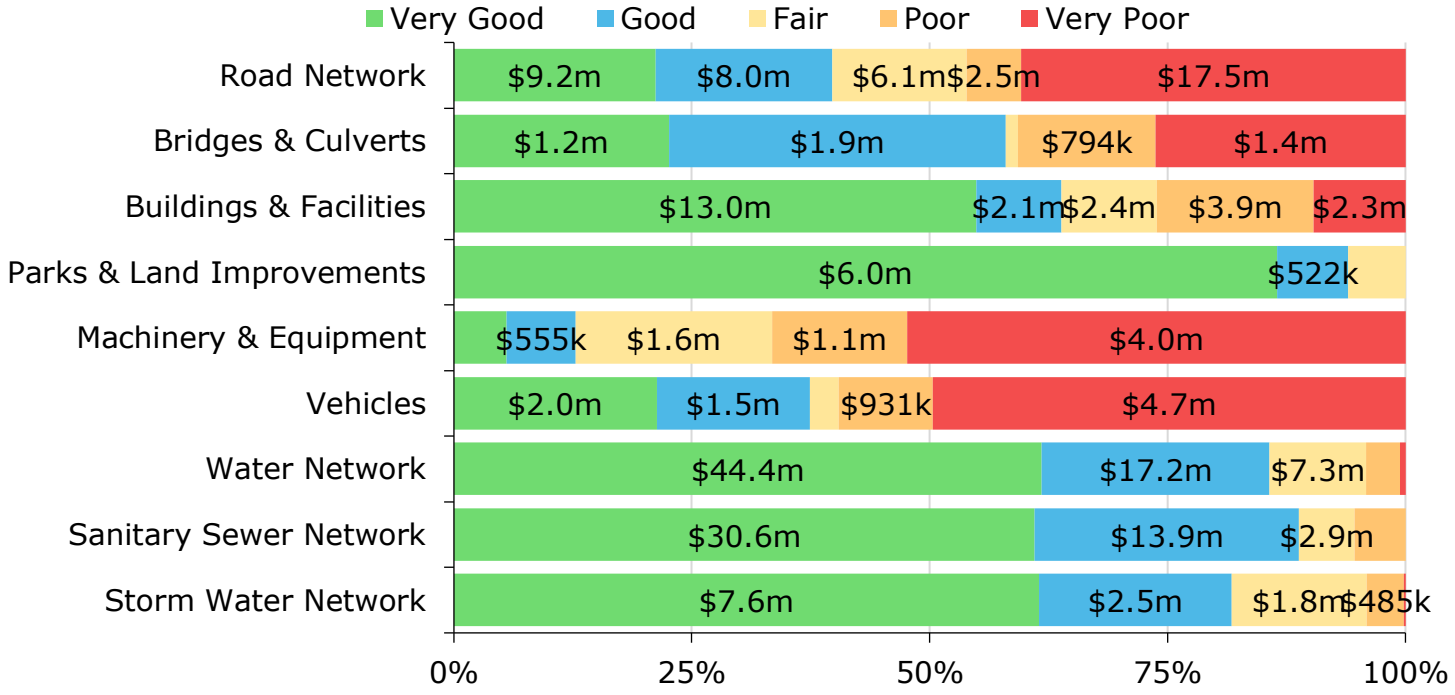


Figure 15 Asset Condition by Asset Category

As outlined previously, buildings and facilities are not componentized into their individual major elements and components. This limits the validity of current condition estimates as they are presented only at the 'parent' asset level, such as 'Fire Hall, Alfred', or 'City Hall'.

Source of Condition Data

This AMP relies on assessed condition for 60% of assets, based on and weighted by replacement cost. For the remaining assets, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. Table 6 below identifies the source of condition data used throughout this AMP.

Asset Category	Asset Segment(s)	% of Assets with Assessed Conditions	Source of Condition Data
Road Network	Hot Mix Roads Gravel Roads DST Roads	90%	2023 Road Needs Study Report
Bridges & Culverts	Bridges	100%	2023 OSIM Inspections
Water Network	Water Facilities	100%	2020 OCWA Inspection
Sanitary Sewer Network	Sanitary Facilities	100%	2020 OCWA Inspection
Stormwater Network	Mains	3%	2022 Morrison Hershfield Inspection
Buildings & Facilities	All	100%	Staff Assessments
Parks & Land Improvements	All	96%	Staff Assessments
Vehicles	All	49%	Staff Assessments
Machinery & Equipment	All	52%	Staff Assessments

Table 6 Source of Condition Data

3.2.4 Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 19% of the Township's assets will require replacement within the next 10 years. Refer to Appendix B – 10-Year Capital Requirements. Note: Buildings and facilities assets were excluded from this calculation due to the nature of the assets. Building and facilities have multiple components that have a very short service life. However, the building themselves are long-lasting.

3.2.5 Risk Analysis

Qualitative Risk

The 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. Township staff provided information related to the following potential risks:

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; ♦ accelerated asset deterioration and premature failure, which may lead to public health and safety hazards, and disruption of services to the Township's residential and commercial base; ♦ a decline in public satisfaction with the Township's service standards and the resulting reputational damage.
Organizational Cognizance/ Capacity	While the Township has confidence in their capacity to engage in asset management practices, on-going training is needed for staff to have the knowledge and capacity to engage in informed asset management practices moving into the future.
Infrastructure Design/ Installation	Concerns with the past design and/or materials used for some types of infrastructure may result in premature deterioration. Project 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, minimized capacity in storm systems due to increased intensity in rainfall events, and increased use of salt to combat winter storms resulting in degradation of vehicles and equipment.

Risk Type	Description
Growth	Community growth is expected to continue in the Township, consistent with the growth trend in the Province of Ontario. 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	Current levels of investment in infrastructure need to be looked at to ensure they are meeting lifecycle requirements and maintaining a good state of repair. Chronic underfunding of infrastructure replacement may lead to detrimental impacts in the future requiring significant changes to service levels.

Table 7 Portfolio 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.

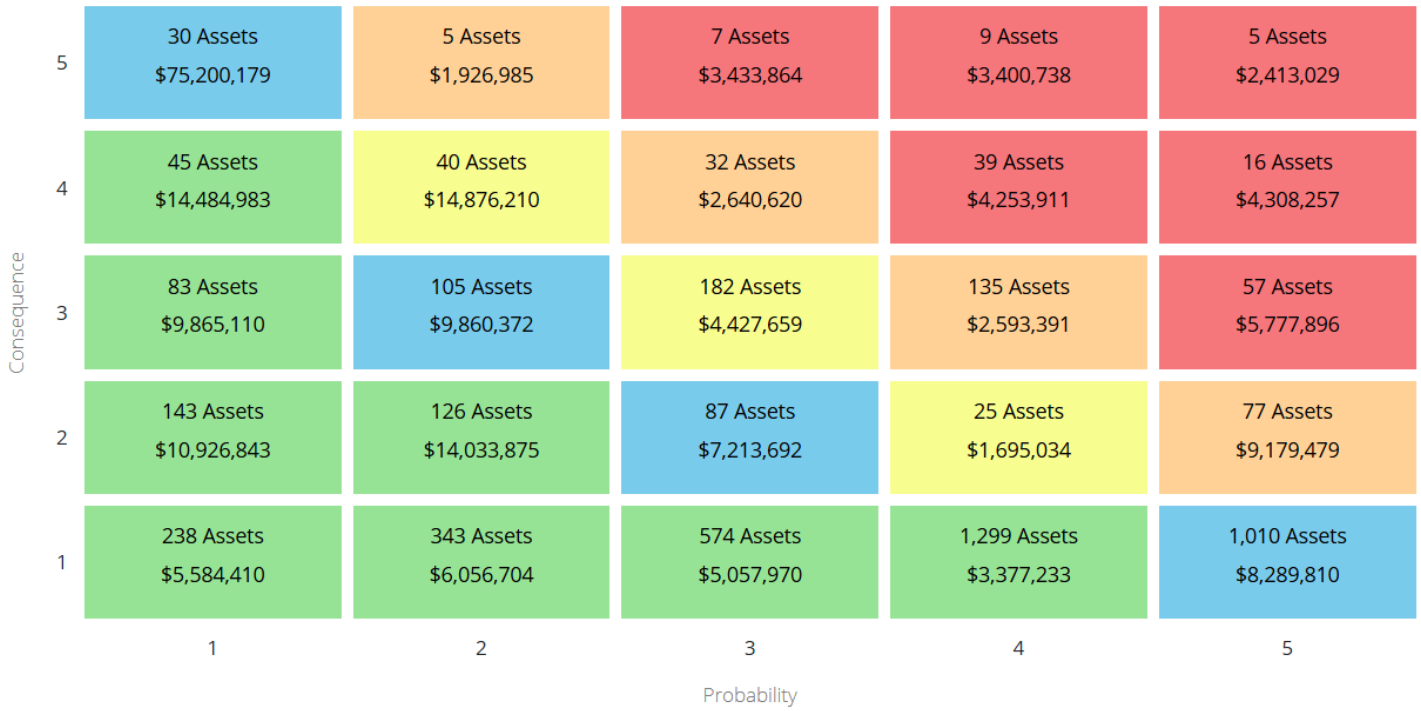


Figure 16 Risk Matrix: All Assets

The analysis shows that based on current risk models, approximately 8% of the Township's assets, with a current replacement cost of approximately $19 million, carry a risk rating of 15 or higher (red) out of 25. Assets in this group may have a high probability of failure based on available condition data and age-based estimates and were considered to be most essential to the Township.

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

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

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

3.2.6 Forecasted Capital Requirements

Aging assets require maintenance, rehabilitation, and replacement. Figure 17 below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for all asset categories analyzed in this AMP over a 80-year time horizon. On average, $6.8 million is required each year to remain current with capital replacement needs for the Township's asset portfolio (red dotted line). Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise. This figure relies on age and available condition data.

The chart also illustrates a backlog of more than $8.2 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. In addition, more effective componentization of buildings will improve these projections, including backlog estimates.

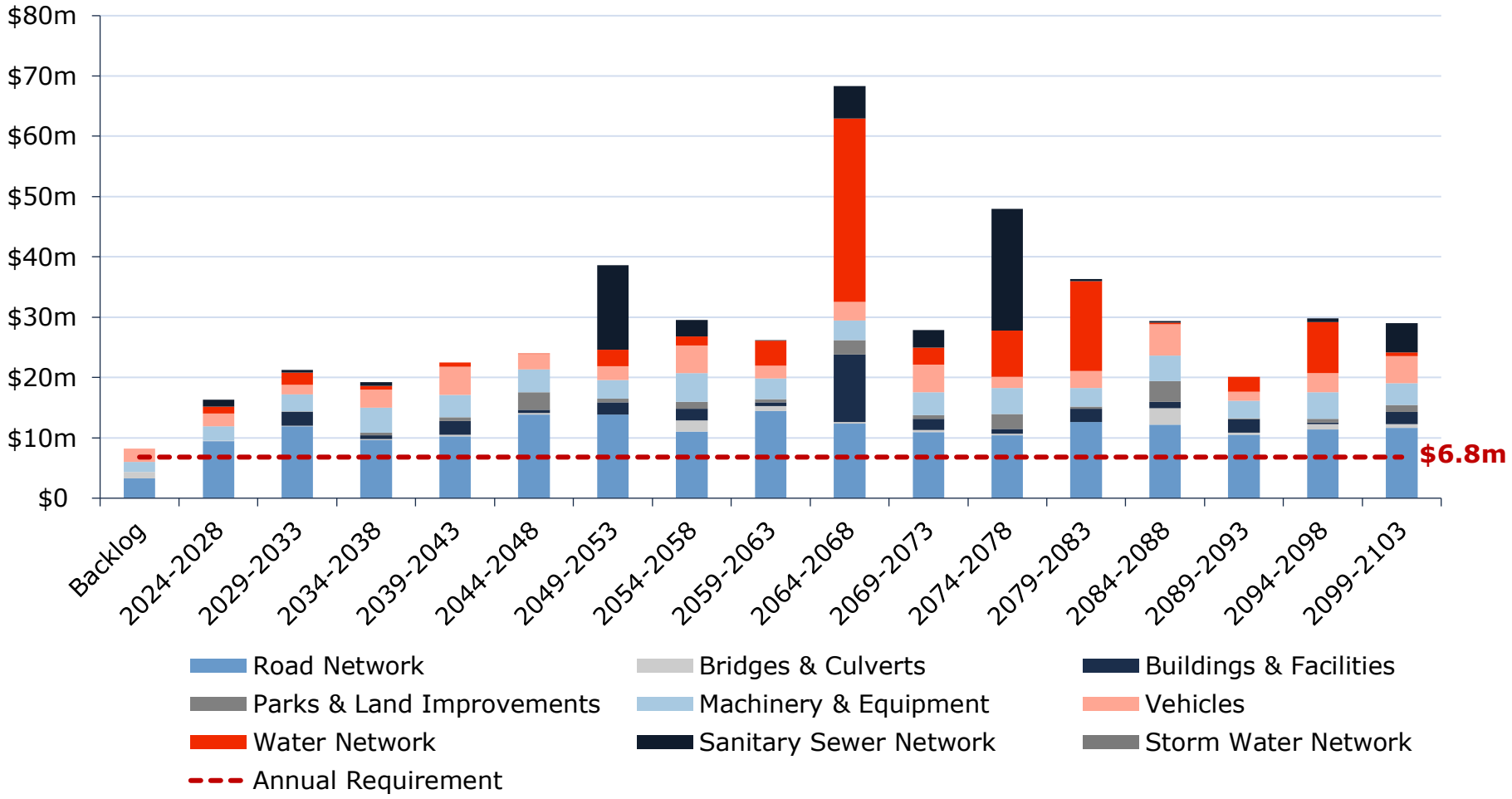


Figure 17 Capital Replacement Needs: Portfolio Overview 2024-2103

Risk frameworks, proactive lifecycle strategies, and levels of service targets can then be used to prioritize projects, continuously refine estimates for both backlogs and ongoing capital needs and help select the right treatment for each asset. In addition, more effective componentization of buildings will improve these projections, including backlog estimates.

Proposed Levels of Service

4. Proposed Levels of Service Analysis

4.1 Overview

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

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

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

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

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

4.1.2 Considerations

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

Financial Impact Assessments

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

Infrastructure Condition Assessments

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

Service Metrics

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

Service Impact Assessments

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

Key Lifecycle Activities

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

Risk Management

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

Infrastructure Condition Enhancements

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

Timelines

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

Stakeholder Engagement

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

Flexibility

- Priorities may change over time due to a variety of factors, such as:

  - Financial state of the municipality
  - Availability of grants
  - Significant increases or decreases in population
  - Changes in political priorities
  - Changes in resident priorities
  - New technologies
  - Changes in legislation
- Any proposed changes to LOS should be flexible and able to adapt to changes listed above, and other unforeseen circumstances

4.2 Stakeholder Engagement

In order to determine appropriate levels of service, Township of Alfred and Plantagenet engaged with administration and residents to solicit feedback on areas of focus/improvement. These engagement activities took place throughout spring 2025. Summaries of stakeholder engagement results can be found in the following sections.

4.2.1 Administration

Surveys were issued for each asset category, summarizing the results of the 2022/2024 Asset Management Plans and requesting feedback on levels of confidence in the statistics, whether respondents felt that existing service levels met the current needs of the Township, and whether they felt they had the resources (financial, man power, or otherwise) to appropriately manage existing assets.

The survey results were analyzed and used to inform further workshops with departments. Individual department workshops were conducted in February 2025. The general themes of those workshops are summarized below.

General Themes of Departmental Engagement

- Capital budget allocation has been a struggle amongst all departments to keep up with replacement/rehabilitation demands. Township as a whole would benefit greatly from increased capital funding.
- General concern of staffing levels being insufficient to properly maintain assets across majority of asset categories.
  - Parks and land improvements would benefit from a supervisor position being able to coordinate maintenance activities.
  - Insufficient staff time allocated to stormwater network, as other priorities overshadow storm needs.
  - Lack of facility maintenance staff results in reactive management rather than proactive maintenance.
- Category Specific Feedback:
  - **Road Network:** Future consideration should be given to funding the upgrade of more roads to asphalt or DST to reduce maintenance requirements.
  - **Water Network:** The water treatment plant may need to be reviewed separately as there are many components with significant replacement costs that are difficult to predict when the components are lumped into one overarching asset.

- **Stormwater Network:** Very low data confidence in stormwater inventory. Age based predictions are insufficient for assessing storm infrastructure conditions. On-going condition assessments would greatly benefit asset management planning efforts.
- **Buildings/Facilities:** There is low data confidence in buildings/facilities assets. Township would benefit from building condition assessments for better prediction of building component needs.
- **Vehicles/Equipment:** Vehicle and equipment assets are considered the best maintained/managed asset categories amongst administration but could still benefit from increased budget allocation.

4.2.2 Residents

Township of Alfred and Plantagenet understands that services are provided for the benefit of the people including residents, businesses, and visitors. The Township made available a public survey on its website for multiple weeks in the spring of 2025 to allow stakeholders to voice their opinions of the services that were most important to them, affordability, and their experiences with those services. Highlights of the survey results are summarized below:

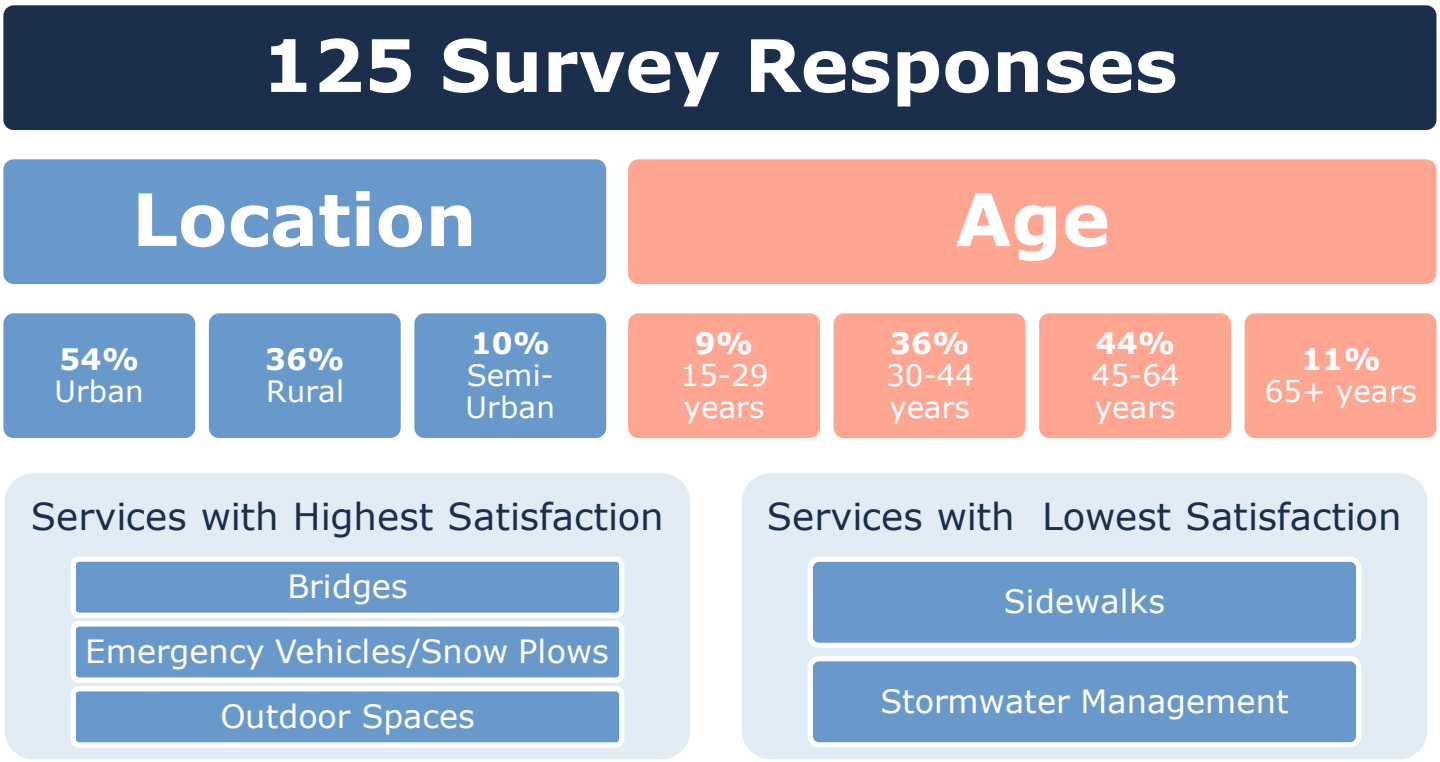


Figure 18 Highlights of Resident Engagement Survey

General Themes of Comments

- Core infrastructure and emergency services remain top priorities, with residents consistently valuing roads, clean water, sewers, and fire protection as essential.
- Outdoor spaces, trails, and parks are viewed as key contributors to quality of life, especially by rural and middle-aged households who favor recreational and natural amenities.

- Cost-conscious investment is crucial, with strong public support for protecting the environment, supporting local families, and avoiding sharp tax increases.
- There is room for stronger engagement and transparency, as many residents were unaware of the AMP and want clearer, simpler communication about infrastructure planning and spending.

4.3 Proposed Levels of Service Scenarios

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

Figure 19 PLOS Scenario Overview

While all three scenarios were reviewed, ***the Township of Alfred and Plantagenet selected Scenario 3 as their preferred path forward regarding proposed levels of service***, which is reflected in the financial strategy and 10-year capital replacement forecasts.

4.3.1 Scenario 1: Achieving 50% Funding in 15 Years

This scenario assumes gradual tax and rate increases, stabilizing at 50% funding in 15 years.

- No Annual Tax Increase (Maintain)
  - Funding was not redistributed amongst asset categories, meaning that while the portfolio is funded at 50% of recommended funding, each asset category varies Annual
- Water Rate Increase ~1.6%
- Annual Sanitary Rate Increase ~1.2%

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

Lifecycle Changes Required for Scenario 1

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

In future iterations of the AMP, it is recommended to more closely analyze changes to lifecycle management strategies to find long-term cost savings and efficiencies.

Affordability/Achievability of Scenario 1

Of the three scenarios analyzed, Scenario 1 is the least expensive option. Targeting 50% of funding recommendations would require no tax increases and minimal rate increases. Reaching the 50% target for rate funded assets would require total water revenue to rise from $1.9 million to $2.4 million, and total sanitary revenue to rise from $1.2 million to $1.5 million. Based on these gradual proposed increases, while maintaining existing sustainable grant funding, the available **capital** funding over the next 10 years for Scenario 1 is indicated in the table below:

Categories	Available Capital Funding (including grant funding)									
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tax-Funded[2]	$2.2m	$2.2m	$2.2m	$2.2m	$2.3m	$2.3m	$2.3m	$2.3m	$2.3m	$2.3m
Rate-Funded (Water)	$111k	$142k	$174k	$206k	$239k	$272k	$306k	$340k	$375k	$411k
Rate-Funded (Sanitary)	$156k	$171k	$186k	$201k	$216k	$232k	$248k	$264k	$280k	$296k
Total	**$2.5m**	**$2.6m**	**$2.6m**	**$2.7m**	**$2.7m**	**$2.8m**	**$2.8m**	**$2.9m**	**$2.9m**	**$3.0m**

Table 8 Scenario 1 Available Capital Funding Over Next 10 Years

[2] Increases in tax funding is from reallocation of debt repayments to capital expenses as debt repayments are completed.

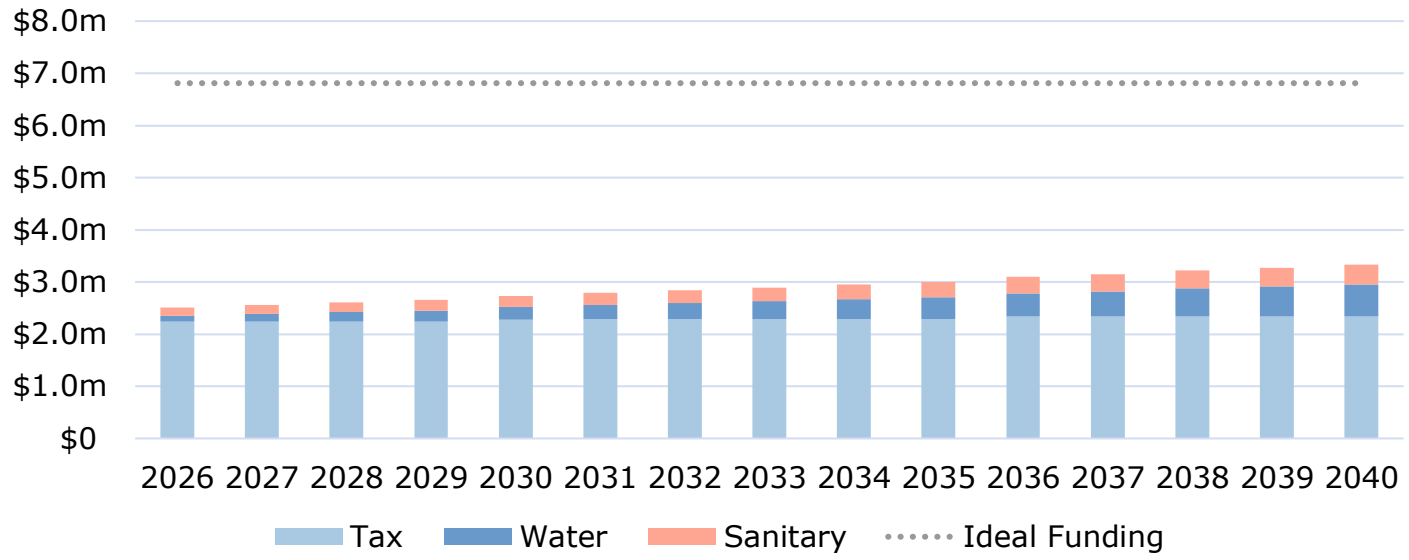


Figure 20 Scenario 1 Available Capital Funding

The above table accounts for both current and future expenditures in order to achieve and maintain the proposed levels of service. This requires a combination of capital spending and saving (i.e. reserves) to ensure future large expenditures can be financed. As an example, Alfred and Plantagenet owns and maintains 5 bridges each with an estimated useful life averaging 82 years. Because of the long duration between replacements, and low quantity of assets, it is likely that there will be years with no capital expenditures relating to bridges, however, this does not mean that the Township should ignore the funding requirements in these years. Instead, annual funding should be set aside in the form of reserves to ensure funding for upcoming lifecycle events is available when required.

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

Changes to Community and Technical Levels of Service for Scenario 1

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

Risks Associated with Scenario 1

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

- Increased infrastructure backlog
  - While mitigating the impact of financial increases on residents and businesses, taking 15 years to reach the targeted funding levels means 15 years of sub-optimal lifecycle management of assets. Being unable to complete strategic lifecycle

interventions and replacements may result in increased asset failures, reduced reliability, and the potential for costly unbudgeted repairs to maintain services.
    - In addition to the risks of reaching the desired funding levels gradually, Scenario 1 only targets 50% funding. By intentionally underfunding the Township's asset portfolio, there is increased risk of services being impacted by deteriorating asset conditions.
- Reliance on Grants
    - As Scenario 1 targets 50% of recommended funding levels, the Township will be more reliant on conditional grants, as they become available. While these are beneficial to all municipalities to secure to reduce their tax/rate burden on residents, they are considered an unsustainable revenue source. The Township will be more vulnerable to changes in provincial and federal policy and funding programs.
- Missed opportunities for efficiencies
    - While analyzing Scenario 1, no alternative lifecycle strategies were proposed. Mid-lifecycle interventions, such as asphalt overlays and sewer lining, can result in extended lifespans of assets and reduced costs over the lifetime of the assets. By relying on existing lifecycle strategies, the Township risks paying more than necessary to maintain their asset inventory.

4.3.2 Scenario 2: Achieving 75% Funding in 15 Years

This scenario assumes gradual tax and rate increases, stabilizing at 75% funding in 15 years.

- Annual Tax Increase ~0.8%
    - Funding was redistributed to equally achieve 75% funding for all asset categories
- Annual Water Rate Increase ~2.4%
- Annual Sanitary Rate Increase ~2.1%

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

Lifecycle Changes Required for Scenario 2

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

Affordability/Achievability of Scenario 2

Of the three scenarios analyzed, Scenario 2 is a middle option in terms of tax/rate increases. Reaching 75% of full funding immediately would require an increase of 16% in tax revenue. This is not reasonable or realistic to achieve in a short period of time. With the recommended implementation timeframe of 15 years, total tax revenue would be increased gradually from $8.5 million to $9.5 million, total water revenue from $1.9 million to $2.7 million, and total sanitary revenue from $1.2 million to $1.7 million. Based on these gradual proposed increases, while maintaining existing sustainable grant funding, the available capital funding over the next 10 years for Scenario 2 is indicated in the table below:

Categories	Available Capital Funding (including grant funding)									
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tax-Funded	$2.3m	$2.4m	$2.4m	$2.5m	$2.6m	$2.7m	$2.8m	$2.8m	$2.9m	$3.0m
Rate-Funded (Water)	$126k	$174k	$222k	$271k	$322k	$374k	$427k	$481k	$537k	$594k
Rate-Funded (Sanitary)	$167k	$193k	$220k	$247k	$275k	$304k	$333k	$362k	$393k	$424k
Total	**$2.6m**	**$2.7m**	**$2.9m**	**$3.0m**	**$3.2m**	**$3.4m**	**$3.5m**	**$3.7m**	**$3.9m**	**$4.0m**

Table 9 Scenario 2 Available Capital Funding Over Next 10 Years

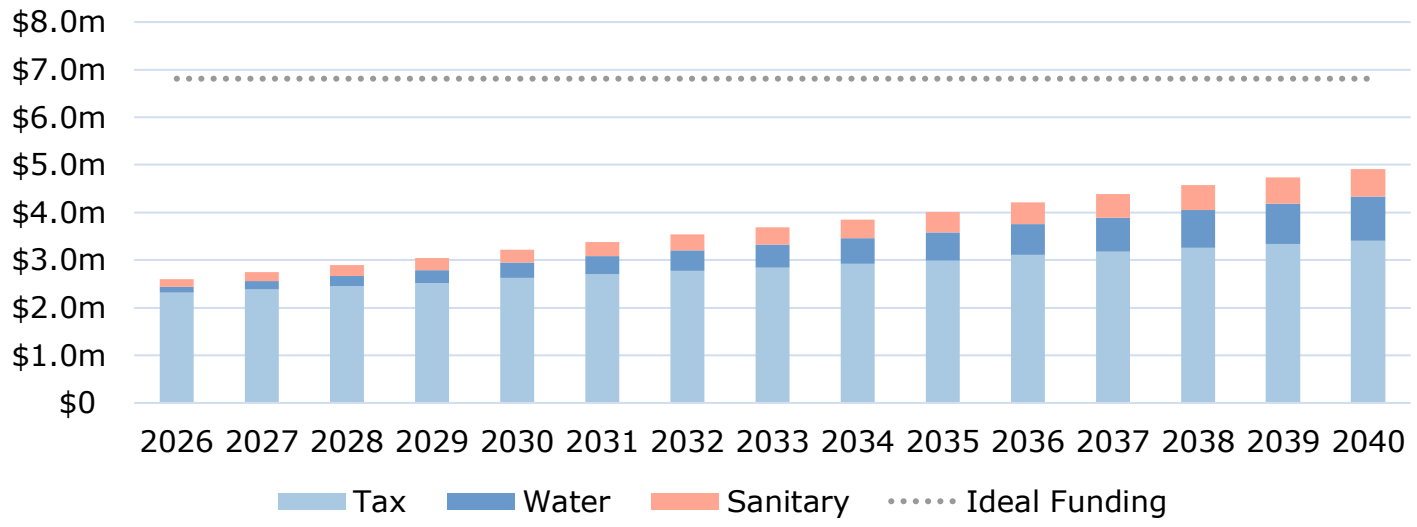


Figure 21 Scenario 2 Available Capital Funding

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

Changes to Community and Technical Levels of Service for Scenario 2

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

Risks Associated with Scenario 2

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

- Increased infrastructure backlog

    - While mitigating the impact of financial increases on residents and businesses, taking 15 years to reach the targeted funding levels means 15 years of sub-optimal lifecycle management of assets. Being unable to complete strategic lifecycle interventions and replacements may result in increased asset failures, reduced reliability, and the potential for costly unbudgeted repairs to maintain services.
    - In addition to the risks of reaching the desired funding levels gradually, Scenario 2 only targets 75% funding. By intentionally underfunding the Township's asset portfolio, there is increased risk of services being impacted by deteriorating asset conditions.
- Reliance on Grants
    - As Scenario 2 targets 75% of recommended funding levels, the Township will be more reliant on conditional grants, as they become available. While these are beneficial to all municipalities to secure to reduce their tax/rate burden on residents, they are considered an unsustainable revenue source. The Township will be more vulnerable to changes in provincial and federal policy and funding programs.
- Missed opportunities for efficiencies
    - While analyzing Scenario 2, no alternative lifecycle strategies were proposed. Mid-lifecycle interventions, such as asphalt overlays and sewer lining, can result in extended lifespans of assets and reduced costs over the lifetime of the assets. By relying on existing lifecycle strategies, the Township risks paying more than necessary to maintain their asset inventory.

4.3.3 Scenario 3: Achieving 100% Funding in 15 Years (Preferred Scenario)

This scenario assumes gradual tax and rate increases, stabilizing at full recommended funding in 15 years.

- Annual Tax Increase ~1.6%
- Annual Water Rate Increase ~3.1%
- Annual Sanitary Rate Increase ~2.8%

Lifecycle Changes Required for Scenario 3

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

Affordability/Achievability of Scenario 3

Of the three scenarios analyzed, Scenario 3 is the most expensive option. Reaching 100% of full funding immediately would require an increase of 30% in tax revenue. This is not reasonable or realistic to achieve in a short period of time. With the recommended implementation timeframe of 15 years, total tax revenue would be increased gradually from $8.5 million to $10.7 million, total water revenue from $1.9 million to $3.0 million, and total sanitary revenue from $1.2 million to $1.8 million. Based on these gradual proposed increases, while maintaining existing sustainable grant funding, the available capital funding over the next 10 years for Scenario 3 is indicated in the table below:

Categories	Available Capital Funding (including grant funding)									
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tax-Funded	$2.4m	$2.5m	$2.7m	$2.8m	$3.0m	$3.1m	$3.3m	$3.4m	$3.6m	$3.7m
Rate-Funded (Water)	$140k	$201k	$264k	$330k	$397k	$466k	$538k	$612k	$688k	$766k
Rate-Funded (Sanitary)	$176k	$211k	$247k	$284k	$322k	$361k	$402k	$443k	$486k	$530k
Total	**$2.7m**	**$2.9m**	**$3.2m**	**$3.4m**	**$3.7m**	**$4.0m**	**$4.2m**	**$4.5m**	**$4.8m**	**$5.0m**

Table 10 Scenario 3 Available Capital Funding Over Next 10 Years

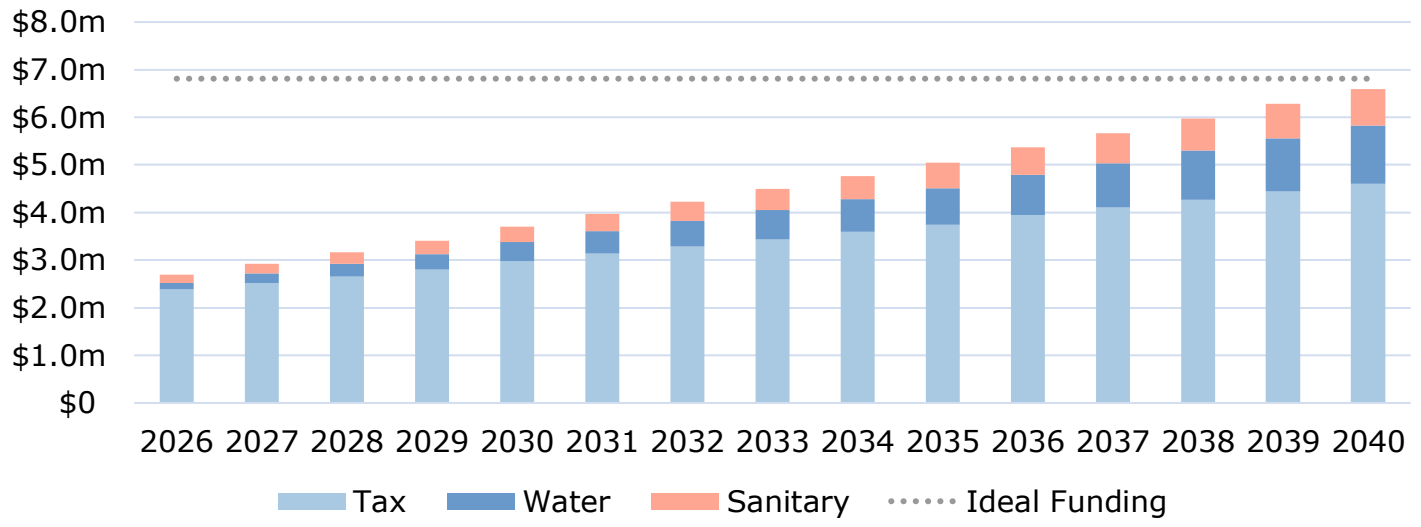


Figure 22 Scenario 3 Available Capital Funding

As the Township of Alfred and Plantagenet selected Scenario 3 as their preferred proposed level of service, a further breakdown of projected capital expenditures by asset category can be found in Appendix B – 10-Year Capital Requirements.

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

Changes to Community and Technical Levels of Service for Scenario 3

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

Risks Associated with Scenario 3

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

- Increased infrastructure backlog
  - While mitigating the impact of financial increases on residents and businesses, taking 15 years to reach the targeted funding levels means 15 years of sub-optimal lifecycle management of assets. Being unable to complete strategic lifecycle interventions and replacements may result in increased asset failures, reduced reliability, and the potential for costly unbudgeted repairs to maintain services.
- Missed opportunities for efficiencies
  - While analyzing Scenario 3, no alternative lifecycle strategies were proposed. Mid-lifecycle interventions, such as asphalt overlays and sewer lining, can result in extended lifespans of assets and reduced costs over the lifetime of the assets. By relying on existing lifecycle strategies, the Township risks paying more than necessary to maintain their asset inventory.

Appropriateness of Scenario 3 to Meet the Township's Needs

Township staff emphasized a need to balance financial impacts on residents with the reality of the current state of infrastructure within the municipality. Upon review of all three scenarios, Scenario 3 was selected as the most appropriate option as an annual tax increase of 1.6% was determined to be subjectively manageable to implement, while creating a sustainable future for the Township's infrastructure. The risks associated with relying on conditional grants from higher levels of government were deemed to be too great considering the country-wide trend of downloading responsibilities (and costs) to municipal governments and reducing funding opportunities.

Category Analysis: Core Assets

5. Road Network

The Township's road network comprises a large proportion of its infrastructure portfolio, with a current replacement cost of more than $43 million, distributed primarily between paved and DST roads. The Township also owns and manages other supporting infrastructure and capital assets, including sidewalks, curbs, and streetlights.

5.1 Inventory & Valuation

Table 11 summarizes the quantity and current replacement cost of the Township's various road network assets as managed in its primary asset management register, Citywide.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Curbs	9,837	Meters	$1,184,000	Cost/Unit
DST Roads	70,710	Meters	$10,607,000	Cost/Unit
Gravel Roads	103,091	Meters	$4,535,000	Cost/Unit
Hot Mix Roads	123,519	Meters	$21,900,000	Cost/Unit
Roadside Appurtenances	864	Assets	$856,000	CPI
Sidewalks	16,057	Meters	$2,409,000	Cost/Unit
Street Lights & Fixtures	806	Assets	$1,900,000	Cost/Unit
TOTAL			**$43,391,000**	

Table 11 Detailed Asset Inventory: Road Network

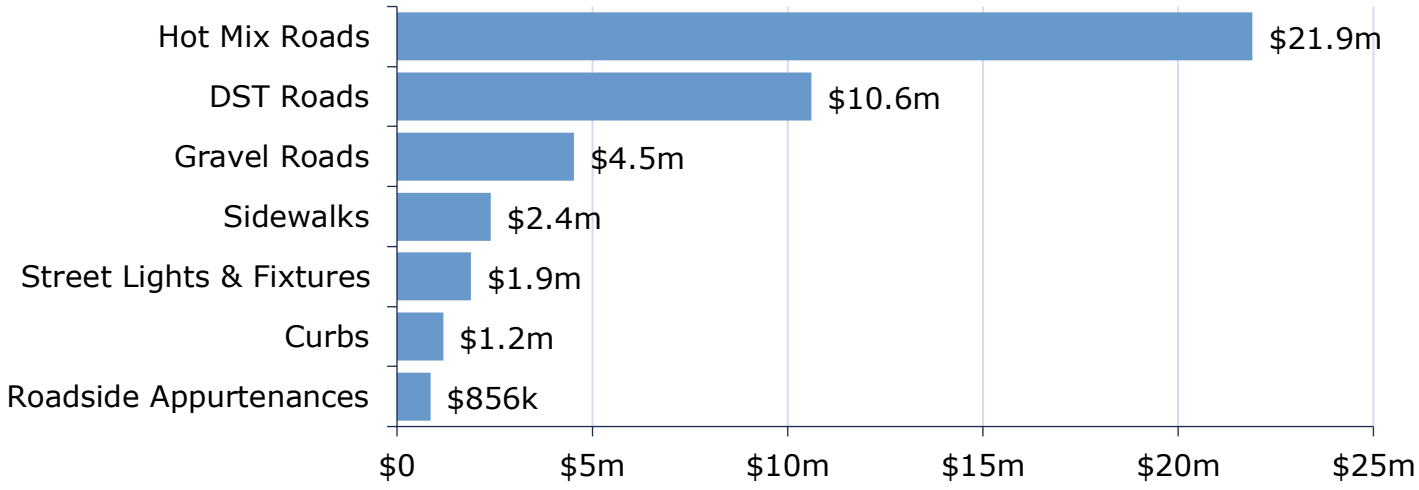


Figure 23 Portfolio Valuation: Road Network

5.2 Asset Condition

Figure 24 summarizes the replacement cost-weighted condition of the Township's road network. Based on a combination of field inspection data and age, 54% of assets are in fair or better condition; the remaining 46% of assets are in poor to very poor condition. Condition assessments were available for 90% 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 24, the majority of the Township's road network assets are in fair or better condition.

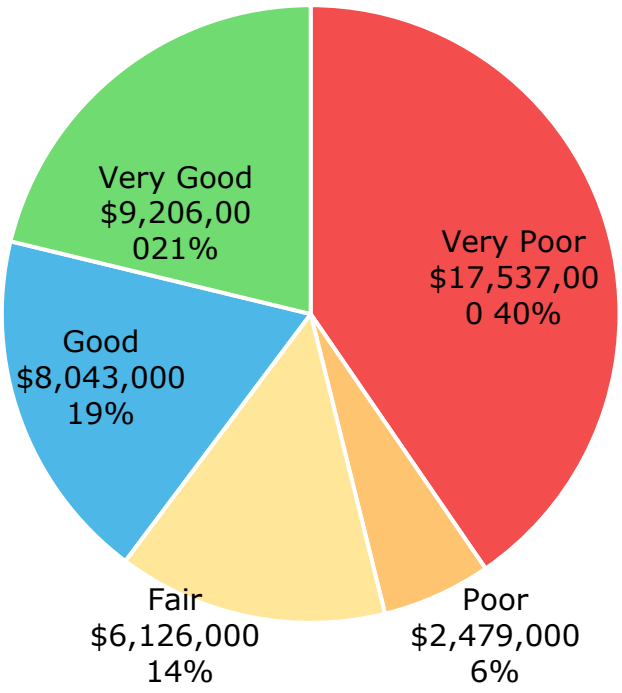


Figure 24 Asset Condition: Road Network Overall

As illustrated in Figure 25, based on condition assessments, the majority of the Township's hot mix portion of the road network are in fair or better condition; however, 86% of gravel roads and 76% of DST roads are in poor or worse condition.

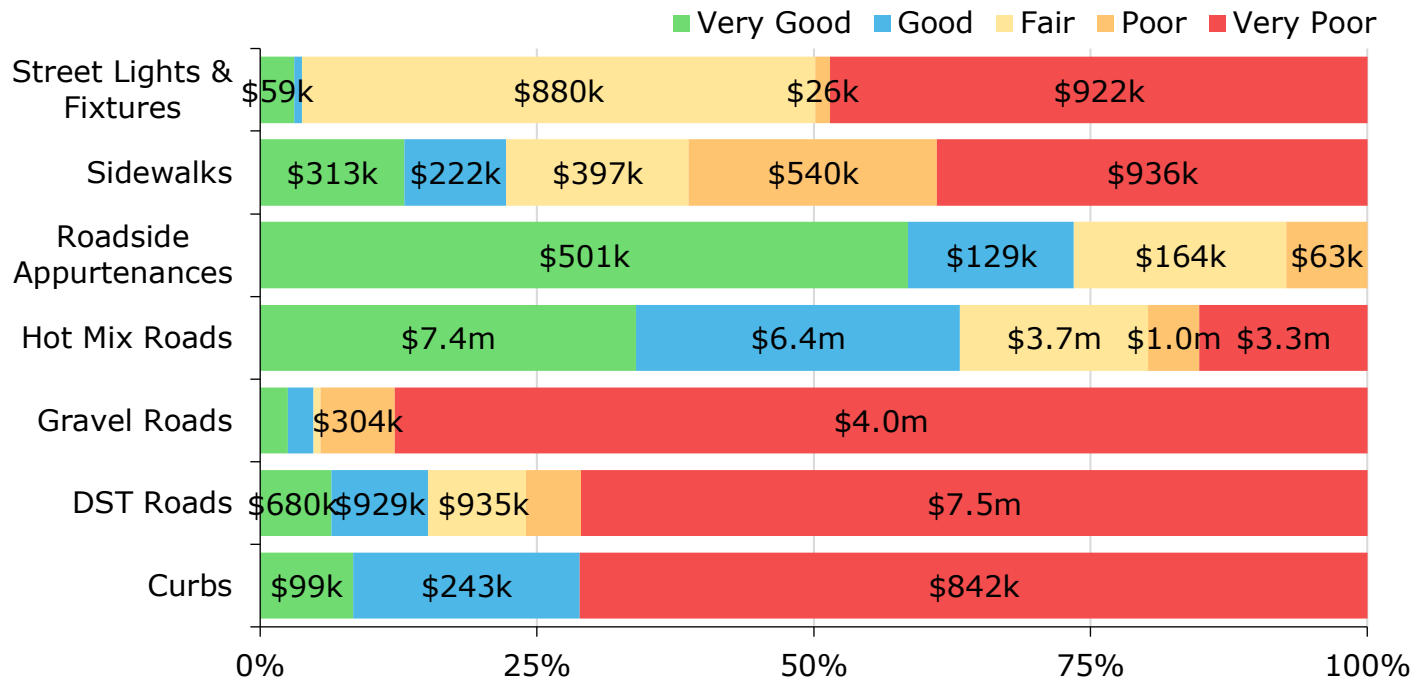


Figure 25 Asset Condition: Road Network by Segment

5.3 Age Profile

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

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

Figure 26 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.

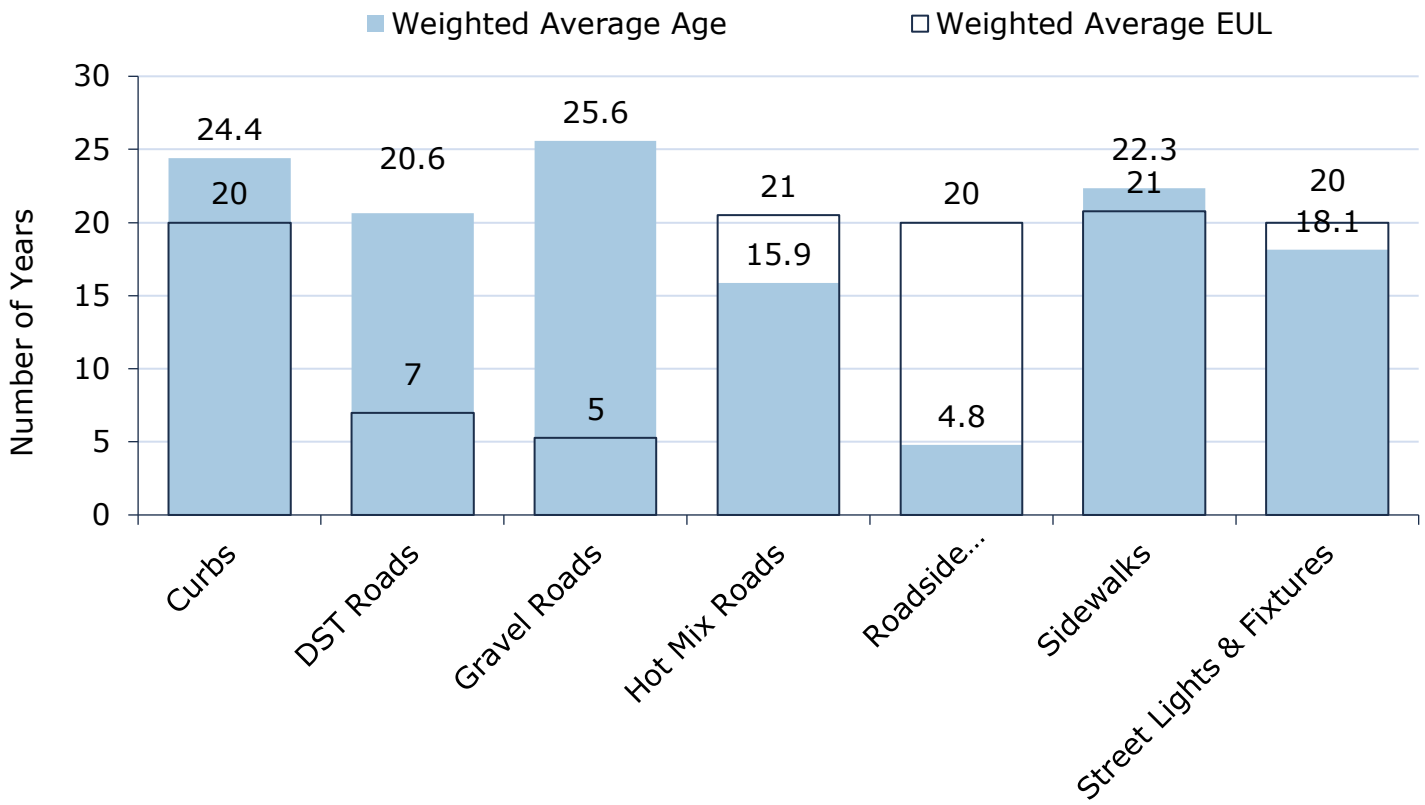


Figure 26 Estimated Useful Life vs. Asset Age: Road Network

Age analysis shows that the majority of paved roads are in moderate stages of their expected useful life, with an average age of 15.9 years against a design life of 33 years. DST roads, gravel roads, and curbs continue to remain in service well beyond their expected useful life, however, gravel roads can be maintained on a perpetual cycle through the operational maintenance budget with a regular roadway granular replacement program.

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

5.4 Current Approach to Lifecycle Management

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

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

Hot Mix Roads		
Event Name	**Event Class**	**Event Trigger**
Pulverize & Pave	Rehabilitation	Age: 15 Years
Full Reconstruction	Replacement	Condition: 30 - 35

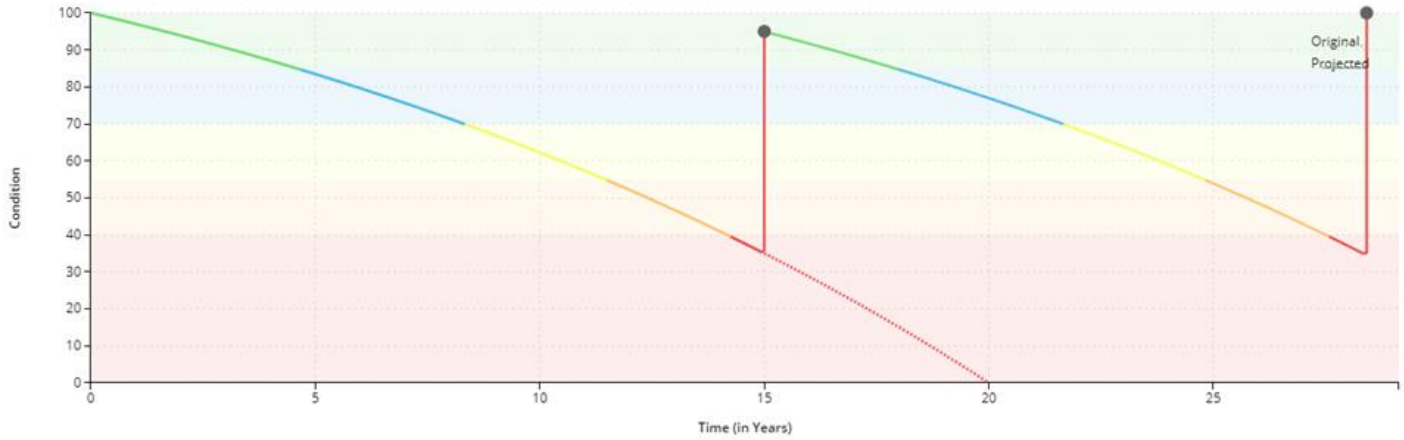


Table 12 Lifecycle Management Strategy: Road Network (Hot Mix Roads)

DST Roads		
Event Name	**Event Class**	**Event Trigger**
Double Surface Treatment	Rehabilitation	Every 5 Years
Full Reconstruction and Asset	Replacement	Condition: 20[3]

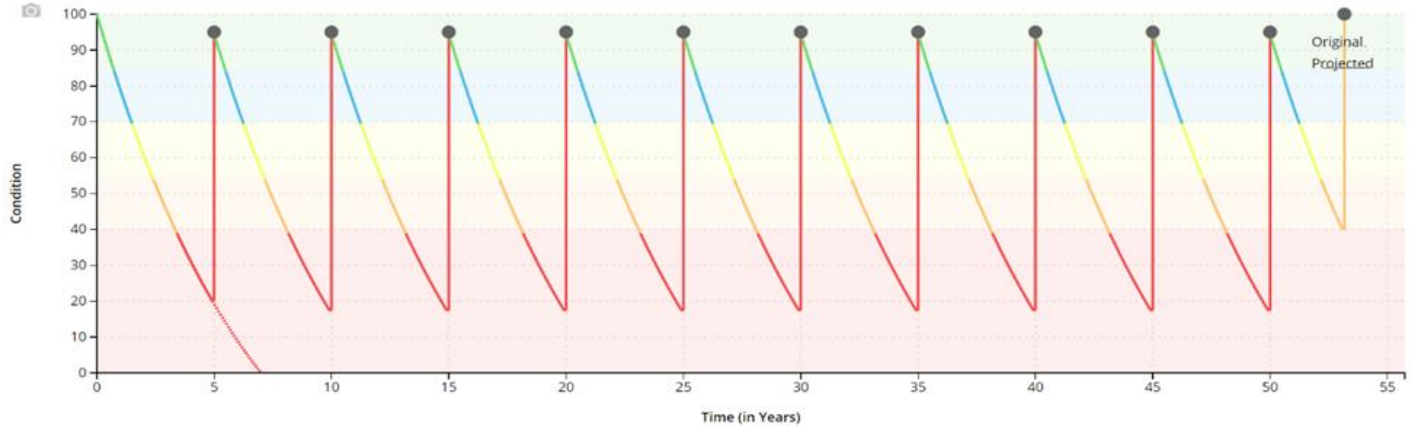


Table 13 Lifecycle Management Strategy: Road Network (DST Roads)

[3] The DST road type is considered to be in a state of perpetual maintenance, until the road asset is considered to be a suitable candidate for a road surface upgrade or the subsurface utilities infrastructure requires attention.

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.
Rehabilitation	Rehabilitation activities include: pulverize & pave, asphalt overlay, and surface treatments.
Replacement	DST roads are replaced and upgraded to Hot Mix roads.
	Road replacement prioritization is determined by consideration of growth, risk, condition, health and safety, and social impact.
	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	The most recent Roads Needs Study was prepared in 2023 by LRL Associates Ltd. Road inspections/assessments are conducted annually by internal staff and, generally, a Road Needs Study is conducted by an external consultant every 5 years.
	Supporting infrastructures such as sidewalks and streetlights are assessed approximately every 5 years.

Table 14 Lifecycle Management Strategy: Road Network

5.5 Forecasted Long-Term Replacement Needs

Figure 13 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's road network. This analysis was run until 2078 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 **$2.4 million per year** for all assets in the road network. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

The chart illustrates substantial capital needs through the forecast period. It also shows a backlog $3.3 million, dominated by streetlights. However, as streetlights are pooled and no

condition data was available, this estimate may not be accurate. These projections are based on asset replacement costs, age analysis, and condition data when available, as well as lifecycle modeling (roads only). They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

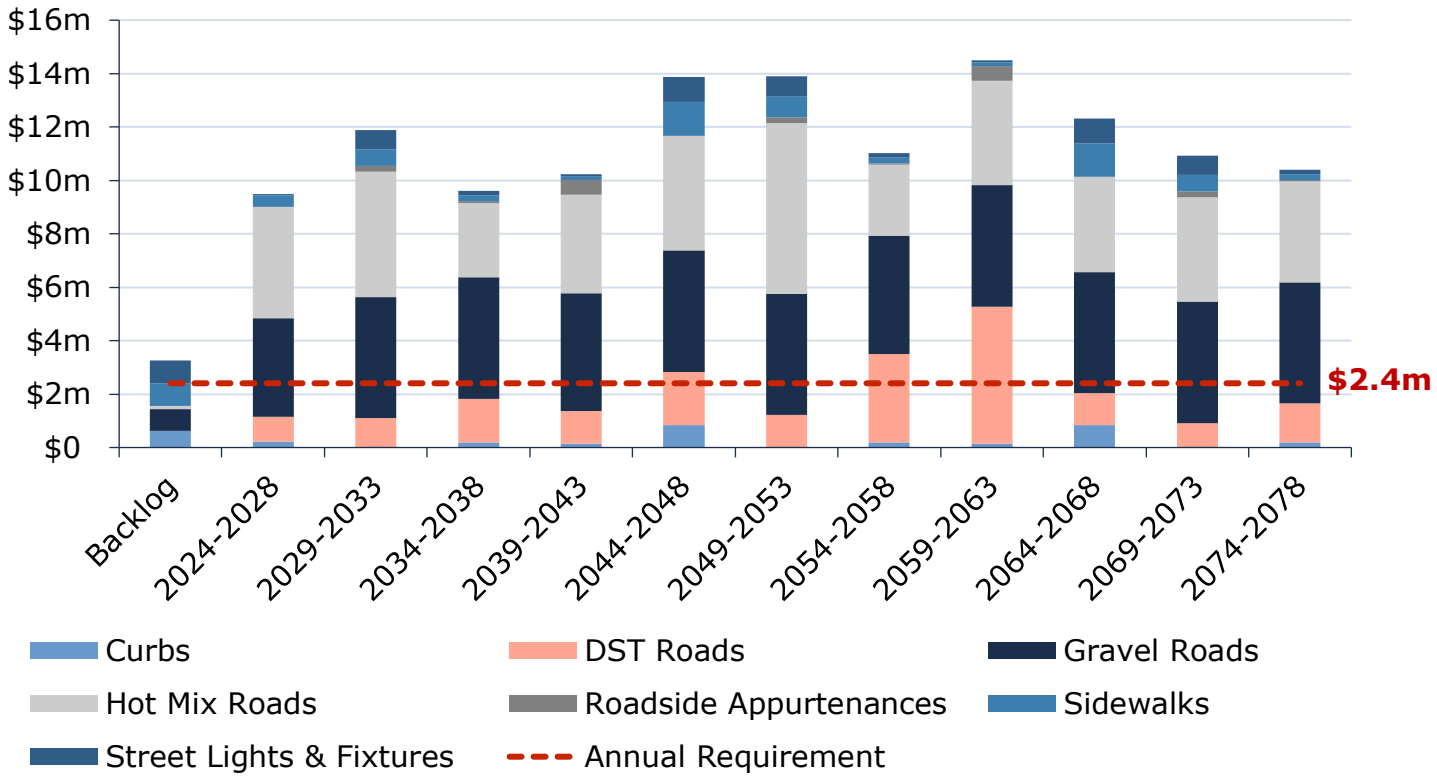


Figure 27 Forecasted Capital Replacement Needs: Road Network 2024-2078

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. Regular pavement condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

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

5.6 Risk Analysis

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

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

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

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

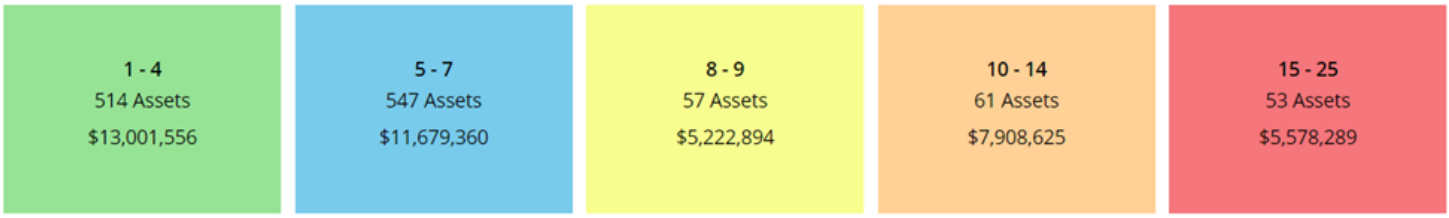


Figure 28 Risk Matrix: Road Network

5.7 Levels of Service

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

5.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	An approximately 300 km road network spanning over 392 km² of area. Surface material ranging from earth, sand, gravel, double surface treatment to hot mix asphalt. The system mostly consists of local roads with an MMS class of 5 or 6. Arterial roads are mostly owned and operated by the United Counties of Prescott and Russell.
Quality	Description or images that illustrate the different levels of road class pavement condition	See Appendix C – Level of Service Maps & Photos

Table 15 O. Reg. 588/17 Community Levels of Service: Road Network

5.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
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)[4]	0.22 km/km^2
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)[4]	1.30 km/km^2
Quality	Average pavement condition index for paved roads in the Township	Hot Mix Roads: 71% DST Roads: 27%
	Average surface condition for unpaved roads in the Township (e.g. excellent, good, fair, poor)	Poor
Performance	Actual vs. Target capital reinvestment rate	3.9% vs. 5.5%
	O&M $/km for unpaved (loose top) roads	$1,940/km

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

5.8 Proposed Levels of Service

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

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

[4] All roads are assumed to have 2 lanes.

5.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving 50% Funding in 15 Years	This scenario requires no tax increases. ♦ Road network capital funding is maintained at 2023 funding level of $1.7m/year ♦ Funding was not redistributed amongst asset categories, meaning that while the portfolio is funded at 50% of recommended funding, each asset category varies
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes gradual tax increases of ~0.8%/year, stabilizing at 75% funding across all tax-funded asset categories in 15 years. ♦ Road network capital funding gradually increases from $1.7m/year to $1.8m/year over a span of 15 years ♦ Funding was redistributed to equally achieve 75% funding for all asset categories.
Scenario 3: Achieving 100% Funding in 15 Years	This scenario assumes gradual tax increases of ~1.6%/year, stabilizing at 100% funding across all tax-funded asset categories in 15 years. ♦ Road network capital funding gradually increases from $1.7m/year to $2.4m/year over a span of 15 years

Table 17 Road Network PLOS Scenario Descriptions

5.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1 (Maintain)	Average Condition	48%	29%	24%	
	Average Asset Risk	8.8	10.6	10.8	
	Average Annual Investment		$1,676,000		This parameter is maintained
	Average Capital re-investment rate		3.9%		
Scenario 2 (75%)	Average Condition	48%	30%	26%	
	Average Asset Risk	8.8	10.4	10.7	
	Average Annual Investment		$1,804,000		Increase taxes by ~0.8% per year for 15 years
	Average Capital re-investment rate		4.2%		
Scenario 3 (100%)	Average Condition	48%	35%	36%	
	Average Asset Risk	8.8	9.9	9.6	
	Average Annual Investment		$2,406,000		Increase taxes by ~1.6% per year for 15 years
	Average Capital re-investment rate		5.5%		

Table 18 Road Network PLOS Scenario Analysis

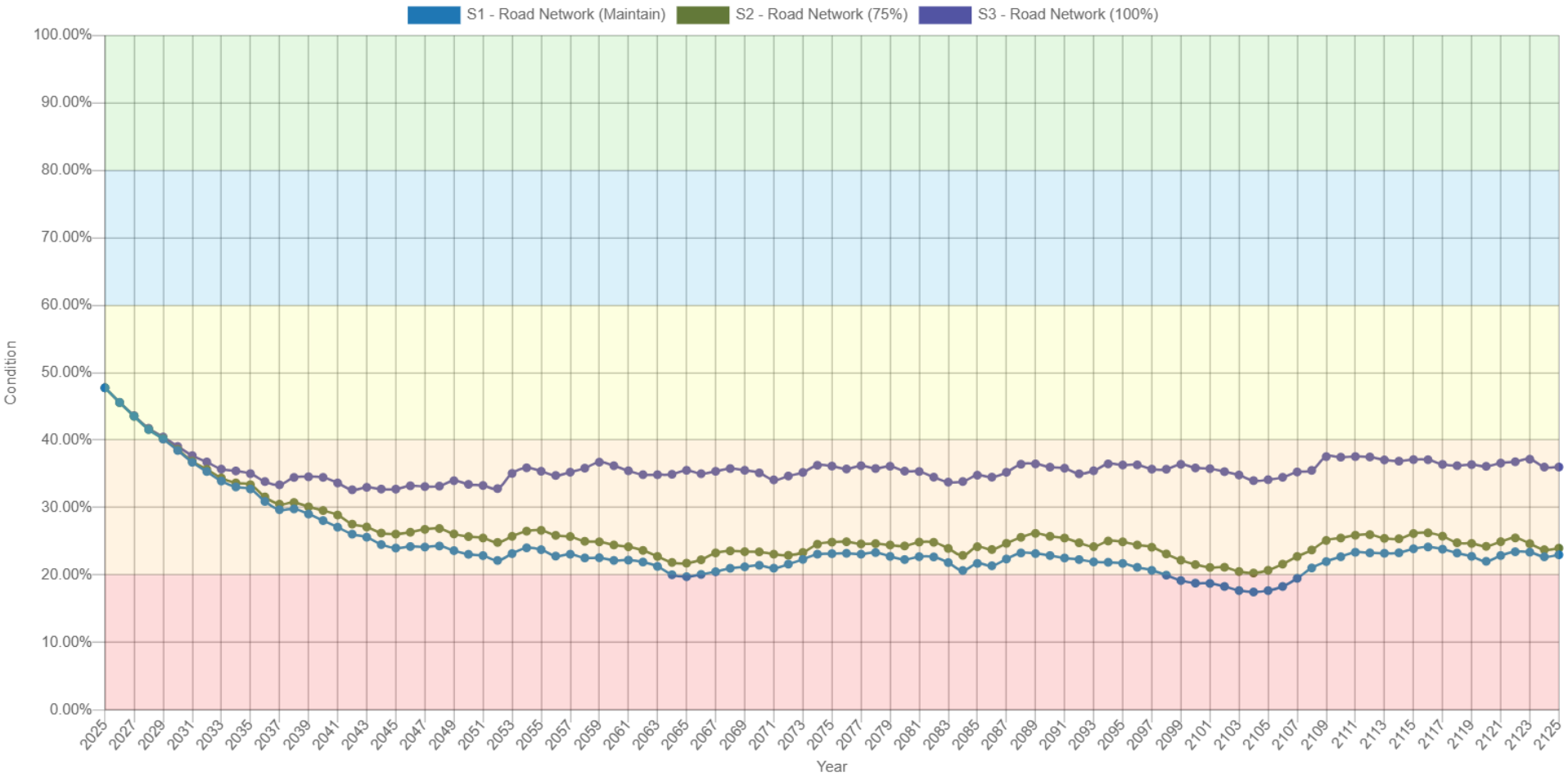


Figure 29 Road Network PLOS Scenario Condition Results

5.8.3 10-Year PLOS Financial Projections

As outlined in Section *4. Proposed Levels of Service Analysis*, the Township of Alfred and Plantagenet selected Scenario 3 as their preferred proposed levels of service. The main objective is to increase spending gradually to reach a more sustainable funding level to manage the Township's current inventory of assets. The following table outlines the funding trajectory over the next 10 years for the road network if the financial strategy for Scenario 3 is implemented.

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Targeted Capital Spending	**$2.41m**	**$2.41m**	**$2.41m**	**$2.41m**	**$2.41m**	**$2.41m**	**$2.41m**	**$2.41m**	**$2.41m**	**$2.41m**
Projected Capital Spending	$1.70m	$1.74m	$1.78m	$1.82m	$1.87m	$1.92m	$1.96m	$2.01m	$2.05m	$2.09m
Funding Deficit	$701k	$662k	$622k	$582k	$531k	$486k	$443k	$401k	$357k	$313k
Target Reinvestment Rate	**5.5%**	**5.5%**	**5.5%**	**5.5%**	**5.5%**	**5.5%**	**5.5%**	**5.5%**	**5.5%**	**5.5%**
Projected Reinvestment Rate	3.9%	4.0%	4.1%	4.2%	4.3%	4.4%	4.5%	4.6%	4.7%	4.8%

Table 19 Road Network 10-Year PLOS Financial Projections

6. Bridges & Culverts

The Township's transportation network also includes bridges and structural culverts, with a current replacement cost of $5.5 million.

6.1 Inventory & Valuation

Table 20 summarizes the quantity and current replacement cost of bridges and culverts. The Township owns and manages five bridges (one of which is closed and excluded from this AMP) and 24 structural culverts.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Bridges	5 (8)	Assets (Components)	$2,908,000	CPI
Structural Culverts	24	Assets	$2,584,000	CPI
TOTAL			**$5,491,000**	

Table 20 Detailed Asset Inventory: Bridges & Culverts

Figure 30 Portfolio Valuation: Bridges & Culverts

6.2 Asset Condition

Figure 31 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, 59% of bridges and culverts are in fair or better condition. Some elements or components of these structures may be candidates for replacement or rehabilitation in the medium term and should be monitored for further degradation in condition. At 41% of the total bridges and culverts portfolio, assets in poor or worse condition may require replacement in the immediate or short term.

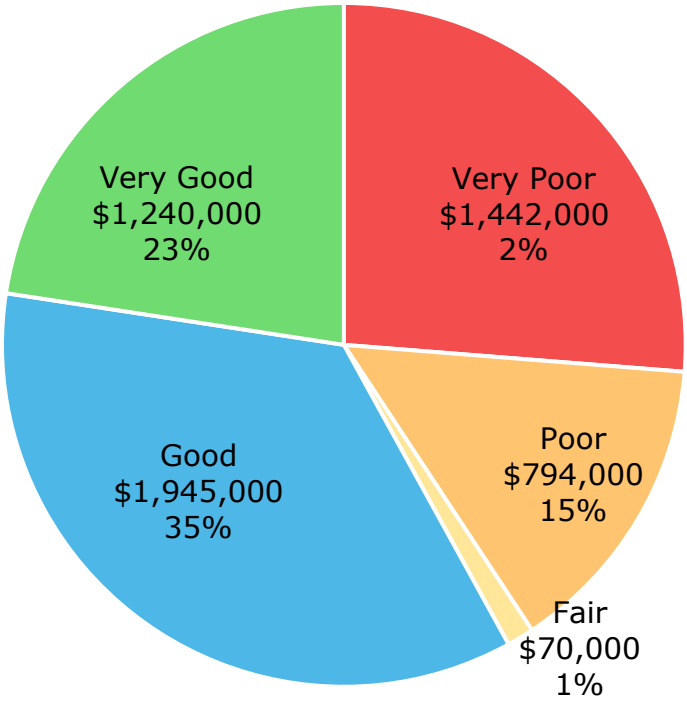


Figure 31 Asset Condition: Bridges & Culverts Overall

As further detailed in Figure 32, based on in-field condition assessments, $794 thousand of bridge assets were assessed as being in poor or worse condition. Similarly, 56% of structural culverts, with a current replacement cost of $1.4 million were identified as poor or worse. Bridges and structures with a poor or worse rating (i.e., a bridge condition index of less than 60) are not necessarily unsafe for regular use. The OSIM ratings are designed to identify repairs needed to elevate condition ratings to a fair or higher.

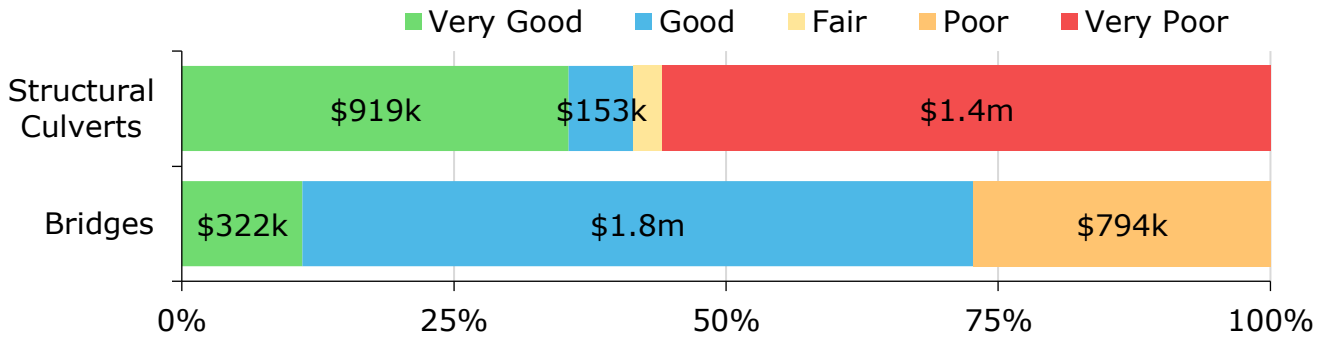


Figure 32 Asset Condition: Bridges & Culverts by Segment

6.3 Age Profile

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

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

Figure 33 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.

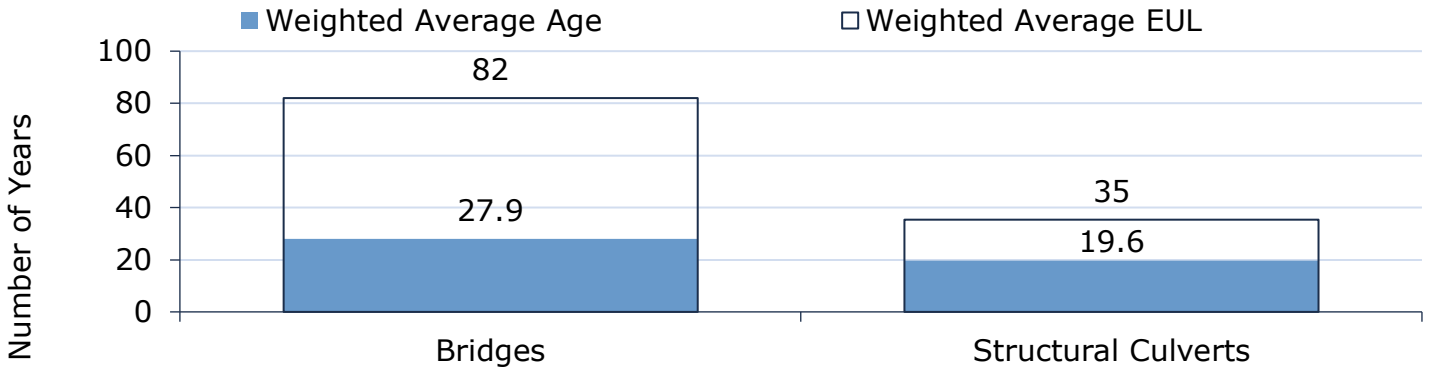


Figure 33 Estimated Useful Life vs. Asset Age: Bridges & Culverts

Age analysis reveals that on average, bridges early to moderate stages of their estimated useful life, with an average age of 27.9 years against an average EUL of 82 years. On average, culverts are also in moderate stages of their lifecycle, with an average age of 19.6 years, against an average EUL of 35 years. OSIM assessments should continue to be used in conjunction with age and asset criticality to prioritize capital and maintenance expenditures.

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	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.

Activity Type	Description of Current Strategy
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 2021 and 2023 by LRL Associates Ltd.

Table 21 Lifecycle Management Strategy: Bridges & Culverts

6.5 Forecasted Long-Term Replacement Needs

Figure 34 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 2093 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 **$126,000 per year**. 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 30 years, capital needs will starkly rise between 2054 and 2058 with a peak at $1.8 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.

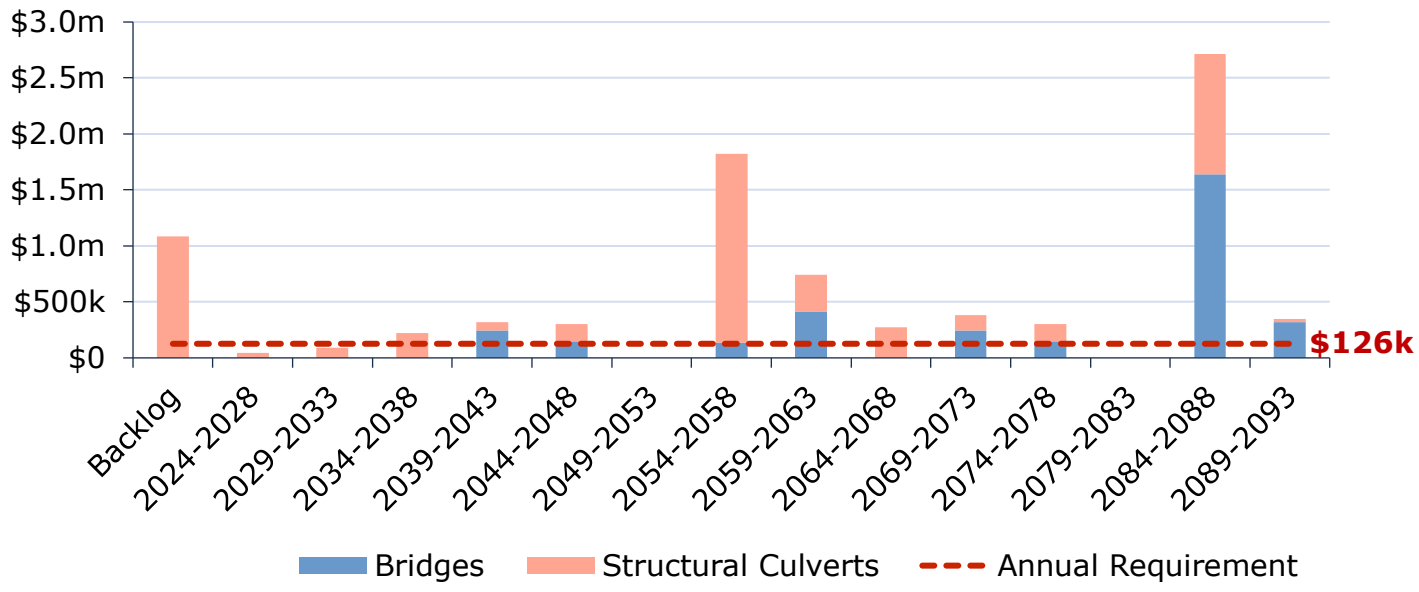


Figure 34 Forecasted Capital Replacement Needs: Bridges & Culverts 2024-2093

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and

monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. OSIM condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

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

6.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, replacement costs, and daily traffic counts. 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.

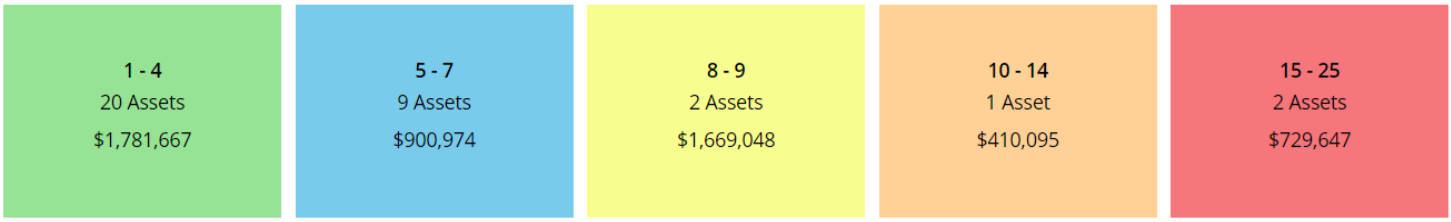


Figure 35 Risk Matrix: Bridges & Culverts

6.7 Levels of Service

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

6.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	The traffic on bridges and structural culverts is generally light as these are local roads. However, some heavy vehicle traffic, such as agricultural and transport, is common.
Quality	Description or images of the condition of bridges & culverts and how this would affect use of the bridges & culverts	See Appendix C – Level of Service Maps & Photos

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

6.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of bridges in the Township with loading or dimensional restrictions	0%
Quality	Average bridge condition index value for bridges in the Township	76%[5]
	Average bridge condition index value for structural culverts in the Township	N/A[6]
Performance	Actual vs. Target capital reinvestment rate	0.0% vs. 2.3%

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

6.8 Proposed Levels of Service

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

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

[5] Alfred-Plantagenet has 4 bridges, 1 is closed. This condition score excludes the closed bridge.
[6] Culverts have not been assessed and have projected condition based on age.

6.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving 50% Funding in 15 Years	This scenario requires no tax increases. ♦ Bridge capital funding is maintained at 2023 funding level of $0/year ♦ Funding was not redistributed amongst asset categories, meaning that while the portfolio is funded at 50% of recommended funding, each asset category varies
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes gradual tax increases of ~0.8%/year, stabilizing at 75% funding across all tax-funded asset categories in 15 years. ♦ Bridge capital funding gradually increases from $0/year to $95k/year over a span of 15 years ♦ Funding was redistributed to equally achieve 75% funding for all asset categories.
Scenario 3: Achieving 100% Funding in 15 Years	This scenario assumes gradual tax increases of ~1.6%/year, stabilizing at 100% funding across all tax-funded asset categories in 15 years. ♦ Bridge capital funding gradually increases from $0/year to $126k/year over a span of 15 years

Table 24 Bridges & Culverts PLOS Scenario Descriptions

6.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1 (Maintain)	Average Condition	57%	36%	21%	
	Average Asset Risk	8.4	11.8	14.0	
	Average Annual Investment		$0		This parameter is maintained
	Average Capital re-investment rate		0.0%		
Scenario 2 (75%)	Average Condition	57%	44%	42%	
	Average Asset Risk	8.4	11.5	12.7	
	Average Annual Investment		$95,000		Increase taxes by ~0.8% per year for 15 years
	Average Capital re-investment rate		1.7%		
Scenario 3 (100%)	Average Condition	57%	47%	45%	
	Average Asset Risk	8.4	11.3	12.4	
	Average Annual Investment		$126,000		Increase taxes by ~1.6% per year for 15 years
	Average Capital re-investment rate		2.3%		

Table 25 Bridges & Culverts PLOS Scenario Analysis

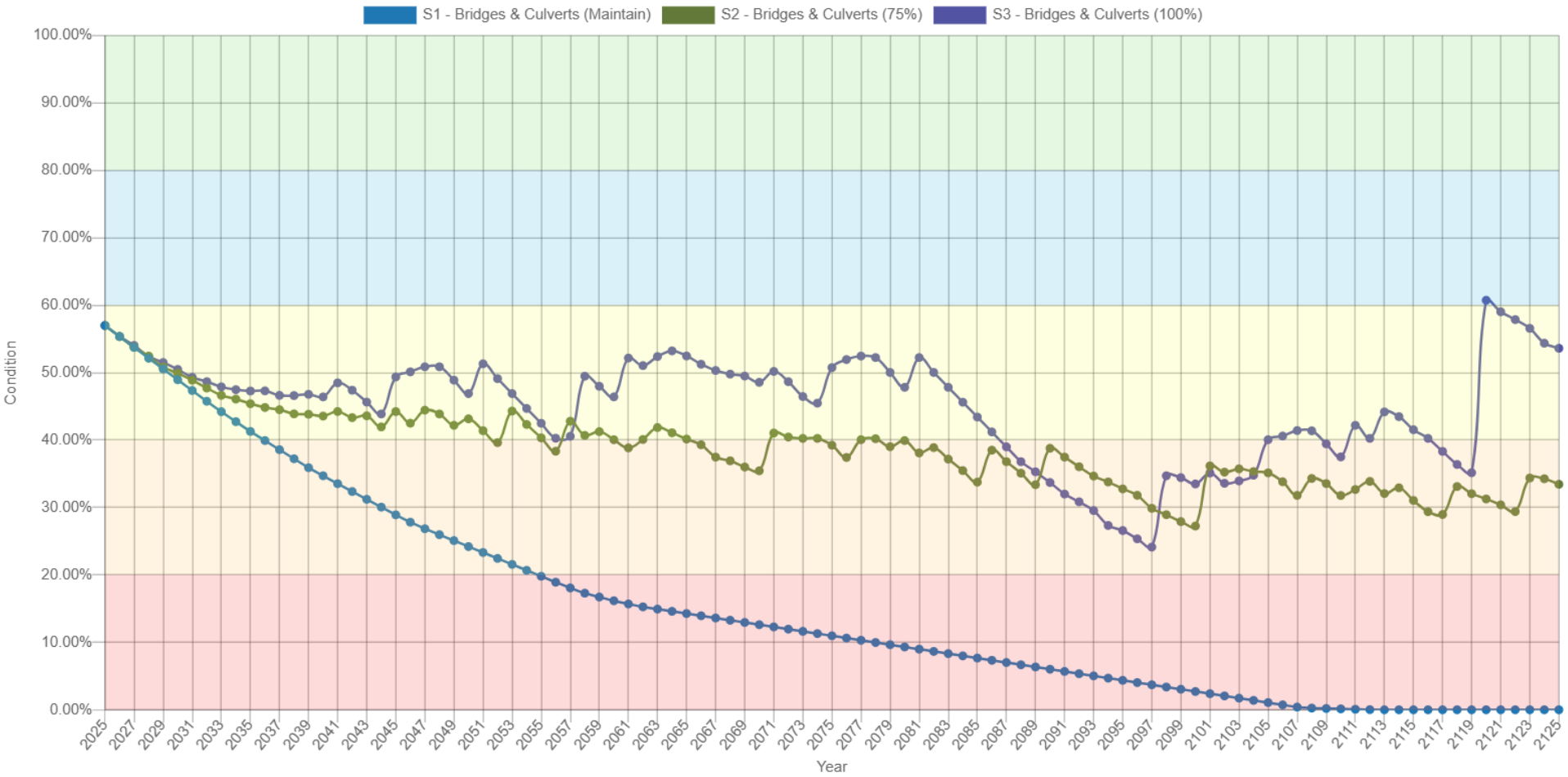


Figure 36 Bridges & Culverts PLOS Scenario Condition Results

6.8.3 10-Year PLOS Financial Projections

As outlined in Section *4. Proposed Levels of Service Analysis* the Township of Alfred and Plantagenet selected Scenario 3 as their preferred proposed levels of service. The main objective is to increase spending gradually to reach a more sustainable funding level to manage the Township's current inventory of assets. The following table outlines the funding trajectory over the next 10 years for bridges and culverts if the financial strategy for Scenario 3 is implemented.

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Targeted Capital Spending	**$126k**	**$126k**	**$126k**	**$126k**	**$126k**	**$126k**	**$126k**	**$126k**	**$126k**	**$126k**
Projected Capital Spending	$5k	$12k	$19k	$26k	$34k	$42k	$49k	$57k	$64k	$72k
Funding Deficit	$121k	$115k	$108k	$101k	$92k	$84k	$77k	$69k	$62k	$54k
Target Reinvestment Rate	**2.3%**	**2.3%**	**2.3%**	**2.3%**	**2.3%**	**2.3%**	**2.3%**	**2.3%**	**2.3%**	**2.3%**
Projected Reinvestment Rate	0.1%	0.2%	0.3%	0.5%	0.6%	0.8%	0.9%	1.0%	1.2%	1.3%

Table 26 Bridges & Culverts 10-Year PLOS Financial Projections

7. Water Network

The Township's water network includes water mains, hydrants, and treatment facilities, with a current replacement cost of almost $72 million. Potable water represents a critical portion of the services provided to the community.

7.1 Inventory & Valuation

Table 27 summarizes the quantity and current replacement cost of the Township's various water network assets as managed in its primary asset management register, Citywide Assets.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Hydrants	228	Assets	$2,946,000	CPI
Mains	61,463	Meters	$30,283,000	CPI
Meters	1,928	Assets	$1,513,000	CPI
Water Equipment	5	Assets	$247,000	CPI
Water Facilities	10	Assets	$36,798,000	CPI
TOTAL			**$71,787,000**	

Table 27 Detailed Asset Inventory: Water Network

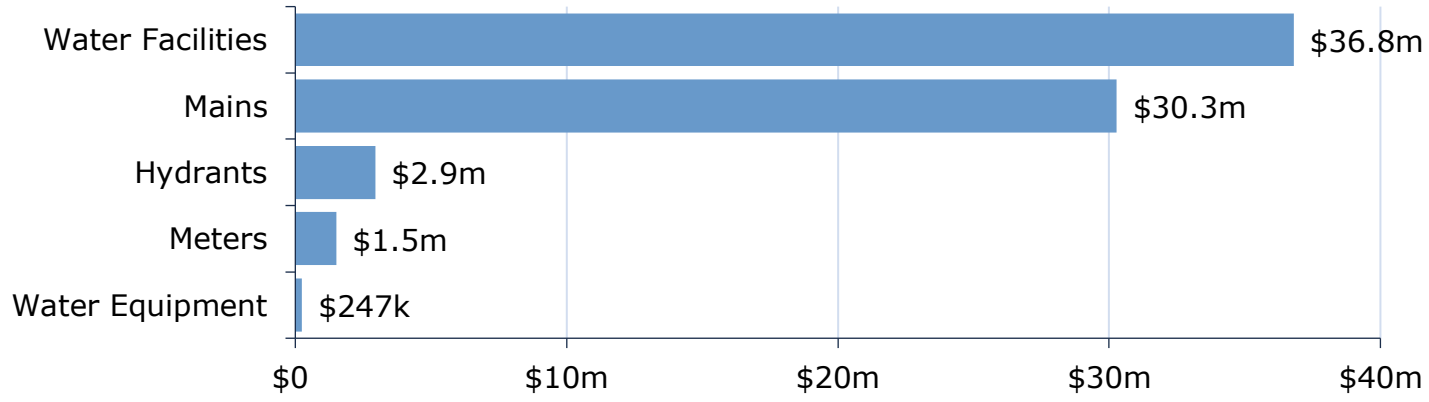


Figure 37 Portfolio Valuation: Water Network

7.2 Asset Condition

Figure 38 summarizes the replacement cost-weighted condition of the Township's water network. Based on a combination of field inspection data and age, 96% of assets are in fair or better condition; the remaining 4% 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.

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 38, the majority of the Township's water network assets are in fair or better condition.

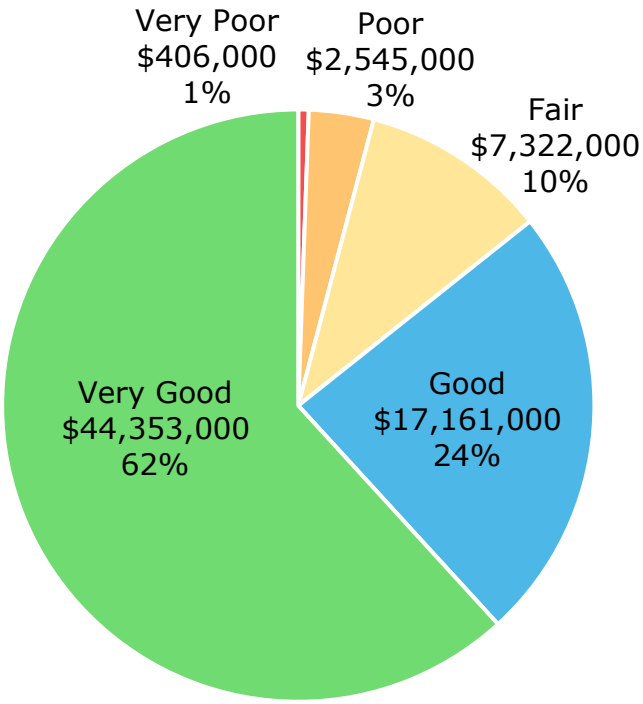


Figure 38 Asset Condition: Water Network Overall

As illustrated in Figure 39, based on condition assessments and age-based conditions, the majority of the Township's water mains and water facilities are in very good condition; however, 74% of water meters and 71% of water equipment are in poor or worse condition.

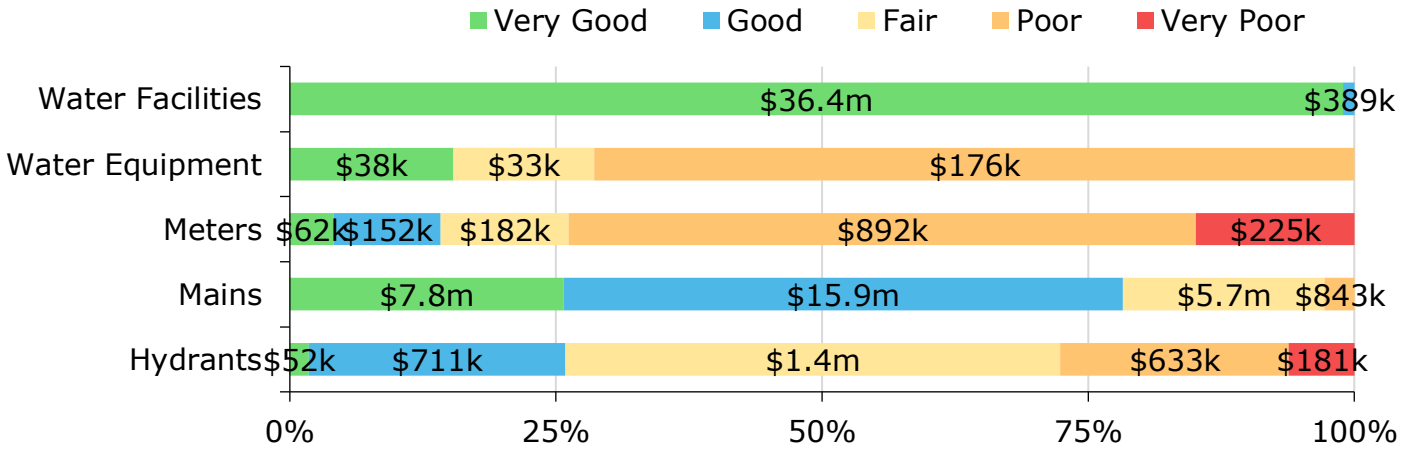


Figure 39 Asset Condition: Water Network by Segment

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

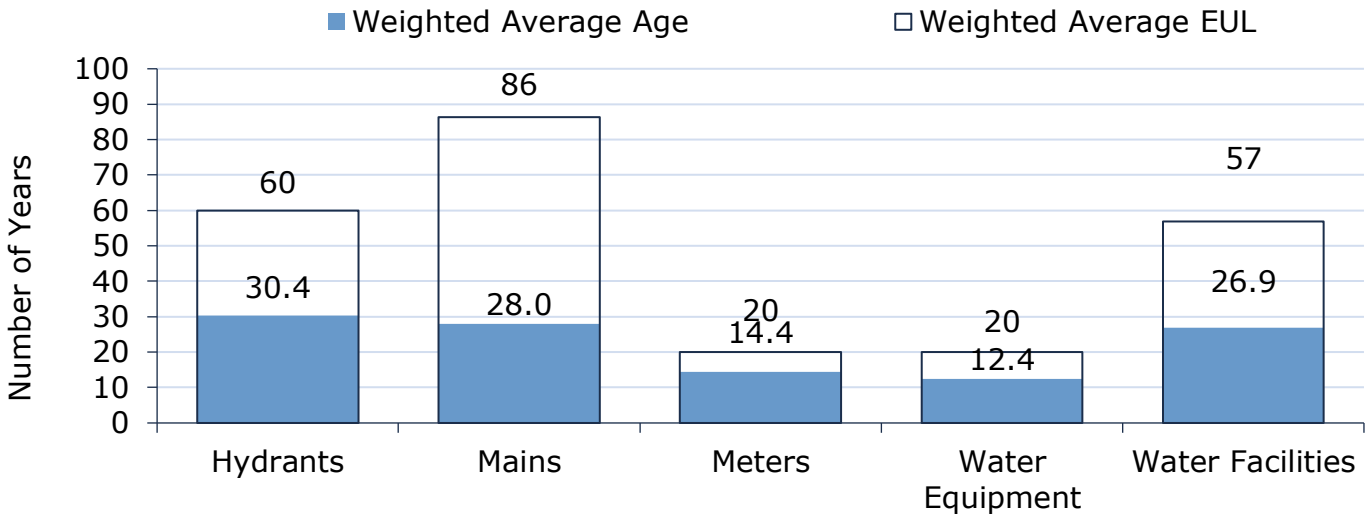


Figure 40 Estimated Useful Life vs. Asset Age: Water Network

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.

7.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Water main breaks are managed and remediated when they occur. Staff may assist OCWA on site
	Valves undergo annual maintenance as part of preventative maintenance
	Periodic pressure testing to identify deficiencies and potential leaks
	Mains are flushed twice per year on the entire network
Rehabilitation/ Replacement	Multi-year forecasts provided by OCWA and further reviewed by Staff
	In the absence of mid-lifecycle rehabilitative events, most mains are simply maintained with the goal of full replacement once it reaches its end-of-life
	Other replacement activities are identified based on an analysis of the main break rate, asset functionality and design capacity as well as any issues identified during regular maintenance activities
	When mains are replaced, PVC pipe material is used
	Similar to other sub-surface infrastructure, Staff attempt to coordinate water reconstruction projects with road reconstruction project to produce cost efficiencies

Table 28 Lifecycle Management Strategy: Water Network

Water Mains		
Event Name	**Event Class**	**Event Trigger**
Valve Maintenance	Maintenance	Annually
Water Main Flushing	Maintenance	Annually
Full Reconstruction	Replacement	Condition: 20

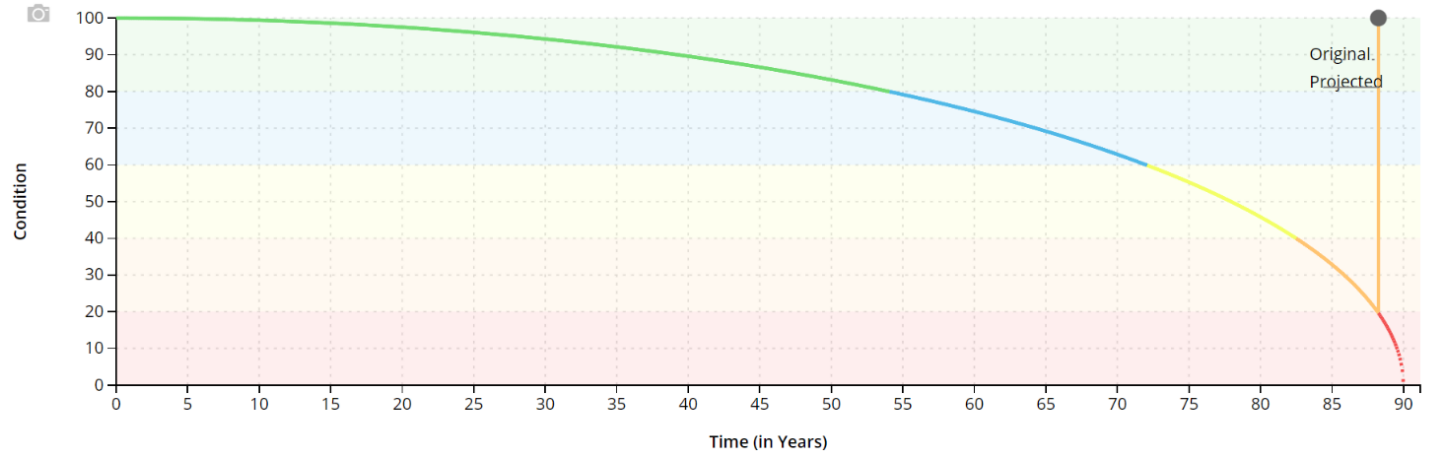


Figure 41 Lifecycle Strategy: Water Mains

7.5 Forecasted Long-Term Replacement Needs

Figure 42 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's water network. This analysis was run until 2098 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 **$1.2 million per year** 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 substantial capital needs throughout the forecast period. These projections are based on asset replacement costs, age analysis, and condition data when available. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

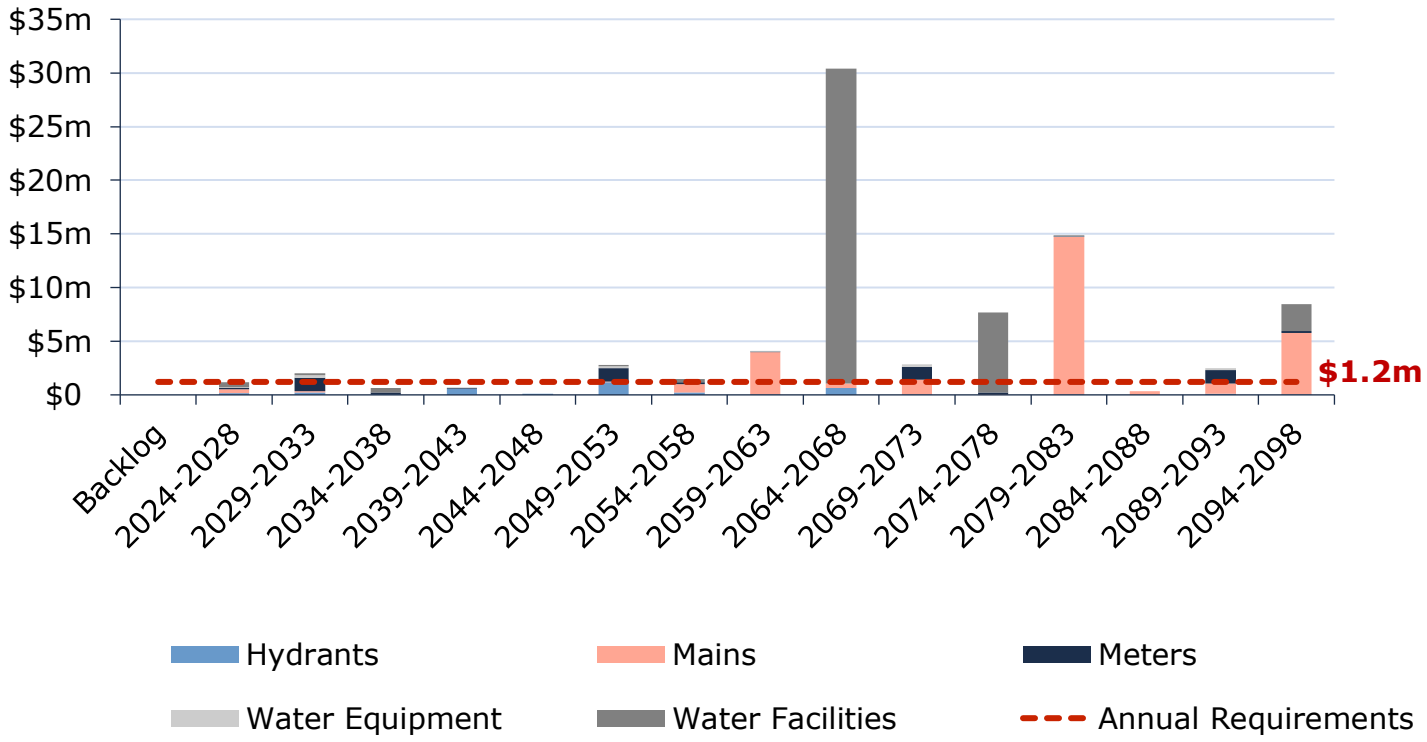


Figure 42 Forecasted Capital Replacement Needs: Water Network 2024-2098

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

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

7.6 Risk Analysis

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

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

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

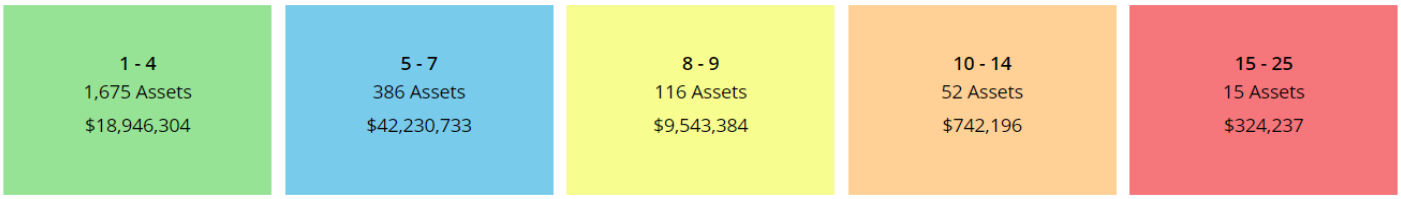


Figure 43 Risk Matrix: Water Network

7.7 Levels of Service

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

7.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system	Two distinct water systems; Wendover and Lefaivre/Alfred/Plantagenet/St-Isidore. Water in Wendover is sourced from the Ottawa River, pumped and treated at the Township owned treatment plant, stored in an above ground storage tank and distributed within the Village limits via water mains. The Lefaivre system is sourced from the Ottawa River, treated in Lefaivre and pumped to Alfred and Plantagenet. There is an above ground water tank in Alfred. A booster station is located in Plantagenet to feed St-Isidore

Service Attribute	Qualitative Description	Current LOS (2023)
		which is part of a neighbouring Municipality. Water is distributed within the Villages via watermain.
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow	Both systems have hydrants and fire fighting capabilities. Some system ends have been extended with smaller size pipes which do not provide fire fighting capacities.
Reliability	Description of boil water advisories and service interruptions	No instances of boil water advisories have been mentioned in the annual reports dating back to 2016. On occasion, water service interruptions may occur due to unexpected main breaks, maintenance activities, or water infrastructure replacement. Staff make every effort to keep service interruptions to a minimum.

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

7.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of properties connected to the municipal water system	41%[7]
	% of properties where fire flow is available	36%
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	0.0001
Performance	Actual vs. Target capital reinvestment rate	0.1% vs. 1.7%

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

7.8 Proposed Levels of Service

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

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

[7] 2,305 water accounts vs. 5,573 active roll properties.

7.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving 50% Funding in 15 Years	This scenario assumes gradual water rate increases of ~1.6%/year, stabilizing at 50% funding in 15 years. ♦ Water capital funding gradually increases from $80k/year to $604k/year over a span of 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes gradual water rate increases of ~2.4%/year, stabilizing at 75% funding in 15 years. ♦ Water capital funding gradually increases from $80k/year to $906k/year over a span of 15 years
Scenario 3: Achieving 100% Funding in 15 Years	This scenario assumes gradual water increases of ~3.1%/year, stabilizing at 100% funding in 15 years. ♦ Water capital funding gradually increases from $80k/year to $1.2m/year over a span of 15 years

Table 31 Water Network PLOS Scenario Descriptions

7.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1 (50%)	Average Condition	71%	50%	30%	
	Average Asset Risk	7.4	11.4	14.8	
	Average Annual Investment		$604,000		Increase water rates by ~1.6% per year for 15 years
	Average Capital re-investment rate		0.8%		
Scenario 2 (75%)	Average Condition	71%	50%	30%	
	Average Asset Risk	7.4	11.4	14.8	
	Average Annual Investment		$906,000		Increase water rates by ~2.4% per year for 15 years
	Average Capital re-investment rate		1.3%		
Scenario 3 (100%)	Average Condition	71%	50%	30%	
	Average Asset Risk	7.4	11.4	14.8	
	Average Annual Investment		$1,208,000		Increase water rates by ~3.1% per year for 15 years
	Average Capital re-investment rate		1.7%		

Table 32 Water Network PLOS Scenario Analysis

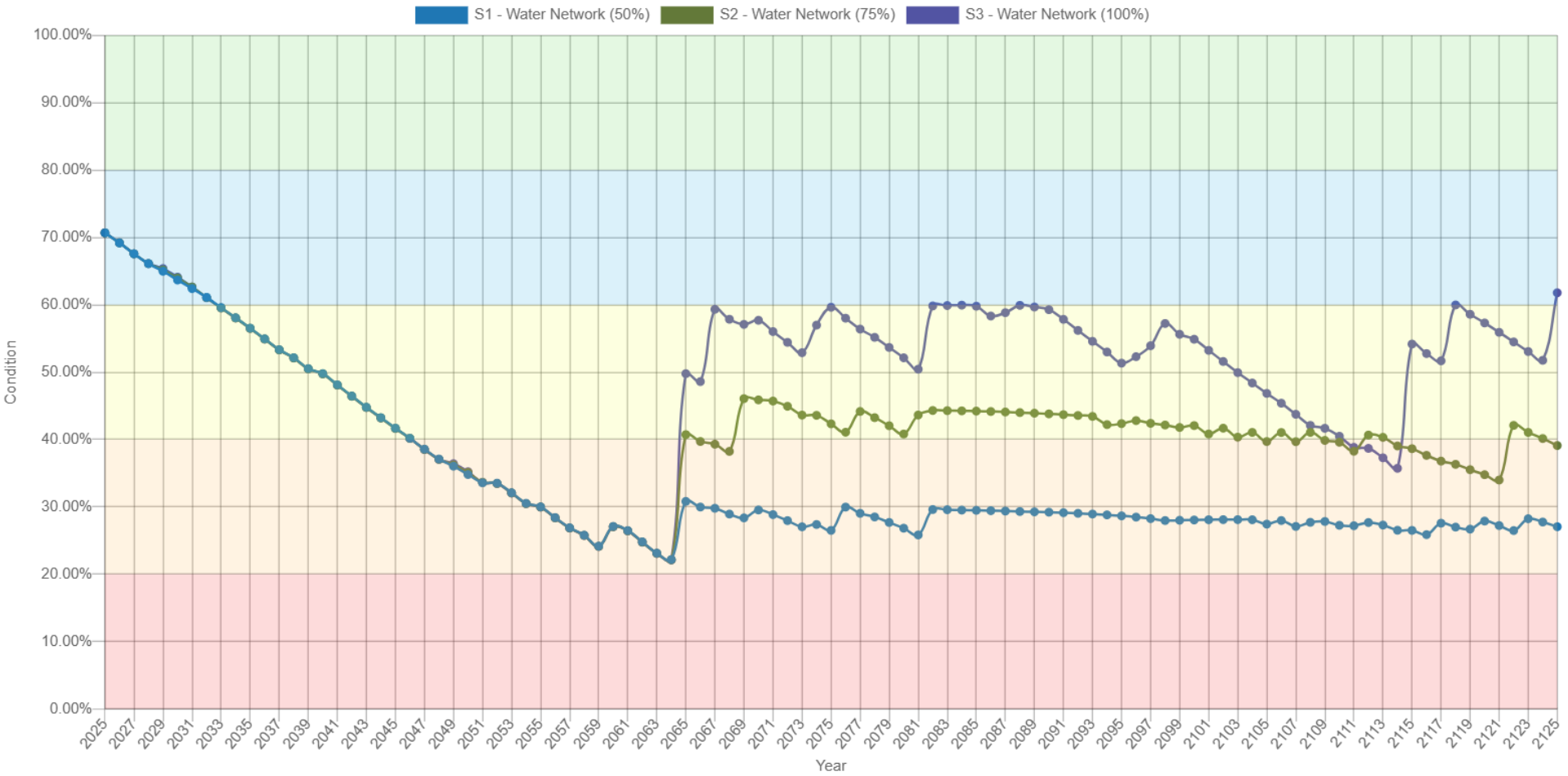


Figure 44 Water Network PLOS Scenario Condition Results

7.8.3 10-Year PLOS Financial Projections

As outlined in Section *4. Proposed Levels of Service Analysis*, the Township of Alfred and Plantagenet selected Scenario 3 as their preferred proposed levels of service. The main objective is to increase spending gradually to reach a more sustainable funding level to manage the Township's current inventory of assets. The following table outlines the funding trajectory over the next 10 years for the water network if the financial strategy for Scenario 3 is implemented.

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Targeted Capital Spending	**$1.21m**	**$1.21m**	**$1.21m**	**$1.21m**	**$1.21m**	**$1.21m**	**$1.21m**	**$1.21m**	**$1.21m**	**$1.21m**
Projected Capital Spending	$140k	$201k	$264k	$330k	$397k	$466k	$538k	$612k	$688k	$766k
Funding Deficit	$1.07m	$1.01m	$943k	$878k	$811k	$741k	$670k	$596k	$520k	$442k
Target Reinvestment Rate	**1.7%**	**1.7%**	**1.7%**	**1.7%**	**1.7%**	**1.7%**	**1.7%**	**1.7%**	**1.7%**	**1.7%**
Projected Reinvestment Rate	0.2%	0.3%	0.4%	0.5%	0.6%	0.6%	0.7%	0.9%	1.0%	1.1%

Table 33 Water Network 10-Year PLOS Financial Projections

8. Sanitary Sewer Network

The sanitary sewer network provides the essential service of wastewater collection, disposal, and treatment for the community, and has a current replacement value of over $50 million.

8.1 Inventory & Valuation

Table 34 summarizes the quantity and current replacement cost of the Township's various sanitary sewer network assets as managed in its primary asset management register, Citywide Assets.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Mains	41,923	Meters	$16,531,000	CPI
Manholes	268	Assets	$3,215,000	CPI
Sanitary Equipment	1	Assets	$133,000	CPI
Sanitary Facilities	12	Assets	$27,644,000	CPI
Service Laterals	1,001	Assets	$315,000	CPI
Valves	49	Assets	$2,251,000	CPI
TOTAL			**$50,088,000**	

Table 34 Detailed Asset Inventory: Sanitary Sewer Network

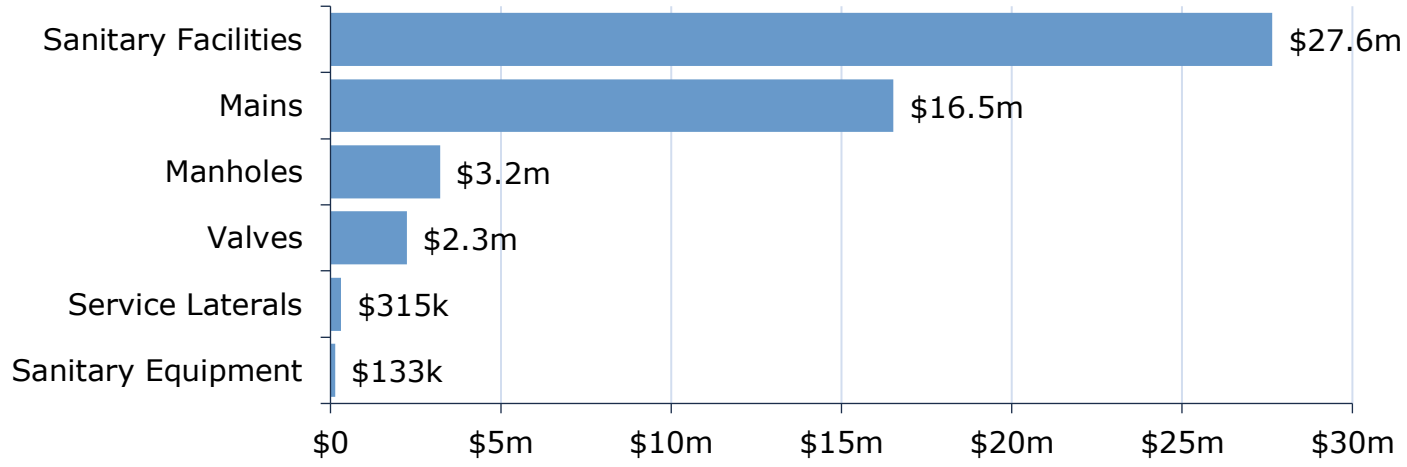


Figure 45 Portfolio Valuation: Sanitary Sewer Network

8.2 Asset Condition

Figure 46 summarizes the replacement cost-weighted condition of the Township's sanitary sewer network. Based on a combination of field inspection data and age, 95% of assets are in fair or better condition; the remaining 5% of assets are in poor to very poor condition. Condition assessments were available for 100% of sanitary buildings, but no assessments were available for the other segments included in the sanitary sewer 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. As illustrated in Figure 46 the majority of the Township's sanitary sewer network assets are in fair or better condition.

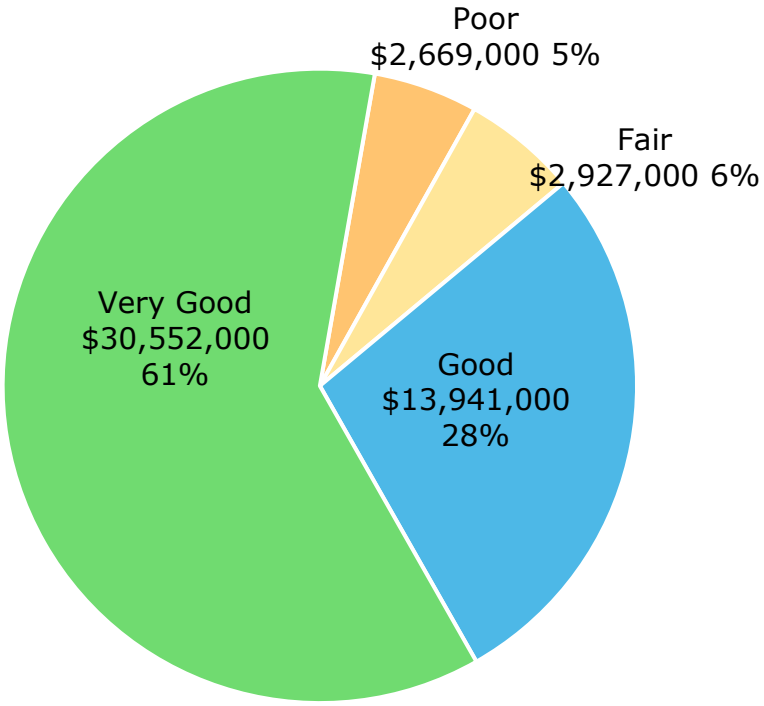


Figure 46 Asset Condition: Sanitary Sewer Network Overall

As illustrated in Figure 47, based on condition assessments and age-based conditions, the majority of the Township's sanitary sewer mains are in very good condition however, 78% of manholes and 51% of service laterals are in poor or worse condition.

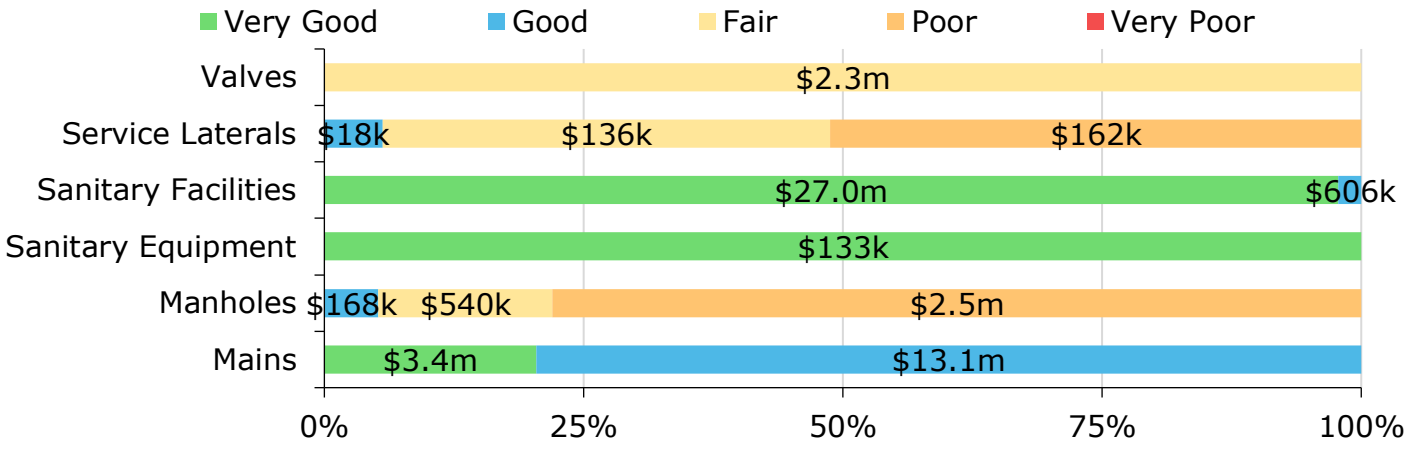


Figure 47 Asset Condition: Sanitary Sewer Network by Segment

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 48 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.

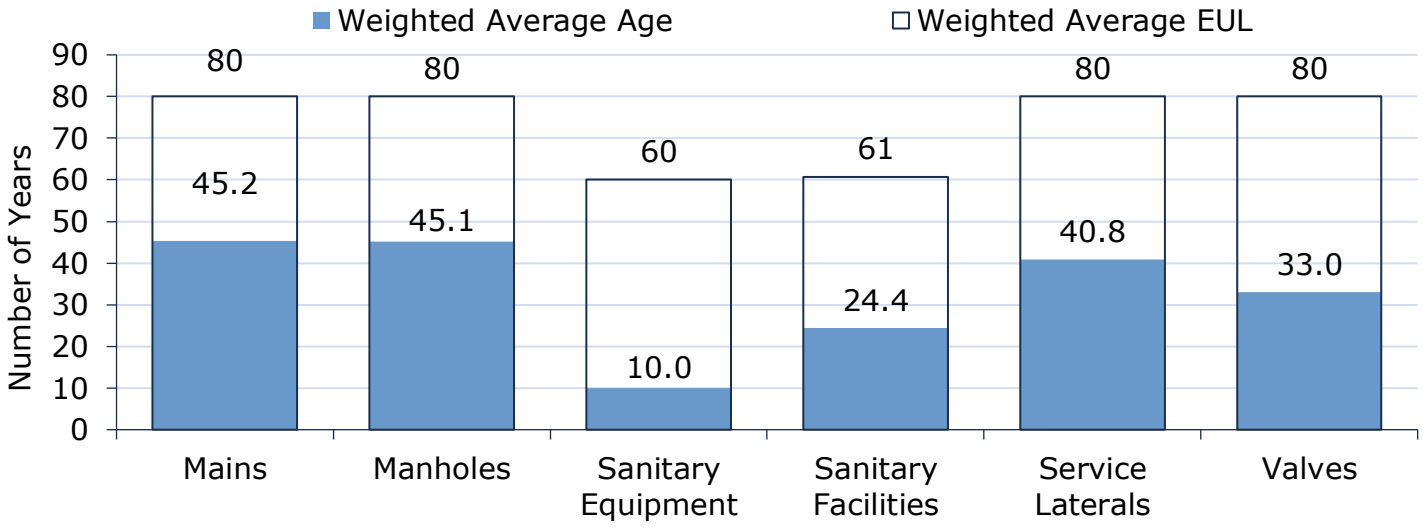


Figure 48 Estimated Useful Life vs. Asset Age: Sanitary Sewer Network

Age analysis reveals that on average, sanitary sewer 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.

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	CCTV inspections are conducted as necessary
	Annual maintenance of mains that consists of main flushing, rodding and inspections
	Annual maintenance of manholes that consists of manhole inspection, lining and grouting
Rehabilitation/ Replacement	In the absence of mid-lifecycle rehabilitative events, most mains are simply maintained with the goal of full replacement once it reaches its end-of-life
	Multi-year forecasts provided by OCWA and further reviewed by Staff
	Project prioritization is based on CCTV inspections, asset age, material, environmental risks, health and safety risks, and social impact. Additional considerations include asset functionality and design capacity.
	When mains are replaced, PVC pipe material is used
	Similar to other sub-surface infrastructure, Staff coordinate sanitary reconstruction projects with road construction projects to produce cost efficiencies

Table 35 Lifecycle Management Strategy: Sanitary Sewer Network

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

Sanitary Mains		
Event Name	**Event Class**	**Event Trigger**
CCTV Inspection	Preventative Maintenance	As Needed
Main Flushing, Rodding & Inspections	Maintenance	Annually
Manhole Inspection, Lining & Grouting	Maintenance	Annually
Full Reconstruction	Replacement	Condition: 20

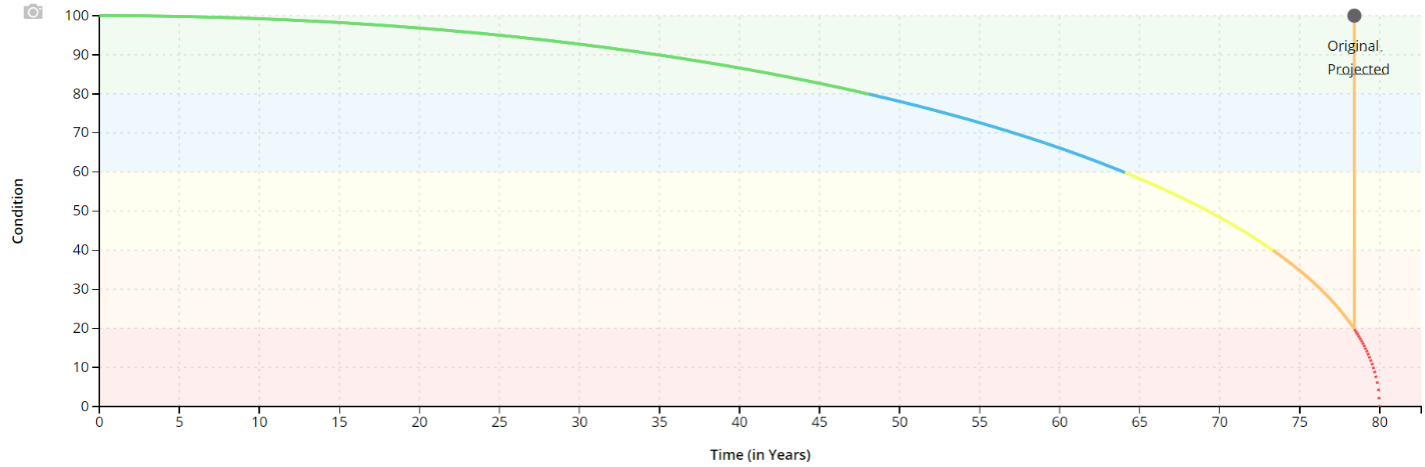


Figure 49 Lifecycle Strategy: Sanitary Mains

8.5 Forecasted Long-Term Replacement Needs

Figure 50 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's sanitary sewer network. This analysis was run until 2103 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 **$755,000 per year** for all assets in the sanitary sewer network. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

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

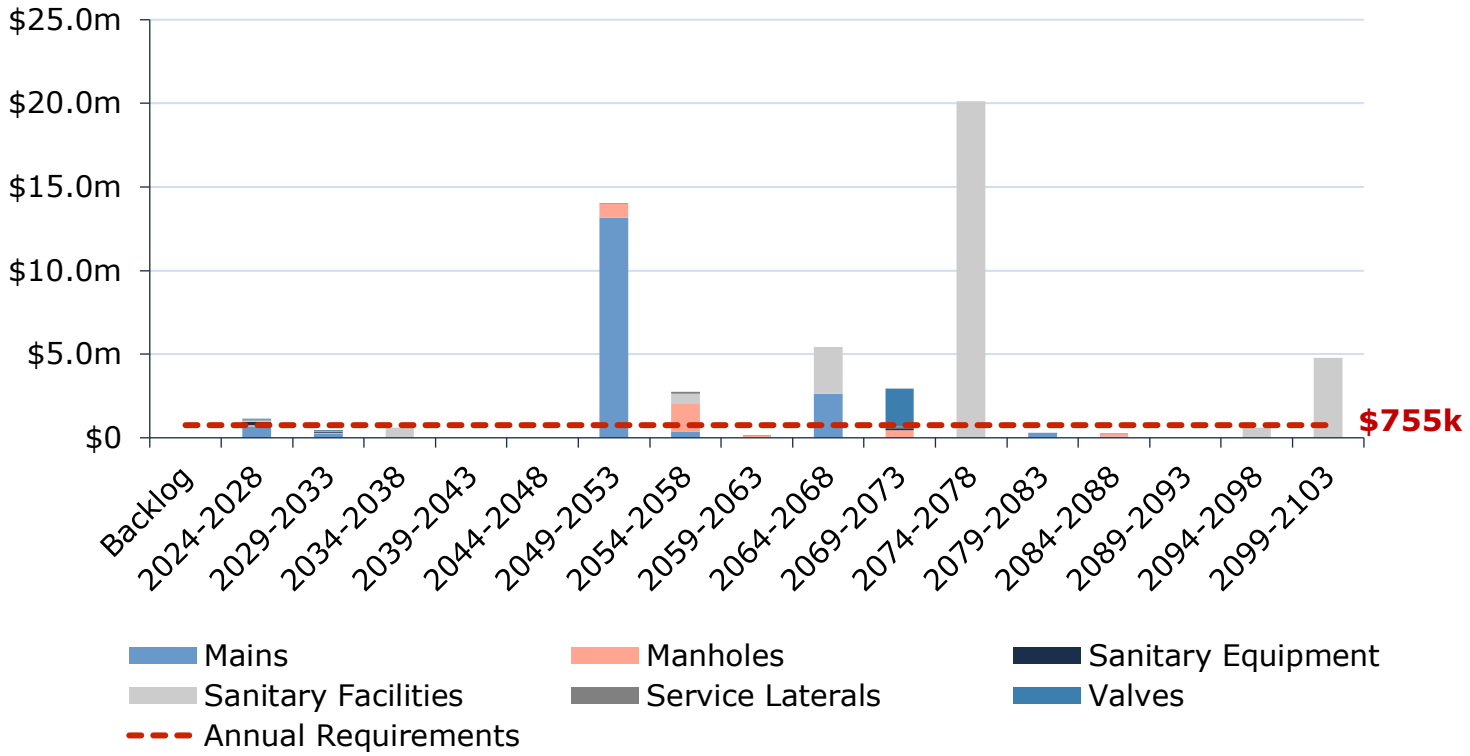


Figure 50 Forecasted Capital Replacement Needs: Sanitary Sewer Network 2024-2103

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

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

8.6 Risk Analysis

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

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

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

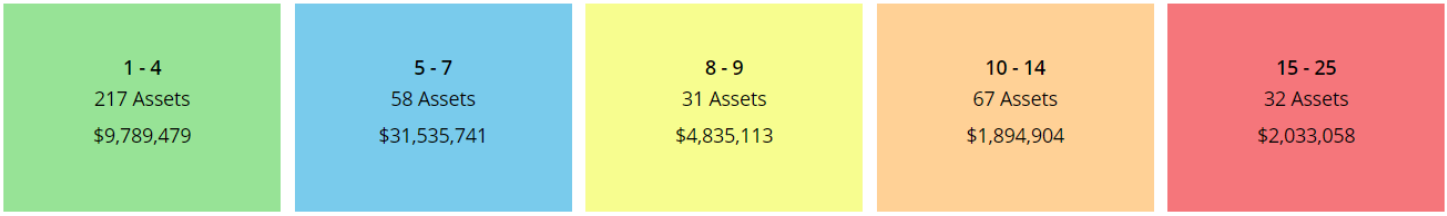


Figure 51 Risk Matrix: Sanitary Sewer Network

8.7 Levels of Service

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

8.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system	The Township has three distinct municipal wastewater systems: Wendover, Plantagenet and Alfred. Wendover's system includes three STEP systems, gravity pipes and one pumping station. Flow is treated at the mechanical treatment facility and is discharged into the Ottawa River. The Plantagenet system consists of gravity pipes, two pumping stations and one single cell lagoon which treats runoff before discharging into the South Nation River. The Alfred system consists of gravity pipes, one pumping station and one lagoon which treats runoff before discharging into a nearby ditch.
Reliability	Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes	Overflows are present at pumping stations and treatment facilities.
	Description of the frequency and volume of overflows in combined sewers in the municipal	No spills in the last year for all three systems.

Service Attribute	Qualitative Description	Current LOS (2023)
	wastewater system that occur in habitable areas or beaches	
	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 designed to be resilient to stormwater infiltration	Major facilities such as pumping stations and treatment facilities are equipped with emergency overflows.
	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 36 O. Reg. 588/17 Community Levels of Service: Sanitary Sewer Network

8.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of properties connected to the municipal wastewater system	31%[8]
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	2
	# of connection-days per year having wastewater backups compared to the total number of properties connected to the municipal wastewater system	0
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	15[9]
Performance	Actual vs. Target capital reinvestment rate	0.3% vs. 1.5%

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

[8] 1,710 sanitary accounts vs. 5,573 active roll properties.
[9] Violations were for target concentrations of specific criteria.

8.8 Proposed Levels of Service

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

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

8.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving 50% Funding in 15 Years	This scenario assumes gradual water rate increases of ~1.2%/year, stabilizing at 50% funding in 15 years. ♦ Sanitary capital funding gradually increases from $141k/year to $378k/year over a span of 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes gradual water rate increases of ~2.1%/year, stabilizing at 75% funding in 15 years. ♦ Sanitary capital funding gradually increases from $141k/year to $567k/year over a span of 15 years
Scenario 3: Achieving 100% Funding in 15 Years	This scenario assumes gradual water rate increases of ~2.8%/year, stabilizing at 100% funding in 15 years. ♦ Sanitary capital funding gradually increases from $141k/year to $755k/year over a span of 15 years

Table 38 Sanitary Sewer Network PLOS Scenario Descriptions

8.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1 (50%)	Average Condition	78%	58%	44%	
	Average Asset Risk	6.3	12.2	14.9	
	Average Annual Investment		$378,000		Increase sanitary rates by ~1.2% per year for 15 years
	Average Capital re-investment rate		0.8%		
Scenario 2 (75%)	Average Condition	78%	58%	51%	
	Average Asset Risk	6.3	12.2	13.8	
	Average Annual Investment		$567,000		Increase sanitary rates by ~2.1% per year for 15 years
	Average Capital re-investment rate		1.1%		
Scenario 3 (100%)	Average Condition	78%	58%	54%	
	Average Asset Risk	6.3	12.2	13.3	
	Average Annual Investment		$755,000		Increase sanitary rates by ~2.8% per year for 15 years
	Average Capital re-investment rate		1.5%		

Table 39 Sanitary Sewer Network PLOS Scenario Analysis

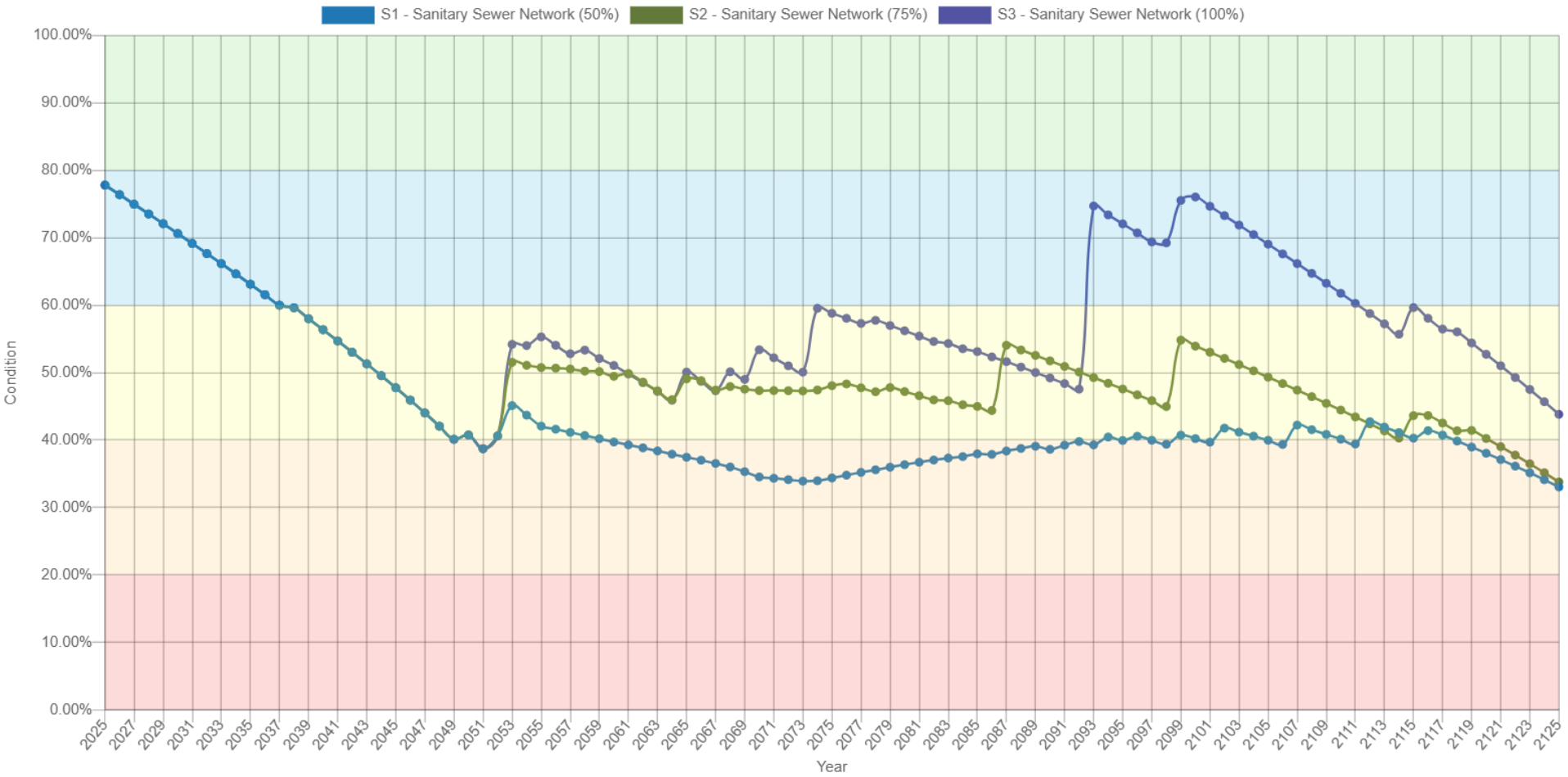


Figure 52 Sanitary Sewer Network PLOS Scenario Condition Results

8.8.3 10-Year PLOS Financial Projections

As outlined in Section *4. Proposed Levels of Service Analysis*, the Township of Alfred and Plantagenet selected Scenario 3 as their preferred proposed levels of service. The main objective is to increase spending gradually to reach a more sustainable funding level to manage the Township's current inventory of assets. The following table outlines the funding trajectory over the next 10 years for the sanitary sewer network if the financial strategy for Scenario 3 is implemented.

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Targeted Capital Spending	**$755k**	**$755k**	**$755k**	**$755k**	**$755k**	**$755k**	**$755k**	**$755k**	**$755k**	**$755k**
Projected Capital Spending	$176k	$211k	$247k	$284k	$322k	$361k	$402k	$443k	$486k	$530k
Funding Deficit	$580k	$545k	$508k	$471k	$433k	$394k	$354k	$312k	$269k	$226k
Target Reinvestment Rate	**1.5%**	**1.5%**	**1.5%**	**1.5%**	**1.5%**	**1.5%**	**1.5%**	**1.5%**	**1.5%**	**1.5%**
Projected Reinvestment Rate	0.4%	0.4%	0.5%	0.6%	0.6%	0.7%	0.8%	0.9%	1.0%	1.1%

Table 40 Sanitary Sewer Network 10-Year PLOS Financial Projections

9. Stormwater Network

The Township's stormwater network comprises sewer mains and other critical supporting capital assets with a total current replacement cost of approximately $12 million. The Township is responsible for approximately 14.8 kilometers of storm mains.

9.1 Inventory & Valuation

Table 41 summarizes the quantity and current replacement cost of all stormwater network assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Catch Basins	385	Assets	$1,927,000	Cost/Unit
Culverts	489	Meters	$1,221,000	User-Defined
Mains	14,814	Meters	$8,098,000	CPI
Manholes	99	Assets	$1,188,000	Cost/Unit
TOTAL			**$12,434,000**	

Table 41 Detailed Asset Inventory: Stormwater Network

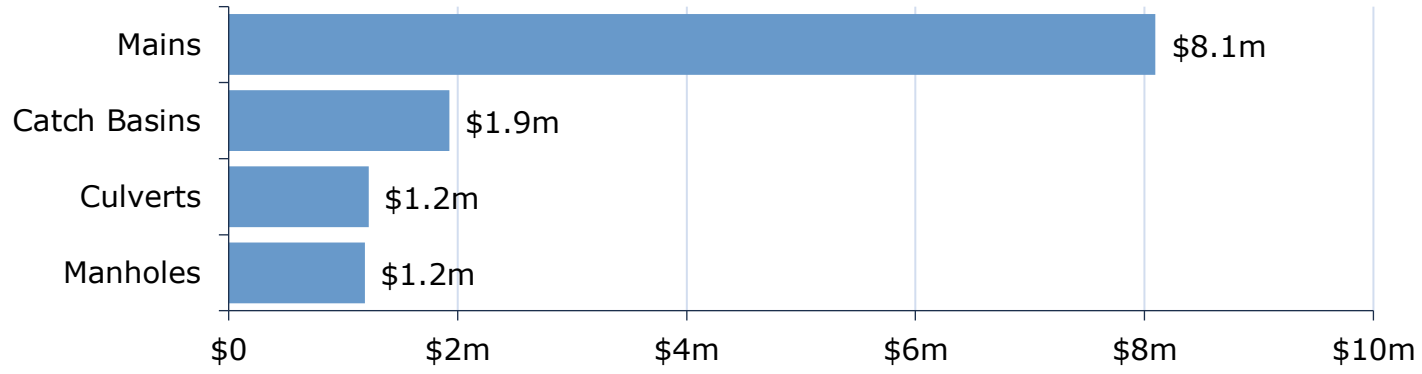


Figure 53 Portfolio Valuation: Stormwater Network

9.2 Asset Condition

Figure 54 summarizes the replacement cost-weighted condition of the Township's stormwater network assets. Based on primarily age data, approximately 4% of assets are in poor to very poor condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

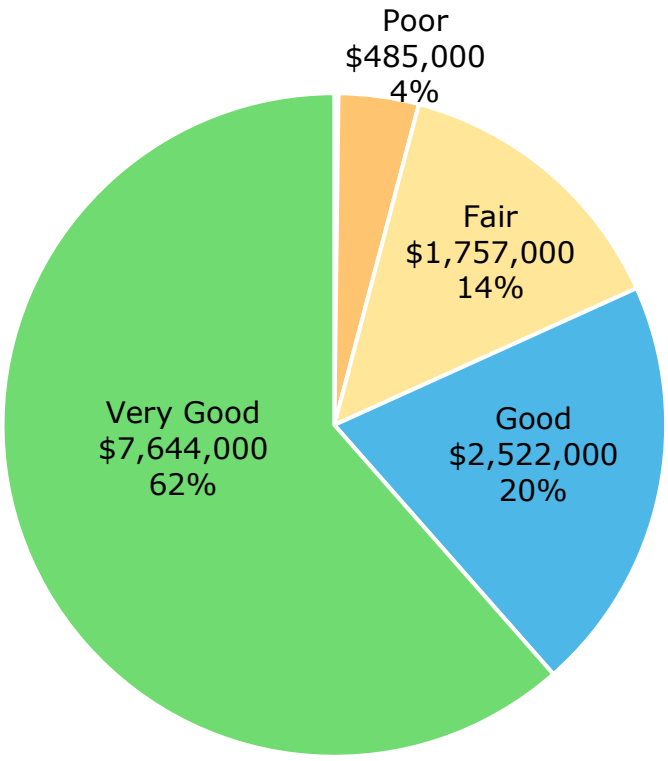


Figure 54 Asset Condition: Stormwater Network Overall

Figure 55 summarizes the age-based condition of stormwater network assets. The analysis illustrates that the majority of stormwater mains are in fair or better condition. However, 19% of catch basins and 10% of manholes, with a current replacement cost of $485,000, are in poor or worse condition.

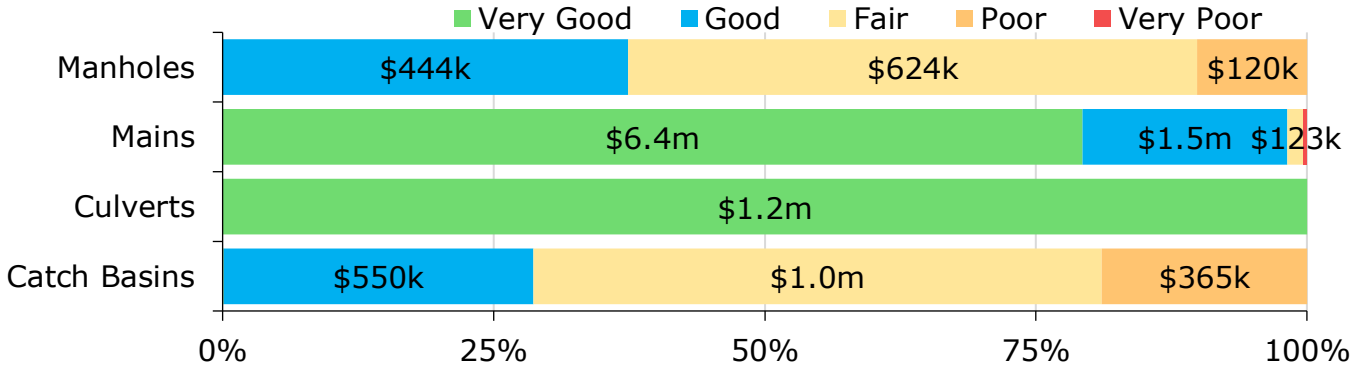


Figure 55 Asset Condition: Stormwater Network by Segment

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 56 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.

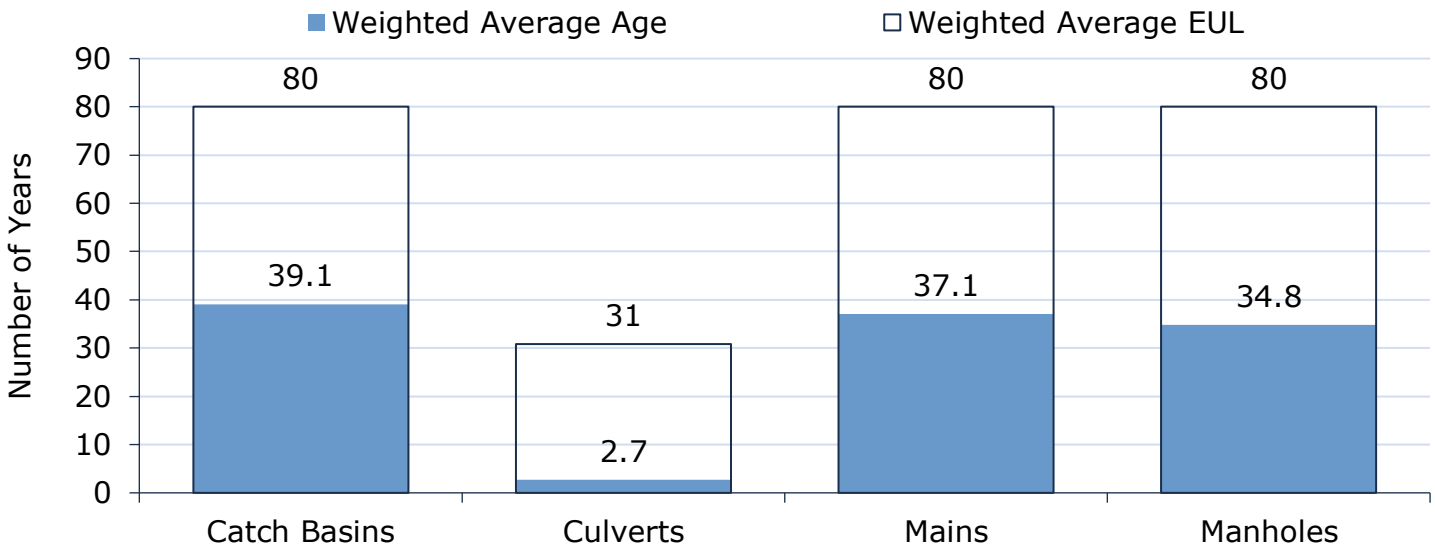


Figure 56 Estimated Useful Life vs. Asset Age: Stormwater Network

Age analysis reveals that on average, stormwater 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.

9.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Catch basins are cleaned annually and outlets are inspected regularly to ensure unobstructed flow
	Flushing activities are usually completed alongside CCTV inspections
	All other maintenance activities are completed on a reactive basis when operational issues are identified (e.g., blockages, backups), through complaints and service requests
Rehabilitation	Trenchless re-lining has the potential to reduce total lifecycle costs but would require a formal condition assessment program to determine viability
Replacement	Without the availability of up-to-date condition assessment information replacement activities are purely reactive in nature

Table 42 Lifecycle Management Strategy: Stormwater Network

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

Stormwater Mains		
Event Name	**Event Class**	**Event Trigger**
Catch Basin Cleaning	Maintenance	Annually
CCTV Inspection	Preventative Maintenance	Reactive
Storm Sewer Flushing	Maintenance	Reactive
Full Reconstruction	Replacement	Condition: 20

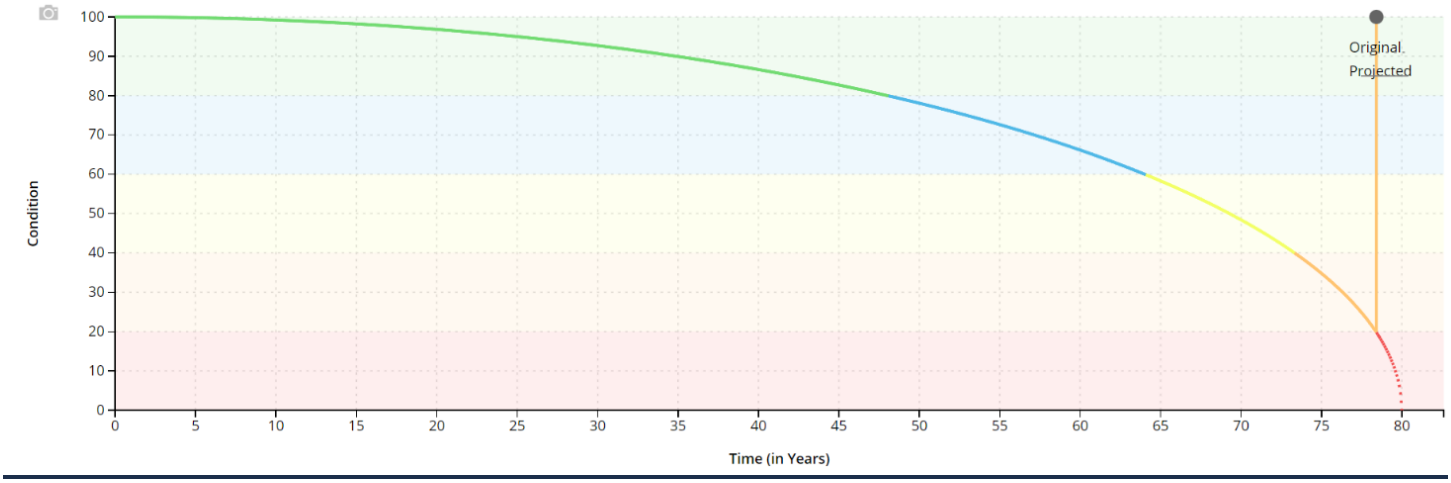


Figure 57: Lifecycle Strategy: Stormwater Mains

9.5 Forecasted Long-Term Replacement Needs

Figure 58 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's stormwater network assets. This analysis was run until 2103 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 **$180,000 per year** 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 that there is no infrastructure backlog. The largest replacement spike is forecasted in 2059-2063 followed by 2064-2068 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.

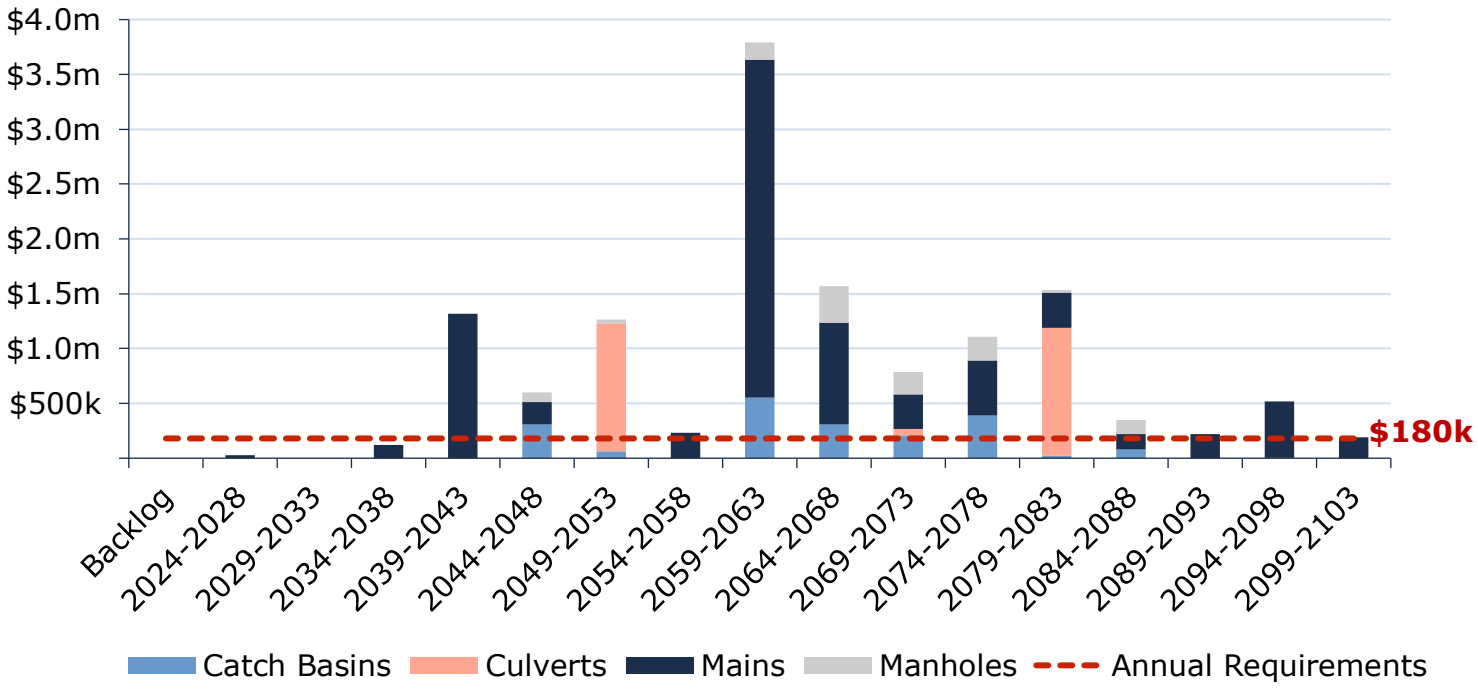


Figure 58 Forecasted Capital Replacement Needs Stormwater Network 2024-2103

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.

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

9.6 Risk Analysis

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

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

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

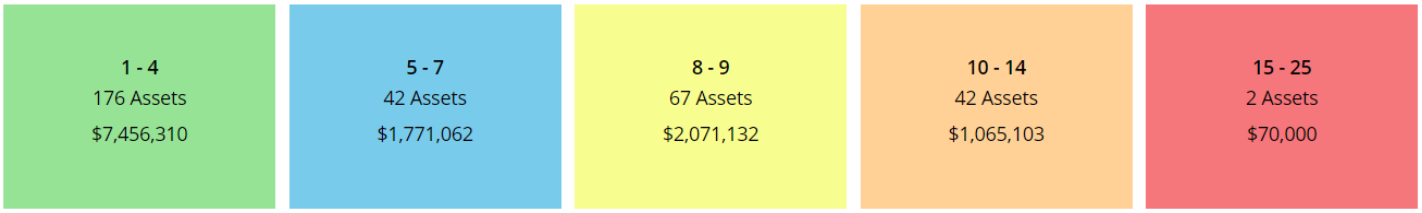


Figure 59 Risk Matrix: Stormwater Network

9.7 Levels of Service

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

9.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
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	Most of the municipal storm network precedes modern design guidelines and lacks data, these systems' capacities cannot be confirmed. Recent development such as site plans and subdivisions meet the authorities' guidelines requirements for flood protection and storm sewer sizing.

Table 44 O. Reg. 588/17 Community Levels of Service: Stormwater Network

9.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of properties in municipality designed to be resilient to a 100-year storm	7%
	% of the municipal stormwater management system designed to be resilient to a 5-year storm	<5%[10]
Performance	Actual vs. Target capital reinvestment rate	0.0% vs. 1.4%
	O&M $/km of drainage system	$4,536[11]

Table 45 O. Reg. 588/17 Technical Levels of Service: Stormwater Network

9.8 Proposed Levels of Service

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

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

[10] The total extent of the storm network is still being accounted for; however, 3.7 km of the network is known to be resilient, accounting for less than 50% of the expected overall network.
[11] The total extent of the storm network is still being accounted for.

9.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving 50% Funding in 15 Years	This scenario requires no tax increases. ♦ Stormwater capital funding is maintained at 2023 funding level of $0/year ♦ Funding was not redistributed amongst asset categories, meaning that while the portfolio is funded at 50% of recommended funding, each asset category varies
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes gradual tax increases of ~0.8%/year, stabilizing at 75% funding across all tax-funded asset categories in 15 years. ♦ Stormwater capital funding gradually increases from $0/year to $135k/year over a span of 15 years ♦ Funding was redistributed to equally achieve 75% funding for all asset categories.
Scenario 3: Achieving 100% Funding in 15 Years	This scenario assumes gradual tax increases of ~1.6%/year, stabilizing at 100% funding across all tax-funded asset categories in 15 years. ♦ Stormwater capital funding gradually increases from $0/year to $180k/year over a span of 15 years

Table 46 Stormwater Network PLOS Scenario Descriptions

9.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1 (Maintain)	Average Condition	75%	56%	33%	
	Average Asset Risk	5.6	9.1	12.2	
	Average Annual Investment		$0		This parameter is maintained
	Average Capital re-investment rate		0.0%		
Scenario 2 (75%)	Average Condition	75%	58%	54%	
	Average Asset Risk	5.6	9.0	9.6	
	Average Annual Investment		$135,000		Increase taxes by ~0.8% per year for 15 years
	Average Capital re-investment rate		1.1%		
Scenario 3 (100%)	Average Condition	75%	58%	58%	
	Average Asset Risk	5.6	9.0	9.3	
	Average Annual Investment		$180,000		Increase taxes by ~1.6% per year for 15 years
	Average Capital re-investment rate		1.4%		

Table 47 Stormwater Network PLOS Scenario Analysis

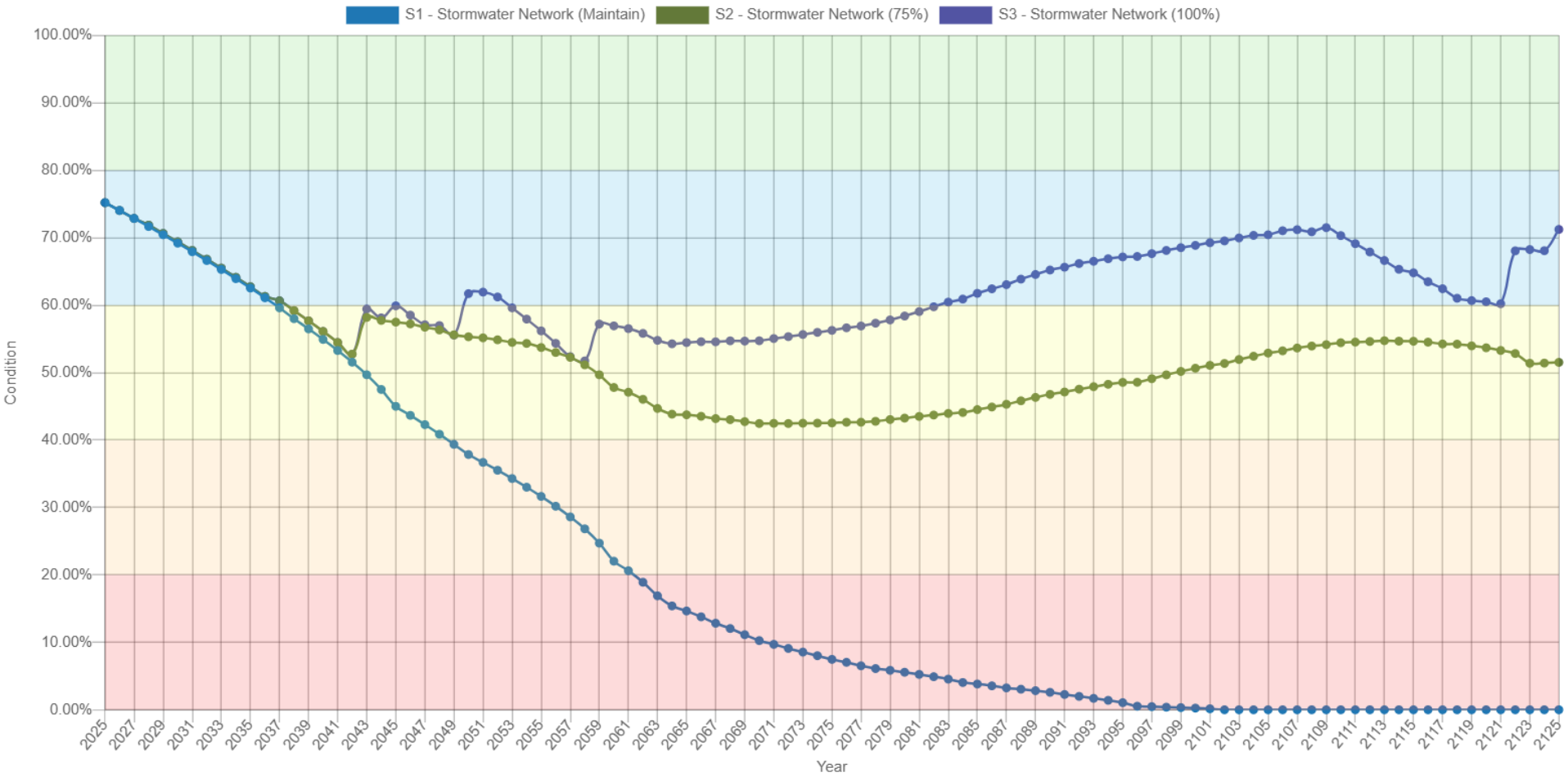


Figure 60 Stormwater Network PLOS Scenario Condition Results

9.8.3 10-Year PLOS Financial Projections

As outlined in Section *4. Proposed Levels of Service Analysis*, the Township of Alfred and Plantagenet selected Scenario 3 as their preferred proposed levels of service. The main objective is to increase spending gradually to reach a more sustainable funding level to manage the Township's current inventory of assets. The following table outlines the funding trajectory over the next 10 years for the stormwater network if the financial strategy for Scenario 3 is implemented.

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Targeted Capital Spending	**$180k**	**$180k**	**$180k**	**$180k**	**$180k**	**$180k**	**$180k**	**$180k**	**$180k**	**$180k**
Projected Capital Spending	$7k	$17k	$26k	$36k	$49k	$60k	$71k	$81k	$92k	$103k
Funding Deficit	$173k	$163k	$154k	$144k	$131k	$120k	$110k	$99k	$88k	$77k
Target Reinvestment Rate	**1.4%**	**1.4%**	**1.4%**	**1.4%**	**1.4%**	**1.4%**	**1.4%**	**1.4%**	**1.4%**	**1.4%**
Projected Reinvestment Rate	0.1%	0.1%	0.2%	0.3%	0.4%	0.5%	0.6%	0.7%	0.7%	0.8%

Table 48 Stormwater Network 10-Year PLOS Financial Projections

Category Analysis: Non-Core Assets

10. Buildings & Facilities

The Township's buildings and facilities portfolio includes fire halls, various administrative and public works facilities, libraries, and recreational assets. The total current replacement of buildings and facilities is estimated at more than $23 million.

10.1 Inventory & Valuation

Table 49 summarizes the quantity and current replacement cost of all buildings assets available in the Township's asset register. The majority of buildings and facilities are not componentized. The quantity listed represents the number of asset records currently available for each department.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Administration	8	Assets	$6,201,000	User-Defined
Fire	5	Assets	$3,246,000	User-Defined
Landfill	1	Assets	$53,000	User-Defined
Public Works	9	Assets	$3,860,000	User-Defined
Recreational	18	Assets	$10,274,000	User-Defined
TOTAL			**$23,635,000**	

Table 49 Detailed Asset Inventory: Buildings & Facilities

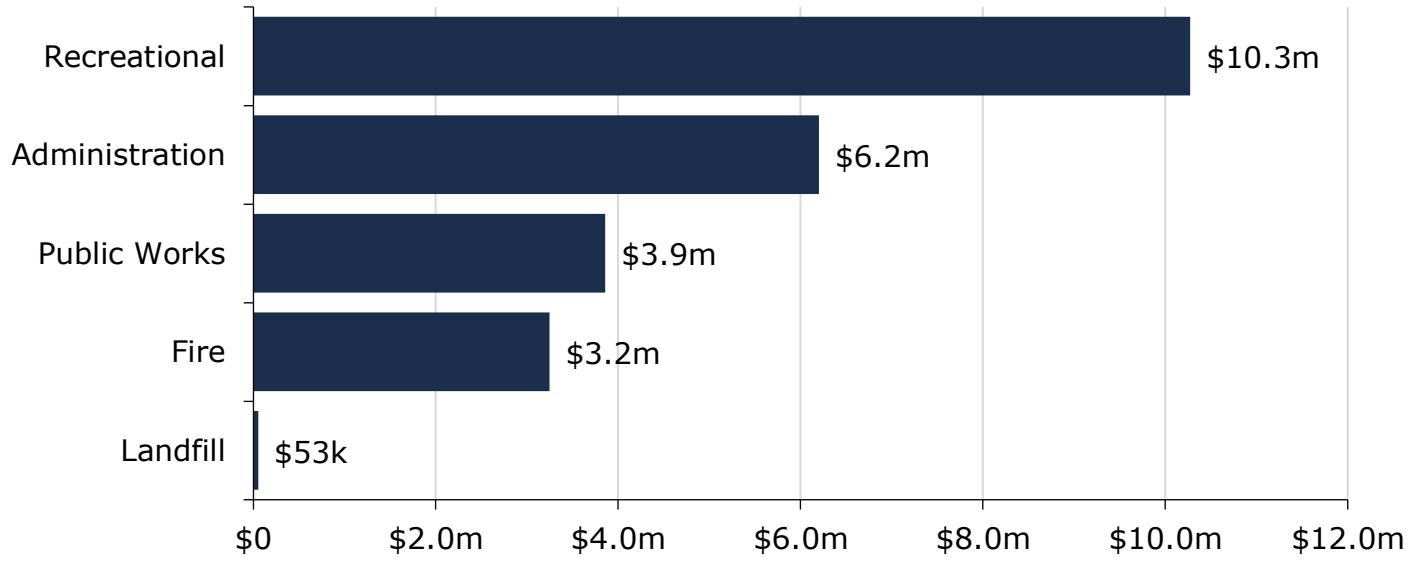


Figure 61 Portfolio Valuation: Buildings & Facilities

10.2 Asset Condition

Figure 68 summarizes the replacement cost-weighted condition of the Township's buildings and facilities portfolio. Based only on age data, 74% of buildings and facilities assets are in fair or better condition; however, 26%, with a current replacement cost of more than $6 million are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. As buildings and facilities are not componentized, condition data is presented only at the site level, rather than at the individual element or component level within each building. This drawback is further compounded by the lack of assessed condition data, requiring the use of age-based estimates only.

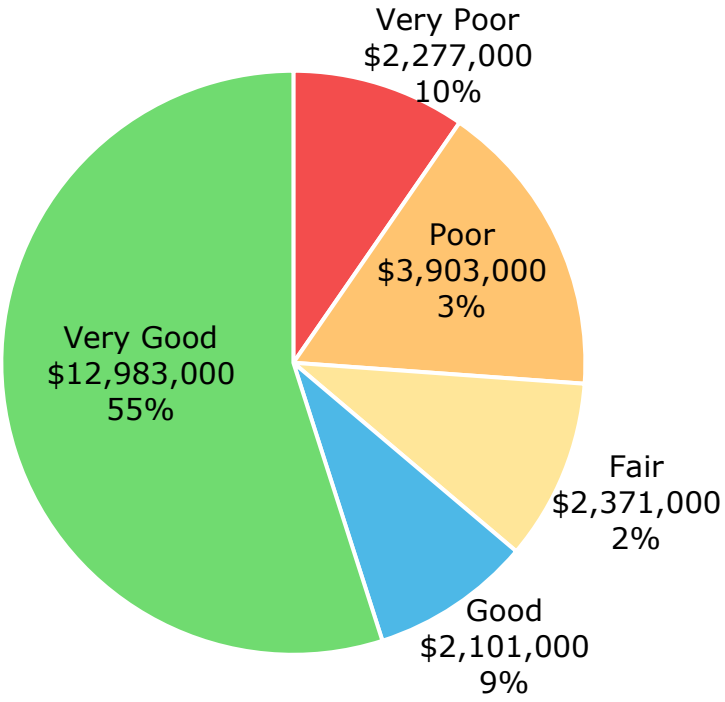


Figure 62 Asset Condition: Buildings & Facilities Overall

Figure 63 summarizes the age-based condition of buildings and facilities by each department. A substantial portion of recreation assets and the majority of library assets are in poor to worse condition. However, in the absence of componentization, this data has limited value. Componentization of assets and integration of condition assessments will provide a more accurate and reliable estimation of the condition of various facilities.

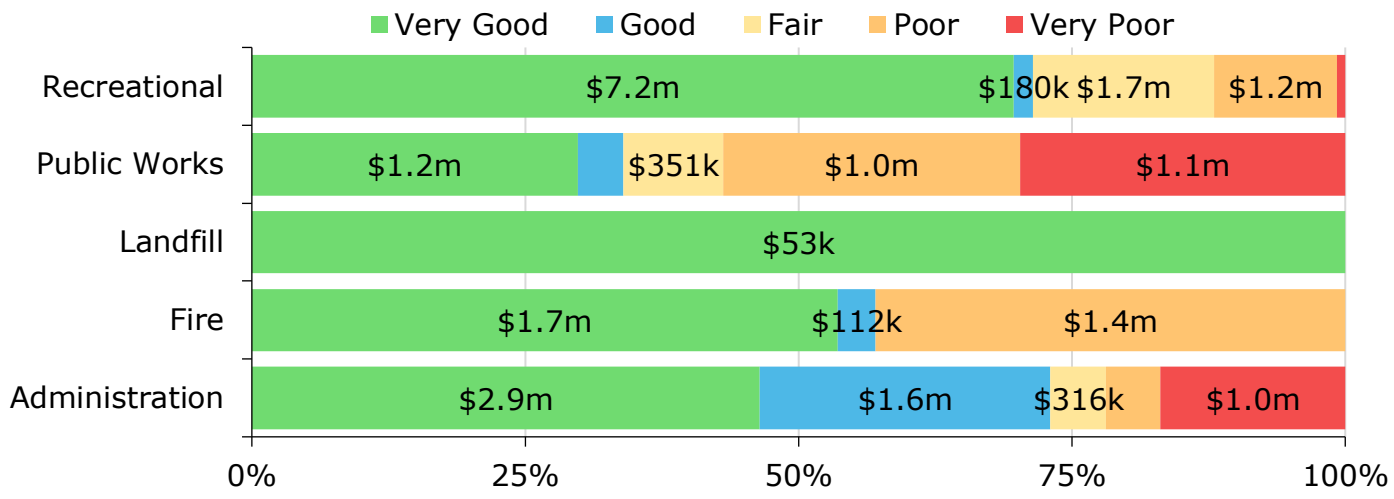


Figure 63 Asset Condition: Buildings & Facilities by Segment

10.3 Age Profile

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

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

Figure 64 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

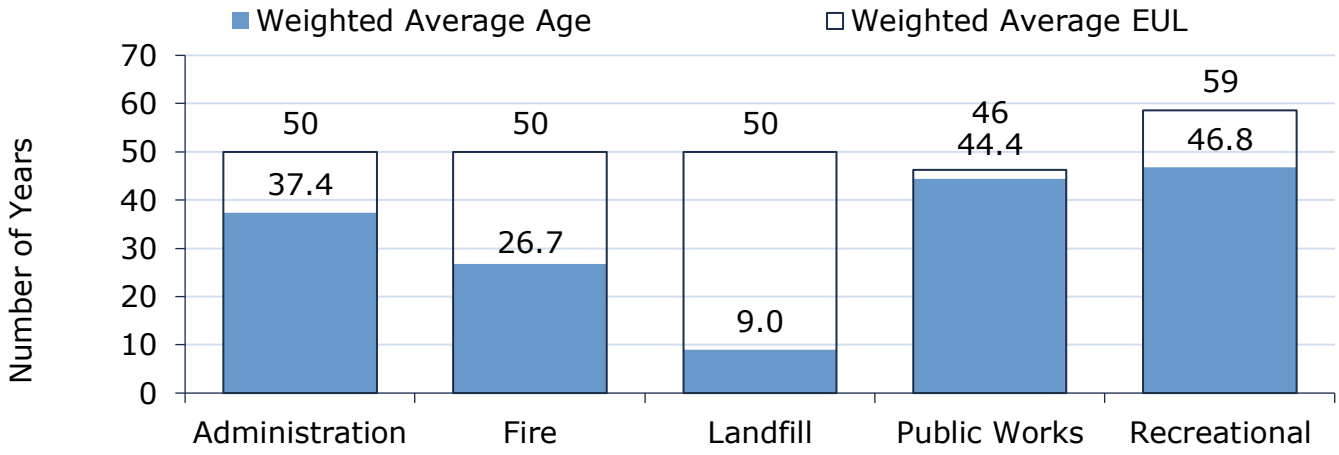


Figure 64 Estimated Useful Life vs. Asset Age: Buildings & Facilities

Age analysis reveals that, on average, buildings and facilities assets are in the earlier stages of their serviceable life. However, based on acquisition years, most library and recreation assets have consumed nearly 100% of their established useful life. Once again, this analysis presented only at the site level, rather than at the individual element or component level. Useful and meaningful age analysis for buildings is entirely predicated on effective componentization.

10.4 Current Approach to Lifecycle Management

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

Table 50 outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Maintenance is triggered by inspections identifying safety, accessibility, functionality, and structural issues.
	Routine/preventative maintenance is performed on assets such as HVAC equipment.
	All other maintenance activities are completed on a reactive basis when operational issues are identified through complaints and service requests.
Rehabilitation/ Replacement	Rehabilitations such as roof replacements or HVAC component replacements are considered on an as needed basis.
	The primary considerations for asset replacement are asset failure, availability or grant funding, safety issues, and volume of use.
Inspections	All buildings receive a health and safety inspections on an annual basis which involve a building walkthrough to identify defects and safety hazards. Identified defects are forwarded to administration for resolution.

Table 50 Lifecycle Management Strategy: Buildings & Facilities

10.5 Forecasted Long-Term Replacement Needs

Figure 65 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's buildings and facilities portfolio. This analysis was run until 2078 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 **$486,000 per year** for all buildings and facilities. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Replacement needs are forecasted to rise consistently over the next 40 years, reaching $11.2 million between 2064 and 2068. The chart illustrates there is no infrastructure backlog. These projections and estimates are based on current asset records, their replacement costs, and age analysis. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

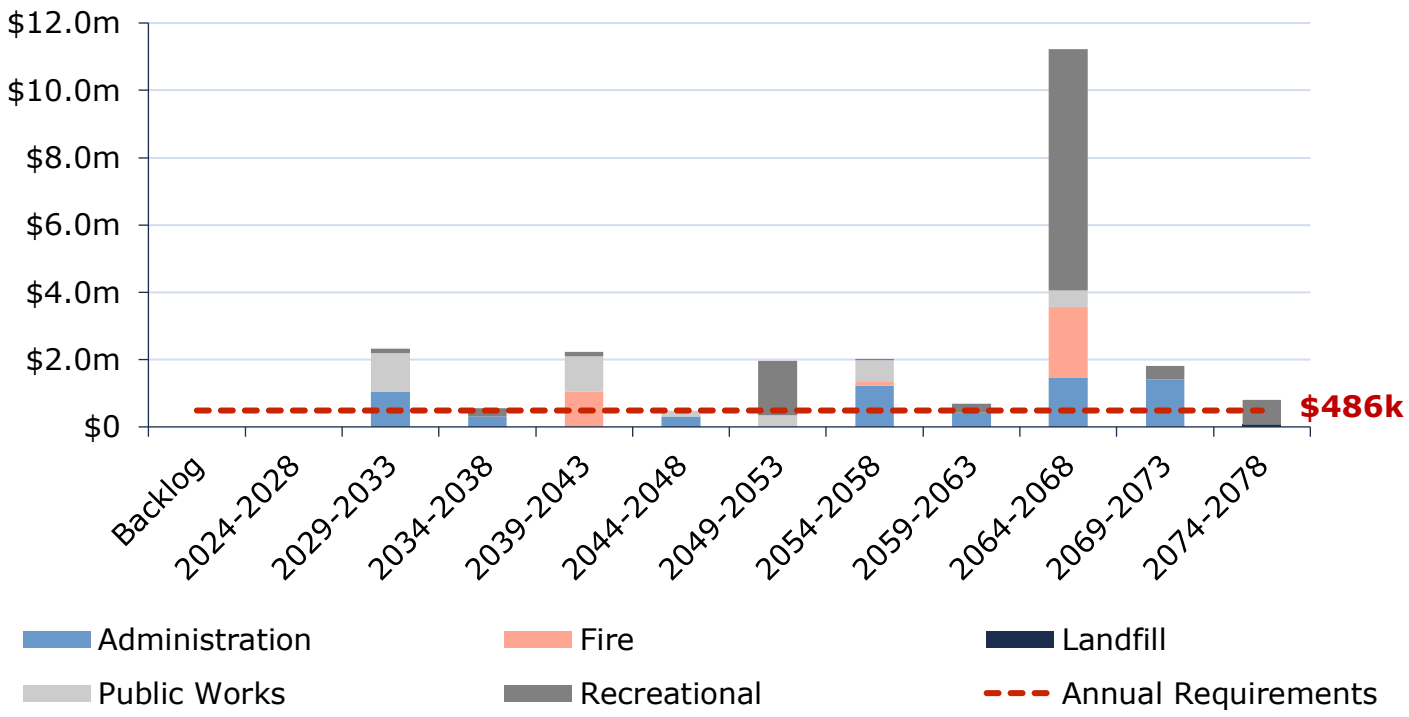


Figure 65 Forecasted Capital Replacement Needs Buildings & Facilities 2024-2078

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

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

10.6 Risk Analysis

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

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

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

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

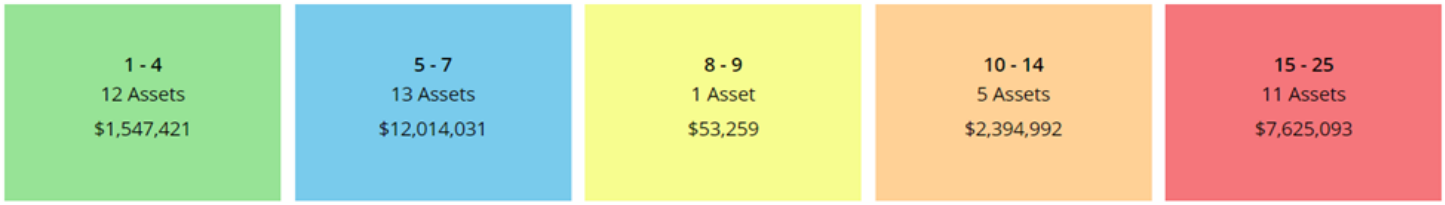


Figure 66 Risk Matrix: Buildings & Facilities

10.7 Levels of Service

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

10.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of the types of facilities that the municipality operates and maintains	Facilities within Alfred and Plantagenet include those dedicated to administration, such as Town Hall and Libraries. Fire services are supported by multiple fire halls. The landfill is supported by a shelter for equipment. Public works is supported by various equipment garages and salt/sand protection facilities. Recreation provides its services through a variety of facilities such as community centers and park shelters.

Table 51 Community Levels of Service: Buildings & Facilities

10.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Quality	Average facility condition index value for facilities in the municipality	69%
Performance	Actual vs. Target capital reinvestment rate	0.3% vs. 2.1%

Table 52 Technical Levels of Service: Buildings & Facilities

10.8 Proposed Levels of Service

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

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

10.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving 50% Funding in 15 Years	This scenario requires no tax increases. ♦ Facilities capital funding is maintained at 2023 funding level of $69k/year ♦ Funding was not redistributed amongst asset categories, meaning that while the portfolio is funded at 50% of recommended funding, each asset category varies
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes gradual tax increases of ~0.8%/year, stabilizing at 75% funding across all tax-funded asset categories in 15 years. ♦ Facilities capital funding gradually increases from $69k/year to $365k/year over a span of 15 years ♦ Funding was redistributed to equally achieve 75% funding for all asset categories.
Scenario 3: Achieving 100% Funding in 15 Years	This scenario assumes gradual tax increases of ~1.6%/year, stabilizing at 100% funding across all tax-funded asset categories in 15 years. ♦ Facilities capital funding gradually increases from $69k/year to $486k/year over a span of 15 years

Table 53 Buildings & Facilities PLOS Scenario Descriptions

10.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1 (Maintain)	Average Condition	65%	41%	21%	
	Average Asset Risk	10.4	16.2	20.0	
	Average Annual Investment		$69,000		This parameter is maintained
	Average Capital re-investment rate		0.3%		
Scenario 2 (75%)	Average Condition	65%	45%	41%	
	Average Asset Risk	10.4	15.3	15.7	
	Average Annual Investment		$365,000		Increase taxes by ~0.8% per year for 15 years
	Average Capital re-investment rate		1.5%		
Scenario 3 (100%)	Average Condition	65%	49%	41%	
	Average Asset Risk	10.4	14.3	15.7	
	Average Annual Investment		$486,000		Increase taxes by ~1.6% per year for 15 years
	Average Capital re-investment rate		2.1%		

Table 54 Buildings & Facilities PLOS Scenario Analysis

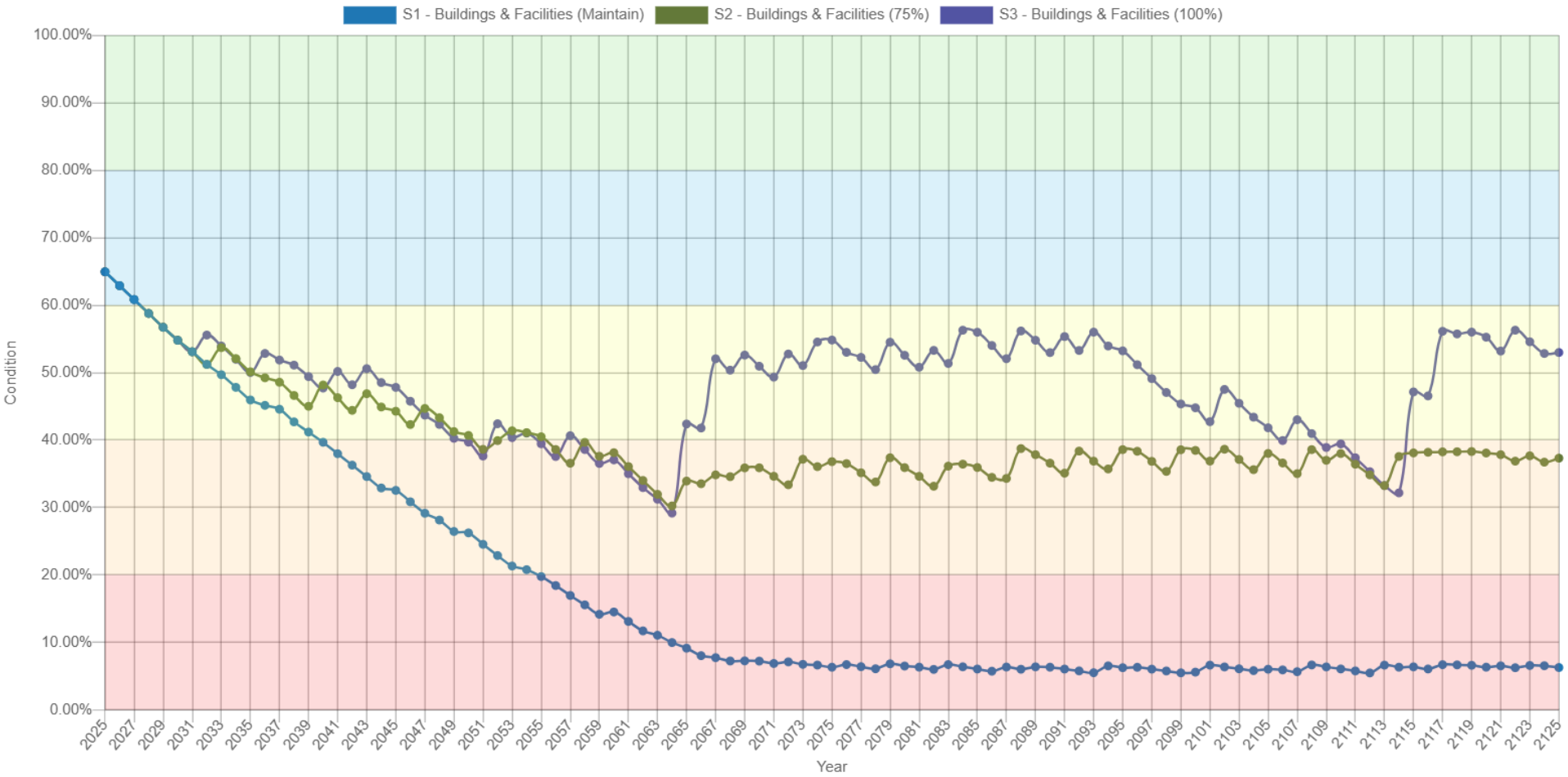


Figure 67 Buildings & Facilities PLOS Scenario Condition Results

10.8.3 10-Year PLOS Financial Projections

As outlined in Section *4. Proposed Levels of Service Analysis*, the Township of Alfred and Plantagenet selected Scenario 3 as their preferred proposed levels of service. The main objective is to increase spending gradually to reach a more sustainable funding level to manage the Township's current inventory of assets. The following table outlines the funding trajectory over the next 10 years for buildings and facilities if the financial strategy for Scenario 3 is implemented.

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Targeted Capital Spending	**$486k**	**$486k**	**$486k**	**$486k**	**$486k**	**$486k**	**$486k**	**$486k**	**$486k**	**$486k**
Projected Capital Spending	$85k	$107k	$130k	$153k	$182k	$208k	$232k	$257k	$282k	$307k
Funding Deficit	$401k	$379k	$356k	$333k	$304k	$278k	$254k	$229k	$204k	$179k
Target Reinvestment Rate	**2.1%**	**2.1%**	**2.1%**	**2.1%**	**2.1%**	**2.1%**	**2.1%**	**2.1%**	**2.1%**	**2.1%**
Projected Reinvestment Rate	0.4%	0.5%	0.6%	0.6%	0.8%	0.9%	1.0%	1.1%	1.2%	1.3%

Table 55 Buildings & Facilities 10-Year PLOS Financial Projections

11. Parks & Land Improvements

The Township's parks and land improvements portfolio includes parking lots, various sports fields and courts, and marina assets. The total current replacement of parks and land improvements is estimated at approximately $6.9 million.

11.1 Inventory & Valuation

Table 56 summarizes the quantity and current replacement cost of all parks and land improvements assets available in the Township's asset register. Parks, sports fields and courts account for the largest share of the parks and land improvements asset group.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Marina	129	Assets, Meters	$1,317,000	CPI
Parking Lots	21	Assets	$1,611,000	CPI
Parks, Sport Fields & Courts	411	Assets, Meters	$2,991,000	CPI
Pools & Splashpads	4	Assets	$1,024,000	User-Defined
TOTAL			**$6,942,000**	

Table 56 Detailed Asset Inventory: Land Improvements

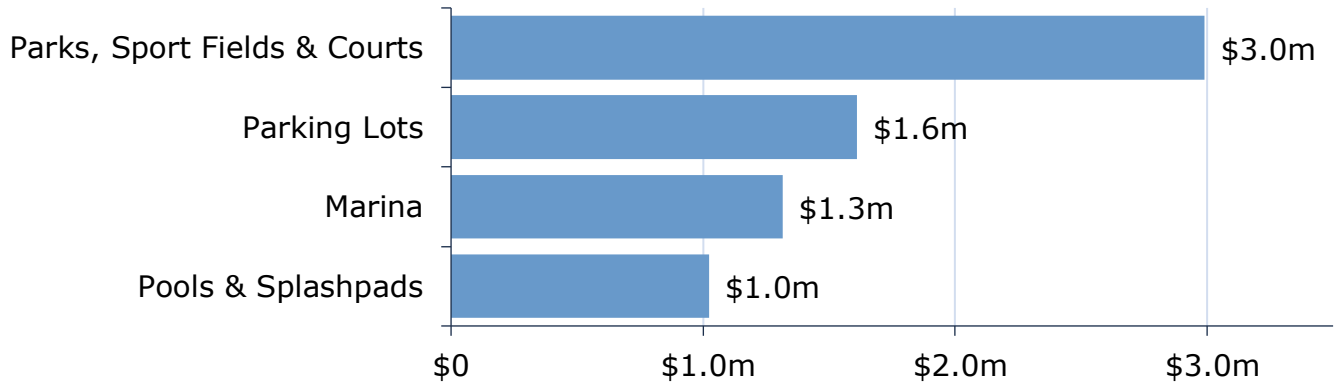


Figure 68 Portfolio Valuation: Parks & Land Improvements

11.2 Asset Condition

Figure 69 summarizes the replacement cost-weighted condition of the Township's parks and land improvements portfolio. Based on staff estimated conditions, 100% 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.

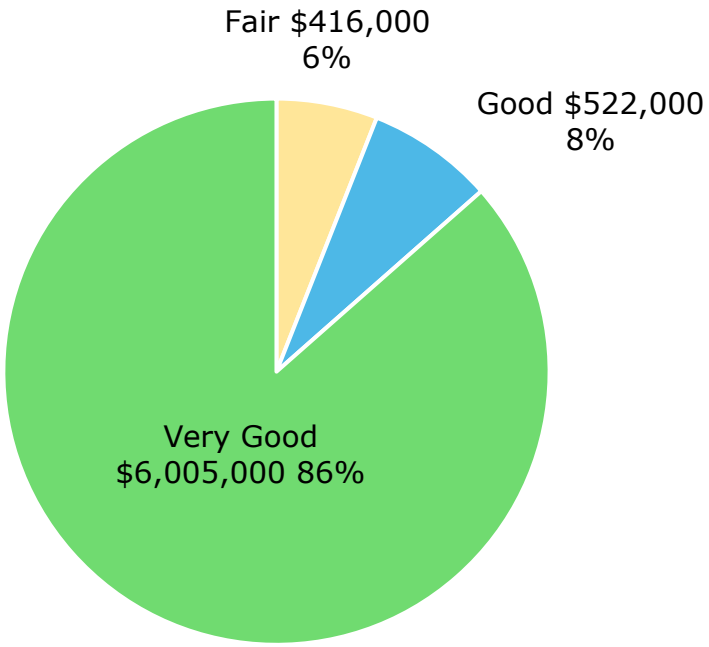


Figure 69 Asset Condition: Parks & Land Improvements Overall

Figure 70 summarizes the age-based condition of parks and land improvements by each department.

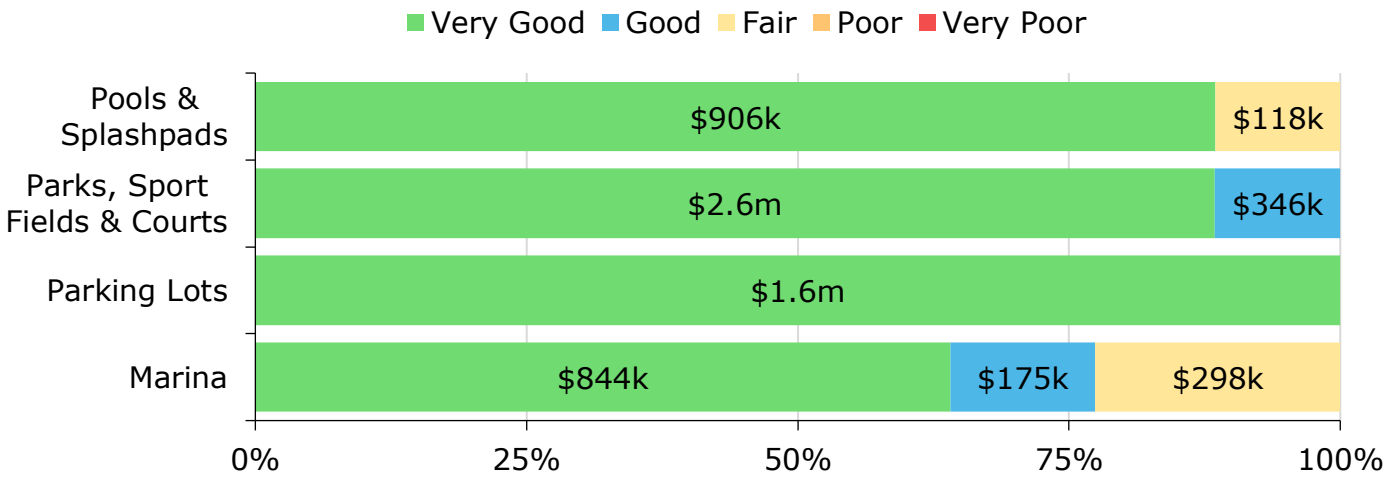


Figure 70 Asset Condition: Parks & Land Improvements by Segment

11.3 Age Profile

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

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

Figure 71 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

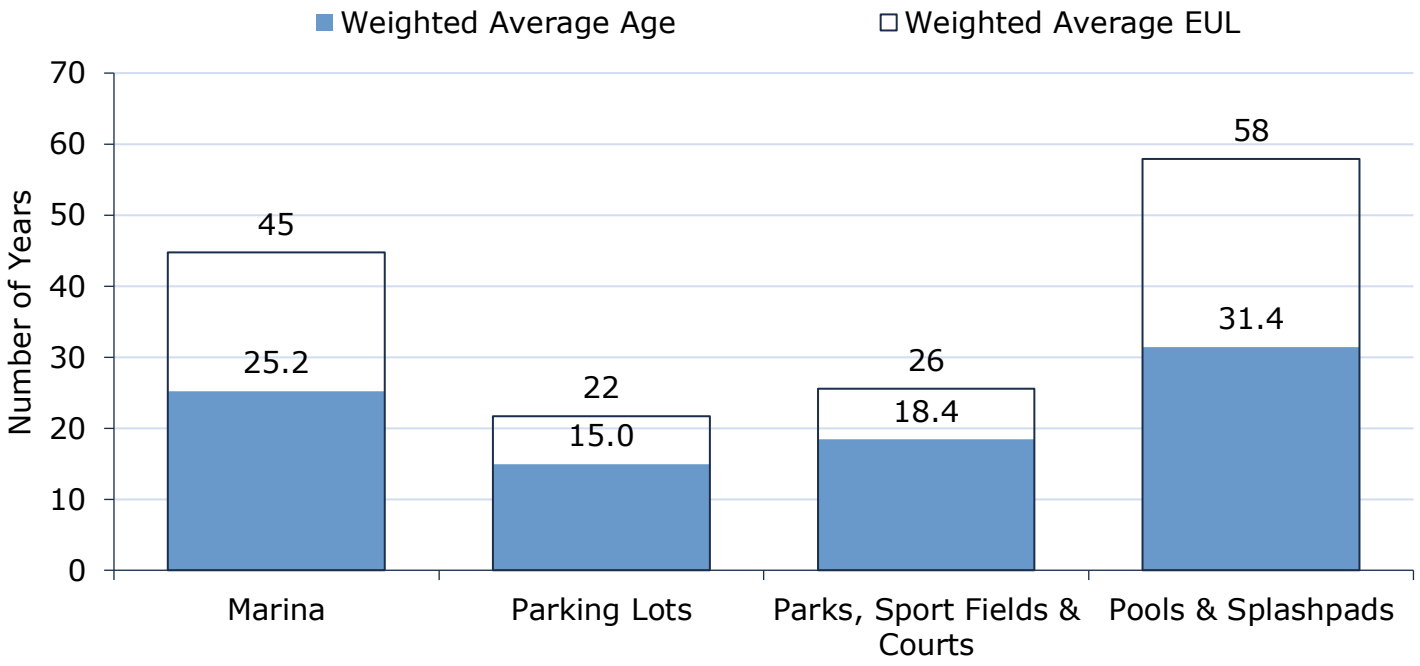


Figure 71 Estimated Useful Life vs. Asset Age: Parks & Land Improvements

Age analysis reveals that, on average, most assets are in moderate to latter stages of their expected life.

11.4 Current Approach to Lifecycle Management

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

Table 57 outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Maintenance activities are completed on a reactive basis when operational issues are identified through complaints, service requests, or inspections
	Maintenance activities include cleaning, minor repairs, and vegetation management
Rehabilitation / Replacement	Without the availability of up-to-date condition assessment information replacement activities are purely reactive in nature
Inspections	Land improvement assets are inspected annually by internal Township staff

Table 57 Lifecycle Management Strategy: Parks & Land Improvements

11.5 Forecasted Long-Term Replacement Needs

Figure 72 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's parks and land improvements portfolio. This analysis was run until 2078 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 **$268,000 per year** for all parks and land improvements. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Replacement needs are forecasted to fluctuate over the 20-year time horizon, and peaking at $2.9 million between 2044 and 2048 as assets 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.

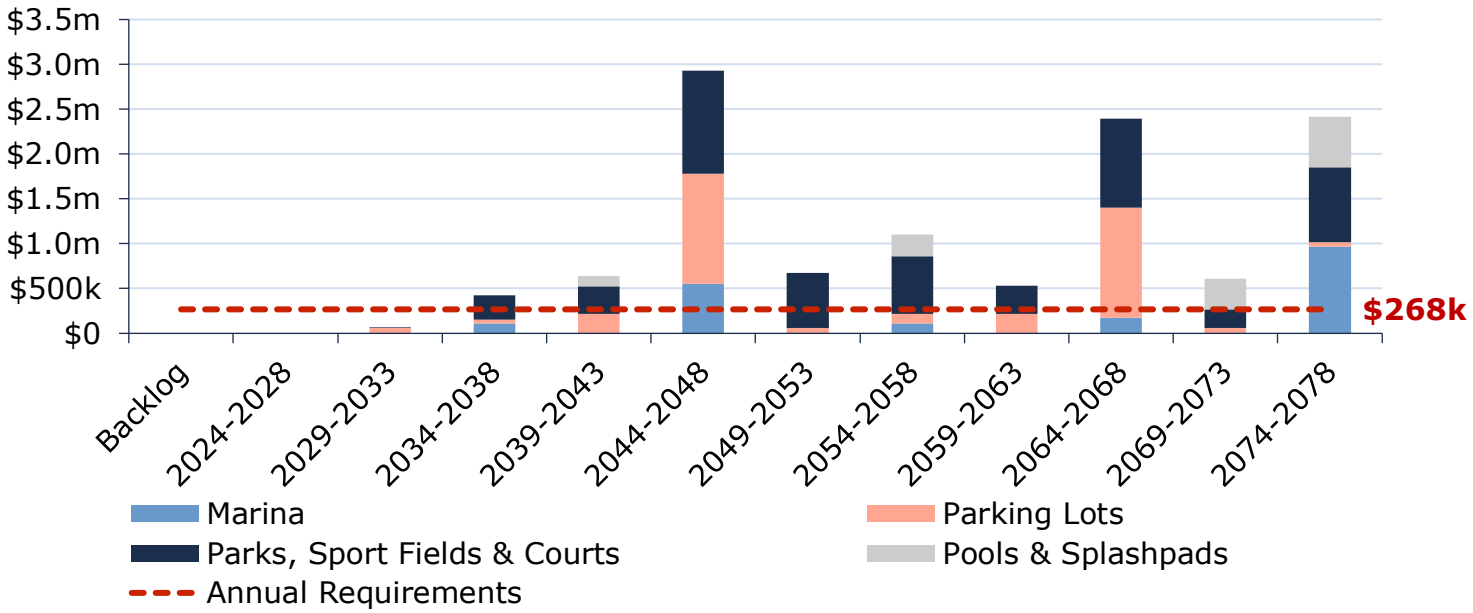


Figure 72 Forecasted Capital Replacement Needs: Parks & Land Improvements 2024-2078

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.

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

11.6 Risk Analysis

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

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

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

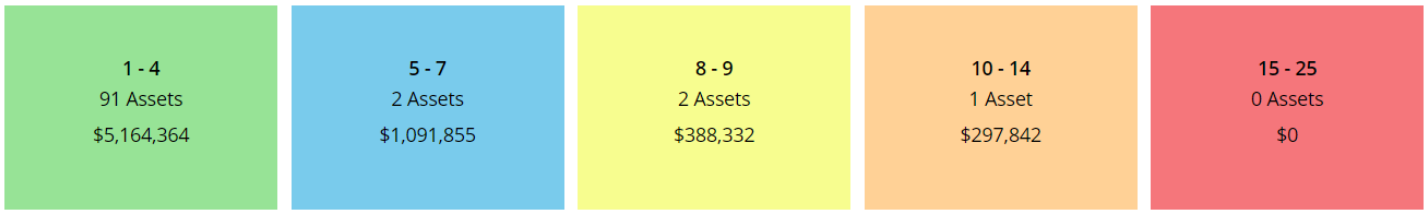


Figure 73 Risk Matrix: Parks & Land Improvements

11.7 Levels of Service

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

11.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of the outdoor recreational facilities that the municipality operates and maintains	The Township operates a variety of outdoor pools and splashpads, a marina with boat- launch, playground structures, sports fields, and courts.

Table 58 Community Levels of Service: Parks & Land Improvements

11.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Quality	Average condition of outdoor recreation facilities and land improvements in the municipality	Very Good
Performance	Actual vs. Target capital reinvestment rate	2.3% vs. 3.9%

Table 59 Technical Levels of Service: Parks & Land Improvements

11.8 Proposed Levels of Service

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

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

11.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving 50% Funding in 15 Years	This scenario requires no tax increases. ♦ Land Improvements capital funding is maintained at 2023 funding level of $161k/year ♦ Funding was not redistributed amongst asset categories, meaning that while the portfolio is funded at 50% of recommended funding, each asset category varies
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes gradual tax increases of ~0.8%/year, stabilizing at 75% funding across all tax-funded asset categories in 15 years. ♦ Land Improvements capital funding gradually increases from $161k/year to $201k/year over a span of 15 years ♦ Funding was redistributed to equally achieve 75% funding for all asset categories.
Scenario 3: Achieving 100% Funding in 15 Years	This scenario assumes gradual tax increases of ~1.6%/year, stabilizing at 100% funding across all tax-funded asset categories in 15 years. ♦ Land Improvements capital funding gradually increases from $161k/year to $268k/year over a span of 15 years

Table 60 Parks & Land Improvements PLOS Scenario Descriptions

11.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1 (Maintain)	Average Condition	84%	42%	45%	
	Average Asset Risk	3.9	9.2	9.7	
	Average Annual Investment		$161,000		This parameter is maintained
	Average Capital re-investment rate		2.3%		
Scenario 2 (75%)	Average Condition	84%	42%	53%	
	Average Asset Risk	3.9	9.2	8.9	
	Average Annual Investment		$201,000		Increase taxes by ~0.8% per year for 15 years
	Average Capital re-investment rate		2.9%		
Scenario 3 (100%)	Average Condition	84%	42%	56%	
	Average Asset Risk	3.9	9.2	8.6	
	Average Annual Investment		$268,000		Increase taxes by ~1.6% per year for 15 years
	Average Capital re-investment rate		3.9%		

Table 61 Parks & Land Improvements PLOS Scenario Analysis

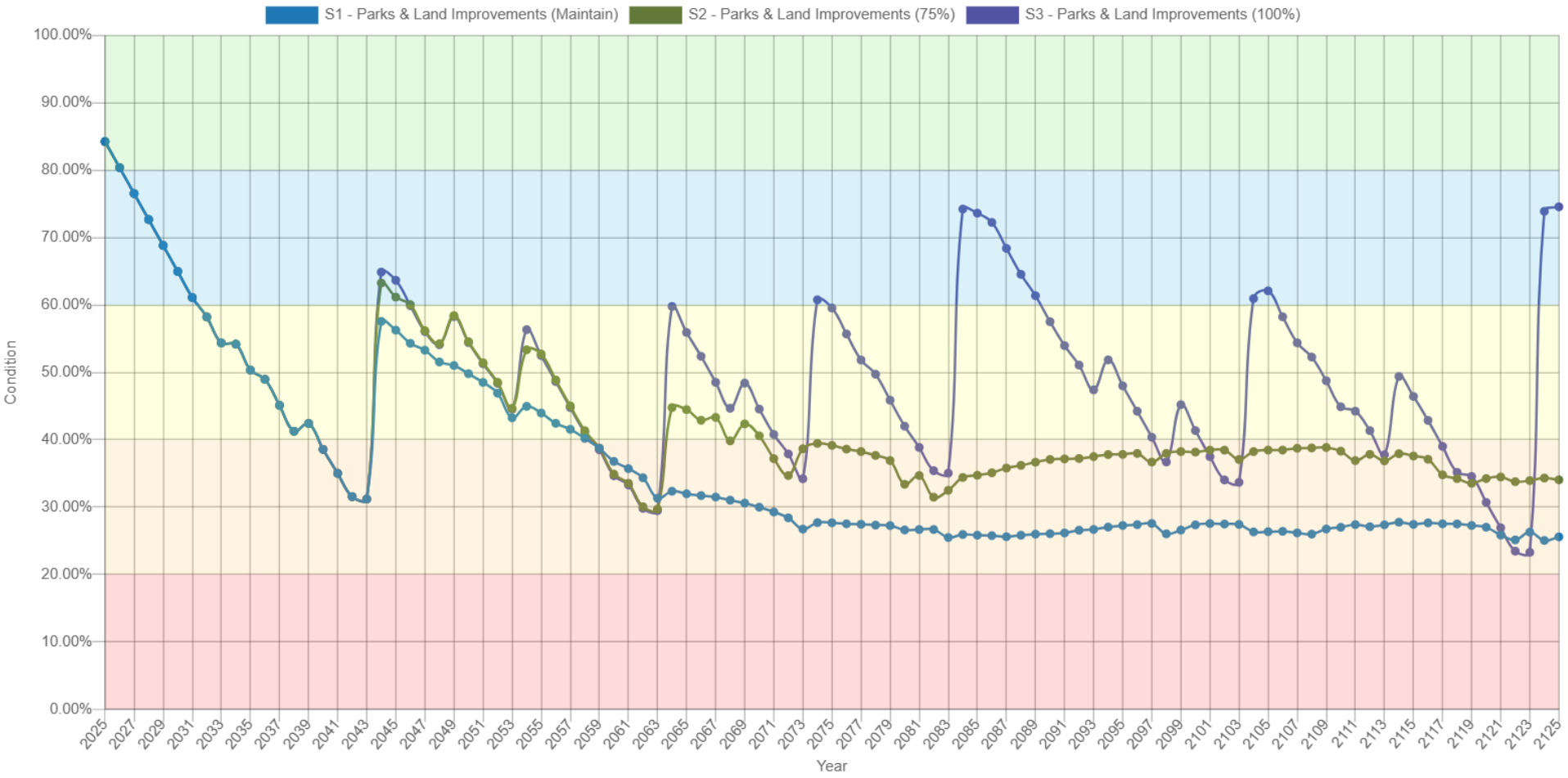


Figure 74 Parks & Land Improvements PLOS Scenario Condition Results

11.8.3 10-Year PLOS Financial Projections

As outlined in Section *4. Proposed Levels of Service Analysis*, the Township of Alfred and Plantagenet selected Scenario 3 as their preferred proposed levels of service. The main objective is to increase spending gradually to reach a more sustainable funding level to manage the Township's current inventory of assets. The following table outlines the funding trajectory over the next 10 years for the parks and land improvements if the financial strategy for Scenario 3 is implemented.

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Targeted Capital Spending	**$268k**	**$268k**	**$268k**	**$268k**	**$268k**	**$268k**	**$268k**	**$268k**	**$268k**	**$268k**
Projected Capital Spending	$165k	$170k	$176k	$182k	$190k	$196k	$202k	$209k	$215k	$222k
Funding Deficit	$103k	$97k	$91k	$85k	$78k	$71k	$65k	$59k	$52k	$46k
Target Reinvestment Rate	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**	**3.9%**
Projected Reinvestment Rate	2.4%	2.5%	2.5%	2.6%	2.7%	2.8%	2.9%	3.0%	3.1%	3.2%

Table 62 Parks & Land Improvements 10-Year PLOS Financial Projections

12. Vehicles

The Township's vehicles portfolio includes 40 assets that support a variety of general and essential services, including public works, administration, recreation, and fire services. The total current replacement of vehicles is estimated at approximately $9.4 million.

12.1 Inventory & Valuation

Table 63 summarizes the quantity and current replacement cost of all vehicles assets available in the Township's asset register. Public works and fire services account for the largest share of the vehicles portfolio.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Administration	3	Assets	$139,000	CPI
Fire	14	Assets	$4,374,000	CPI
Public Works	19	Assets	$4,671,000	User-Defined
Recreational	4	Assets	$241,000	CPI
TOTAL			**$9,425,000**	

Table 63 Detailed Asset Inventory: Vehicles

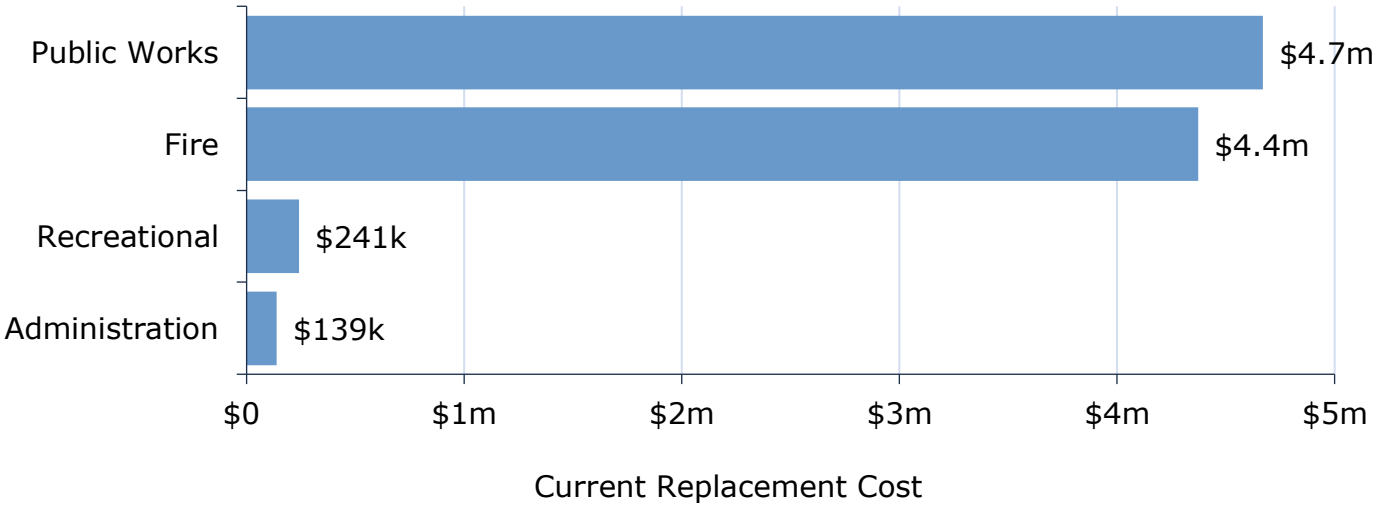


Figure 75 Portfolio Valuation: Vehicles

12.2 Asset Condition

Figure 76 summarizes the replacement cost-weighted condition of the Township's vehicles portfolio. Based on a combination of aged-based and staff estimated assessed condition data, 40% of vehicles are in fair or better condition, with the remaining 60% are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. Condition data was available for 49% of vehicles, based on replacement costs; age was used to estimate condition for the remaining 51% of assets.

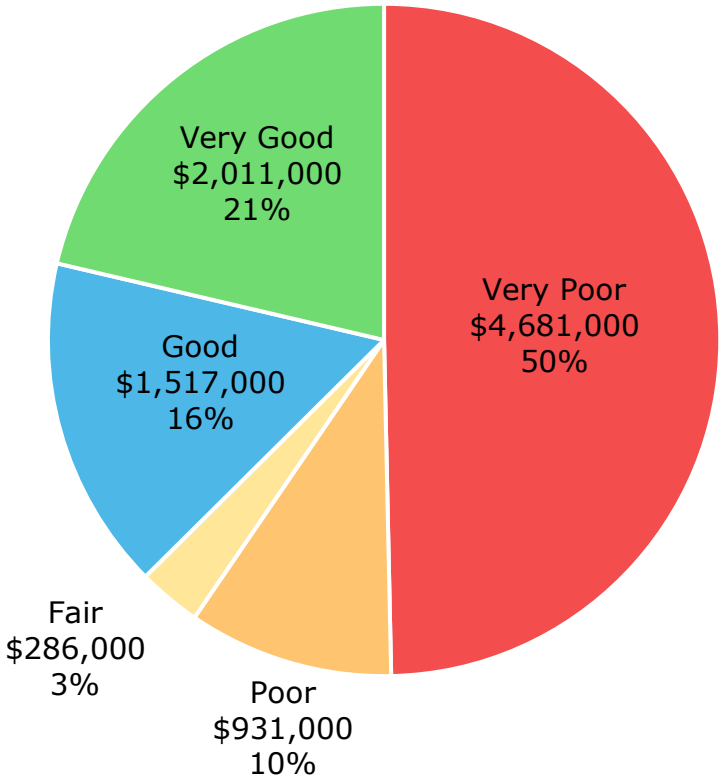


Figure 76 Asset Condition: Vehicles Overall

Figure 77 summarizes the condition of vehicles by each department. The majority of vehicles that support critical services such as fire and public works are in poor or worse condition. Assets in fair or better condition are concentrated primarily in recreation and administration services.

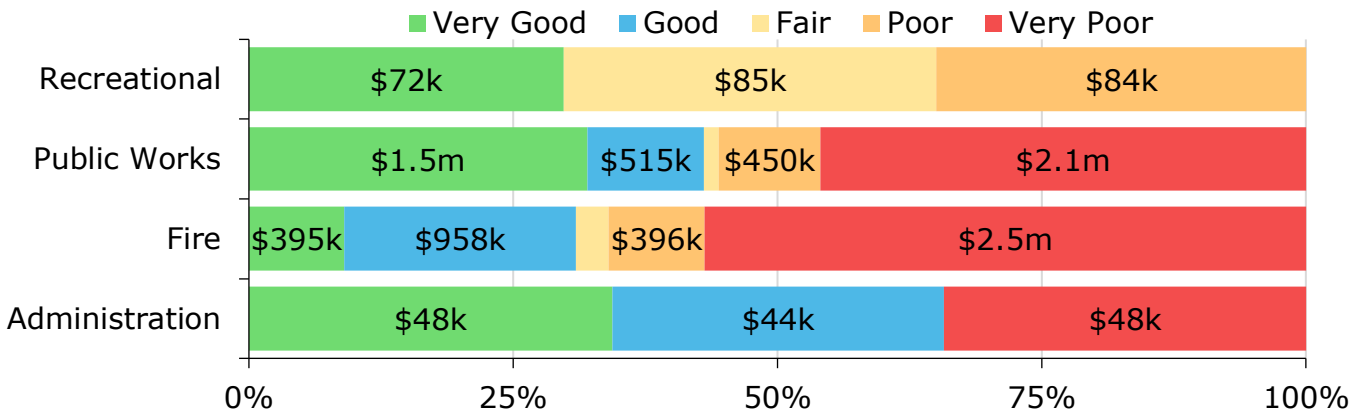


Figure 77 Asset Condition: Vehicles by Segment

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 78 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.

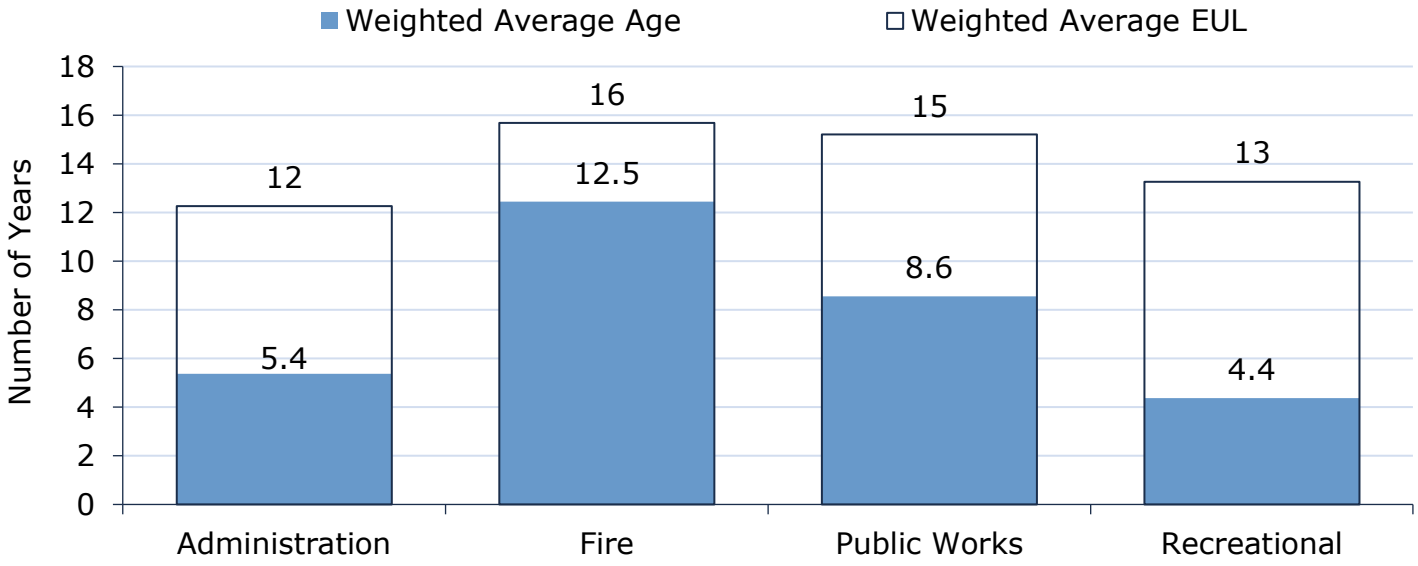


Figure 78 Estimated Useful Life vs. Asset Age: Vehicles

Age analysis reveals that, on average, most vehicles are in moderate stages of their expected life. Vehicles in fire are approaching the end of their expected lives.

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	Oil changes and routine maintenance is completed as per manufacturer recommendations
	All other maintenance activities are completed on a reactive basis when operational issues are identified (e.g., mechanical breakdown, deficiencies identified during daily inspections)
Replacement	Without the availability of up-to-date condition assessment information replacement activities are purely reactive in nature
Inspections	Vehicles are inspected by the operator daily before use; however, these inspections identify deficiencies but do not provide overall condition ratings

Table 64 Lifecycle Management Strategy: Vehicles

12.5 Forecasted Long-Term Replacement Needs

Figure 79 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's vehicles 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 **$638,000 per year** for all vehicles. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Replacement needs are forecasted to rise considerably in the current decade, peaking at $4.7 million by 2043 as vehicles 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.

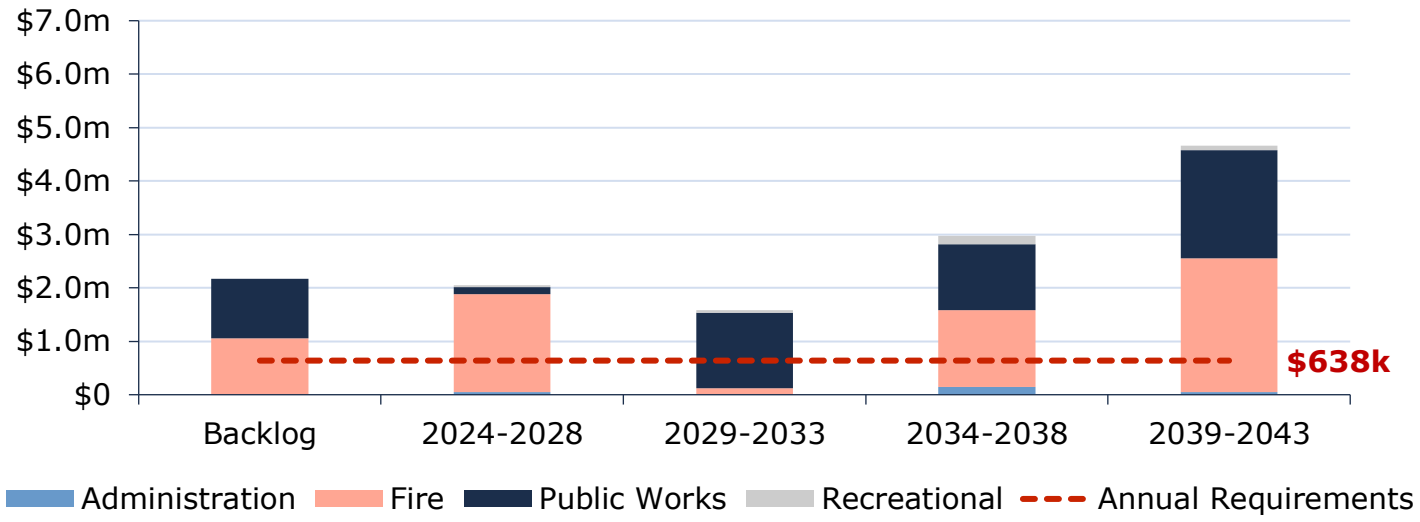


Figure 79 Forecasted Capital Replacement Needs: Vehicles 2024-2043

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

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

12.6 Risk Analysis

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

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

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

Figure 80 Risk Matrix: Vehicles

12.7 Levels of Service

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

12.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include images, of the types of vehicles (i.e. light, medium, and heavy duty) that the municipality operates and the services that they help to provide to the community	Fire vehicles include water tankers, pumpers, service trucks, and rescue vans, ensuring readiness for emergency response. Recreation vehicles include light duty vehicles such as pick-up trucks and cargo vans for services such as park maintenance and marina servicing. Public Works vehicles, such as snowplows and pick-up trucks, are vital for ensuring safe road conditions and managing infrastructure during inclement weather and construction projects. Administration vehicles include a pick-up truck, van, and SUV and ensure efficient bylaw enforcement and general transportation (i.e. inspections) can be provided for administrative staff.

Table 65 Community Levels of Service: Vehicles

12.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Quality	Average condition of vehicles	Fair
Performance	Actual vs. Target capital reinvestment rate	2.8% vs. 6.8%

Table 66 Technical Levels of Service: Vehicles

12.8 Proposed Levels of Service

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

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

12.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving 50% Funding in 15 Years	This scenario requires no tax increases. ♦ Vehicles capital funding is maintained at 2023 funding level of $262k/year ♦ Funding was not redistributed amongst asset categories, meaning that while the portfolio is funded at 50% of recommended funding, each asset category varies
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes gradual tax increases of ~0.8%/year, stabilizing at 75% funding across all tax-funded asset categories in 15 years. ♦ Vehicles capital funding gradually increases from $262k/year to $479k/year over a span of 15 years ♦ Funding was redistributed to equally achieve 75% funding for all asset categories.
Scenario 3: Achieving 100% Funding in 15 Years	This scenario assumes gradual tax increases of ~1.6%/year, stabilizing at 100% funding across all tax-funded asset categories in 15 years. ♦ Vehicles capital funding gradually increases from $262k/year to $638k/year over a span of 15 years

Table 67 Vehicles PLOS Scenario Descriptions

12.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1 (Maintain)	Average Condition	40%	20%	20%	
	Average Asset Risk	13.0	16.4	16.4	
	Average Annual Investment		$262,000		This parameter is maintained
	Average Capital re-investment rate		2.8%		
Scenario 2 (75%)	Average Condition	40%	27%	35%	
	Average Asset Risk	13.0	15.2	13.5	
	Average Annual Investment		$479,000		Increase taxes by ~0.8% per year for 15 years
	Average Capital re-investment rate		5.1%		
Scenario 3 (100%)	Average Condition	40%	35%	48%	
	Average Asset Risk	13.0	13.4	11.3	
	Average Annual Investment		$638,000		Increase taxes by ~1.6% per year for 15 years
	Average Capital re-investment rate		6.8%		

Table 68 Vehicles PLOS Scenario Analysis

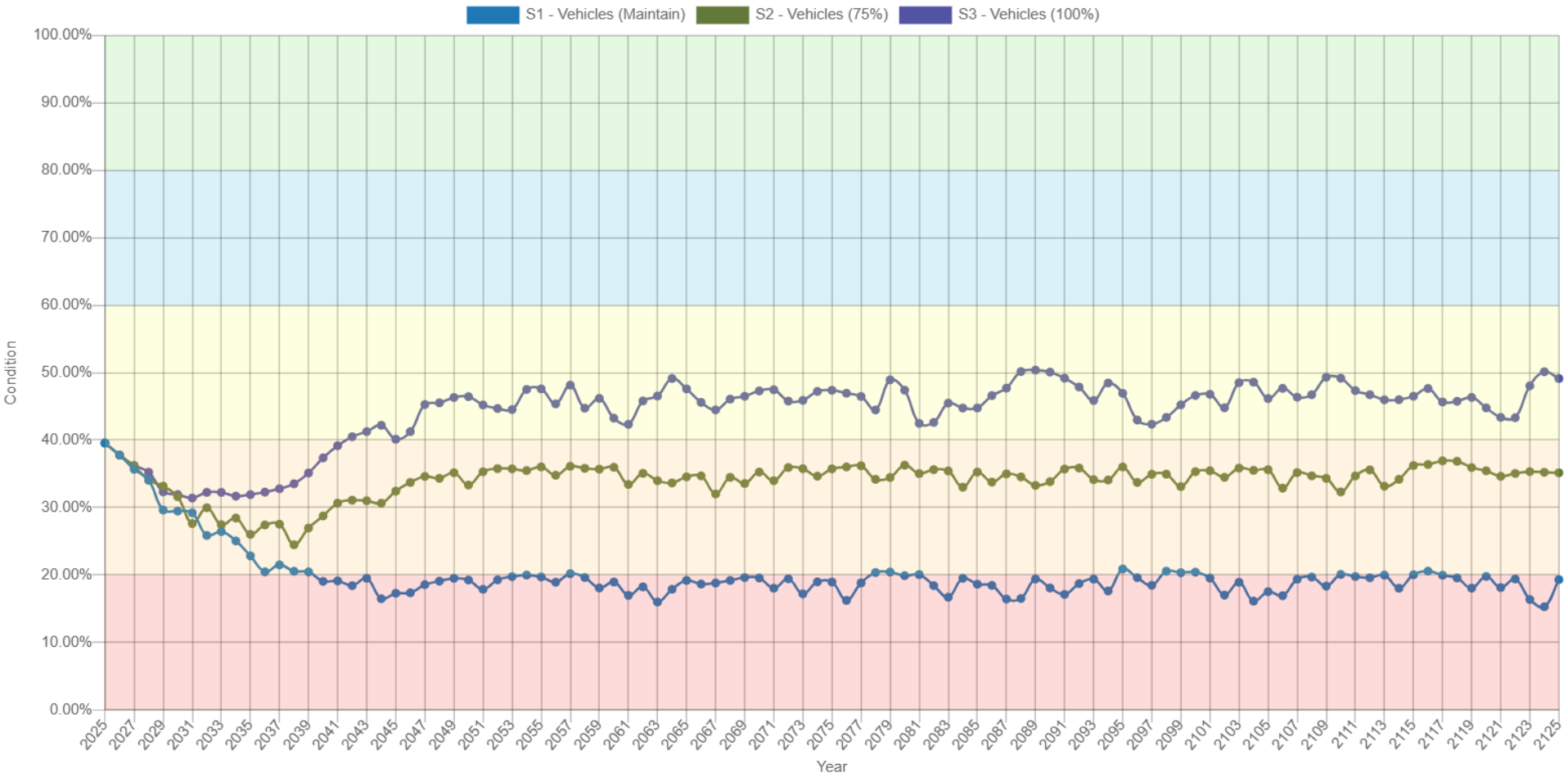


Figure 81 Vehicles PLOS Scenario Condition Results

12.8.3 10-Year PLOS Financial Projections

As outlined in Section *4. Proposed Levels of Service Analysis*, the Township of Alfred and Plantagenet selected Scenario 3 as their preferred proposed levels of service. The main objective is to increase spending gradually to reach a more sustainable funding level to manage the Township's current inventory of assets. The following table outlines the funding trajectory over the next 10 years for vehicles if the financial strategy for Scenario 3 is implemented.

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Targeted Capital Spending	**$638k**	**$638k**	**$638k**	**$638k**	**$638k**	**$638k**	**$638k**	**$638k**	**$638k**	**$638k**
Projected Capital Spending	$277k	$297k	$318k	$338k	$365k	$388k	$410k	$432k	$454k	$477k
Funding Deficit	$361k	$341k	$321k	$300k	$274k	$251k	$229k	$207k	$184k	$161k
Target Reinvestment Rate	**6.8%**	**6.8%**	**6.8%**	**6.8%**	**6.8%**	**6.8%**	**6.8%**	**6.8%**	**6.8%**	**6.8%**
Projected Reinvestment Rate	2.9%	3.2%	3.4%	3.6%	3.9%	4.1%	4.3%	4.6%	4.8%	5.1%

Table 69 Vehicles 10-Year PLOS Financial Projections

13. Machinery & Equipment

The Township's machinery and equipment portfolio includes a variety of general and essential services, including recreation and fire. The total current replacement of machinery and equipment is estimated at approximately $7.6 million.

13.1 Inventory & Valuation

Figure 82 summarizes the quantity and current replacement cost of all machinery and equipment assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Administration	184	Assets	$1,014,000	CPI
Fire	133	Assets	$680,000	CPI
Landfill	2	Assets	$1,200,000	User-Defined
Library	17,867[12]	Assets	$1,343,000	CPI
Public Works	24	Assets	$2,472,000	User-Defined
Recreational	28	Assets	$976,000	CPI
TOTAL			**$7,685,000**	

Table 70 Detailed Asset Inventory: Machinery & Equipment

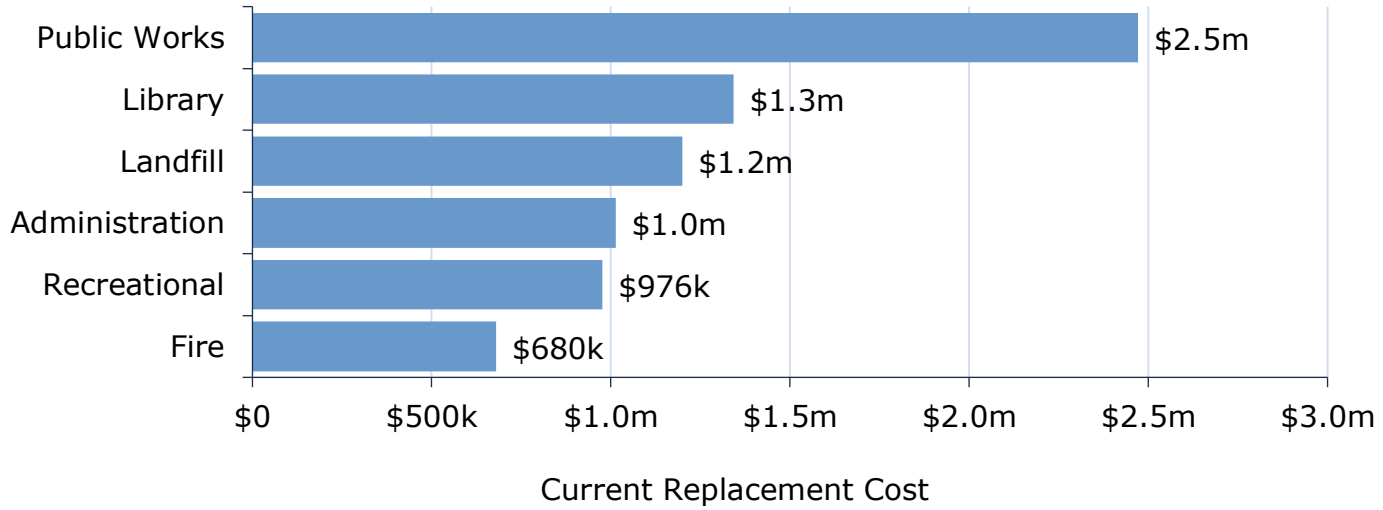


Figure 82 Portfolio Valuation: Machinery & Equipment

[12] Some library assets, such as books, are quantified by individual books while other assets are pooled. This number may not accurately reflect the number of library assets owned.

13.2 Asset Condition

Figure 83 summarizes the replacement cost-weighted condition of the Township's machinery and equipment portfolio. Based partially on age data and partially on staff estimated conditions, 28% of assets are in fair or better condition; the remaining 72% 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.

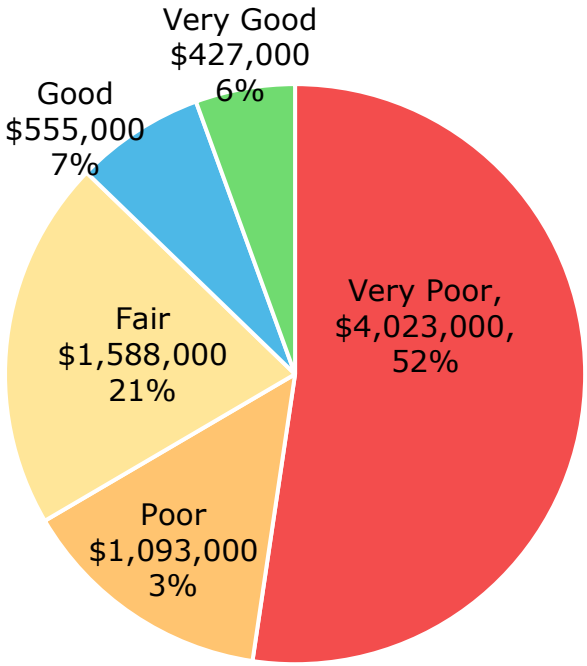


Figure 83 Asset Condition: Machinery & Equipment Overall

Figure 84 summarizes the age-based condition of machinery and equipment by each department. The majority of assets across all departments, with the exception of the landfill, are in poor or worse condition.

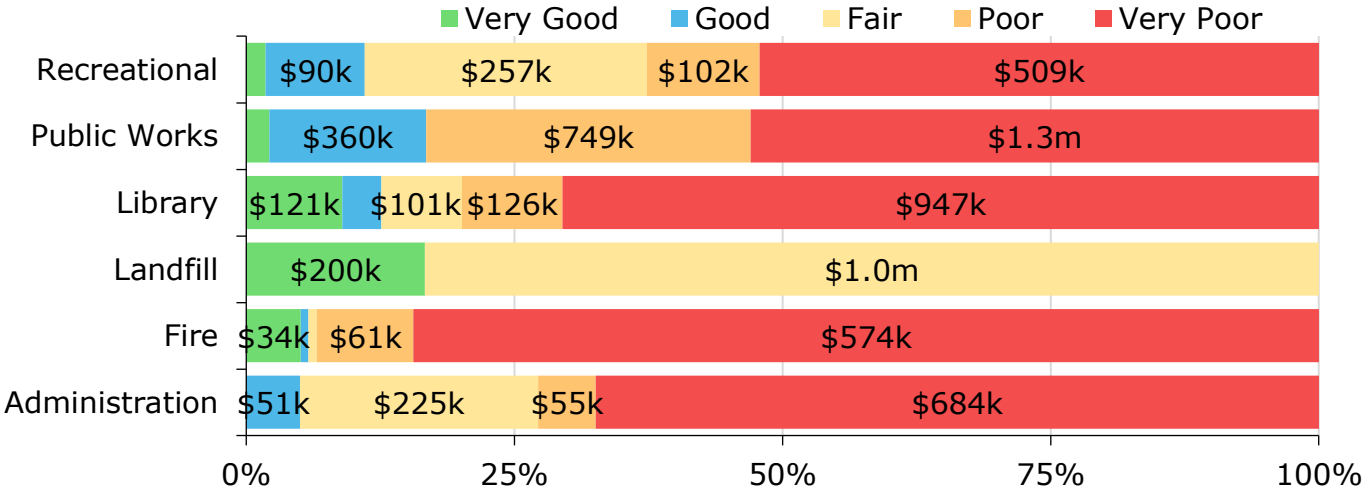


Figure 84 Asset Condition: Machinery & Equipment by Segment

13.3 Age Profile

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

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

Figure 85 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.

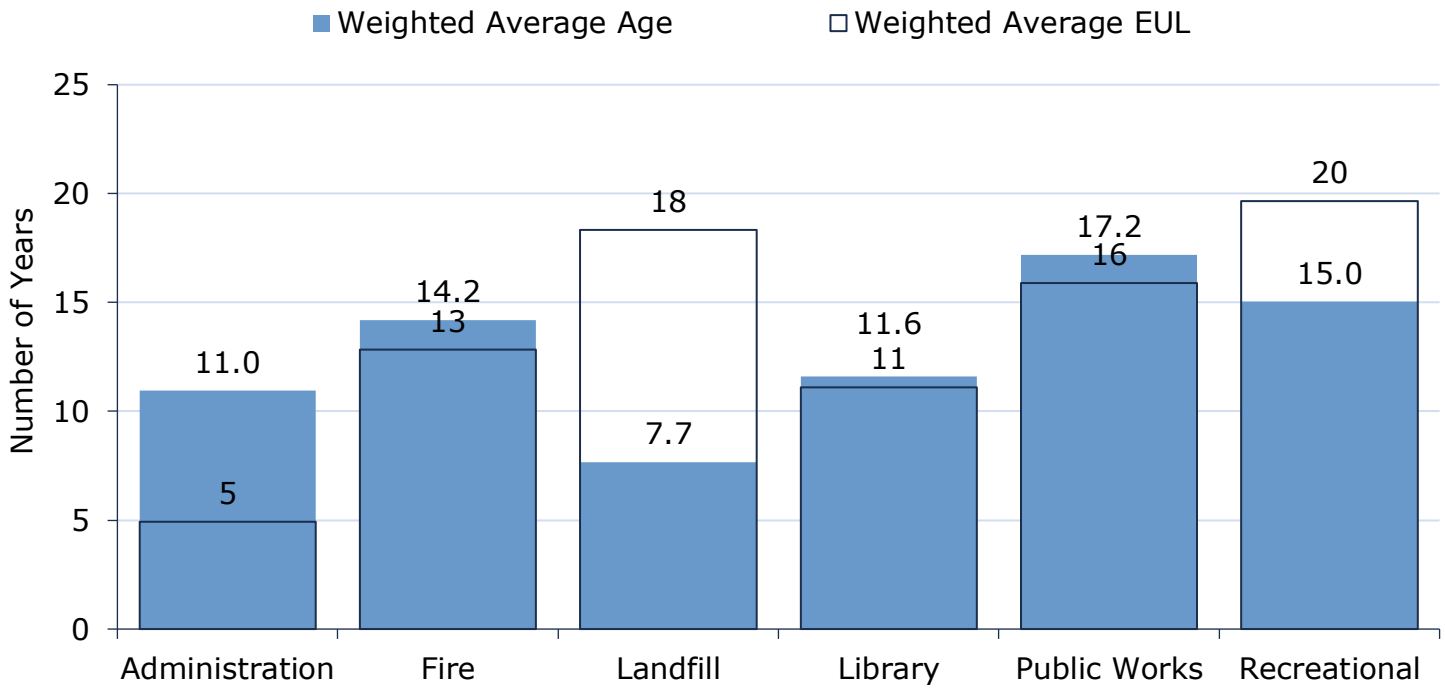


Figure 85 Estimated Useful Life vs. Asset Age: Machinery & Equipment

Age analysis reveals that, on average, with he exception of the landfill, most machinery and equipment assets are in the latter stages of their expected life or have exceeded their expected life.

13.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Oil changes and routine maintenance is completed as per manufacturer recommendations
	All other maintenance activities are completed on a reactive basis when operational issues are identified (e.g., mechanical breakdown, deficiencies identified during daily inspections)
Replacement	Without the availability of up-to-date condition assessment information replacement activities are purely reactive in nature
Inspections	Heavy equipment is inspected by the operator daily before use, however, these inspections identify deficiencies but do not provide overall condition ratings

Table 71 Lifecycle Management Strategy: Machinery & Equipment

13.5 Forecasted Long-Term Replacement Needs

Figure 86 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's machinery and equipment portfolio. This analysis was run until 2073 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 **$744,000 per year** 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 consistent over the 50-year projection period, peaking at $4.2 million between 2054 and 2058. 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.

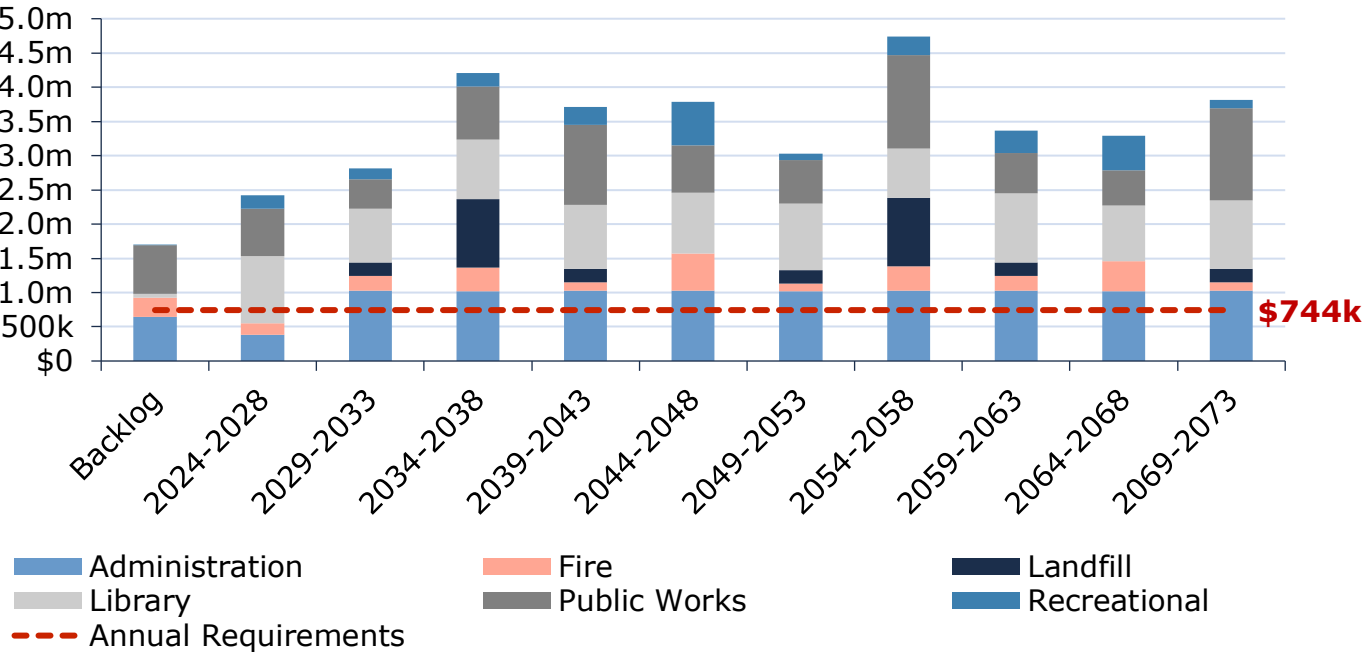


Figure 86 Forecasted Capital Replacement Needs: Machinery & Equipment 2024-2073

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

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

13.6 Risk Analysis

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

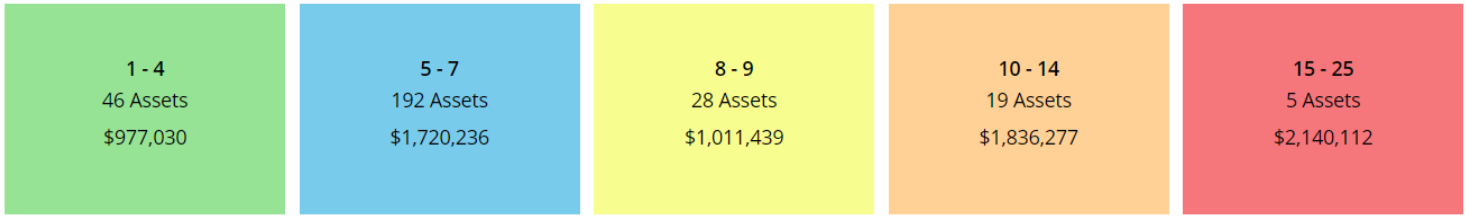


Figure 87 Risk Matrix: Machinery & Equipment

13.7 Levels of Service

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

13.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
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	Administration is supported by equipment such as computers, monitors, tablets, software, and printers. Fire is supported by equipment such as ice rescue boats, thermal imaging cameras, SCBAs, and bunker suits. The landfill is supported by a single loader/backhoe. The library is supported by books and shelving. Recreation is supported by playground structures, tractors, and computers. Public Works is supported by equipment such as graders, snowblowers, trailers, mowers, and a backhoe.

Table 72 Community Levels of Service: Machinery & Equipment

13.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Quality	Average condition of equipment	Fair
Performance	Actual vs. Target capital reinvestment rate	1.5% vs. 9.7%

Table 73 Technical Levels of Service: Machinery & Equipment

13.8 Proposed Levels of Service

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

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

13.8.1 PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving 50% Funding in 15 Years	This scenario requires no tax increases. ♦ Machinery capital funding is maintained at 2023 funding level of $111k/year ♦ Funding was not redistributed amongst asset categories, meaning that while the portfolio is funded at 50% of recommended funding, each asset category varies
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes gradual tax increases of ~0.8%/year, stabilizing at 75% funding across all tax-funded asset categories in 15 years. ♦ Machinery capital funding gradually increases from $111k/year to $558k/year over a span of 15 years ♦ Funding was redistributed to equally achieve 75% funding for all asset categories.
Scenario 3: Achieving 100% Funding in 15 Years	This scenario assumes gradual tax increases of ~1.6%/year, stabilizing at 100% funding across all tax-funded asset categories in 15 years. ♦ Machinery capital funding gradually increases from $111k/year to $744k/year over a span of 15 years

Table 74 Machinery & Equipment PLOS Scenario Descriptions

13.8.2 PLOS Analysis Results

Scenario	Technical LOS Outcomes	Initial Value (2025)	15 Year Projection (2039)	30 Year Projection (2054)	Comments
Scenario 1 (Maintain)	Average Condition	31%	9%	8%	
	Average Asset Risk	9.5	12.3	12.4	
	Average Annual Investment		$111,000		This parameter is maintained
	Average Capital re-investment rate		1.4%		
Scenario 2 (75%)	Average Condition	31%	24%	32%	
	Average Asset Risk	9.5	10.7	10.5	
	Average Annual Investment		$558,000		Increase taxes by ~0.8% per year for 15 years
	Average Capital re-investment rate		7.3%		
Scenario 3 (100%)	Average Condition	31%	33%	45%	
	Average Asset Risk	9.5	10.0	7.3	
	Average Annual Investment		$744,000		Increase taxes by ~1.6% per year for 15 years
	Average Capital re-investment rate		9.7%		

Table 75 Machinery & Equipment PLOS Scenario Analysis

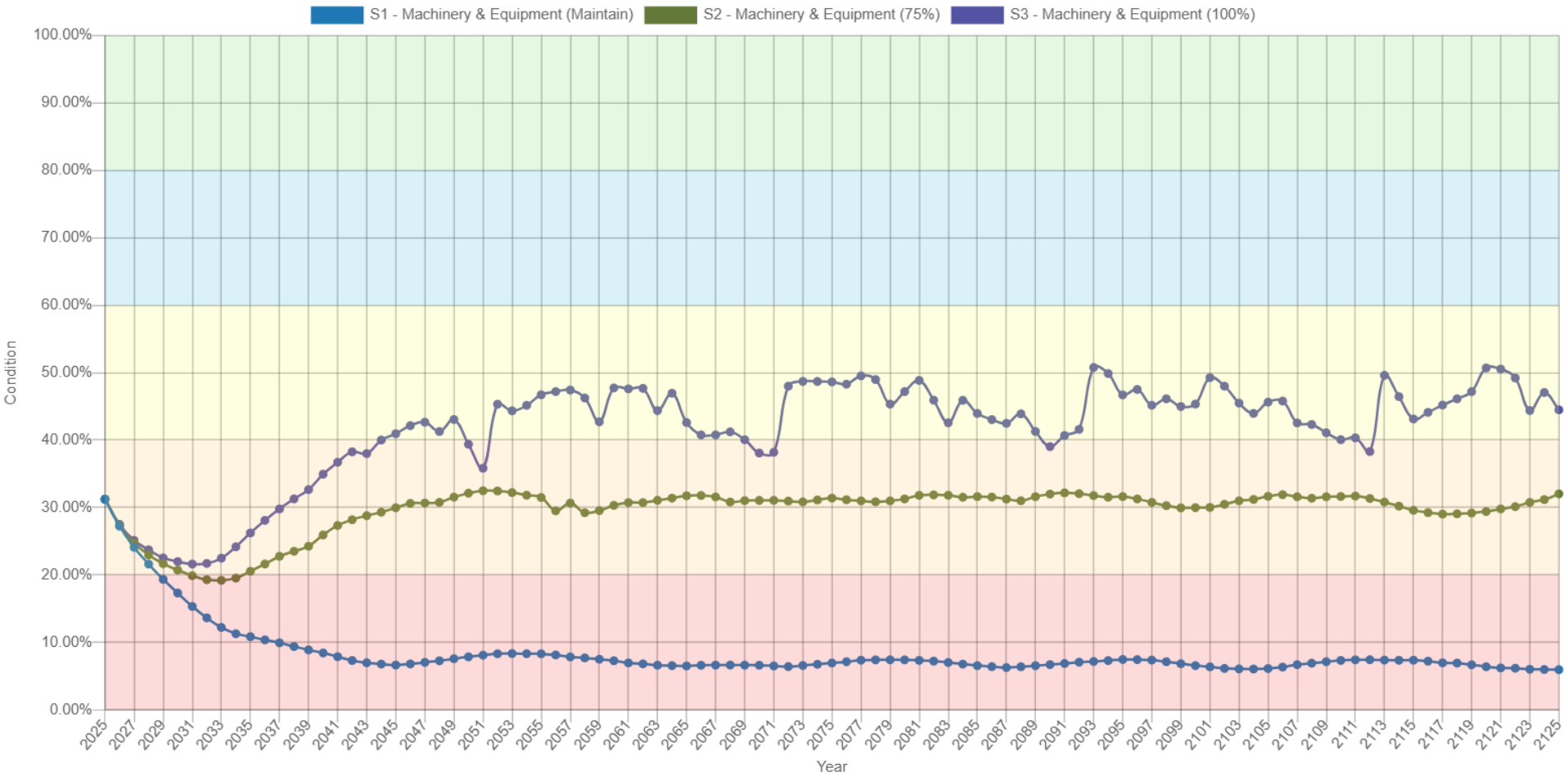


Figure 88 Machinery & Equipment PLOS Scenario Condition Results

13.8.3 10-Year PLOS Financial Projections

As outlined in Section *4. Proposed Levels of Service Analysis*, the Township of Alfred and Plantagenet selected Scenario 3 as their preferred proposed levels of service. The main objective is to increase spending gradually to reach a more sustainable funding level to manage the Township's current inventory of assets. The following table outlines the funding trajectory over the next 10 years for machinery and equipment if the financial strategy for Scenario 3 is implemented.

	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Targeted Capital Spending	**$744k**	**$744k**	**$744k**	**$744k**	**$744k**	**$744k**	**$744k**	**$744k**	**$744k**	**$744k**
Projected Capital Spending	$136k	$170k	$204k	$239k	$284k	$323k	$359k	$396k	$434k	$473k
Funding Deficit	$607k	$574k	$539k	$504k	$460k	$421k	$384k	$347k	$309k	$271k
Target Reinvestment Rate	**9.7%**	**9.7%**	**9.7%**	**9.7%**	**9.7%**	**9.7%**	**9.7%**	**9.7%**	**9.7%**	**9.7%**
Projected Reinvestment Rate	1.8%	2.2%	2.7%	3.1%	3.7%	4.2%	4.7%	5.2%	5.6%	6.1%

Table 76 Machinery & Equipment 10-Year PLOS Financial Projections

Strategies

14. Growth

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

14.1 Growth Assumptions

United Counties of Prescott and Russell Official Plan (November 2018)

The United Counties of Prescott and Russell is the easternmost County in Ontario, located between the City of Ottawa on the west and the Province of Quebec on the east. The County comprises eight local municipalities including: The City of Clarence-Rockland, the Town of Hawkesbury, the Village of Casselman, the Township of Alfred and Plantagenet, the Township of Champlain, the Township of East Hawkesbury, the Nation Municipality, and the Township of Russell.

The goal of the Official Plan is to provide guidance and direction to growth and development, redevelopment, and/or conservation activities in the United Counties. Council adopted a 5-year review in August 2015 and the document was consolidated in November 2018. The Official Plan spans a twenty-year period until 2035.

Table 77 outlines the population, employment, and household forecasts allocated to Alfred-Plantagenet.

Year	2011	2031	2035
Population	9,541	11,546	11,940
Employment	2,668	2,990	3,101
Households	3,730	4,533	4,626

Table 77 Alfred and Plantagenet Population Forecasts

Much of the County's population, employment, and housing growth forecasts are based on the December 2012 document by Hemson Consulting titled, "Growth Forecast and Land Needs Analysis – United Counties of Prescott and Russell."

Population is expected to increase throughout the County. An estimate of growth was derived and downscaled to local municipalities based on historic building permits from Statistics Canada, adjusted for expected shifts in the pattern of growth arising form migration patterns. Migration from the City of Ottawa is expected to be a key driver of population growth in the County. The City of Ottawa's growth may further increase development pressure in the surrounding regional market area, particularly in western portions of the County. The local housing forecast reflect the anticipation that Ottawa commuter-based development pressure continues in the coming years.

The Official Plan suggests a housing growth distribution of 85-15 between urban/community and rural for the western portion of the County, including Wendover. In other parts of the County, a 70-30 urban/community and rural split is established. Following this distribution approach maximizes the development on available infrastructure while the intensification allows future infrastructure expansion to be completed in a more cost-effective manner.

14.2 Impact of Growth on Lifecycle Activities

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

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

15. Financial Strategy

For an asset management plan to be effective and meaningful, it must be integrated with financial planning and long-term budgeting. The development of a comprehensive financial plan will allow the Township of Alfred and Plantagenet 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 as indicated in *Section 4. Proposed Levels of Service Analysis*
    d. Requirements of anticipated growth (none identified for this plan)
2. Use of traditional sources of municipal funds:
    a. Tax levies
    b. User fees
    c. Debt
    d. Development charges
3. Use of non-traditional sources of municipal funds:
    a. Reallocated budgets
    b. Partnerships
    c. Procurement methods
4. Use of Senior Government Funds:
    a. Canada Community-Building Fund (CCBF)
    b. Annual grants

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

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

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

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

15.1 Annual Requirements & Capital Funding

15.1.1 Annual Requirements

The annual requirements represent the amount the Township should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs and achieve long-term sustainability. In total, the Township must allocate approximately $6.8 million annually to address capital requirements for the assets included in this AMP.

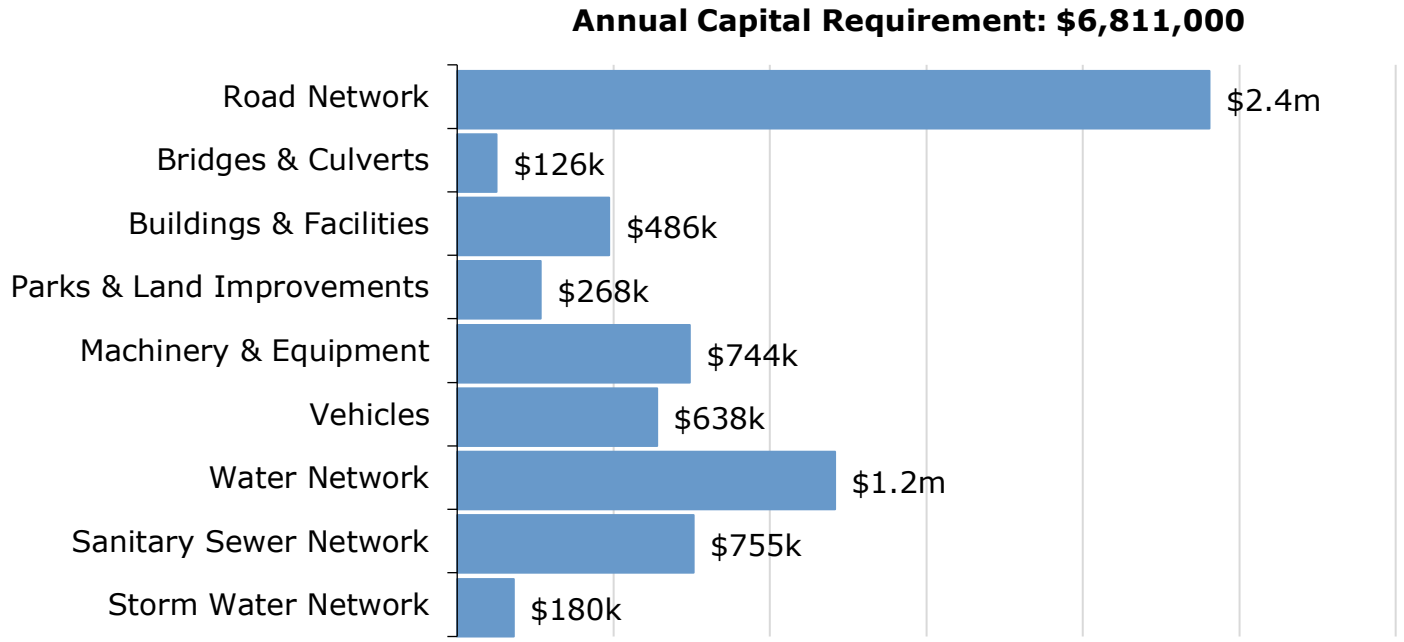


Figure 89 Annual Capital Funding Requirements by Asset Category

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

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

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 Network	$3,832,000	$2,406,000	$1,426,000

Table 78 Lifecycle Strategies Annual Savings

The implementation of a proactive lifecycle strategy for roads leads to a potential annual cost avoidance of $1.4 million for the Road Network. This represents an overall reduction of the annual requirements by 37%. 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.

15.1.2 Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $2.5 million towards capital projects per year. Given the annual capital requirement of $6.8 million, there is currently a funding gap of $4.3 million annually.

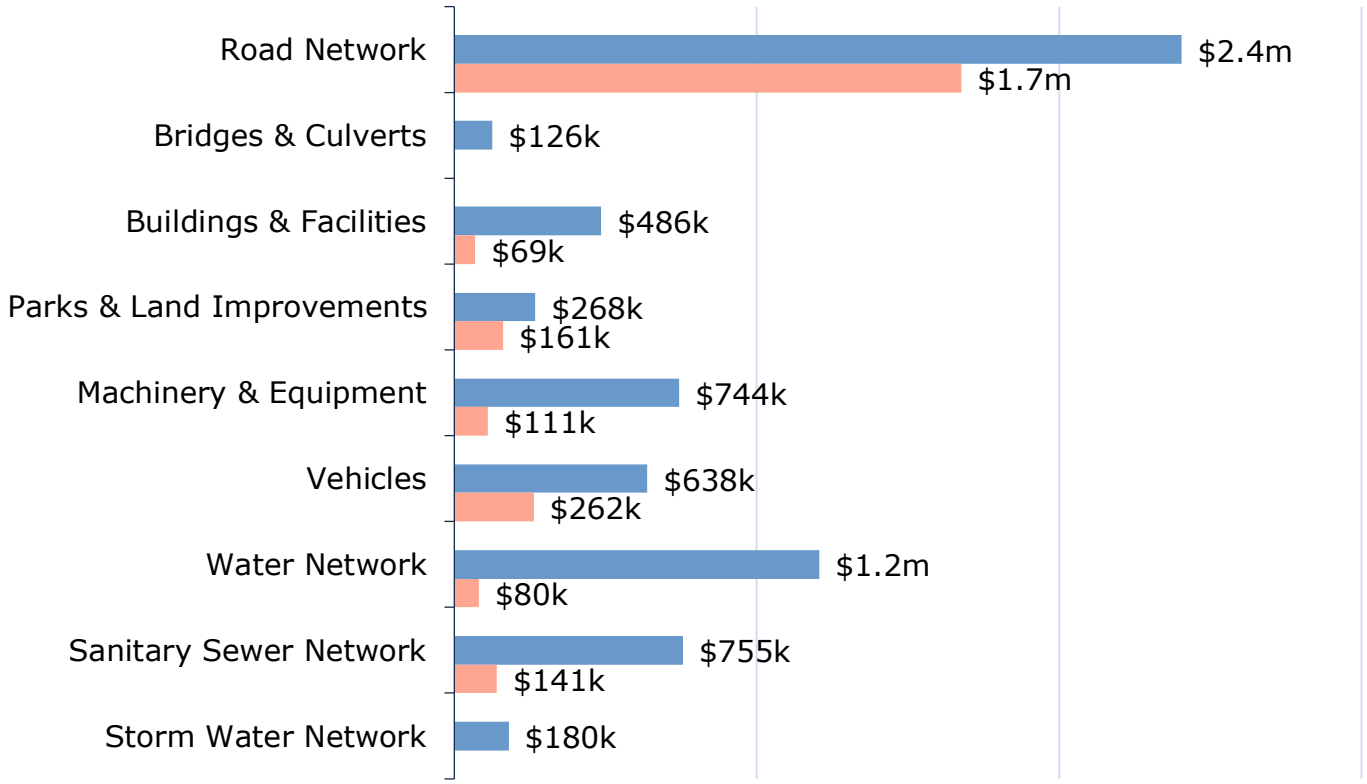


Figure 90 Annual Requirements vs. Capital Funding Available

15.2 Funding Objective

We have developed a scenario that would enable the Township of Alfred and Plantagenet to achieve full funding within 15 years for the following assets:

1. **Tax Funded Assets:** Road Network, Stormwater Network, Bridges & Culverts, Buildings & Facilities, Machinery & Equipment, Parks & Land Improvements, and Vehicles

2. **Rate-Funded Assets:** Water Network, Sanitary Sewer Network

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

15.3 Financial Profile: Tax Funded Assets

15.3.1 Current Funding Position

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

Asset Category	Avg. Annual Require-ment	Annual Funding Available					Annual Deficit
		Taxes	CCBF	OCIF	UCPR[13]	Total Available	
Road Network	2,406,000	499,000	320,000	607,000	250,000	1,676,000	729,000
Bridges & Culverts	126,000	0	0	0	0	0	126,000
Stormwater Network	180,000	0	0	0	0	0	180,000
Buildings & Facilities	486,000	69,000	0	0	0	69,000	417,000
Parks & Land Improvements	268,000	161,000	0	0	0	161,000	107,000
Vehicles	638,000	262,000	0	0	0	262,000	376,000
Machinery & Equipment	743,000	111,000	0	0	0	111,000	632,000
Total	**4,848,000**	**1,102,000**	**320,000**	**607,000**	**250,000**	**2,279,000**	**2,569,000**

Table 79 Annual Available Funding for Tax Funded Assets

[13] Government Contribution from the United Counties Prescott Russell.

The average annual investment requirement for the above categories is $4.8 million. Annual revenue currently allocated to these assets for capital purposes is $2.3 million leaving an annual deficit of $2.6 million. Put differently, these infrastructure categories are currently funded at 47% of their long-term requirements.

15.3.2 Full Funding Requirements

In 2023, the Township of Alfred and Plantagenet had budgeted annual tax revenues of approximately $8.5 million. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding would require the following tax change over time:

Asset Category	Tax Change Required for Full Funding
Road Network	8.6%
Bridges & Culverts	1.5%
Stormwater Network	2.1%
Buildings & Facilities	4.9%
Parks & Land Improvements	1.3%
Vehicles	4.4%
Machinery & Equipment	7.5%
Total	**30.3%**

Table 80 Tax Increase Requirements for Full Funding

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

a) Alfred and Plantagenet's debt payments for these asset categories will be decreasing by $215,000 over the next 5 years, $274,000 over the next 10 years, $326,000 over the next 15 years, and $401,000 over the next 20 years.

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

	Tax Increases With Capturing Changes			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	2,569,000	2,569,000	2,569,000	2,569,000
Change in Debt Costs	**-215,000**	**-274,000**	**-326,000**	**-401,000**
Resulting Infrastructure Deficit:	**2,354,000**	**2,295,000**	**2,243,000**	**2,168,000**
Tax Increase Required	27.8%	27.1%	26.5%	25.6%
Annually:	**5.1%**	**2.5%**	**1.6%**	**1.2%**

Table 81 Tax Increase Options 5-20 Years

15.3.3 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 $326,000 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, OCIF and UCPR 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[14].
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. Current data shows a pent-up investment

[14] 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.

demand of $3.3 million for the Road Network, $1.1 million for Bridges & Culverts, $1.7 million for Machinery & Equipment, and $2.2 million for Vehicles.

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

15.4 Financial Profile: Rate Funded Assets

15.4.1 Current Funding Position

The following tables show, by asset category, Alfred and Plantagenet'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 Requirement	Annual Funding Available				Annual Deficit
		Rates	CCBF	OCIF	Total Available	
Water Network	1,208,000	81,000	0	0	81,000	1,127,000
Sanitary Sewer Network	755,000	141,000	0	0	141,000	614,000
Total	**1,963,000**	**222,000**	**0**	**0**	**222,000**	**1,741,000**

Table 82 Annual Available Funding for Rate Funded Assets

The average annual investment requirement for the above categories is $2.0 million. Annual revenue currently allocated to these assets for capital purposes is $222,000 leaving an annual deficit of $1.7 million. Put differently, these infrastructure categories are currently funded at 11% of their long-term requirements.

15.4.2 Full Funding Requirements

In 2023, Alfred and Plantagenet budgeted annual water revenues of $1.9 million and annual sanitary revenues of $1.2 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	58.7%
Sanitary Sewer Network	50.3%

Table 83 Rate Increase Requirements for Full Funding

In the following tables, we have expanded the above scenario to present multiple options. Due to the significant increases required, we have provided phase-in options of up to 20 years:

Water Network Rate Increases				
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	1,127,000	1,127,000	1,127,000	1,127,000
Decrease in Debt Payments	**0**	**0**	**-18,000**	**-18,000**
Resulting Infrastructure Deficit:	**1,127,000**	**1,127,000**	**1,109,000**	**1,109,000**
Rate Increase Required	58.7%	58.7%	57.8%	57.8%
Annually:	**9.7%**	**4.8%**	**3.1%**	**2.4%**

Table 84 Water Rate Increase Options 5-20 Years

Sanitary Sewer Network Rate Increases				
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	614,000	614,000	614,000	614,000
Decrease in Debt Payments	0	0	0	0
Resulting Infrastructure Deficit:	**614,000**	**614,000**	**614,000**	**614,000**
Rate Increase Required	50.3%	50.3%	50.3%	50.3%
Annually:	**8.5%**	**4.2%**	**2.8%**	**2.1%**

Table 85 Sanitary Rate Increase Options 5-20 Years

15.4.3 Financial Strategy Recommendations

Considering all of 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 $18,000 for water services to the applicable infrastructure deficit.

b) increasing rate revenues by 3.1% for water services and 2.8% 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.

15.5 Use of Debt

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

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

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

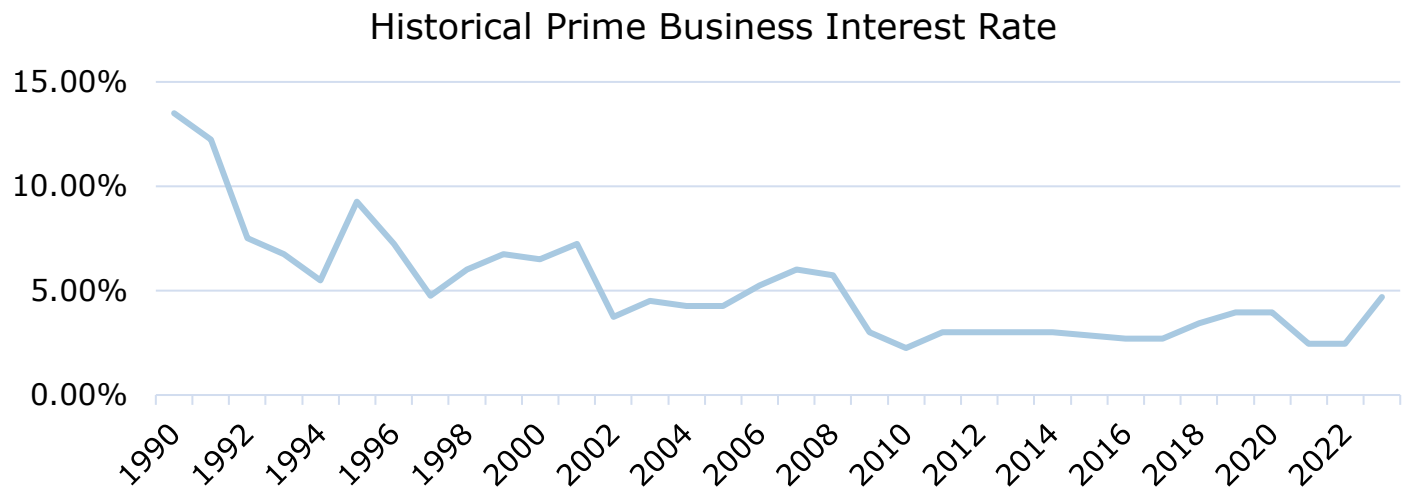


Figure 91 Historical Prime Rate

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

The following tables outline how Alfred and Plantagenet has historically used debt for investing in the asset categories as listed. There is currently $4.9 million of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of $608,000, well within its provincially prescribed maximum of $3.0 million.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2019	2020	2021	2022	2023
Road Network	0	0	0	0	0	0
Bridges & Culverts	0	0	0	0	0	0
Stormwater Network	0	0	0	0	0	0
Buildings & Facilities	1,274,000	0	0	356,000	0	0
Parks & Land Improvements	0	0	0	0	0	0
Vehicles	278,000	285,000	289,000	0	0	0
Machinery & Equipment	169,000	143,000	0	0	0	0
Total Tax Funded:	**1,720,000**	**427,000**	**289,000**	**356,000**	**0**	**0**
Water Network	198,000	0	0	0	0	0
Sanitary Sewer Network	2,970,000	0	0	0	0	0
Total Rate Funded:	**3,167,000**	**0**	**0**	**0**	**0**	**0**

Table 86 Alfred and Plantagenet Use of Debt 2019-2023

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2023	2024	2025	2026	2027	2028	2033
Road Network	0	0	0	0	0	0	0
Bridges & Culverts	0	0	0	0	0	0	0
Stormwater Network	0	0	0	0	0	0	0
Buildings & Facilities	206,000	206,000	206,000	127,000	127,000	127,000	127,000
Parks & Land Improvements	0	0	0	0	0	0	0
Vehicles	140,000	109,000	46,000	35,000	35,000	35,000	0
Machinery & Equipment	55,000	52,000	24,000	24,000	24,000	24,000	0
Total Tax Funded:	**401,000**	**367,000**	**276,000**	**186,000**	**186,000**	**186,000**	**127,000**
Water Network	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Sanitary Sewer Network	190,000	190,000	190,000	190,000	190,000	190,000	190,000
Total Rate Funded:	**208,000**	**208,000**	**208,000**	**208,000**	**208,000**	**208,000**	**208,000**

Table 87 Alfred and Plantagenet Principal and Interest Payments

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

15.6 Use of Reserves

15.6.1 Available Reserves

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

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

By asset category, the table below outlines the details of the reserves currently available to Alfred and Plantagenet.

Asset Category	Balance at December 31, 2023
Road Network	400,000
Bridges & Culverts	21,000
Stormwater Network	30,000
Buildings & Facilities	0
Parks & Land Improvements	157,000
Vehicles	239,000
Machinery & Equipment	0
Total Tax Funded:	**847,000**
Water Network	2,831,000
Sanitary Sewer Network	4,483,000
Total Rate Funded:	**7,314,000**

Table 88 Alfred and Plantagenet Reserve Balances

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

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

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

16. Recommendations & Key Considerations

16.1 Financial Strategies

1. Review the feasibility of adopting a full-funding scenario to achieve 100% of average annual funding requirement for the asset categories analyzed. This includes:
    a. Increasing taxes by 1.6% per year over a period of 15 years;
    b. Increasing water rates by 3.1% per year over a period of 15 years; and
    c. Increasing sanitary rates by 2.8% per year over a period of 15 years.

    Note: If Alfred and Plantagenet is looking to reduce the recommended tax increases, it is recommended that funding is reduced for vehicles and equipment before reducing other categories, based on feedback from administration.

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

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

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

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

6. It is strongly recommended to conduct a water/sanitary rate study to better understand the funding model options for rate funded assets. This is especially important when considering the significant costs related to water treatment plant components, which do not necessarily require replacement all at once.

16.2 Asset Data

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

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

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

16.3 Risk & Levels of Service

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

2. Available data on current performance should be centralized and tracked to support any calibration of service levels in compliance with O. Reg. 588/17's on-going requirements on proposed levels of service.

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

Appendices

Appendix A – Infrastructure Report Card

Appendix B – 10-Year Capital Requirements

Appendix C – Level of Service Maps & Photos

Appendix D – Risk Rating Criteria

Appendix A – Infrastructure Report Card

Asset Category	Replacement Cost	Average Condition	Financial Capacity		% Funded
Road Network	**$43.4 m**	**Fair**	Annual Requirement:	$2,406,000	70%
			Funding Available:	$1,676,000	
			Annual Deficit:	**$729,000**	
Bridges & Culverts	**$5.5 m**	**Good**	Annual Requirement:	$126,000	0%
			Funding Available:	-	
			Annual Deficit:	**$126,000**	
Water Network	**$71.8 m**	**Good**	Annual Requirement:	$1,208,000	7%
			Funding Available:	$80,000	
			Annual Deficit:	**$1,127,000**	
Sanitary Sewer Network	**$50.1 m**	**Very Good**	Annual Requirement:	$755,000	19%
			Funding Available:	$141,000	
			Annual Deficit:	**$614,000**	
Stormwater Network	**$12.4 m**	**Good**	Annual Requirement:	$180,000	0%
			Funding Available:	-	
			Annual Deficit:	**$180,000**	
Buildings & Facilities	**$23.6 m**	**Good**	Annual Requirement:	$486,000	14%
			Funding Available:	$69,000	
			Annual Deficit:	**$418,000**	
Parks & Land Improvements	**$6.9 m**	**Very Good**	Annual Requirement:	$268,000	60%
			Funding Available:	$161,000	
			Annual Deficit:	**$107,000**	
Vehicles	**$9.4 m**	**Poor**	Annual Requirement:	$638,000	41%
			Funding Available:	$262,000	
			Annual Deficit:	**$376,000**	
Machinery & Equipment	**$7.7 m**	**Poor**	Annual Requirement:	$744,000	15%
			Funding Available:	$111,000	
			Annual Deficit:	**$632,000**	

Appendix B – 10-Year Capital Requirements

Capital Requirements for Current Levels of Service

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. They do not consider any proposed levels of service, or available funding, and are projected based on ideal conditions. ***Note: These projections do not consider the availability of funding.***

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 Network

Segment	Back-log	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Curbs	$615k	$0	$43k	$49k	$135k	$0	$0	$0	$0	$0	$0
DST Roads	$0	$135k	$152k	$335k	$242k	$55k	$135k	$152k	$529k	$242k	$38k
Gravel Roads	$834k	$19k	$23k	$1.9m	$1.5m	$246k	$853k	$23k	$1.6m	$1.8m	$246k
Hot Mix Roads	$102k	$2.5m	$60k	$344k	$76k	$1.2m	$59k	$941k	$486k	$3.1m	$116k
Roadside Appurtenances	$0	$0	$0	$0	$0	$0	$0	$0	$63k	$17k	$147k
Sidewalks	$837k	$10k	$0	$56k	$34k	$321k	$0	$108k	$112k	$150k	$247k
Street Lights & Fixtures	$879k	$2k	$6k	$2k	$34k	$12k	$0	$14k	$0	$0	$710k
Total	**$3.3m**	**$2.6m**	**$283k**	**$2.7m**	**$2.0m**	**$1.8m**	**$1.0m**	**$1.2m**	**$2.8m**	**$5.3m**	**$1.5m**

Table 89 System Generated 10-Year Capital Replacement Forecast: Road Network

Bridges & Culverts

Segment	Back-log	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bridges	$0	$7k	$0	$0	$0	$0	$0	$0	$0	$0	$0
Structural Culverts	$1.1m	$0	$0	$0	$0	$39k	$0	$0	$0	$0	$93k
Total	**$1.1m**	**$7k**	**$0**	**$0**	**$0**	**$39k**	**$0**	**$0**	**$0**	**$0**	**$93k**

Table 90 System Generated 10-Year Capital Replacement Forecast: Bridges & Culverts

Water Network

Segment	Back-log	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Hydrants	$0	$38k	$38k	$38k	$38k	$38k	$38k	$38k	$129k	$0	$0
Mains	$0	$69k	$69k	$69k	$69k	$69k	$69k	$69k	$0	$0	$0
Meters	$0	$15k	$15k	$15k	$15k	$15k	$15k	$1.1m	$3k	$58k	$60k
Water Equipment	$0	$15k	$15k	$15k	$15k	$15k	$15k	$192k	$0	$0	$33k
Water Facilities	$0	$92k	$92k	$92k	$92k	$92k	$92k	$92k	$0	$0	$0
Total	**$0**	**$230k**	**$230k**	**$230k**	**$230k**	**$230k**	**$230k**	**$1.5m**	**$132k**	**$58k**	**$92k**

Table 91 System Generated 10-Year Capital Replacement Forecast: Water Network

Sanitary Sewer Network

Segment	Back-log	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Mains	$0	$137k	$137k	$137k	$137k	$137k	$137k	$137k	$0	$0	$0
Manholes	$0	$12k	$12k	$12k	$12k	$12k	$12k	$12k	$0	$0	$0
Sanitary Equipment	$0	$44k	$44k	$44k	$44k	$44k	$44k	$44k	$0	$0	$0
Sanitary Facilities	$0	$12k	$12k	$12k	$12k	$12k	$12k	$12k	$0	$0	$0
Service Laterals	$0	$12k	$12k	$12k	$12k	$12k	$12k	$12k	$0	$0	$0
Valves	$0	$12k	$12k	$12k	$12k	$12k	$12k	$12k	$0	$0	$0
Total	**$0**	**$230k**	**$230k**	**$230k**	**$230k**	**$230k**	**$230k**	**$230k**	**$0**	**$0**	**$0**

Table 92 System Generated 10-Year Capital Replacement Forecast: Sanitary Sewer Network

Stormwater Network

Segment	Back-log	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Catch Basins	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Culverts	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Mains	$0	$25k	$0	$0	$0	$0	$0	$0	$0	$0	$0
Manholes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$25k**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Table 93 System Generated 10-Year Capital Replacement Forecast: Stormwater Network

Buildings & Facilities

Segment	Back-log	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Administration	$0	$0	$0	$0	$0	$0	$0	$1.0m	$0	$0	$0
Fire	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landfill	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Public Works	$0	$0	$0	$0	$0	$0	$0	$1.1m	$0	$0	$0
Recreational	$0	$0	$0	$0	$0	$0	$0	$0	$40k	$0	$80k
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$2.2m**	**$40k**	**$0**	**$80k**

Table 94 System Generated 10-Year Capital Replacement Forecast: Buildings & Facilities

Note: These projections are generated in Citywide and rely on the data available in the asset register. As assessed condition data was not available for many buildings assets, age was used to determine forthcoming replacement needs. Buildings and facilities often contain thousands of assets, each with its own estimated useful life. Currently, however, as the Township's buildings are not fully componentized, there are only 41 assets in the register. Over time, with improved and effective componentization, the alignment between the system generated expenditure requirements, and the Township's capital expenditure forecasts will also increase.

Parks & Land Improvements

Segment	Back-log	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Marina	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Parking Lots	$0	$0	$0	$0	$0	$0	$0	$0	$0	$58k	$0
Parks, Sport Fields & Courts	$0	$0	$0	$0	$0	$0	$0	$0	$0	$9k	$0
Pools & Splashpads	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$67k**	**$0**

Table 95 System Generated 10-Year Capital Replacement Forecast: Parks & Land Improvements

Vehicles

Segment	Back-log	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Administration	$0	$0	$0	$0	$48k	$0	$0	$0	$0	$0	$0
Fire	$1.1m	$967k	$248k	$0	$619k	$0	$0	$0	$0	$119k	$0
Public Works	$1.1m	$0	$65k	$0	$65k	$0	$0	$450k	$900k	$65k	$0
Recreational	$0	$0	$0	$0	$40k	$0	$0	$44k	$0	$0	$0
Total	**$2.2m**	**$967k**	**$313k**	**$0**	**$772k**	**$0**	**$0**	**$494k**	**$900k**	**$184k**	**$0**

Table 96 System Generated 10-Year Capital Replacement Forecast: Vehicles

Machinery & Equipment

Segment	Back-log	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Administration	$647k	$37k	$50k	$230k	$69k	$0	$665k	$68k	$230k	$51k	$18k
Fire	$280k	$30k	$43k	$0	$43k	$51k	$73k	$3k	$83k	$23k	$26k
Landfill	$0	$0	$0	$0	$0	$0	$0	$0	$0	$200k	$0
Library	$58k	$147k	$327k	$57k	$202k	$242k	$101k	$99k	$225k	$307k	$57k
Public Works	$707k	$159k	$20k	$289k	$229k	$0	$0	$25k	$45k	$0	$360k
Recreational	$2k	$0	$61k	$31k	$38k	$68k	$2k	$57k	$96k	$0	$0
Total	**$1.7m**	**$373k**	**$501k**	**$606k**	**$582k**	**$361k**	**$841k**	**$252k**	**$678k**	**$581k**	**$462k**

Table 97 System Generated 10-Year Capital Replacement Forecast: Machinery & Equipment

Capital Requirements for Proposed Levels of Service

The following capital forecasts are based on gradually increasing funding over the next 15 years to reach a target of 100% of ideal funding levels. ***Note: These projections do consider the availability of funding.***

AMP Category	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Road Network	$1.7m	$1.7m	$1.7m	$1.8m	$1.8m	$1.9m	$1.9m	$2.0m	$2.0m	$2.0m
Bridges & Culverts	$0	$0	$16k	$0	$39k	$34k	$27k	$58k	$50k	$68k
Water Network	$80k	$140k	$5k	$144k	$646k	$275k	$132k	$58k	$92k	$120k
Sanitary Sewer Network	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Storm Water Network	$0	$0	$0	$25k	$0	$0	$0	$0	$0	$0
Buildings & Facilities	$0	$0	$0	$0	$0	$0	$40k	$1.0m	$80k	$0
Parks & Land Improvements	$0	$0	$0	$0	$0	$0	$0	$67k	$0	$255k
Vehicles	$251k	$266k	$292k	$336k	$170k	$406k	$396k	$515k	$450k	$413k
Machinery & Equipment	$111k	$137k	$170k	$204k	$239k	$283k	$323k	$359k	$396k	$434k
Total	**$2.1m**	**$2.2m**	**$2.2m**	**$2.5m**	**$2.9m**	**$2.9m**	**$2.8m**	**$4.1m**	**$3.1m**	**$3.3m**

Table 98 System Generated Proposed LOS 10-Year Capital Replacement Forecast: All Categories

Appendix C – Level of Service Maps & Photos

Road Network

Hot Mix Roads

Valain Street
Asset ID: 4583
Condition: 100

St-Victor Street
Asset ID: 4556
Condition: 80

St-Mary Street
Asset ID: 4574
Condition: 60

Figure 92 Hot Mix Roads Condition Examples

Double Surface Treated (DST) Roads

Concession 2 Alfred
Asset ID: 4646
Condition: 80

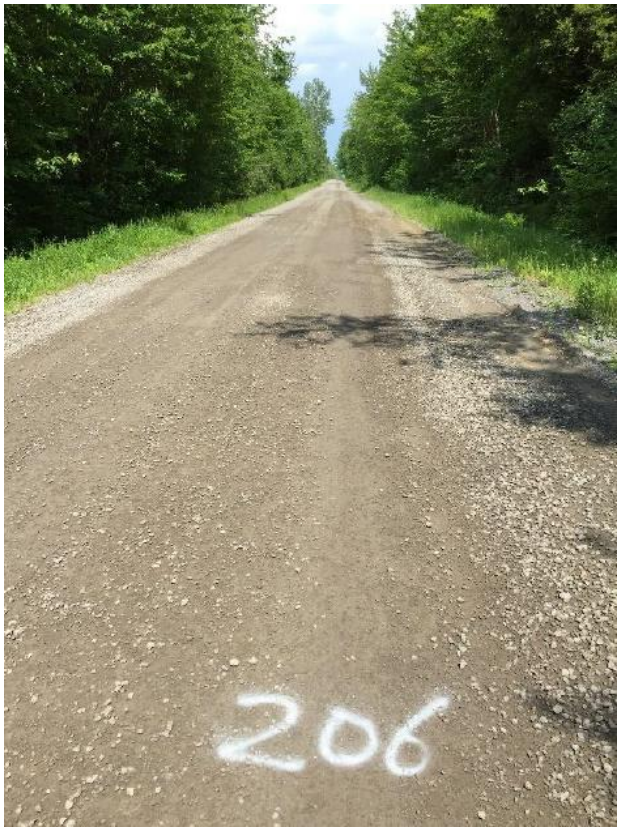
Concession 7 Plantagenet
Asset ID: 5118
Condition: 60

Concession 4 Alfred
Asset ID: 4688
Condition: 30

Figure 93 DST Roads Condition Examples

Gravel Roads

Concession 9 Plantagenet
Asset ID: 5128
Condition: 60



Concession 7 Plantagenet
Asset ID: 5096
Condition: 40

Concession 5 Alfred
Asset ID: 5077
Condition: 20

Figure 94 Gravel Roads Condition Examples

Earth Roads

Concession 7 Plantagenet
Asset ID: 5097
Condition: 40

Route 11
Asset ID: 5179
Condition: 20

Concession 8 Alfred
Asset ID: 5109
Condition: 10

Figure 95 Earth Roads Condition Examples

Bridges & Culverts

Bridge 001 – Concession 4 & 5, Lot 19 at Atocas Creek

Condition: Poor

Figure 96 Poor Condition Bridge Example

Bridge 002 – Concession 3 & 4, Lot 29 at Azatica Creek

Condition: Very Good

Figure 97 Very Good Condition Bridge Example

Bridge 101 – Concession 1 & 2, Lot 37

Condition: Poor

Figure 98 Poor Condition Bridge Example

Bridge 102 – Lefaivre (currently closed and excluded from AMP)

Condition: Very Poor

Figure 99 Very Poor Condition Bridge Example

Bridge XX1 – Pedestrian Bridge in Plantagenet

Condition: Good

Figure 100 Good Condition Bridge Example

Parks & Land Improvements

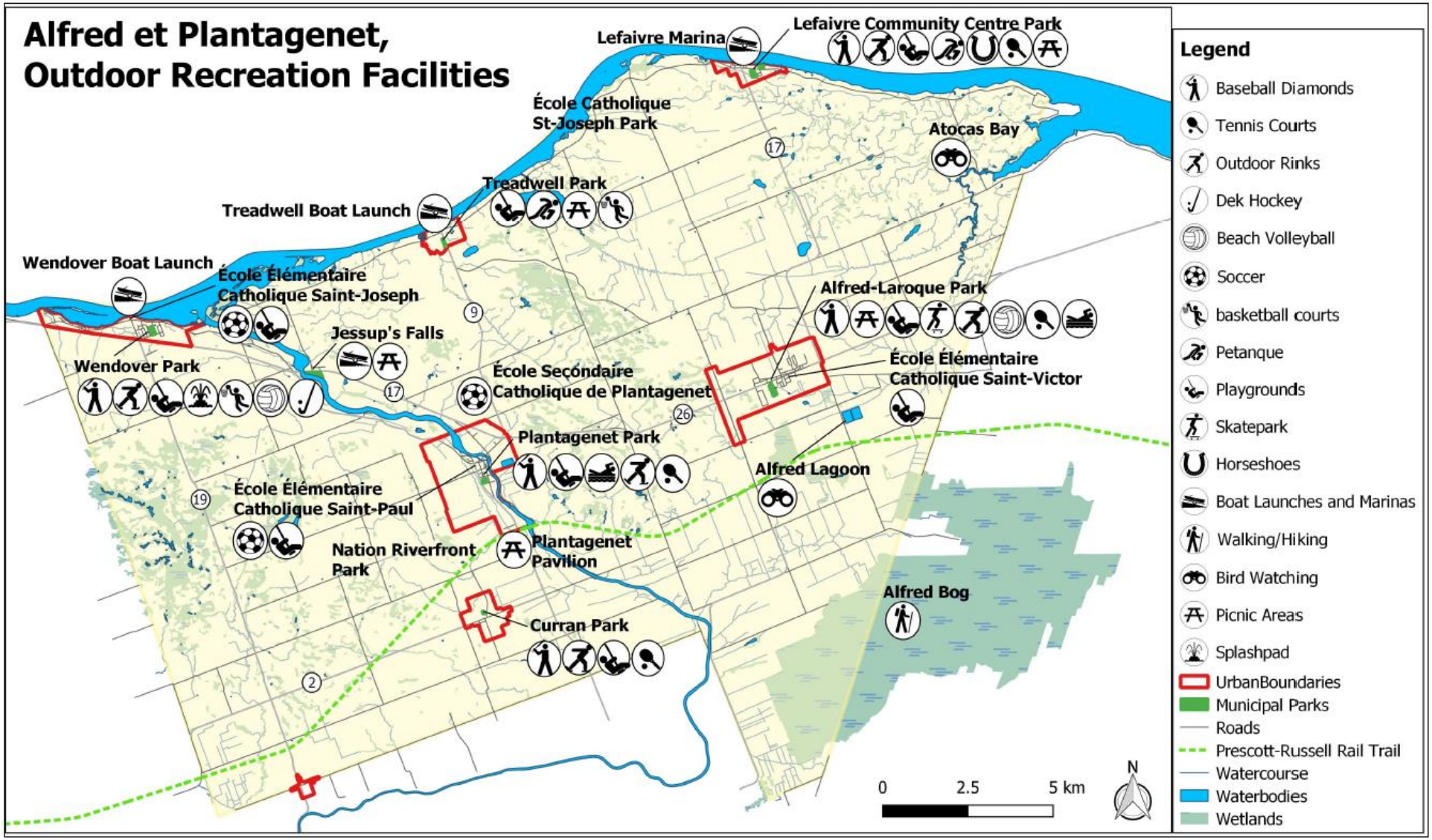


Figure 101 Outdoor Recreation Facilities Map (from 2020 Recreation and Culture Master Plan)

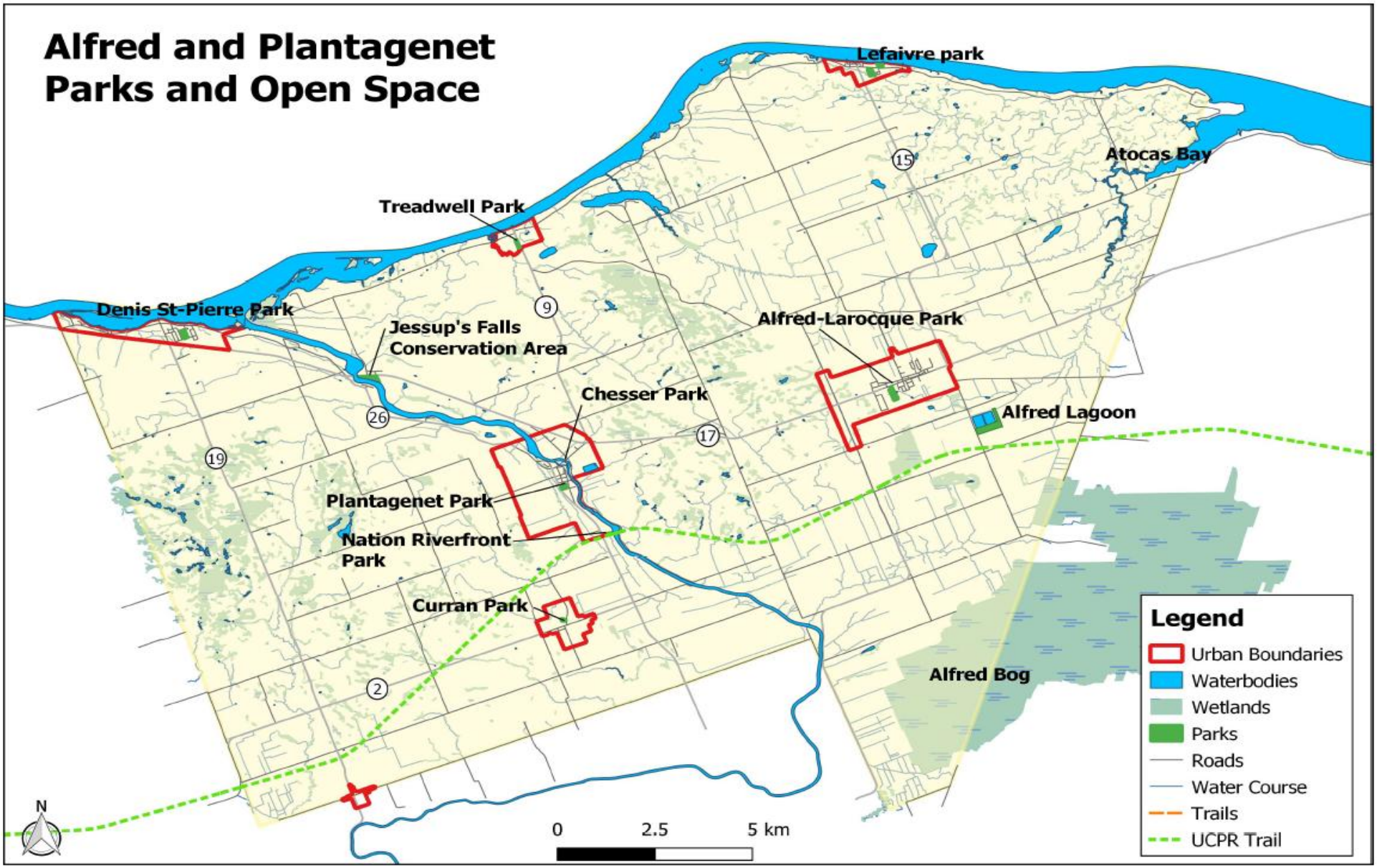


Figure 102: Parks & Open Spaces Map (from 2020 Recreation and Culture Master Plan)

Appendix D – Risk Rating Criteria

Probability of Failure

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Road Network (Roads)	Condition	100%	85-100	1
			70-84	2
			55-69	3
			40-54	4
			0-39	5
Road Network (Other Assets) Storm Water Network (Other Assets) Water Network (Other Assets) Sanitary Sewer Network (Other Assets) Vehicles Machinery & Equipment Buildings & Facilities Parks & Land Improvements	Condition	100%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
Bridges & Culverts	Condition	70%	85-100	1
			70-84	2
			55-69	3
			40-54	4
			0-39	5
	Service Life Remaining (%)	20%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	AADT	10%	0-49	1
			50-199	2

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
			200-399	3
			400-999	4
			999+	5
Storm Water Network (Mains)	Condition	70%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Pipe Material	30%	PVC, Ultra-Ribbed, Big 'O'	1
			Concrete	3
			CSP	3
			Red Clay	5
Sanitary Sewer Network (Mains)	Condition	70%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Pipe Material	30%	PVC	2
			Ductile Iron	3
			Asbestos Cement	4
Water Network (Mains)	Condition	70%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Pipe Material	30%	PVC	2
			Transite, Asbestos Cement	4

Table 99 Probability of Failure Risk Criteria

Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/ Range	Consequence of Failure Score
Road Network (Roads)	Economic (20%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$100,000	2
			$100,000-$250,000	3
			$250,000-$400,000	4
			$400,000+	5
	Operational (30%)	Maintenance Class (100%)	7	1
			5-6	2
			4	3
			1-3	4
	Social (40%)	# of Addresses/ Properties (100%)	0-3	1
			4-10	2
			11-15	3
			16-25	4
			26+	5
	Health & Safety (10%)	Emergency Detour Route (100%)	No	1
			Yes	3
Road Network (Other Assets) Storm Water Network (Other Assets) Water Network (Other Assets) Sanitary Sewer Network (Other Assets) Parks & Land Improvements	Economic (100%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$100,000	2
			$100,000-$250,000	3
			$250,000-$400,000	4
			$400,000+	5
Bridges & Culverts	Economic (70%)	Replacement Cost (100%)	$0-$150,000	1
			$150,000-$300,000	2

Asset Category	Risk Classification	Risk Criteria	Value/ Range	Consequence of Failure Score
			$300,000-$450,000	3
			$450,000-$600,000	4
			$600,000+	5
	Social (30%)	Detour Distance (50%)	0-2	1
			2-5	2
			5-8	3
			8-10	4
			10+	5
Storm Water Network (Storm Mains)	Economic (70%)	Replacement Cost (100%)	$0-$10,000	1
			$10,000-$25,000	2
			$25,000-$50,000	3
			$50,000-$100,000	4
			$100,000+	5
	Operational (30%)	Diameter (100%)	0-150mm	1
			151-300mm	2
			301-500mm	3
			501-750mm	4
			751mm+	5
Sanitary Sewer Network (Sanitary Mains)	Economic (70%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$150,000	2
			$150,000-$250,000	3
			$250,000-$400,000	4
			$400,000+	5
	Operational (30%)	Pipe Diameter (100%)	0-50mm	1
			51-150mm	2
			151-250mm	3

Asset Category	Risk Classification	Risk Criteria	Value/ Range	Consequence of Failure Score
			251-450mm	4
			451mm+	5
Water Network (Water Mains)	Economic (70%)	Replacement Cost (100%)	$0-$100,000	1
			$100,000-$500,000	2
			$500,000-$1,000,000	3
			$1,000,000-$2,500,000	4
			$2,500,000+	5
	Operational (30%)	Pipe Diameter (100%)	0-50mm	1
			51-150mm	2
			151-250mm	3
			251-400mm	4
			401mm+	5
Vehicles	Economic (70%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$150,000	2
			$150,000-$250,000	3
			$250,000-$400,000	4
			$400,000+	5
	Operational (30%)	AMP Segment (100%)	Administration	1
			Recreational	1
			Public Works	2
			Fire	4
Machinery & Equipment	Economic (70%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$150,000	2
			$150,000-$250,000	3
			$250,000-$400,000	4
			$400,000+	5

Asset Category	Risk Classification	Risk Criteria	Value/ Range	Consequence of Failure Score
	Operational (30%)	AMP Segment (100%)	Administration, Recreational, Landfill	1
			Public Works	2
			Fire	4
Buildings & Facilities	Economic (70%)	Replacement Cost (100%)	$0-$50,000	1
			$50,000-$150,000	2
			$150,000-$250,000	3
			$250,000-$400,000	4
			$400,000+	5

Table 100 Consequence of Failure Risk Criteria