Asset Management Plan 2024

Township of Wainfleet

September 2025

psdcitywide

The TOWNSHIP of WAINFLEET

This Asset Management Plan was prepared by:

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

Key Statistics

$257.57m	2024 Replacement Cost of Asset Portfolio
$83k	Replacement Cost of Infrastructure Per Household
77%	Percentage of Assets in Fair or Better Condition
97%	Percentage of Assets with Assessed Condition Data
$6.6 m	Annual Capital Infrastructure Deficit
20 Years	Recommended Timeframe for Eliminating Annual Infrastructure Deficit
3.97%	Target Investment Rate
1.4%	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 Wainfleet can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP includes the following core and non-core asset categories:

Figure 1 Core and Non-Core Asset Categories

1.2 Compliance

With the development of this AMP, the Township of Wainfleet has achieved compliance with the July 1, 2024 requirements under O. Reg. 588/17, Asset Management Planning for Municipal Infrastructure. This includes requirements for levels of service and inventory reporting for all asset categories.

[1] O. Reg. 588/17 Asset Management Planning for Municipal Infrastructures defines core and non-core assets as noted above.

1.3 Findings

The overall replacement cost of the asset categories included in this AMP totals $257.57 million. Over three-quarters (77%) of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 97% of assets (weighted by replacement cost). For the remaining 3% of assets, assessed condition data was unavailable, and asset age relative to estimated useful life was used to approximate condition. Wainfleet's use of assessed condition provides significant benefits of enhanced accuracy of condition information. Such data accuracy is foundation to effective asset management planning.

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, bridges and culverts) 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 $10,288,000. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $3.6 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $6.6 million.

It is important to note that this AMP represents a snapshot in time based on a December 2024 data effective date, with all analysis 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 20-year plan:

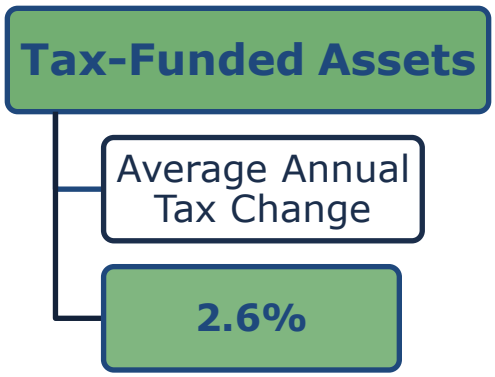


Figure 2 Proposed Tax Rate Change

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

- Regular review and update of asset data and information especially as it relates to replacement cost, condition, and key attribute data such as asset quantities, materials, size, and locational references.
- Alignment of external studies such as the Roads Needs Study and the Bridge and Culvert Inspection with the asset inventory data structure and reference values (i.e. Asset IDs, condition scales)
- Development of a standard condition assessment strategy that details condition scales, associated definitions and reference examples, frequency of assessments and persons responsible for assessment completion, review, and update.
- Review and update lifecycle management strategies, especially for core assets like roads and bridges and structural culverts
- Review risk models, consider adjustments as data and information becomes available and/or as the understanding of asset risk evolves
- Development and regularly review capital requirements and the short- and long-term plans to meet them
- Regularly collect and measure current levels of service and overtime work to identify trends and as applicable explore the underlying reasons for the trends.

2. Introduction & Context

2.1 Community Profile

The Township of Wainfleet is a lower-tier municipality located in the Regional Municipality of Niagara, Ontario, Canada. The Township of Wainfleet has deep agricultural roots with a predominantly rural landscape situated along the north shore of Lake Erie.

Wainfleet spans an area of 217.53 km² and includes several small communities and hamlets such as Wainfleet Village, Long Beach, Morgan's Point, Winger, and Chambers Corners. With a 2021 population density of 31.7 people per square kilometer, Wainfleet remains a peaceful, low-density area with a close-knit community feel.

Wainfleet offers residents and visitors a blend of rural charm and recreational activities. The Township features four public beaches, nature trails such as the Talbot Trail, and conservation areas like the Wainfleet Bog and Morgan's Point Conservation Area. Annual events, including the Marshville Heritage Festival, Fall Fair, and Christmas Market, celebrate local traditions and foster community spirit. The area is also renowned for its fresh produce from local farms, contributing to a vibrant agritourism sector.

According to the 2021 Census, Wainfleet experienced an 8.1% population growth since 2016, reaching a total population of 6,887. Based on 2021 Census data, the age distribution is as follows:

- 0–14 years: 16%[2]
- 15–64 years: 63%
- 65 years and over: 21%

The median age in Wainfleet is 47.2 years, reflecting a diverse age distribution across the community. Key population statistics for the Township are summarized in Table 1 below.

Census Characteristic	Township of Wainfleet	Ontario
Population 2021	6,887	14,223,942
Population Change 2016-2021	8.1%	5.8%
Total Private Dwellings	3,116	5,929,250
Population Density	31.7/km^2	15.9/km^2
Land Area	217.53 km^2	892,411.76 km^2

Table 1 Township of Wainfleet Community Profile

[2] Statistics Canada - Wainfleet 2021 Census Profile

2.1 Community Profile (Continued)

Agriculture remains the primary economic driver in Wainfleet, with a focus on innovative and sustainable farming practices. The Township supports local agribusinesses while preserving its productive farmland. Tourism also plays a growing role in the local economy, capitalizing on Wainfleet's natural attractions and recreational offerings.

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.; this increase is double the global average. Similarly, Canada's observed precipitation levels increased by 20% between 1948 and 2012. By the late 21st century, the projected increase could reach an additional 24%.

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 accelerated wear when exposed to these extreme events and climate variabilities.

2.2.1 Township of Wainfleet Climate Profile

The Township of Wainfleet, located along the northern shore of Lake Erie in Ontario's Niagara Region, experiences a climate moderated by its proximity to the lake. This location influences its seasonal weather patterns and exposure to lake-effect precipitation. In line with regional trends across southern Ontario, Wainfleet is expected to experience higher average annual temperatures, increased annual precipitation, and more frequent and intense extreme weather events because of climate change.

Climate projections are based on data from ClimateData.ca, a national climate information portal supported by Environment and Climate Change Canada (ECCC), as well as local climatological data reported by the Niagara Peninsula Conservation Authority (NPCA) and Ontario Climate Change Projections (Ministry of Environment, Conservation and Parks, 2020).

Historical and Projected Climate Trends

Higher Average Annual Temperature

- Between 1971 and 2000, Wainfleet's average annual temperature was approximately 8.6°C.

2.2.1 Township of Wainfleet Climate Profile (Continued)

- Under a high emissions scenario, annual average temperatures are projected to reach 11.3°C by 2050 and over 13.4°C by 2080, and 15.1 C for the last 30 years of this century.[3]

Increase in Total Annual Precipitation

- Historical averages place Wainfleet's annual precipitation between 900–1,000 mm.
- Projections show a 10–15% increase in annual precipitation by mid-century under high emissions.[4]

Increase in Frequency of Extreme Weather Events

- Wainfleet has already begun experiencing more frequent extreme weather events such as heavy rainfall, flooding near Lake Erie, and severe storms**.**[5]
- Climate projections suggest that these events will intensify in frequency and severity by mid-century due to warming lake temperatures and atmospheric changes**.**[6]

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 with the potential to accelerate asset degradation and increase the risk of asset failure. Desired levels of service can be more difficult to achieve because of climate change impacts such as flooding, high heat, drought, and more frequent and intense storms.

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

3 ClimateData.ca. (n.d.). Climate data for Wainfleet, Ontario

4 Climate Projections for Niagara Region.

5 https://oafc.on.ca/about/announcements/fire-news-headlines/storm-batters-wainfleet-and-port-colborne

6 https://www.meteoblue.com/en/weather/historyclimate/climatemodelled/wainfleet_canada_7302448

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.

Typically, the acquisition of capital assets accounts for only about 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.

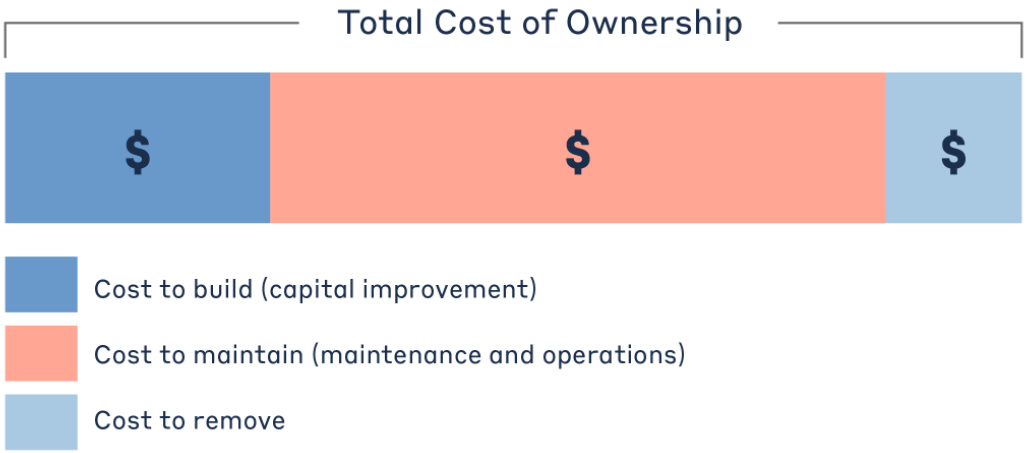


Figure 3 Total Cost of Asset Ownership

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.

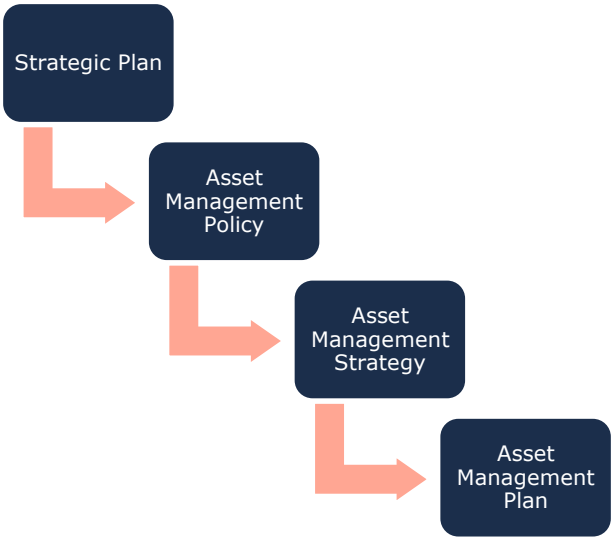


Figure 4 Foundational Asset Management Documents

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.

The Township's Strategic Plan outlines their vision and mission for the community. These are:

Vision: The Township of Wainfleet will be a sustainable rural community that offers outstanding quality of life for all.

Mission: Grounded in agriculture, family and rural traditions, with pride in its outstanding waterfront and natural recreational resources, the Township of Wainfleet will strive for fiscal responsibility and balanced, responsible planning to maintain the unique characteristics and charm of the community.

2.3.1 Foundational Asset Management Documentation (Continued)

The Asset Management Plan is a foundational document to the realization of Strategic Plan's vision and mission for the following reasons:

- Infrastructure assets are conduits for quality-of-life services to residents. For example, roads allow residents to freely travel throughout the Township, buildings provide for key administration and fire protection services, and parks provide opportunities for leisure. Ensuring that these assets remain in working order over the long term ensures that the mechanisms central to providing a quality of life are sustainably managed.
- Understanding the current state and the long-term capital investment requirements to maintain infrastructure assets so they can reliably provide services to residents, is central to the sustainable provision of services in a fiscally responsible and balanced manner.
- Understanding the financial requirements to fund assets and having reliable information to inform long-term decisions about investment and performance trade-offs is foundational to a fiscally responsible and balanced approach to municipal administration.

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 Wainfleet publicly issued its Asset Management Policy on June 11th, 2019. The Policy is posted on the Township's webpage. At the time of this report's publication, the Township Asset Management Policy was updated as per O. Reg. 588/17 section 4 requirements. The updated Policy is organized in the following six (6) primary sections: purpose, policy statement, objectives, definition, scope, and procedures/guidelines. Some key items from the policy include:

- Key Objectives including:
  - Optimizing lifecycle costs to maximize value and minimize total expenditures
  - Supporting transparent, evidence-based decision making and reporting
  - Promoting fiscal responsibility and intergenerational equity

- Key Procedures to ensure Asset Management is an integrated, effective, and long-term component of municipal decisions. Notably:
  - Identification of key leadership and accountability roles and associated duties for asset management
  - The Township's commitment to continuous improvement in asset management especially in the areas of data quality, communication, document and asset tracking improvements, process and information synchronization improvements.
  - Commitment to the ongoing use of an asset management system and identification of key functionality requirements and uses

2.3.1 Foundational Asset Management Documentation (Continued)

The Township's updated asset management policy provides clear direction in asset management priorities, staff and councils roles in the Township's asset management program, and the coordination of associated projects and activities to support, advance, and refine the Township's asset management program.

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

Asset Management Plan

The asset management plan (AMP) presents the outcomes of the 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.

2.3.2 Key Concepts in Asset Management (Continued)

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

2.3.2 Key Concepts in Asset Management (Continued)

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.

2.3.2 Key Concepts in Asset Management (Continued)

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.

2.3.2 Key Concepts in Asset Management (Continued)

These models have been built in Citywide, the Township's asset management software tool. The models are summarized in Appendix D, and the outputs of the models are summarized in Sections 4 to 10 of this report.

Levels of Service

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

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

Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories as applicable (Roads, Bridges & Culverts, Stormwater) the province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP. For non-core asset categories (buildings, vehicles, machinery & equipment, land improvements), the Township has selected qualitative descriptions.

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. For non-core asset categories (buildings, vehicles, machinery & Equipment, land improvements), the Township has selected technical metrics.

Current and Proposed Levels of Service

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

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

2.4 Scope & Methodology

2.4.1 Asset Categories for this AMP

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

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

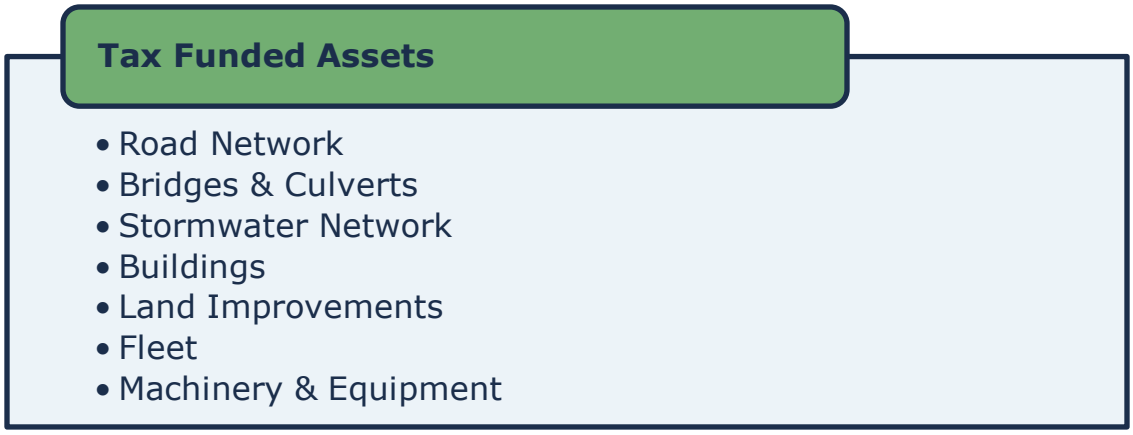


Figure 6 Tax Funded Asset Categories

2.4.2 Data Effective Date

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

2.4.3 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.

2.4.3 Deriving Replacement Costs (Continued)

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:

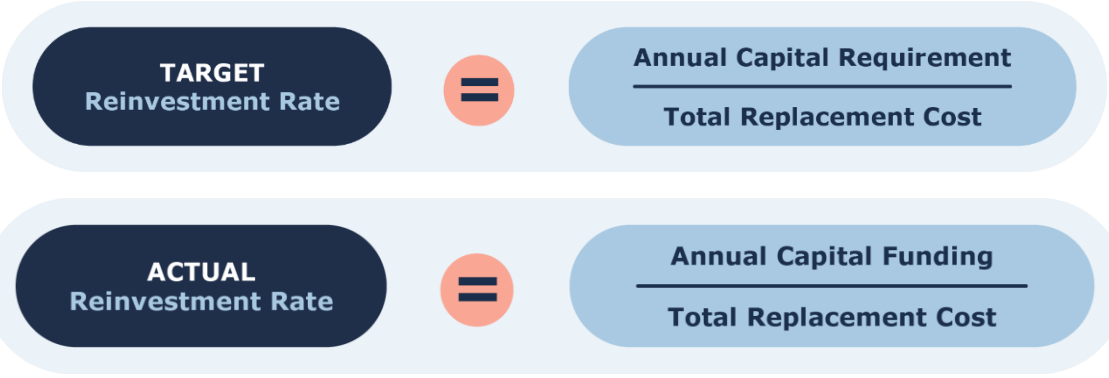


Figure 8 Target & Actual Reinvestment Rate Calculations

2.4.6 Deriving Asset Condition

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

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the Township's asset portfolio. Table 4 below outlines the condition rating system used in this AMP (excluding paved and unpaved roads) 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.

The paved and unpaved roads used a condition scale from the 2023 Roads Needs Study. Further details on this scale are provided under the road network section of this report.

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

Table 4 Standard Condition Rating Scale

The analysis in this AMP is based on assessed condition data, which is available for 97% of assets (weighted by replacement cost). 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)[7]. 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 9 below outlines key reporting requirements under O. Reg 588/17 and the associated timelines. This AMP meets the 2024 requirements.

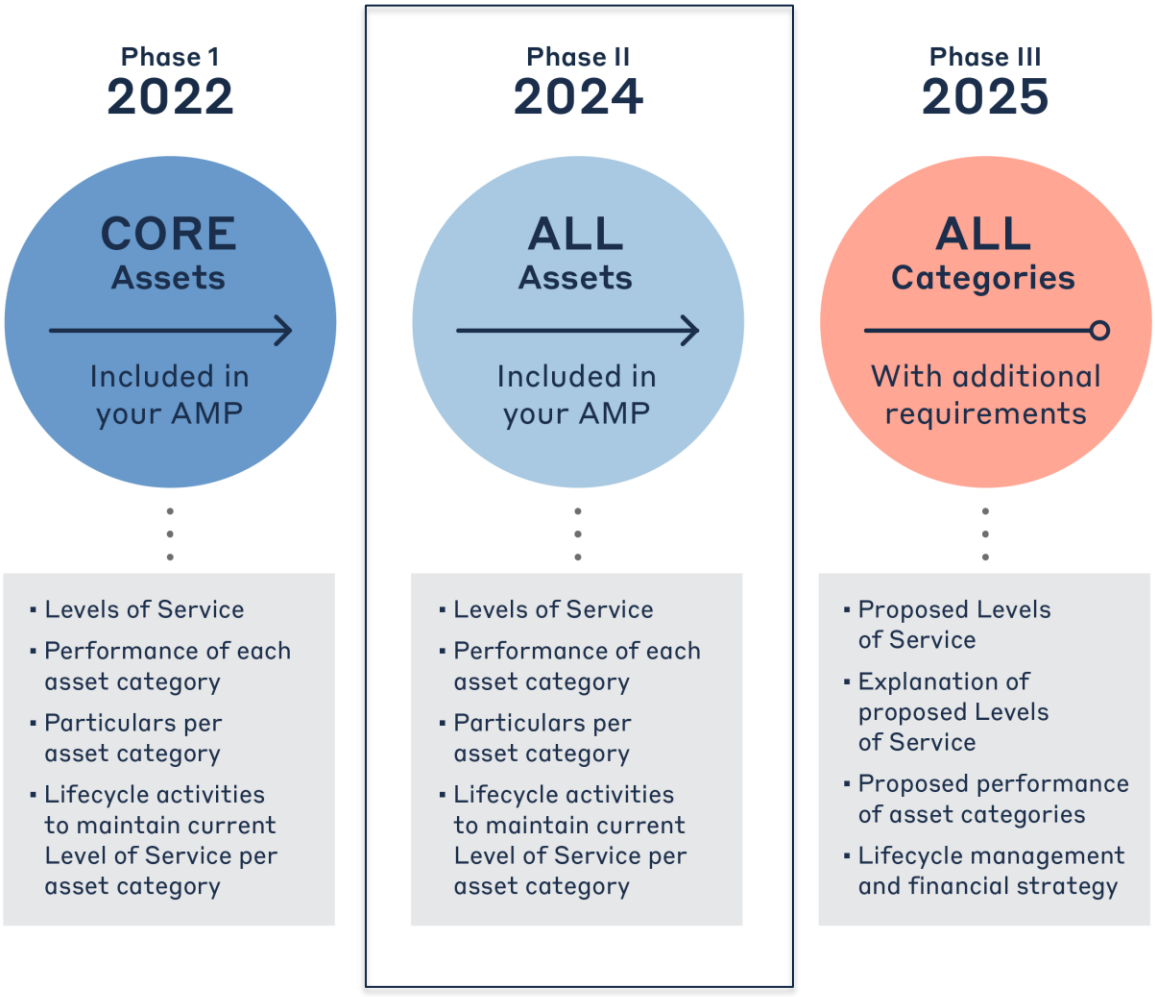


Figure 9 O. Reg. 588/17 Requirements and Reporting Deadlines

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

2.5.1 O. Reg. 588/17 Compliance Review

Requirement	O. Reg. 588/17 Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	4.1 – 10.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1 – 10.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.3 – 10.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.2 – 10.2	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.4 – 10.2	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	4.7 – 10.7	Complete
Current performance measures in each category	S.5(2), 2	4.7 – 10.7	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.4 – 10.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	Appendix B	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	11 – 131.2	Complete

3. Portfolio Overview – State of the Infrastructure

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

3.1 Asset Hierarchy & Data Classification

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

Figure 10 Asset Hierarchy and Data Classification

3.2 Portfolio Overview

3.2.1 Total Replacement Cost of Asset Portfolio

The seven asset categories analyzed in this Asset Management Plan have a total replacement cost of $257,572,000. This estimate was calculated based on user-defined costing, and inflation of historical costs to the data effective date. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today. Figure 11 illustrates the replacement cost of each asset category; at 55% of the total portfolio, roads form the largest share of the Township's asset portfolio, followed by buildings and stormwater network at 18% and 14% respectively. The remaining asset categories represent more modest shares of the total portfolio value.

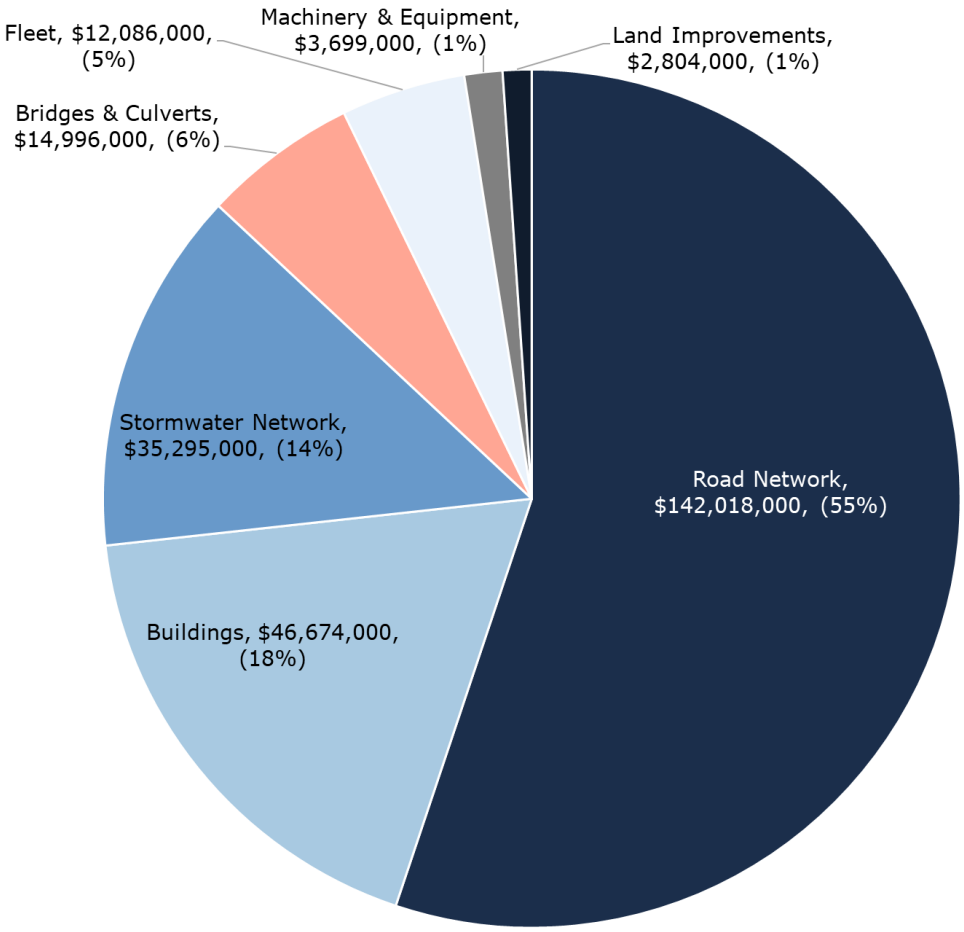


Figure 11 Current Replacement Cost by Asset Category

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 $10,288,000, for a target portfolio reinvestment rate of 3.97%. Using 2025 financial figures, annual investment from sustainable revenue sources is $3,609,000, for a current portfolio reinvestment rate of 1.4%. Target and current re-investment rates by asset category are detailed below and discussed further in Section 12.

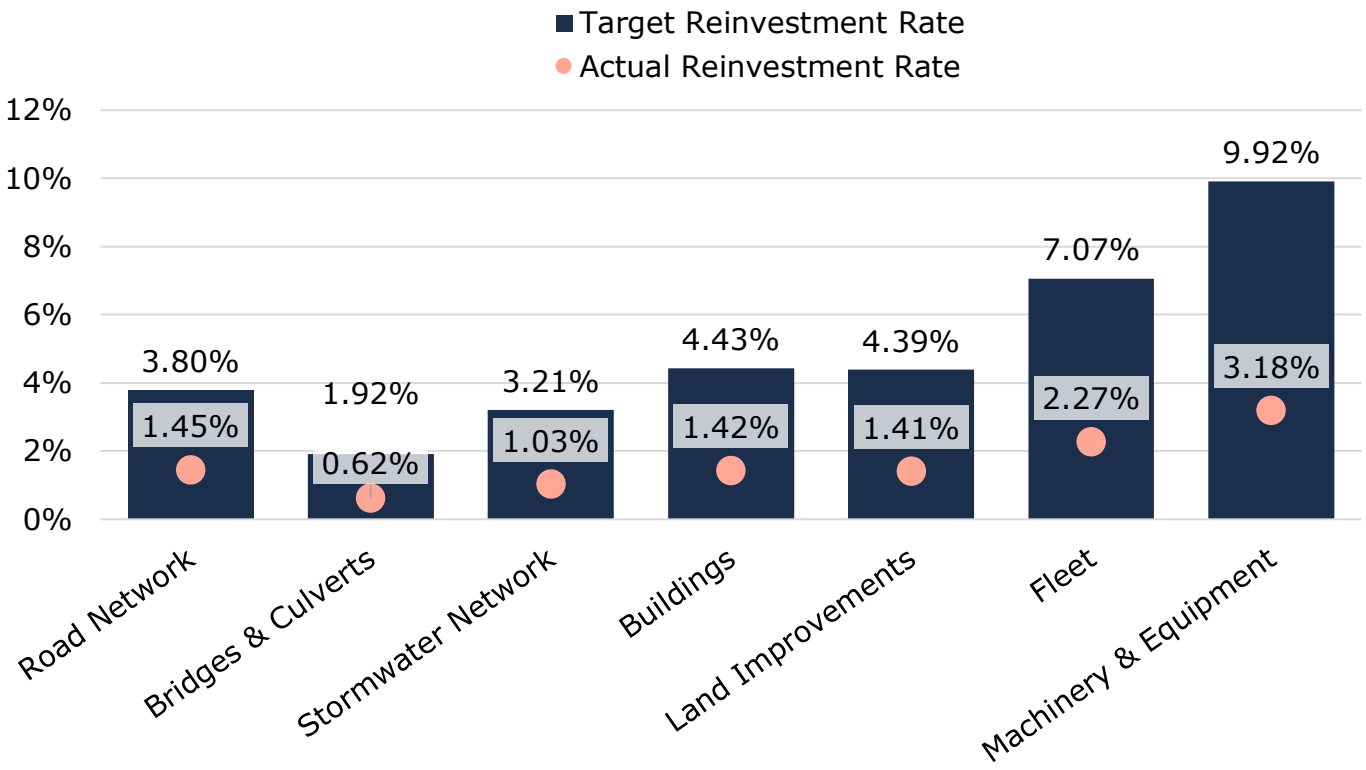


Figure 12 Current Vs. Target Reinvestment Rate

3.2.3 Condition of Asset Portfolio

Figure 13 and Figure 14 below summarize asset condition at the portfolio and category levels, respectively. Overall, 77% of the Township's infrastructure portfolio is in fair or better condition, with the remaining 23% in poor or worse condition. Typically, assets in poor or worse conditions may require replacement or major rehabilitation in the immediate or short-term.

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.

Assessed condition data was available for most assets except for land improvements and machinery and equipment. Land Improvement and machinery and equipment assets use age-based conditions which are based on the assets age relative to its estimated useful life.

3.2.3 Condition of Asset Portfolio (Continued)

Age-based condition estimates can skew data and lead to potential under or overstatement of asset needs.

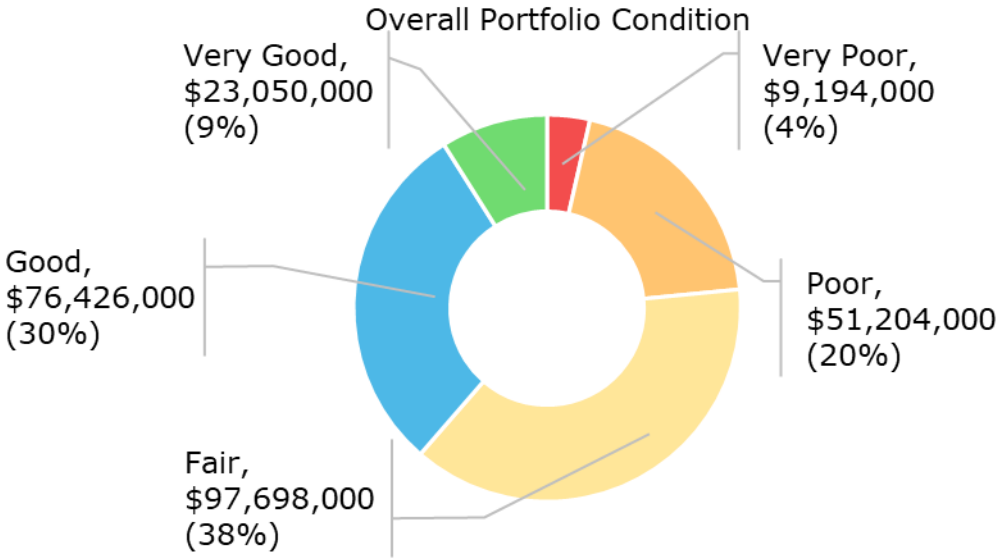


Figure 13 Asset Condition: Portfolio Overview

As further illustrated in Figure 14 at the category level, most core infrastructure assets are in fair or better condition, based on in-field condition assessment data. Buildings are mostly in fair or better condition with a large proportion in good condition. Land improvement and Machinery and equipment assets have the largest proportion of assets in very poor condition. However, it is important to note that these are also the only two asset categories that utilize age-based condition which is generally less accurate than assessed condition. Please refer to Table 5 for details on how condition data was derived for each asset segment.

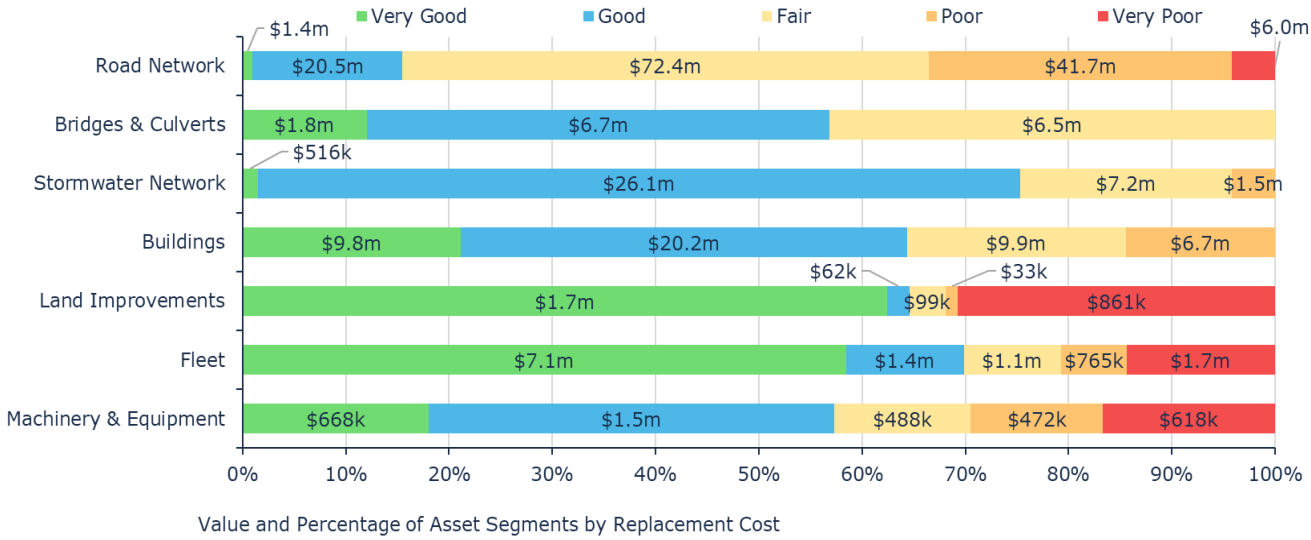


Figure 14 Asset Condition by Asset Category

Source of Condition Data

When weighted by replacement cost, this AMP relies on assessed condition for 97% of assets. For the remaining assets, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. Table 5 below identifies the source of condition data used throughout this AMP.

Asset Category	Asset Segment(s)	% of Assets with Assessed Conditions	Source of Condition Data
Road Network	Asphalt Roads (HCB) Surface Treated Roads (LCB)	100%	2023 Roads Needs Study
	Sidewalks, curbs, guard rails	0%	N/A
Bridges & Culverts	Bridges Structural Culverts	100%	2024 OSIM Report
Stormwater Network	All	99%	Staff Assessments
Buildings	All	100%	2025 Building Condition Assessment Reports
Land Improvements	All	0%	N/A
Fleet	All	99.5%	Staff Assessments
Machinery & Equipment	All	0%	N/A

Table 5 Source of Condition Data

3.2.4 Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 9% of the Township's assets will require replacement within the next 10 years. Refer to Appendix B – 10-Year Capital Requirements. When reviewing this information by asset category, the road network and bridges and culverts have the largest proportion of assets with over 10 years of service life remaining. However, it is important to note that in both cases there are strategically scheduled rehabilitation activities that are expected to preserve the asset condition. Therefore, capital investment activities will still be required within the period, but relatively few replacement activities.

Conversely, land improvements and machinery equipment, which typically have much shorter lifespan than roads and bridges and culverts, have a larger proportion of assets with service life expired or 5 years of less of service life remaining.

3.2.4 Service Life Remaining (Continued)

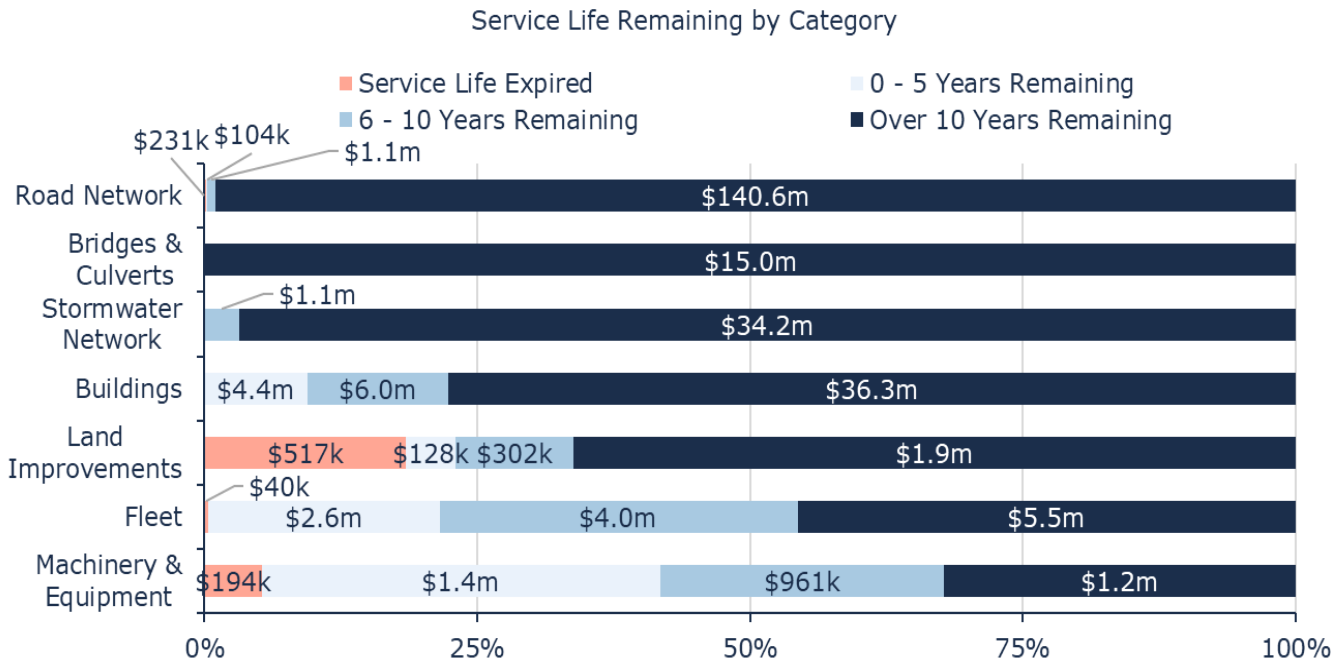


Figure 15 Service Life Remaining by Asset Category

3.2.5 Risk Matrix

Using the risk equation and preliminary risk models outlined in Appendix D, Figure 16 shows how the Township's assets are stratified within a risk matrix.

1 - 4 **Very Low** $51,536,000 (20%)	5 - 7 **Low** $26,108,000 (10%)	8 - 9 **Moderate** $44,877,000 (17%)	10 - 14 **High** $86,914,000 (34%)	15 - 25 **Very High** $48,138,000 (19%)

Figure 16 Risk Matrix: All Assets

The analysis shows that based on current risk models, approximately 19% of the Township's assets, with a current replacement cost of approximately $48 million, carry a risk rating of 15 or higher (red) out of 25. Assets in this group generally are identified as high risk for the following key reasons: they have poor asset conditions and therefore a high probability of failure, and/or they have high replacement costs and therefore a high consequence of failure, and in some cases combined with delivering an essential service and/or impacting a high number of people if they fail (i.e. roads with high traffic).

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

3.2.5 Risk Matrix (Continued)

be high, their consequence of failure ratings (and consequently their overall risk) was determined to be low based on the attributes used and the data available.

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

Qualitative Risk

In addition to quantified risk as summarized above, the Township has noted key trends, challenges, and risks to service delivery that they are currently facing. The most prominent risks identified are:

Lifecycle Management Strategies

Historically, lifecycle management strategies are considered more reactive than proactive. It is a challenge to find the right balance between maintenance, capital rehabilitation, and reconstruction. In the absence of mid-lifecycle rehabilitative events, most assets are simply maintained with the goal of full replacement once they reach end-of-life. Staff hope to develop better defined strategies, such as mid-lifecycle rehabilitations that extend asset lifecycle while achieving a lower average annual cost. These strategies will require sustainable annual funding to minimize the deferral of capital works.

Asset Data & Information

Asset Data and information have improved significantly through this project and in many cases, there is much higher confidence in the asset information used. Historically, staff noted a lack of confidence in the available inventory data for asset management purposes. Through the development of the 2024 AMP, asset reports including the Roads Needs Study (2023), the Bi-Annual bridge and culvert inspections (2024), and the Building Condition Assessments (2025) reports were consolidated and are reflected in the reports data. Further, as part of the project key staff reviewed asset information and data for accuracy and completeness. Through this project and the Township's continued commitment to collection and update of asset information this risk has substantially reduced, and it is expected that it will continue to decline in severity.

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 until 2100. Capital investment requirements are reported in five-year buckets, with the average annual requirement (red trend line) provided. The period until 2100 is used to ensure that every asset goes through at least one-cycle of replacement. On average, $10.2 million is required each year to replace assets when they reach the end of their estimated useful life and to complete strategic rehabilitation activities as identified in the 2023 Roads Needs Study, the 2024 Bridge and Culvert Inspection Report, and the 2025 Building Condition Assessments. 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 $2.7 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.

3.2.6 Forecasted Capital Requirements (Continued)

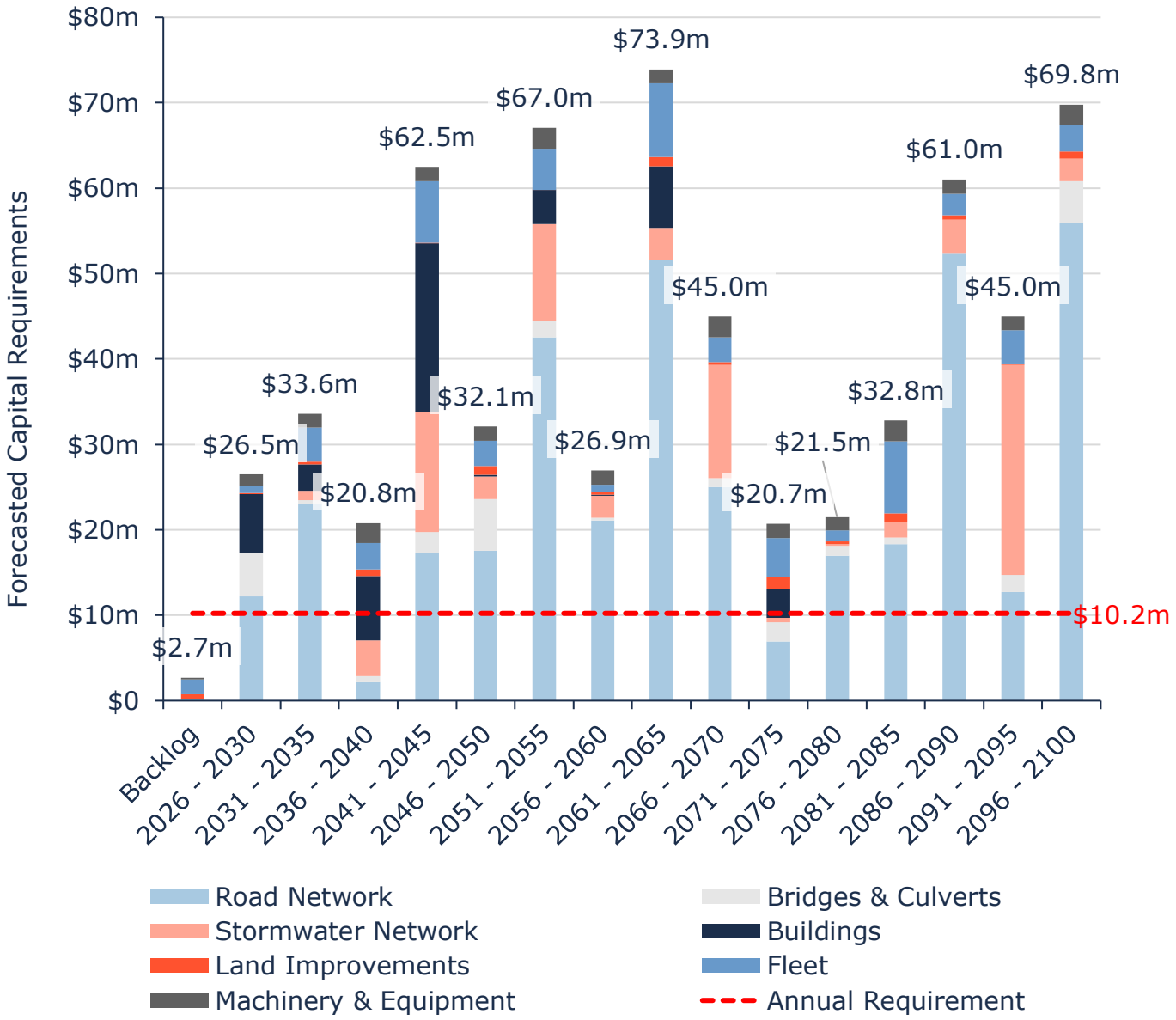


Figure 17 Capital Replacement Needs: Portfolio Overview Until 2100

Core Assets

4. Road Network

The Township's road network comprises the largest share of its infrastructure portfolio, with a current replacement cost of more than $142 million, distributed primarily between asphalt and surface treated roads. The Township also owns and manages other supporting infrastructure and capital assets, including sidewalks, curbs, signs, and streetlights.

4.1 Inventory & Valuation

Table 6 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
Asphalt Roads	12	Length (km)	$15,452,538	User-Defined
Curbs	491	Length (m)	$43,679	Cost per Unit
Guardrails	820.5	Length (m)	$297,220	CPI
Sidewalks	600	Length (m)	$105,930	Cost per Unit
Signs	8	Quantity	$99,420	CPI
Streetlights	233	Quantity	$661,542	User-Defined
Surface Treated Roads	164	Length (km)	$125,357,189	User-Defined
TOTAL			**$142,017,519**	

Table 6 Detailed Asset Inventory: Road Network

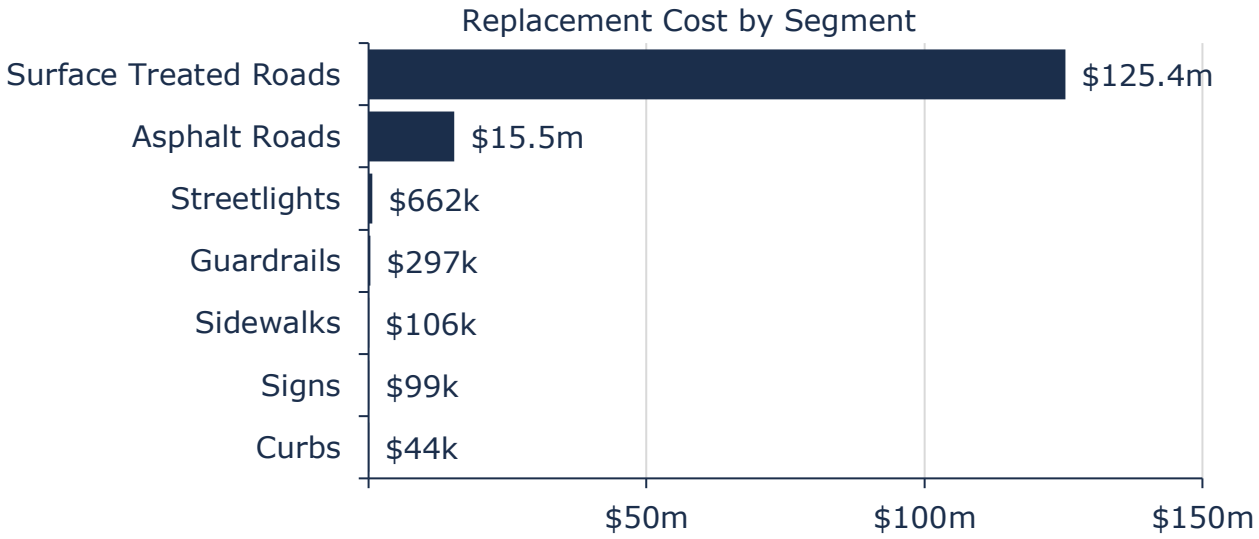


Figure 18 Portfolio Valuation: Road Network

4.2 Asset Condition

Figure 19 summarizes the replacement cost-weighted condition of the Township's road network. Based on a combination of field inspection data and age, 66% of assets are in fair or better condition; the remaining 34% of assets are in poor to very poor condition. Condition assessments were available for 99% of the road assets, based on replacement cost. This condition data was projected from inspection date to the data effective date to estimate their condition as of December 2024.

Asphalt and Surface treated Road conditions are based on the 2023 Roads Needs Study which defines conditions as follows:

Segment	Condition Scale
Very Good	85-100
Good	70-85
Fair	55-70
Poor	40-55
Very Poor	<40

Table 7: Roads Needs Study Condition Scale

Assets in poor or worse conditions may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. As illustrated in Figure 19, the majority of the Township's road network assets are in fair or better condition.

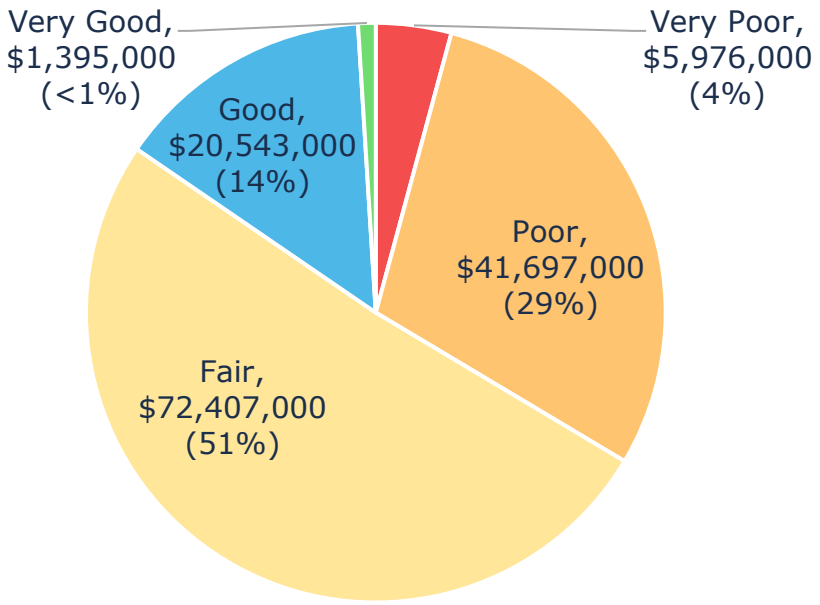


Figure 19 Asset Condition: Road Network Overall

4.2 Asset Condition (Continued)

As illustrated in Figure 20, based on condition assessments, except for curbs and sidewalks, which are predominantly in very poor condition, most of the other segments are in fair or better condition.

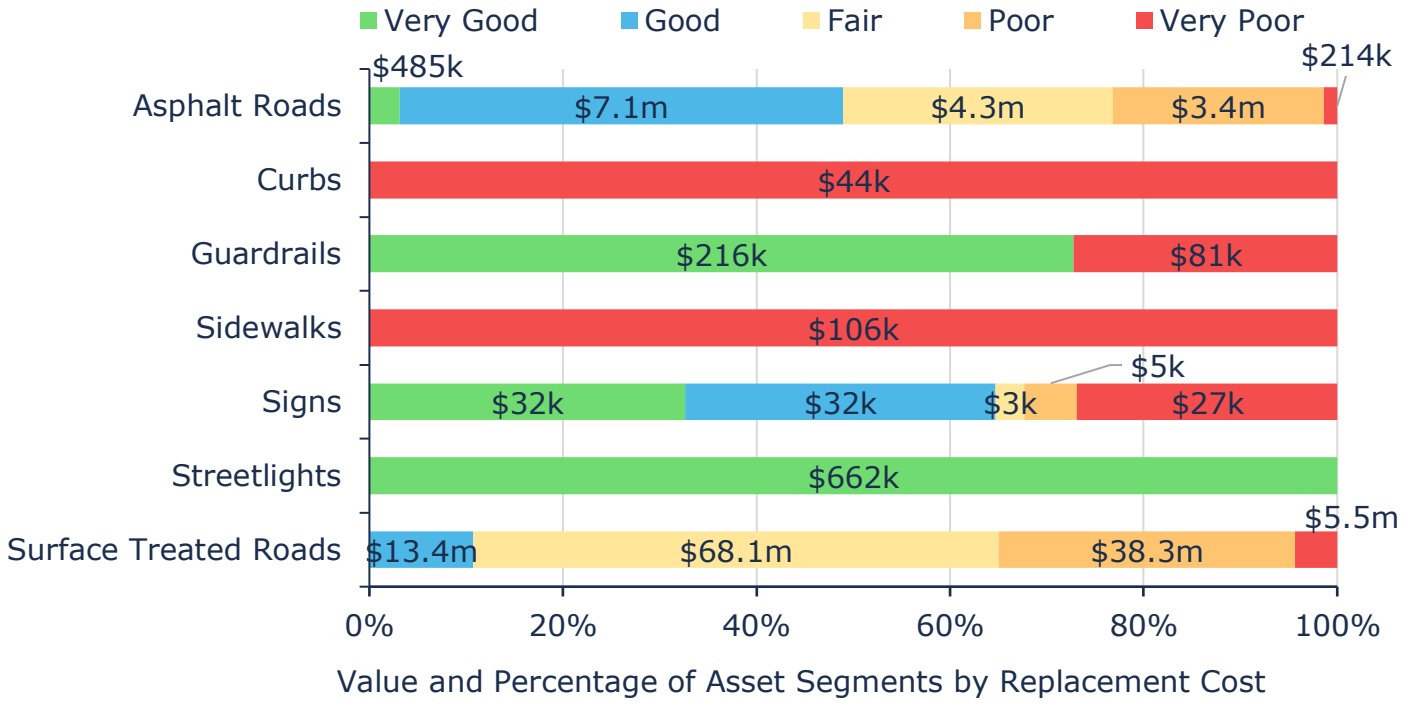


Figure 20 Asset Condition: Road Network by Segment

4.3 Age Profile

The following tables summarize the average age of the road network assets. Average age is weighted by replacement cost.

Segment	Average Age (years)
Asphalt Roads	79.8
Curbs	33.2
Guardrails	13.2
Sidewalks	37.5
Signs	3.5
Streetlights	1.9
Surface Treated Roads	61.8

While many assets, especially roads, are notably aged, the results of the Roads Needs Study indicates that despite this many assets are in fair or better condition. In many cases, this is reflective of lifecycle management activities, especially rehabilitations that have improved their condition.

4.4 Current Approach to Lifecycle Management

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

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

For the period up until 2035, strategic rehabilitation activities are scheduled based on asset specific recommendations from the 2023 Roads Study. The most common recommendations are:

- Replace/re-build new granular base and double surface treatment. Includes ditching. Projected to improve road condition to 100%.
- Pulverize existing asphalt, pave 60mm or 100 mm of Hot Mix asphalt. Includes base repairs and ditching. Projected to improve road conditions to 90%.

Otherwise, road rehabilitation and replacements are based on the following rehabilitation activities and associated triggers:

4.4 Current Approach to Lifecycle Management (Continued)

Asphalt Roads		
Event Name	**Event Class**	**Event Trigger**
Pulverize & Single Lift Hot Mix Overlay (60mm)	Rehabilitation	30% Condition
Full Reconstruction	Replacement	0% Condition

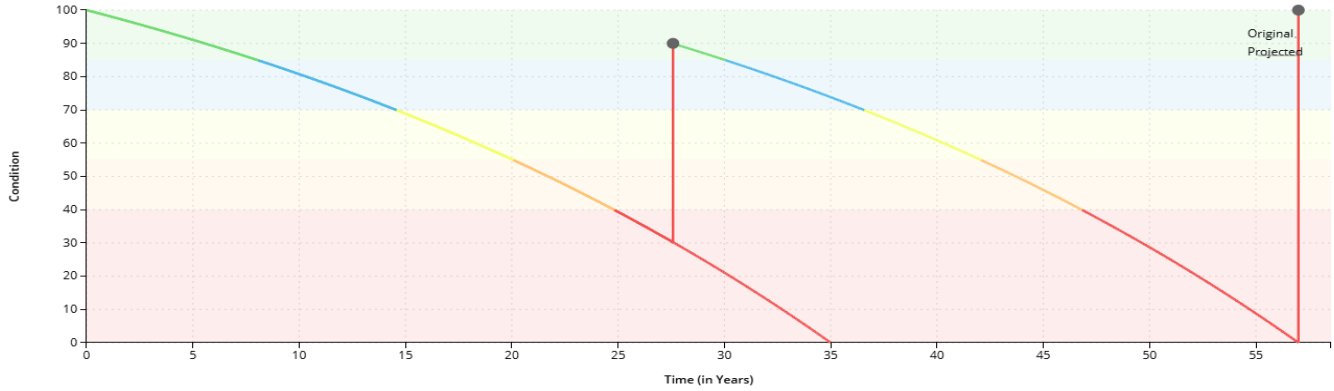


Table 8 Lifecycle Management Strategy: Road Network (HCB Roads)

Surface Treated Roads		
Event Name	**Event Class**	**Event Trigger**
Pulverize and Double Surface Treatment	Rehabilitation	30% Condition
Full Reconstruction	Replacement	0% Condition

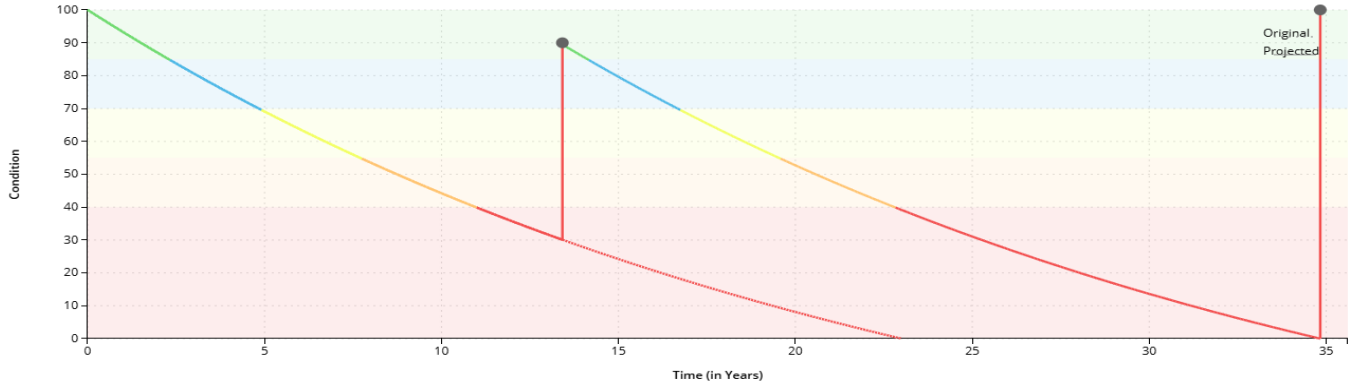


Table 9 Lifecycle Management Strategy: Road Network (LCB Roads)

4.4 Current Approach to Lifecycle Management (Continued)

In addition to the strategic rehabilitation activities noted above, the Township also conducts a series of operational activities to their roads. The following table outlines the Township's current lifecycle management strategy.

Activity	Description of Current Strategy
Inspection	Road condition assessments are conducted externally every 5 years, with the most recent Roads Needs Study completed in 2023. Internal patrols are completed based on Minimum Maintenance Standards (e.g., Class 3 roads every 7 days). A Pavement Condition Index (PCI) is used for surface evaluation.
Maintenance	Routine maintenance includes shouldering, graveling, grading, hot and cold patching, dust control, sweeping, ditching, line painting, roadside mowing, and snowplowing. Maintenance is triggered by patrols, visual inspections, public concerns, and assessment recommendations. Estimated annual cost is $502,000 (excluding wages).
Rehabilitation	Activities include resurfacing, patching repairs, and gravel grading. Rehabilitation is prioritized for assets with PCI scores below 40. Maintenance work supports extending asset life. Decisions are informed by studies and inspections.
Replacement	Replacement is considered when conditions have deteriorated significantly, and rehabilitation is no longer cost-effective. Assets nearing end-of-life or requiring frequent costly repairs are prioritized. Budgeting is informed by condition data, funding availability, and Township priorities. Contingency reserves exist.

Table 10 Lifecycle Management Strategy: Road Network

4.5 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 2089 to capture at least one iteration of replacement for the longest-lived assets. The Township's average annual requirements (red dotted line) total $5.4 million for all assets in the road network. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

The chart illustrates substantial capital needs through the forecast period with the largest spikes occurring between 2050-2054, 2060-2064 and 2080-2084. The largest proportion of capital cost is associated with surface treated and asphalt roads. Roadside appurtenances like streetlights and sidewalks account for a very small proportion of the capital costs. These projections are based on asset replacement and rehabilitation costs, which are largely in

4.5 Forecasted Long-Term Replacement Needs (Continued)

reference to the road's needs study. The capital forecast is designed to provide a long-term, category overview of capital needs and should be used to support improved financial planning over several decades.

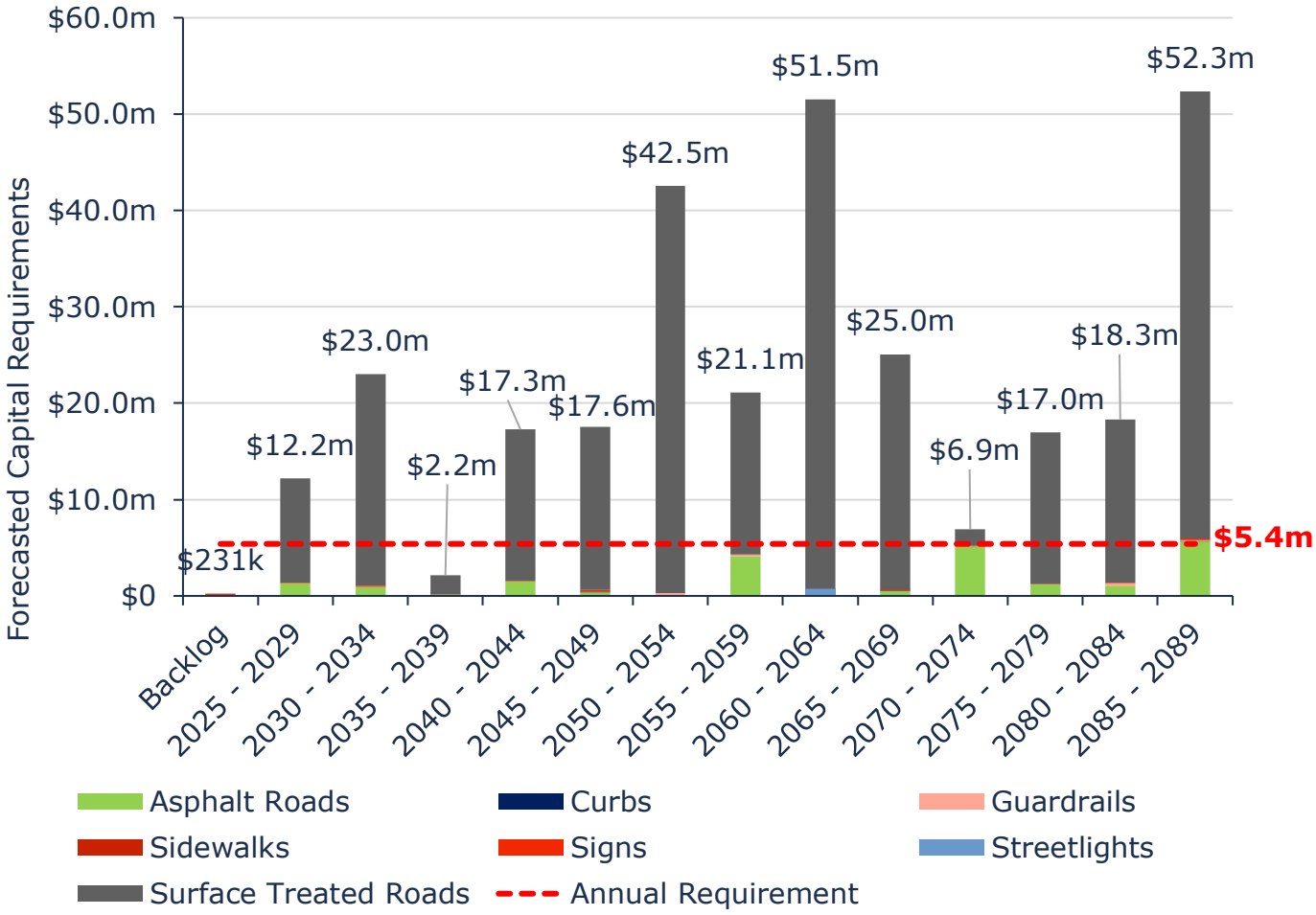


Figure 21 Forecasted Capital Replacement Needs: Road Network 2024-2089

Often, the magnitude of capital 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 road needs study and condition assessments alongside a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle interventions.

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

4.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition, replacement costs and (for surface treated and asphalt roads) traffic data. 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.

As outlined below, most roads carry a high or very high risk. This is mostly due to their high replacement cost and in some cases their poor or very poor condition and also in some cases, their high traffic counts. It is important to note that as per the Roads Need Study paved roads are considered in very poor condition if they are less than 40%. This is unlike all other asset categories which consider very poor condition to be less than 20%.

1 - 4 **Very Low** $2,303,000 (2%)	5 - 7 **Low** $12,829,000 (9%)	8 - 9 **Moderate** $19,712,000 (14%)	10 - 14 **High** $67,084,000 (47%)	15 - 25 **Very High** $40,090,000 (28%)

Figure 22 Risk Matrix: Road Network

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

4.6.1 Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Township is currently facing:

Lifecycle Management Strategies

The current lifecycle management strategy for roads reflects ongoing efforts to align maintenance, rehabilitation, and replacement activities with asset condition and risk. While assessments such as the Roads Needs Study and Pavement Condition Index (PCI) are conducted on a regular basis, previous investment strategies have contributed to a growing backlog of assets requiring replacement. Within three decades many roads will be nearing the end of their expected service life. This introduces challenges in phasing capital work, managing long-term costs, and maintaining desired service levels.

Capital Funding Strategies

The Township has made use of dedicated funding programs such as Ontario Community Infrastructure Fund (OCIF) and Canada Community-Building Fund (CCBF) to support major road rehabilitation projects. However, a significant portion of the capital program remains reliant on the availability of external grant funding. This creates a risk of deferral when grants are not awarded, particularly in the context of a growing backlog of roads identified for rehabilitation. While annual budgets address core maintenance and safety needs, long-term sustainability of the road network will benefit from a more stable and predictable capital reinvestment strategy.

4.7 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.

4.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	Approximately 272 lane kilometers of roads service the municipalities land area of 217 square kilometers. Of the 272 lane kilometers, the majority (163 km) is surface treated with the balance asphalt (12km) and gravel (96 km). The system consists of roads with a Minimum Maintenance Standard (MMS)[8] class of 3,4,5 or 6. Please Refer to Appendix C for a map of the road network.
Quality	Description or images that illustrate the different levels of road class pavement condition	The condition of the asphalt and surface treated roads ranges from 18% (very poor) to 92% (very good) and is on average in 58% condition. Condition information is based on the 2023 roads condition study and reported condition information is projected to 2024, the data effective date. Please refer to Appendix C for a map of the conditions of the road network as of the 2023 roads assessment.

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

[8] MMS classification is based on the roads traffic volumes and posted speed limits. Class 1 roads have the highest average daily traffic counts and the highest speed limits; class 6 roads have the lowest average daily traffic counts and the lowest speed limits.

4.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km2)	N/A
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km2)	1.73 km/km2
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km2)	0.75 km/km2
Quality	Average pavement condition index for paved roads in the Township	67%
	Average pavement condition index for unpaved roads in the Township	66%
Sustainable	Current Reinvestment Rate vs Target Capital Reinvestment Rate	1.45% vs. 3.8%

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

4.8 Recommendations

Asset Inventory

- Review the inventory of all assets to ensure they reflect assets in ownership. Specifically review the signage asset inventory and consider a non-pooled inventory and/or pooling based on sign type. This will provide a more accurate dataset to better inform future projections.

Condition Assessment Strategies

- Continue to align information collected through specialized studies such as the Roads Needs Study (RNS) to the assets in the database. When asset information, such as condition changes due to capital investments or events otherwise, ensure the associated asset data and information is updated to reflect. An annual review of asset condition information, alongside annual financial updates, is recommended.

Lifecycle Management Strategies

- When lifecycle events are completed, update the asset registry to reflect the events occurrence so it is clear it is completed.
- Regularly review and refine lifecycle management strategies including inspections, condition assessments, and capital projects to ensure they are effective and efficient.

Risk Management Strategies

- Consider asset risk scores as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure and/or as data and information to calculate risk becomes available or enhanced.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17. Review historical trends and work to understand the underlying causes of such trends.

5. Bridges & Culverts

The Township's transportation network also includes bridges and structural culverts, with a current replacement cost of approximately $15 million.

5.1 Inventory & Valuation

Table 13 summarizes the quantity and current replacement cost of bridges and culverts. The Township owns and manages 14 bridges and 2 structural culverts. As reflect in Figure 23 the largest share of replacement costs is attributable to bridges.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Bridges	14	Quantity	$12,728,750	User-Defined
Structural Culverts	2	Quantity	$2,267,500	User-Defined
TOTAL			**$14,996,250**	

Table 13 Detailed Asset Inventory: Bridges & Culverts

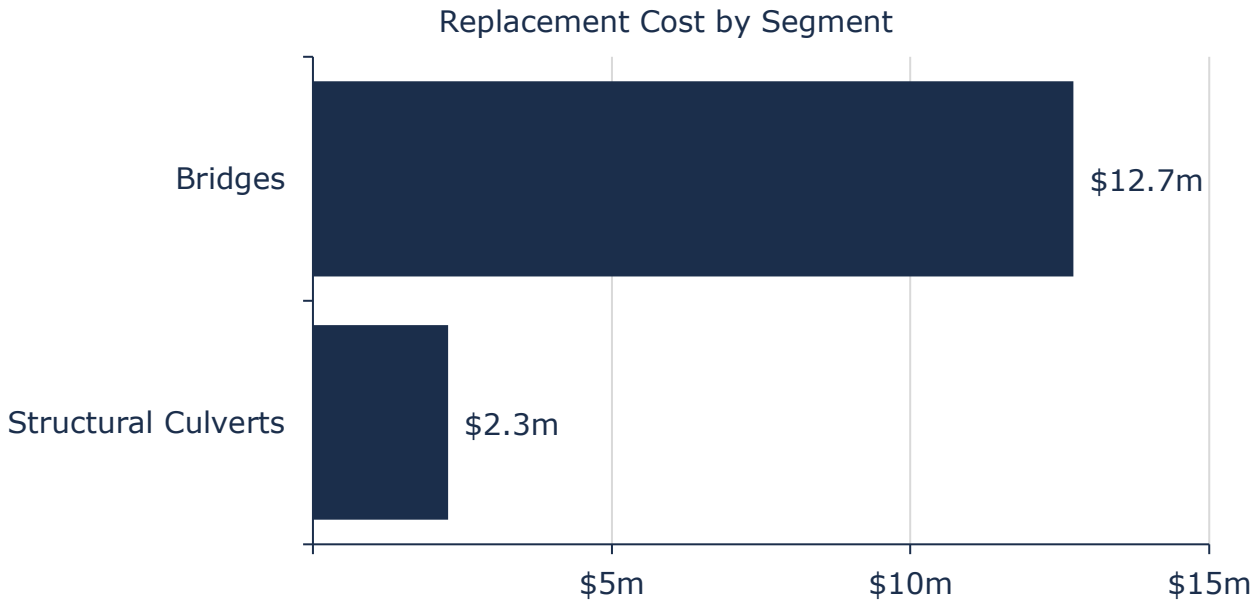


Figure 23 Portfolio Valuation: Bridges & Culverts

5.2 Asset Condition

Figure 24 summarizes the condition (weighted by replacement cost) of the Township's bridges and culverts. Based on the Township's most recent Ontario Structures Inspection Manual (OSIM) assessments (2024 completion), 100% of bridges and culverts are in fair or better condition. Some elements or components of these structures are candidates for rehabilitation in the near and medium terms and accordingly OSIM recommended rehabilitations have been scheduled for these assets.

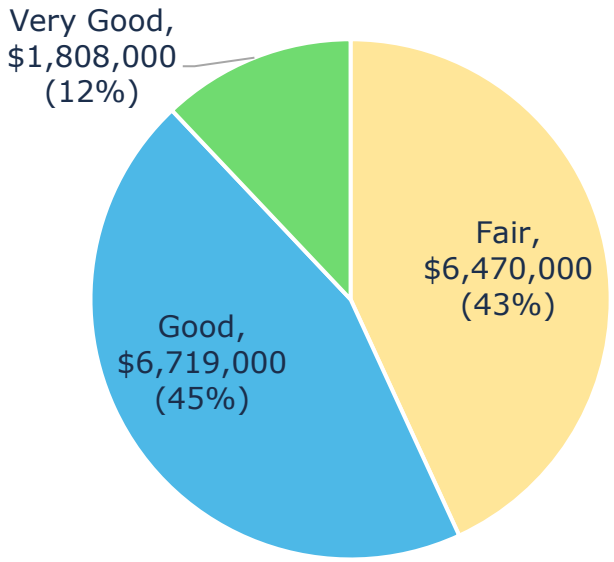


Figure 24 Asset Condition: Bridges & Culverts Overall

As further detailed in Figure 25, structural culverts are in overall higher condition as 80% of the assets (weighted by replacement costs) are in very good condition with the remaining 20% in good condition. Conversely, about half of bridge assets (weighted by replacement cost) are in fair condition with the balance in good condition.

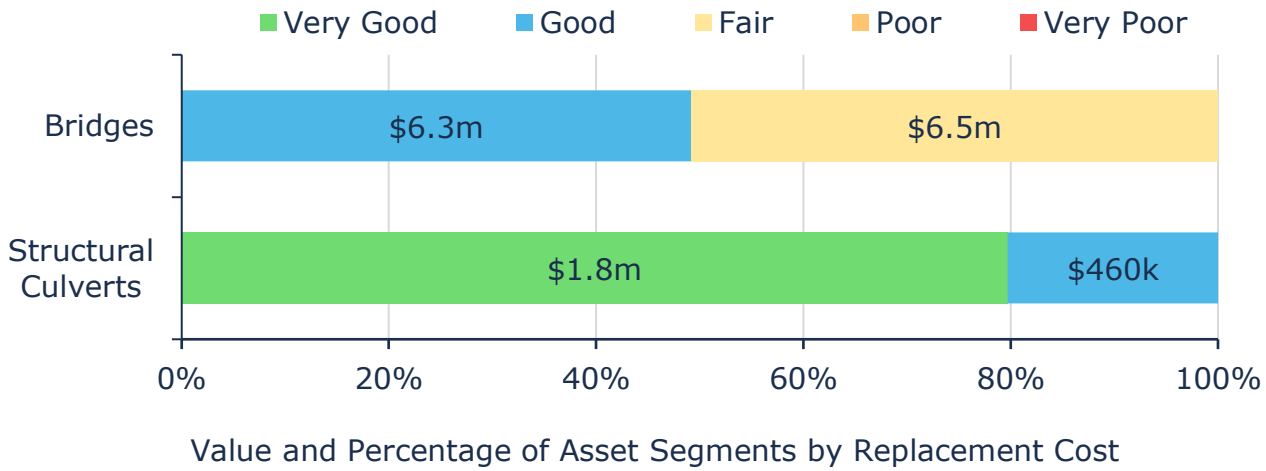


Figure 25 Asset Condition: Bridges & Culverts by Segment

5.3 Age Profile

The following tables summarize the average age of the bridge and culvert assets. Average age is weighted by replacement cost.

Segment	Average Age (years)
Bridges	50.3
Structural Culverts	5.8

While Bridge assets are on average aged the results of the 2024 Bridge and Culvert Study indicate that all assets are in fair or better condition. In many cases, this is reflective of lifecycle management activities, especially rehabilitations that have improved their condition.

5.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Inspection	Bridges and structural culverts are inspected externally every 2 years, as per regulatory requirements. The last bridge study was completed in 2024. A Bridge Condition Index (BCI) is used to assess and rate asset condition.
Maintenance	Routine maintenance includes painting, minor structural repairs, and other tasks aligned with road maintenance activities. Maintenance is triggered by OSIM inspection findings, internal patrols, or public concerns. The estimated annual maintenance cost is $23,000 (excluding capital and wages).
Rehabilitation	Rehabilitation activities typically include structural repairs and painting. Programs are initiated based on recommendations from OSIM reports and inspection results. Assets rated with a BCI of 0–59 (poor) are prioritized.
Replacement	Replacement is considered when asset condition has deteriorated significantly and rehabilitation is no longer cost-effective. Assets nearing end of useful life or with recurring high maintenance needs are prioritized. Budgeting is informed by condition data and safety concerns. Contingency reserves are available for unexpected replacements.

Table 14 Lifecycle Management Strategy: Bridges & Culverts

5.5 Forecasted Long-Term Replacement Needs

Figure 26 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 2099 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 $288,000. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Capital investment fluctuates significantly across the period with significant spikes in 2025-2029, 2045-2049 and 2095-2099. The 2025-2099 spike is mostly associated with rehabilitation recommendations from the 2024 Bridge and Culvert inspection report. The 2045-2049 spike is mostly attributable to projected replacement needs. The 2095-2099 spike is mostly related to projected rehabilitation events based on the lifecycle model presented in the 2024 Bridge and Culvert Inspection report. These projections 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.

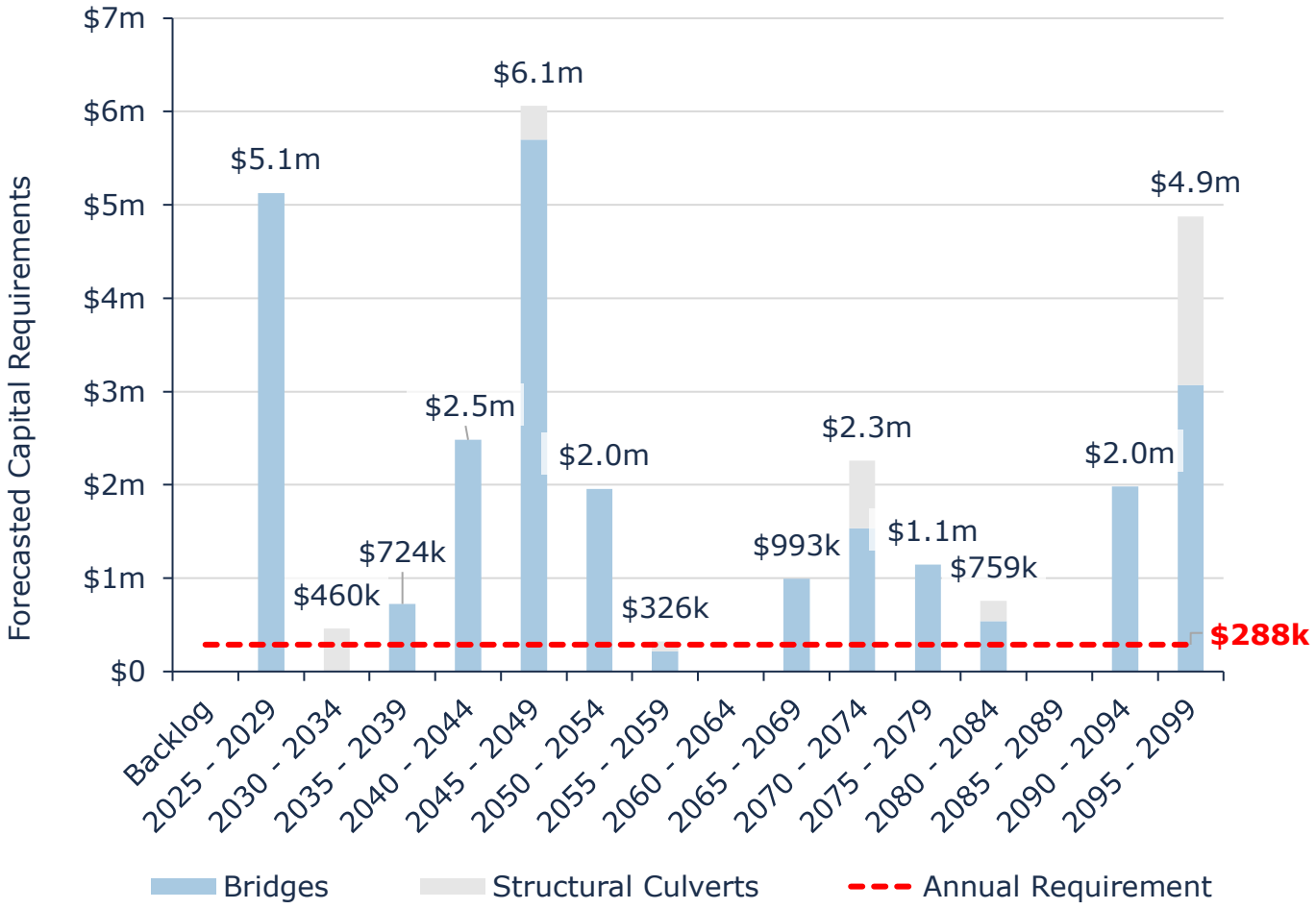


Figure 26 Forecasted Capital Replacement Needs: Bridges & Culverts 2024-2099

5.5 Forecasted Long-Term Replacement Needs (Continued)

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. 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.

5.6 Risk Analysis

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

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.

Most Bridge and culvert assets have a high-risk rating. This is most often due to the assets being in fair condition and therefore having a possibility of failure combined with them holding a significant replacement cost and/or having a high traffic count.

1 - 4 **Very Low** $1,808,000 (12%)	5 - 7 **Low** $4,024,000 (27%)	8 - 9 **Moderate** $3,157,000 (21%)	10 - 14 **High** $6,008,000 (40%)	15 - 25 **Very High** - (0%)

Figure 27 Risk Matrix: Bridges & Culverts

An asset's risk rating can be a helpful input for prioritizing projects. Using risk in conjunction with levels of service, and the recommended workplans in OSIM inspections, can assist in optimizing limited funds.

5.6.1 Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Township is currently facing:

Lifecycle Management Strategies

The Township has implemented a structured inspection and assessment cycle using bridge and structural data inspection information to inform and prioritize capital planning. However, a portion of the bridge inventory, particularly those structures that have not undergone major rehabilitation, were constructed using non-standard materials such as fiberglass and wood. As these assets approach the end of their useful life, there is increased pressure on capital budgets to maintain service levels. Past funding limitations have contributed to a concentration of aging assets now requiring renewal within a narrow time frame. While current strategies are adequate, future lifecycle planning will benefit from more clearly defined, proactive interventions that reduce long-term cost and service risk.

Climate Change & Extreme Weather Events

Climate change and extreme weather events are placing increasing strain on bridge and culvert infrastructure. Freeze-thaw cycles, heavy rainfall events, and seasonal snow removal contribute to material fatigue, water infiltration, and accelerated surface and joint deterioration. These environmental stressors are particularly impactful on older or structurally vulnerable assets and complicate long-term maintenance planning. Over time, this may contribute to rising maintenance costs and greater pressure on replacement scheduling.

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 has selected for this AMP

5.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	The traffic on bridges and structural culverts is generally light as these are local roads. However, heavy vehicle traffic, such as agricultural and transport, is common considering the agricultural industry.
Quality	Description or images of the condition of bridges & culverts and how this would affect use of the bridges & culverts	The condition of bridges and structural culverts ranges from fair (46%) to very good (96%) and is on average in good (65%) condition. Condition information is based on the 2023 and 2024 OSIMs reported condition information projected to 2024, the data effective date. Please refer to Appendix C for photographs of bridges and structural culverts.

Table 15 O. Reg. 588/17 Community Levels of Service: Bridges & Culverts

5.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Scope	Percentage of bridges in the Township with loading or dimensional restrictions	0%
Quality	Average bridge condition index value	61%
	Average structural culvert condition index value	91%
Sustainable	Current Reinvestment Rate vs Target Capital Reinvestment Rate	0.62% vs. 1.92%

Table 16 O. Reg. 588/17 Technical Levels of Service: Bridges & Culverts

5.8 Recommendations

Asset Inventory

- Consider the collection of advanced data such as detour distances for the purposes of enhancing inventory information, advancing risk assessments, and aiding critical decision making
- Regularly review and update the asset inventory information to reflect the current state and to incorporate updated or new data and information

Condition Assessment Strategies

- Continue to align information collected through specialized studies such as the OSIMs to the assets in the database. When asset information, such as condition changes due to capital investments, ensure the associated asset data and information is updated to reflect.

Lifecycle Management Strategies

- As capital projects are completed, especially rehabilitations, update the asset information (e.g. condition) to reflect.
- Review and update lifecycle management strategies (triggers, costing, impact, etc.) as new information becomes.

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models (when applicable), on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17 and those metrics that the Township believes to provide meaningful and reliable inputs into asset management planning.
- Review historical trends in service levels (i.e. average condition) and seek to understand both the nature and cause of any changes.

6. Stormwater Network

The Township's stormwater network comprises sewer mains and other critical supporting capital assets with a total current replacement cost of approximately $35 million.

6.1 Inventory & Valuation

Table 17 and Figure 28 summarizes the quantity and current replacement cost of all stormwater network assets available in the Township's asset register. As indicated below, most of the stormwater networks replacement cost is associated with storm culverts.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Catch Basins	143	Quantity	$326,550	Cost per Unit
Manholes	9	Quantity	$52,200	Cost per Unit
Storm Culverts	36,472	Length (m)	$34,883,524	User-Defined
Storm Outlets	1	Quantity	$33,225	CPI
TOTAL			**$35,295,499**	

Table 17 Detailed Asset Inventory: Stormwater Network

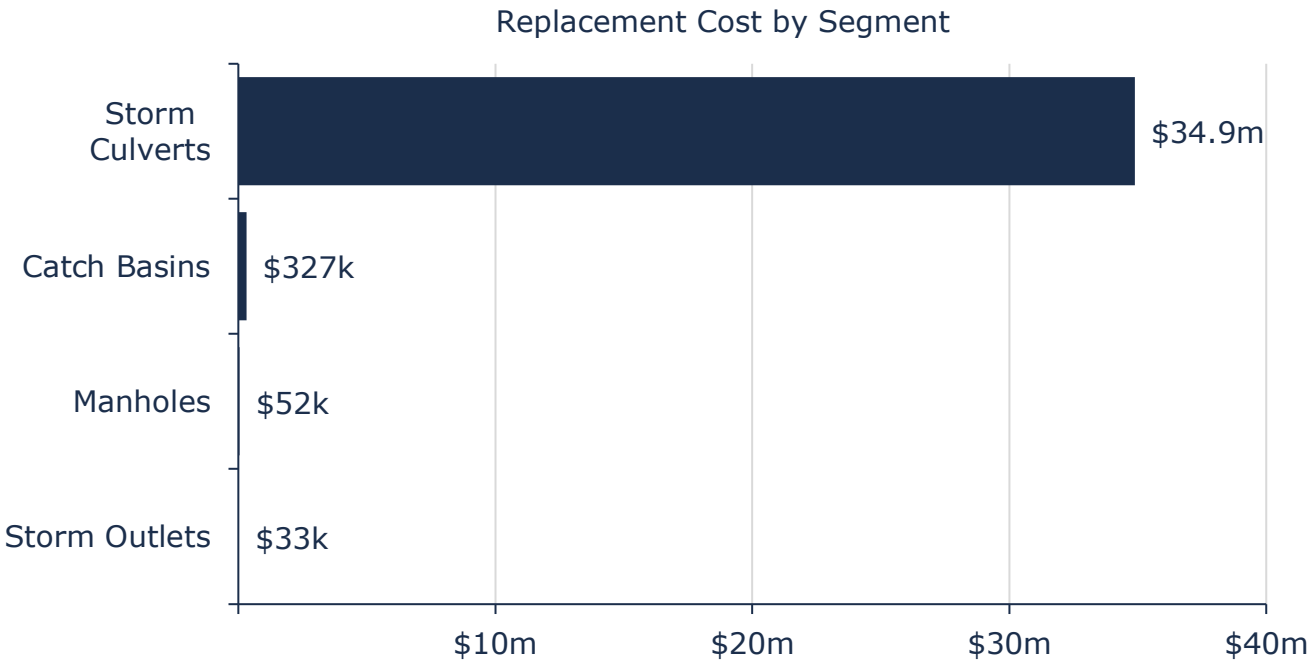


Figure 28 Portfolio Valuation: Stormwater Network

6.2 Asset Condition

Figure 29 summarizes the replacement cost-weighted condition of the Township's stormwater network assets. At 96%, almost all stormwater network assets are in fair or better condition. Of this, most assets are in good condition.

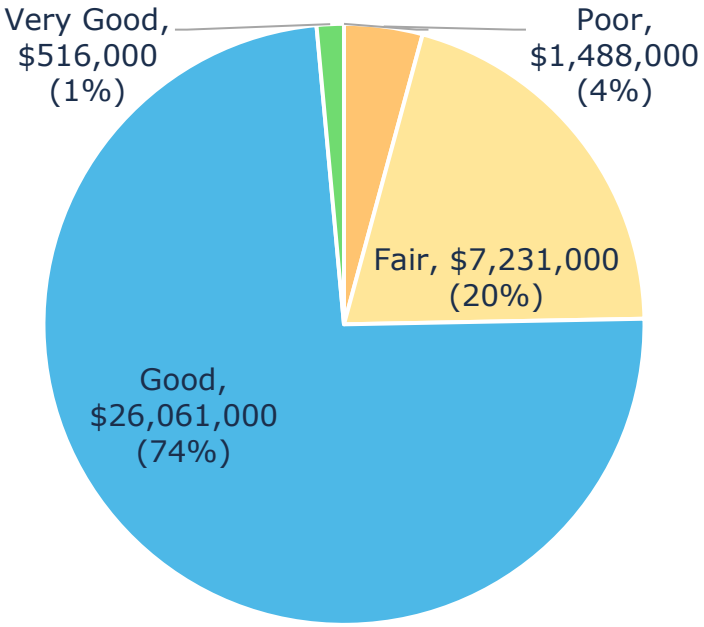


Figure 29 Asset Condition: Stormwater Network Overall

Figure 30 summarizes the assessed condition of stormwater network assets. The analysis illustrates that almost all assets are in fair or better condition, with the storm outlets being entirely in very good condition.

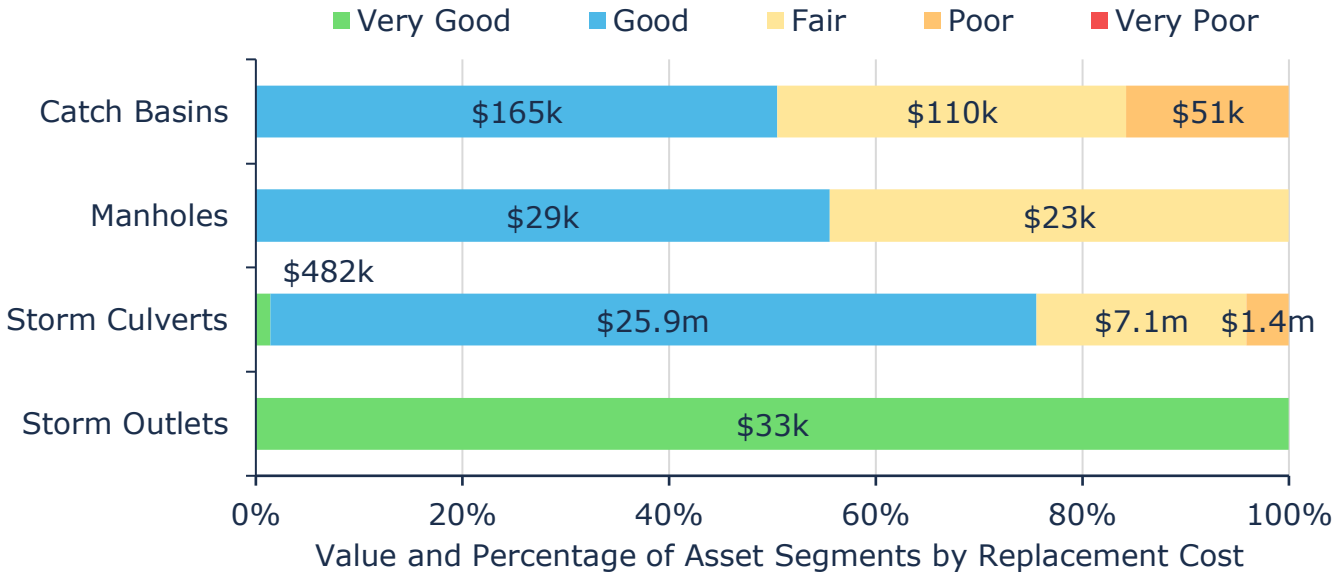


Figure 30 Asset Condition: Stormwater Network by Segment

6.3 Age Profile

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

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

Figure 31 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.

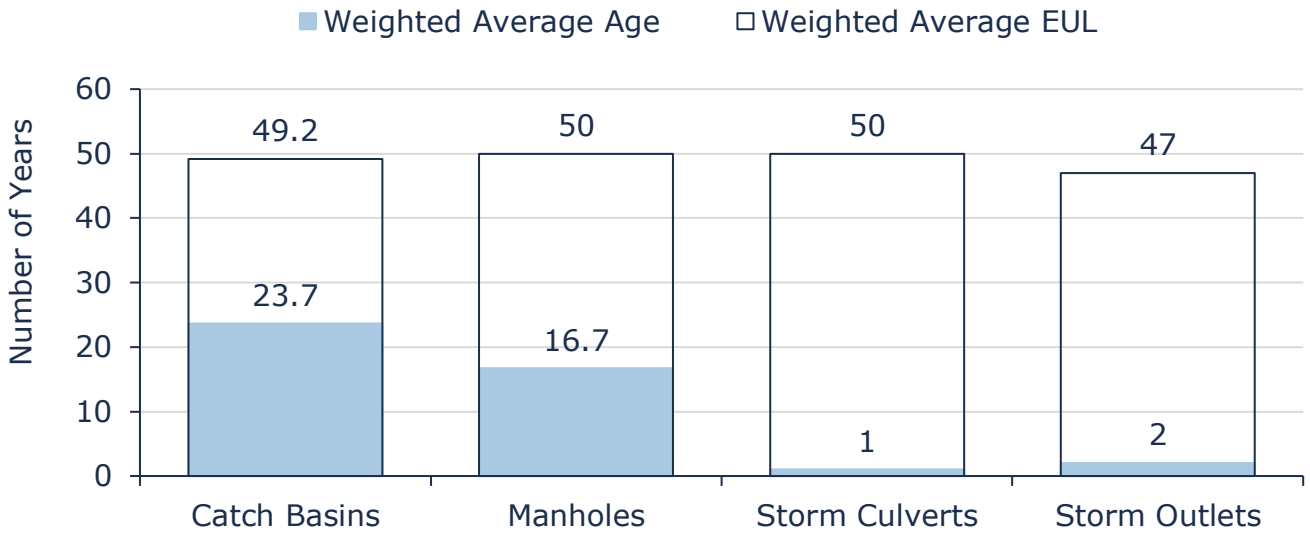


Figure 31 Estimated Useful Life vs. Asset Age: Stormwater Network

This information is presented noting that in this case, average age is estimated based on the assessed condition of the asset relative to the assigned estimated useful life. At the time of this report's publication the Township was unable to determine the age of stormwater network assets; collecting in-service dates where possible and documenting them going forward is a noted recommendation herein.

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	Routine maintenance includes flushing, headwall repair, sinkhole filling, erosion control, and minor repairs. Larger culverts under the municipal drain program are maintained on a 10-year cycle. Maintenance is triggered by inspections, storm events, or complaints.
Rehabilitation	Rehabilitation activities are limited to minor interventions such as scour protection and concrete patching. Trenchless re-lining is not used, as it is more applicable to sewer systems which the Township does not have.
Replacement	Replacement is considered when assets are in poor condition, have failed, or when rehabilitation is not cost-effective. Prioritization is based on condition, risk, and failure likelihood. Contingency reserves are in place to support unplanned needs.
Inspection	Stormwater assets such as culverts, catch basins, and manholes are inspected annually and after large rain or storm events. Inspections are conducted by internal staff using a Good–Fair–Poor condition scale.

Table 18 Lifecycle Management Strategy: Stormwater Network

6.5 Forecasted Long-Term Replacement Needs

Figure 32 illustrates the cyclical short, medium and long-term infrastructure replacement requirements for the Township's stormwater network assets. This analysis was run until 2074 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 $1.1 million 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 capital backlog identified. However, beginning in 2030 capital investment requirements increase, spiking in 2040-2044 and then cycling between low and high thereafter. Storm culverts, which hold the largest share of replacement cost, have the most significant share of capital investment requirements across all periods. These projections and estimates are based on asset replacement costs and age analysis. They are

6.5 Forecasted Long-Term Replacement Needs (Continued)

designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

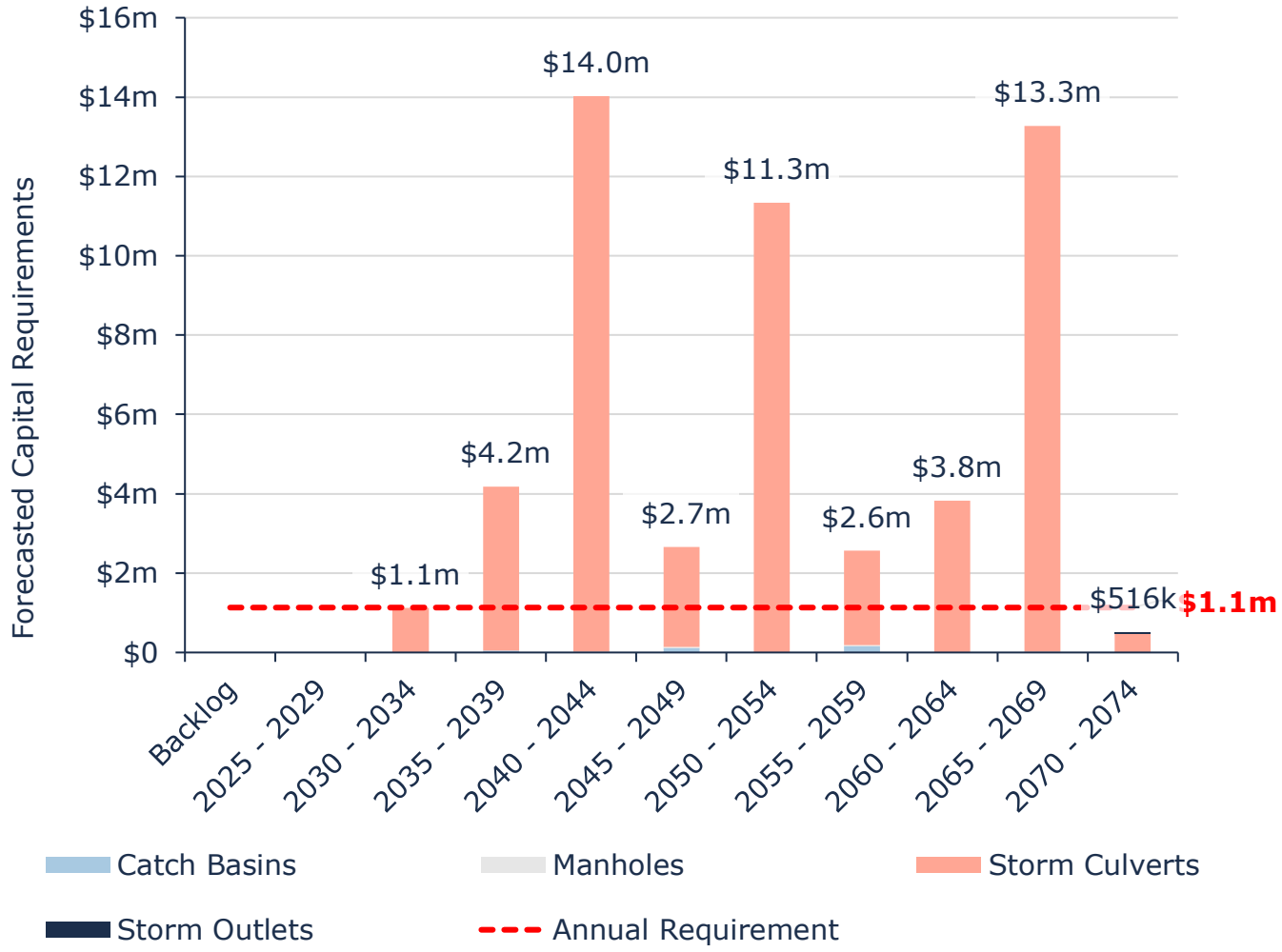


Figure 32 Forecasted Capital Replacement Needs Stormwater Network 2024-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, further inspection closer to scheduled replacement dates may indicate that not all assets require replacement as projected. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves.

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, replacement costs, and the culvert type (i.e. major road crossing culvert vs. driveway culvert).

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.

As indicated below, most of the stormwater networks' assets are very low risk. This is in most cases due to them being in good or better condition and therefore holding a low probability of failure combined with a relatively low replacement cost and in most cases having a low consequence of failure crossing type.

1 - 4 **Very Low**	5 - 7 **Low**	8 - 9 **Moderate**	10 - 14 **High**	15 - 25 **Very High**
$26,649,000 (76%)	$6,383,000 (18%)	$615,000 (2%)	$1,649,000 (5%)	- (0%)

Figure 33 Risk Matrix: Stormwater Network

6.6.1 Risks to Current Asset Management Strategies

In addition to quantitative risks noted above, stormwater network assets may hold general risks. The following section summarizes key trends, challenges, and risks to service delivery that the Township is currently facing:

Lifecycle Management Strategies

Lifecycle management for stormwater infrastructure is primarily reactive. Although inspections and routine maintenance are conducted regularly, most culvert replacements occur only after asset failure. Rehabilitation programs are limited, and trenchless repair technologies are not in use. While the Township has recently increased investment in larger projects, the lack of a formal rehabilitation program limits the ability to extend asset life and proactively manage risk.

6.6.1 Risks to Current Asset Management Strategies (Continued)

Asset Data & Information

While stormwater asset condition ratings are in place for culverts, overall data quality and completeness remains an area for improvement. Staff noted that the stormwater inventory is the weakest in terms of data confidence, with gaps in install dates, incomplete inventory coverage, and a need for updated condition assessments. These limitations affect the Township's ability to plan replacements proactively and forecast lifecycle needs with confidence

6.7 Levels of Service

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

6.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description, 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	Based on a 100-year flood plain mapping developed by the Niagara Peninsula Conservation Authority, most properties within the municipality are protected by flooding. Properties that are most vulnerable to flooding are located close to the Welland River. Please refer to Appendix C for a 100-year flood mapping.

Table 19 O. Reg. 588/17 Community Levels of Service: Stormwater Network

6.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Legislative	Percentage of properties in Township resilient to a 100-year storm	~85%[9]
	Percentage of the municipal stormwater management system resilient to a 5-year storm	~75%[10]
Quality	Weighted Average Condition of Assets	64%
Sustainable	Current Reinvestment Rate vs Target Capital Reinvestment Rate	1.03 vs. 3.21%

Table 20 O. Reg. 588/17 Technical Levels of Service: Stormwater Network

[9] At the time of this reports publication the best available information is provided by the Niagara Peninsula Conservation Authority and their Floodplain Mapping GIS dataset found here. The reported figure is based on very generalized estimates drawn from the referenced map. The data mapped reflects the floodplains based on a 100-year storm event.
[10] The Township estimates that approximately 75% of the Stormwater Infrastructure meets 5-year storm requirements.

6.8 Recommendations

Asset Inventory

- Regularly review the asset inventory to ensure it accurately reflects assets in ownership.
- Where possible, determine the in-service dates of storm water culverts and ensure that a data collection and reporting process is developed for all new assets so that requisite fields like in-service data are collected alongside other relevant data attributes like diameter and material.

Condition Assessment Strategies

- Through this project staff have completed condition-based assessments for most stormwater network assets. On an annual basis, review and update condition information.
- Works towards a documented condition standard reference file that details the applicable condition scale with associated definitions and reference material (i.e. photographic examples), assessment tools, assessment frequency, and documentation and update responsibilities.

Lifecycle Management Strategies

- It is noted that there is no formal rehabilitation program at present and that this can create a reactive approach. It is recommended that staff work towards a more proactive program which could consider the use of regular inspections and associated reporting to proactively identify and monitor issues and enable timely and planned interventions.

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review and as appropriate adjust risk models on a regular basis.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17 and those metrics that the Township believes to provide meaningful and reliable inputs into asset management planning.
- Mandated LOS metrics have been estimated, opportunities to enhance the clarity of this measure exist and it is recommended that they be explored further.
- As part of the current level of service collection process, retain historical performance information and work to understand the nature and cause of identified trends.

Non-Core Assets

7. Buildings

The Township's buildings portfolio includes fire stations, various administrative and public works facilities, as well as recreational assets. The total current replacement of buildings is estimated at more than $46.6 million.

7.1 Inventory & Valuation

Table 21 summarizes the quantity and current replacement cost of all building assets available in the Township's asset register. In 2025 external condition assessments were conducted for buildings. Rather than representing the building as one single asset, major building components (i.e. substructure, interiors, services etc.) were identified based on the Uniformat I standard and specific estimated useful life and condition information was applied. The quantity listed represents the number of building components based on Uniformat Level 1 standards.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Administration	14	Quantity	$7,813,590	User-Defined
Fire	18	Quantity	$14,849,000	User-Defined
Public Works	6	Quantity	$7,590,125	User-Defined
Recreation & Culture	24	Quantity	$16,421,250	User-Defined
TOTAL			**$46,673,965**	

Table 21 Detailed Asset Inventory: Buildings

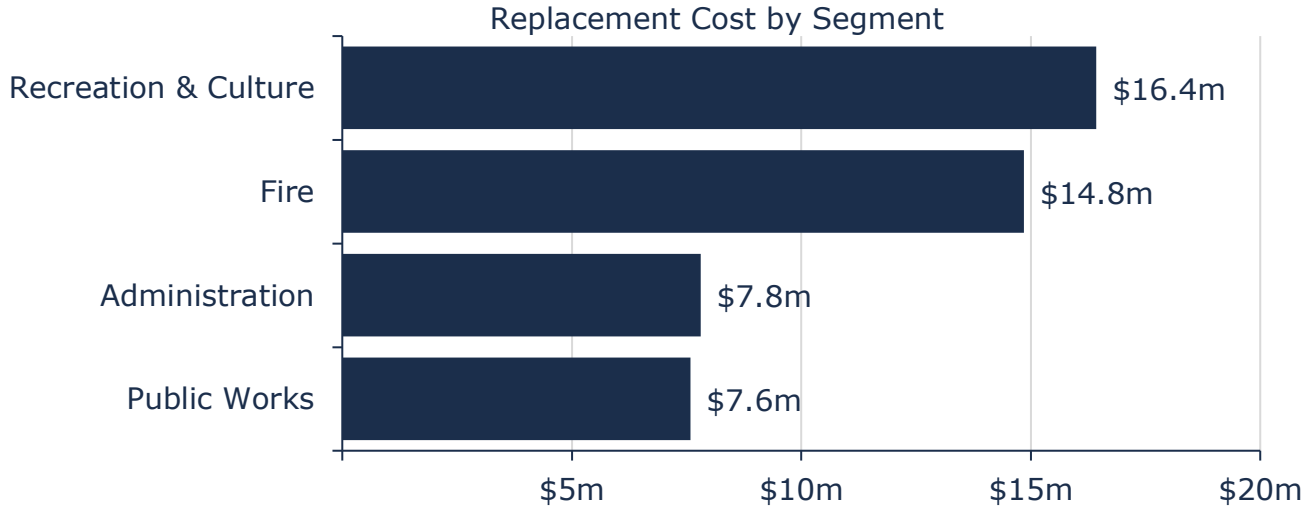


Figure 34 Portfolio Valuation: Buildings

7.2 Asset Condition

Figure 35 summarizes the replacement cost-weighted condition of the Township's buildings portfolio. Based on assessed condition data, 86% of buildings assets are in fair or better condition; however, 14%, with a current replacement cost of more than $6.7 million are in poor condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

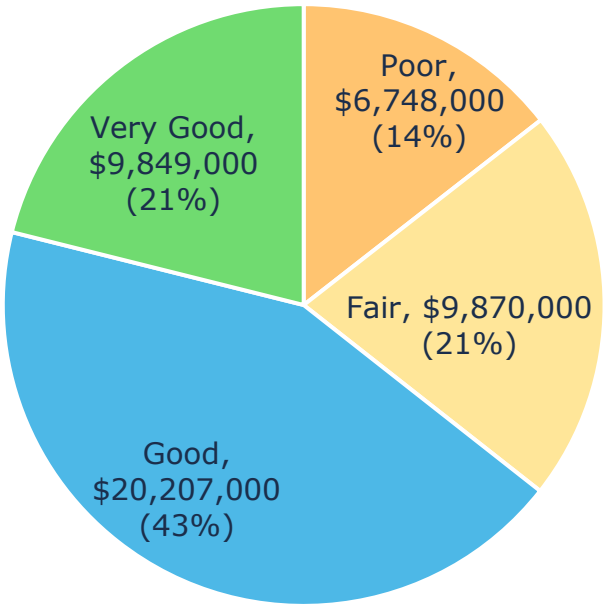


Figure 35 Asset Condition: Buildings Overall

Figure 36 summarizes the assessed condition of buildings by segment. A substantial portion of fire assets are in very good condition with the balance in poor condition.

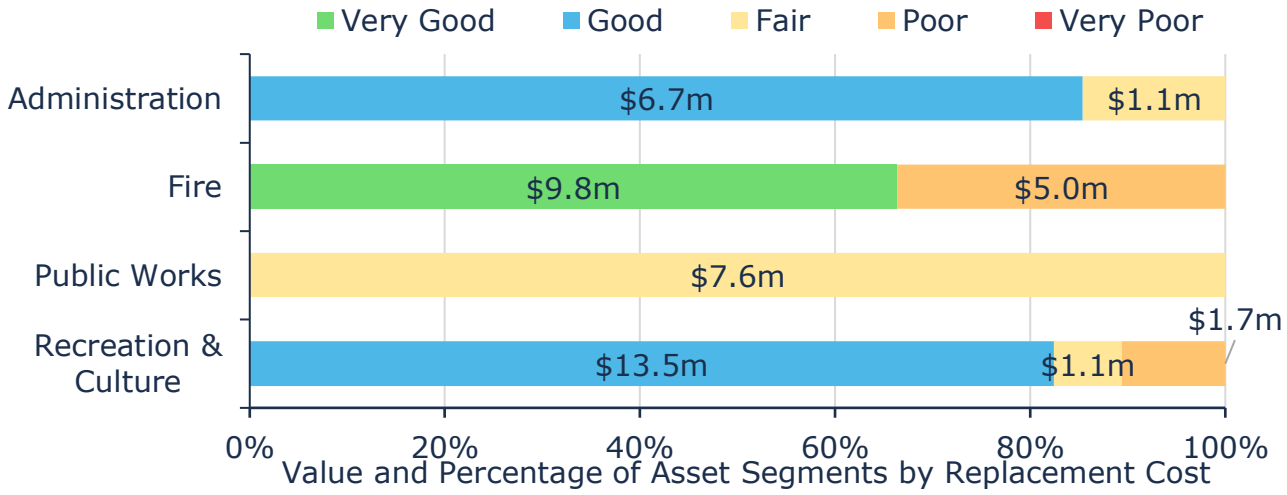


Figure 36 Asset Condition: Buildings by Segment

7.3 Age Profile

The following tables summarize the average age of the building assets by segment. Average age is weighted by replacement cost.

Segment	Average Age (years)
Administration	35.6
Fire	18.8
Public Works	32.0
Recreation & Culture	27.7

While building assets are on average aged relative to their estimated useful life, the results of the Building Condition Assessments indicate that overall, the assets are in good condition. In many cases, this is reflective of lifecycle management activities, especially rehabilitations and component level replacements that have improved their condition.

7.4 Current Approach to Lifecycle Management

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

Table 22 outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Inspections	Buildings are assessed externally every 10 years, with the current cycle underway. Internal staff perform visual walkthroughs annually, with the most recent internal inspections completed in April 2025. Facility Condition Index (FCI) and Uniformat categorization are used, along with a Good/Fair/Poor condition scale.
Maintenance	Routine maintenance activities include annual inspections, HVAC repairs, quarterly ESA inspections, roof replacements, and retrofits. Maintenance is triggered by inspections, internal and external concerns, and assessment recommendations. Minor repairs are addressed through the operating budget. The estimated annual maintenance of buildings is $142,000 (excluding capital and wages).
Rehabilitation	Rehabilitation activities typically include roof and HVAC system replacements. These are initiated based on inspection findings, consultant recommendations, and available budget. Roofs are often replaced every 15–20 years.
Replacement	Replacement is considered when conditions have significantly deteriorated or when rehabilitation and maintenance are no longer cost-effective. Assets nearing end-of-life or presenting unacceptable failure risk are prioritized. Budgeting decisions are informed by condition assessments, risk levels, and capital planning needs. Contingency reserves are available.

Table 22 Lifecycle Management Strategy: Buildings

7.5 Forecasted Long-Term Replacement Needs

Figure 37 illustrates the cyclical short, medium and long-term infrastructure replacement requirements for the Township's buildings portfolio. This analysis was run until 2075 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 $2.1 million for all buildings. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure

7.5 Forecasted Long-Term Replacement Needs (Continued)

projects are not deferred, and replacement needs are met as they arise.

Replacement needs are forecasted to begin in 2026, with no current backlog identified. The highest investment period occurs between 2041–2045, with $19.7 million required, largely driven by Recreation & Culture, Fire, and Administration facility renewals. Other significant peaks are projected in 2036–2040 ($7.5 million), 2026–2030 ($6.9 million), and 2061–2065 ($7.2 million). Lower requirement periods are observed in 2046–2050 ($163k) and 2056–2060 ($106k), reflecting limited replacement activity in those years.

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.

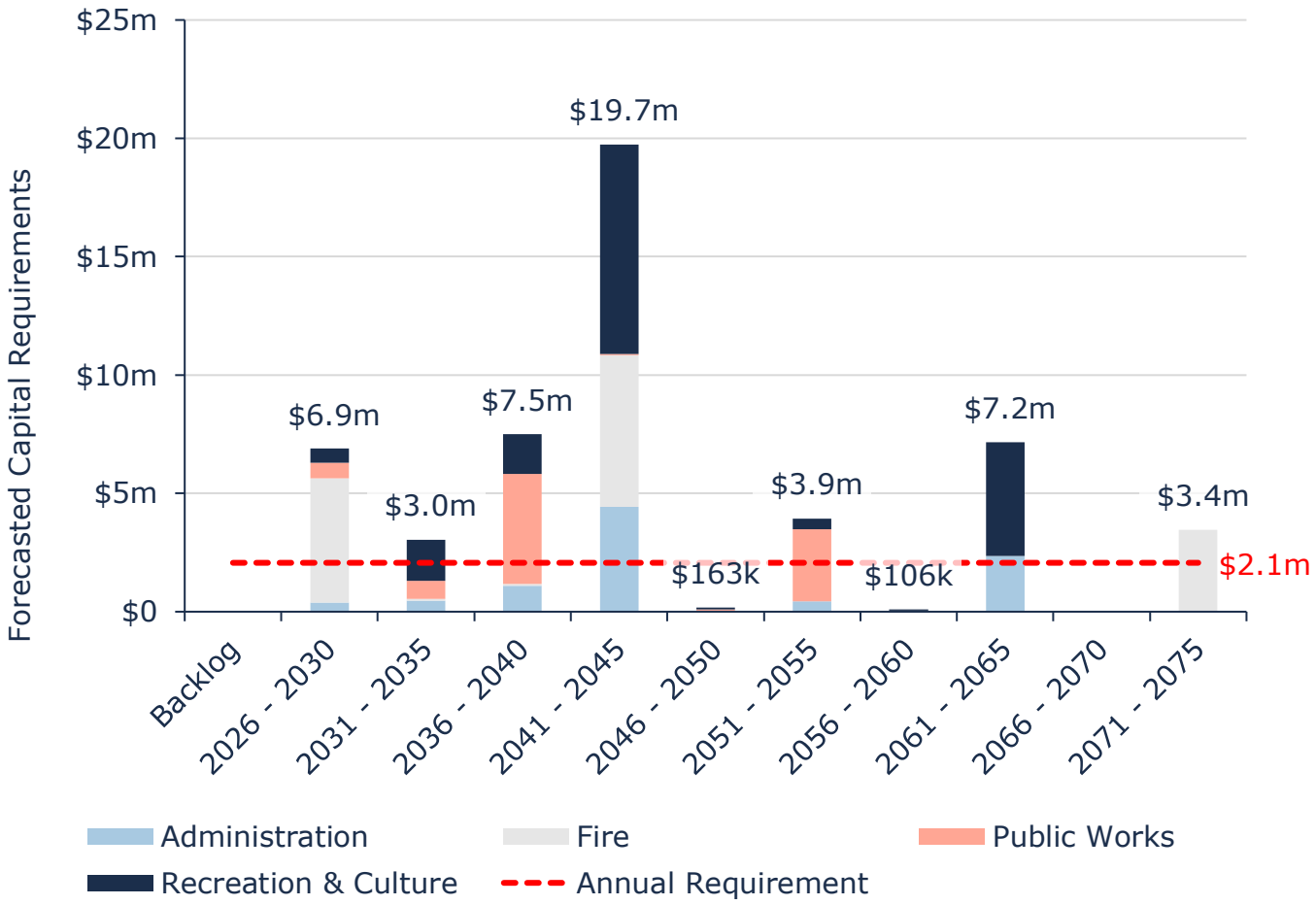


Figure 37 Forecasted Capital Replacement Needs Buildings 2024-2075

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

7.5 Forecasted Long-Term Replacement Needs (Continued)

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.

7.6 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.

Overall, risk scores are distributed across all five levels, but they are most concentrated in the moderate rating. Assets with a moderate score generally have a fair asset condition resulting in a low probability of failure and combined with a mid-range replacement cost and serving an important but not critical function.

1 - 4 **Very Low** $9,999,000 (21%)	5 - 7 **Low** $602,000 (1%)	8 - 9 **Moderate** $20,082,000 (43%)	10 - 14 **High** $10,280,000 (22%)	15 - 25 **Very High** $5,711,000 (12%)

Figure 38 Risk Matrix: Buildings

7.6.1 Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Township is currently facing:

Aging Infrastructure

A significant portion of the Township's building portfolio is approaching or has reached the end of its expected useful life. Facilities such as public works buildings, fire halls, and the Town Hall are currently in fair or poor condition. Several of these structures were not originally designed with future expansion or modernization in mind, and ongoing asset condition data confirms a growing backlog of rehabilitation and replacement needs. While newer facilities (e.g., arena, central fire hall, and renovated community buildings) are in good condition, legacy infrastructure presents increasing risk related to asset failure, cost escalation, and service disruption.

Climate Change & Extreme Weather Events

Extreme weather conditions continue to have a notable impact on building infrastructure due to the Township's proximity to Lake Erie. High winds, flooding, and excessive rain events contribute to accelerated roof and structural wear. These environmental stressors present a growing challenge to long-term durability and planning, particularly for buildings with aging roofs and envelope systems.

7.7 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.

7.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Appropriate actions and interventions are taken to ensure the regular safe use of building assets. Building assets are diverse and serve the needs of residents and the operations of the Municipality.	Building assets are predominately composed of Fire Halls, parks and recreation assets like the arena, community hall, and the library, and administrative buildings such as the Town Hall and Operation building. Using assessed condition, building assets range in condition from poor (25%) to very good (95%) condition and are on average in good (67%) condition. As outlined in 7.4, staff regularly inspect buildings to ensure they are in safe, functioning order, and recent projects have enhanced and formalized staff's understanding of buildings near and long-term needs.
Accessibility	There are long-term plans in place for the renewal and replacement of facilities assets.	Facility asset rehabilitation and replacement decisions are predominantly based on identified needs from the building condition assessment, additionally, staff consider occupant health and safety, legislative compliance, and cost and construction feasibility.

Table 23 Community Levels of Service: Buildings

7.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Quality	Weighted Average Condition of Assets	67%
Sustainable	Current Reinvestment Rate vs Target Capital Reinvestment Rate	1.42 vs. 4.43%

Table 24 Technical Levels of Service: Buildings

7.8 Recommendations

Asset Inventory

- Regularly review the asset inventory to ensure it accurately reflects asset information.
- Work towards the collection of critical HVAC and electrical assets model and make information and update the asset inventory to reflect these details. This ensures that important reference information is available in the central asset registry. As a first step, review reports which may hold some of these details.

Condition Assessment Strategies

- The Township has componentized their buildings to the Uniformat level 1 category. This provides significant improvements from the asset level listing used previously. Further details can be obtained through use of Uniformat level 2 or 3 categorization. Consider this standard of detail when the next assessment is completed.
- As a regular practice review and update condition information, especially following capital projects

Lifecycle Management Strategies

- Using the enhanced detail from the recently completed Building Condition Assessments work towards long-term capital forecasting and project planning. Wherever possible and beneficial, leverage opportunities for project synchronization across multiple buildings to obtain efficiency and cost benefits. For example, replacing multiple roof systems.

Risk Management Strategies

- Review and consider risk results as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine the cause of their risk score and to identify appropriate risk mitigation strategies.

Levels of Service

- Regularly measure current levels of service. In time, review historic level of service metrics to identify trends and then to work towards understanding the cause of the trends and resultant actions, if any.

8. Land Improvements

The Township's land improvements portfolio includes basic structures and sitework, monuments, playgrounds, sport fields & courts. The total current replacement of land improvements is estimated at approximately $2.8 million.

8.1 Inventory & Valuation

Table 25 summarizes the quantity and current replacement cost of all land improvements assets available in the Township's asset register. Basic Structures & Sitework accounts for the largest share of the land improvements asset group.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Basic Structures & Sitework	14	Quantity	$1,316,845	CPI
Monuments	4	Quantity	$106,075	CPI
Playgrounds	1	Quantity	$71,025	CPI
Sport Fields & Courts	17	Quantity	$1,309,812	CPI
TOTAL			**$2,803,757**	

Table 25 Detailed Asset Inventory: Land Improvements

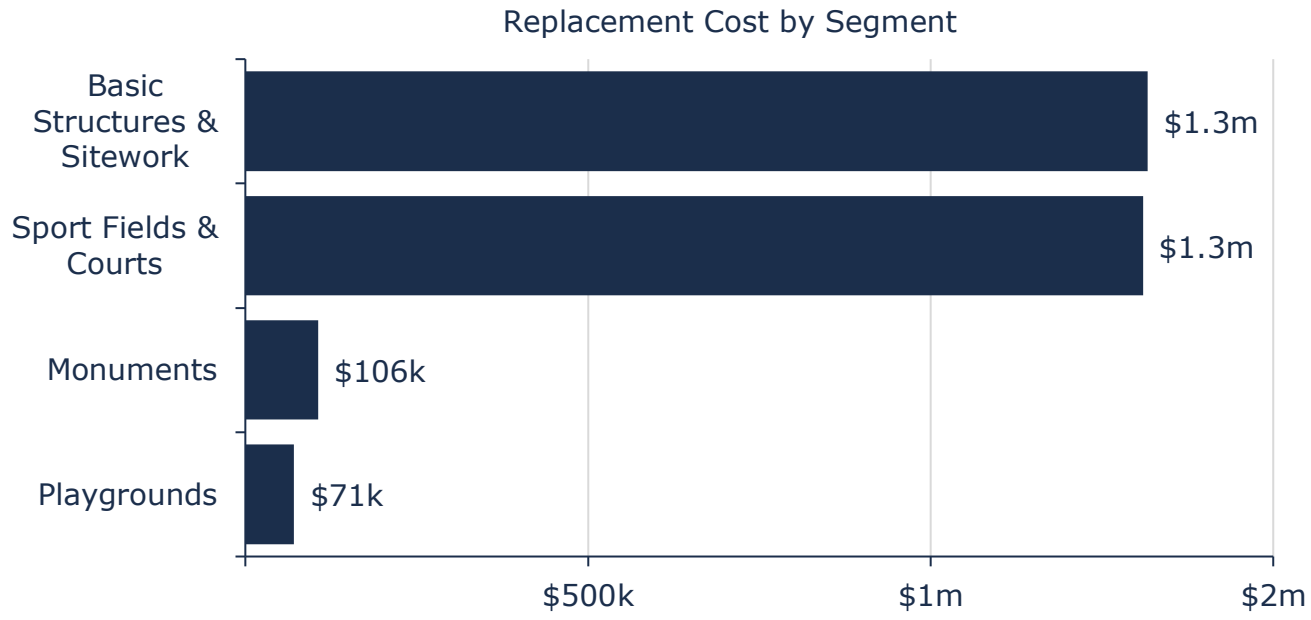


Figure 39 Portfolio Valuation: Land Improvements

8.2 Asset Condition

Figure 40 summarizes the replacement cost-weighted condition of the Township's land improvements portfolio. Based on age data only, 68% of assets are in fair or better condition, the remaining 32% 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.

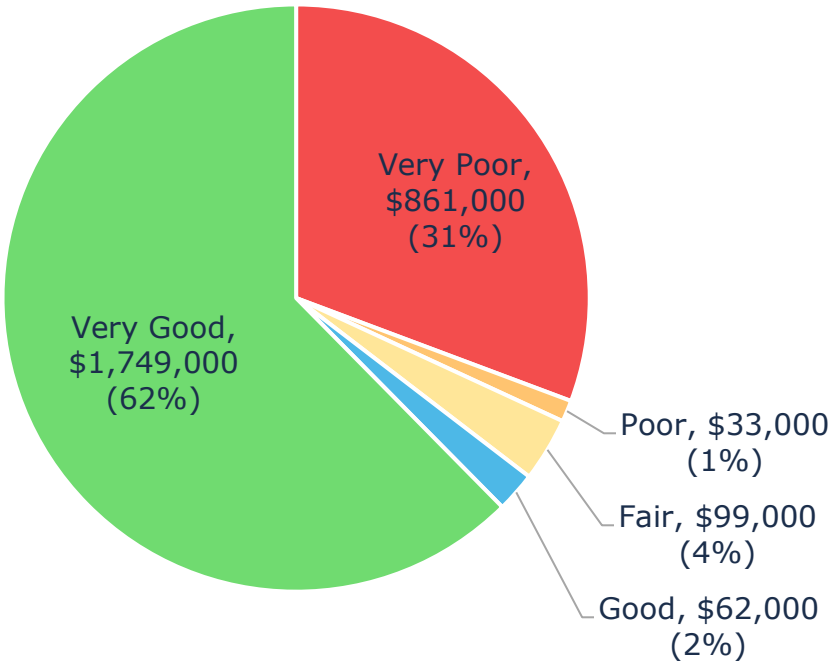


Figure 40 Asset Condition: Land Improvements Overall

Figure 41 summarizes the age-based condition of land improvements by each department. As indicated, the playground segment is entirely in very poor condition. There is only one playground that this reflects, and the condition is based on the assets age and its estimated useful life. As the asset remains safe and in functional use, the condition is mostly reflective of it being aged rather than causing undue risks to users.

8.2 Asset Condition (Continued)

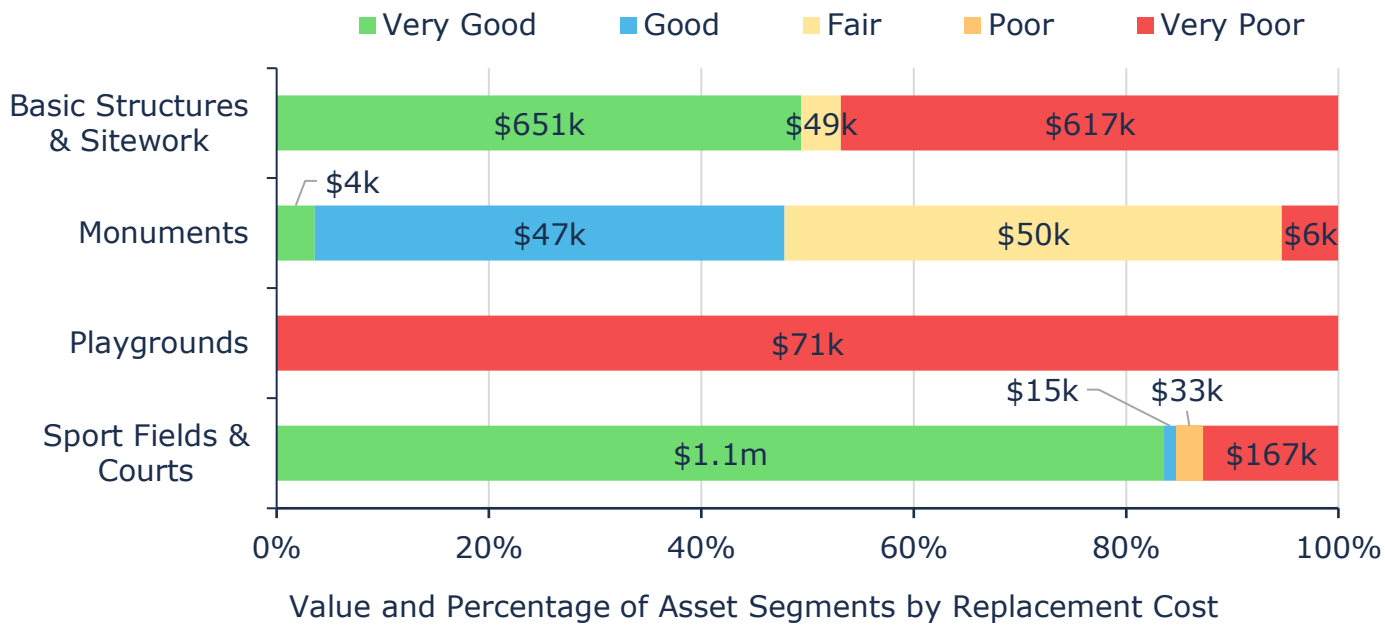


Figure 41 Asset Condition: Land Improvements by Segment

8.3 Age Profile

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

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

Figure 42 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.

8.3 Age Profile (Continued)

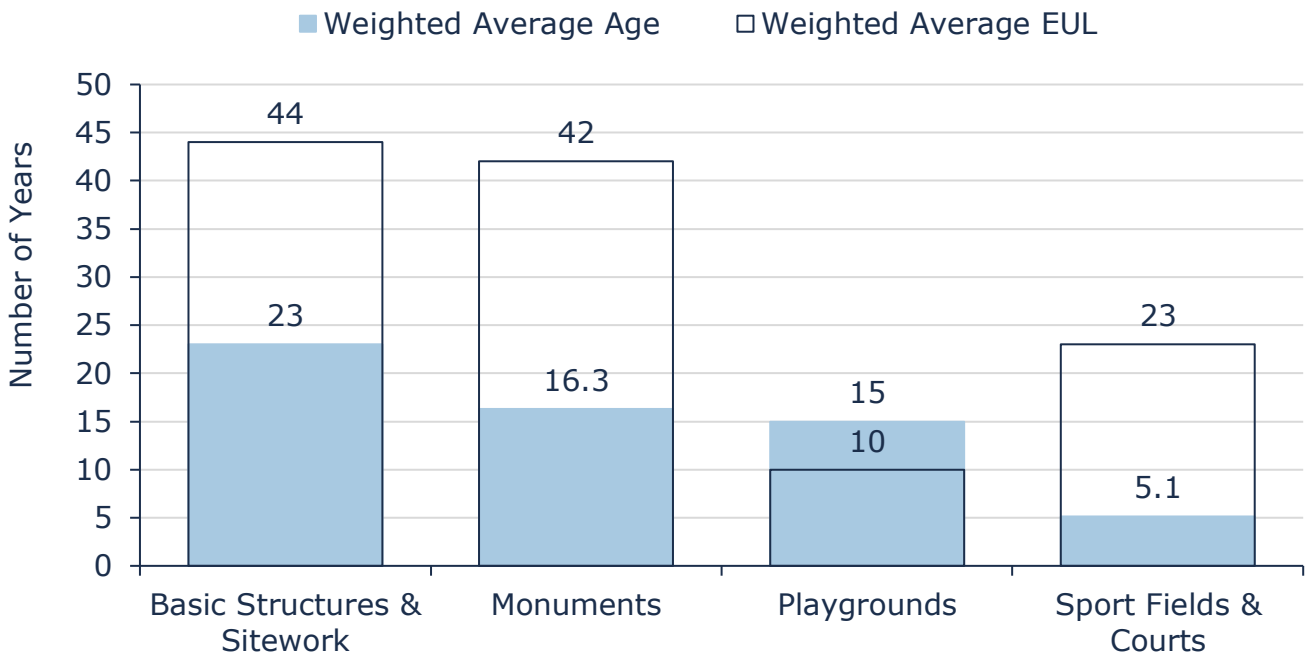


Figure 42 Estimated Useful Life vs. Asset Age: Land Improvements

Age analysis reveals that, on average, most land improvement assets have a significant proportion of service life remaining. The exception is the playground which as noted in section 8.2 above relies on an age-based condition.

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.

Table 26 outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Inspections	Land improvement assets are assessed annually in the spring by internal staff. Playground structures are inspected monthly. A Good–Fair–Poor condition scale is used to rate assets.
Maintenance	Routine maintenance activities include monthly inspections, monthly cleaning and minor repairs, and weekly vegetation management for lawns, parks, gardens, and sports fields. Maintenance is triggered by inspection findings, vegetation overgrowth, and resident or staff concerns. Estimated annual operating cost for land improvement assets is $53,000 (excludes wages and benefits but includes fuel, insurance, and materials).
Rehabilitation	Rehabilitation activities include fence repairs as required, parking lot grading, replacement of playground components, and field improvements at sports complexes. These actions are based on inspection findings and budget availability
Replacement	Replacement is considered when asset conditions have significantly deteriorated and when repair or rehabilitation is no longer cost-effective. Priority is given to assets in poor condition or with high failure consequences. Additional factors include usage, political sensitivity, and availability of grants or matching funds

Table 26 Lifecycle Management Strategy: Land Improvements

8.5 Forecasted Long-Term Replacement Needs

Figure 43 illustrates the cyclical short, medium, and long-term infrastructure replacement requirements for the Township's land improvements portfolio. This analysis was run until 2074 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 $123,000 for all land improvements. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Replacement needs are forecasted to fluctuate over the 50-year time horizon, totaling nearly slightly less than $1 million in the current decade. Overall, there are spikes every other

8.5 Forecasted Long-Term Replacement Needs (Continued)

year; for example, in 2030-2034 the 5-year capital cost is $335,000 (low) and then the next 5-year period it spikes to $787,000 (high) with the trend continuing until 2074. Most of the costs across anytime period are associated with fields and courts which correspond with their large proportion of replacement cost for the land improvements category.

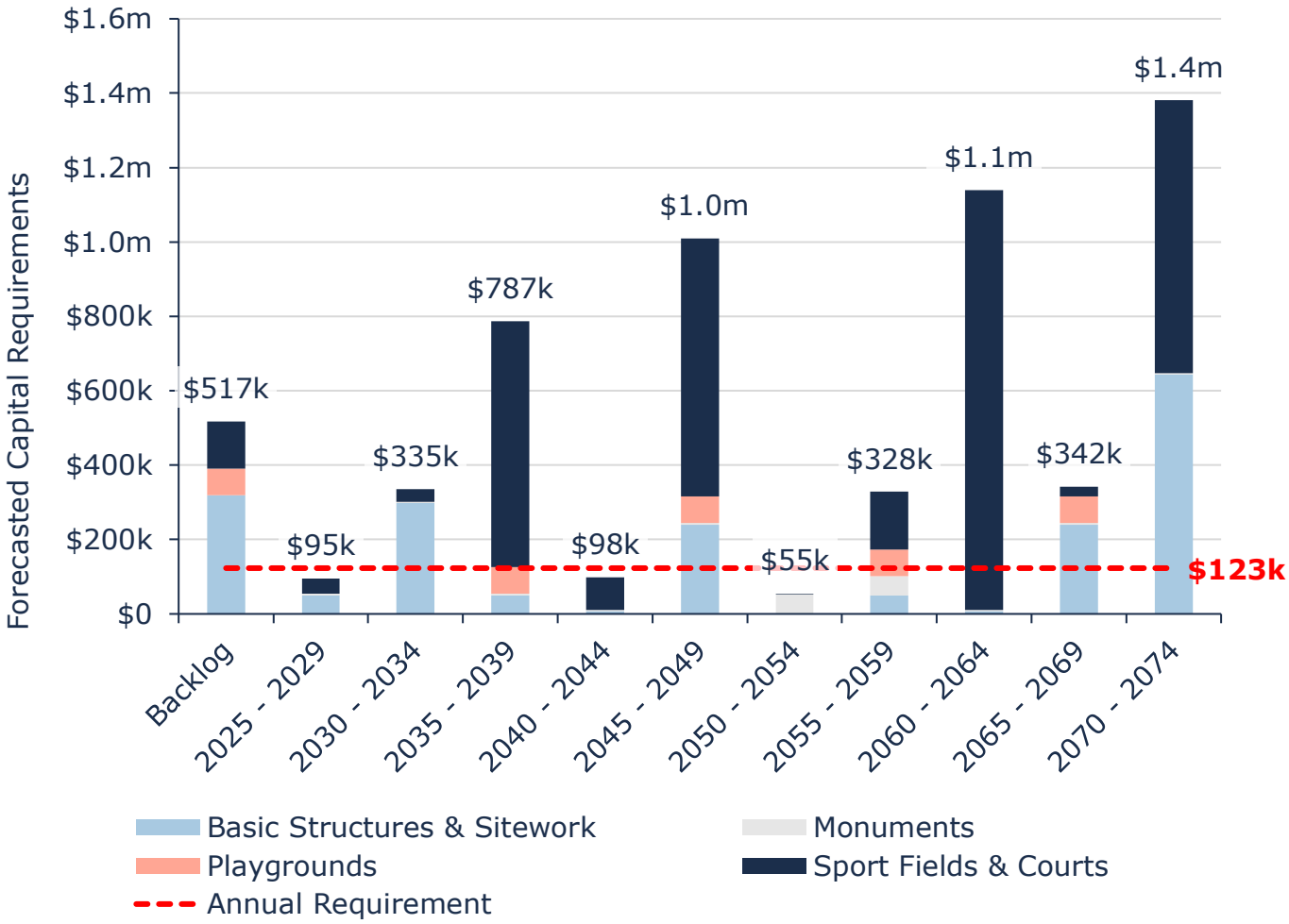


Figure 43 Forecasted Capital Replacement Needs: Land Improvements 2024-2074

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, further onsite inspections (especially in future dates) may reveal that not all assets may need replacement at that time. 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.

8.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service replacement costs, and the function served (i.e. monuments vs playing 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.

As indicated below the majority (65%) of land improvement assets are identified as very low risk. In most cases this is due to the assets being in good condition and therefore having a low probability of failure. As these assets rely on age-based condition, this indicates the assets age is much less than their estimated useful life. This low probability of failure is combined with a low consequence of failure mostly due to a modest replacement cost and a low impact functionality.

1 - 4 **Very Low** $1,811,000 (65%)	5 - 7 **Low** $167,000 (6%)	8 - 9 **Moderate** $33,000 (1%)	10 - 14 **High** $638,000 (23%)	15 - 25 **Very High** $155,000 (6%)

Figure 44 Risk Matrix: Land Improvements

8.6.1 Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Township is currently facing:

Aging Infrastructure

A portion of the land improvements portfolio is at or nearing the end of its expected useful life. Several park assets, including ball diamonds, playgrounds, and tennis courts, are also flagged as nearing end of life. Past design and material issues, particularly with older recreational assets, are being addressed gradually through replacement projects. These conditions highlight a growing need for structured reinvestment to avoid service disruption, meet safety expectations, and sustain community use.

Capital Funding Strategies

Investment in land improvements is constrained by budget limitations and reliance on external funding. While minor repairs are supported through the operating budget, major capital improvements are often dependent on grant opportunities. Assets identified as poor or failing may be deferred when matching funds are not available, increasing the risk of further deterioration and reactive interventions.

8.7 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.

8.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Quality	Description, which may include maps, of land improvement assets that the municipality operates and maintains.	The Township owns and operates a variety of land improvement assets including tennis courts, baseball diamonds, playgrounds, soccer fields, and cemetery assets.
Sustainable	There are long-term plans in place for the renewal and replacement of land improvement assets.	The Township has identified the long-term capital investment needs for their land improvement assets. Land improvement capital investment projects are formally and publicly identified one year in advance and typically internally identified up to 10 years in advance.

Table 27 Community Levels of Service: Land Improvements

8.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Quality	Weighted Average Condition of Assets	65%
Sustainable	Current Reinvestment Rate vs Target Capital Reinvestment Rate	1.41% vs. 4.39%

Table 28 Technical Levels of Service: Land Improvements

8.8 Recommendations

Asset Inventory

- Regularly review the asset inventory to ensure it accurately reflects assets in ownership. Specifically, review the shore wall inventory to ensure that all assets are captured and that relevant data and information is appended to the assets.

Condition Assessment Strategies

- Currently, assets rely on age-based condition assessments. Consider the implementation of a standardized condition assessment program.
- Works towards a documented condition standard reference file that details the applicable condition scale with associated definitions and reference material (i.e. photographic examples), assessment tools, assessment frequency, and documentation and update responsibilities.

Lifecycle Management Strategies

- It was noted that the Township has historically been reliant on grant funding for capital investments. While this remains an important funding strategy it should be supported by sustainable capital investment that provides reliable funding that supports long-term capital planning. As part of the lifecycle management strategy, review the funding allocations and sources.

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models (when applicable), on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

- Begin measuring and collecting current levels of service information. Over the long-term review trends in current level of service performance and work towards understanding the cause of trends and as appropriate strategies to manage problematic trends.

9. Fleet

The Township's fleet portfolio includes 51 assets that support a variety of general and essential services, including public works, building & by-law, drainage, recreation & culture, roads, and fire services. The total current replacement of fleet is estimated at approximately $12 million.

9.1 Inventory & Valuation

Table 29 and Figure 45 summarizes the quantity and current replacement cost of all fleet assets available in the Township's asset register. Public works and fire services account for the largest share of the fleet portfolio.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Building & By-Law	2	Quantity	$78,000	User-Defined
Drainage	2	Quantity	$560,000	User-Defined
Fire	13	Quantity	$6,685,000	User-Defined
Public Works	28	Quantity	$4,324,000	User-Defined
Recreation & Culture	6	Quantity	$439,000	User-Defined
TOTAL			**$12,086,000**	

Table 29 Detailed Asset Inventory: Fleet

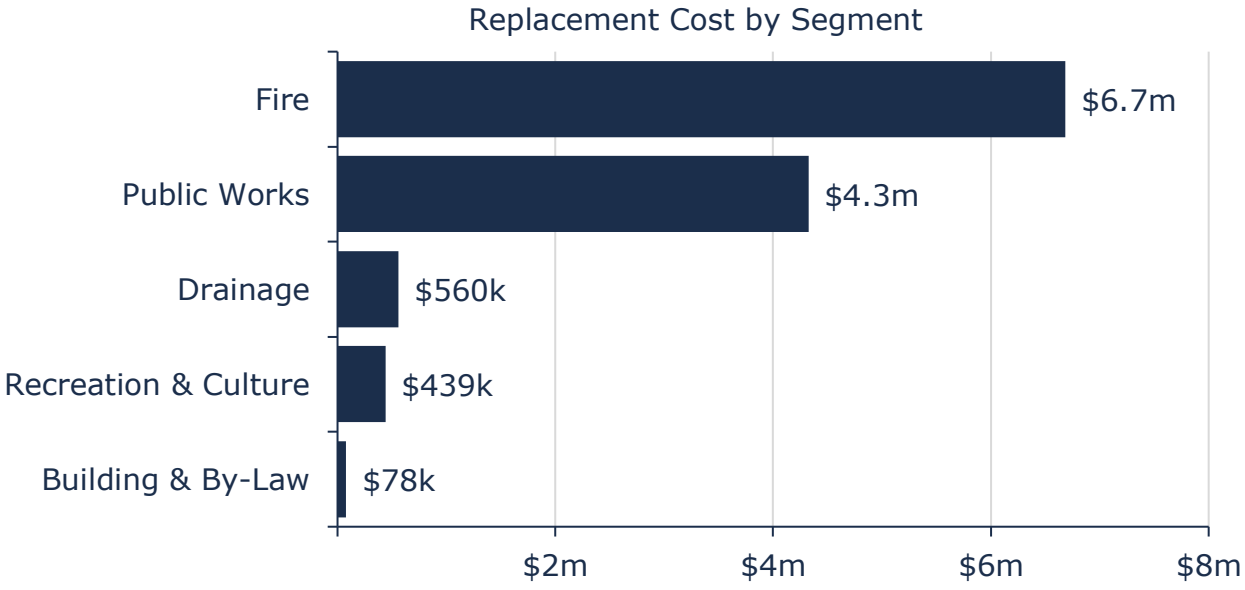


Figure 45 Portfolio Valuation: Fleet

9.2 Asset Condition

Figure 46 summarizes the replacement cost-weighted condition of the Township's fleet portfolio. Based primarily on assessed condition data, 80% of fleet are in fair or better condition, with the remaining 20% in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. Condition data was available for 100% of fleet, based on replacement costs.

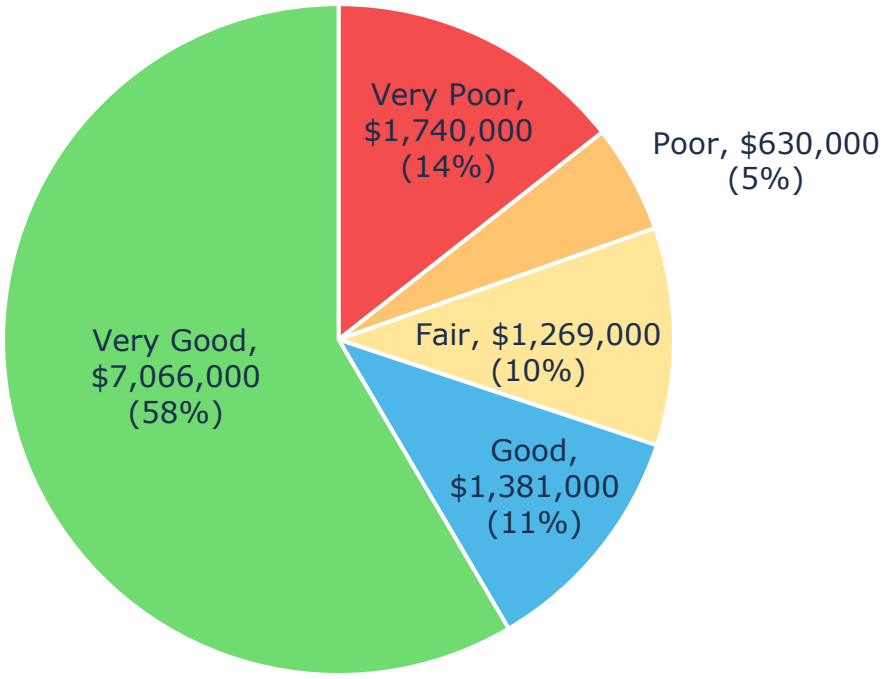


Figure 46 Asset Condition: Fleet Overall

Figure 47 summarizes the condition of fleet by segment. Across all categories except public works and recreation and culture, there is a very high proportion of assets in very good condition. In the fire segment, most assets are in very good condition, however there is notable proportion of assets in very poor condition. In Public Works there is more variation in asset conditions, however most assets are in fair condition or better. In Recreation and Culture, the proportion of assets in fair or higher is just over half (51%) and the average condition in the segment is the lowest of all fleet segments.

9.2 Asset Condition (Continued)

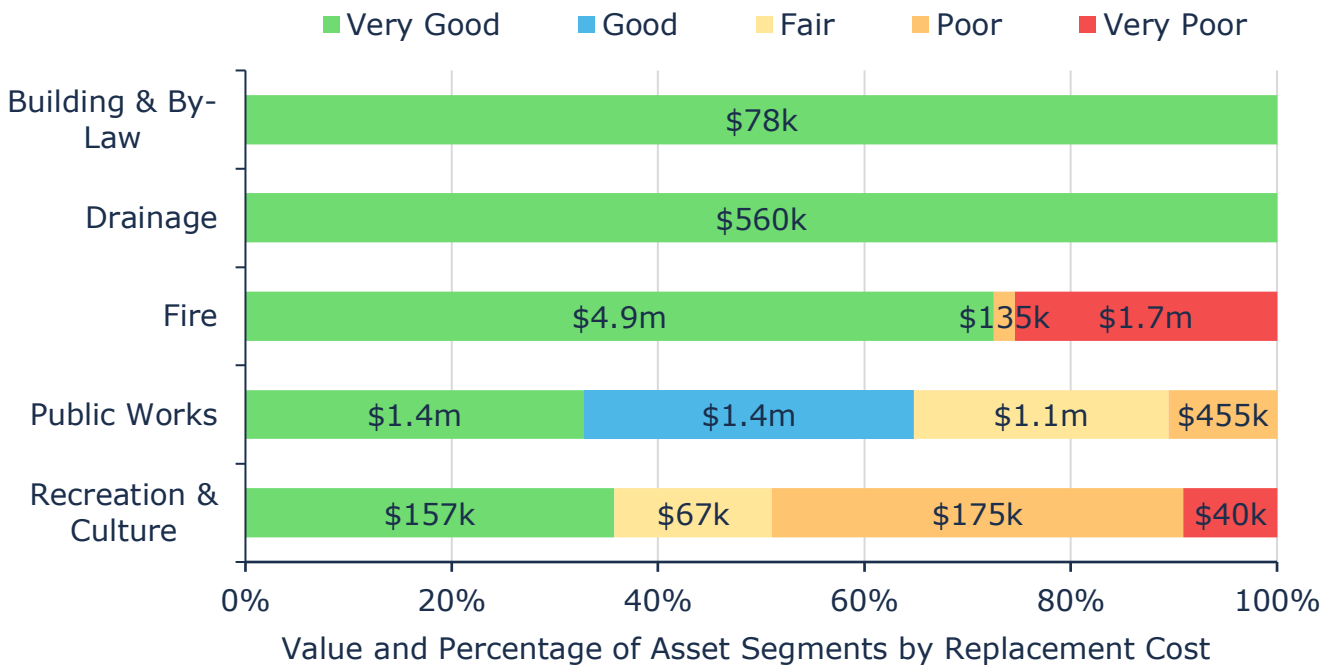


Figure 47 Asset Condition: Fleet by Segment

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 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.

9.3 Age Profile (Continued)

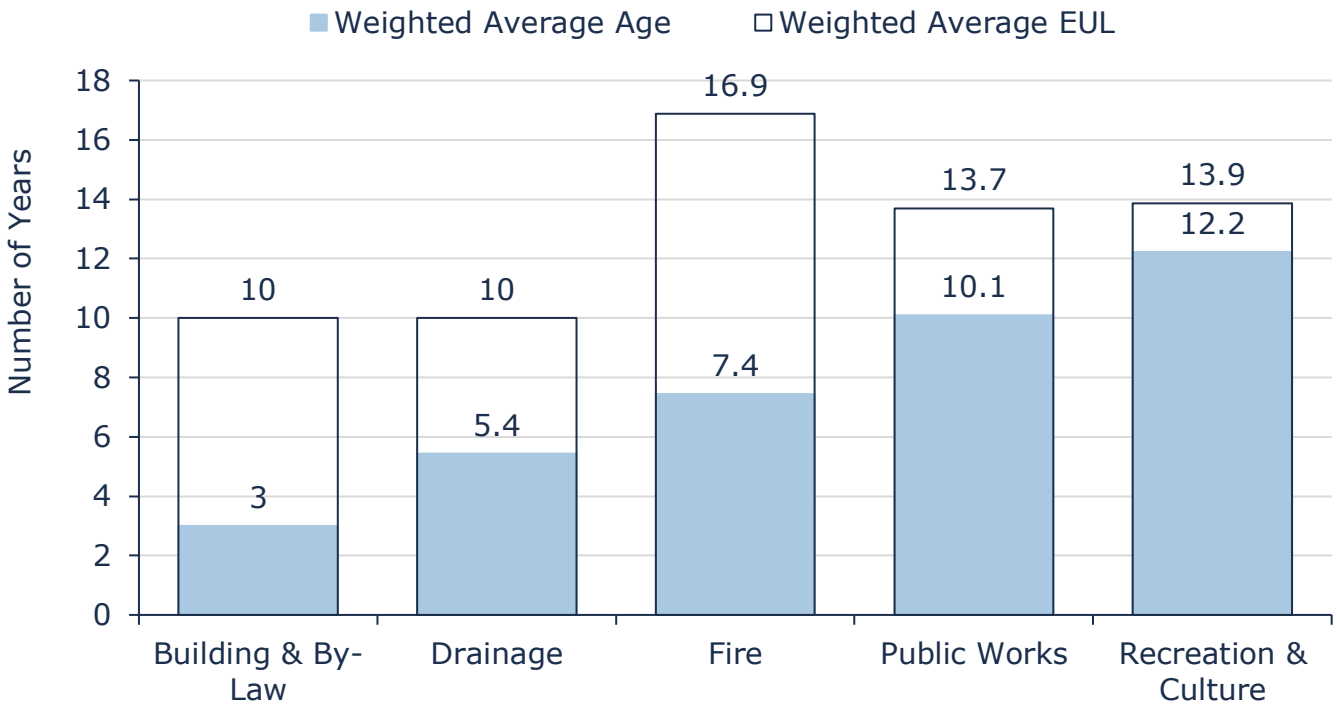


Figure 48 Estimated Useful Life vs. Asset Age: Fleet

Age analysis reveals that, on average, most fleet assets are in the mid to latter stages of their expected life. Assets in recreation and culture are the most aged relative to their estimated useful life.

9.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Inspections	Vehicles are inspected annually for insurance safety compliance (OMVIC)[11], with inspection schedules staggered throughout the year. Daily walk-around inspections are completed by staff before use. Fire vehicles are inspected weekly and post-call. A Good–Fair–Poor rating scale is used informally through the fleet replacement forecast.
Maintenance	Routine maintenance includes daily inspections, tire rotation, minor repairs, and oil changes. Maintenance is triggered by daily inspections or safety/mechanical issues identified during OMVIC checks. Estimated annual maintenance cost frunded through operations is $188,400 (excluding wages and capital).
Rehabilitation	For larger vehicles (e.g., fire trucks, backhoes, zambonis), rehabilitation includes transmission or engine replacements, body work, and pump overhauls when fiscally reasonable. Deck repairs are performed on trailers to extend service life.
Replacement	Replacement is considered when the asset is no longer cost-effective to maintain or presents a significant risk of failure. Priority is given to vehicles with high repair costs, those near end-of-life, or with unacceptable risk levels. Budgeting is influenced by condition, risk, and fleet criticality. Contingency reserves are maintained.

Table 30 Lifecycle Management Strategy: Fleet

9.5 Forecasted Long-Term Replacement Needs

Figure 49 illustrates the cyclical short, medium and long-term infrastructure replacement requirements for the Township's fleet portfolio. This analysis was run until 2044 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 $854,000 for all fleet assets. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark

[11] The Ontario Motor Vehicle Industry Council (OMVIC) is a government delegated authority administering and enforcing laws that motor vehicle dealers and salespeople must follow. OMVIC seeks to protect the public interest by protecting and raising awareness of consumer rights and enhancing industry professionalism for registered motor vehicle dealers and salespeople.

9.5 Forecasted Long-Term Replacement Needs (Continued)

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 next 20 years, peaking at $7.2 million over the period of 2040-2044 as fleet assets reach the end of their useful life. These projections and estimates are based on asset replacement costs and assessed condition. 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.

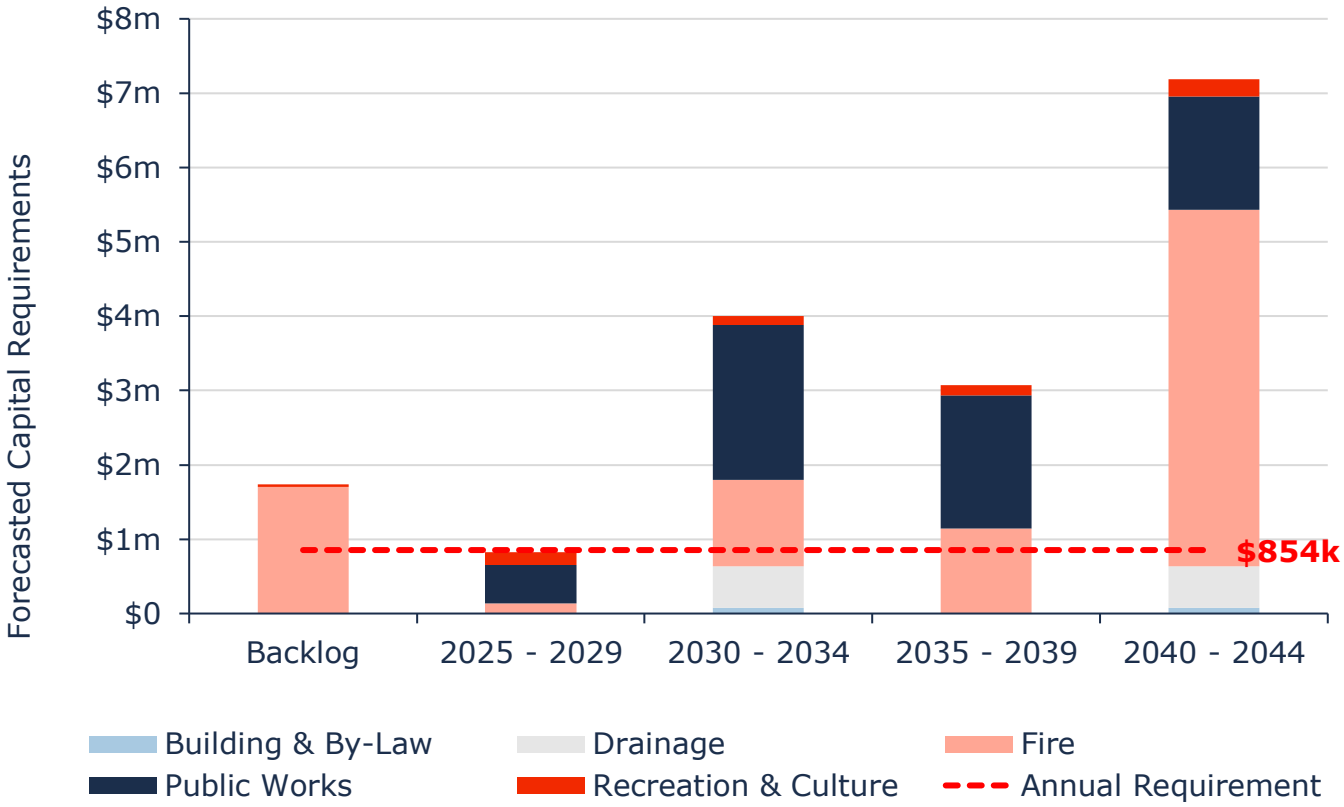


Figure 49 Forecasted Capital Replacement Needs: Fleet 2024-2044

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

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

9.6 Risk Analysis

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

As indicated below, most (55%) fleet assets have a very-low risk rating. Assets with a very high-risk rating are typically in very poor condition, creating a high probability of failure and they carry a high replacement cost and functionality that creates a significant consequence of failure and therefore a high risk overall.

1 - 4 **Very Low** $6,625,000 (55%)	5 - 7 **Low** $1,131,000 (9%)	8 - 9 **Moderate** $1,080,000 (9%)	10 - 14 **High** $1,130,000 (9%)	15 - 25 **Very High** $2,120,000 (18%)

Figure 50 Risk Matrix: Fleet

9.6.1 Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Township is currently facing:

Aging Assets

While the Township has made progress in replacing aging fleet assets, a portion of vehicles remain in poor condition and have been extended beyond their useful lives. These units are currently scheduled for replacement, but budget constraints may delay these actions. Prolonged operation of older assets can increase the likelihood of service interruptions, maintenance costs, and safety risks. Continued reinvestment will be important to reduce long-term operating pressures and maintain reliable service delivery.

Growth

The current fleet is sufficient to meet existing levels of service; however, fleet capacity will need to expand to accommodate future growth. This includes support for fire response, winter control, and road maintenance for new developments. Without fleet expansion planning, new growth may outpace service capacity, placing strain on existing equipment and response time.

9.7 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.

9.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Quality	Appropriate actions and interventions are taken to ensure the regular safe use of fleet assets so that they can reliably provide important services.	The Town conducts regular and routine maintenance activities and daily inspections to ensure that fleet assets operate in a safe and reliable manner and remain in acceptable condition. Further details are provided in Section 9.4. Larger rehabilitations are completed, especially for larger vehicles, to extend their life at the lowest average annual lifecycle cost.
Sustainable	There are long-term plans in place for the renewal and replacement of fleet assets.	The Township has identified the long-term capital investment needs for their fleet assets. This is reflected in their capital investment projections, which are formally and publicly identified one-year in advance and typically internally identified up to 10 years in advance.

Table 31 Community Levels of Service: Fleet

9.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Quality	Weighted Average Condition of Assets	67%
Sustainable	Current Reinvestment Rate vs Target Capital Reinvestment Rate	2.27% vs. 7.07%

Table 32 Technical Levels of Service: Fleet

10. Machinery & Equipment

The Township's machinery and equipment portfolio includes over 1,500 assets that support a variety of general and essential services, including recreation activities and fire services. The total current replacement of machinery and equipment is estimated at approximately $3.7 million.

10.1 Inventory & Valuation

Figure 51 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
Computers & Office	26	Quantity	$541,948	CPI
Drainage	1	Quantity	$57,425	CPI
Fire	1,410	Quantity	$2,517,389	CPI
Public Works	81	Quantity	$443,320	User-Defined
Recreation & Culture	11	Quantity	$139,172	CPI
TOTAL			**$3,699,254**	

Table 33 Detailed Asset Inventory: Machinery & Equipment

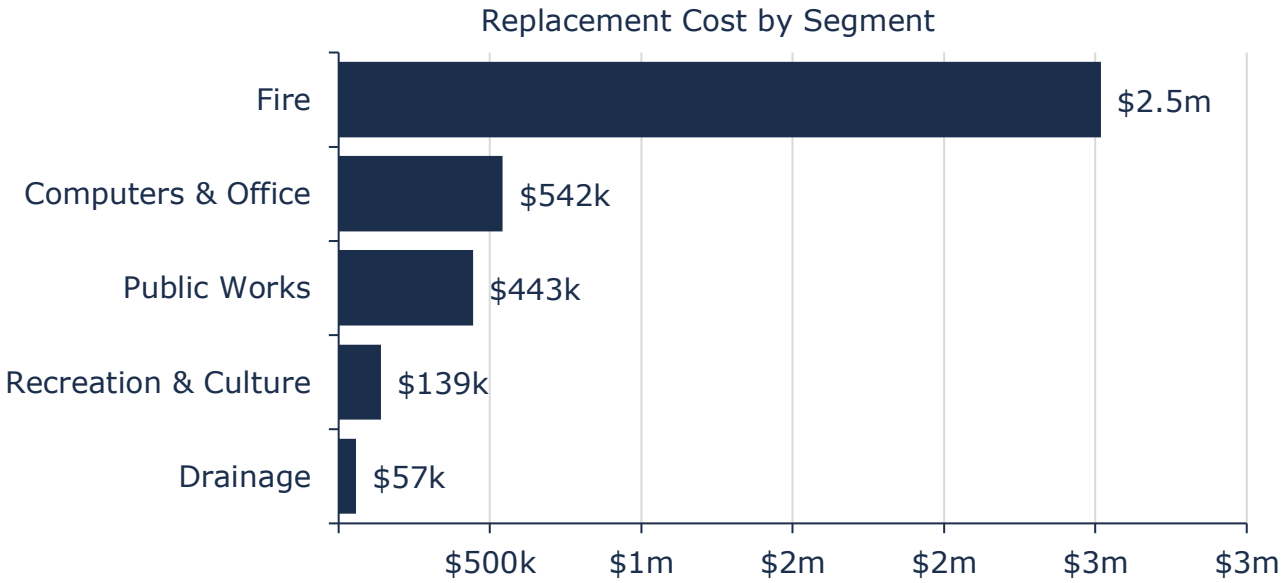


Figure 51 Portfolio Valuation: Machinery & Equipment

10.2 Asset Condition

Figure 52 summarizes the replacement cost-weighted condition of the Township's machinery and equipment portfolio. Based only on age data, 71% of assets are in fair or better condition; the remaining 29% 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.

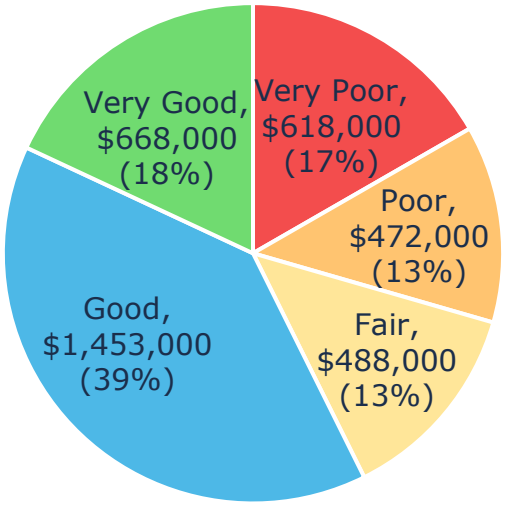


Figure 52 Asset Condition: Machinery & Equipment Overall

Figure 53 summarizes the age-based condition of machinery and equipment by segment. Most assets that support fire services are in fair or better condition. Assets in poor or worse condition are concentrated primarily in the public works and computer and office segment.

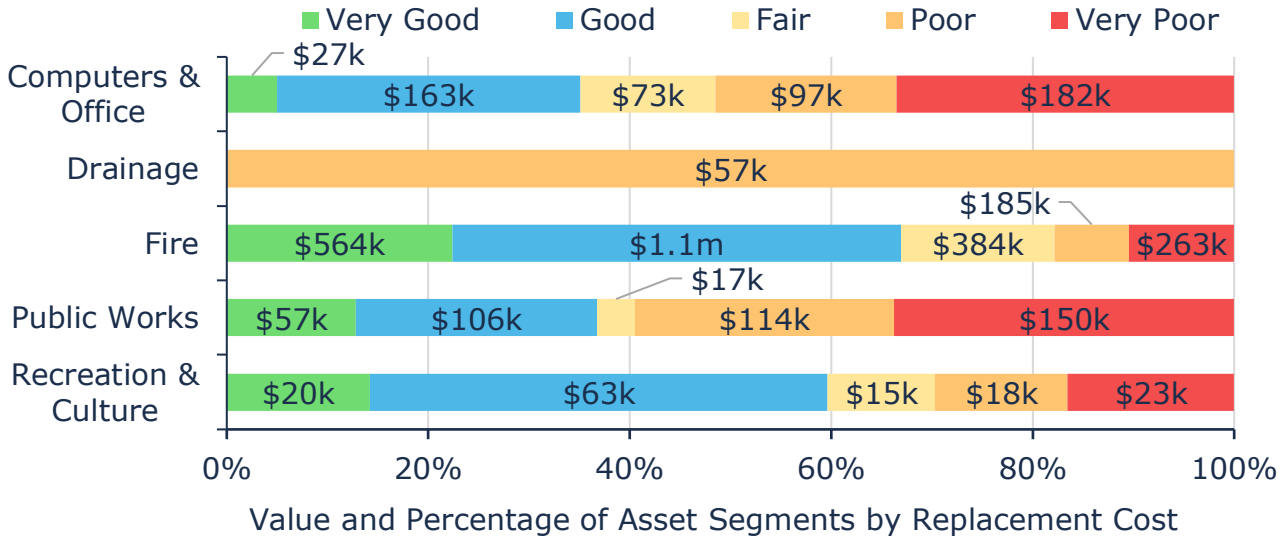


Figure 53 Asset Condition: Machinery & Equipment by Segment

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 54 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.

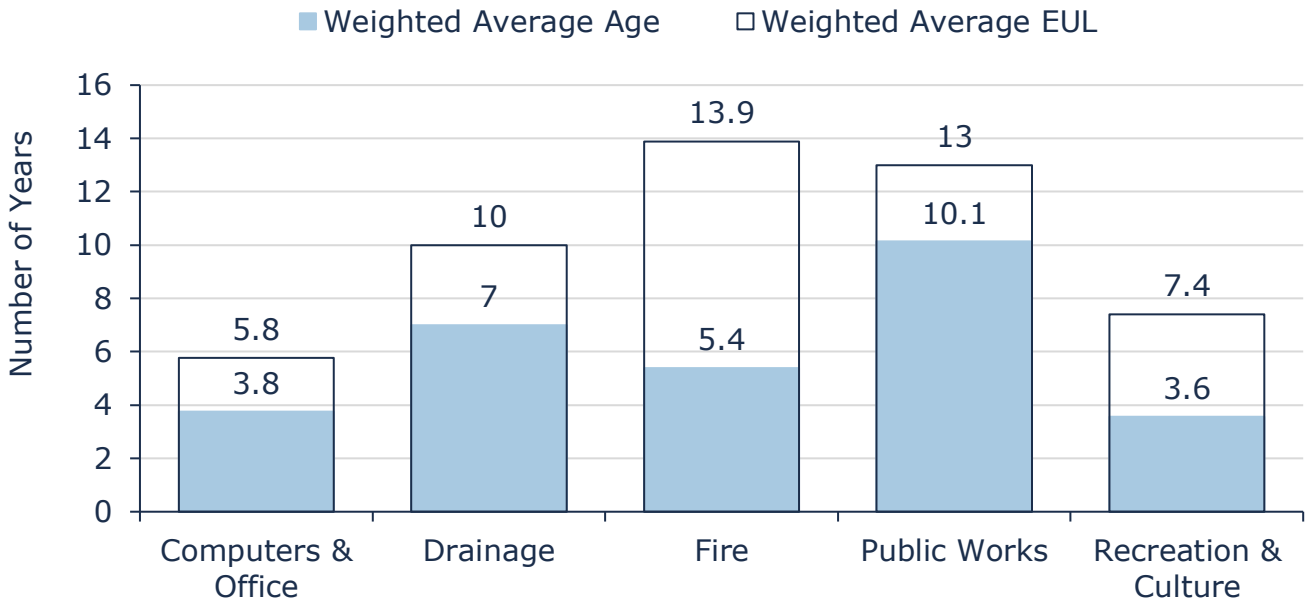


Figure 54 Estimated Useful Life vs. Asset Age: Machinery & Equipment

Age analysis reveals that, on average, with the exception of fire and recreation and culture, most machinery and equipment assets are in the latter stages of their expected life.

10.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Routine maintenance includes inspections, oil changes, and minor repairs. For computer equipment, this includes hardware upgrades and software updates. Maintenance is triggered by staff inspections or public concerns. The estimated annual cost of maintenance activities is $150,000 (excluding wages and capital expenditures).
Rehabilitation	Rehabilitation is undertaken when financially practical. Activities include component upgrades such as engine or deck replacements on mowers, or hardware upgrades for IT equipment (e.g., RAM, SSD).
Replacement	Replacement is considered when conditions have deteriorated significantly, or maintenance is no longer cost-effective. Assets with high likelihood or consequence of failure, or near end-of-life, are prioritized. Budgeting is based on replacement cycles and general conditions, with contingency reserves in place.
Inspections	Machinery and equipment are inspected annually, with daily walk-arounds performed by staff when the equipment is in use. Inspections occur throughout the year, especially during downtime. A Good–Fair–Poor scale is used.

Table 34 Lifecycle Management Strategy: Machinery & Equipment

10.5 Forecasted Long-Term Replacement Needs

Figure 55 illustrates the cyclical short, medium and long-term infrastructure replacement requirements for the Township's machinery and equipment portfolio. This analysis was run until 2049 to capture at least one iteration of replacement for the longest-lived asset. The Township's average annual requirements (red dotted line) total $367,000 for all machinery and equipment. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Replacement needs are forecasted to gradually increase until 2035-2039 and then reduce and stabilize thereafter. 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.

10.5 Forecasted Long-Term Replacement Needs (Continued)

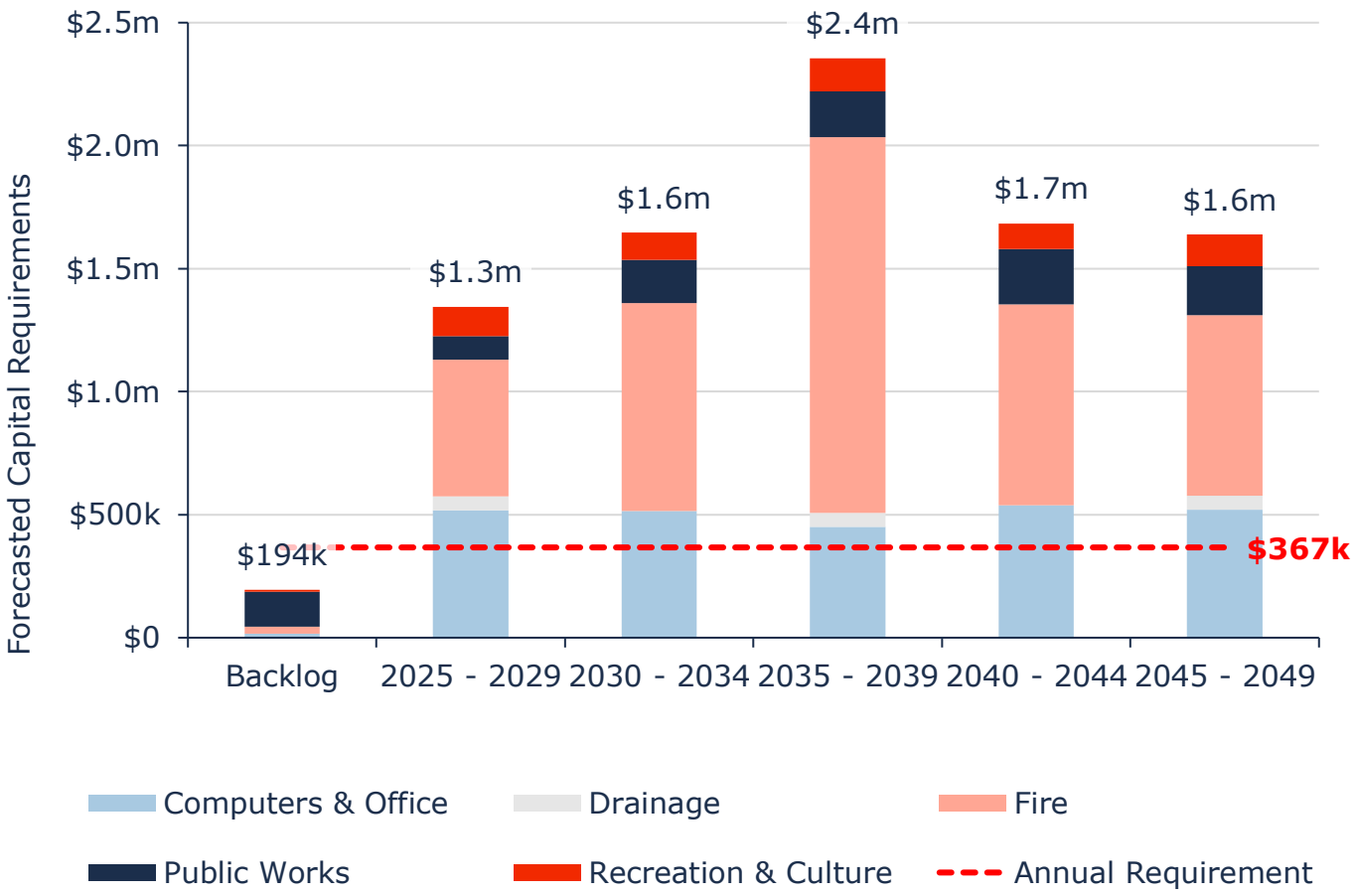


Figure 55 Forecasted Capital Replacement Needs: Machinery & Equipment 2024-2049

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

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

10.6 Risk Analysis

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

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.

As indicated below, most machinery and equipment assets are very low risk (63%). This is most often because the assets have a good or better condition and therefore a low probability of failure combined with a low replacement cost and low criticality for service delivery that result in a low consequence of failure and thereby a low overall risk.

1 - 4 **Very Low** $2,341,000 (63%)	5 - 7 **Low** $973,000 (26%)	8 - 9 **Moderate** $197,000 (5%)	10 - 14 **High** $126,000 (3%)	15 - 25 **Very High** $62,000 (2%)

Figure 56 Risk Matrix: Machinery & Equipment

10.6.1 Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Township is currently facing:

Lifecycle Management Strategies

Current lifecycle management practices for machinery and equipment are largely reactive. While routine inspections, maintenance, and part replacements are performed regularly, trigger points are not frequently reviewed, and decisions are often based on fiscal practicality. Most replacements follow rolling annual budgets, and condition ratings do not strongly influence budget prioritization. The lack of clearly defined lifecycle thresholds for proactive replacement or component rehabilitation increases the risk of deferred action and rising lifecycle costs.

Organizational Capacity & Asset Data Confidence

Staff possess the operational knowledge to carry out inspections and routine maintenance, but current practices prioritize functionality and practicality over long-term asset performance planning. Small assets such as PPE, tools, and computer accessories are rarely tracked due to their low value. Although annual inspections are completed and condition ratings are assigned, these ratings are not consistently integrated into decision-making. These factors reflect a broader challenge in translating operational oversight into data-informed asset management planning.

10.7 Levels of Service

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

10.7.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Quality	Appropriate actions and interventions are taken to ensure the regular safe use of Machinery & Equipment assets.	The Town conducts regular and routine maintenance activities and daily inspections to ensure that machinery and equipment assets operate in a safe and reliable manner and remain in acceptable condition. Further details are provided in Section 10.4. Larger rehabilitations are completed, especially for larger vehicles, to extend their life at the lowest average annual lifecycle cost.
Sustainable	There are long-term plans in place for the renewal and replacement of machinery & equipment assets.	The Township has identified the long-term capital investment needs for their machinery and equipment assets. This is reflected in their capital investment projects which are formally and publicly identified one-year in advance and typically internally identified up to 10 years in advance.

Table 35 Community Levels of Service: Machinery & Equipment

10.7.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Quality	Weighted Average Condition of Assets	55%
Sustainable	Current Reinvestment Rate vs Target Capital Reinvestment Rate	3.18% vs. 9.92%

Table 36 Technical Levels of Service: Machinery & Equipment

Strategies

11. Growth

The demand for infrastructure and services will change over time based on a combination of internal and external factors. Understanding the key drivers of growth and demand will allow the 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.

11.1 Growth Assumptions

The Township of Wainfleet emphasizes limited and sustainable growth, guided by the goal of preserving its rural character, agricultural lands, and natural heritage. Its Official Plan sets out a 20-year vision (until 2031) and identifies strategic areas for growth while ensuring that development is compatible with the Township's environmental and rural values.

Key Priorities & Assumptions:

- Housing Development: The Township is planning for a population of approximately 8,200 by 2031, with an average of 25 new homes per year. Growth will primarily occur in existing hamlets such as Wainfleet Village, Chambers Corners, and Winger, with an emphasis on low-density residential units that have private water and wastewater services, with affordable housing, and senior-friendly housing options. Additionally, infill growth is encouraged on existing lots of record (i.e. outside of hamlets).
- Employment growth is anticipated to reach approximately 1,910 jobs by 2031 (from 1,630 as of 2021 projections). It is anticipated that this employment growth will be largely agricultural related, which will occur primarily in rural countryside areas.
- Tourism Expansion: Wainfleet leverages natural assets such as Lake Erie beaches, seasonal resorts, and heritage attractions like Marshville Heritage Village to support tourism. Small-scale, rural commercial uses are encouraged, provided they are compatible with surrounding uses and environmentally sustainable.
- Infrastructure Upgrades: Investments in stormwater management, road improvements, and other servicing infrastructure, such as the Lakeshore Road drainage system rehabilitation, demonstrate the Township's proactive approach to preparing for growth while mitigating environmental impacts.

11.1.1 Growth Dynamics

Wainfleet anticipates continued migration from urban centers, with both families and retirees drawn by the Township's affordability, rural tranquility, and proximity to Niagara urban hubs like Welland, Port Colborne, and Niagara Falls. Settlement boundary expansions are strictly regulated and may only occur through comprehensive municipal reviews aligned with the Provincial Policy Statement.

11.1.2 Wainfleet Official Plan

The Township of Wainfleet has adopted the former Niagara Region Official Plan. The Region of Niagara no longer has Planning Authority, and their Official Plan is now the Township's Official Plan. The Official Plan seeks to build complete, sustainable communities. Growth is strategically directed to designated settlement areas, ensuring efficient land use and infrastructure investment. This planning approach offers several benefits, including:

- Promoting compact development and mixed-use nodes within hamlets like Wainfleet Village.
- Supporting economic diversification through agriculture-related industries, tourism, and small-scale rural enterprises.
- Protecting agricultural land, specialty crop areas, and the Natural Heritage System, with strong limitations on rural non-agricultural development.

The Township's policy approach fosters incremental, responsible growth that enhances quality of life while maintaining their distinct rural identity.

11.2 Impact of Growth on Lifecycle Activities

By July 1, 2025, the Township's asset management plan must include a discussion of how the assumptions regarding future changes in population and economic activity informed the preparation of the lifecycle management and financial strategy.

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.

12. Financial Strategy

For an asset management plan to be effective and meaningful, it must be integrated with financial planning and long-term budgeting. The development of a comprehensive financial plan will allow the Township of Wainfleet to identify the financial resources required for sustainable asset management.

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

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

Note: Periodic grants are not included due to Provincial requirements for firm commitments.

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

12.1 Annual Requirements & Capital Funding

12.1.1 Annual Requirements

The annual requirements represent the amount the 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 $10,288,000 annually to address capital requirements for the assets included in this AMP. This total is allocated across asset categories as follows:

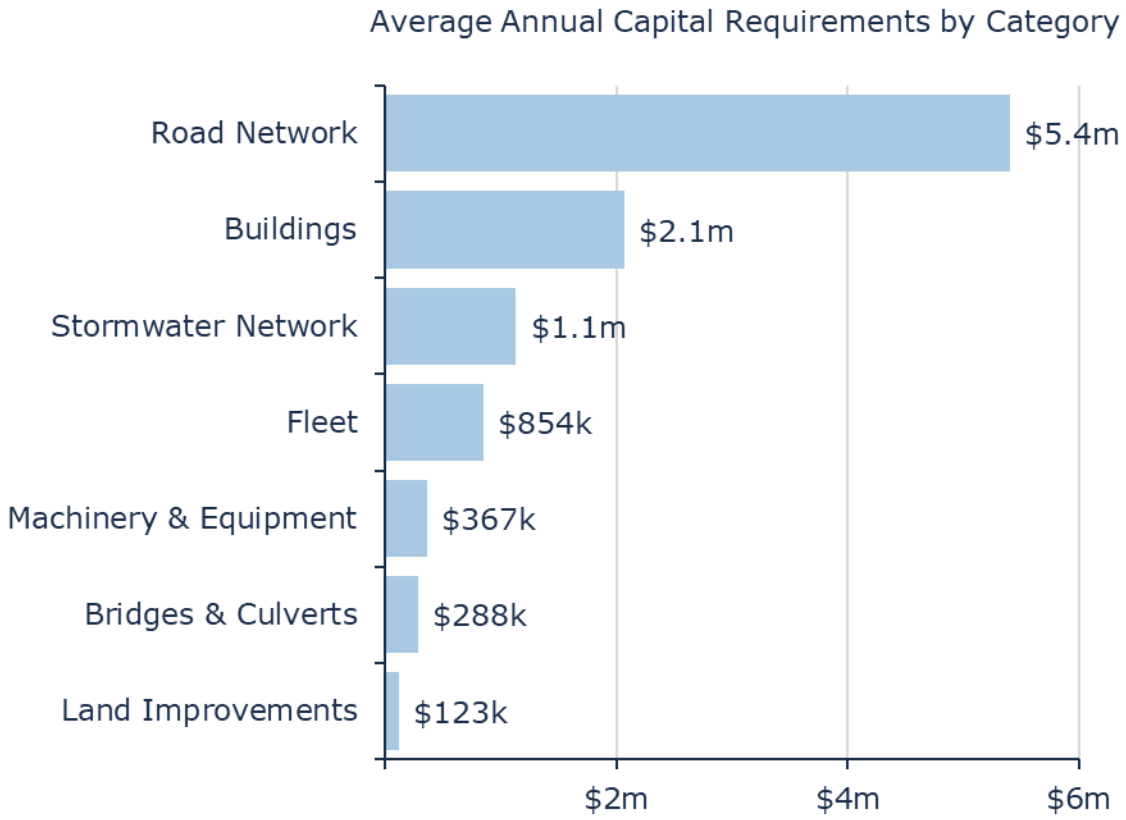


Figure 57 Annual Capital Funding Requirements by Asset Category

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 and Bridges and Culverts, lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal. These events are based on the recommendations of the 2023 Roads Needs Study and the 2024 Bridge and Structural Culvert Inspection, both completed by third party engineering firms. The development of these strategies reflects best practices based on detailed inspections of Wainfleet's road and bridge assets. Further, it 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 and Bridges and Culverts:

12.1.1 Annual Requirements (Continued)

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	$5,938,000	$5,398,000	$540,000
Bridges and Structural Culverts	$300,000	$288,000	$12,000

Table 37 Lifecycle Strategies Annual Savings

The implementation of a proactive lifecycle strategy for roads leads to potential annual cost avoidance of $540,000 for the Road Network and $12,000 for the Bridges and Culverts. This represents an overall reduction of the annual requirements for each category by 9% and 4% respectively. 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.

12.1.2 Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $3,609,000 towards capital projects per year. Given the annual capital requirement of $10,228,000, there is currently a funding gap of $6,619,000 annually.

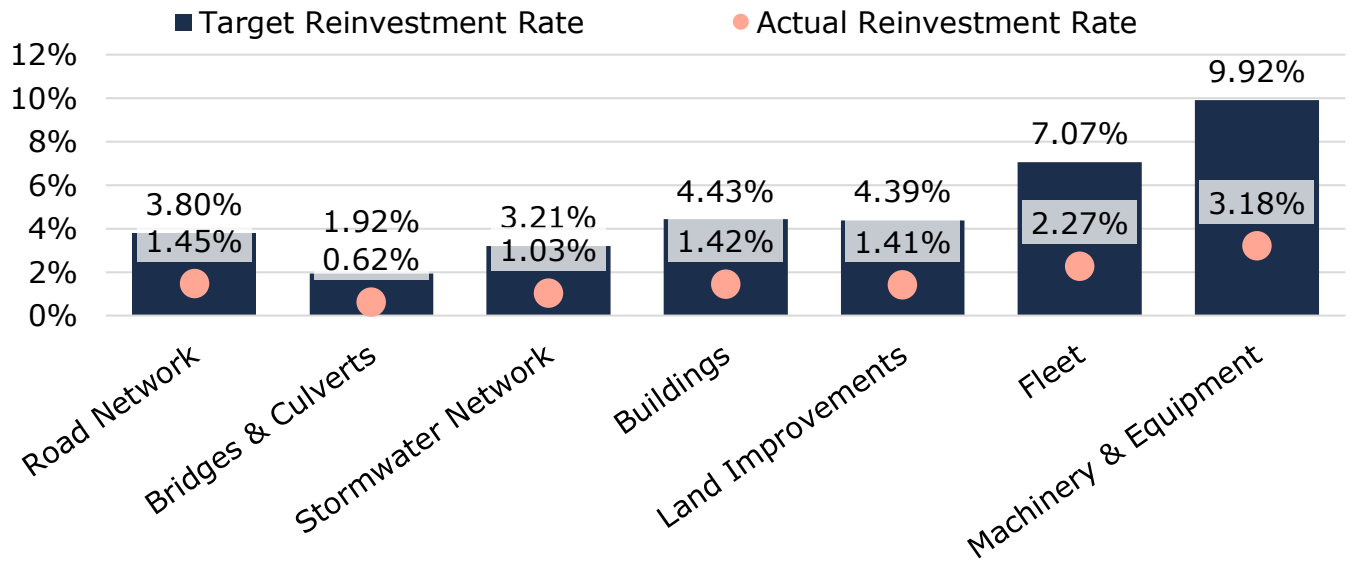


Figure 58 Annual Requirements vs. Capital Funding Available

12.2 Funding Objective

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

1. **Tax Funded Assets:** Road Network, Stormwater Network, Bridges & Culverts, Buildings, Machinery & Equipment, Land Improvements, Fleet

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

For each scenario developed we have included strategies, where applicable, regarding the use of cost containment and funding opportunities.Financial Profile: Tax Funded Assets

12.2.1 Current Funding Position

The following tables show, by asset category, Wainfleet's average annual asset investment requirements, current funding positions, and funding increases required to achieve full funding on assets funded by taxes. All figures are rounded to the nearest thousand.

Asset Category	Avg. Annual Require-ment	Annual Funding Available					Annual Deficit
		Capital Levy	Capital Reserve Contribution	CCBF	OCIF	Total Available	
Road Network	5,398,000	687,000	1,046,000	222,000	103,000	2,058,000	3,340,000
Bridges & Culverts	288,000	37,000	56,000	0	0	92,000	196,000
Stormwater Network	1,132,000	144,000	219,000	0	0	363,000	769,000
Buildings	2,066,000	263,000	400,000	0	0	663,000	1,403,000
Land Improvements	123,000	16,000	24,000	0	0	39,000	84,000
Fleet	854,000	109,000	166,000	0	0	274,000	580,000
Machinery & Equipment	367,000	47,000	71,000	0	0	118,000	249,000
Total	10,228,000	1,301,000	1,982,000	222,000	103,000	3,609,000	6,619,000

Table 38 Annual Available Funding for Tax Funded Assets

The average annual investment requirement for the above categories is $10,288,000. Using rounded values and based on 2025 financial figures, the annual revenue currently allocated to these assets for capital purposes is $3,609,000 leaving an annual deficit of $6,619,000. Put differently, these infrastructure categories are currently funded at 35.3% of their long-term requirements.

12.2.2 Full Funding Requirements

In 2025, the Township of Wainfleet has budgeted annual tax revenues of approximately $9,675,000. Using this value, 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	34.5%
Bridges & Culverts	2.0%
Stormwater Network	7.9%
Buildings	14.5%
Land Improvements	0.9%
Fleet	6.0%
Machinery & Equipment	2.6%
Total	68.4%

Table 39 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) Beginning in 2025, Wainfleet's debt payments (principal and interest) for these categories increased by $438,500 from 2024 levels
b) By 2034 they are scheduled to fall, while still remaining $270,000 above 2024 levels
c) By 2044 there will be no existing debt payments remaining

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

	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	$6,619,000	$6,619,000	$6,619,000	$6,619,000
Change in Debt Costs	$438,000	$270,000	$270,000	$-169,000
Resulting Infrastructure Deficit:	$7,057,000	$6,889,000	$6,889,000	$6,450,000
Tax Increase Required	72.9%	71.2%	71.2%	66.7%
Annually:	11.6%	5.6%	3.7%	2.6%

Table 40 Tax Increase Options 5-20 Years

12.2.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 20-year option. This involves full funding being achieved over 20 years by:

a) increasing tax revenues by 2.6% each year for the next 20 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
b) when realized, reallocating the debt cost reductions of $169,000 to the infrastructure deficit as outlined above.
c) allocating the current CCBF and OCIF 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[12].
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 20 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 total pent-up investment demand of $2,700,000. This is allocated across asset categories as follows: $231,000 for the Road Network, $517,000 for land improvements, $1,700,000 for fleet assets and $194,000 for machinery and equipment.

Prioritizing future projects will require regular updates to key asset information including replacement cost and assessed condition. In some cases, asset information would improve by replacing age-based condition information with assessed condition information. Although our recommendations include no further use of debt, the results of the condition-based analysis may be required otherwise.

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

12.3 Use of Debt

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

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

The following tables outline how Wainfleet has historically used debt. The only existing debts held are related to the building's asset category and as of year-end 2024, there was $787,000 of debt outstanding with corresponding principal and interest payments of $169,000. By 2025, outstanding debt will increase to $1,360,000 with corresponding principal and interest payments of $607,000.

Asset Category	2024 Debt Outstanding	Closing Debt Balance in the Last Five Years				
		2020	2021	2022	2023	2024
Buildings	787,000	1,360,000	1,221,000	1,079,000	934,000	787,000
Total Tax Funded	787,000	1,360,000	1,221,000	1,079,000	934,000	787,000

Table 41 Wainfleet Outstanding Debt 2020-2024

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2024	2025	2026	2027	2028	2029	2034
Buildings	169,000	607,000	607,000	607,000	607,000	607,000	438,000
Total Tax Funded	169,000	607,000	607,000	607,000	607,000	607,000	438,000

Table 42 Wainfleet Principal and Interest Payments

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

12.4 Use of Reserves

12.4.1 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 Wainfleet.

Asset Category	Balance at December 31, 2024
Road Network	1,997,000
Bridges & Culverts	107,000
Stormwater Network	419,000
Buildings	908,000
Land Improvements	52,000
Fleet	989,000
Machinery & Equipment	386,000
Total Tax Funded:	4,857,000

Table 43 Wainfleet Reserve Balances

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

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 Wainfleet'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.

12.4.2 Recommendation

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

13. Recommendations & Key Considerations

13.1 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 increasing taxes by 2.6% per year over a period of 20 years.

2. Reallocating debt cost reductions to the infrastructure deficit when realized.

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

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.

13.2 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. This is particularly relevant for the paved roads and the bridges and structural culverts.
    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 the lifecycle estimated useful life to better reflect in-field performance and staff judgement is recommended.

4. Asset condition is a key data point used to understand current and forecasted future states, assess asset risks, and forecast when assets require replacement and rehabilitation. To ensure that condition is applied in a uniform manner work towards the development of a standard condition assessment strategy

13.2 Asset Data (Continued)

5. that details condition scales, associated definitions and reference examples, frequency of assessments and persons responsible for assessment completion, review, and update.

13.3 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. As the data evolves and new attribute information is obtained, these models should also be refined and updated.

2. Centralize available data on current performance of the established level of service. Overtime explore trends in service level performance and work towards understanding any underlying causes of trends and as appropriate mitigation measures.

Appendices

Appendix A – Infrastructure Report Card

Asset Category	Replacement Cost	Average Condition	Financial Capacity	
Road Network	**$142 m**	**Fair**	Annual Requirement:	$5,398,000
			Funding Available:	$1,012,000
			Annual Deficit:	**$4,386,000**
Bridges & Culverts	**$14.99 m**	**Good**	Annual Requirement:	$288,000
			Funding Available:	$37,000
			Annual Deficit:	**$251,000**
Stormwater Network	**$35.29 m**	**Good**	Annual Requirement:	$1,132,000
			Funding Available:	$144,000
			Annual Deficit:	**$988,000**
Buildings	**$46.67 m**	**Good**	Annual Requirement:	$2,066,000
			Funding Available:	$263,000
			Annual Deficit:	**$1,803,000**
Land Improvements	**$2.8 m**	**Good**	Annual Requirement:	$123,000
			Funding Available:	$16,000
			Annual Deficit:	**$107,000**
Fleet	**$12.08 m**	**Good**	Annual Requirement:	$854,000
			Funding Available:	$109,000
			Annual Deficit:	**$745,000**
Machinery & Equipment	**$ 3.69 m**	**Fair**	Annual Requirement:	$367,000
			Funding Available:	$47,000
			Annual Deficit:	**$320,000**

Appendix B – 10-Year Capital Requirements

The tables below summarize the 10-year forecasted capital requirements by asset category and each applicable segment. If a segment is not listed, there are no forecasted capital requirements for it within the 10-year period.

Road Network	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Asphalt Roads	-	$351k	$130k	$862k	-	-	$436k	$493k	-	-	$21k
Curbs	$44k	-	-	-	-	-	-	-	-	-	-
Guardrails	$81k	-	-	-	-	-	-	-	-	-	-
Sidewalks	$106k	-	-	-	-	-	-	-	-	-	-
Signs	$27k	$27k	-	-	$5k	$3k	-	$32k	$32k	$27k	-
Surface Treated Roads	-	$2.9m	$2.2m	$1.3m	$2.2m	$2.1m	$2.9m	$2.9m	$3.1m	$8.0m	$5.1m

Bridges & Culverts	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Bridges	-	$543k	-	-	-	$4.6m		-	-	-	-
Structural Culverts	-	-	-	-	-	-	-	-	-	-	$460k

Appendix B – 10-Year Capital Requirements (Continued)

Stormwater Network	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Storm Culverts	-	-	-	-	-	-	-	-	$1.1m	-	-

Buildings	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Administration	-	$44k	$123k	$103k	$46k	$71k	$97k	$156k	$96k	$63k	$51k
Fire	-	$224k	$15k	$5k	$5.0m	$5k	$16k	$11k	$5k	$46k	$5k
Public Works	-	$247k	$92k	$230k	$46k	$31k	$53k	$63k	$45k	$173k	$420k
Recreation & Culture	-	$105k	$178k	$74k	$128k	$114k	$1.2m	$70k	$78k	$198k	$155k

Land Improvements	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Basic Structures & Sitework	$319k	-	-	-	-	$49k	-	-	-	-	$319k
Monuments	-	$6k	-	-	-	-	-	-	-	$4k	-
Sports Fields & Courts	$71k	-	-	-	-	-	-	-	-	-	$71k

Appendix B – 10-Year Capital Requirements (Continued)

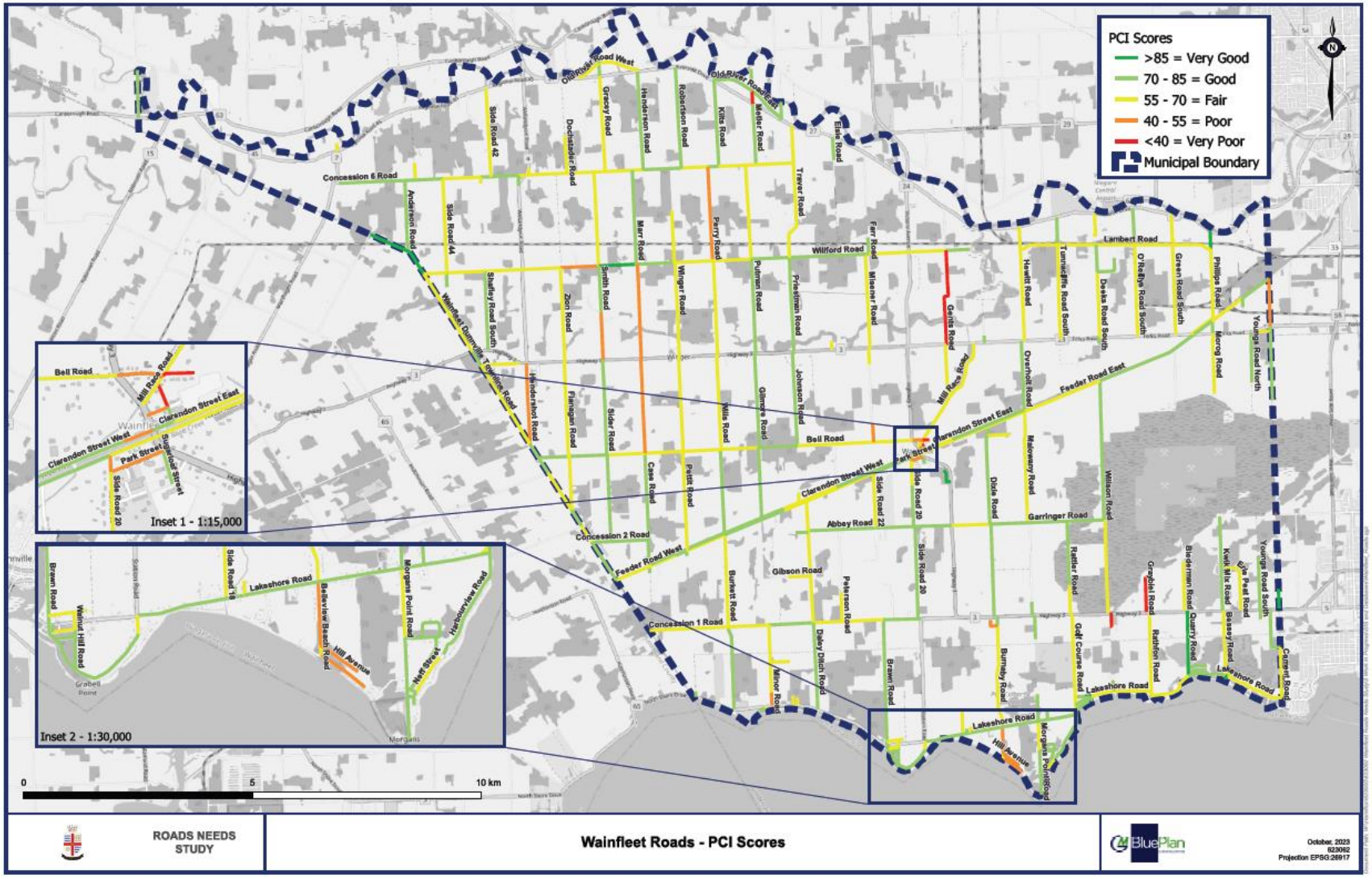
Fleet	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Building & By-Law	-	-	-	-	-	-	-	-	-	$78k	
Drainage	-	-	-	-	-	-	-	-	-	$560k	
Fire	$1.7m	-	-	$135k	-		-	-	-	$1.2m	
Public Works	-	-	-	-	-	$514k	-	$42k	$1.0m	$988k	
Recreation & Culture	$40k	-	-	-	-	$175k	-	-	$67k	$60k	
Roads	-	-	-	-	-	-	-	-	-	$42k	

Appendix B – 10-Year Capital Requirements (Continued)

Machinery & Equipment	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Computers & Office	$16k	$109k	$104k	$57k	$167k	$81k	$112k	$37k	$117k	$151k	$97k
Drainage	-	-	-	-	$57k	-	-	-	-	-	-
Fire	$29k	$156k	$59k	$65k	$71k	$204k	$169k	$158k	$173k	$122k	$223k
Public Works	$143k	-	$5k	$2k	$62k	$27k	$5k	$69k	$42k	$31k	$30k
Recreation & Culture	$7k	$11k	$9k	$13k	$72k	$14k	$9k	$8k	$12k	$69k	$12k

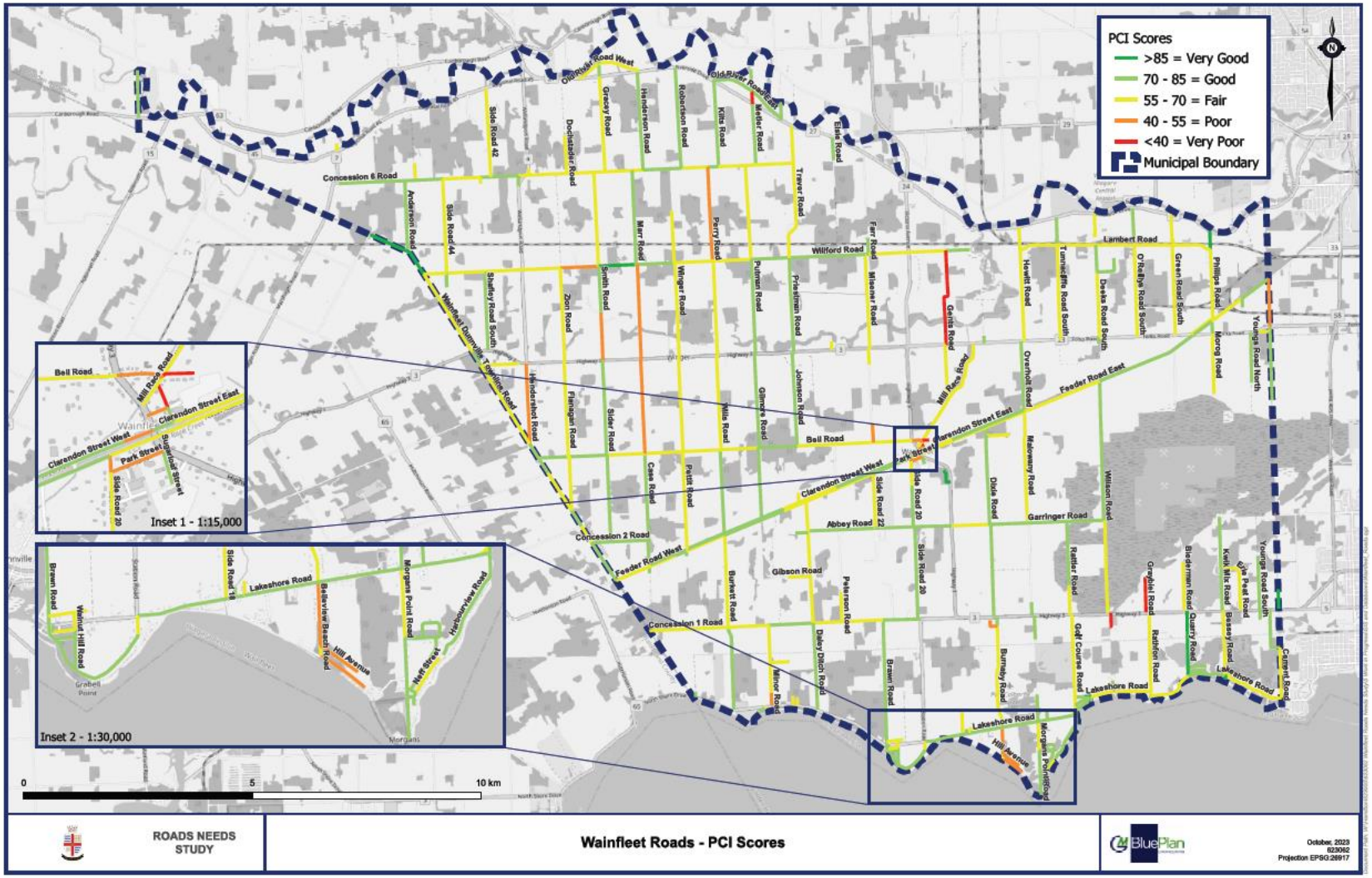
Appendix C – Level of Service Maps & Photos

Township of Wainfleet: Road Network



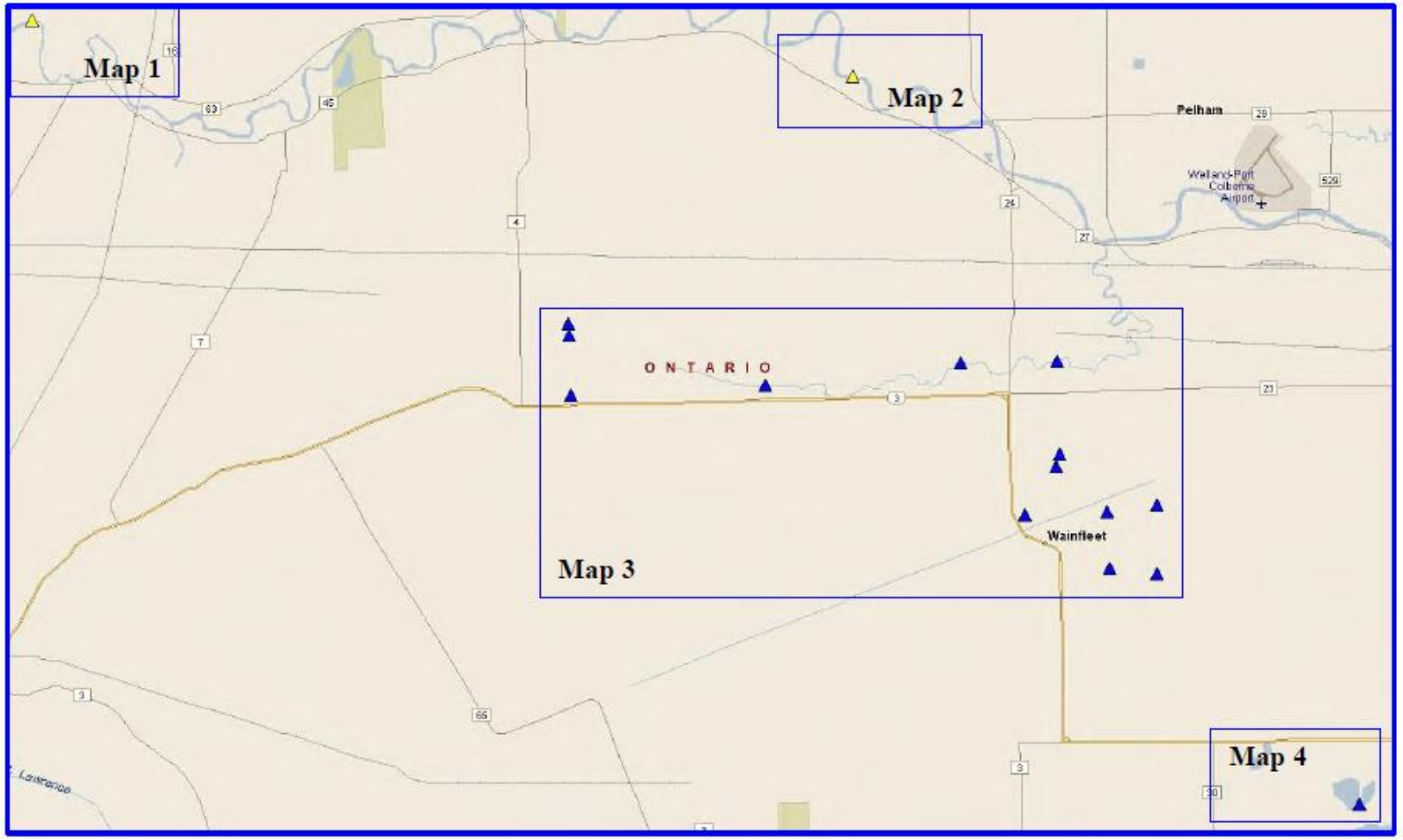
Appendix C – Level of Service Maps & Photos (Continued)

Map of the Road Network Condition as of October 2023 Assessment Date



Appendix C – Level of Service Maps & Photos (Continued)

Map of Bridges & Structural Culverts



Appendix C – Level of Service Maps & Photos (Continued)

Photos of Bridge or Structural Culvert in Very Good Condition

Bridge Name: Gents Road (Side Road 18), Captured June 12, 2024, Condition Score: 97/100

Appendix C – Level of Service Maps & Photos (Continued)

Photos of Bridge or Structural Culvert in Good Condition

Bridge Name: Quarrie Road (Side Road 6), Captured June 12, 2024, Condition Score: 77/100

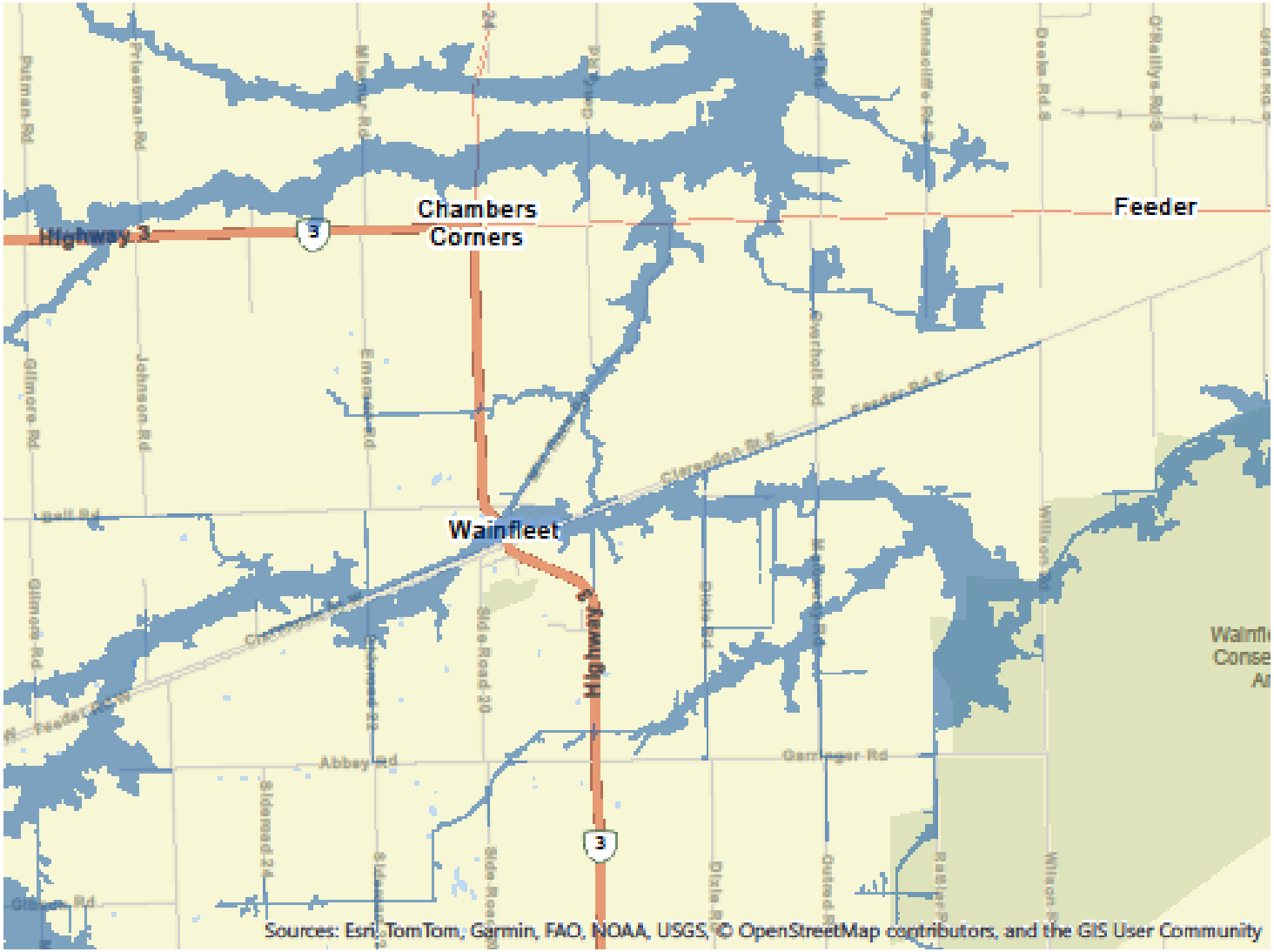
Appendix C – Level of Service Maps & Photos (Continued)

Photos of Bridge or Structural Culvert in Fair Condition

Bridge Name: Perry Road (Side Road 30), Captured June 12, 2024, Condition Score: 57/100

Appendix C – Level of Service Maps & Photos (Continued)

100-Year Flood Plain Mapping



Appendix D – Risk Rating Criteria

13.4 Probability of Failure

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Asphalt Roads, Surface Treated Roads & Gravel Roads	Condition	100%	85-100	1-Rare
			70-84	2- Unlikely
			55-69	3- Possible
			40-54	4- Likely
			0-39	5- Almost Certain
Bridges & Structural Culverts, Stormwater Network, Fleet, Machinery & Equipment, Land Improvements	Condition	100%	80-100	1-Rare
			60-79	2- Unlikely
			40-59	3- Possible
			20-39	4- Likely
			0-19	5- Almost Certain

13.5 Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Asphalt Roads, Surface Treated Roads, Gravel Roads	Economic (70%)	Replacement Cost (100%)	<$20,000	1- Insignificant
			$20,001 - $150,000	2- Minor
			$150,001 - $500,000	3- Moderate
			$500,001 - $750,000	4- Major
			$750,001+	5- Severe
	Social (30%)	AADT Range (100%)	0-49	1- Insignificant
			50-199	2- Minor
			200-499	3- Moderate
			500-999	4- Major
			1000-1999	5- Severe
Bridges & Structural Culverts	Economic (70%)	Replacement Cost (100%)	<$20,000	1- Insignificant
			$20,001-$100,000	2- Minor
			$100,001-$500,000	3- Moderate
			$500,001-$1,000,000	4- Major
			$1,000,001+	5- Severe
	Social (30%)	AADT Range (100%)	0-49	1- Insignificant
			50-199	2- Minor
			200-499	3- Moderate
			500-999	4- Major
			1000-199	5- Severe
Stormwater Network	Economic (80%)	Replacement Cost (100%)	$20,000	1- Insignificant
			$20,001-$100,000	2- Minor
			$100,001-$400,000	3- Moderate
			$400,001-$750,000	4- Major

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
			$750,000+	5- Severe
	Operational (20%)	Type	Driveway, Entrance, Farm Entrance, Infill	1- Insignificant
			Rail Road, Storm Sewer	3- Moderate
			Cross, Road Crossing	4- Major