Asset Management Plan

Township of Mulmur

APRIL 2025

psdcitywide

This Asset Management Plan was prepared by:

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

Key Statistics

$98.6 m	2024 Replacement Cost of Asset Portfolio
87%	Percentage of Assets in Fair or Better Condition
76%	Percentage of Assets with Assessed Condition Data
$755,000	Annual Capital Infrastructure Deficit
2.12%	Target Investment Rate
1.36%	Actual Investment Rate
+0.8% Annually	Tax Increase for 15 Years to Fully Fund Proposed Levels of Service
+4.0% Annually	Water Rate Increase for 20 Years to Fully Fund Proposed Levels of Service

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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 Mulmur can ensure that public infrastructure is managed to support the sustainable delivery of municipal services. Figure 1 outlines the asset categories included in this AMP:

Figure 1 Core and Non-Core Asset Categories

Core Assets

- Road Network
- Bridges & Structural Culverts
- Water Network

Non-Core Assets

- Facilities
- Land Improvements
- Vehicles
- Machinery & Equipment

1.2 Compliance

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

1.3 Findings

The overall replacement cost of the asset categories included in this AMP totals $98.6 million. Weighted by replacement cost, 87% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 76% of assets. For the remaining 24% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses replacement only strategies to determine the lowest cost option to maintain the current level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Township's average annual capital requirement totals $2,095,000. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $1,340,000 towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $755,000.

It is important to note that this AMP represents a snapshot in time and is based on the best available processes, data, and information at the Township. Strategic asset management planning is an ongoing and dynamic process that requires continuous improvement and dedicated resources.

1.4 Recommendations

A financial strategy was developed to address the annual capital funding gap. The following graphic shows annual tax change required to eliminate the Township's infrastructure deficit based on a 20-year plan:

Figure 2 Proposed Tax/Rate Changes

Tax-Funded ASSETS	Rate-Funded WATER
Average Annual Tax Change	**Average Annual Rate Change**
0.8%	4.0%
Years to Full Sustainability	**Years to Full Sustainability**
15 Years	20 Years

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

- Review data to update and maintain a complete and accurate dataset
- Develop a condition assessment strategy with a regular schedule
- Review and update lifecycle management strategies
- Develop and regularly review short- and long-term plans to meet capital requirements
- Continue to measure current levels of service and verify sustainability of proposed levels of service

2 Introduction & Context

2.1 Community Profile

Table 1 Township of Mulmur Community Profile

Census Characteristic	Township of Mulmur[1]	Ontario
Population 2021	3,571	14,223,942
Population Change 2016-2021	2.7%	5.8%
Total Private Dwellings	1,682	5,929,250
Population Density	12.5 / km^2	15.9 / km^2
Land Area	5,286.17 km^2	892,411.76 km^2

The Township of Mulmur is a lower-tier municipality, part of Dufferin County, which is located within southern Ontario. It is situated south of Georgian Bay and west of Lake Simcoe.

Mulmur is comprised of various communities such as Mansfield, Honeywood, Terra Nova, Whitfield, Primrose, and more. Each contributes unique elements to the Township, ranging from outdoor recreation to agricultural heritage, creating a diverse and scenic rural area. The area has a long history of settlement and development, with agriculture playing a central role in its community and economy over the years.

The region is characterized for its natural landscapes, featuring rolling hills, agricultural fields, and parts of the Niagara Escarpment. The presence of the Bruce Trail, one of Canada's oldest and longest footpaths, highlights the area's commitment to preserving natural beauty and providing public access to outdoor activities. This rural setting is also known for its agricultural heritage, with numerous farms and local markets contributing to a strong sense of community and sustainability.

[1] As per 2021 Census from Statistics Canada.

The region's demand is driven by those looking for a quiet escape from city life, with its scenic beauty and outdoor opportunities attracting residents and tourists alike. People are drawn to Mulmur for its rural lifestyle, opportunities for country living, and its growing reputation as a destination for sustainable living and local farming. This interest supports the local real estate market, boosts agriculture-based tourism, and sustains the community's vibrant local economy.

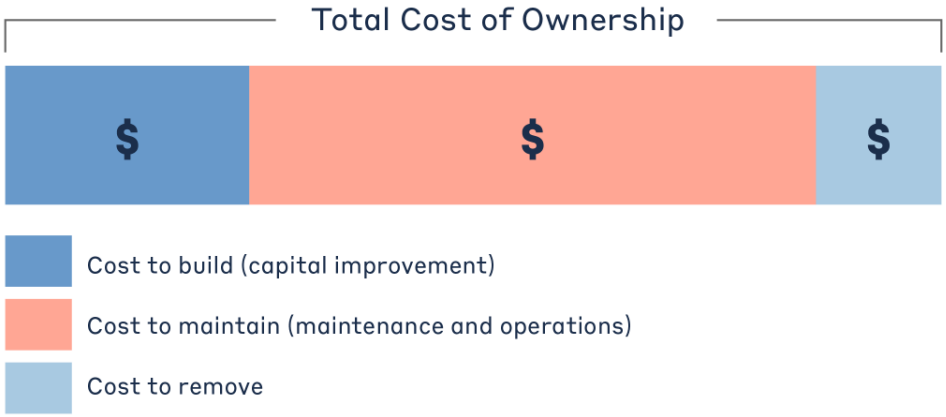
The Township of Mulmur's infrastructure priorities include enhancing essential services and infrastructure to support growth, focusing on water preservation, safety, and environmental sustainability. Key efforts will aim at balancing residential and commercial development while ensuring the preservation of natural and agricultural lands.

2.2 Asset Management Overview

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

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

Figure 3 Total Cost of Asset Ownership



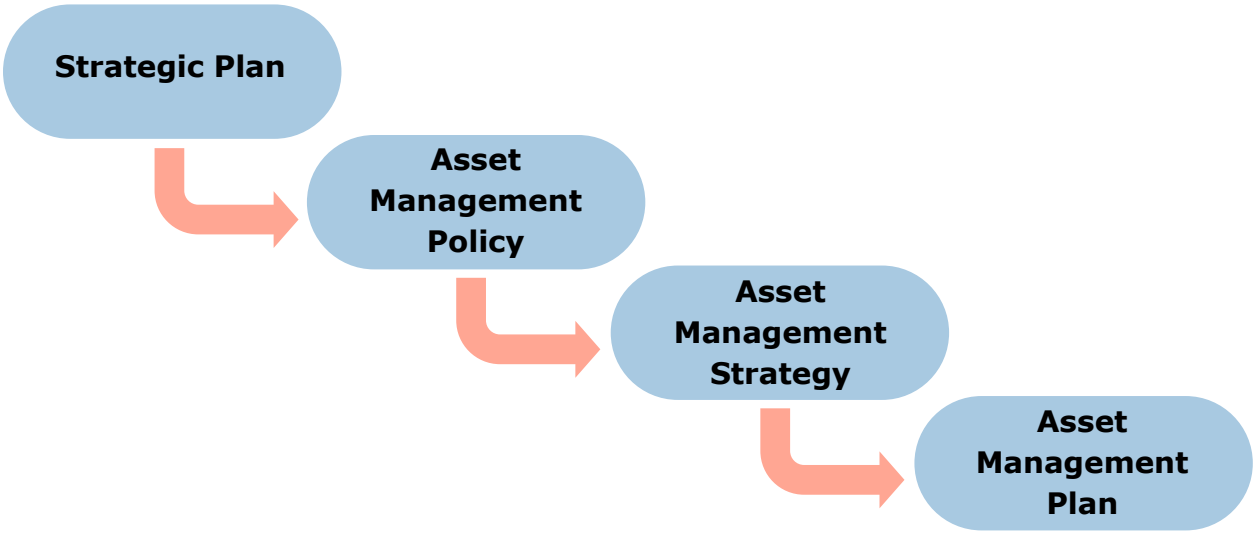
These costs can span decades, requiring planning and foresight to ensure financial responsibility is spread equitably across generations. An asset management plan is

critical to this planning, and an essential element of broader asset management program.

2.2.1 Foundational Asset Management Documentation

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

Figure 4 Foundational Asset Management Documents



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

Asset Management Policy

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

The Township adopted a Strategic Asset Management Policy on June 5th, 2019, in accordance with Ontario Regulation 588/17.

The objectives of the policy include:

- Fiscal responsibilities
- Infrastructure priorities that are forward-looking
- Environmental consciousness that minimizes infrastructure impact on the environment
- Community-focused, aiming to enhance job opportunities, public spaces, and accessibility

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.

2.2.2 Key Concepts in Asset Management

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

Lifecycle Management Strategies

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

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

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

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

Table 2 Lifecycle Management: Typical Lifecycle Interventions

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;

Lifecycle Activity	Cost	Typical Associated Risks
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;

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

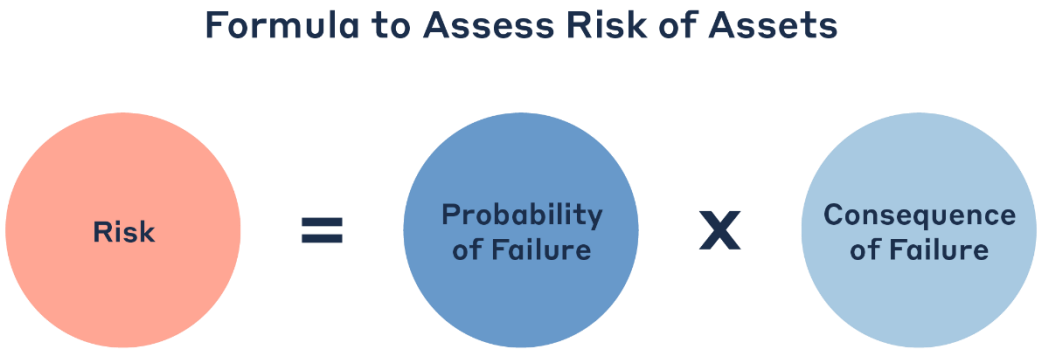
Quantitative Risk

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 Township. 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 for quantitative risk used in this AMP relies on a calculable measurement of risk associated with each asset. The probability and consequence of failure are each scored from one to five, producing a minimum risk index of one 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.

Typically, a model is selected for a group of similar assets (e.g. all roads, water distribution system etc.). Often, parameters for estimating probability of failure include asset condition, service life remaining, and/or asset material.

For each risk model, probability of failure (PoF) is determined through the following steps:

1. Identification of *available* attribute data *suitable* for determining the probability of failure for selected assets. In some instances, available asset data may be limited requiring a more simplified PoF model, at least initially.
2. Determination of the type of risk that applies to the selected attribute.
    - Condition, Design Capacity, Economic, Environmental, Health and Safety, Operational, Social, Strategic
3. Where there are multiple parameters included in the PoF model, determine suitable weighting of each parameter.
    - Weighting allows the model to recognize that each factor may impact the probability of failure to a different degree. Where the weight is higher, the impact that factor has on the model increases too.

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.

Table 3 Risk Analysis: Types of Consequences of Failure

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

Type of Consequence	Description
	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 Township.
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 asset failure on the community's long-term strategic objectives, including economic development, business attraction, etc.

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

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

Qualitative Risk

Qualitative risk assessments in municipal asset management go beyond numbers and statistics to capture the broader picture of potential vulnerabilities. This approach recognizes that not all risks can be easily quantified, especially when dealing with factors that involve human judgment, institutional knowledge, and unpredictable external conditions. Here's a deeper look at how and why qualitative risk is vital:

Understanding the Nuances

- **Human Expertise and Experience:** Rather than solely relying on historical data or mathematical models, qualitative risk assessments tap into the insights of experienced staff and stakeholders. Their first-hand knowledge can highlight emerging issues—such as gaps in asset data or unanticipated maintenance challenges—that might be overlooked in quantitative reviews.
- **Contextual Factors:** Municipalities face a range of unique challenges including aging infrastructure, rapid growth, and climate change impacts. Qualitative assessments take into account the specific context of the community, such as local environmental conditions, regulatory landscapes, and historical performance of assets.

Methodological Approach

- **Workshops and Interviews:** Facilitated risk workshops and structured interviews are key methods used in qualitative assessments. These sessions encourage open dialogue among staff from various departments, ensuring that diverse perspectives are considered. Through guided questions—covering topics from asset data confidence to lifecycle management strategies—municipalities can identify risks that are not immediately obvious from a numerical analysis.
- **Identifying Hidden Vulnerabilities:** The qualitative process allows teams to explore risks that are dynamic and interrelated. For instance, while data might show a certain asset has reached the end of its useful life, qualitative insights might reveal that a lack of proactive maintenance, compounded by extreme weather conditions, poses a more immediate risk to service delivery.

Strategic Benefits

- **Informed Decision-Making:** By combining qualitative insights with quantitative data, municipal planners can develop more holistic asset management strategies. This integrated approach enables better prioritization of capital investments, ensuring that both the immediate and long-term needs of the community are addressed.
- **Proactive Risk Management:** Qualitative risk assessments foster a forward-looking mindset. Rather than simply reacting to failures after they occur, this methodology encourages the development of proactive measures—such as enhanced maintenance programs and updated lifecycle strategies—that can mitigate risks before they escalate.
- **Adaptability to Change:** As external conditions evolve, qualitative assessments provide the flexibility needed to capture new risks. Whether it’s

the onset of climate change-related events or shifts in funding availability, qualitative methods allow municipal asset managers to continuously refine their strategies in response to real-world developments.

By grounding the assessment process in real-world expertise and contextual analysis, qualitative risk evaluation becomes an essential tool for developing resilient, adaptive, and well-informed asset management strategies. This ensures that municipalities are not only prepared to handle current challenges but are also equipped to navigate the uncertainties of the future.

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 (Road Network, Bridges & Structural Culverts, Water Network) the province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP.

Technical Levels of Service

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

For core asset categories as applicable the province, through O. Reg. 588/17, has also provided technical metrics that are required to be included in this AMP. For all categories where not already prescribed by the province, the Township has opted to include the average condition, percentage of the category in fair or better condition, percentage of the category in poor or lower condition, and a ratio of the average annual requirement (AAR) against the amount budgeted towards each category.

Current and Proposed Levels of Service

Current levels of service are the past performance metrics of an asset category up until present day. In contrast, proposed levels of service look toward the Township's goal for asset performance by a defined future date.

Once current levels of service have been measured, proposed levels of service over a 10-year period should be established, 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 by consideration of a variety of community expectations, fiscal capacity, regulatory requirements, corporate goals and long-term sustainability. Once proposed levels of service have been established, and prior to July 2025, the Township must identify a lifecycle management and financial strategy which allows these targets to be achieved.

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

Both current and proposed levels of service for all included asset categories are outlined in this AMP.

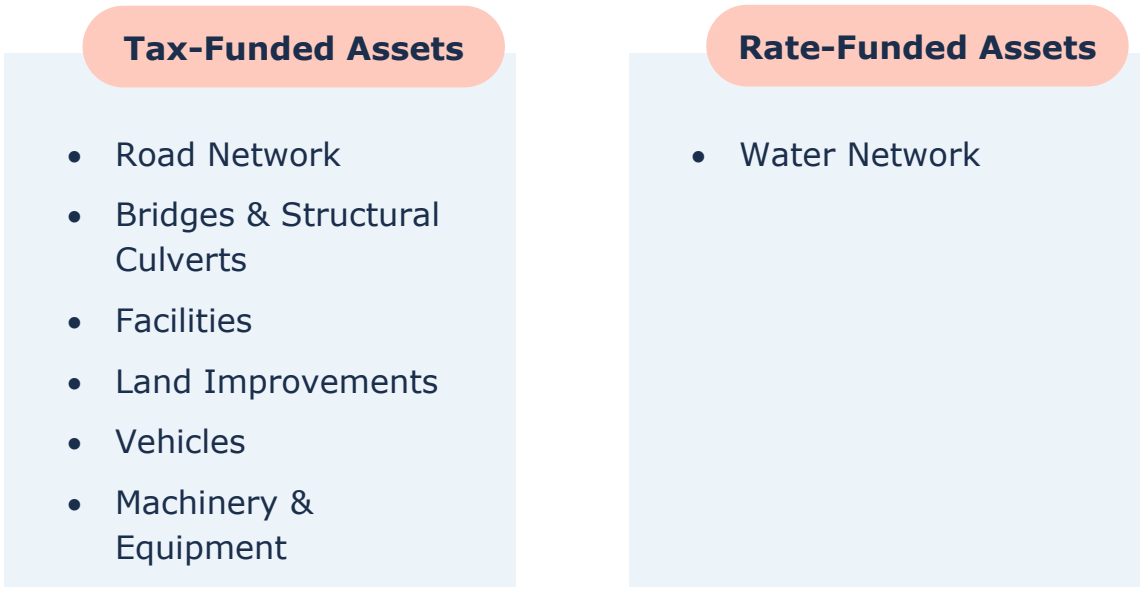
2.3 Scope & Methodology

2.3.1 Asset Categories for this AMP

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

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

Figure 6 Tax-Funded Asset Categories



2.3.2 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.

2.3.3 Defining Replacement Costs

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

User-Defined Cost and Cost Per Unit

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

Cost Inflation / CPI Tables

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

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

2.3.4 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

2.3.5 Average Annual Requirement

The Average Annual Requirement (AAR) is the estimated amount of money the Township would need to set aside each year to ensure sufficient funds are available to carry out major rehabilitation or replacement work when it is due. It is a long-term financial planning tool used to support sustainable asset management and service delivery.

In essence, it treats infrastructure investment like a savings plan: "If we spread the total lifecycle cost of this asset over its useful life, how much do we need to reserve each year to be ready when major costs arise?"

Why the AAR matters:

- **Long-Term Planning**: Encourages proactive financial planning rather than reactive crisis spending.
- **Sustainability:** Ensures assets are properly maintained and replaced without burdening future budgets.
- **Transparency:** Helps identify whether current funding levels are sufficient—or if there is a funding gap.
- **Optimized Investment:** Supports lifecycle strategies that lower total costs and extend asset life.

Lifecycle interventions (e.g., resurfacing a road, relining a pipe) may require upfront investment, but they can extend the life of the asset, which means the cost is spread out over a longer period. This often results in a lower AAR, because the asset is delivering value for a longer time before needing full replacement.

Table 4 Average Annual Requirement Example

Scenario	Total Lifecycle Cost	Useful Life	AAR
No Rehab	$2.5M (replace at Year 25)	25 years	$100,000/year
With Rehab	$2.5M + $500K rehab at Year 15	40 years	$75,000/year

In the example outlined in Table 4, the life of the road would be extended by 15 years if a $500K mid-life rehabilitation was performed, thus reducing the annual amount that must be reserved. The $25,000 that would have been put aside for the road can now be reallocated to another project.

2.3.6 Reinvestment Rate

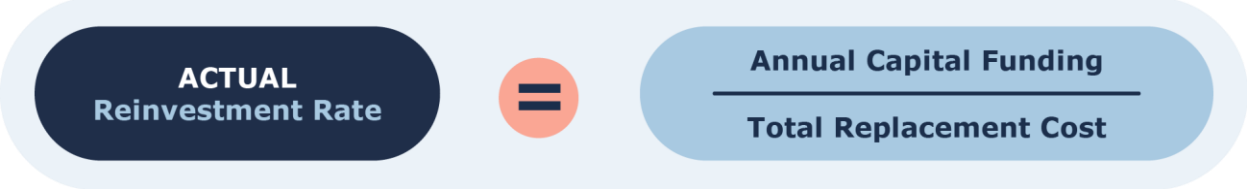
As assets age and deteriorate they require additional investment to maintain a state of good repair. The reinvestment of capital funds, through asset renewal or replacement, is necessary to sustain an adequate level of service. The reinvestment

rate is a measurement of available or required funding relative to the total replacement cost.

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

Figure 8 Target Reinvestment Rate Calculation

Figure 9 Actual Reinvestment Rate Calculation



2.3.7 Establishing Asset Condition

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

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

Table 5 Standard Condition Rating Scale

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

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

2.3.8 Evaluating Quantitative Risk

As outlined in Risk & Criticality, risk ratings are derived from the total probability of failure multiplied by the total consequence of failure. In this model, risk ratings may range from 0-25. The table below provides ranges of Very Low, Low, Moderate, High, and Very High dependent on the risk rating value.

Table 6 Probability of Failure, Consequence of Failure, and Overall Risk Ratings

Probability of Failure	Consequence of Failure	Risk Rating
1 – Rare	1 – Insignificant	1 - 4 – Very Low
2 – Unlikely	2 – Minor	5 - 7 – Low
3 – Possible	3 – Moderate	8 - 9 – Moderate
4 – Likely	4 – Major	10 - 14 – High
5 – Almost Certain	5 – Severe	15 - 25 – Very High

Additionally, risk ratings can be displayed as a matrix with the probability of failure from 1-5 along the bottom and the consequence of failure from 1-5 along the side.

Table 7 Example of Risk Matrix

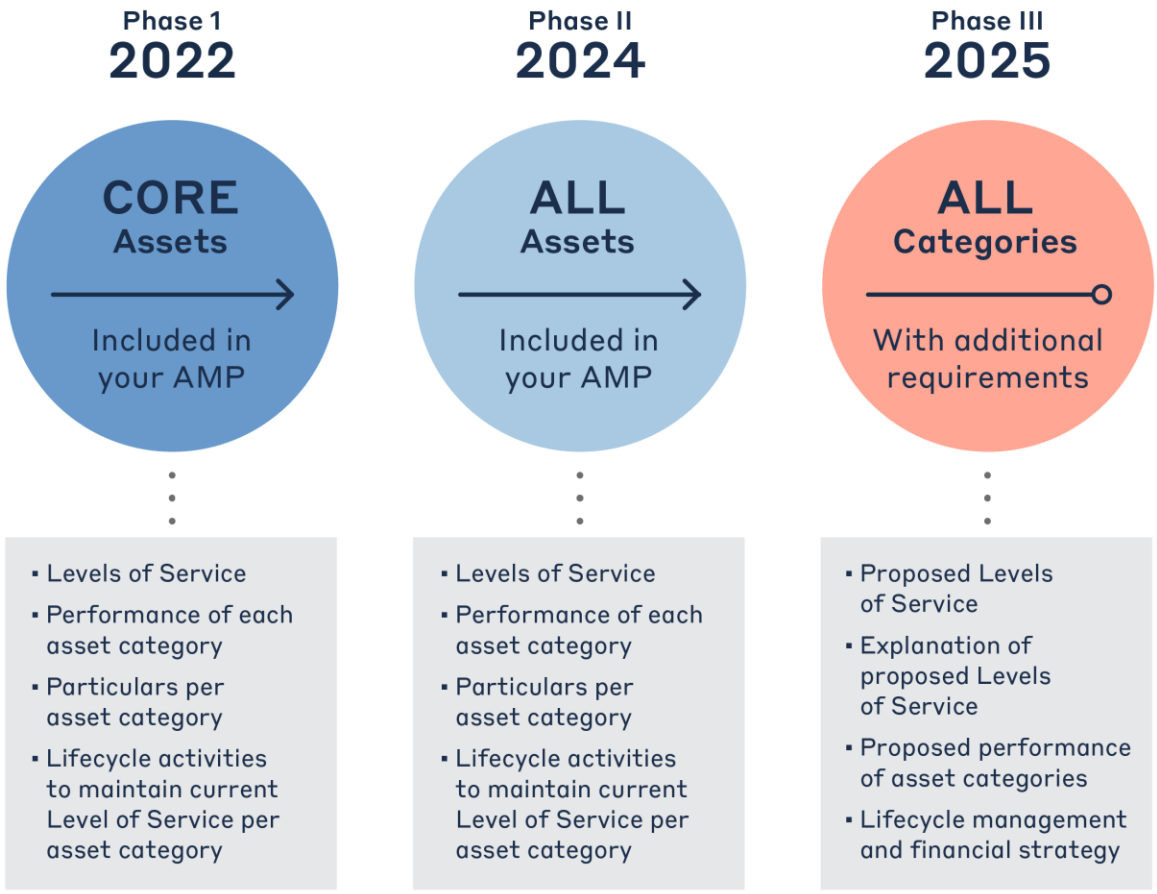
Consequence of Failure	1	2	3	4	5
5	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost
4	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost
3	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost
2	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost
1	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost	# Assets Quantity Cost

Probability of Failure

2.4 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)[2]. Along with creating better performing organizations, more livable and sustainable communities, the regulation is a key, mandated driver of asset management planning and reporting. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them. Figure 10 below outlines key reporting requirements under O. Reg 588/17 and the associated timelines.

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



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

2.4.1 O. Reg. 588/17 Compliance Review

Requirement	O. Reg. 588/17 Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	5.1 – 13.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	5.1 – 13.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	5.3 – 13.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	5.2 – 13.2	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	5.2 – 13.2	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	5.7 – 13.7	Complete
Current performance measures in each category	S.5(2), 2	5.7 – 13.7	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	5.4 – 13.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	Appendix B	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	12.1	Complete

Portfolio Overview

3 State of the Infrastructure

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

3.1 Asset Hierarchy & Data Classification

Figure 11 Asset Hierarchy and Data Classification

Asset hierarchy shows how individual assets, and their components, relate to the broader system. The structure influences how data is interpreted. Assets are organized to support clear, efficient reporting, with key details summarized at the segment level.

3.2 Portfolio Overview

3.2.1 Total Replacement Cost of Asset Portfolio

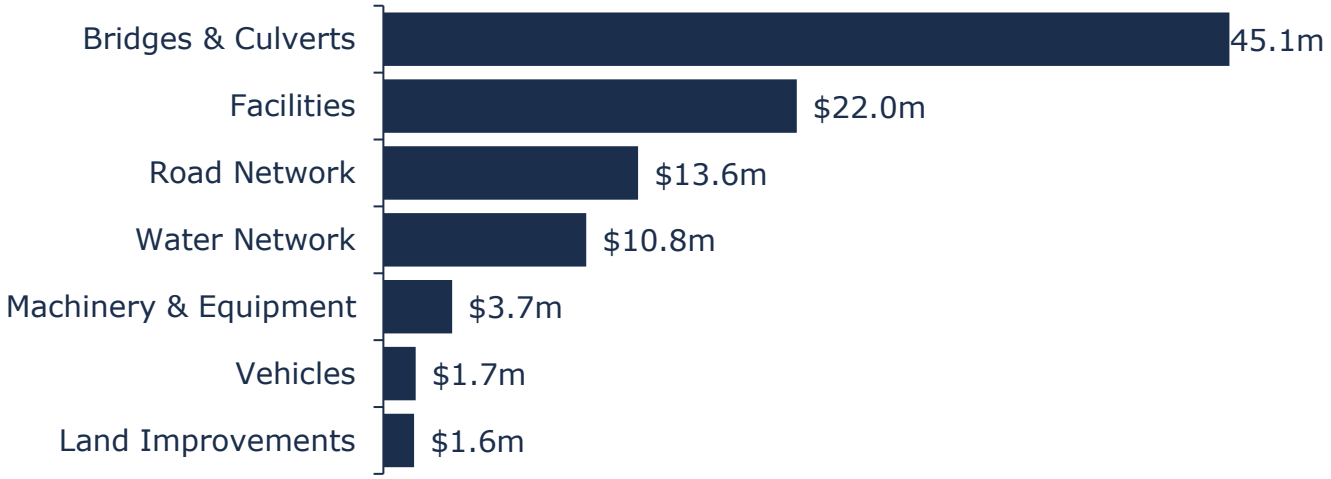
The six asset categories analyzed in this Asset Management Plan have a total current replacement cost of $98.6 million. This estimate was calculated using user-defined costing, as well as inflation of historical or original costs to current date. This estimate reflects the replacement of historical assets with similar, not necessarily identical, assets available for procurement today. Table 8 provides a detailed breakdown of replacement cost and average annual requirement[3] by asset category. Figure 12 illustrates the replacement cost of each asset category; at 46% of the total portfolio, bridges and structural culverts form the largest share of the Township's asset portfolio, followed by the facilities at 22%.

Table 8 Detailed Asset Inventory Valuation: Portfolio Overview`

Category	Replacement Cost	Replacement Cost Method	% of Total[4]	AAR[3]
Road Network	$13,584,462	Cost per Unit	14%	$505,598
Bridges & Culverts	$45,118,373	User-Defined	46%	$573,107
Facilities	$22,036,581	User-Defined	22%	$354,293
Land Improvements	$1,644,272	User-Defined	2%	$75,668
Machinery & Equipment	$3,660,700	CPI	4%	$312,131
Vehicles	$1,713,410	User-Defined	2%	$148,815
Water Network	$10,820,882	Cost per Unit	11%	$124,960
TOTAL	**$98,578,680**	**User-Defined**	**100%**	**$2,094,572**

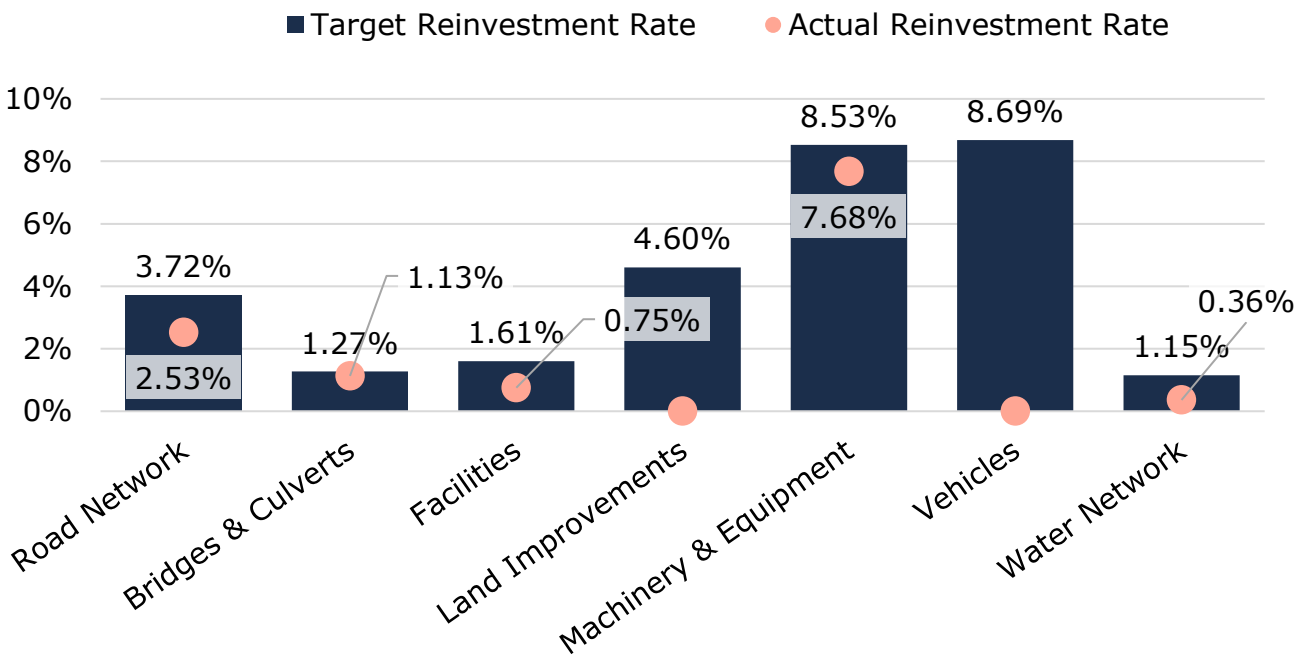
[3] For further clarification on Average Annual Requirement (AAR), see section 2.3.5 Average Annual Requirement.
[4] Weighted by replacement cost.

Figure 12 Current Replacement Cost: Portfolio Overview



3.2.2 Target vs. Actual Reinvestment Rate

Figure 13 Current Vs. Target Reinvestment Rate: Portfolio Overview



The chart above 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 $2,095,000, for a target portfolio reinvestment rate of 2.12%. Currently, annual investment from sustainable

revenue source is $1,340,000, for a current portfolio reinvestment rate of 1.36%. This leads to an annual infrastructure budget deficit of $755,000. Target and current re-investment rates by asset category are detailed below.

3.2.3 Condition of Asset Portfolio

Figure 14 Asset Condition: Portfolio Overview

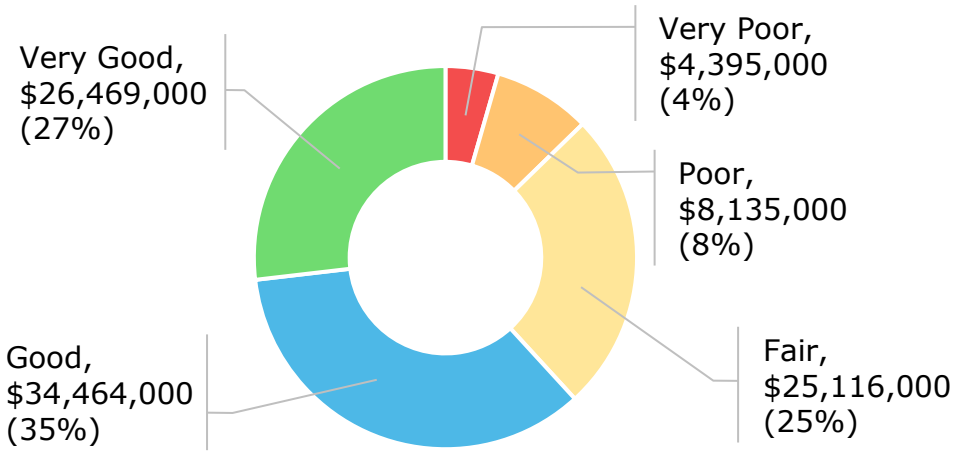


Figure 14 and Figure 15 summarize asset condition at the portfolio and category levels, respectively. Based on both assessed condition and age-based analysis, 87%[5] of the Township's infrastructure portfolio is in fair or better condition, with the remaining 13%[5] in poor or lower condition, and an overall condition rating of 66%[5]. Typically, assets in poor or lower condition may require replacement or major rehabilitation in the immediate or short-term. Targeted condition assessments may help further refine the list of assets that may be candidates for immediate intervention, including potential replacement or reconstruction.

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

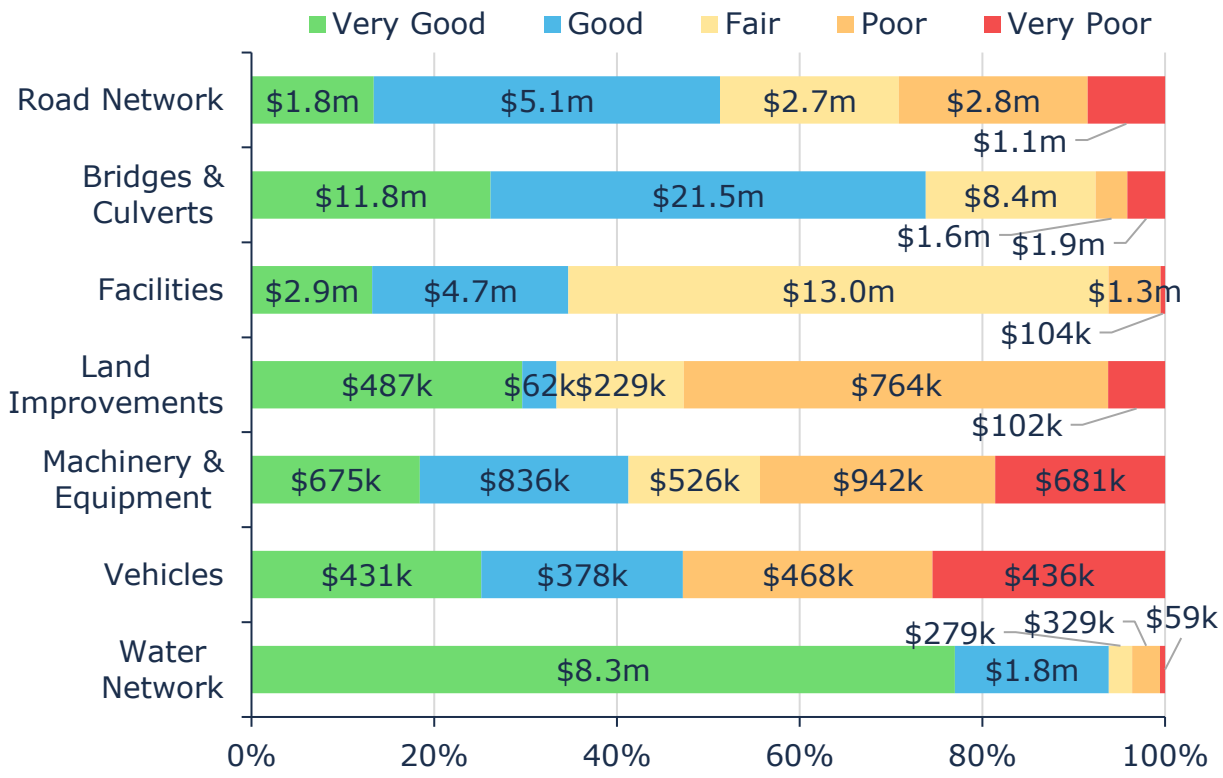
Condition data was available for 76% of the overall asset portfolio. Further breakdown by category is outlined in Table 10. Age-based condition estimations can skew data and lead to potential under- or overstatement of asset needs.

Further, when assessed condition data was available, it was projected to current year-end (2024). This 'projected condition' can generate lower condition ratings

[5] Average weighted by replacement cost.

than those established at the time of the condition assessment. The rate of this deterioration will also depend on lifecycle curves used to project condition over time.

Figure 15 Asset Condition: Portfolio Overview by Category



As further illustrated in Figure 15 at the category level, the majority of infrastructure categories are in fair or better condition, based primarily on assessed condition. See Table 10 for details on how condition data was derived for each asset segment.

Table 9 Detailed Asset Condition: Portfolio Overview

Asset Category	≤ Poor $	≤ Poor %	≥ Fair $	≥ Fair %	Average Condition
Road Network	$3,955,690	29%	$9,628,772	71%	Fair (55%)
Bridges & Culverts	$3,424,404	8%	$41,693,969	92%	Good (69%)
Facilities	$1,368,094	6%	$20,668,487	94%	Good (66%)

Asset Category	≤ Poor $	≤ Poor %	≥ Fair $	≥ Fair %	Average Condition
Land Improvements	$866,104	53%	$778,168	47%	Fair (52%)
Machinery & Equipment	$1,623,184	44%	$2,037,516	56%	Fair (50%)
Vehicles	$904,272	53%	$809,138	47%	Fair (52%)
Water Network	$388,747	4%	$10,432,135	96%	Good (78%)
TOTAL	**$12,530,495**	**13%**	**$86,048,185**	**87%**	**Good (66%)**

Source of Condition Data

This AMP relies on assessed condition for 76% of assets, based on and weighted by replacement cost. For the remaining assets, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. Table 10 below identifies the source of condition data used throughout this AMP.

Table 10 Source of Condition Data: Portfolio Overview

Asset Category	% Assessed[6]	Source of Condition Data
Road Network	59%	Township Staff
Bridges & Culverts	100%	2024 OSIMs Report
Facilities	83%	Keller Engineering
Land Improvements	51%	Keller Engineering/ Township Staff
Machinery & Equipment	24%	Township Staff
Vehicles	0%	N/A
Water Network	13%	Keller Engineering/ Township Staff

[6] Percentage of the assets within the category with condition assessment data, weighted by replacement cost.

3.2.4 Risk & Criticality

Using the risk equation and preliminary risk models, Figure 16 shows how assets across the different asset categories are stratified within the 1-25 risk rating ranges while Table 11 provides a breakdown of the probability of failure, consequence of failure, and risk ratings by asset category.

Figure 16 Risk Ratings: Portfolio Overview

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$39,303,805	$18,189,418	$7,840,149	$14,476,482	$18,768,826
(40%)	(18%)	(8%)	(15%)	(19%)

The analysis shows that based on current risk models, approximately 19% of the Township's assets, with a current replacement cost of roughly $18.8 million, carry a risk rating of 15 or higher (red) out of 25. Assets in this group may have a high probability of failure based on available condition data and age-based estimates and were considered to be most essential to the Township.

Table 11 Probability of Failure, Consequence of Failure, and Risk Rating: Portfolio Overview by Category

Asset Category	Probability of Failure	Consequence of Failure	Risk Rating
Road Network	2.73 / 5	4.27 / 5	11.82 / 25
Bridges & Culverts	2.0 / 5	2.4 / 5	4.5 / 25
Facilities	2.59 / 5	4.49 / 5	11.63 / 25
Land Improvements	2.96 / 5	3.35 / 5	10.39 / 25
Machinery & Equipment	3.03 / 5	4.01 / 5	11.59 / 25
Vehicles	3.05 / 5	4.68 / 5	14.09 / 25
Water Network	1.33 / 5	3.75 / 5	5.16 / 25
TOTAL	**2.25 / 5**	**3.41 / 5**	**7.7 / 25**

Overall, the average risk rating for the entire portfolio is 7.7, which is considered Low.

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 ranges. Staff should also continue to calibrate risk models.

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

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

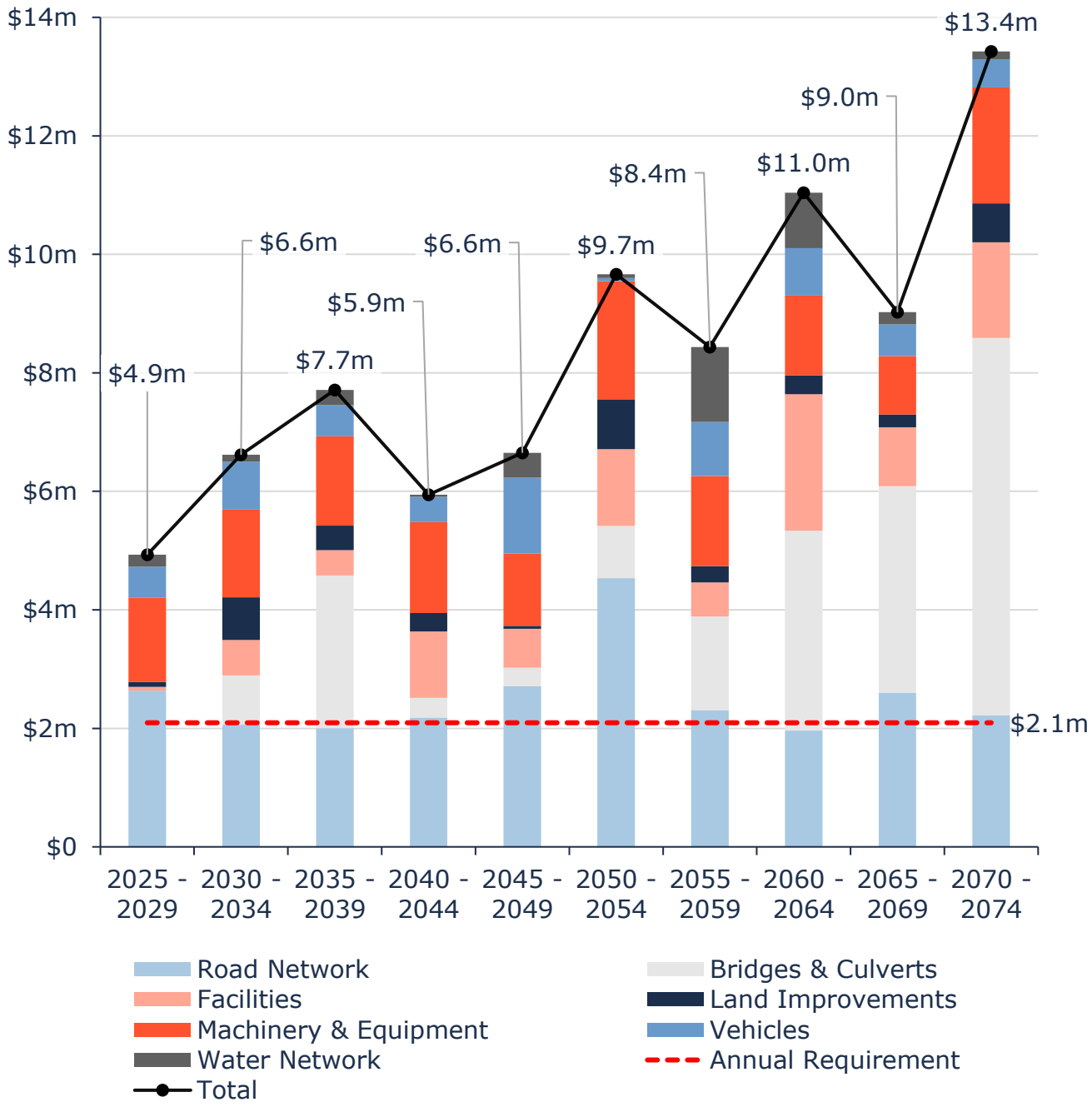
3.2.5 Forecasted Capital Requirements

Aging assets require maintenance, rehabilitation, and replacement. Figure 17 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for all asset categories analyzed in this AMP over a 50-year time horizon. To achieve and maintain the capital replacement needs for the proposed levels of service, an average of $1.6 million is required each year (red dotted line). Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise. This figure relies on age and available condition data. Figure 17 illustrates relatively consistent capital requirements for each five-year segment through the forecast period.

Additionally, there is currently an approximate $1.5 million backlog comprised of assets that remain in service beyond their estimated useful life. The 10-year capital requirements expanded in Appendix B have accounted for removing this accumulation and continuing to rehabilitate or replace assets in alignment with the proposed levels of service. 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 should continue to be used to

prioritize projects, continuously refining estimates for ongoing capital needs, and helping to select the right treatment for each asset.

Figure 17 Capital Replacement Needs: Portfolio Overview 2025-2074



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4 Proposed Levels of Service Analysis

4.1 Overview

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

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

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

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

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

4.1.2 Considerations

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

Financial Impact Assessments

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

Infrastructure Condition Assessments

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

Service Metrics

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

Service Impact Assessments

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

Key Lifecycle Activities

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

Risk Management

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

Infrastructure Condition Enhancements

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

Timelines

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

Stakeholder Engagement

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

Flexibility

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

- Financial state of the municipality
- Availability of grants
- Significant increases or decreases in population
- Changes in political priorities
- Changes in resident priorities
- New technologies
- Changes in legislation

- Any proposed changes to LOS should be flexible and able to adapt to changes listed above, and other unforeseen circumstances

4.1.3 Community Engagement

A key element for developing the Township's proposed levels of service must be the voice of the community. While it should be recognized that many factors, such as available funding, staff capacity, and operational priorities, must be considered to ensure realistic and achievable targets for the proposed LOS.

To incorporate the priorities of the public, the Township put forth an online community engagement survey. This survey received 29 responses from the current population of 3,571. The questions and results can be seen in Appendix E.

As the Township's asset management approach continues to grow and evolve, and as budget and resource limitations become less restrictive, there may be an opportunity to launch a project focused entirely on engaging with the community and gathering input on infrastructure and service priorities. At that point, community feedback could have an even greater influence on shaping LOS goals.

4.2 Proposed Levels of Service Scenarios

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

Although all three scenarios were considered, the Township adopted a segment-by-segment approach in determining its path forward. In most cases, the baseline condition was maintained, while a 5% increase from the baseline was applied to select segments.

4.2.1 Scenario Development & Selection

The Township adopted a practical and data-informed approach to determine its proposed LOS for each segment within the six asset categories. This process ensures that service delivery remains reliable over the long term while also balancing affordability and infrastructure needs

To begin, the Township used the current average condition of each asset group (such as roads, buildings, and other municipal infrastructure) as a reference point to help determine appropriate baseline condition targets. However, these current conditions were used as a guide rather than a fixed rule. In some cases, a more consistent and strategic target was applied—for instance, setting a 60% condition target for all Township buildings rather than creating a separate target for each facility.

Once these baseline condition targets were confirmed (see Table 12), the Township used the Decision Support (DS) module within the Citywide Asset Management software to model different asset management scenarios over a 50-year period. These scenarios were built to maintain the selected baseline condition as the service level goal and determine the resulting AAR[7].

Table 12 Baseline Conditions: PLOS

Category	Segment	Baseline Condition
Road Network	Barriers	50%
	Paved Roads	50%
	Road Signs	50%
	Small Culverts	50%
	Storm Drains	50%
	Streetlights	50%
Bridges & Structural Culverts	Bridges	60%
	Structural Culverts	60%
Facilities	Administration Building	60%
	Arena	60%

[7] For further clarification on Average Annual Requirement (AAR), see section 2.3.5 Average Annual Requirement.

Category	Segment	Baseline Condition
	Fire Hall	60%
	Gravel Pit Scale House	60%
	Mansfield Public Washroom	60%
	Public Works Building	60%
	Sand Dome	60%
	Utility Storage	60%
Land Improvements	Ball Diamond	50%
	Fencing	50%
	Multipurpose Pad	50%
	Outdoor Furnishings	50%
	Parking Lot	50%
	Play Structure	50%
	Trail	50%
	Wells	50%
Machinery & Equipment	Attachments	50%
	Fueling Station	50%
	Heavy Equipment	50%
	Medium Equipment	50%
	Small Equipment	50%
	Solar Panels	50%
Vehicles	Heavy Duty	50%
	Light Duty	50%
Water Network	Hydrants	50%
	Municipal Wells	50%
	Valves & Fittings	50%
	Water Buildings	50%

Category	Segment	Baseline Condition
	Water Equipment	50%
	Water Mains	50%
	Water Meters	50%

The DS tool helps predict when assets will need major rehabilitation or replacement. When an asset reaches the point where work is recommended, the software checks whether deferring that work to the following year would cause the **overall average condition of all assets in the scenario** to fall below the target. If the target would still be met without immediate action, the work is deferred to the following year and the process is repeated. This method reduces unnecessary spending by allowing the Township to postpone work that is not yet critical—without lowering the overall quality of service.

In some instances, the AAR may not change from scenario to scenario. This can happen for two reasons:

1. A low number of assets are included in the scenario and therefore there are fewer opportunities for rehabilitation/replacement deferral
2. There is a very low condition threshold for replacement.
    - Even if the average condition of all assets in the scenario drops below the set target, an activity cannot be performed until the replacement threshold for an individual asset is met. DS will not plan a replacement early.
    - For example, if the replacement threshold for all assets in a scenario is 0%, even if the overall average condition continues to drop further and further below the target condition each year, until an asset hits a 0% condition it cannot be replaced.

To fully explore options and potential impacts, the Township also modeled three alternative scenarios:

- A 5% reduction in the average condition target to see how a lower standard might reduce costs or affect service quality
- A 5% increase to explore the cost and benefit of delivering a higher service level

- A no-target scenario, where assets are replaced immediately once they reach their end-of-life, with no consideration for overall system condition or available budget. This approach results in the highest annual cost and is generally considered less sustainable

These four scenarios—maintaining, lowering (-5%), raising (+5%), or removing the baseline condition target—were compared side by side. They provided insight into how different strategies would affect long-term costs, asset performance, and service reliability.

Following this analysis, and after receiving feedback from both Township staff and the community, the most suitable proposed LOS were selected. These reflect a balance between public expectations, financial responsibility, and long-term sustainability.

Table 13 provides the AAR for each of the scenarios outlined above. The final selection for each segment is highlighted in green.

Table 13 AAR for Scenarios: PLOS

Category	Segment	Average Annual Requirement			
		-5% Condition	Maintain Baseline	+5% Condition	No Target
Road Network	Barriers	$8,109	$8,260	$8,260	$8,343
	Paved Roads	$335,590	$373,812	$407,846	$423,964
	Road Signs	$21,234	$21,753	$21,753	$21,970
	Small Culverts	$93,330	$93,330	$93,330	$103,166
	Storm Drains	$2,148	$2,148	$2,148	$2,170
	Streetlights	$5,946	$6,295	$6,649	$7,661
	Total	**$466,357**	**$505,598**	**$539,986**	**$567,274**
Bridges & Structural Culverts	Bridges	$424,408	$429,615	$429,615	$486,069
	Structural Culverts	$143,493	$143,493	$143,493	$182,200
	Total	**$567,900**	**$573,107**	**$573,107**	**$668,269**
Facilities	Administration Building	$37,279	$37,684	$37,730	$41,520
	Arena	$181,325	$195,187	$197,123	$172,622
	Fire Hall	$16,027	$16,027	$16,027	$16,187
	Gravel Pit Scale House	$8,360	$8,360	$8,360	$8,443

Category	Segment	Average Annual Requirement			
		-5% Condition	Maintain Baseline	+5% Condition	No Target
	Mansfield Public Washroom	$13,702	$13,702	$13,702	$13,839
	Public Works Building	$33,402	$33,437	$34,190	$34,532
	Sand Dome	$45,287	$45,287	$45,287	$49,250
	Utility Storage	$2,673	$2,673	$2,673	$2,700
	Total	**$338,056**	**$352,357**	**$355,092**	**$339,093**
Land Improvements	Ball Diamond	$3,465	$3,465	$3,465	$3,333
	Fencing	$3,194	$3,427	$3,484	$3,384
	Multipurpose Pad	$10,657	$10,657	$10,900	$11,009
	Outdoor Furnishings	$4,052	$4,402	$4,745	$5,215
	Parking Lot	$35,901	$35,901	$35,901	$36,260
	Play Structure	$11,461	$11,461	$11,461	$12,634
	Trail	$2,451	$2,451	$2,451	$2,476
	Wells	$3,903	$3,903	$4,014	$3,613
	Total	**$75,085**	**$75,668**	**$76,421**	**$77,924**
Machinery & Equipment	Attachments	$53,029	$54,776	$55,652	$53,782
	Fueling Station	$5,629	$5,952	$5,952	$5,228
	Heavy Equipment	$156,971	$156,971	$156,971	$148,138

Category	Segment	Average Annual Requirement			
		-5% Condition	Maintain Baseline	+5% Condition	No Target
	Medium Equipment	$41,605	$41,605	$41,756	$42,695
	Small Equipment	$37,541	$39,920	$41,443	$40,884
	Solar Panels	$12,906	$12,906	$12,906	$14,484
	Total	**$307,681**	**$312,131**	**$314,680**	**$305,210**
Vehicles	Heavy Duty	$132,987	$133,561	$136,730	$119,197
	Light Duty	$14,202	$15,254	$15,254	$15,672
	Total	**$147,189**	**$148,815**	**$151,984**	**$134,869**
Water Network		$1,620	$1,691	$1,798	$2,010
	Hydrants	$10,508	$11,776	$11,776	$12,581
	Municipal Wells	$12,727	$14,125	$15,454	$22,451
	Valves & Fittings	$37,370	$38,122	$38,122	$39,287
	Water Buildings	$17,860	$17,860	$17,860	$18,039
	Water Equipment	$34,960	$37,515	$41,122	$61,595
	Water Mains	$3,871	$3,871	$3,871	$3,910
	Total	**$118,915**	**$124,960**	**$130,003**	**$159,872**
TOTAL		**$2,021,184**	**$2,092,636**	**$2,141,273**	**$2,252,512**

4.2.2 Lifecycle Changes

The current lifecycle strategy remains appropriate, as it is based on the overall average condition of the Township's assets. No immediate changes to the strategy are necessary.

However, to better align with target condition levels, it is recommended to adjust the timing of specific maintenance and renewal activities to follow the 10-year capital requirements as outlined in Appendix B. By scheduling these interventions during optimal periods—when they are most effective and cost-efficient—the Township can enhance asset performance and extend their service life.

This proactive approach will allow the Township to maintain high service standards and fiscal responsibility while following the existing strategy. Regular monitoring will ensure that these timing adjustments continue to meet the Township's evolving infrastructure needs.

4.2.3 Affordability/Achievability

As the AAR closely corresponds to the Township's current capital budget, the selected proposed LOS are achievable.

For a more in-depth breakdown, see Section 13.

4.2.4 Changes to Community and Technical Levels of Service

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

4.2.5 Proposed LOS Risks

The majority of the proposed LOS are designed to maintain existing—or baseline—asset conditions. As a result, the implementation of these scenarios does not introduce any new or additional risks to service delivery.

The risk profile associated with each asset category remains unchanged. Previously identified risks—such as those related to aging infrastructure and environmental

factors—continue to apply under the proposed approach. These risks have already been evaluated and documented as part of the Township's overall asset management planning.

By focusing on maintaining current asset conditions rather than improving or reducing service levels, the Township can continue to deliver consistent service without increasing exposure to unforeseen operational or financial risks. This also allows for more predictable long-term planning and resource allocation.

Ongoing monitoring and regular updates to the risk register will ensure that any changes in asset performance or external conditions are promptly addressed.

Category Analysis: Core Assets

5 Road Network

The Township's road network has a current replacement cost of $13.6 million, distributed primarily to paved roads. The Township also owns and manages other supporting infrastructure and capital assets, including barriers, road signs, small culverts, storm drains, and streetlights.

5.1 Inventory & Valuation

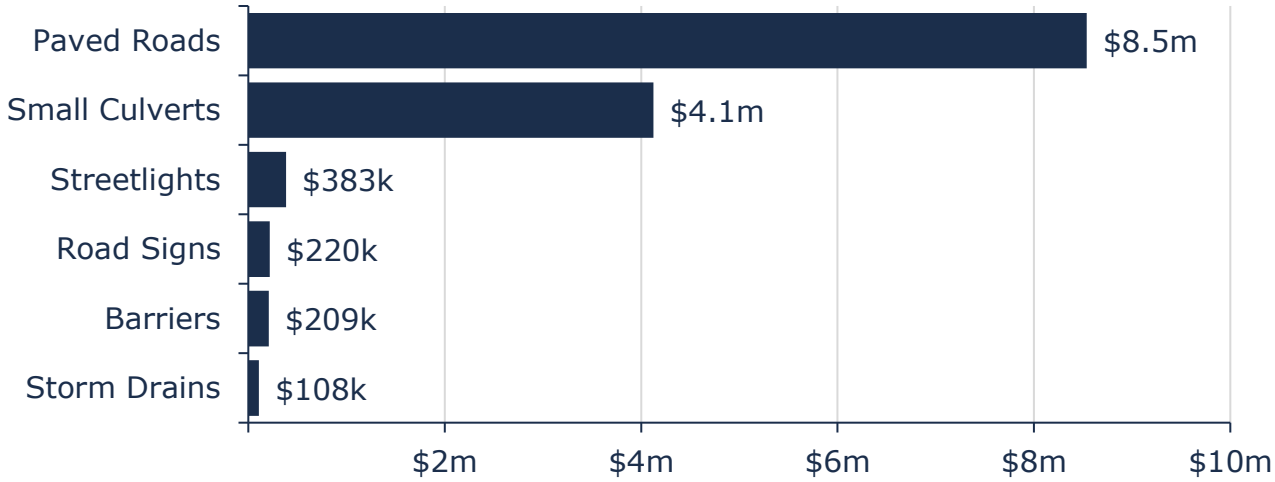
Table 14 summarizes the quantity and current replacement cost of the Township's various road network assets as managed in its primary asset management register, Citywide.

Table 14 Detailed Asset Inventory: Road Network

Segment	Quantity	Unit of Measure	Replacement Cost (RC)	Primary RC Method	AAR[8]
Barriers	29	Assets	$208,569	CPI	$8,260
Paved Roads	65.7	KM	$8,538,010	Cost per Unit	$373,812
Road Signs	725	Assets	$219,701	CPI	$21,753
Small Culverts	30	Assets	$4,126,641	User-Defined	$93,330
Storm Drains	1	Assets	$108,489	CPI	$2,148
Streetlights	186	Assets	$383,052	CPI	$6,295
Unpaved Roads	193.2	KM	Not Planned for Replacement[9]		
TOTAL			**$13,584,462**	**Cost per Unit**	**$505,598**

[8] Average Annual Capital Requirement (AAR) based on selected proposed levels of service scenarios For further detail, see section 2.3.5 Average Annual Requirement and section 4 Proposed Levels of Service Analysis.
[9] Gravel roads undergo perpetual operating and maintenance activities. If maintained properly, they can theoretically have a limitless service life.

Figure 18 Portfolio Valuation: Road Network



5.2 Asset Condition

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

- The Township's Public Works Department currently conducts annual condition assessments for asphalt roads.
- In the future, the Township may consider having these assessments conducted through a Roads Needs Study by an engineering firm, depending on budgeting constraints.
- Condition assessments for gravel roads are completed annually by the Township's Public Works department.
- Streetlight conditions are determined based on their age and estimated useful life.
- Sign condition assessments are occasionally conducted by the Township's insurance agency. However, similar to the Roads Needs Study, the Township may consider developing an internal condition assessment framework, incorporating signs into other asset assessment projects/studies, or increasing the frequency of evaluation by the insurance agency.

In this AMP, the following rating criteria is used to determine the current condition of road network assets and forecast future capital requirements:

Table 15 Condition Ranges: Paved Roads – Road Network

Condition Ranges	Description
Very Good (80% – 100%)	♦ New or recently rehabilitated pavement, with no significant defects. ♦ Smooth surface with no visible cracks, rutting, or deterioration. ♦ Excellent drainage and stable shoulders. ♦ Minimal maintenance required beyond routine inspections. ♦ Long expected service life with preventive maintenance.
Good (60% – 80%)	♦ Minor cracking and minimal surface distress, with good ride quality. ♦ No significant rutting or potholes. ♦ Drainage functioning well, with stable shoulders and ditches. ♦ Periodic crack sealing or surface treatment can maintain condition. ♦ No major rehabilitation required in the near future.
Fair (40% – 60%)	♦ Moderate cracking, surface wear, and minor rutting, but road remains serviceable. ♦ Some patched areas and minor potholes, but no immediate safety risks. ♦ Drainage mostly functional, with some minor erosion or edge distress. ♦ Surface treatments or overlays needed to extend pavement life. ♦ Routine maintenance required to slow further deterioration.

Condition Ranges	Description
Poor (20% – 40%)	♦ Major cracking and moderate to severe rutting, affecting ride quality. ♦ Widespread patching and pothole formation, requiring frequent repairs. ♦ Drainage issues and edge failures, leading to erosion and shoulder deterioration. ♦ Structural integrity weakened, with potential load restrictions. ♦ Requires resurfacing or deep rehabilitation to restore function.
Very Poor (0% –20%)	♦ Severe pavement failures, including large potholes, deep rutting, and widespread alligator cracking. ♦ Significant surface distortion and heaving, making travel unsafe. ♦ Extensive base failure, with visible pumping, settlement, and subgrade exposure. ♦ Frequent maintenance required, but rehabilitation is no longer cost-effective. ♦ Requires full-depth reconstruction or major rehabilitation.

As illustrated in Figure 19, the majority of the Township's road network asset categories are in fair or better condition; however, the majority of the road signs are in poor condition.

Figure 19 Asset Condition: Road Network

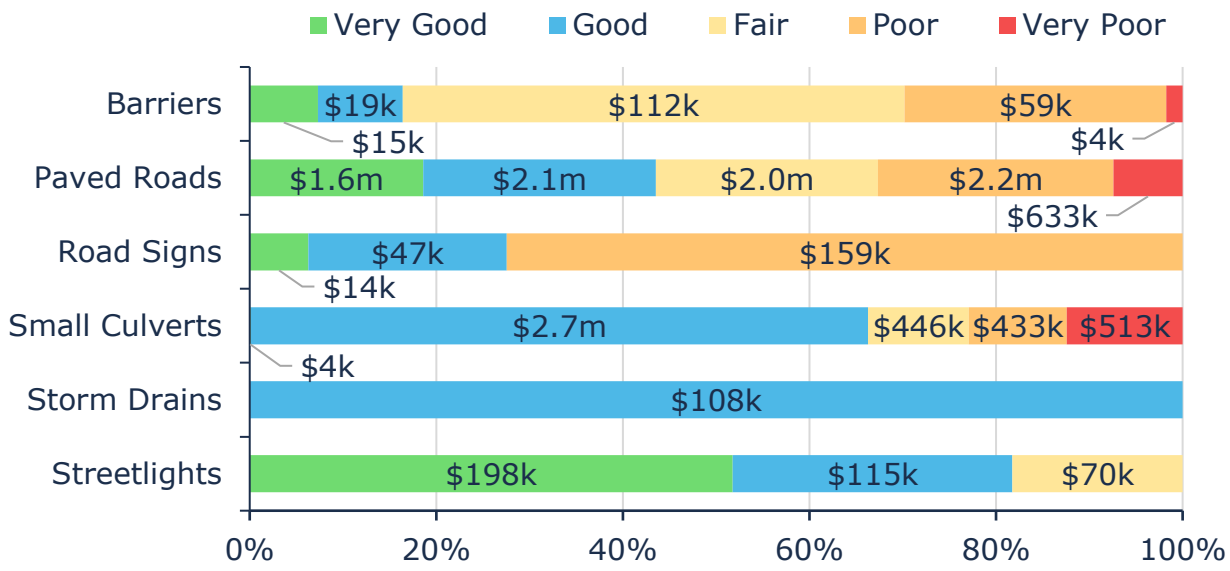


Table 70 summarizes the replacement cost-weighted condition of the Township's road network portfolio. Based primarily on assessed condition data, 71% of road network portfolio is in fair or better condition, with the remaining 29% in poor or lower condition. These assets may be candidates for replacement 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.

Table 16 Asset Condition: Road Network by Segment

Asset Category	≤ Poor $	≤ Poor %	≥ Fair $	≥ Fair %	Average Condition[10]
Barriers	$62,194	30%	$146,375	70%	Fair (48%)
Paved Roads	$2,788,385	33%	$5,749,625	67%	Fair (54%)
Road Signs	$159,158	72%	$60,543	28%	Poor (38%)
Small Culverts	$945,953	23%	$3,180,688	77%	Fair (56%)
Storm Drains	-	0%	$108,489	100%	Good (74%)
Streetlights	-	0%	$383,052	100%	Good (77%)
TOTAL	**$3,955,690**	**29%**	**$9,628,772**	**71%**	**Fair (55%)**

[10] Weighted by replacement cost.

Condition data was available for 59% of road network, based on replacement costs; age was used to estimate condition for the remaining 41% of assets.

5.3 Age Profile

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

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

Table 17 summarizes and Figure 20 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

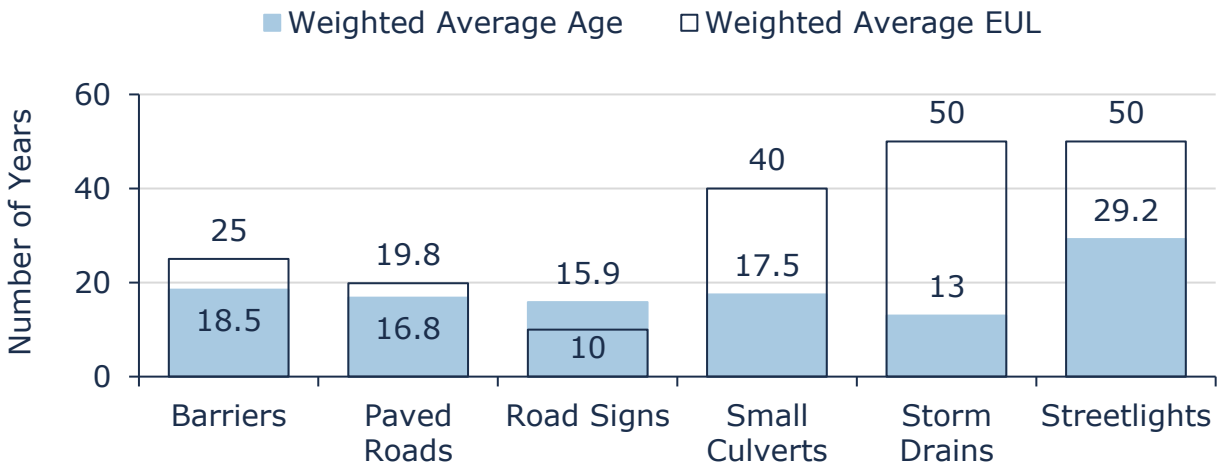
Table 17 Detailed Asset Age: Road Network

Segment	Weighted Average EUL	Weighted Average Age
Barriers	25.0	18.5
Paved Roads	19.8	16.8
Road Signs	10.0	15.9
Small Culverts	40.0	17.5
Storm Drains	50.0	13.0
Streetlights	50.0	29.2

Age analysis shows that the majority of paved roads have entered the latter stages of their expected useful life, with an average age of 16.8 years against a design life of approximately 20 years. Barriers are also in the latter stages of their useful lives while road signs continue to remain in service well beyond their design life. Small

culverts and streetlights are around the midpoint of their design lives while storm drains are in the earlier stages.

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



Although asset age is an important measurement for long-term planning, condition assessments provide a more accurate indication of actual asset needs. An asset may perform past the established useful life if it has been maintained and kept in good condition. Therefore, it is important to consider asset condition when comparing asset age to its serviceable lifespan.

However, each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type. Further, useful life estimates established as part of the PSAB 3150 implementation may not be accurate and may not reflect in-field asset performance.

5.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that the Township's road network assets are performing as expected and meeting the needs of residents, 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 for road network assets.

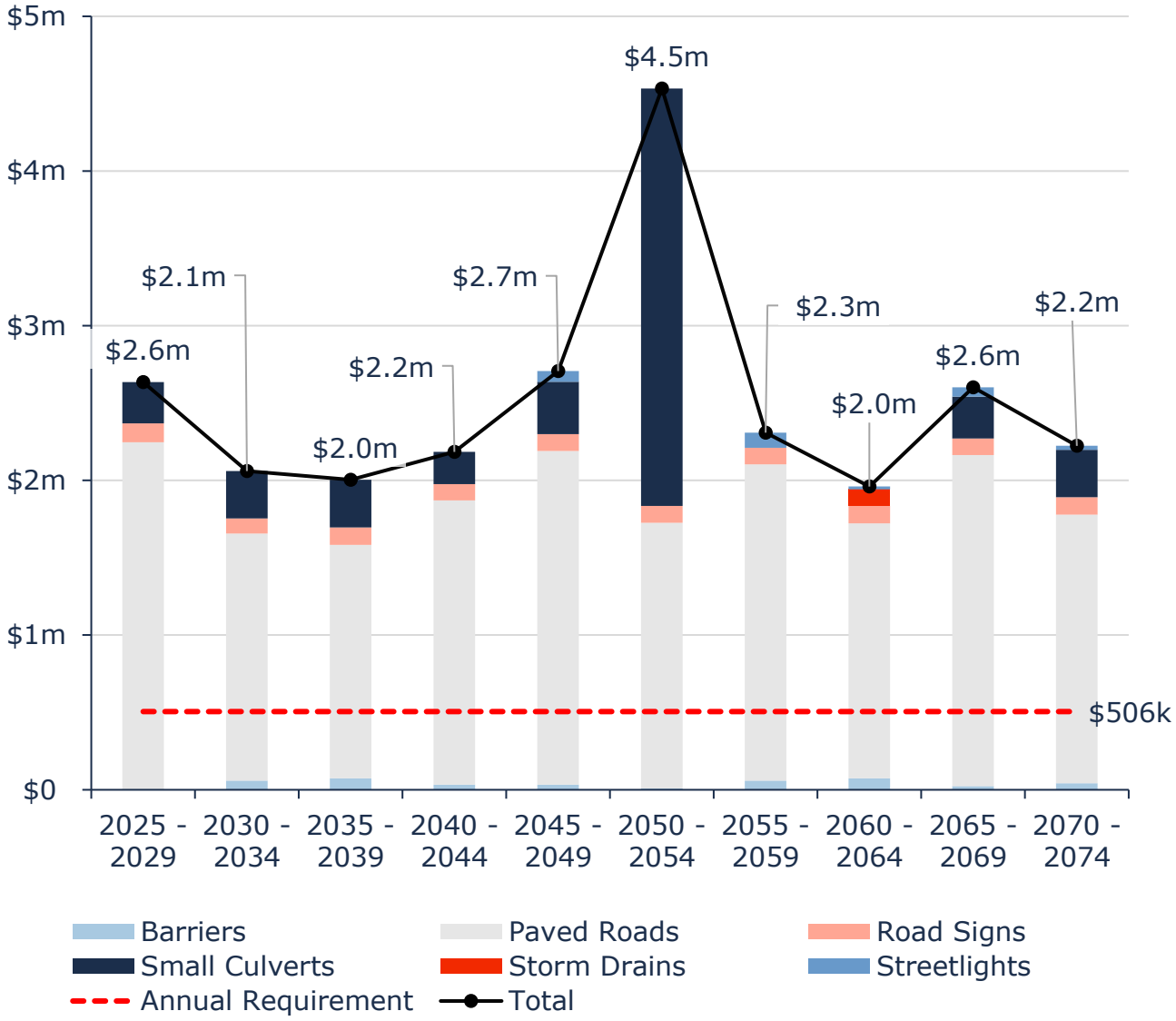
Table 18 Lifecycle Management Strategy: Road Network

Activity Type	Description of Current Strategy
Maintenance	Cold patching of asphalt roads is carried out as needed, based on visual inspections and Route Patrols conducted by our Public Works Department.
	Line painting on all asphalt roads within the Township is completed annually in the fall.
	Asphalt roads are visually inspected and undergo route patrols as per Minimum Maintenance Standards. Based on the findings of these inspections, maintenance activities are performed on an as-needed basis.
	Maintenance activities for gravel roads include re-stoning each gravel road every four years, applying calcium dust suppressant annually, and performing ditching maintenance on an annual rotation throughout the Township.
	The Township follows a four-year schedule where each year, a quarter of the Township's gravel roads are re-stoned. This ensures that each gravel road is re-stoned every four years.
	Maintenance on lights and signs is performed as needed, directed by the Public Works Department, which also handles resident concerns via the service request portal.
	Pathways are regularly cleared of snow and debris by the Public Works Department and seasonal contractors.
Rehabilitation	Milling and paving is conducted every 15 years to a depth of 60mm. After three mill and pave events, a complete road surface and road base reconstruction is carried out.
Replacement	Rehabilitation and replacement of road assets are prioritized based on an analysis of the type of road, remaining service life, condition rating, traffic volume, and location.
	Streetlights, bulbs, and signs are updated or replaced as needed through route patrols and residents. Signs are purchased annually, and an inventory of replacement signs are stored within the Public Works building.

5.5 Forecasted Long-Term Replacement Needs

Figure 13 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's road network. This analysis was run from 2025 until 2074 (a 50-year timespan) for assets included in Citywide Assets, the Township's primary asset management system and asset register.

Figure 21 Forecasted Capital Replacement Needs: Road Network 2025-2074



The Township's average annual requirements (red dotted line) total $505,598 for all assets in the road network category. 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 indicates that capital needs remain relatively stable, with a range from $2.0 million to $2.7 million, for each five-year grouping throughout this timeframe. There is an exception from 2050-2054 with a spike to $4.5 million.

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

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

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

5.6 Risk Analysis

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

5.6.1 Quantitative Risk

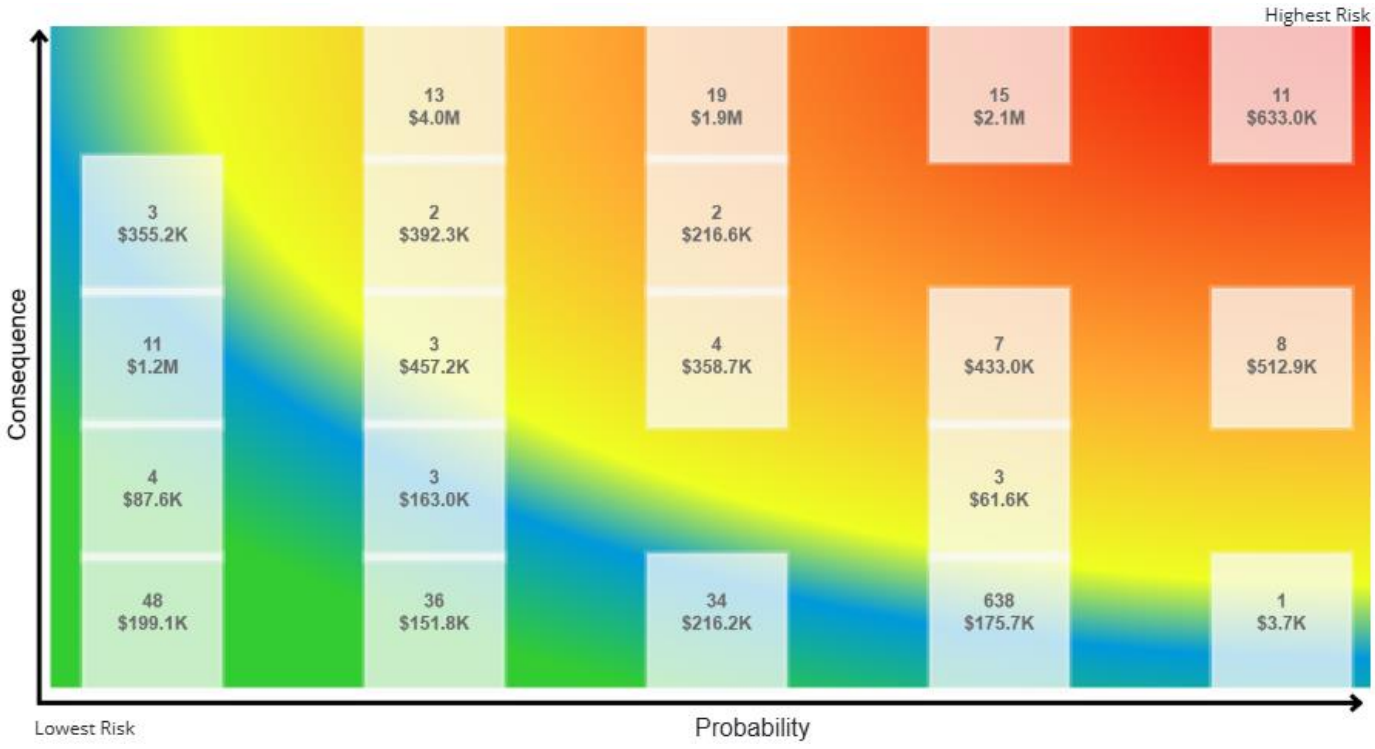
The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the road network assets based on 2024 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

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 Quantitative Risk under Section 2.2.2 as well as Section 2.3.8 Evaluating Quantitative Risk for further details on the approach used to determine asset risk ratings and classifications.

Figure 22 Risk Matrix: Road Network



The following risk ratings are first shown for the overall category and then by segment for the road network assets.

Figure 23 Risk Rating Ranges: Road Network

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$2,440,025	$546,672	$656,637	$4,789,693	$5,151,436
(18%)	(4%)	(5%)	(35%)	(38%)

Table 19 Probability of Failure, Consequence of Failure, Risk Ratings: Road Network by Segment

Asset Category	Probability of Failure	Consequence of Failure	Risk Rating
Barriers	3.08 / 5	1.87 / 5	5.89 / 25
Paved Roads	2.78 / 5	4.55 / 5	13.24 / 25
Road Signs	3.39 / 5	1.21 / 5	3.81 / 25
Small Culverts	2.69 / 5	4.29 / 5	10.65 / 25
Storm Drains	2 / 5	4 / 5	8 / 25
Streetlights	1.66 / 5	1.08 / 5	1.75 / 25
TOTAL	**2.73 / 5**	**4.27 / 5**	**11.82 / 25**

Overall, the average risk rating for road network assets is 11.82, which is considered High.

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

5.6.2 Qualitative Risk

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

Infrastructure Reinvestment

The current level of financial reinvestment does not sufficiently address maintenance and capital rehabilitation requirements to ensure roads remain in an adequate state of repair and achieve their intended service life. The financial strategy in this report addresses the extent of this underfunding.

Organizational Resources

The Township has a large inventory of roads which require regular maintenance and assessment. Staff capacity and expertise are sometimes insufficient to deploy optimal maintenance and assessment strategies.

Climate Change & Extreme Weather Events

An increase in freeze/thaw cycles has been impacting the Township's roads. This causes the accelerated deterioration of road surfaces leading to a heightened need for maintenance and rehabilitation as well as reducing the useful life of the roads.

5.7 Current Levels of Service

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

5.7.1 Community Levels of Service

Table 20 O. Reg. 588/17 Community Levels of Service: Road Network

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description, which may include maps, of the road network in the Township and its level of connectivity	See Appendix C
Quality	Description or images that illustrate the different levels of road class pavement condition	The Township conducts regular visual condition assessment for all Paved and Gravel Roads. Every road receives a condition rating (0-100).

Service Attribute	Qualitative Description	Current LOS (2024)
		0-20 – Very Poor. Road requires immediate reconstruction within the next 1-2 years. 20-59 – Poor/Fair. Road requires major rehabilitation and/or replacement in the next 3-6 years. 60-100 – Good/Very Good – Roads are functioning as required. Preventative maintenance is recommended.

5.7.2 Technical Levels of Service

Table 21 O. Reg. 588/17 Technical Levels of Service: Road Network

Service Attribute	Technical Metric	Current LOS (2024)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km2)	0 km / 287 km^2
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km2)	443.97 km / 287 km^2
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km2)	71.06 km / 287 km^2
Quality	Average pavement condition index for paved roads in the Township	54%
	Average surface condition for unpaved roads in the Township (e.g. excellent, good, fair, poor)	Good
Performance	% of road network assets in fair or better condition	71%

Service Attribute	Technical Metric	Current LOS (2024)
	% of road network assets in poor or lower condition	29%
	Actual annual capital budget : average required annual capital requirements	($343,000 : $506,000) (0.68 : 1)

5.8 Proposed Levels of Service

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

Table 22 outlines the proposed LOS scenarios that were analyzed for the road network. Further explanation and proposed LOS analysis at the portfolio level can be found in Section 4 Proposed Levels of Service Analysis.

Table 22 Proposed LOS: Road Network

Segment	Average Annual Requirement				Selection
	-5% Condition (45%)	Maintain Baseline (50%)	+5% Condition (55%)	No Target	
Barriers	$8,109	$8,260	$8,260	$8,343	Maintain
Paved Roads	$335,590	$373,812	$407,846	$423,964	Maintain
Road Signs	$21,234	$21,753	$21,753	$21,970	Maintain
Small Culverts	$93,330	$93,330	$93,330	$103,166	Maintain
Storm Drains	$2,148	$2,148	$2,148	$2,170	Maintain
Streetlights	$5,946	$6,295	$6,649	$7,661	Maintain
TOTAL	**$466,357**	**$505,598**	**$539,986**	**$567,274**	**$505,598**

6 Bridges & Structural Culverts

The Township's transportation network includes bridges and structural culverts, with a current replacement cost of $45.1 million.

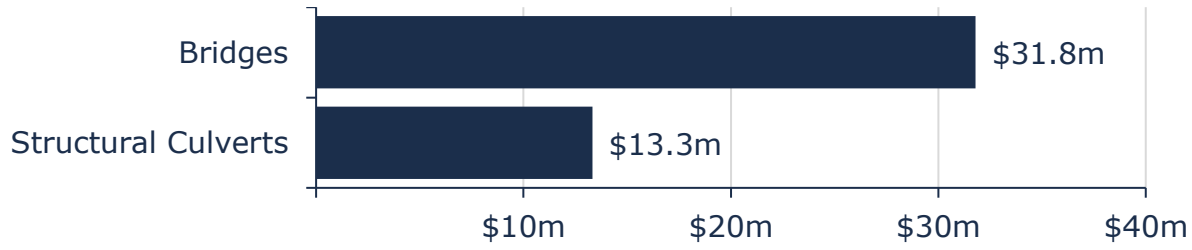
6.1 Inventory & Valuation

Table 23 summarizes the quantity and current replacement cost of bridges and structural culverts. The Township owns and manages one bridge and two structural culverts.

Table 23 Detailed Asset Inventory: Bridges & Structural Culverts

Segment	Quantity	Unit of Measure	Replacement Cost (RC)	Primary RC Method	AAR[11]
Bridges	28	Assets	$31,795,000	User-Defined	$429,615
Structural Culverts	19	Assets	$13,323,373	User-Defined	$143,493
TOTAL			**$45,118,373**	**User-Defined**	**$573,107**

Figure 24 Portfolio Valuation: Bridges & Structural Culverts



[11] Average Annual Capital Requirement (AAR) based on selected proposed levels of service scenarios For further detail, see section 2.3.5 Average Annual Requirement and section 4 Proposed Levels of Service Analysis.

6.2 Asset Condition

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

- Condition assessments for all bridges and structural culverts with a span of over 3 meters within the Township are conducted biennially, following the guidelines of the Ontario Structure Inspection Manual (OSIM)
- Bridges and structural culverts spanning less than 3 meters are inspected annually during internal road patrols

In this AMP, the following rating criteria is used to determine the current condition of bridge and structural culvert assets and forecast future capital requirements:

Table 24 Condition Ranges: Bridges & Structural Culverts

Condition Ranges	Description
Very Good (80% – 100%)	♦ New or recently rehabilitated structure, with no significant defects. ♦ Deck, beams, bearings, and abutments in excellent condition, with no visible wear. ♦ Efficient drainage, minimal surface wear, and no corrosion issues. ♦ Meets or exceeds all safety and design standards. ♦ Minimal maintenance required beyond routine inspections.
Good (60% – 80%)	♦ Minor surface wear and some cosmetic deterioration, such as light scaling or superficial cracking. ♦ Deck, joints, and bearings in good working condition, with no major structural concerns. ♦ Minimal corrosion or wear on steel and concrete elements. ♦ Routine inspections and preventive maintenance needed to extend lifespan. ♦ No major rehabilitation required in the near future.

Condition Ranges	Description
Fair (40% – 60%)	♦ Moderate wear and surface deterioration, including minor cracking, spalling, and some exposed reinforcing steel. ♦ Deck and joints in functional condition, but requiring increased maintenance. ♦ Bearings, beams, and abutments showing early signs of corrosion or wear. ♦ No immediate safety concerns, but planning for future rehabilitation needed. ♦ Regular maintenance and potential repairs required to maintain serviceability.
Poor (20% – 40%)	♦ Advanced deterioration of structural components, with noticeable concrete scaling, cracking, or steel corrosion. ♦ Deck, beams, or bearings showing significant wear, affecting bridge performance. ♦ Localized section loss on steel or concrete elements, requiring close monitoring. ♦ Possible minor load restrictions, but structure remains functional. ♦ Major rehabilitation or strengthening required in the near term.
Very Poor (0% –20%)	♦ Severe structural deterioration, including major section loss, deep cracking, and exposed or corroded reinforcing steel. ♦ Significant deck and beam damage, with failing expansion joints, delaminated concrete, and spalling. ♦ Major safety concerns, including load restrictions or risk of failure. ♦ Frequent water leakage and erosion, undermining abutments or footings. ♦ Immediate rehabilitation or full replacement required.

Figure 25 summarizes the replacement cost-weighted condition of the Township's bridges and structural culverts based on in-field condition assessments from the most recent Ontario Structures Inspection Manual (OSIM) report. Based on these assessments, 92% of bridges and structural culverts are in fair or better condition with the remaining 8% in poor or lower 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 25 Asset Condition: Bridges & Structural Culverts

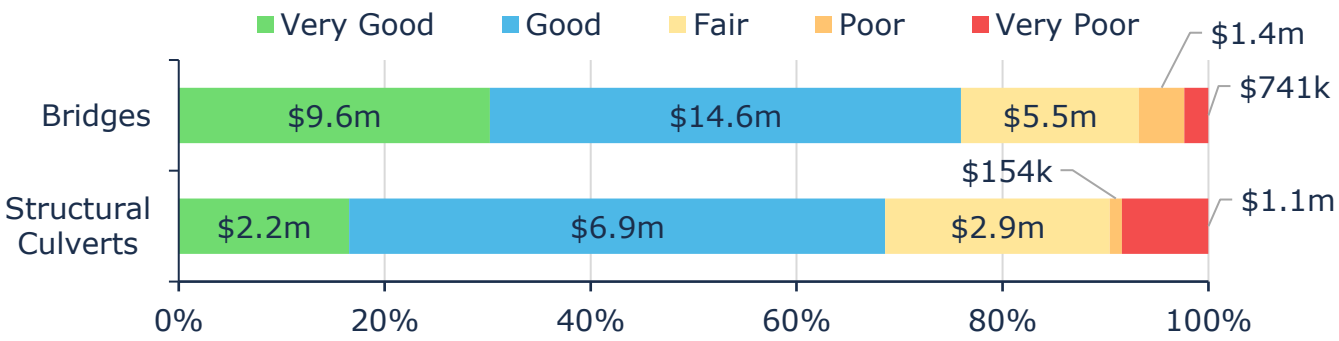


Table 25 Asset Condition: Bridges & Structural Culverts by Segment

Asset Category	≤ Poor $	≤ Poor %	≥ Fair $	≥ Fair %	Average Condition[12]
Bridges	$2,149,300	7%	$29,645,700	93%	Good (72%)
Structural Culverts	$1,275,104	10%	$12,048,269	90%	Good (62%)
TOTAL	**$3,424,404**	**8%**	**$41,693,969**	**92%**	**Good (69%)**

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.

[12] Weighted by replacement cost.

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.

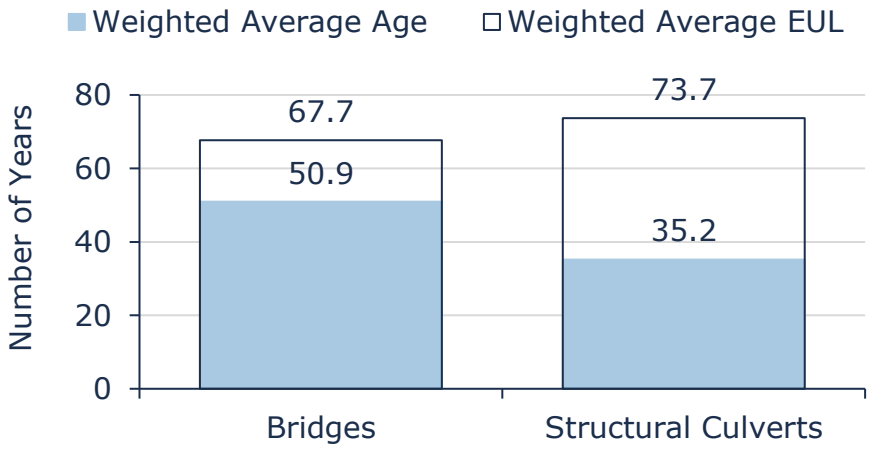
Table 26 summarizes and Figure 26 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

Table 26 Detailed Asset Age: Bridges & Structural Culverts

Segment	Weighted Average EUL	Weighted Average Age
Bridges	67.7	50.9
Structural Culverts	73.7	35.2

Age analysis reveals that on average, bridges have consumed the majority of their estimated useful life, with an average age of 50.9 years against an average EUL of 67.7 years. On average, structural culverts are about halfway through their design life, with an average age of 35.2 years, against an average EUL of 73.7 years.

Figure 26 Estimated Useful Life vs. Asset Age: Bridges & Structural Culverts



Although asset age is an important measurement for long-term planning, condition assessments provide a more accurate indication of actual asset needs. An asset may perform past the established useful life if it has been maintained and kept in

good condition. Therefore, it is important to consider asset condition when comparing asset age to its serviceable lifespan.

However, each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

OSIM assessments should continue to be used in conjunction with age and asset criticality to prioritize capital and maintenance expenditures.

6.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that the Township's bridges and structural culverts 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 for bridges and structural culverts assets.

Table 27 Lifecycle Management Strategy: Bridges & Structural Culverts

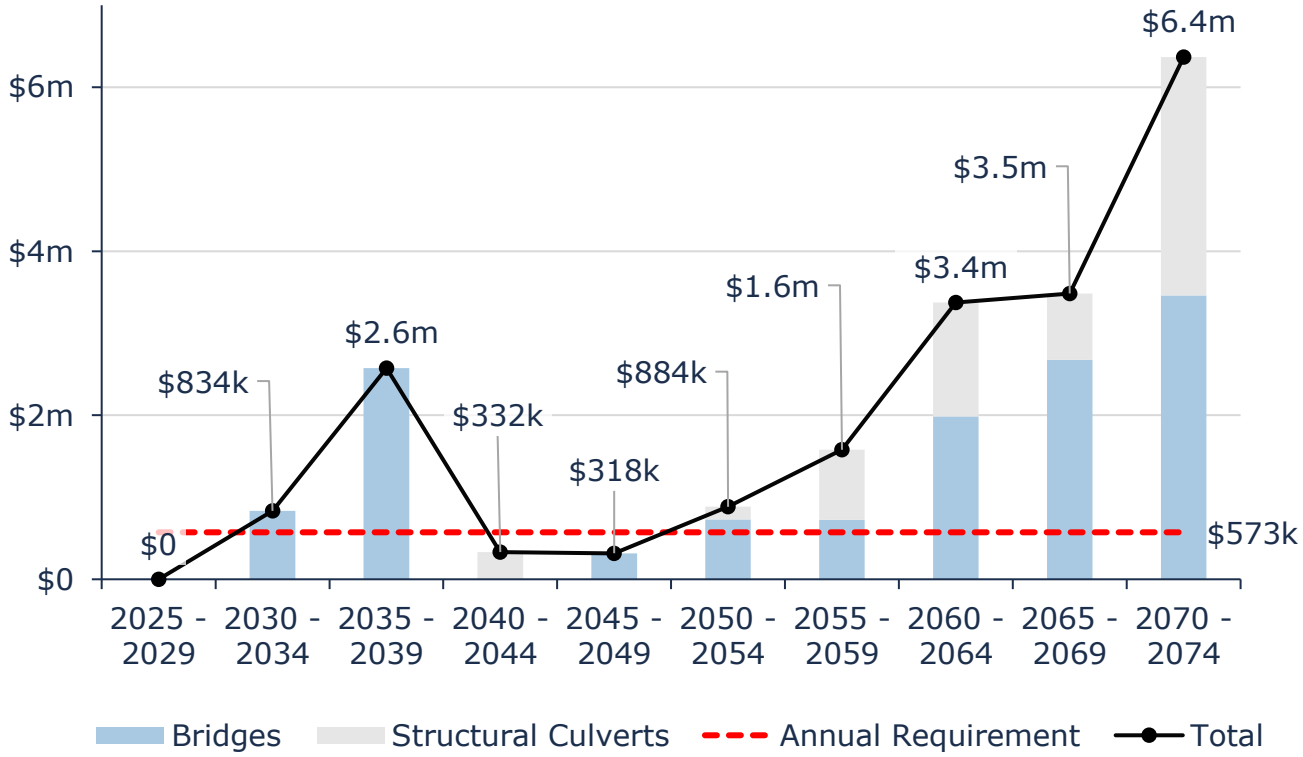
Activity Type	Description of Current Strategy
Maintenance	Routine maintenance activities include regular sweeping and washing of bridge decks. Maintenance activities are performed annually, typically in the spring.
Rehabilitation / Replacement	All lifecycle activities are driven by the results of mandated structural inspections completed according to the Ontario Structure Inspection Manual (OSIM).
	Minor rehabilitations include concrete repair patchwork, waterproofing, localized repairs, etc. Major rehabilitation and replacement activities include the work on the barrier, deck, bridge widening, and structural beam replacement.

6.5 Forecasted Long-Term Replacement Needs

Figure 27 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's bridges and structural culverts. This analysis was run from 2025 until 2074 (a 50-year timespan) for assets included 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 structural culverts total $24,020. 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.

Figure 27 Forecasted Capital Replacement Needs: Bridges & Structural Culverts 2025-2074



Although no major replacements are anticipated for the next 5 years, capital needs incline to a spike of $2.6 million in 2035-2039 with a subsequent drop. From there, a steady incline occurs until a peak of $6.4 million in 2070-2074. These projections

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

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

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

6.6 Risk Analysis

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

6.6.1 Quantitative Risk

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the bridges and structural culverts assets based on 2024 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

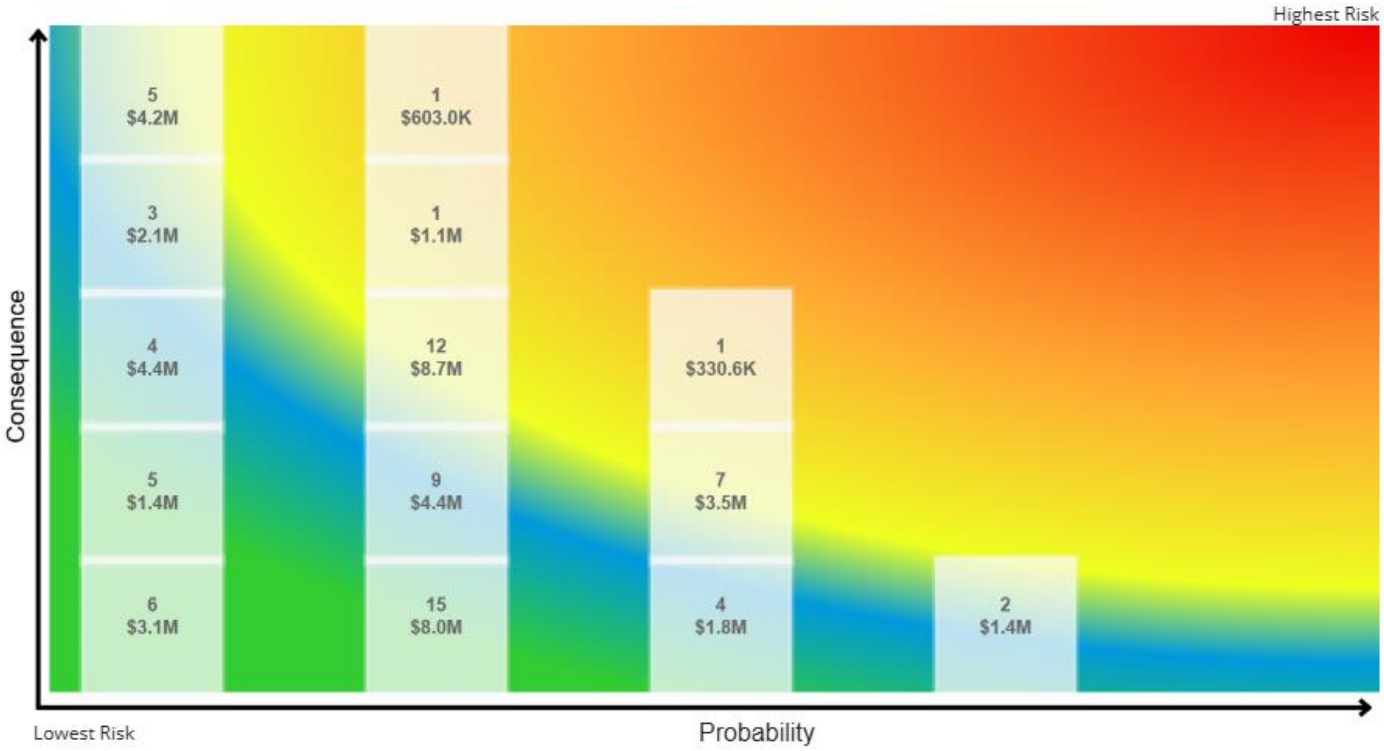
The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure 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 Quantitative Risk under Section 2.2.2 as well as Section 2.3.8 Evaluating Quantitative Risk for further details on the approach used to determine asset risk ratings and classifications.

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-

specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

Figure 28 Risk Matrix: Bridges & Structural Culverts



The following risk ratings are first shown for the overall category and then by segment for the bridges and structural culverts assets.

Figure 29 Risk Rating Ranges: Bridges & Structural Culverts

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$24,638,473	$16,059,300	$3,395,200	$1,025,400	-
(55%)	(36%)	(8%)	(2%)	(0%)

Overall, the average risk rating for bridges and structural culverts is 4.5 as shown in Table 28, which is considered Very Low.

Table 28 Probability of Failure, Consequence of Failure, Risk Ratings: Bridges & Structural Culverts by Segment

Asset Category	Probability of Failure	Consequence of Failure	Risk Rating
Bridges	2.1 / 5	2.4 / 5	4.3 / 25
Structural Culverts	2.0 / 5	2.6 / 5	5.0 / 25
TOTAL	**2.0 / 5**	**2.4 / 5**	**4.5 / 25**

6.6.2 Qualitative Risk

In addition to asset level risk, the Township may also face risk associated with not executing key lifecycle activities, including repairs, rehabilitation, and replacement of critical assets. These include:

- Missed opportunities for cost savings and increases in lifecycle costs
- Deferral of vital projects, or further lending and borrowing
- Accelerated asset deterioration and premature failure, which may lead to public health and safety hazards, and disruption of services to the Township's residential and commercial base
- A decline in public satisfaction with the Township's service standards and the resulting reputational damage
- Bridges are inherently vital to the Township's transportation infrastructure, and their failures can disconnect communities, lead to public health and safety incidents, and can impede the efficient flow of residential and commercial traffic

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

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

Climate Change & Extreme Weather Events

Washouts, steep slopes, high banks, and flooding cause damage to multiple components of the Township's bridges. The rising levels of freshwater and the increased frequency and intensity of precipitation events are likely to increase the deterioration of bridge components. Future bridge and structural culvert designs may need to consider upsizing in anticipation of handling bigger storm events. Over time, this risk is expected to become more impactful. Existing infrastructure may not be sufficiently sized to manage these conditions and may eventually require replacement.

Organizational Resources

The Township has a large inventory of bridges that require regular maintenance and assessment. Staff capacity and expertise are sometimes challenged to deploy optimal maintenance and assessment strategies.

6.7 Current 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

Table 29 O. Reg. 588/17 Community Levels of Service: Bridges & Structural Culverts

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description of the traffic that is supported by Township bridges (e.g., heavy transport vehicles,	Bridges and structural culverts are a key component of the municipal transportation network. None of the Township's structures currently have loading or dimensional restrictions meaning that most

Service Attribute	Qualitative Description	Current LOS (2024)
	motor vehicles, emergency vehicles, pedestrians, cyclists)	types of vehicles, including heavy transport, emergency vehicles, and cyclists can cross them without restriction.
Quality	Description or images of the condition of bridges & culverts and how this would affect use of the bridges & culverts	Bridges and structural culverts receive a bridge condition index (BCI) during OSIM inspections. BCI values range from 0 to 100 and are broken into the following ranges: 70-100 BCI: Considered to be in good/excellent condition and only routine maintenance is recommended. 50-70 BCI: Considered to be in fair condition and rehabilitation is recommended within the next 5 years. <50 BCI: Considered to be in poor/very poor condition with imminent replacement required in the next 1-3 years.

6.7.2 Technical Levels of Service

Table 30 O. Reg. 588/17 Technical Levels of Service: Bridges & Structural Culverts

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of bridges in the Township with loading or dimensional restrictions	0%
Quality	Average bridge condition index value for bridges in the Township	Good (72%)
	Average bridge condition index value for structural culverts in the Township	Good (62%)
Performance	% of assets in fair or better condition	92%

Service Attribute	Technical Metric	Current LOS (2024)
	% of assets in poor or lower condition	8%
	Actual annual capital budget : average required annual capital requirements	$510,000 : $573,000 (0.89 : 1)

6.8 Proposed Levels of Service

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

Table 31 outlines the proposed LOS scenarios that were analyzed for bridges and structural culverts. Further explanation and proposed LOS analysis at the portfolio level can be found in Section 4 Proposed Levels of Service Analysis.

Table 31 Proposed LOS: Bridges & Structural Culverts

Segment	Average Annual Requirement				Selection
	-5% Condition (55%)	Maintain Baseline (60%)	+5% Condition (65%)	No Target	
Bridges	$424,408	$429,615	$429,615	$486,069	+5% Condition
Structural Culverts	$143,493	$143,493	$143,493	$182,200	+5% Condition
TOTAL	**$567,900**	**$573,107**	**$573,107**	**$668,269**	**$573,107**

7 Water Network

The Township's water network includes hydrants, municipal wells, valves and fittings, water buildings, water equipment, water mains, and water meters with a current replacement cost of $10.8 million.

7.1 Inventory & Valuation

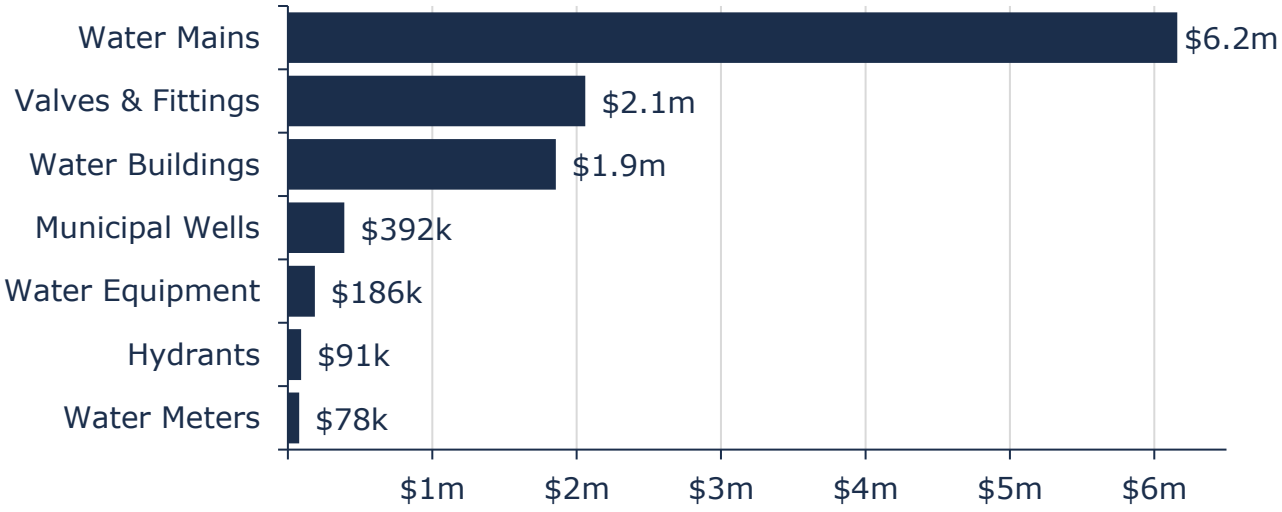
Table 32 summarizes the quantity and current replacement cost of the water network.

Table 32 Detailed Asset Inventory: Water Network

Segment	Quantity	Unit of Measure	Replacement Cost (RC)	Primary RC Method	AAR[13]
Hydrants	22	Assets	$90,526	Cost per Unit	$1,691
Municipal Wells	7	Assets	$391,618	User-Defined	$11,776
Valves & Fittings	385	Assets	$2,059,314	CPI	$14,125
Water Buildings	7	Assets	$1,855,487	User-Defined	$38,122
Water Equipment	3	Assets	$186,277	CPI	$17,860
Water Mains	8.8	KM	$6,159,470	Cost per Unit	$37,515
Water Meters	307	Assets	$78,190	Cost per Unit	$3,871
TOTAL			**$10,820,882**	**Cost per Unit**	**$124,960**

[13] Average Annual Capital Requirement (AAR) based on selected proposed levels of service scenarios For further detail, see section 2.3.5 Average Annual Requirement and section 4 Proposed Levels of Service Analysis.

Figure 30 Portfolio Valuation: Water Network



7.2 Asset Condition

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

- There is currently no program in place for the condition assessment of any water network assets
- In the future, the Township may consider performing a study or developing a condition assessment framework to assess all existing water meters to improve condition accuracy
- As the Township expands its water system to accommodate new residential developments, it may also develop more comprehensive condition assessment strategies

In this AMP, the following rating criteria is used to determine the current condition of water network assets and forecast future capital requirements:

Table 33 Condition Ranges: Water Network

Condition Ranges	Description
Very Good (90 – 100)	♦ New or recently upgraded infrastructure, with no defects or performance issues. ♦ Highly efficient system, with minimal water loss and strong pressure throughout the network. ♦ Pipes, pumps, and treatment facilities in excellent condition, requiring only routine inspections. ♦ Long-term sustainability and resilience, with no major capital investments needed in the near future.
Good (70 – 90)	♦ Reliable water supply with minimal leaks or service disruptions. ♦ Well-maintained infrastructure, with pipes and components in good working condition. ♦ Consistent water pressure and flow, meeting demand efficiently. ♦ Routine maintenance and minor upgrades are sufficient to maintain performance.
Fair (60 – 70)	♦ Some leaks or minor breaks, but overall system remains functional. ♦ Aging pipes and components showing signs of wear but still providing acceptable service. ♦ Moderate water pressure and flow, though occasional issues may arise during peak demand. ♦ Regular maintenance required, and planning for future upgrades or replacements is needed.
Poor (40 – 60)	♦ Significant leaks or breaks occurring regularly, leading to noticeable water loss.

Condition Ranges	Description
	♦ Aging infrastructure with corroded or weakened pipes, increasing the risk of failure. ♦ Reduced water pressure and occasional service interruptions in some areas. ♦ High maintenance costs due to frequent repairs; sections of the network may need replacement soon.
Very Poor (0 – 40)	♦ Frequent and severe leaks or breaks, causing major water loss and service disruptions. ♦ High risk of contamination due to corroded pipes, failing joints, or outdated materials. ♦ Inadequate pressure and flow, leading to unreliable service for residents and businesses. ♦ Requires emergency repairs and imminent replacement of major sections to ensure public health and safety.

As illustrated in Figure 31 below, the majority of the Township's water network is in fair or better condition.

Figure 31 Asset Condition: Water Network

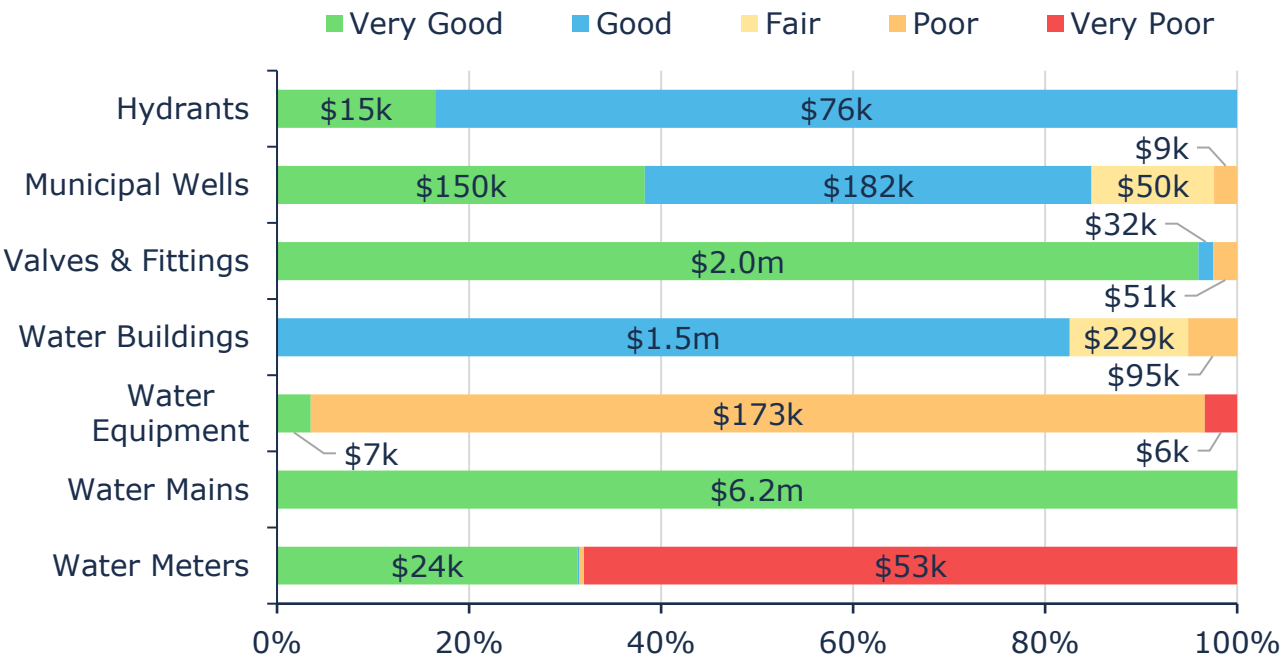


Table 34 summarizes the replacement cost-weighted condition of the Township's water network portfolio. Based primarily on age, 96% of water network assets are in fair or better condition, with the remaining 4% in poor or lower condition.

Condition data was available for 13% of the water network, based on replacement costs; age was used to estimate condition for the remaining 87% of assets.

Table 34 Asset Condition: Water Network by Segment

Asset Category	≤ Poor $	≤ Poor %	≥ Fair $	≥ Fair %	Average Condition[14]
Hydrants	-	0%	$90,526	100%	Good (71%)
Municipal Wells	$9,364	2%	$382,254	98%	Good (70%)
Valves & Fittings	$51,145	2%	$2,008,169	98%	Very Good (81%)
Water Buildings	$94,953	5%	$1,760,534	95%	Good (64%)
Water Equipment	$179,735	96%	$6,542	4%	Poor (31%)

[14] Weighted by replacement cost.

Asset Category	≤ Poor $	≤ Poor %	≥ Fair $	≥ Fair %	Average Condition[14]
Water Mains	-	0%	$6,159,470	100%	Very Good (83%)
Water Meters	$53,550	68%	$24,640	32%	Fair (44%)
TOTAL	**$388,747**	**4%**	**$10,432,135**	**96%**	**Good (78%)**

7.3 Age Profile

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

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

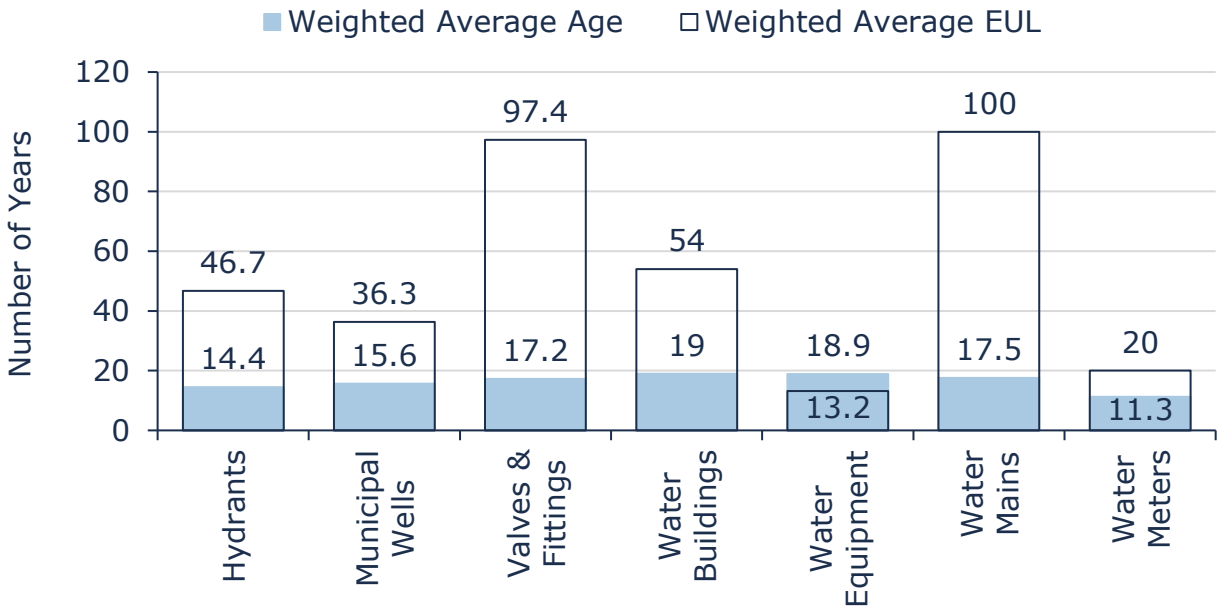
Table 35 summarizes and Figure 32 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

Table 35 Detailed Asset Age: Water Network

Segment	Weighted Average EUL	Weighted Average Age
Hydrants	46.7	14.4
Municipal Wells	36.3	15.6
Valves & Fittings	97.4	17.2
Water Buildings	54.0	19.0
Water Equipment	13.2	18.9
Water Mains	100.0	17.5

Segment	Weighted Average EUL	Weighted Average Age
Water Meters	20.0	11.3

Figure 32 Estimated Useful Life vs. Asset Age: Water Network



Age analysis reveals that on average, the majority asset segments have more than half of their estimated useful life remaining. Water equipment, however, has surpassed its average estimated lifespan of 13.2 years with an average age of 18.9 years.

Although asset age is an important measurement for long-term planning, condition assessments provide a more accurate indication of actual asset needs. An asset may perform past the established useful life if it has been maintained and kept in good condition. Therefore, it is important to consider asset condition when comparing asset age to its serviceable lifespan.

However, each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type. Further, useful life estimates established as part of the PSAB 3150 implementation may not be accurate and may not reflect in-field asset performance.

7.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that the Township's water network 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 for water network assets.

Table 36 Lifecycle Management Strategy: Water Network

Activity Type	Description of Current Strategy
Maintenance	Well casings are inspected in the spring and fall.
	Flow meters are calibrated every 12 months.
	Flow control valves are serviced every 60 months or as necessary.
	Chlorine analyzers are calibrated three times per week.
	Computers and SCADA systems are checked annually or as needed.
	Heating and lighting systems are serviced annually or as needed.
	Generators are serviced every 24 months or as necessary.
	Generators are tested monthly, and results are recorded.
	Hydrants are serviced and flushed annually.
	Watermains are serviced and flushed in the spring and fall.
	Valves are operated every 36 months.
Rehabilitation / Replacement	Chemical pumps are re-built every 24 months or as necessary.
	Chemical tubing is replaced every 12 months or as necessary.

Activity Type	Description of Current Strategy
	Chemical check valves are replaced every 6 months or as necessary.
	Rehabilitation and replacement activities are determined by the asset's useful life, the presence of defects identified during an inspection, type of function, and asset failure and are typically proactive in nature due to regular monitoring and inspection schedules.

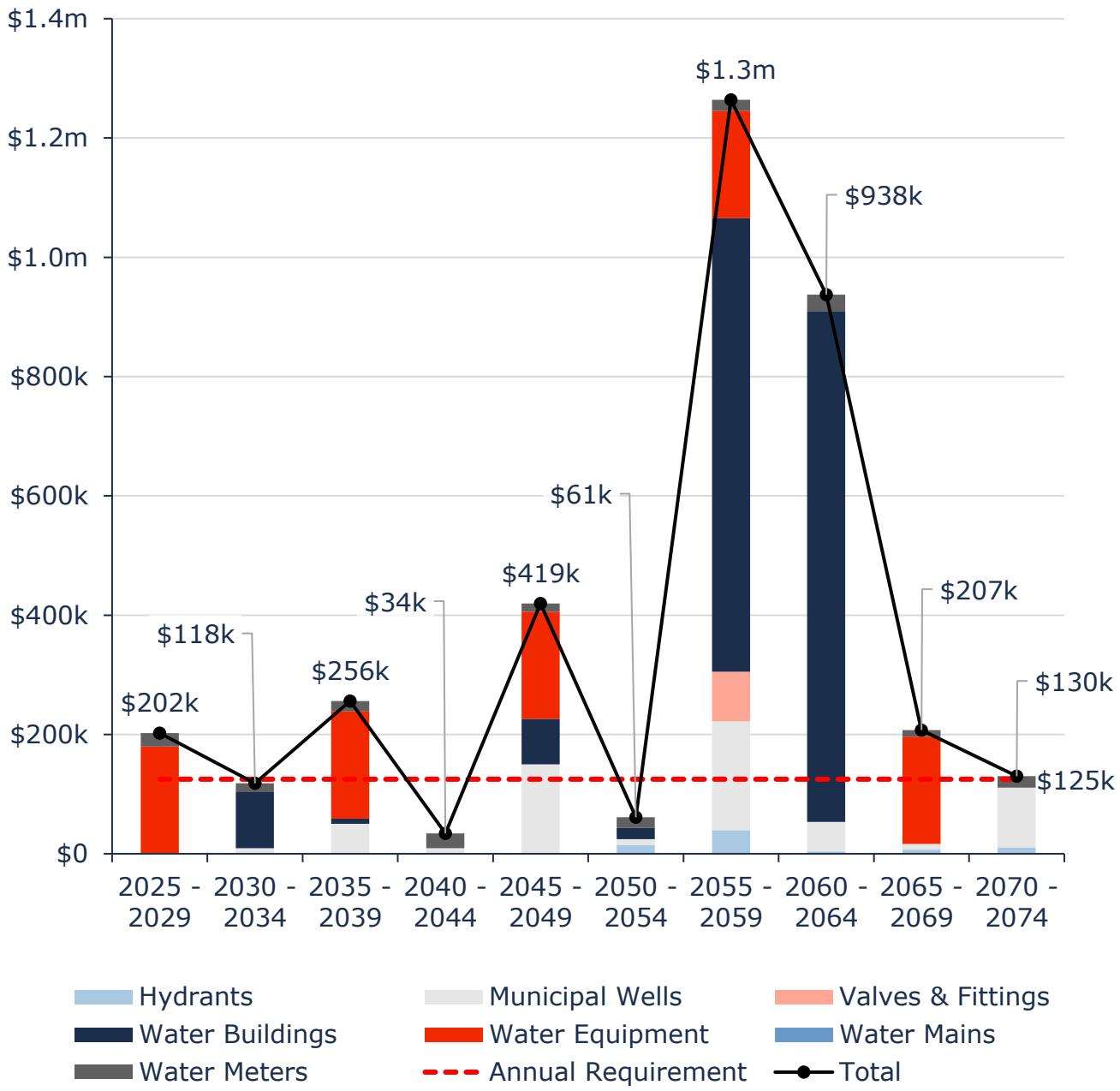
7.5 Forecasted Long-Term Replacement Needs

Figure 33 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's water network. This analysis was run from 2025 until 2074 (a 50-year timespan) for assets included in Citywide Assets, the Township's primary asset management system and asset register.

The Township's average annual requirements (red dotted line) for the water network total $124,960. 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 forecasted capital requirements fluctuate with peaks and valleys. The highest peaks occur in 2055-2059 with $1.3 million and 2060-2064 with just under $1.0 million. These projections and estimates are based on asset replacement costs, age analysis, and condition data. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

Figure 33 Forecasted Capital Replacement Needs: Water Network 2025-2074



Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. 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.

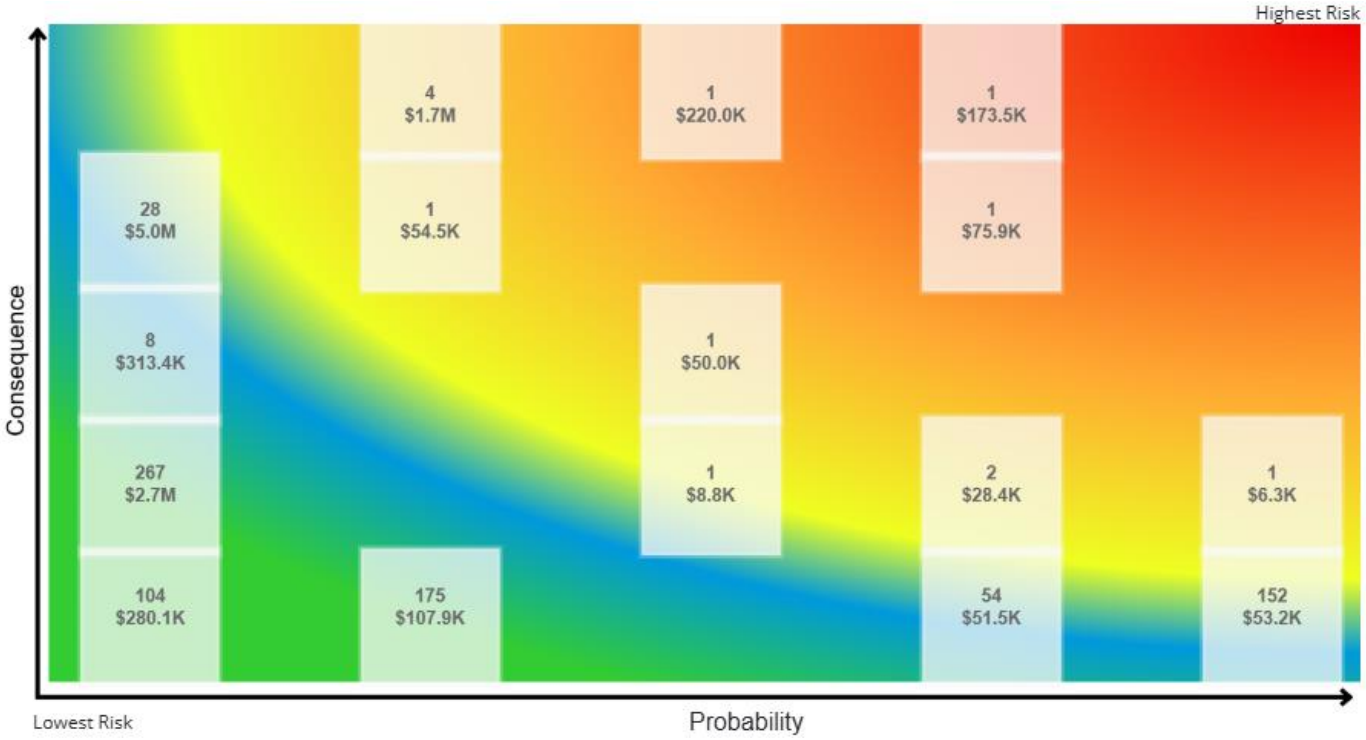
7.6 Risk Analysis

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

7.6.1 Quantitative Risk

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the water network assets based on 2024 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

Figure 34 Risk Matrix: Water Network



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 Quantitative Risk under Section 2.2.2 as well as Section 2.3.8 Evaluating Quantitative Risk for further details on the approach used to determine asset risk ratings and classifications.

The following risk ratings are first shown for the overall category and then by segment for the water network assets.

Figure 35 Risk Rating Ranges: Water Network

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$8,490,842	$61,960	$132,915	$1,665,763	$469,402
(78%)	(<1%)	(1%)	(15%)	(4%)

Table 37 Probability of Failure, Consequence of Failure, Risk Ratings: Water Network by Segment

Asset Category	Probability of Failure	Consequence of Failure	Risk Rating
Hydrants	1.84 / 5	1.16 / 5	2 / 25
Municipal Wells	1.79 / 5	3.77 / 5	6.86 / 25
Valves & Fittings	1.09 / 5	1.96 / 5	2.05 / 25
Water Buildings	2.23 / 5	4.91 / 5	10.8 / 25
Water Equipment	3.93 / 5	4.79 / 5	19.03 / 25
Water Mains	1 / 5	4.03 / 5	4.03 / 25
Water Meters	3.74 / 5	1.63 / 5	4.36 / 25
TOTAL	**1.33 / 5**	**3.75 / 5**	**5.16 / 25**

Overall, the average risk rating for the water network is 5.16, which is considered Low.

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

7.6.2 Qualitative Risk

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

Assessed Condition Data

Inspecting watermains presents greater challenges compared to sanitary and storm sewer mains, where CCTV camera inspections are feasible. Currently, staff rely on age-based estimates to project when pipes may require replacement. However, this method introduces some uncertainty regarding its effectiveness in assessing the current condition of watermains. Enhancing the accuracy and reliability of asset data and information will enable staff to develop more precise, data-driven strategies to address infrastructure needs with greater confidence.

7.7 Current Levels of Service

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

7.7.1 Community Levels of Service

Table 38 O. Reg. 588/17 Community Levels of Service: Water Network

Service Attribute	Qualitative Description	Current LOS (2024)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system	The Mansfield Water System currently serves 153 service connections within Mulmur Township and is classified as a large municipal residential water system. The user groups that are connected to the water system have adequate fire flow protection.
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow	
Quality	Description of boil water advisories and service interruptions	The Township experienced no boil water advisories in 2024. However, water service interruptions may occur due to main breaks, maintenance activities or reconstruction projects. Staff attend to these interruptions in a timely manner, when possible.

7.7.2 Technical Levels of Service

Table 39 O. Reg. 588/17 Technical Levels of Service: Water Network

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of properties connected to the municipal water system	9.1%
	% of properties where fire flow is available	9.1%[15] of all properties 100% of properties connected to water network
Reliability	# of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system	0
	# of connection-days per year where water is not available due to water main breaks compared to the total number of properties connected to the municipal water system	0
Performance	Average condition of water network assets	Good (78%)
	% of assets in fair or better condition	96%
	% of assets in poor or lower condition	4%
	Actual annual capital budget : average required annual capital requirements	$39,000 : $125,000 (0.31 : 1)

[15] Fire flow is currently available only to properties connected to the Township's water distribution network through hydrants. However, pumper trucks are equipped with onboard water storage and the necessary equipment to draw water from nearby sources when required.

7.8 Proposed Levels of Service

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

Table 40 outlines the proposed LOS scenarios that were analyzed for the water network. Further explanation and proposed LOS analysis at the portfolio level can be found in Section 4 Proposed Levels of Service Analysis.

Table 40 Proposed LOS: Water Network

Segment	Average Annual Requirement				Selection
	-5% Condition (45%)	Maintain Baseline (50%)	+5% Condition (55%)	No Target	
Hydrants	$1,620	$1,691	$1,798	$2,010	Maintain
Municipal Wells	$10,508	$11,776	$11,776	$12,581	Maintain
Valves & Fittings	$12,727	$14,125	$15,454	$22,451	Maintain
Water Buildings	$37,370	$38,122	$38,122	$39,287	Maintain
Water Equipment	$17,860	$17,860	$17,860	$18,039	Maintain
Water Mains	$34,960	$37,515	$41,122	$61,595	Maintain
Water Meters	$3,871	$3,871	$3,871	$3,910	Maintain
TOTAL	**$118,915**	**$124,960**	**$130,003**	**$159,872**	**$124,960**

Category Analysis: Non-Core Assets

8 Facilities

The Township owns and maintains several facilities that provide key services to the community. The total current replacement cost of facilities is $22.0 million.

8.1 Inventory & Valuation

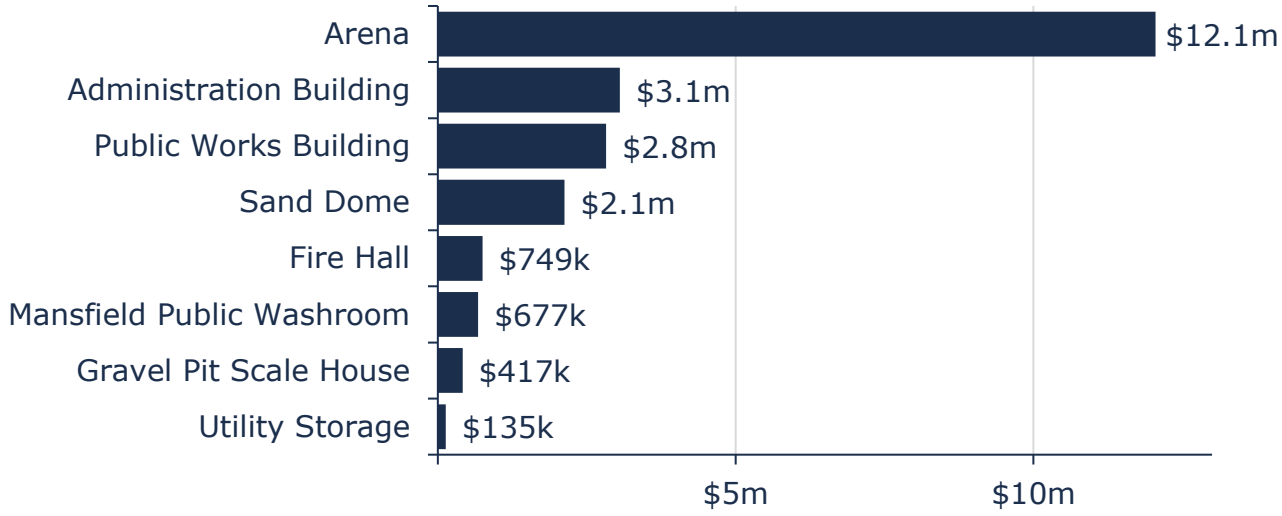
Table 41 summarizes the quantity and current replacement cost of all facilities assets available in the Township's asset register.

Table 41 Detailed Asset Inventory: Facilities

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method	AAR[16]
Administration Building	1	Assets	$3,054,209	User-Defined	$37,684
Arena	1	Assets	$12,050,336	User-Defined	$197,123
Fire Hall	1	Assets	$748,897	CPI	$16,027
Gravel Pit Scale House	1	Assets	$417,059	User-Defined	$8,360
Mansfield Public Washroom	1	Assets	$676,973	User-Defined	$13,702
Public Works Building	1	Assets	$2,826,107	User-Defined	$33,437
Sand Dome	1	Assets	$2,128,000	User-Defined	$45,287
Utility Storage	2	Assets	$135,000	User-Defined	$2,673
TOTAL			**$22,036,581**	**User-Defined**	**$354,293**

[16] Average Annual Capital Requirement (AAR) based on selected proposed levels of service scenarios For further detail, see section 2.3.5 Average Annual Requirement and section 4 Proposed Levels of Service Analysis.

Figure 36 Portfolio Valuation: Facilities



8.2 Asset Condition

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

- Monthly health and safety inspections are carried out to evaluate building conditions and identify health and safety risks

In this AMP, the following rating criteria is used to determine the current condition of facilities assets and forecast future capital requirements:

Table 42 Condition Ranges: Facilities

Condition Ranges	Description
Very Good (80% – 100%)	♦ Newly built or recently renovated with no visible defects. ♦ Modern, efficient, and fully functional mechanical, electrical, and plumbing systems. ♦ Well-maintained structural elements, finishes, and overall aesthetic. ♦ Minimal maintenance required beyond routine inspections and minor upkeep.

Condition Ranges	Description
Good (60% – 80%)	♦ Structurally sound with no major defects; minor wear and tear on finishes. ♦ Functional and well-maintained mechanical, electrical, and plumbing systems. ♦ Up-to-date aesthetics, with only minor improvements needed for modernization. ♦ Requires only regular maintenance to keep in good condition.
Fair (40% – 60%)	♦ Some visible signs of aging, such as minor wall cracks, roof wear, or uneven flooring. ♦ Mechanical, electrical, and plumbing systems function but may require repairs or efficiency upgrades. ♦ Cosmetic issues like faded paint, worn flooring, or outdated interior elements. ♦ Routine maintenance and moderate renovations can extend the building's service life.
Poor (20% – 40%)	♦ Noticeable structural issues, such as sagging floors, cracked walls, or roof leaks. ♦ Frequent repairs needed for electrical, plumbing, or HVAC systems due to aging components. ♦ Significant cosmetic wear, including peeling paint, damaged finishes, and outdated fixtures. ♦ Requires major repairs or system upgrades to maintain functionality.
Very Poor (0% – 20%)	♦ Severe structural deterioration, with major foundation issues, roof failures, or extensive wall cracking. ♦ Significant water damage, mold growth, or rot affecting habitability.

Condition Ranges	Description
	♦ Outdated or failing mechanical, electrical, and plumbing (MEP) systems, posing safety risks. ♦ Building is unsafe for occupancy without extensive rehabilitation or potential demolition.

As illustrated in Figure 37 below, the majority of the Township's facilities are in fair or better condition.

Figure 37 Asset Condition: Facilities

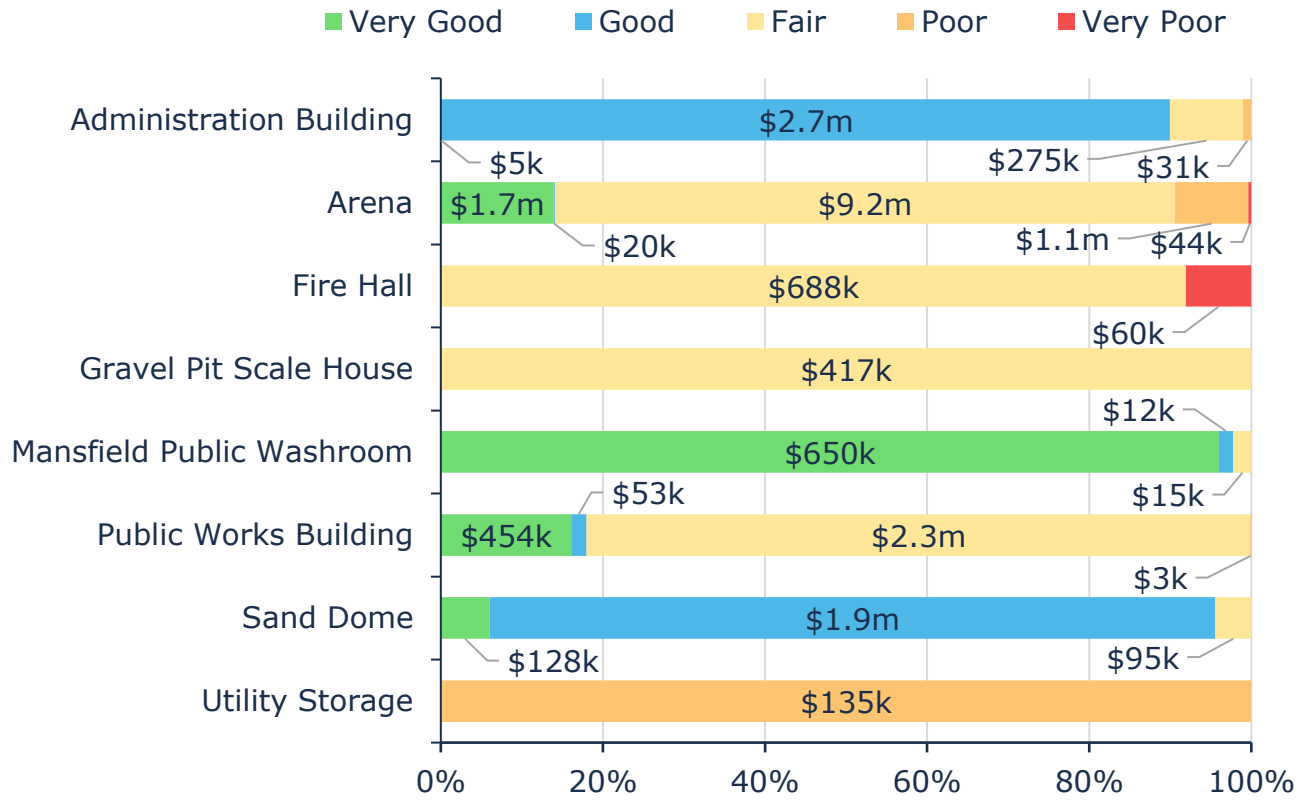


Table 43 summarizes the replacement cost-weighted condition of the Township's facilities portfolio. Based primarily on assessed condition data, 94% of facilities are in fair or better condition, with the remaining 6% in poor or lower condition.

Condition data was available for 83% of facilities, based on replacement costs; age was used to estimate condition for the remaining 17% of assets.

Table 43 Asset Condition: Facilities by Segment

Asset Category	≤ Poor $	≤ Poor %	≥ Fair $	≥ Fair %	Average Condition[17]
Administration Building	$31,481	1%	$3,022,728	99%	Good (76%)
Arena	$1,137,675	9%	$10,912,661	91%	Good (62%)
Fire Hall	$60,468	8%	$688,429	92%	Fair (55%)
Gravel Pit Scale House	-	0%	$417,059	100%	Fair (46%)
Mansfield Public Washroom	-	0%	$676,973	100%	Very Good (87%)
Public Works Building	$3,470	0%	$2,822,637	100%	Good (65%)
Sand Dome	-	0%	$2,128,000	100%	Good (77%)
Utility Storage	$135,000	100%	-	0%	Poor (39%)
TOTAL	**$1,368,094**	**6%**	**$20,668,487**	**94%**	**Good (66%)**

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.

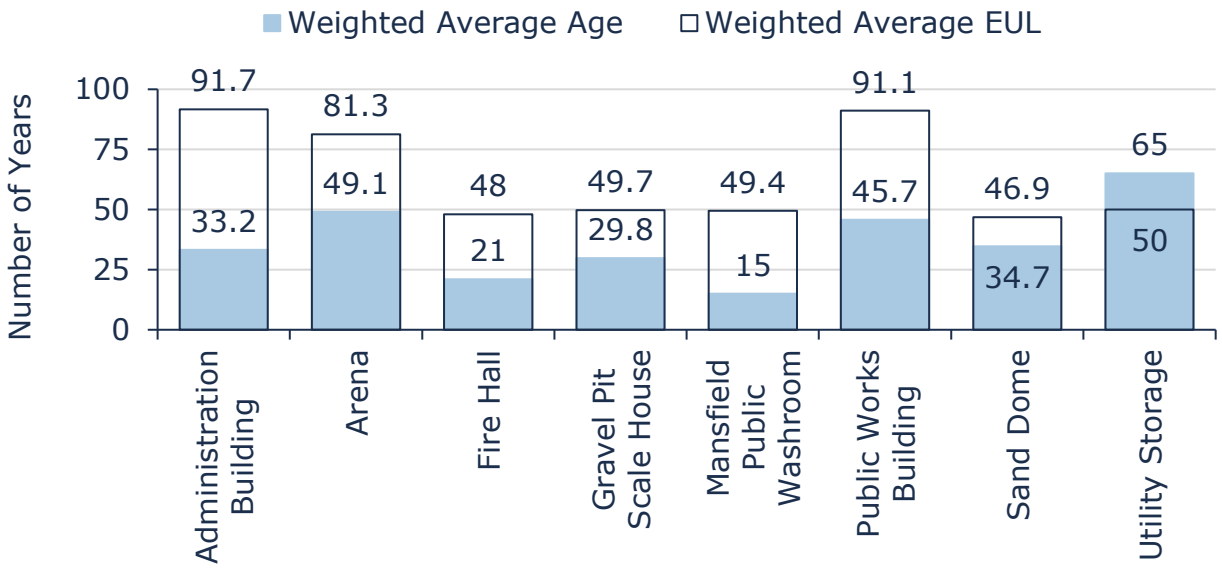
Table 44 summarizes and Figure 38 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

[17] Weighted by replacement cost.

Table 44 Detailed Asset Age: Facilities

Segment	Weighted Average EUL	Weighted Average Age
Administration Building	91.7	33.2
Arena	81.3	49.1
Fire Hall	48.0	21.0
Gravel Pit Scale House	49.7	29.8
Mansfield Public Washroom	49.4	15.0
Public Works Building	91.1	45.7
Sand Dome	46.9	34.7
Utility Storage	50.0	65.0

Figure 38 Estimated Useful Life vs. Asset Age: Facilities



Age analysis reveals that, on average, facilities assets are in the mid-stages of their serviceable life. It is important to note that meaningful and accurate age analysis of building assets relies heavily on effective componentization. Buildings are complex structures made up of many parts (e.g., roofs, HVAC systems, windows, and foundations), each with its own expected lifespan and maintenance needs.

A building's overall age does not always reflect the condition or serviceability of its individual components. By breaking down each building into its key components and tracking the age and condition of each one separately, staff can more accurately assess where investment is needed and avoid premature or unnecessary expenditures.

Although asset age is an important measurement for long-term planning, condition assessments provide a more accurate indication of actual asset needs. An asset may perform past the established useful life if it has been maintained and kept in good condition. Therefore, it is important to consider asset condition when comparing asset age to its serviceable lifespan.

However, each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type. Further, useful life estimates established as part of the PSAB 3150 implementation may not be accurate and may not reflect in-field asset performance.

8.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that the Township's facilities 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 45 outlines the Township's current lifecycle management strategy for facilities assets.

Table 45 Lifecycle Management Strategy: Facilities

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation / Replacement	HVAC systems and furnaces of the administrative and Public Works buildings undergo annual servicing each fall.
	Maintenance, rehabilitation, and replacement of building components are performed as needed, based on the age, condition, and risk ratings of the assets. The impact of asset failure on building operations and public access is also considered when prioritizing projects.

8.5 Forecasted Long-Term Replacement Needs

Figure 39 Forecasted Capital Replacement Needs Facilities 2025-2074

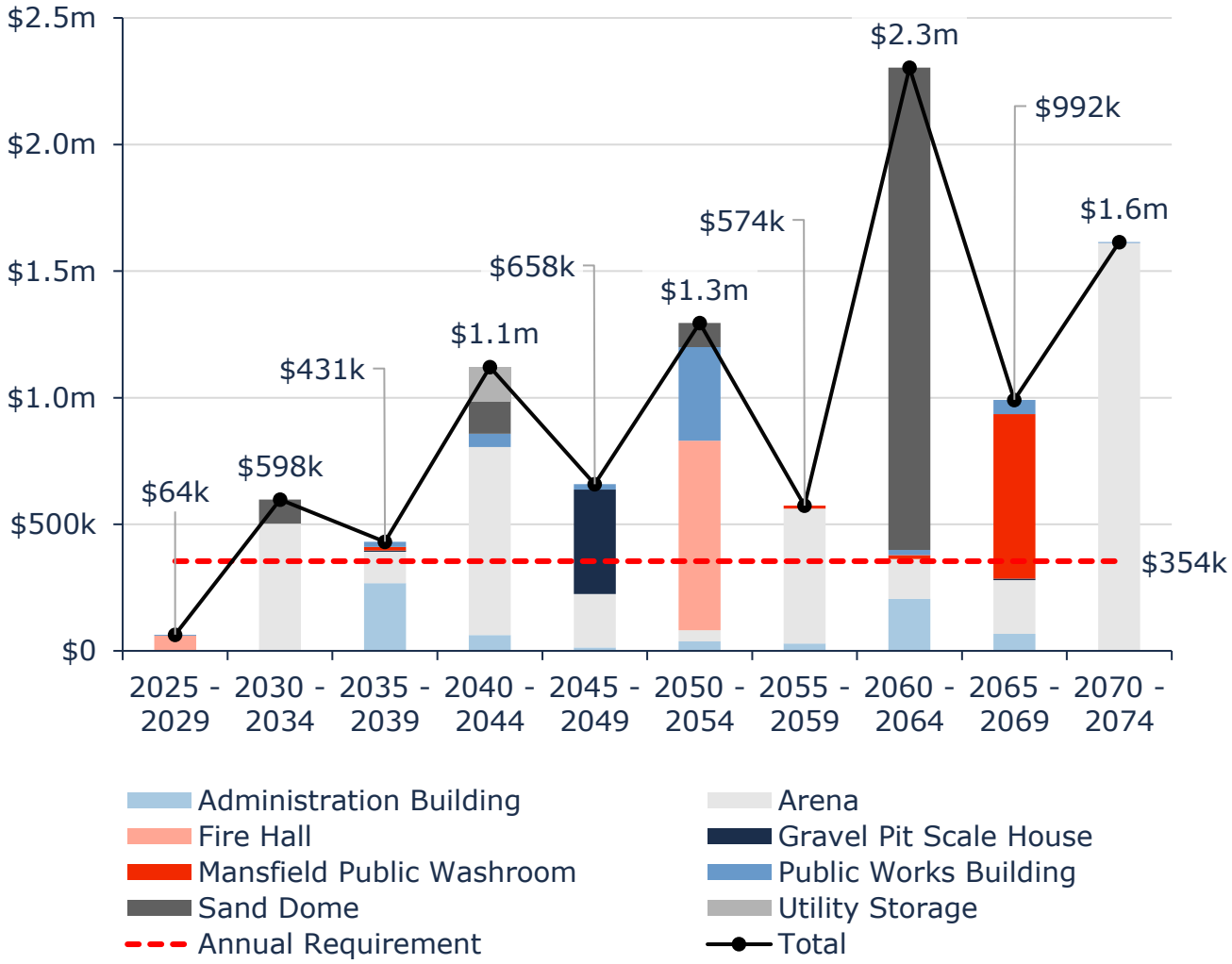


Figure 39 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's facilities portfolio. This analysis was run from 2025 until 2074 (a 50-year timespan) for assets included in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $354,293 for all facilities. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Forecasted requirements align with the selected proposed levels of service. Replacement needs are forecasted to fluctuate with a peak of $2.3 million occurring in 2060-2064. 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.

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

8.6 Risk Analysis

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

8.6.1 Quantitative Risk

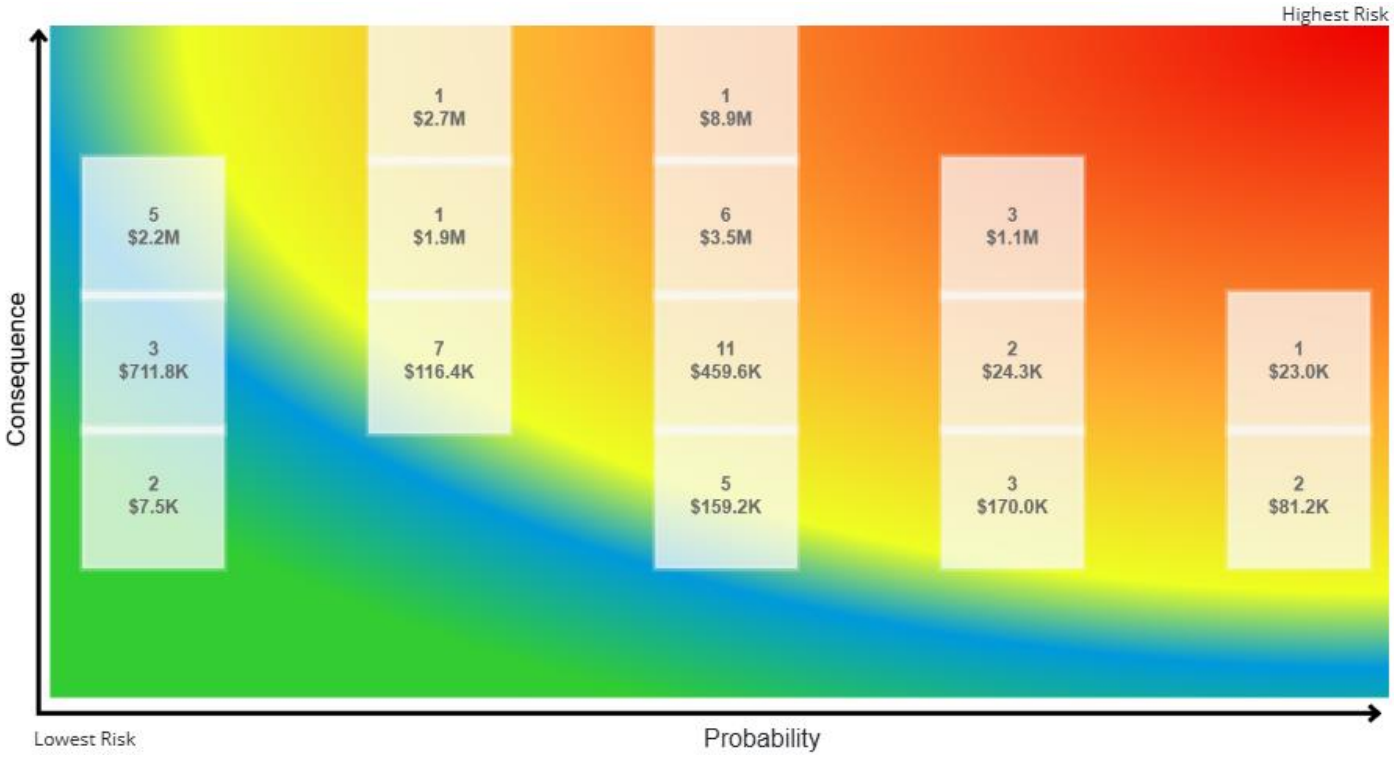
The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the facilities assets based on 2024 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

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 Quantitative Risk under Section 2.2.2 as well as Section

2.3.8 Evaluating Quantitative Risk for further details on the approach used to determine asset risk ratings and classifications.

Figure 40 Risk Matrix: Facilities



The following risk ratings are first shown for the overall category and then by segment for the facilities assets.

Figure 41 Risk Rating Ranges: Facilities

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$2,912,567	$275,621	$2,458,130	$6,352,609	$10,037,654
(13%)	(1%)	(11%)	(29%)	(46%)

Table 46 Probability of Failure, Consequence of Failure, Risk Ratings: Facilities by Segment

Asset Category	Probability of Failure	Consequence of Failure	Risk Rating
Administration Building	2.11 / 5	4.82 / 5	10.01 / 25
Arena	2.82 / 5	4.78 / 5	13.48 / 25
Fire Hall	3.16 / 5	3.63 / 5	11.28 / 25
Gravel Pit Scale House	3 / 5	4.08 / 5	12.24 / 25
Mansfield Public Washroom	1.06 / 5	3.01 / 5	3.2 / 25
Public Works Building	2.66 / 5	4.05 / 5	10.65 / 25
Sand Dome	1.98 / 5	3.94 / 5	7.7 / 25
Utility Storage	4 / 5	2 / 5	8 / 25
TOTAL	**2.59 / 5**	**4.49 / 5**	**11.63 / 25**

Overall, the average risk rating for facilities assets is 11.63, which is considered High.

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

8.6.2 Qualitative Risk

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

Infrastructure Reinvestment

Dependence on government grants for facilities carries inherent risks. Funding can be unpredictable due to political and economic changes, and grants often come with conditions that may not align with local priorities. Securing grants is competitive and resource-intensive, and they typically provide temporary funding, leading to

short-term fixes. Managing grants involves considerable administrative work, which can strain resources and cause delays. To ensure sustainable support for township facilities, it is important to diversify funding sources, balancing local revenue with external grants.

8.7 Current 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

Table 47 Community Levels of Service: Facilities

Service Attribute	Qualitative Description	Current LOS (2024)
Accessible & Reliable	List of facilities that meet accessibility standards and any work that has been undertaken to achieve alignment	The Township's Administrative Building meets current accessibility standards.
Safe & Regulatory	Description of monthly and annual facilities inspection process	Internal health and safety inspections are performed monthly by the Township's designated Health and Safety Representative. Annual servicing of the administrative and Public Works building's HVAC systems takes place each fall. Annual fire inspection and an annual fire drill are also conducted annually.
Affordable	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on municipal facilities	Internal health and safety inspections are performed monthly by the Township's designated Health and Safety Representative. Annual servicing of the administrative and Public Works building's HVAC and fire alarm systems takes place annually.

Service Attribute	Qualitative Description	Current LOS (2024)
		Maintenance activities such as septic services and additional repairs are performed on facilities as needed by Township Staff or through contracted services. Cleaning takes place bi-weekly at the Township office, and weekly at the North Dufferin Community Centre.
Sustainable	Description of the current condition of municipal facilities and the plans that are in place to maintain or improve the provided level of service	Currently, the Township's administrative and public works buildings are considered in good condition. The North Dufferin Community Centre (NDCC) is considered to be in fair/poor condition. The replacement of the arena's ice surface floor and dasher board system, and the replacement of the flat roof portion of the arena were completed in 2024. Future planned improvements to the building include improvements to the arena's upper floor community hall (the "Norduff Room"), and the addition of more changerooms. The Township has and will continue to seek out and apply for grants to make improvements to the NDCC to help offset budget constraints.

8.7.2 Technical Levels of Service

Table 48 Technical Levels of Service: Facilities

Service Attribute	Technical Metric	Current LOS (2024)
Accessible & Reliable	Number of unplanned facility closures	0
Safe & Regulatory	Number of service requests related to unsafe conditions in facilities	0
Affordability	O&M Annual Cost Administration Building	$17,251.67

Service Attribute	Technical Metric	Current LOS (2024)
	O&M Annual Cost Arena	$104,507.98
	O&M Annual Cost Fire Department	$10,794.33
	O&M Annual Cost Gravel Pit House	$0.00
	O&M Annual Cost Mansfield Park Pavilion	$557.17
	O&M Annual Cost Public Works Building's (PW building, Sand Dome, and Storage Shed)	$37,136.10
	Arena usage (hours)	1,195 hours
	Rental space usage (hours)	39 hours
	Annual Capital Reserve Contribution	$118,500.00
Sustainability	Average condition of facilities assets in the Township	Good (66%)
	% of facilities assets that are in fair or better condition	94%
	% of facilities assets that are in poor or lower condition	6%
	Actual annual capital budget : average required annual capital requirements	$166,000 : $354,000 (0.47 : 1)

8.8 Proposed Levels of Service

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

Table 49 outlines the proposed LOS scenarios that were analyzed for facilities. Further explanation and proposed LOS analysis at the portfolio level can be found in Section 4 Proposed Levels of Service Analysis.

Table 49 Proposed LOS: Facilities

Segment	Average Annual Requirement				Selection
	-5% Condition (55%)	Maintain Baseline (60%)	+5% Condition (65%)	No Target	
Administration Building	$37,279	$37,684	$37,730	$41,520	Maintain
Arena	$181,325	$195,187	$197,123	$172,622	+5% Condition
Fire Hall	$16,027	$16,027	$16,027	$16,187	Maintain
Gravel Pit Scale House	$8,360	$8,360	$8,360	$8,443	Maintain
Mansfield Public Washroom	$13,702	$13,702	$13,702	$13,839	Maintain
Public Works Building	$33,402	$33,437	$34,190	$34,532	Maintain
Sand Dome	$45,287	$45,287	$45,287	$49,250	Maintain
Utility Storage	$2,673	$2,673	$2,673	$2,700	Maintain
TOTAL	**$338,056**	**$352,357**	**$355,092**	**$339,093**	**$354,293**

9 Land Improvements

The Township's land improvements portfolio has a current replacement cost of $1.6 million.

9.1 Inventory & Valuation

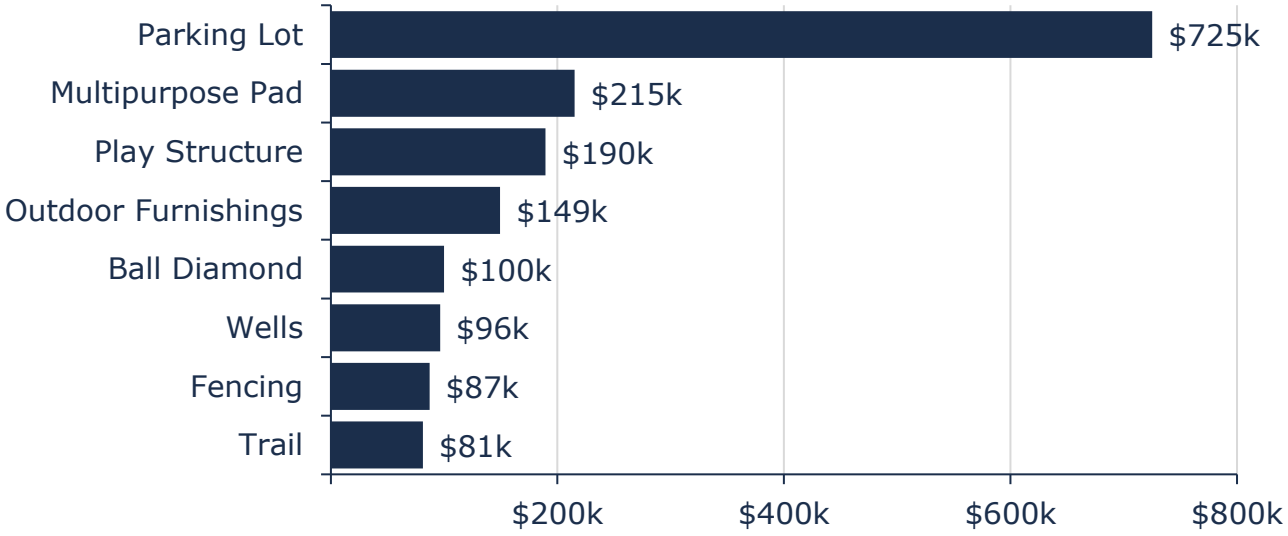
Table 50 summarizes the quantity and current replacement cost of all land improvements assets available in the Township's asset register.

Table 50 Detailed Asset Inventory: Land Improvements

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method	AAR[18]
Ball Diamond	2	Assets	$100,000	User-Defined	$3,465
Fencing	10	Assets	$87,147	CPI	$3,427
Multipurpose Pad	4	Assets	$215,279	CPI	$10,657
Outdoor Furnishings	10	Assets	$149,466	CPI	$4,402
Parking Lot	4	Assets	$725,208	User-Defined	$35,901
Play Structure	3	Assets	$189,511	CPI	$11,461
Trail	0.7	KM	$81,280	Cost per Unit	$2,451
Wells	5	Assets	$96,381	User-Defined	$3,903
TOTAL			**$1,644,272**	**User-Defined**	**$75,668**

[18] Average Annual Capital Requirement (AAR) based on selected proposed levels of service scenarios For further detail, see section 2.3.5 Average Annual Requirement and section 4 Proposed Levels of Service Analysis.

Figure 42 Portfolio Valuation: Land Improvements



9.2 Asset Condition

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

- Condition assessments and inspections of park playground equipment are conducted externally by the Township's insurance agency every 5 years at a minimum

In this AMP, the following rating criteria is used to determine the current condition of land improvements assets and forecast future capital requirements:

Table 51 Condition Ranges: Land Improvements

Condition Ranges	Description
Very Good (80% – 100%)	♦ The asset is new, recently rehabilitated, or very well maintained. ♦ It functions as intended with no significant signs of deterioration. ♦ No immediate maintenance or repair needs are present. ♦ Examples: A newly installed playground, freshly resurfaced trail, or pristine fencing and landscaping in a public park.

Condition Ranges	Description
Good (60% – 80%)	♦ The asset is in overall good condition, showing minor wear from regular use. ♦ It is fully operational and meets community expectations for use, safety, and appearance. ♦ Only routine or preventative maintenance is needed. ♦ Examples: A well-maintained sports field, a dock with slight wear on surface materials, or a parking lot with minor surface cracking.
Fair (40% – 60%)	♦ The asset is functional but aging, with noticeable wear and some minor safety or usability concerns. ♦ It meets basic performance standards but may require minor repairs or surface improvements to avoid accelerated decline. ♦ Examples: A trail with minor erosion, faded playground surfacing, or a parking lot with cracked pavement and early signs of edge failure.
Poor (20% – 40%)	♦ The asset has serious signs of deterioration and frequent functional issues. ♦ It may still be partially usable but fails to meet service expectations. ♦ Corrective maintenance or planning for replacement should be prioritized. ♦ Examples: A dock with unstable decking, fencing with missing sections, or sports fields with bare patches and poor drainage.
Very Poor (0% – 20%)	♦ The asset is in critical condition with extensive structural or surface deterioration. ♦ It is unsafe, unusable, or completely non-functional, posing a risk to public safety or the environment. ♦ Immediate action is required, including potential closure, major rehabilitation, or full replacement.

Condition Ranges	Description
	♦ Examples: A playground with broken equipment, a trail washed out or impassable, or a parking lot with large potholes and failing subbase.

As illustrated in Figure 43, the majority of the Township's land improvements are in poor or lower condition.

Figure 43 Asset Condition: Land Improvements by Segment

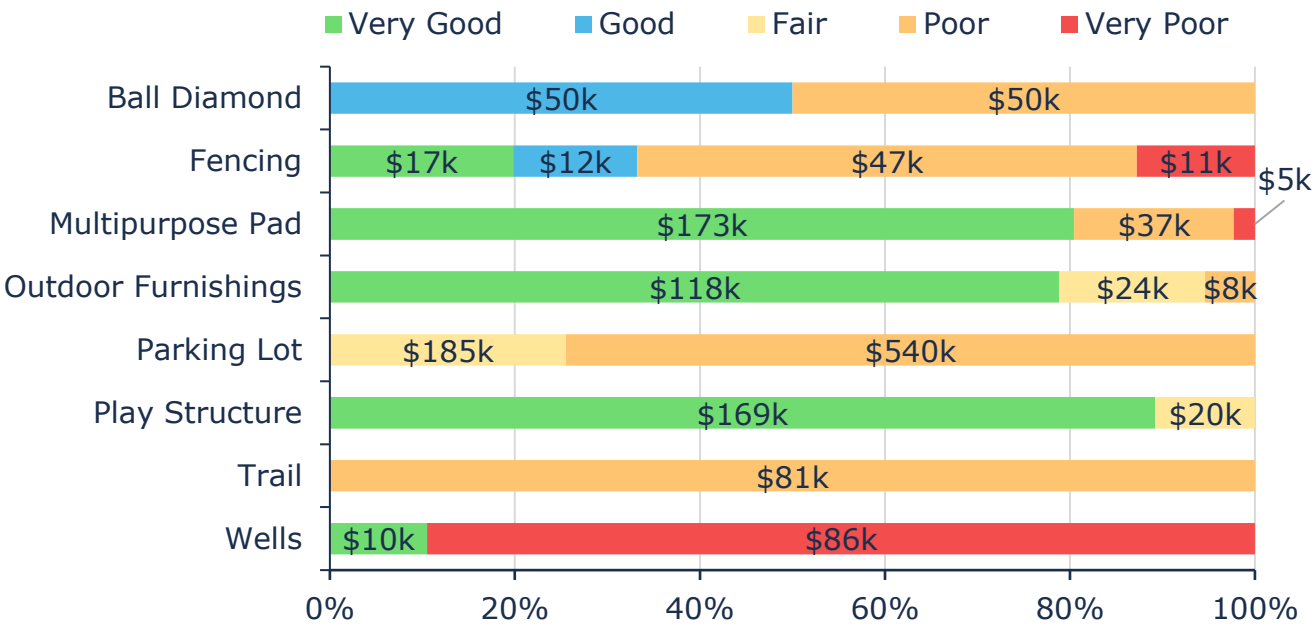


Table 1 summarizes the replacement cost-weighted condition of the Township's land improvements portfolio. Using primarily assessed condition, 47% of land improvements are in fair or better condition, with the remaining 53% in poor or lower condition.

While most assets average a poor or lower condition, the Multipurpose Pad (80%), Outdoor Furnishings (95%) and Play Structures (100%) are all in fair or better condition.

Condition data was available for 51% of land improvements, based on replacement costs; age was used to estimate condition for the remaining 49% of assets.

Table 52 Asset Condition: Land Improvements by Segment

Asset Category	≤ Poor $	≤ Poor %	≥ Fair $	≥ Fair %	Average Condition[19]
Ball Diamond	$50,000	50%	$50,000	50%	Fair (45%)
Fencing	$58,188	67%	$28,959	33%	Fair (45%)
Multipurpose Pad	$42,106	20%	$173,173	80%	Very Good (84%)
Outdoor Furnishings	$8,062	5%	$141,404	95%	Very Good (80%)
Parking Lot	$540,208	74%	$185,000	26%	Poor (39%)
Play Structure	-	0%	$189,511	100%	Very Good (80%)
Trail	$81,280	100%	-	0%	Poor (35%)
Wells	$86,260	89%	$10,121	11%	Very Poor (9%)
TOTAL	**$866,104**	**53%**	**$778,168**	**47%**	**Fair (52%)**

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.

[19] Weighted by replacement cost.

Table 53 summarizes and Figure 44 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.

Table 53 Detailed Asset Age: Land Improvements

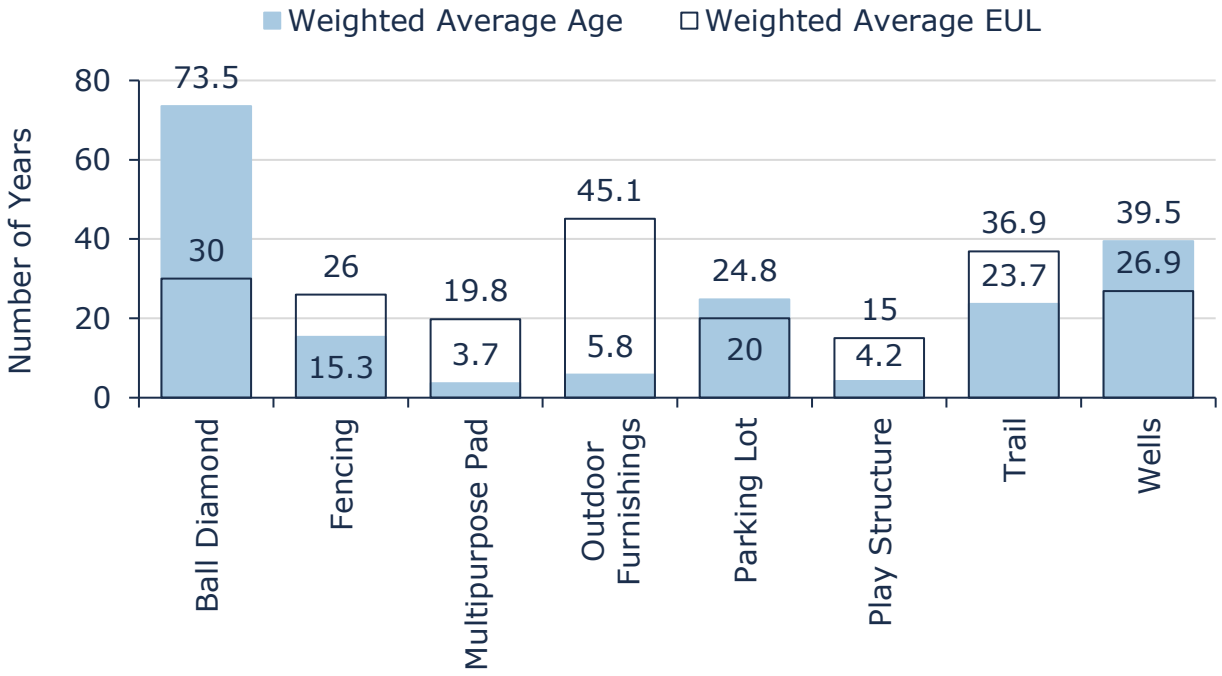
Segment	Weighted Average EUL	Weighted Average Age
Ball Diamond	30.0	73.5
Fencing	26.0	15.3
Multipurpose Pad	19.8	3.7
Outdoor Furnishings	45.1	5.8
Parking Lot	20.0	24.8
Play Structure	15.0	4.2
Trail	36.9	23.7
Wells	26.9	39.5

Age analysis reveals that, on average, land improvements vary significantly from being at the early, mid-, and latter stages of their expected life.

Although asset age is an important measurement for long-term planning, condition assessments provide a more accurate indication of actual asset needs. An asset may perform past the established useful life if it has been maintained and kept in good condition. Therefore, it is important to consider asset condition when comparing asset age to its serviceable lifespan.

However, each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type. Further, useful life estimates established as part of the PSAB 3150 implementation may not be accurate and may not reflect in-field asset performance.

Figure 44 Estimated Useful Life vs. Asset Age: Land Improvements



9.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that the Township's land improvements 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 54 outlines the Township's current lifecycle management strategy for land improvements assets.

Table 54 Lifecycle Management Strategy: Land Improvements

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	The Township's Public Works staff conducts annual inspections of recreational land improvements and cemeteries.
	Parks undergo annual inspections with additional inspections performed as needed throughout the year.

Activity Type	Description of Current Strategy
	Each spring, seasonal maintenance is carried out on baseball diamonds, including adding material to pitching mounds as necessary and dragging the gravel surface.
Replacement	Park play structures are replaced every 15 years, based on the equipment's estimated useful life.
	Rehabilitation and replacement activities are prioritized based on the outcome of inspections, asset condition, location, and public concerns. The health and safety of residents are heavily prioritized in these decisions.

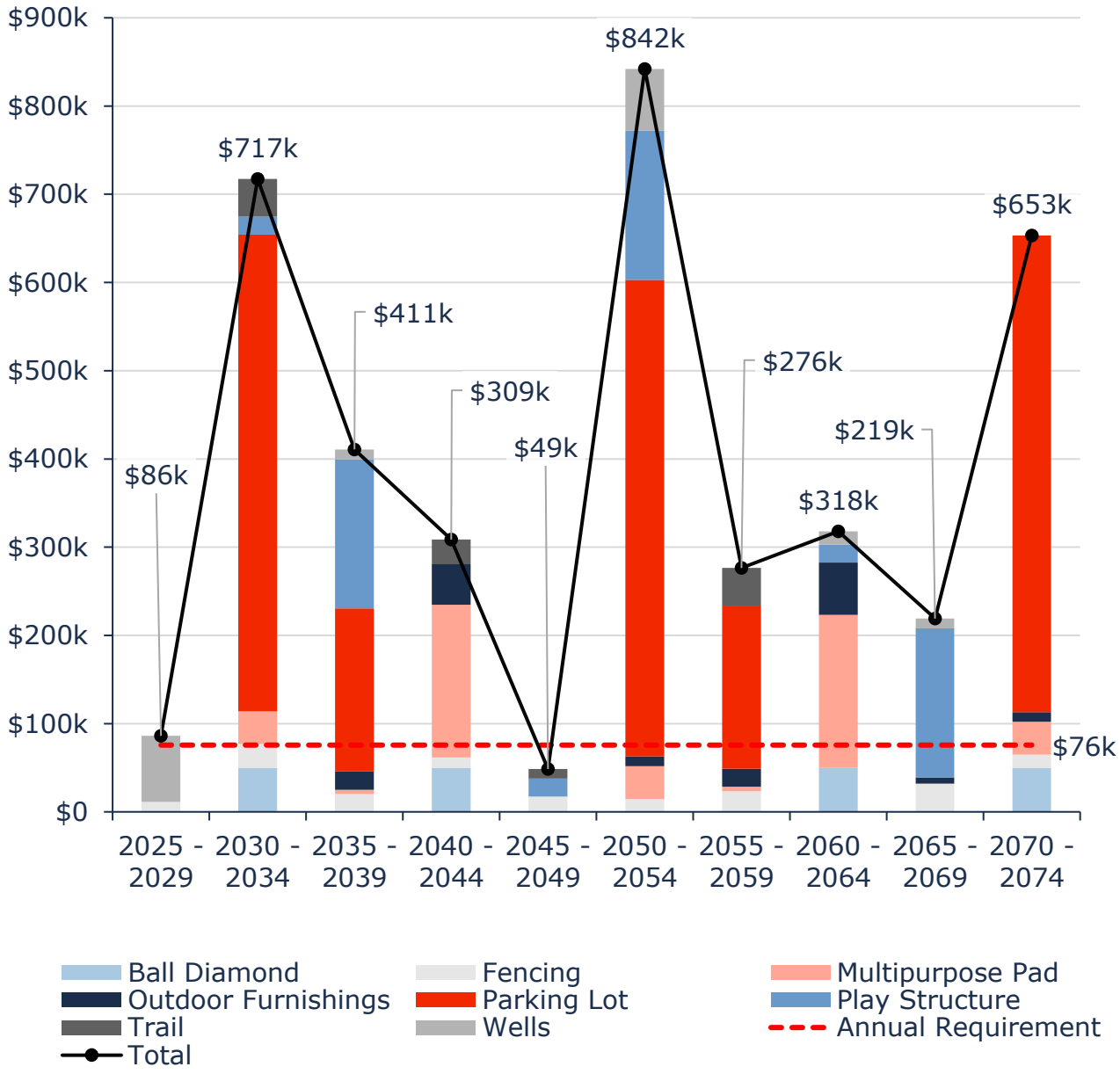
9.5 Forecasted Long-Term Replacement Needs

Figure 45 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's land improvements portfolio. This analysis was run from 2025 until 2074 (a 50-year timespan) for assets included in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $75,668 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 with spikes occurring in 2030-2034, 2050-2054, and 2070-2074 as assets reach the end of their useful life.

Additionally, there is currently an approximate $102,000 backlog comprised of assets that remain in service beyond their estimated useful life. The capital forecast below and the 10-year capital requirements expanded in Appendix B have accounted for removing this accumulation and continuing to rehabilitate or replace assets in alignment with the proposed levels of service.

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

Figure 45 Forecasted Capital Replacement Needs: Land Improvements 2025-2074



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

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

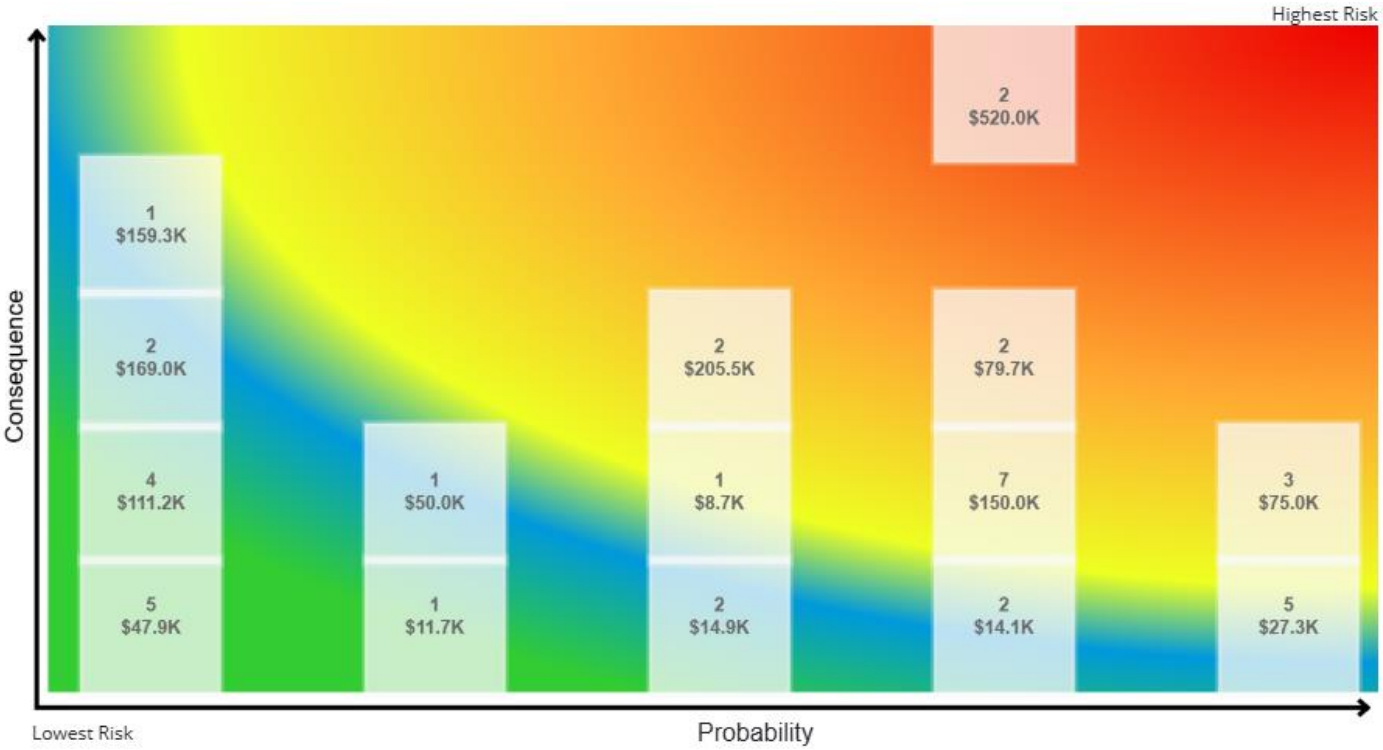
9.6 Risk Analysis

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

9.6.1 Quantitative Risk

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the land improvements assets based on 2024 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

Figure 46 Risk Matrix: Land Improvements



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 Quantitative Risk under Section 2.2.2 as well as Section 2.3.8 Evaluating Quantitative Risk for further details on the approach used to determine asset risk ratings and classifications.

The following risk ratings are first shown for the overall category and then by segment for the land improvements assets.

Figure 47 Risk Rating Ranges: Land Improvements

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$578,114	$35,913	$355,499	$154,746	$520,000
(35%)	(2%)	(22%)	(9%)	(32%)

Table 55 Probability of Failure, Consequence of Failure, Risk Ratings: Land Improvements by Segment

Asset Category	Probability of Failure	Consequence of Failure	Risk Rating
Ball Diamond	3 / 5	2 / 5	6 / 25
Fencing	3.26 / 5	1.5 / 5	5.27 / 25
Multipurpose Pad	1.61 / 5	3.63 / 5	5.28 / 25
Outdoor Furnishings	1.48 / 5	1.76 / 5	2.52 / 25
Parking Lot	3.74 / 5	4.41 / 5	16.86 / 25
Play Structure	1.22 / 5	3 / 5	3.65 / 25
Trail	4 / 5	2.39 / 5	9.56 / 25
Wells	4.58 / 5	1.78 / 5	8.47 / 25
TOTAL	**2.96 / 5**	**3.35 / 5**	**10.39 / 25**

Overall, the average risk rating for land improvements assets is 10.39, which is considered High.

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

9.6.2 Qualitative Risk

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

Community Expectations and Regulatory Compliance

Maintaining playgrounds and trails while ensuring regulatory compliance can be challenging for a Township. Regular upkeep involves frequent inspections and repairs, which can strain resources and budgets. Additionally, meeting safety and accessibility standards requires ongoing attention to detailed and evolving regulations. Balancing these demands requires careful planning to ensure that facilities remain safe, functional, and compliant.

9.7 Current 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

Table 56 Community Levels of Service: Land Improvements

Service Attribute	Qualitative Description	Current LOS (2024)
Accessible & Reliable	Description, which may include maps, of municipal parks and recreation spaces,	The Township's of Mulmur's municipal parks and recreation spaces includes: 1- North Dufferin Community Centre/ Honeywood Park-706114 County Road 21, Mulmur- Property

Service Attribute	Qualitative Description	Current LOS (2024)
	and other land improvement (landfill and parking lots) assets and their proximity to the surrounding community	includes a municipal park and playground, baseball field, cycling station, and the North Dufferin Community Centre, which is Mulmur's only indoor recreation complex. 2-Thomson Trail Park- 46 Sommerville Cres, Mulmur- Property is a municipal park, playground equipment, multipurpose/basketball court, Court lighting, a walking trail, and bike station. A pickleball/tennis court is to be installed in the summer of 2024. 3-Maes Crescent Park- Maes Cres (no municipal address), Mulmur- Municipal park, open green space does not have playground equipment or other infrastructure. Accessible through sidewalks between neighbouring properties to Jeffery Drive and Maes Crescent. No road access. 4- Kingsland Parkland- 24 Kingsland Ave, Mulmur- Municipal owned lot, wooded greenspace with trails, no infrastructure. 5- Mansfield Ball Park- 937016 Airport Road, Mulmur- Property is a municipal park that features a baseball diamond, batters cage, bleachers, pavilion, and playground. The Township has parking lots next to its administrative and public works buildings at 758070 2nd Line E, as well as a parking lot beside the North Dufferin Community Centre at 706144 County Road. Currently, the Township does not have any parking lots located in or in proximity to its municipal parks. Installing paved parking lots at our parks is going to be explored in the future. There are also land improvement assets at the Honeywood Cemetery at 598335 2nd Line West. This includes three columbaria, a parkette, and fencing.

Service Attribute	Qualitative Description	Current LOS (2024)
Safe & Regulatory	Description of the land improvement inspection process and timelines for inspections	The Township's Public Works staff conduct annual inspections of recreational land improvements and cemeteries. Inspections typically take place in the spring. Additionally, municipal park equipment is inspected at a maximum of every 5 years by the Township's insurance firm.
Affordable	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on all land improvement assets	Park equipment within municipal parks has an estimated useful life of 15 years. Park equipment is inspected at a maximum of every 5 years by the Township's insurance firm to ensure it meets safety standards.
Sustainable	Description of the current condition of land improvements and the plans that are in place to maintain or improve the provided level of service	The average condition of land improvement assets is 52%. However, land improvement assets are not currently annually rated, and thus this average is primarily based on age-based condition. In the future, the Township will focus more on conducting annual condition ratings for all land improvement assets.

9.7.2 Technical Levels of Service

Table 57 Technical Levels of Service: Land Improvements

Service Attribute	Technical Metric	Current LOS (2024)
Accessible & Reliable	Square meters of outdoor recreation space	77,740.11
Safe & Regulatory	Number of service requests about unsafe conditions in parks and recreation spaces	1

Service Attribute	Technical Metric	Current LOS (2024)
	Number of service requests about unsafe conditions for other land improvement assets (landfill and parking lots)	0
	Number identified defects for all land improvement assets	0
Affordability	O&M cost for parks without a sports field / Number of parks (3)	$4,005.32
	O&M cost for parks with a sports fields / Number of parks (2)	$8,307.81
	Registered annual usage rate for ball diamond -Mansfield Ball Diamond	480 hours
	Registered annual usage rate for ball diamond - Honeywood Ball Diamond	145 hours
Sustainability	Average condition of land improvements assets	Fair (52%)
	% of assets that are in fair or better condition	47%
	% of assets that are in poor or lower condition	53%
	Actual annual capital budget : average required annual capital requirements	$0 : $76,000 (0 : 1)

9.8 Proposed Levels of Service

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

Table 58 outlines the proposed LOS scenarios that were analyzed for land improvements. Further explanation and proposed LOS analysis at the portfolio level can be found in Section 4 Proposed Levels of Service Analysis.

Table 58 Proposed LOS: Land Improvements

Segment	Average Annual Requirement				Selection
	-5% Condition (45%)	Maintain Baseline (50%)	+5% Condition (55%)	No Target	
Ball Diamond	$3,465	$3,465	$3,465	$3,333	Maintain
Fencing	$3,194	$3,427	$3,484	$3,384	Maintain
Multipurpose Pad	$10,657	$10,657	$10,900	$11,009	Maintain
Outdoor Furnishings	$4,052	$4,402	$4,745	$5,215	Maintain
Parking Lot	$35,901	$35,901	$35,901	$36,260	Maintain
Play Structure	$11,461	$11,461	$11,461	$12,634	Maintain
Trail	$2,451	$2,451	$2,451	$2,476	Maintain
Wells	$3,903	$3,903	$4,014	$3,613	Maintain
TOTAL	**$75,085**	**$75,668**	**$76,421**	**$77,924**	**$75,668**

10 Machinery & Equipment

The Township's machinery and equipment portfolio's total current replacement cost is estimated at approximately $3.7 million.

10.1 Inventory & Valuation

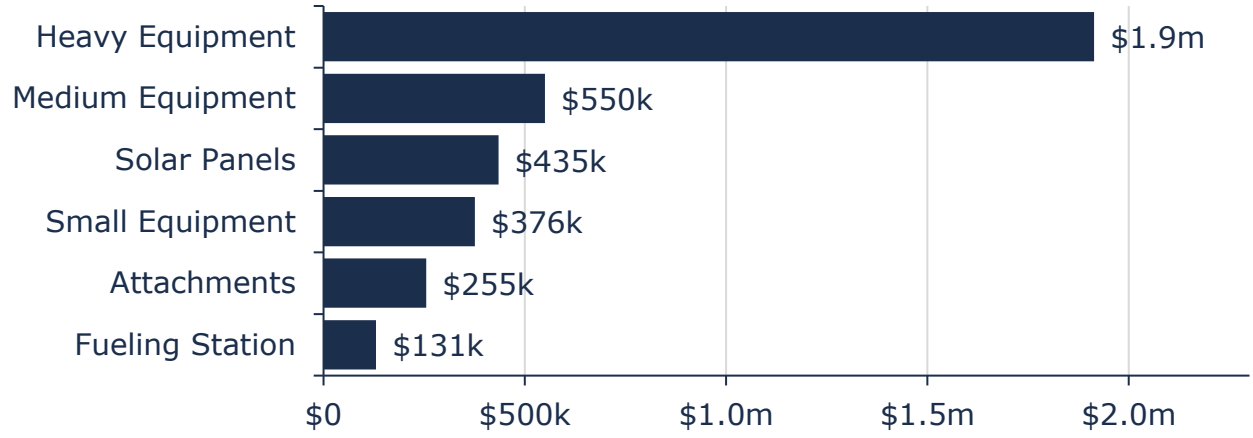
Table 59 summarizes the quantity and current replacement cost of all machinery and equipment assets available in the Township's asset register.

Table 59 Detailed Asset Inventory: Machinery & Equipment

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method	AAR[20]
Attachments	11	Assets	$255,480	CPI	$54,776
Fueling Station	4	Assets	$130,688	CPI	$5,952
Heavy Equipment	5	Assets	$1,914,074	CPI	$156,971
Medium Equipment	12	Assets	$550,056	CPI	$41,605
Small Equipment	41	Assets	$375,897	CPI	$39,920
Solar Panels	2	Assets	$434,505	CPI	$12,906
			$3,660,700	**CPI**	**$312,131**

[20] Average Annual Capital Requirement (AAR) based on selected proposed levels of service scenarios For further detail, see section 2.3.5 Average Annual Requirement and section 4 Proposed Levels of Service Analysis.

Figure 48 Portfolio Valuation: Machinery & Equipment



10.2 Asset Condition

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

- There is no formal condition assessment program in place, but it will be explored moving forward. The condition of machinery and equipment is primarily assessed based on the age of the asset

In this AMP, the following rating criteria is used to determine the current condition of machinery and equipment assets and forecast future capital requirements:

Table 60 Condition Ranges: Machinery & Equipment

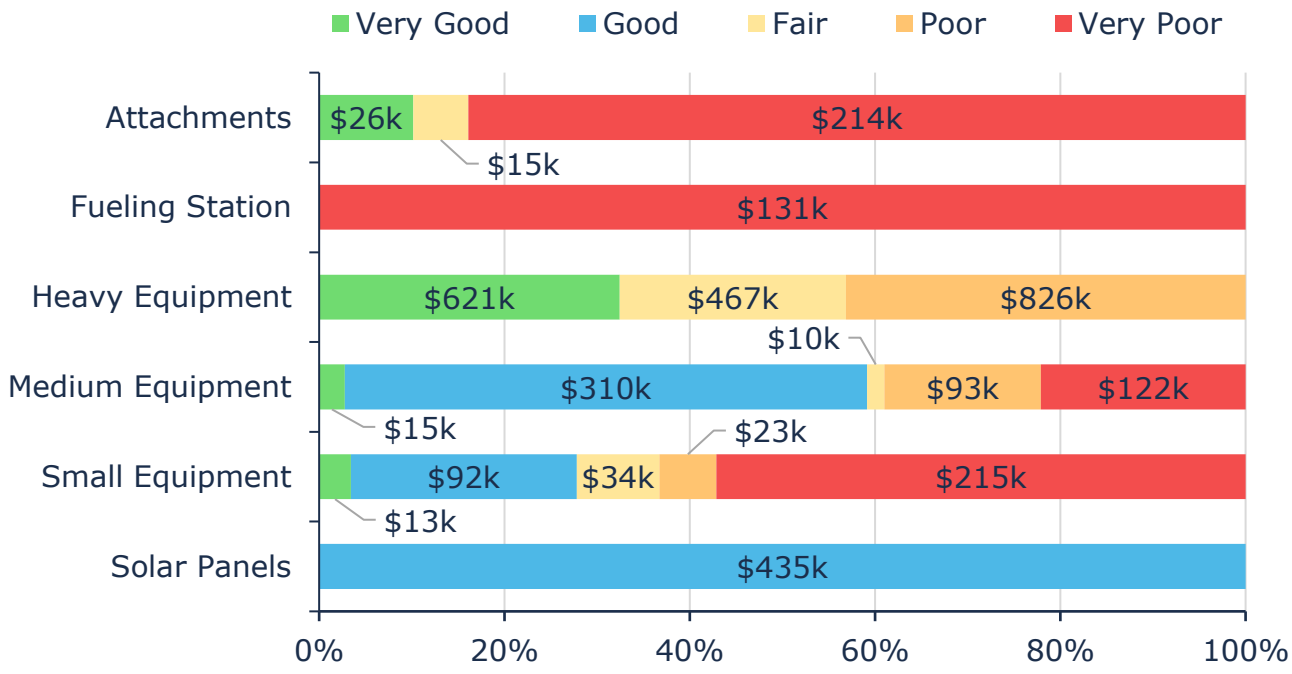
Condition Ranges	Description
Very Good (80% – 100%)	♦ New or like-new condition, with no defects or performance issues. ♦ Highly efficient and reliable, operating at peak performance. ♦ No mechanical wear or cosmetic damage. ♦ All systems fully functional, with minimal maintenance required beyond routine servicing. ♦ Expected to provide years of service without major interventions.

Condition Ranges	Description
Good (60% – 80%)	♦ Fully functional with minimal wear and tear. ♦ All major components in good condition, with only minor maintenance needed (e.g., oil changes, filter replacements). ♦ Efficient operation with no significant performance issues. ♦ Regular servicing keeps the equipment in optimal working condition. ♦ Only minor repairs or adjustments required.
Fair (40% – 60%)	♦ Occasional mechanical issues but still operational with regular maintenance. ♦ Some worn components affecting efficiency, such as aging hydraulics, belts, or electrical wiring. ♦ Moderate cosmetic wear (scratches, dents, faded paint), but no major structural damage. ♦ Requires proactive maintenance and some parts replacement to extend lifespan.
Poor (20% – 40%)	♦ Regular breakdowns and performance issues requiring frequent repairs. ♦ Noticeable mechanical wear, including worn-out bearings, belts, hydraulic leaks, or electrical malfunctions. ♦ Reduced efficiency and output, causing operational delays or increased costs. ♦ Aging components and visible deterioration, such as rust, cracks, or faded controls. ♦ Significant repairs or partial replacements needed to maintain functionality.
Very Poor (0% – 20%)	♦ Frequent mechanical failures making the equipment unreliable and unsafe to use. ♦ Severe wear and tear with major structural damage, corrosion, or missing components. ♦ High operating costs due to excessive fuel consumption, breakdowns, and inefficient performance.

Condition Ranges	Description
	♦ Parts are difficult to source or no longer available, making repairs impractical. ♦ Requires immediate replacement as repairs would not be cost-effective.

As illustrated in Figure 49, most of the assets are in fair or better condition.

Figure 49 Asset Condition: Machinery & Equipment by Segment



Condition data was available for 24% of machinery and equipment, based on replacement costs; age was used to estimate condition for the remaining 76% of assets.

Table 61 summarizes the replacement cost-weighted condition of the Township's machinery and equipment portfolio. Based mostly on age-based condition data, 56% of machinery and equipment are in fair or better condition, with the remaining 44% in poor or lower condition.

Table 61 Asset Condition: Machinery & Equipment by Segment

Asset Category	≤ Poor $	≤ Poor %	≥ Fair $	≥ Fair %	Average Condition[21]
Attachments	$214,352	84%	$41,128	16%	Very Poor (13%)
Fueling Station	$130,688	100%	-	0%	Very Poor (0%)
Heavy Equipment	$825,866	43%	$1,088,208	57%	Fair (58%)
Medium Equipment	$214,411	39%	$335,645	61%	Fair (50%)
Small Equipment	$237,867	63%	$138,030	37%	Poor (26%)
Solar Panels	-	0%	$434,505	100%	Good (72%)
TOTAL	**$1,623,184**	**44%**	**$2,037,516**	**56%**	**Fair (50%)**

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.

Table 62 summarizes and Figure 50 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

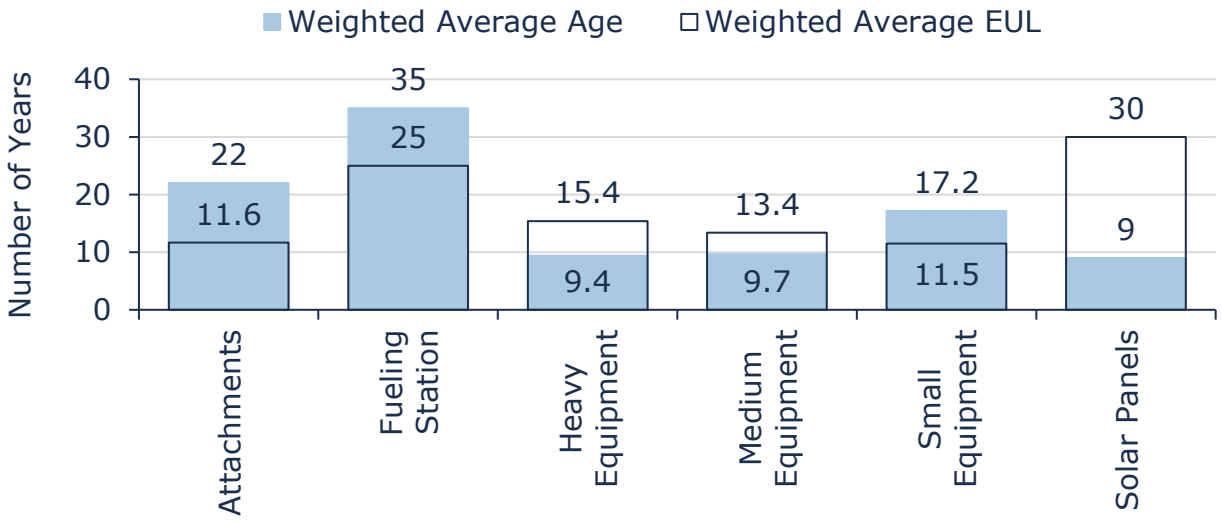
Age analysis reveals that, on average, with the exception of solar panel assets, most machinery and equipment assets remain in service close to or beyond their expected useful life.

[21] Weighted by replacement cost.

Table 62 Detailed Asset Age: Machinery & Equipment

Segment	Weighted Average EUL	Weighted Average Age
Attachments	11.6	22.0
Fueling Station	25.0	35.0
Heavy Equipment	15.4	9.4
Medium Equipment	13.4	9.7
Small Equipment	11.5	17.2
Solar Panels	30.0	9.0

Figure 50 Estimated Useful Life vs. Asset Age: Machinery & Equipment



Although asset age is an important measurement for long-term planning, condition assessments provide a more accurate indication of actual asset needs. An asset may perform past the established useful life if it has been maintained and kept in good condition. Therefore, it is important to consider asset condition when comparing asset age to its serviceable lifespan.

However, each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type. Further, useful life estimates established

as part of the PSAB 3150 implementation may not be accurate and may not reflect in-field asset performance.

10.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that the Township's machinery and equipment 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 for machinery and equipment assets.

Table 63 Lifecycle Management Strategy: Machinery & Equipment

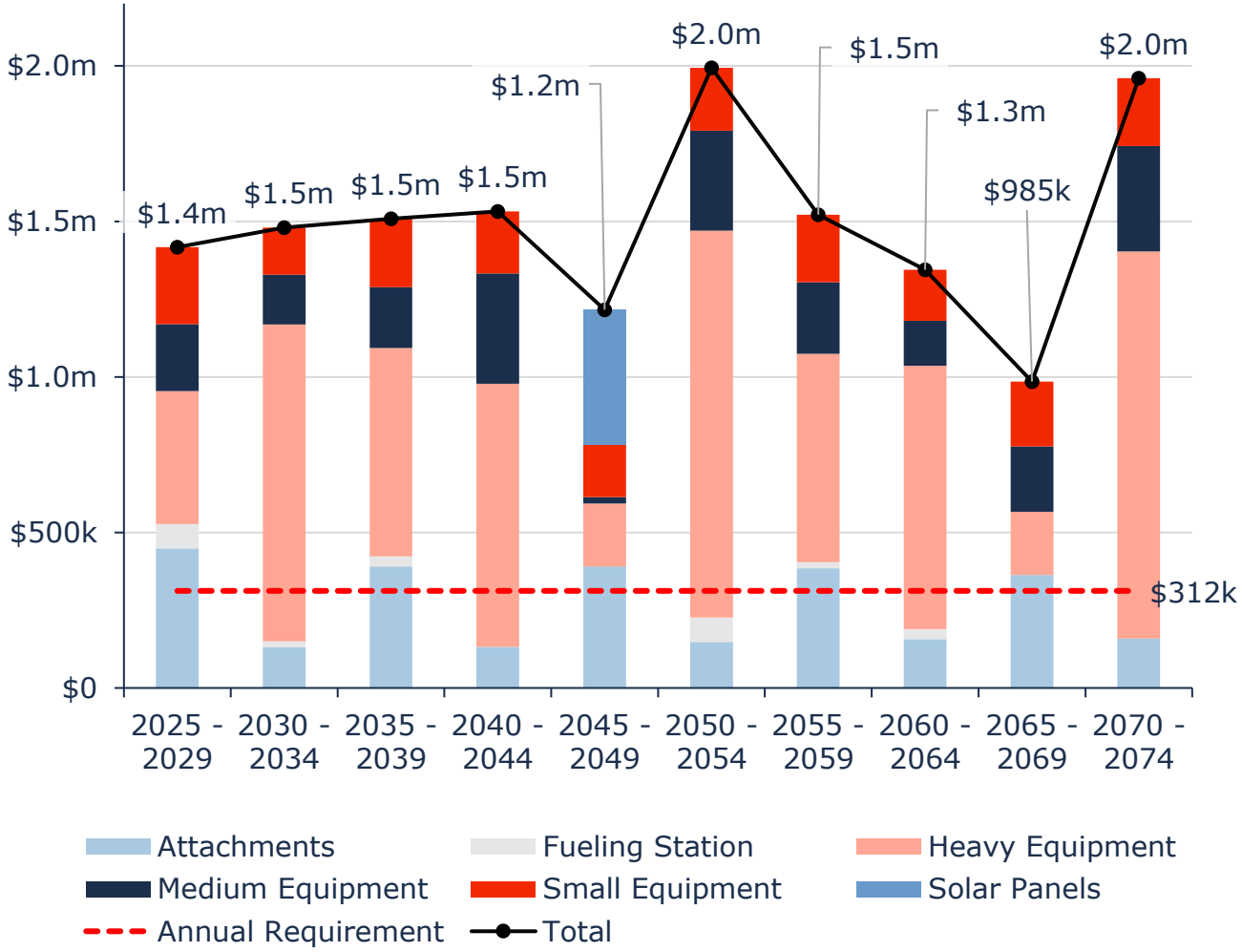
Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Preventative maintenance that does not require a licensed technician is performed by internal staff, such as regular cleaning of equipment.
	Heavy equipment is inspected annually and receives in-house preventative maintenance, including an oil change every 250 hours.
	Smaller equipment is serviced on an as-needed basis.
Replacement	Asset replacements are determined by the asset's age, years of service, hours of use, frequency of breakdowns and their type of use.

10.5 Forecasted Long-Term Replacement Needs

Figure 51 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's machinery and equipment portfolio. This analysis was run from 2025 until 2074 (a 50-year timespan) for assets

included in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $312,131 for all machinery and equipment. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise. Replacement needs are forecasted to remain relatively consistent over the 50-year projection period, with two peaks of $2.0 million in 2050-2054 and 2070-2074. A low of just under $1.0 million occurs in 2065-2069.

Figure 51 Forecasted Capital Replacement Needs: Machinery & Equipment 2025-2074



Additionally, there is currently an approximate $1.0 million backlog comprised of assets that remain in service beyond their estimated useful life. The capital forecast below and the 10-year capital requirements expanded in Appendix B have

accounted for removing this accumulation and continuing to rehabilitate or replace assets in alignment with the proposed levels of service.

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.

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.

10.6 Risk Analysis

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

10.6.1 Quantitative Risk

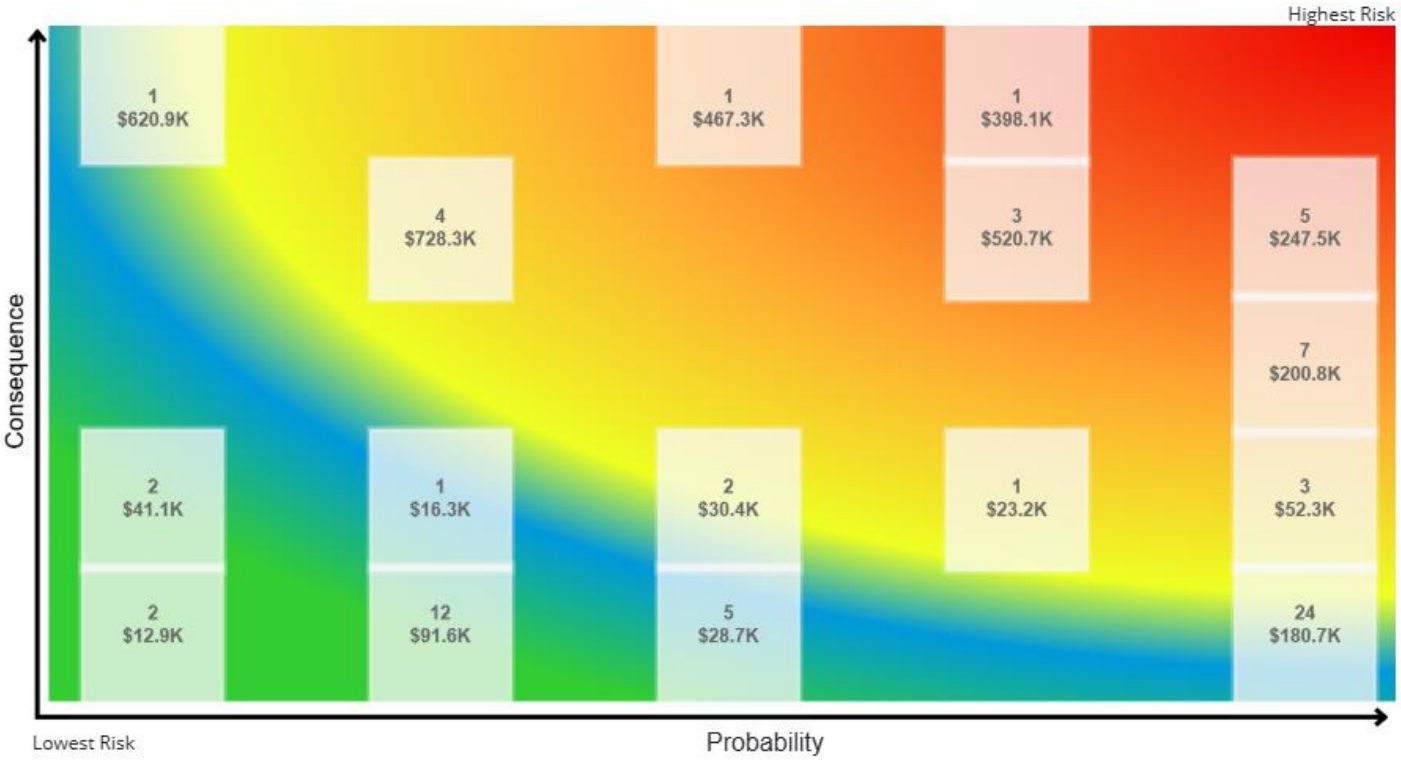
The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for machinery and equipment assets based on 2024 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

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 Quantitative Risk under Section 2.2.2 as well as Section

2.3.8 Evaluating Quantitative Risk for further details on the approach used to determine asset risk ratings and classifications.

Figure 52 Risk Matrix: Machinery & Equipment



The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The following risk ratings are first shown for the overall category and then by segment for the machinery and equipment assets.

Figure 53 Risk Rating Ranges: Machinery & Equipment

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$190,647	$831,952	$751,468	$52,299	$1,834,334
(5%)	(23%)	(21%)	(1%)	(50%)

Table 64 Probability of Failure, Consequence of Failure, Risk Ratings: Machinery & Equipment by Segment

Asset Category	Probability of Failure	Consequence of Failure	Risk Rating
Attachments	4.47 / 5	2.74 / 5	12.63 / 25
Fueling Station	5 / 5	3.35 / 5	16.75 / 25
Heavy Equipment	2.78 / 5	4.78 / 5	13.02 / 25
Medium Equipment	2.99 / 5	3.72 / 5	11.07 / 25
Small Equipment	3.89 / 5	1.59 / 5	6.7 / 25
Solar Panels	2 / 5	4 / 5	8 / 25
TOTAL	**3.03 / 5**	**4.01 / 5**	**11.59 / 25**

Overall, the average risk rating for machinery and equipment assets is 11.59, which is considered High.

10.6.2 Qualitative Risk

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

Climate Change & Extreme Weather Events

Climate change and extreme weather can present challenges for a Township's machinery and equipment. The rising frequency of severe storms, floods, and intense winter weather events can lead to increased operational demands, such as more frequent snow plowing and flood response efforts. This heightened usage can result in additional wear and tear on machinery and equipment, potentially leading to more frequent maintenance needs and accelerated deterioration. Adverse weather conditions also exacerbate the risk of damage and operational inefficiencies.

10.7 Current 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

Table 65 Community Levels of Service: Machinery & Equipment

Service Attribute	Qualitative Description	Current LOS (2024)
Safe & Reliable	Description of the machinery & equipment inspection process and any licensing requirements for operators	Preventative maintenance that does not require a licensed technician is performed in-house by the Township's Public Works Department. For example, regular cleaning of equipment. Heavy equipment is inspected annually, and receives an in-house preventative maintenance service including oil changes every 250 hours. Graders have blades replaced as necessary, with blades tending to need replacement more during the winter months. All public works staff receive the appropriate training required for using specialized equipment and machinery. Records of such training and expiry dates are tracked by Township Staff.
Affordable	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on machinery and equipment	Heavy equipment is inspected annually and receives an inhouse PM service including oil change every 250 hours. Graders have blades replaced as necessary, with blades tending to need replacement more during the winter months.

Service Attribute	Qualitative Description	Current LOS (2024)
		Outside maintenance work that requires a licensed technician is performed out of house as needed.
Sustainable	Description of the current condition of machinery & equipment and the plans that are in place to maintain or improve the provided level of service	Currently, equipment and machinery are not given an annual condition rating. This means that most assets are currently rated based on their age-based condition. In the future, the Township will explore conducting annual condition assessments of all machinery and equipment assets.

10.7.2 Technical Levels of Service

Table 66 Technical Levels of Service: Machinery & Equipment

Service Attribute	Technical Metric	Current LOS (2024)
Safe & Regulatory	Number of accidents involving municipal machinery and equipment	0
	Number of machinery and equipment major defects reported (where outside services are required)	0
Affordability	O&M Annual Cost	$105,567.03
Sustainability	Average condition of machinery and equipment assets	Fair (50%)
	% of assets in fair or better condition	56%
	% of assets in poor or lower condition	44%
	Actual annual capital budget: average required annual capital requirements	$281,000 : $312,000 (0.90 : 1)

10.8 Proposed Levels of Service

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

Table 67 outlines the proposed LOS scenarios that were analyzed for machinery and equipment. Further explanation and proposed LOS analysis at the portfolio level can be found in Section 4 Proposed Levels of Service Analysis.

Table 67 Proposed LOS: Machinery & Equipment

Segment	Average Annual Requirement				Selection
	-5% Condition (45%)	Maintain Baseline (50%)	+5% Condition (55%)	No Target	
Attachments	$53,029	$54,776	$55,652	$53,782	Maintain
Fueling Station	$5,629	$5,952	$5,952	$5,228	Maintain
Heavy Equipment	$156,971	$156,971	$156,971	$148,138	Maintain
Medium Equipment	$41,605	$41,605	$41,756	$42,695	Maintain
Small Equipment	$37,541	$39,920	$41,443	$40,884	Maintain
Solar Panels	$12,906	$12,906	$12,906	$14,484	Maintain
TOTAL	**$307,681**	**$312,131**	**$314,680**	**$305,210**	**$312,131**

11 Vehicles

The Township's vehicles portfolio has an approximate total current replacement cost of $1.7 million.

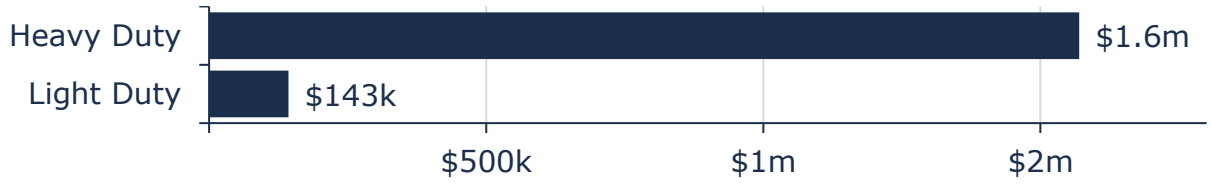
11.1 Inventory & Valuation

Table 68 summarizes the quantity and current replacement cost of all vehicles assets available in the Township's asset register.

Table 68 Detailed Asset Inventory: Vehicles

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method	AAR[22]
Heavy Duty	5	Assets	$1,569,972	User-Defined	$133,561
Light Duty	3	Assets	$143,438	CPI	$15,254
TOTAL			**$1,713,410**	**User-Defined**	**$148,815**

Figure 54 Portfolio Valuation: Vehicles



11.2 Asset Condition

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

[22] Average Annual Capital Requirement (AAR) based on selected proposed levels of service scenarios For further detail, see section 2.3.5 Average Annual Requirement and section 4 Proposed Levels of Service Analysis.

- Vehicles are inspected daily and are also dependent on their hours or kilometers of use to ensure they are in proper working condition
- An external mechanic performs comprehensive annual inspections on all vehicles to maintain safety and performance standards

In this AMP, the following rating criteria is used to determine the current condition of vehicles assets and forecast future capital requirements:

Table 69 Condition Ranges: Vehicles

Condition Ranges	Description
Very Good (80% – 100%)	♦ Like-new condition—mechanically excellent with no defects or major wear. ♦ No visible exterior damage—paint, body, and glass are in near-perfect condition. ♦ Interior is clean and well-maintained, with no significant wear on seats, controls, or dashboard. ♦ Optimal performance and fuel efficiency, with all systems (engine, brakes, electronics) fully functional. ♦ Minimal maintenance required beyond standard servicing.
Good (60% – 80%)	♦ Mechanically sound with no major issues—engine, transmission, and brakes function well. ♦ Minor cosmetic wear (small scratches or slight fading), but no major damage. ♦ Interior is in good condition, with all controls, seats, and features fully operational. ♦ Fuel efficiency and performance remain close to original specifications. ♦ Routine maintenance needed to keep it in top condition.
Fair (40% – 60%)	♦ Some mechanical wear and tear, but still operational with occasional minor repairs needed. ♦ Body has some cosmetic flaws, such as scratches, small dents, or light rust.

Condition Ranges	Description
	♦ Interior is intact but shows signs of aging, such as worn upholstery or faded controls. ♦ All major systems functional, but performance is slightly reduced compared to new. ♦ Regular maintenance required to prevent further decline.
Poor (20% – 40%)	♦ Noticeable mechanical problems, such as engine misfires, transmission slipping, or weak brakes. ♦ Frequent minor repairs needed (e.g., battery issues, fluid leaks, suspension wear). ♦ Significant body wear including rust spots, fading paint, or moderate dents. ♦ Aging interior with visible wear on seats, dashboard, and controls. ♦ Decreased fuel efficiency and performance issues becoming more noticeable.
Very Poor (0% – 20%)	♦ Severe mechanical and structural issues—engine, transmission, or braking system may be failing or unreliable. ♦ Frequent breakdowns making the vehicle unsafe or impractical for regular use. ♦ Extensive body damage such as severe rust, dents, or missing panels. ♦ Worn-out interior with torn seats, broken controls, or non-functional components (e.g., HVAC, lights, windows). ♦ High repair costs often exceeding the vehicle's remaining value. Near end-of-life.

Table 70 summarizes the replacement cost-weighted condition of the Township's vehicles portfolio. Based solely on age-based condition data, 47% of vehicles are in fair or better condition, with the remaining 53% in poor or lower condition.

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

Figure 55 Asset Condition: Vehicles by Segment

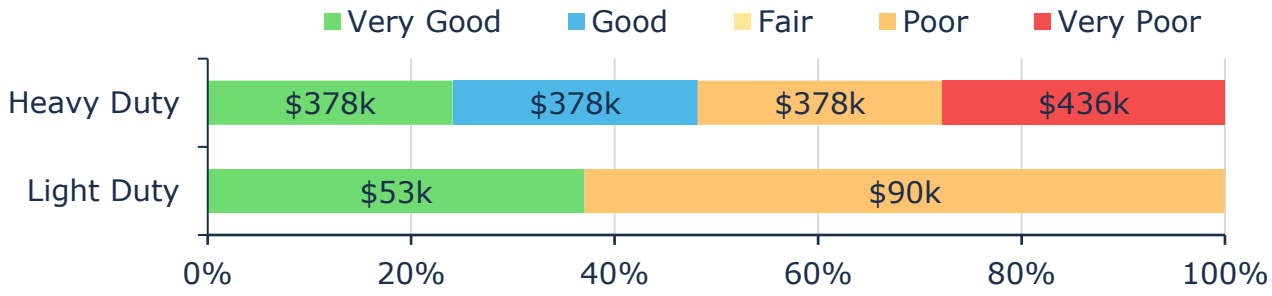


Table 70 Asset Condition: Vehicles by Segment

Asset Category	≤ Poor $	≤ Poor %	≥ Fair $	≥ Fair %	Average Condition[23]
Heavy Duty	$813,972	52%	$756,000	48%	Fair (52%)
Light Duty	$90,300	63%	$53,138	37%	Fair (54%)
TOTAL	**$904,272**	**53%**	**$809,138**	**47%**	**Fair (52%)**

11.3 Age Profile

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

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

Table 71 summarizes and Figure 56 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

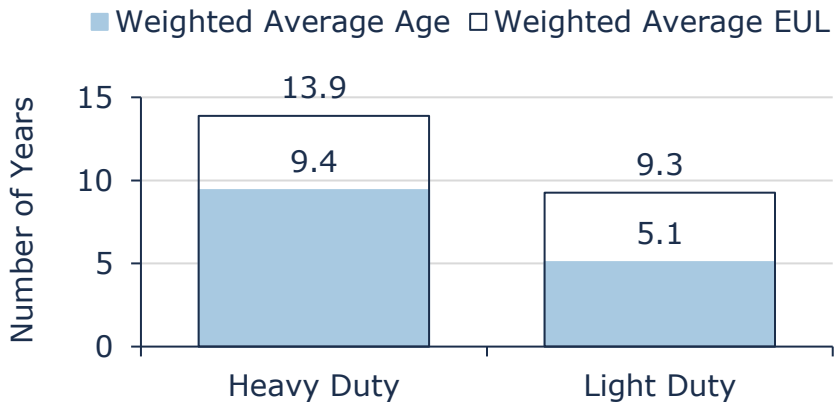
[23] Weighted by replacement cost.

Table 71 Detailed Asset Age: Vehicles

Segment	Weighted Average EUL	Weighted Average Age
Heavy Duty	13.9	9.4
Light Duty	9.3	5.1

Age analysis reveals that, on average, most vehicles are slightly past the midpoint of their established useful life.

Figure 56 Estimated Useful Life vs. Asset Age: Vehicles



Although asset age is an important measurement for long-term planning, condition assessments provide a more accurate indication of actual asset needs. An asset may perform past the established useful life if it has been maintained and kept in good condition. Therefore, it is important to consider asset condition when comparing asset age to its serviceable lifespan.

However, each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type. Further, useful life estimates established as part of the PSAB 3150 implementation may not be accurate and may not reflect in-field asset performance.

11.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that the Township's vehicles 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 for vehicles assets.

Table 72 Lifecycle Management Strategy: Vehicles

Activity Type	Description of Current Strategy
Maintenance	Maintenance activities include daily inspections of vehicles in use and regular preventative maintenance based on the hours or kilometers of the vehicle.
	Snowplows receive an oil change every 25,000 km, while smaller vehicles such as pickup trucks receive an oil change every 6,000-10,000 km.
	Other maintenance activities, such as oil changes, are performed externally.
Rehabilitation / Replacement	Vehicle replacement is prioritized based on the type of vehicle, estimated useful life, condition, and frequency of breakdowns.

11.5 Forecasted Long-Term Replacement Needs

Figure 57 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's vehicles portfolio. This analysis was run from 2025 until 2074 (a 50-year timespan) for assets included in Citywide Assets, the Township's primary asset management system and asset register. The Township's average annual requirements (red dotted line) total $148,270 for all vehicles. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or

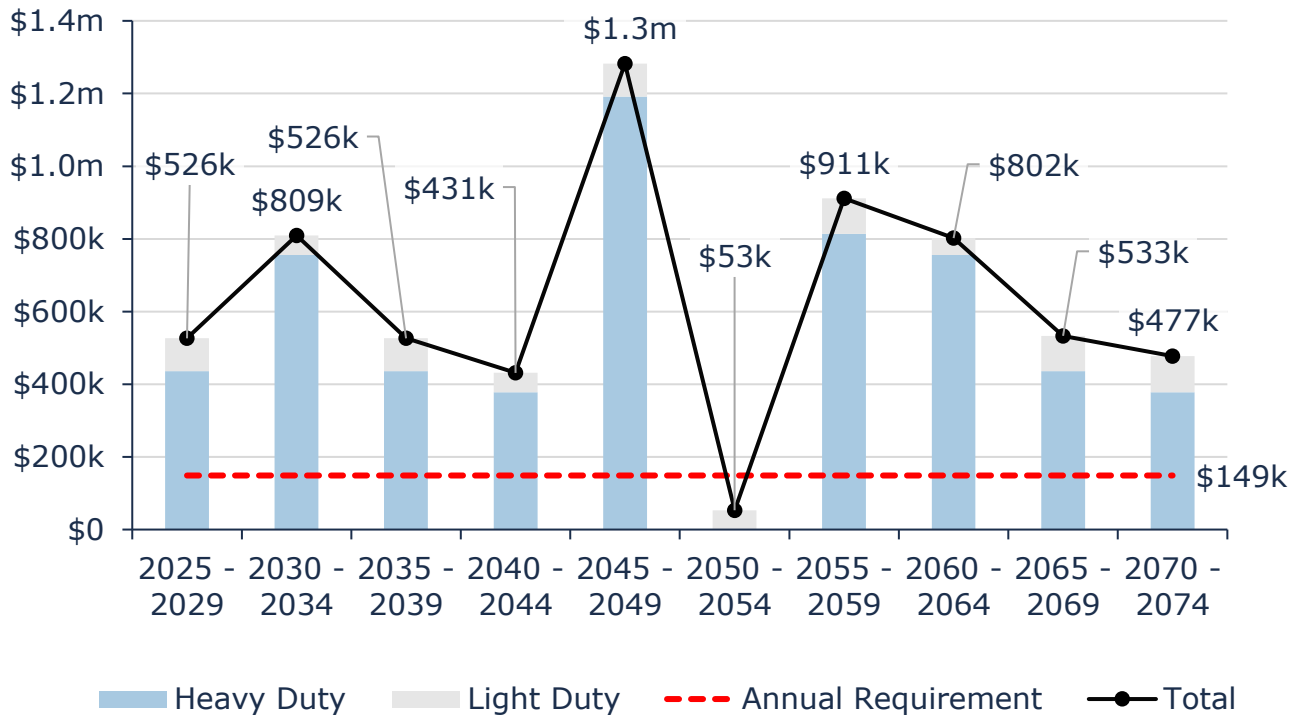
allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Additionally, there is currently an approximate $378,000 backlog comprised of assets that remain in service beyond their estimated useful life. The capital forecast below and the 10-year capital requirements expanded in Appendix B have accounted for removing this accumulation and continuing to rehabilitate or replace assets in alignment with the proposed levels of service.

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.

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.

Figure 57 Forecasted Capital Replacement Needs: Vehicles 2025-2074



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

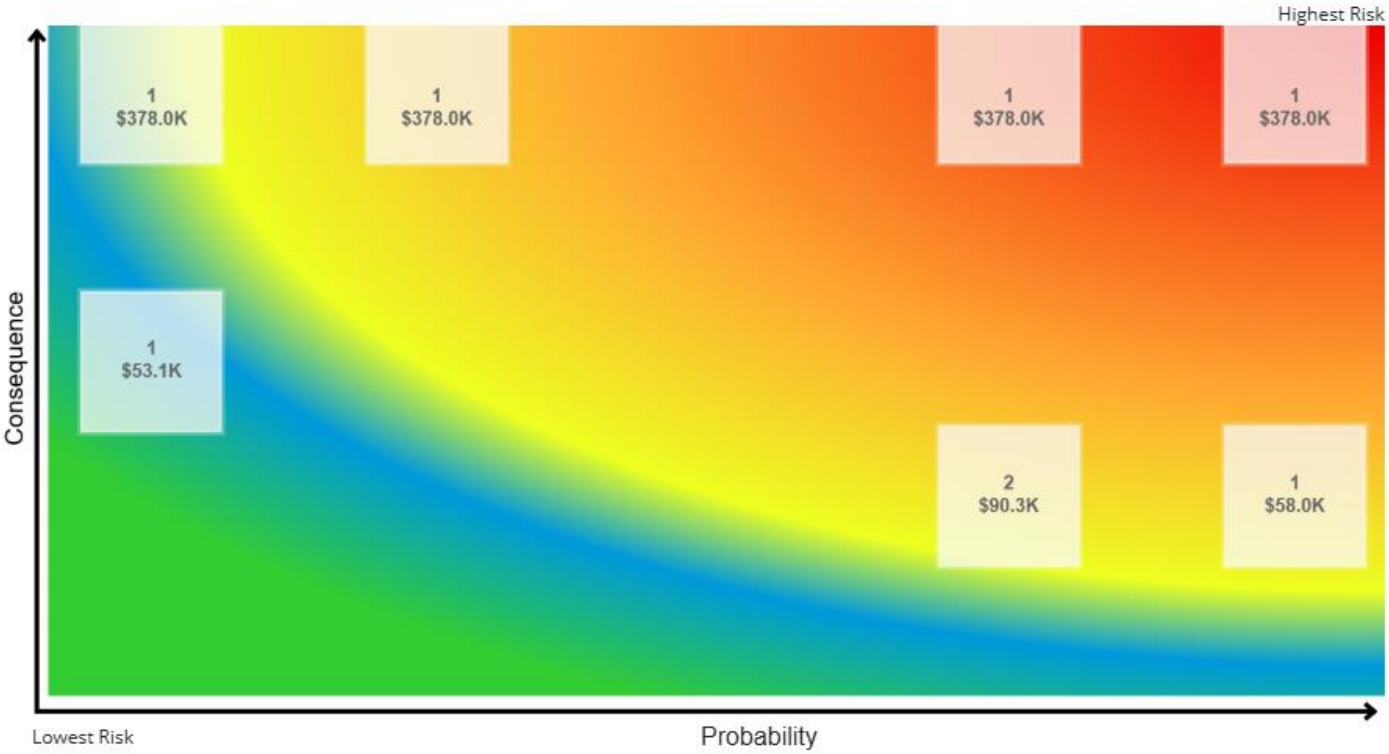
11.6 Risk Analysis

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

11.6.1 Quantitative Risk

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for vehicles assets based on 2024 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

Figure 58 Risk Matrix: Vehicles



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 Quantitative Risk under Section 2.2.2 as well as Section 2.3.8 Evaluating Quantitative Risk for further details on the approach used to determine asset risk ratings and classifications.

The following risk ratings are first shown for the overall category and then by segment for the vehicles assets.

Figure 59 Risk Rating Ranges: Vehicles

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$53,138	$378,000	$90,300	$435,972	$756,000
(3%)	(22%)	(5%)	(25%)	(44%)

Table 73 Probability of Failure, Consequence of Failure, Risk Ratings: Vehicles by Segment

Asset Category	Probability of Failure	Consequence of Failure	Risk Rating
Heavy Duty	3.07 / 5	4.89 / 5	14.82 / 25
Light Duty	2.89 / 5	2.37 / 5	6.15 / 25
TOTAL	**3.05 / 5**	**4.68 / 5**	**14.09 / 25**

Overall, the average risk rating for vehicles assets is 14.09, which is considered High.

The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

11.6.2 Qualitative Risk

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

Climate Change & Extreme Weather Events

The Township can face challenges from climate change and extreme weather, such as freezing rain, which increase the need for vehicle maintenance and repairs. Harsh conditions can accelerate tire wear and place additional strain on engines, particularly during cold starts, underscoring the importance of having durable patrol trucks. Inadequate investment in suitable vehicles could affect operational capacity and service delivery.

11.7 Current Levels of Service

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

11.7.1 Community Levels of Service

Table 74 Community Levels of Service: Vehicles

Service Attribute	Qualitative Description	Current LOS (2024)
Safe & Reliable	Description of the Fleet Management and Safety Program	Maintenance activities include daily inspections of fleet vehicles being used by the Township's Public Works Department.
Affordable	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on municipal vehicles	Regular preventative maintenance is performed based on the hours or kilometers the fleet vehicle has been operated. For example, snowplows receive an oil change every 25,000 km the plow is driven, while smaller vehicles such as pickup trucks receive an oil change every 6,000-10,000 km. Other maintenance activities for vehicles are performed out of house, such as oil changes.

Service Attribute	Qualitative Description	Current LOS (2024)
		Fleet vehicles are scheduled to be replaced based on their type and estimated useful life. Larger fleet vehicles such as snowplows are scheduled to be replaced every 10 years, while smaller vehicles are scheduled to be replaced every 7.
Sustainable	Description of the current condition of municipal vehicles and the plans that are in place to maintain or improve the provided level of service	Currently, vehicles are not given an annual condition rating. Because of this most assets are rated on age-based condition. In the future, the Township will explore conducting annual condition assessments of all assets in this category, or receiving condition ratings from outside sources such as mechanics.

11.7.2 Technical Levels of Service

Table 75 Technical Levels of Service: Vehicles

Service Attribute	Technical Metric	Current LOS (2024)
Safe & Regulatory	Percentage of vehicle operators with an AZ license	100%
	Percentage of vehicle operators with a DZ license	0%
	Number of vehicle major defects that caused a vehicle to be out of service for over a 48-hour period	0
	Number of motor vehicle accidents involving municipal vehicles	0
Affordability	O&M annual cost	$101,802.70
Sustainability	Average condition of vehicles assets	Fair (52%)

Service Attribute	Technical Metric	Current LOS (2024)
	% of vehicles in fair or better condition	47%
	% of vehicles in poor or worse condition	53%
	Actual annual capital budget: average required annual capital requirements	$0 : $149,000 (0 : 1)

11.8 Proposed Levels of Service

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

Table 76 outlines the proposed LOS scenarios that were analyzed for vehicles. Further explanation and proposed LOS analysis at the portfolio level can be found in Section 4 Proposed Levels of Service Analysis.

Table 76 Proposed LOS: Vehicles

Segment	Average Annual Requirement				Selection
	-5% Condition (45%)	Maintain Baseline (50%)	+5% Condition (55%)	No Target	
Heavy Duty	$132,987	$133,561	$136,730	$119,197	Maintain
Light Duty	$14,202	$15,254	$15,254	$15,672	Maintain
TOTAL	**$147,189**	**$148,815**	**$151,984**	**$134,869**	**$148,815**

Strategies

12 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.

12.1 Growth Assumptions

12.1.1 Mulmur Official Plan (April 2012)

The Official Plan for the Township of Mulmur was adopted in 2012 and has a planning horizon of 20 years. The Official Plan aims to guide land use and development in a manner that minimizes conflicts, preserves the area's rural and natural character, and supports sustainable growth. The plan seeks to support the Township's development in alignment with environmental conservation, economic vitality, and community well-being.

The Official Plan focuses on ensuring controlled development, protecting significant natural features and agricultural lands, fostering urban and rural integration, and promoting economic opportunities within the community. Additionally, the plan emphasizes the preservation of water sources, cultural heritage, and recreational spaces, while aiming to maintain a balanced fiscal impact and a healthy mix of residential and commercial-industrial assessments.

The Settlement Areas within the Township of Mulmur will be the designated focal points for growth, aiming to balance the preservation of their rural essence with the provision of essential services, infrastructure, and quality of life improvements. The Township's objectives include enhancing the unique character of each settlement, ensuring safety, accessibility to services, and environmental sustainability in development, along with preserving natural features. These goals are guided by the Hamlet and Community designations, which prioritize creating safe, secure, and desirable living spaces with ample recreational opportunities, all while adhering to relevant planning acts and policies.

The following table demonstrates population growth and total number of private dwellings from 1996 to 2021 as indicated from Statistics Canada below:

Historical Figures	1996	2001	2006	2011	2016	2021
Population	2,903	3,099	3,318	3,391	3,478	3,571
Population Change	N/A	6.8%	7.1%	2.2%	2.6%	2.7%
Private Dwellings	N/A	1,443	1,479	1,643	1,674	1,682

According to the Growth Plan for the Greater Golden Horseshoe, Dufferin County is projected to reach a population of 80,000 and provide 27,000 jobs by 2031. In line with this projection, the population of the Township of Mulmur is anticipated to rise to about 4,290, and employment opportunities are expected to expand to roughly 820 jobs by the same year. Analysis of these forecasts alongside Statistics Canada data suggests that while the actual population is indeed growing, it may not be advancing as quickly as projected by the Official Plan.

12.2 Impact of Growth on Lifecycle Activities

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

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

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

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

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

Note: Periodic grants are normally not included due to Provincial requirements for firm commitments. However, if moving a specific project forward is wholly

dependent on receiving a one-time grant, the replacement cost included in the financial strategy is the net of such grant being received.

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

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

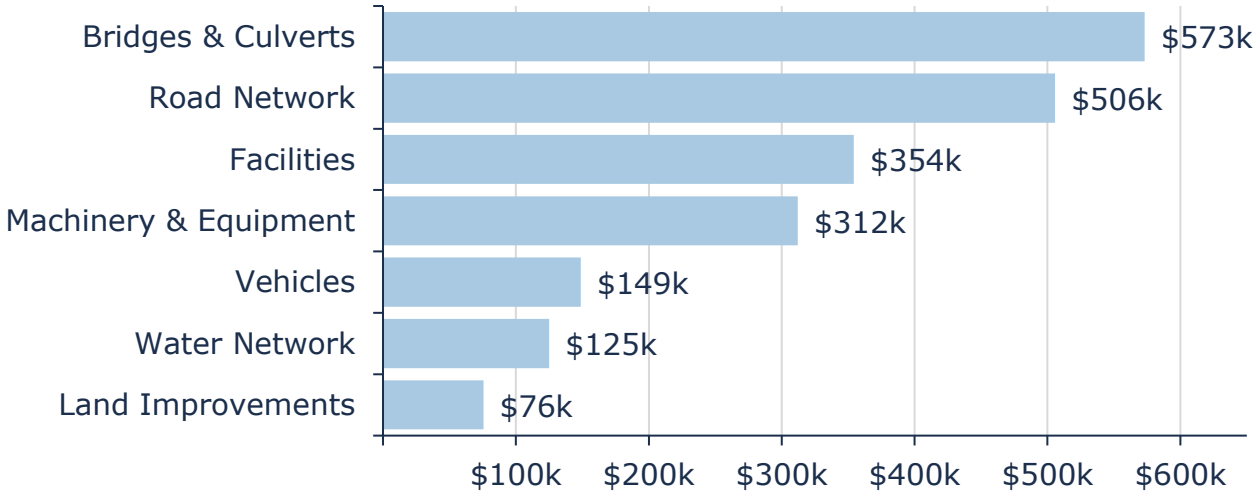
13.1 Annual Requirements & Capital Funding

13.1.1 Annual Requirements

The annual requirements represent the amount the Township should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs and achieve long-term sustainability. In total, the Township must allocate approximately $2,095,000 annually to address capital requirements for the assets included in this AMP.

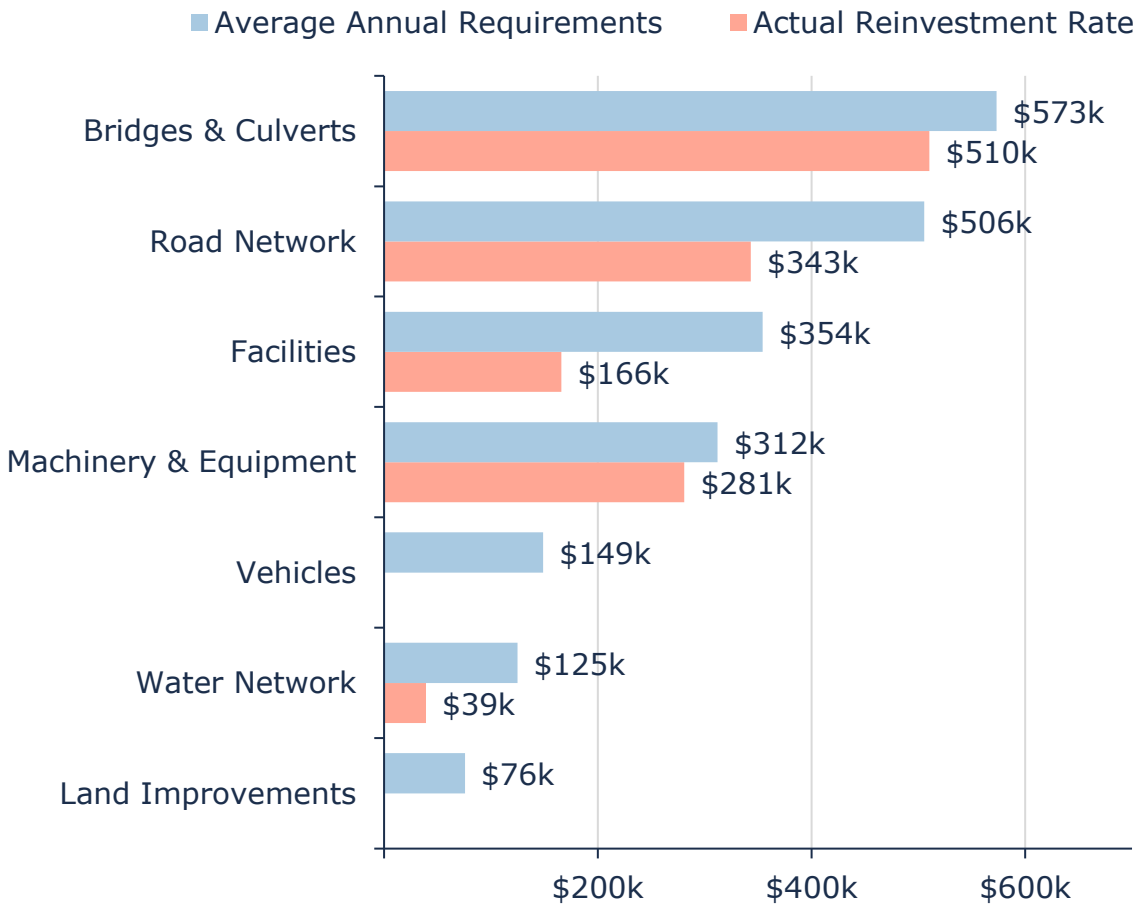
For most asset categories the annual requirement has been calculated based on a "replacement only" scenario, in which capital costs are only incurred at the construction and replacement of each asset.

Figure 60 Annual Capital Funding Requirements by Asset Category



13.1.2 Annual Funding Available

Figure 61 Annual Requirements vs. Capital Funding Available



Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $1,340,000 towards capital projects per year. Given the annual capital requirement of $2,095,000, there is currently a funding gap of $755,000 annually.

13.2 Funding Objective

We have developed a scenario that would enable Township of Mulmur to achieve full funding within 5 years for the following assets:

- **Tax-Funded Assets:** Road Network, Bridges & Culverts, Facilities, Land Improvements, Machinery & Equipment, Vehicles
- **Rate-Funded Assets:** Water Network

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.

13.3 Financial Profile: Tax-Funded Assets

13.3.1 Current Funding Position

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

The average annual investment requirement for the above categories is $1,970,000. Annual revenue currently allocated to these assets for capital purposes is $1,301,000 leaving an annual deficit of $669,000. Put differently, these infrastructure categories are currently funded at 66% of their long-term requirements.

Table 77 Annual Available Funding for Tax-Funded Assets

Asset Category	AAR	Annual Funding Available[24]				Annual Deficit
		Taxes	CCBF	OCIF	Total	
Road Network	$506k	$100k	$115k	$128k	$343k	$162k
Bridges & Culverts	$573k	$510k			$510k	$63k
Facilities	$354k	$166k			$166k	$188k
Land Improvements	$76k	-			-	$76k
Machinery & Equipment	$312k	$281k			$281k	$31k
Vehicles	$149k	-			-	$149k
TOTAL	**$2.0m**	**$1.1m**	**$115k**	**$128k**	**$1.3m**	**$669k**

13.3.2 Full Funding Requirements

In 2023, the Township of Mulmur budgeted annual tax revenues of approximately $4.8 million. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding would require the following tax change over time:

Table 78 Tax Increase Requirements for Full Funding

Asset Category	Tax Change Required for Full Funding
Road Network	3.4%
Bridges & Culverts	1.3%
Facilities	4.0%
Land Improvements	1.6%
Machinery & Equipment	0.7%
Vehicles	3.1%
TOTAL	**14.1%**

[24] Based on 2024 capital budget.

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

- Mulmur's debt payments for these asset categories will be decreasing $39,000 by 2039.

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:

Table 79 Tax Increase Options 5-20 Years

	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	$669,000	$669,000	$669,000	$669,000
Change in Debt Costs	-($5,000)	-($12,000)	-($39,000)	-($39,000)
Resulting Infrastructure Deficit:	$664,000	$657,000	$630,000	$630,000
Tax Increase Required	14.1%	14.1%	14.1%	14.1%
Annually:	**2.6%**	**1.3%**	**0.8%**	**0.6%**

13.3.3 Financial Strategy Recommendations

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

- Increasing tax revenues by 0.8% each year for the next 15 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP in alignment with the targets set out in the proposed levels of service.
- Continuing to allocate the current CCBF and OCIF revenue as outlined previously.
- Increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

The Township of Mulmur's current strategy is to increase the amount of property tax allocated to capital projects (currently approximately $1.3 million) by 3%-5%

annually. This would cover the deficit for both tax- and rate-funded assets within the next 9-15 years.

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[25].

2. We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

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

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

13.4 Financial Profile: Rate-Funded Assets

13.4.1 Current Funding Position

The following table shows, by asset category, Mulmur's average annual asset investment requirements, current funding positions, and funding increases required to achieve full funding on assets funded by rate.

The average annual investment requirement for the is $125,000. Annual revenue currently allocated to these assets for capital purposes is $39,000 leaving an annual deficit of $86,000. Put differently, these infrastructure categories are currently funded at 31% of their long-term requirements.

[25] 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.

Table 80 Annual Available Funding for Rate-Funded Assets

Asset Category	AAR	Annual Funding Available[26]				Annual Deficit
		Taxes	CCBF	OCIF	Total	
Water Network	**$125k**	**$39k**			**$39k**	**$86k**

13.4.2 Full Funding Requirements

In 2023, the Township of Mulmur budgeted annual rate revenues of approximately $39,000. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding would require the following rate change over time:

Table 81 Rate Increase Requirements for Full Funding

Asset Category	Rate Change Required for Full Funding
Water Network	120.4%

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:

Table 82 Rate Increase Options 5-20 Years

	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	$86,000	$86,000	$86,000	$86,000
Change in Debt Costs	N/A	N/A	N/A	N/A
Resulting Infrastructure Deficit:	$86,000	$86,000	$86,000	$86,000
Rate Increase Required	120.4%	120.4%	120.4%	120.4%
Annually:	**17.1%**	**8.2%**	**5.4%**	**4.0%**

[26] Based on 2024 capital budget.

13.4.3 Financial Strategy Recommendations

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

- Increasing rate revenues by 4.0% 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 in alignment with the targets set out in the proposed levels of service.
- Increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

The Township of Mulmur's current strategy is to increase the amount of property tax allocated to capital projects (currently approximately $1.3 million) by 3%-5% annually. This would cover the deficit for both tax- and rate-funded assets within the next 9-15 years.

Notes:

1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. This periodic funding should not be incorporated into an AMP unless there are firm commitments in place.
2. We realize that raising rate revenues for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.
3. Any increase in rates required for operations would be in addition to the above recommendations.

Although this option achieves full funding on an annual basis in 20 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available.

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

13.5 Use of Debt

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

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

Debt management policies and procedures with limitations and monitoring practices should be considered when reviewing debt as a funding option. In efforts to mitigate increasing commodity prices and inflation, interest rates have been rising. Sustainable funding models that include debt need to incorporate the now current realized risk of rising interest rates. The following tables outline how Mulmur has historically used debt for investing in the asset categories as listed. As of year-end 2024, there is currently $266,000 of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of $39,000, well within its provincially prescribed maximum of $1.3 million.

Table 83 Mulmur Use of Debt 2020-2024

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2020	2021	2022	2023	2024
Bridges & Structural Culverts	$266,400	$666k	-	-	-	-
Non-Core Assets	-	$250k	-	-	-	-
TOTAL	**$266k**	**$916k**	**-**	**-**	**-**	**-**

Table 84 Mulmur Principal and Interest Payments

Asset Category	Principal & Interest Payments in the Next Ten Years					
	2025	2026	2027	2028	2029	2034
Bridges & Structural Culverts	$39k	$38k	$37k	$35k	$34k	$28k
Buildings	$78k	$78k	$37k	$78k	$78k	$78k
TOTAL	**$39k**	**$38k**	**$37k**	**$35k**	**$34k**	**$28k**

The revenue options outlined in this plan allows the Township of Mulmur to fully fund its long-term infrastructure requirements for the selected proposed levels of service without further use of debt.

13.6 Use of Reserves

13.6.1 Available Reserves

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

- The ability to stabilize tax rates when dealing with variable and sometimes uncontrollable factors
- Financing one-time or short-term investments
- Accumulating the funding for significant future infrastructure investments
- Managing the use of debt
- Normalizing infrastructure funding requirement

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

- Breadth of services provided
- Age and condition of infrastructure
- Use and level of debt
- Economic conditions and outlook
- Internal reserve and debt policies.

As of December 31, 2023, the Township's reserves totaled an approximate $4.2 million. These reserves are available for use by applicable asset categories during the phase-in period to full funding. This coupled with Mulmur'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.

13.6.2 Recommendation

In 2025, Ontario Regulation 588/17 requires Mulmur 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.

The funding strategy outlined above aligns with achieving and maintaining the proposed levels of service outlined in Section 4.

14 Recommendations & Key Considerations

14.1 Financial Strategies

- Review the feasibility of adopting a full-funding scenario to achieve 100% of average annual funding requirements necessary for the proposed levels of service outlined in Section 4. This includes increasing taxes by 0.8% per year over a period of 15 years and rates by 4.0% per year over a period of 20 years or following the Township's current strategy of increasing the amount of property tax allocated to capital projects by 3%-5% annually, which would cover the deficit for both tax- and rate-funded assets within the next 9-15 years, respectively.
- Continued allocation of OCIF and CCBF funding as previously outlined.
- Increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.
- Continue to apply for project specific grant funding to supplement sustainable funding sources.

14.2 Asset Data

- Update replacement cost information on a regular basis, every 1-2 years, especially for the linear road segments.
    - These costs should continually be evaluated to determine their accuracy and reliability.
    - Replacement costs should be updated according to the best available information on the cost to replace the asset in today's value.
    - Consider developing a framework for the frequency of replacement cost updates.
    - Continue to review and validate inventory data, assessed condition data, rehabilitation costs, and replacement costs for all bridges and structural culverts upon the completion of OSIM inspections every 2 years and promptly updating the Citywide database to drive strategic capital planning.

  - 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 labor 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.
  - Componentize assets where possible to assess their condition, maintenance needs, and replacement costs accurately.

- Consider developing a condition assessment program that identifies assessment methodology, persons responsible, frequency of assessment, and updates of assessment information to the asset management database.
  - Consider completing an updated assessment of all roads every 5-7 years as part of a dedicated condition strategy program. The information should be uploaded into the Citywide database promptly to drive strategic capital planning.
  - If a formal building condition assessment is not performed, request condition information from contractors who service critical building systems like HVAC and fire protection systems. Record this information in Citywide and use it to inform asset management decisions including capital planning.
  - Where resources are limited, consider prioritizing assessments to assets based on their criticality to the organization or another means of prioritization.
  - Incorporate condition information, where possible, to improve risk and lifecycle strategy models. Staff should collect cursory condition information (very good-very poor rating scale) for all visible non-core assets or where visible core asset conditions are outdated and integrate it into the asset management database.
- Continue to refine and update asset attribute information, such as traffic counts, road type, or drainage adequacy, to ensure accuracy of the risk and lifecycle strategy outcomes.
  - Review road signs and barriers inventory to determine if a comprehensive and accurate inventory has been compiled.

- Review assets that have surpassed their estimated useful life to determine if immediate replacement is required or whether these assets are expected to remain in service.
    - Like replacement costs, an asset's established serviceable life can have dramatic impacts on all projections and analyses, including condition, long-range forecasting, and financial recommendations.
    - Periodically reviewing and updating these values to better reflect in-field performance and staff judgement is recommended.

14.3 Lifecycle Management Strategies

- Continuously review, refine, and calibrate lifecycle and risk profiles to better reflect actual practices and improve capital projections. In particular:
    - The timing of various lifecycle events, the triggers for treatment, anticipated impacts of each treatment, and costs
    - The various attributes used to estimate the likelihood and consequence of asset failures, and their respective weightings
- Evaluate the efficacy of the Township's lifecycle management strategies at regular intervals to determine the impact cost, condition, and risk. This could be done by updating the condition assessment data whenever new data becomes available and rerunning the capital projections and risk reports.

14.4 Risk & Levels of Service

- 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.
    - 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.

- Available data on current performance should be centralized and tracked to support any calibration of service levels on proposed levels of service in the future.
    - Staff should monitor evolving local, regional, and environmental trends to identify factors that may shape the demand and delivery of infrastructure programs.
    - These can include population growth and the nature of population growth, climate change and extreme weather events, and economic conditions and the local tax base.
    - This data can also be used to review service level targets.

Appendices

Appendix A Infrastructure Report Card

Asset Category	Replacement Cost	Average Condition	Financial Capacity	
Road Network	**$13.6 m**	**Fair (55%)**	Annual Requirement:	$506,000
			Funding Available:	$343,000
			Annual Deficit:	**$162,000**
Bridges & Culverts	**$45.1 m**	**Good (69%)**	Annual Requirement:	$573,000
			Funding Available:	$510,000
			Annual Deficit:	**$63,000**
Facilities	**$22.0 m**	**Good (66%)**	Annual Requirement:	$354,000
			Funding Available:	$166,000
			Annual Deficit:	**$188,000**
Land Improvements	**$1.6 m**	**Fair (52%)**	Annual Requirement:	$76,000
			Funding Available:	-
			Annual Deficit:	**$76,000**
Machinery & Equipment	**$3.7 m**	**Fair (50%)**	Annual Requirement:	$312,000
			Funding Available:	$281,000
			Annual Deficit:	**$31,000**
Vehicles	**$1.7 m**	**Fair (52%)**	Annual Requirement:	$149,000
			Funding Available:	-
			Annual Deficit:	**$149,000**
Water Network	**$10.8 m**	**Good (78%)**	Annual Requirement:	$125,000
			Funding Available:	$39,000
			Annual Deficit:	**$86,000**
TOTAL	**$98.6**	**Good (66%)**	**Annual Requirement:**	**$2.1 m**
			Funding Available:	**$1.34 m**
			Annual Deficit:	**$755 k**

Appendix B 10-Year Capital Requirements

Road Network										
Segment	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Barriers	-	-	-	$4k	-	-	$51k	-	$6k	-
Paved Roads	-	-	$633k	$290k	$1.3m	$182k	$444k	$236k	$339k	$397k
Road Signs	-	-	$89k	$16k	$17k	$19k	$64k	-	-	$14k
Small Culverts	-	-	$66k	$131k	$69k	$67k	$61k	$60k	$59k	$60k
Storm Drains	-	-	-	-	-	-	-	-	-	-
Streetlights	-	-	-	-	-	-	-	-	-	-
TOTAL	**-**	**-**	**$788k**	**$440k**	**$1.4m**	**$269k**	**$621k**	**$297k**	**$404k**	**$470k**

Bridges & Structural Culverts										
Segment	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Bridges	-	-	-	-	-	-	-	-	$445k	$389k
Structural Culverts	-	-	-	-	-	-	-	-	-	-
TOTAL	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**$445k**	**$389k**

Machinery and Equipment										
Segment	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Attachments	$299k	$32k	$34k	$56k	$27k	$56k	$48k	-	-	$26k
Fueling Station	$78k	-	-	-	-	-	$20k	-	-	-
Heavy Equipment	-	-	$203k	$225k	-	$398k	-	-	-	$621k
Medium Equipment	$68k	$12k	-	$42k	$93k	$10k	$135k	-	$15k	-
Small Equipment	$122k	$27k	$20k	$34k	$45k	$30k	$20k	$34k	$34k	$34k
Solar Panels	-	-	-	-	-	-	-	-	-	-
TOTAL	**$568k**	**$71k**	**$256k**	**$357k**	**$164k**	**$494k**	**$222k**	**$34k**	**$49k**	**$681k**

Facilities										
Segment	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Administration Building	-	-	-	-	-	-	-	-	-	-
Arena	-	-	-	-	-	-	$150k	$329k	$24k	-
Fire Hall	-	-	-	-	$60k	-	-	-	-	-
Gravel Pit Scale House	-	-	-	-	-	-	-	-	-	-
Mansfield Public Washroom	-	-	-	-	-	-	-	-	-	-
Public Works Building	-	-	-	-	$3k	-	-	-	-	-
Sand Dome	-	-	-	-	-	-	-	-	-	$95k
Utility Storage	-	-	-	-	-	-	-	-	-	-
TOTAL	**-**	**-**	**-**	**-**	**$64k**	**-**	**$150k**	**$329k**	**$24k**	**$95k**

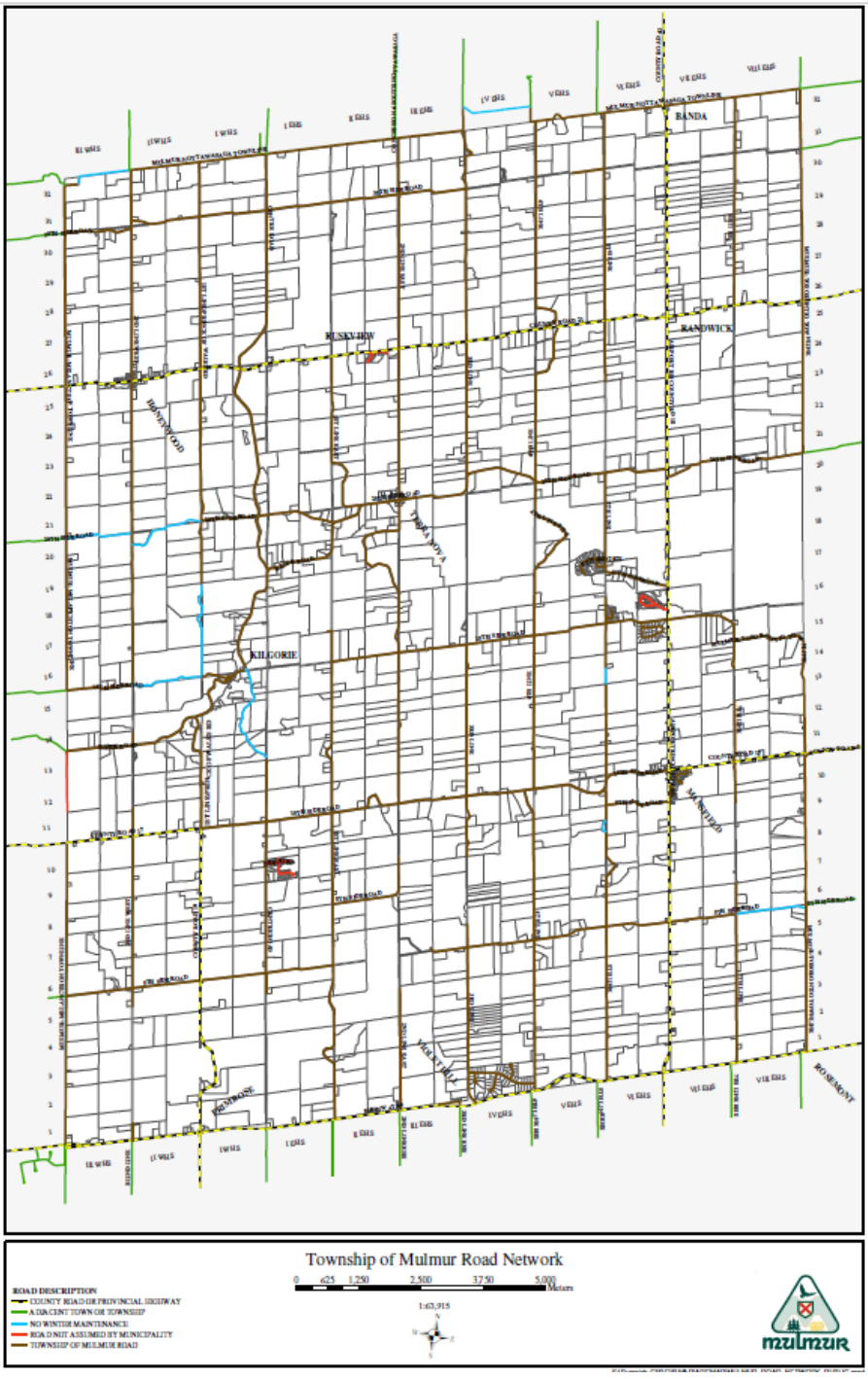
Land Improvements										
Segment	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Ball Diamond	-	-	-	-	-	-	-	$50k	-	-
Fencing	$8k	$3k	-	-	-	-	-	$3k	$24k	-
Multipurpose Pad	-	-	-	-	-	-	-	$37k	-	-
Outdoor Furnishings	-	-	-	-	-	-	-	-	-	-
Parking Lot	-	-	-	-	-	-	$200k	$340k	-	-
Play Structure	-	-	-	-	-	-	-	$20k	-	-
Trail	-	-	-	-	-	-	-	-	$43k	-
Wells	$45k	-	$30k	-	-	-	-	-	-	-
TOTAL	**$53k**	**$3k**	**$30k**	**-**	**-**	**-**	**$200k**	**$451k**	**$66k**	**-**

Vehicles										
Segment	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Heavy Duty	$58k	-	$378k	-	-	$378k	-	-	-	$378k
Light Duty	-	-	$44k	$46k	-	-	-	$53k	-	-
TOTAL	**$58k**	**-**	**$422k**	**$46k**	**-**	**$378k**	**-**	**$53k**	**-**	**$378k**

Water Network										
Segment	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**
Hydrants	-	-	-	-	-	-	-	-	-	-
Municipal Wells	-	-	-	-	-	-	$9k	-	-	-
Valves & Fittings	-	-	-	-	-	-	-	-	-	-
Water Buildings	-	-	-	-	-	-	$76k	-	$19k	-
Water Equipment	-	-	$6k	$173k	-	-	-	-	-	-
Water Mains	-	-	-	-	-	-	-	-	-	-
Water Meters	-	-	-	-	$22k	$2k	$3k	$2k	$3k	$3k
TOTAL	**-**	**-**	**$6k**	**$173k**	**$22k**	**$2k**	**$88k**	**$2k**	**$22k**	**$3k**

Appendix C Level of Service Maps

Road Network Map



Appendix D Risk Rating Criteria

Probability of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Probability of Failure Score
All Categories	Economic (100%)	Condition	80 – 100	1
			60 – 79	2
			40 – 59	3
			20 – 39	4
			0 – 29	5

Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Asphalt Roads (continued on next page)	Economic (80%)	Replacement Cost	$0 – $10,000	1
			$10,001 – $50,000	2
			$50,001 – $100,000	3
			$100,001 – $300,000	4
			$300,001+	5

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Bridges & Culverts	Operational (20%)	AADT	0 – 49	1
			50 – 199	2
			200 – 499	3
			500+	4
	Economic (80%)	Replacement Cost	$0 – $20,000	1
			$20,001 – $50,000	2
			$350,001 – $100,000	3
			$100,001 – $250,000	4
			$250,001+	5
	Operational (20%)	Detour Length (m)	80+	1
			60 – 79	2
			40 – 59	3
			20 – 39	4
			0 – 19	5

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Buildings	Economic (33%)	Replacement Cost	$0 – $5,000	1
			$5,001 – $50,000	2
			$50,001 – $100,000	3
			$100,001 – $500,000	4
			$500,001+	5
	Operational (33%)	Segment	Building Equipment	2
			Exterior, HVAC, Interior, Septic	4
			Building Structure, Roof	5
	Social (34%)	Days of Closure	0	1
			1 – 5	2
			6 – 10	3
			11 – 20	4
			21+	5
Watermains (continued on next page)	Economic (70%)	Replacement Cost	$0 – $5,000	1
			$5,001 – $20,000	2
			$20,001 – $50,000	3

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
			$50,001 – $100,000	4
			$100,001+	5
	Operational (30%)	Structure Type	Raw Main	2
			Distribution Main	4
Remaining Water Network Assets	Economic (100%)	Replacement Cost	$0 – $5,000	1
			$5,001 – $20,000	2
			$20,001 – $50,000	3
			$50,001 – $100,000	4
			$100,001+	5
All Remaining Assets	Economic (100%)	Replacement Cost	$0 – $15,000	1
			$15,001 – $50,000	2
			$50,001 – $100,000	3
			$100,001 – $300,000	4
			$300,001+	5

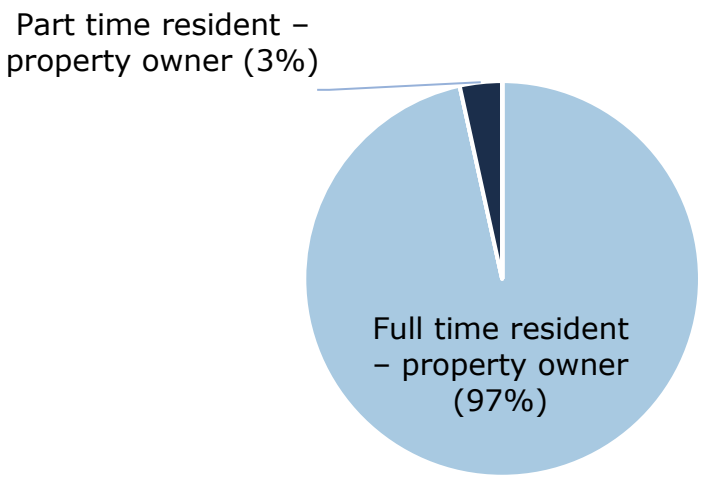
Appendix E Community Engagement

Have you read the Township's Asset Management Plan?

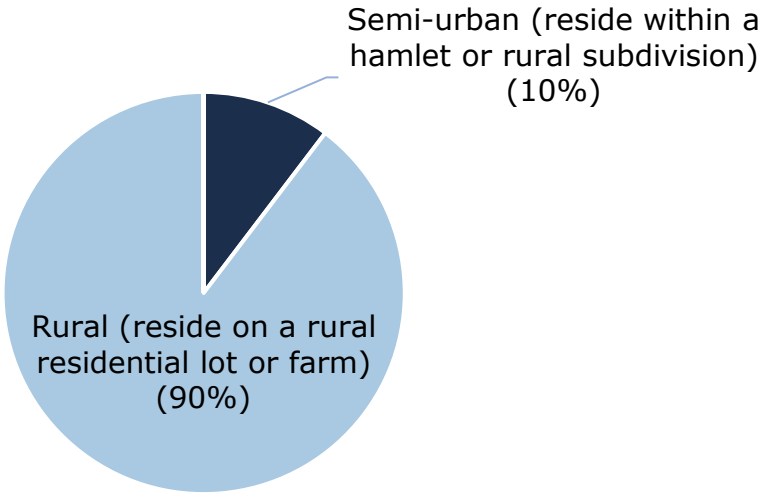
Yes (13 responses, 45%)	No (16 responses, 55%)

Demographics

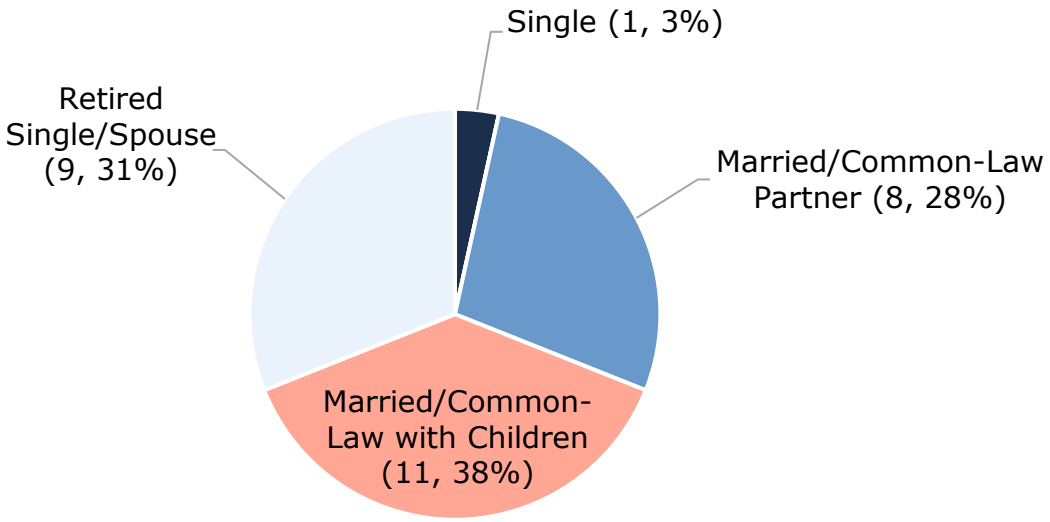
What is your municipal residency status?



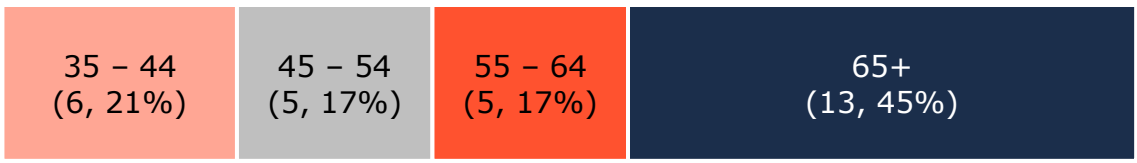
Which planning area best describes where you live within the Township?



Family Structure

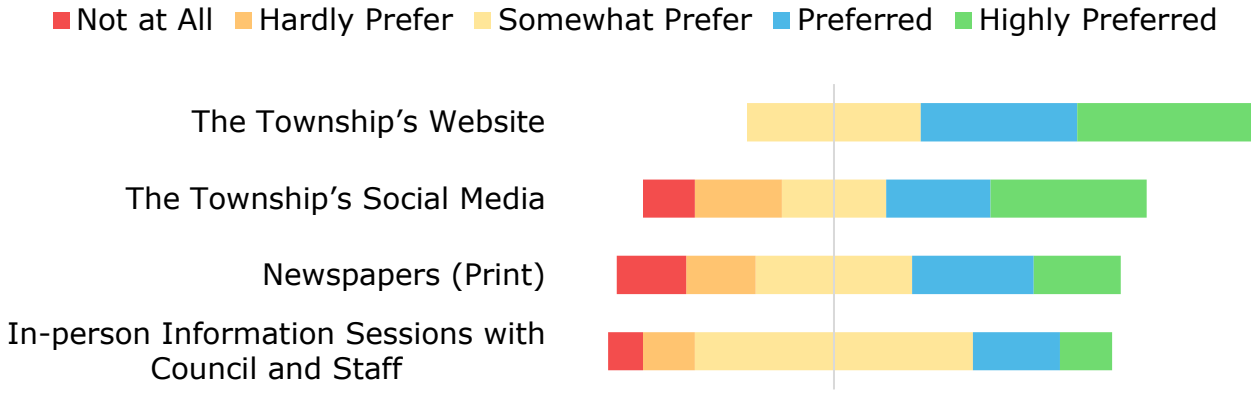


Age Range

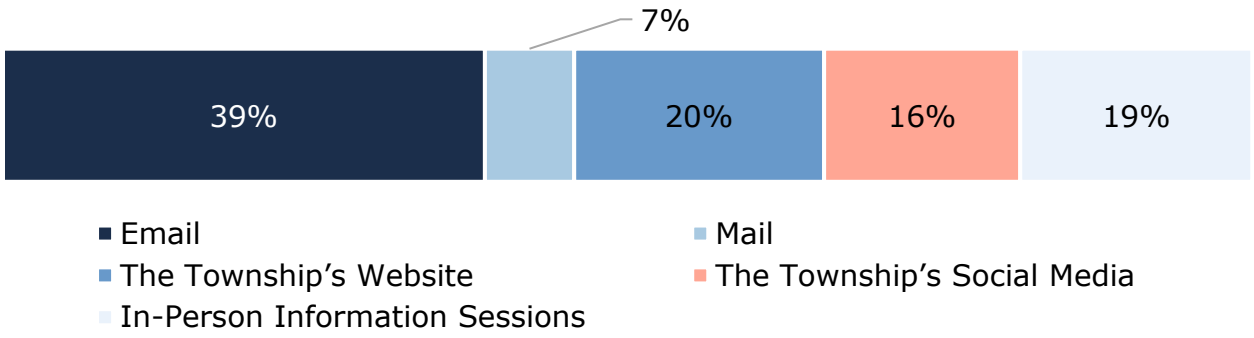


Communication Preferences

Please indicate how you would prefer to learn about Township issues/events/initiatives:

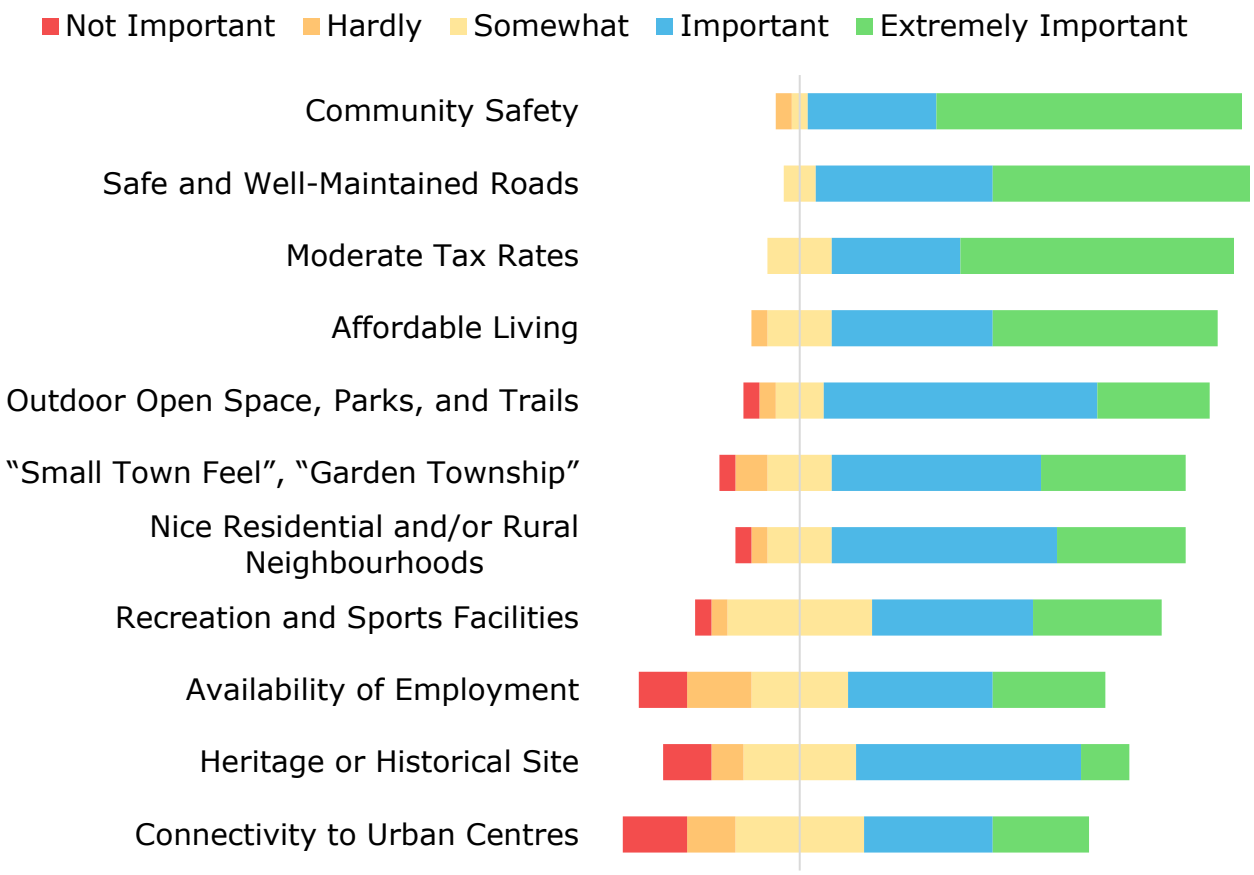


What is your preferred method to receive communications about municipal documents and plans, such as the Asset Management Plan? Select all that apply.

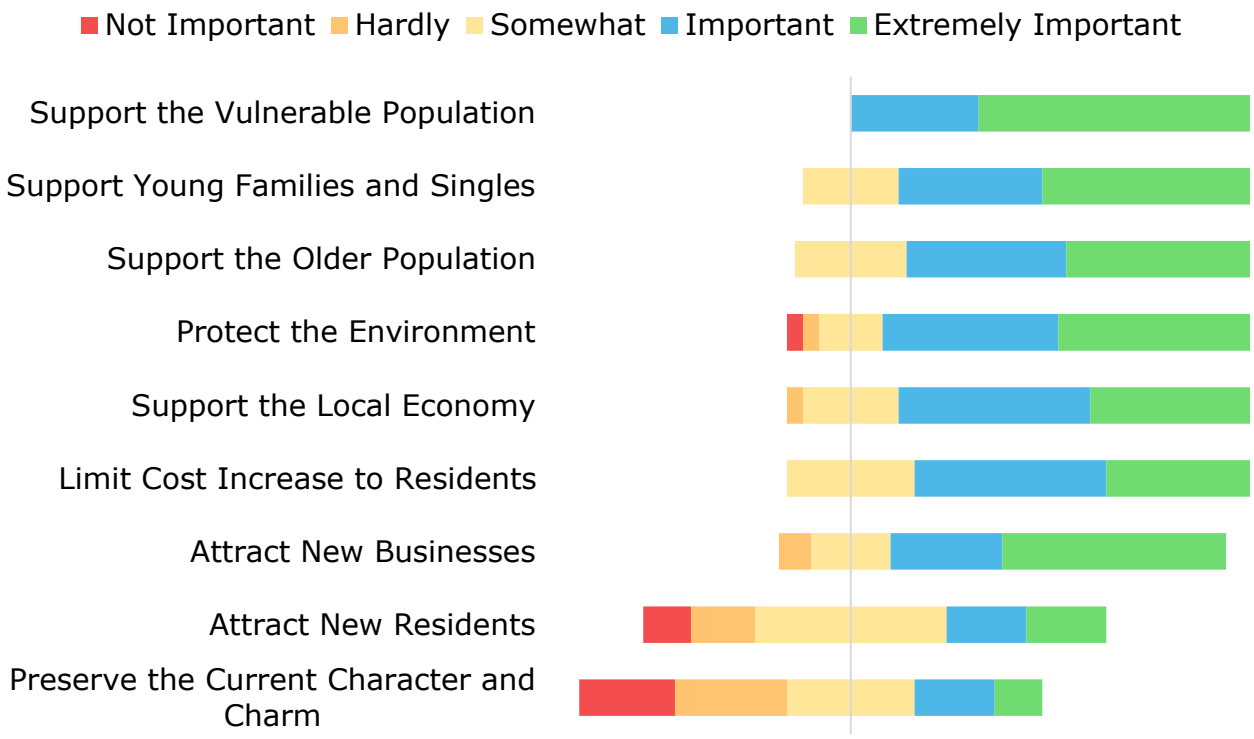


Community Values

Please indicate how important the following features are in making the Township a great place to live:

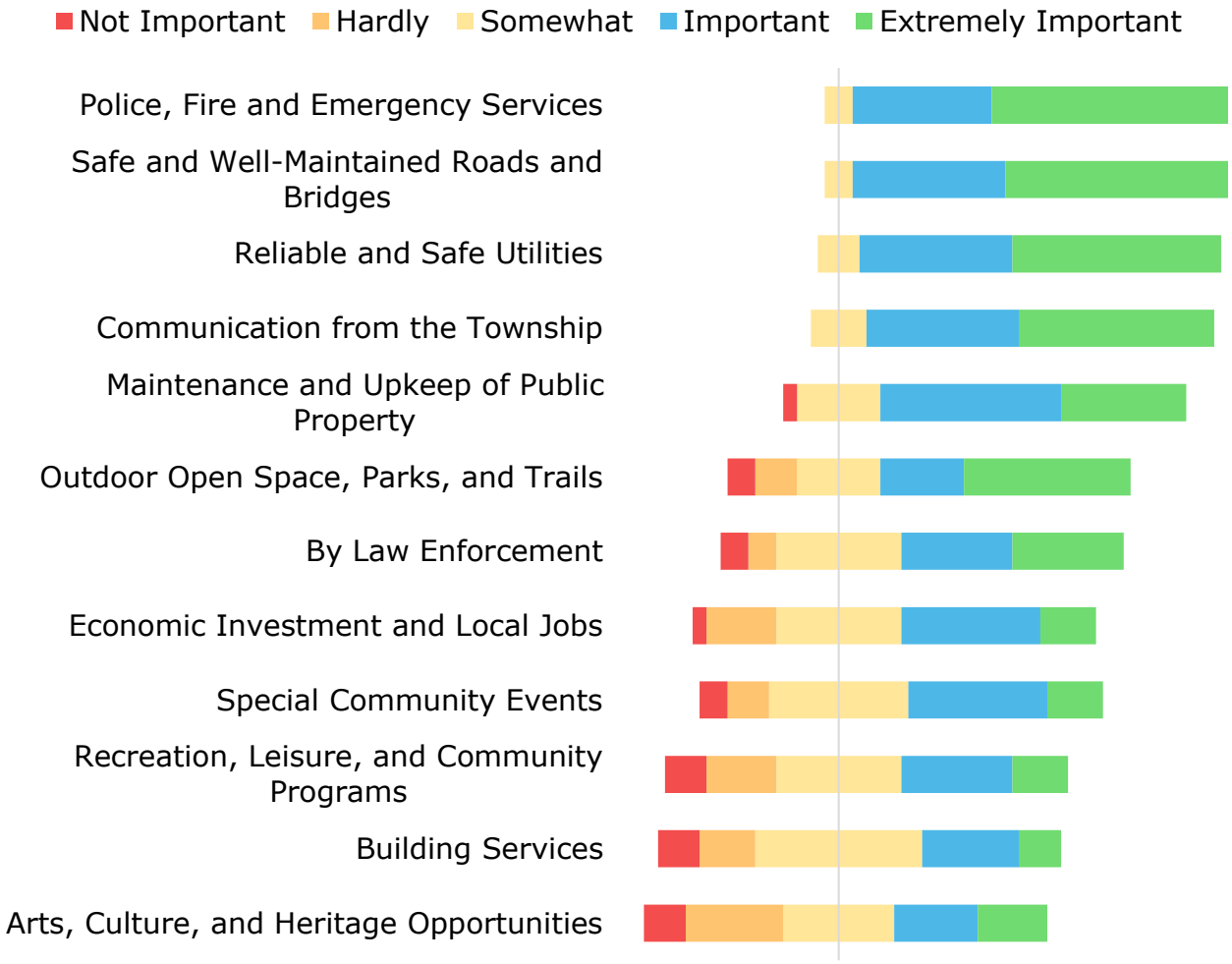


The Township is growing. This means spending on infrastructure services may need to change over time to meet the evolving needs of the community. How important are the following factors in deciding if the Township's spending on infrastructure is best for the community?



Municipal Services

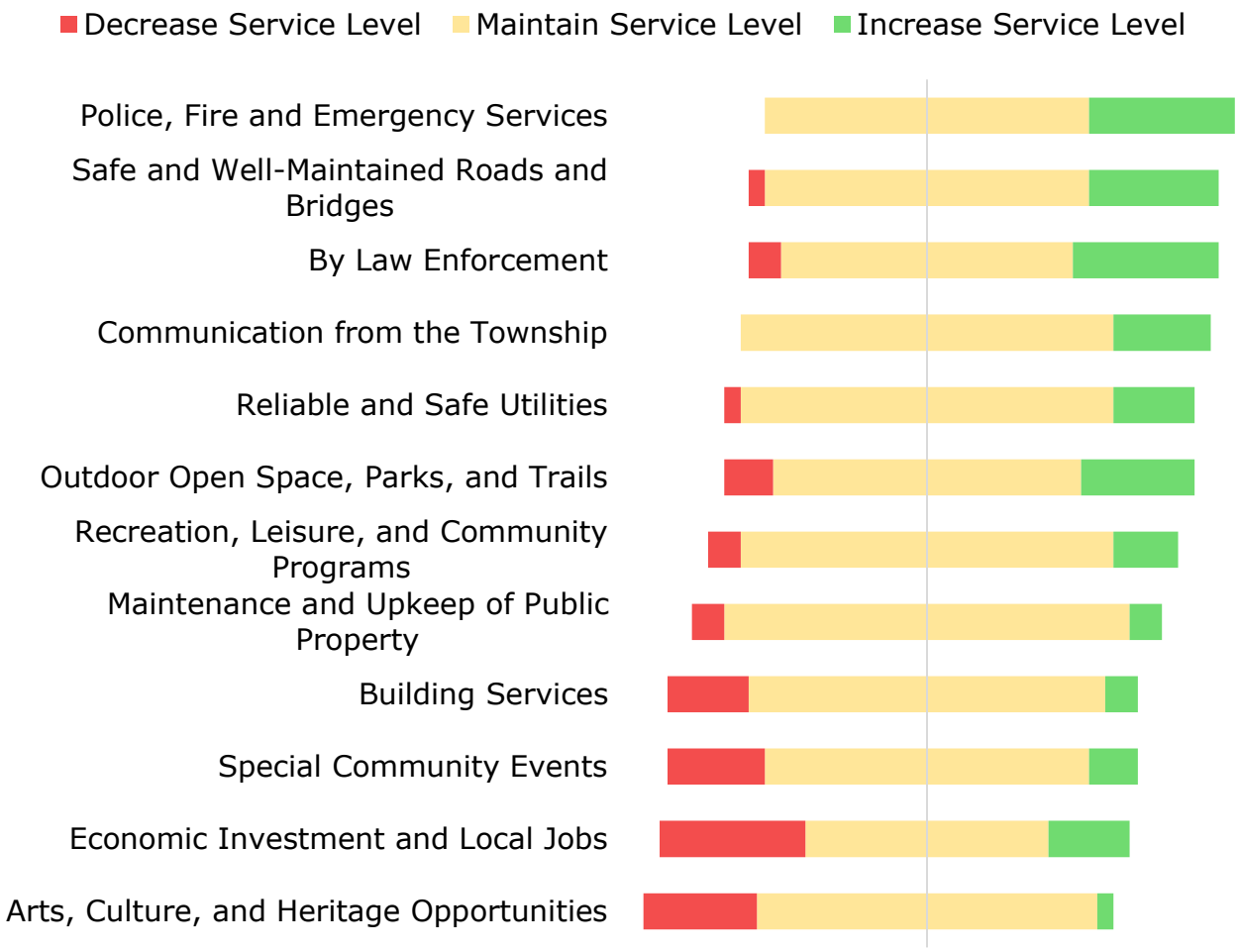
How important are the following services to your household?



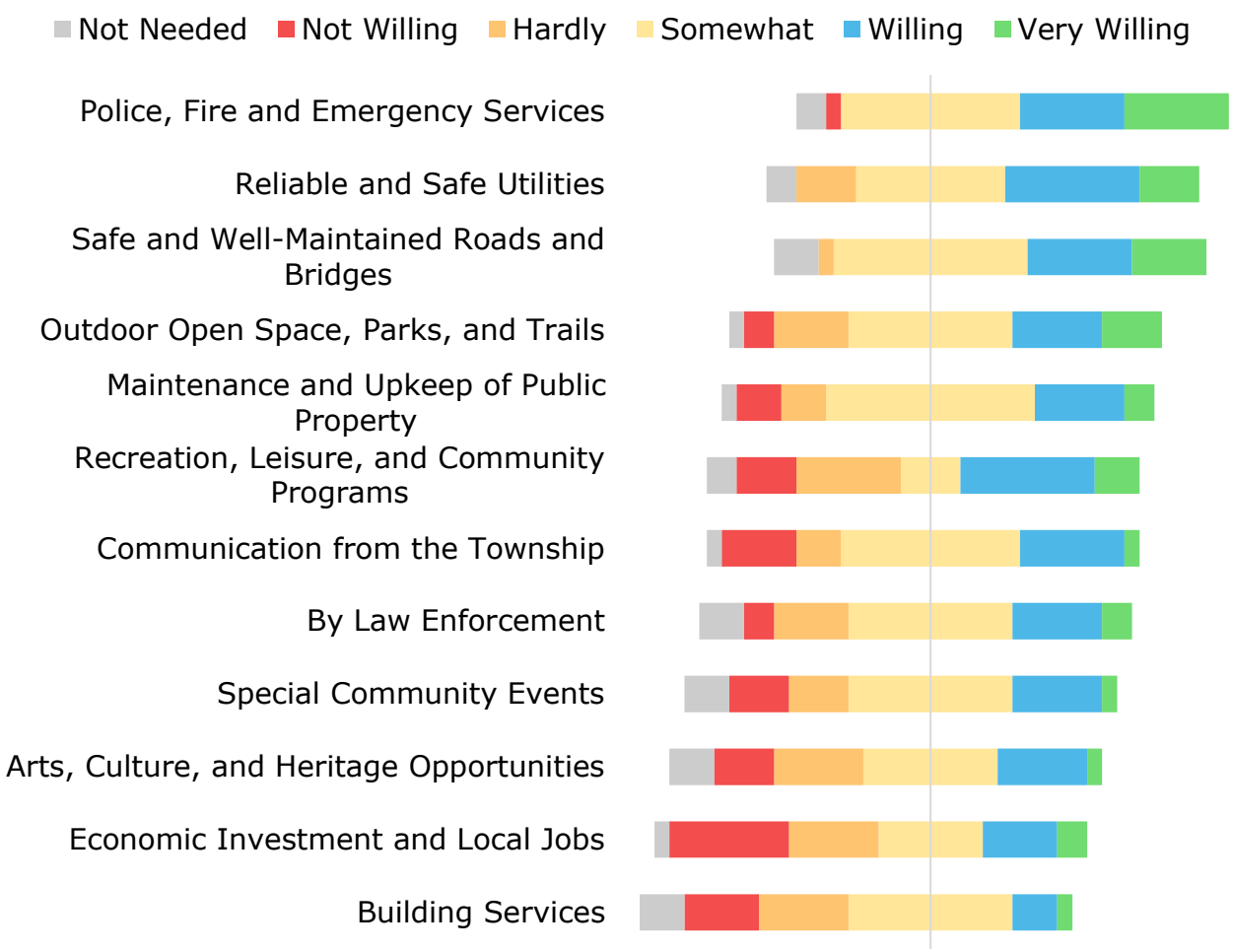
For each of the following services, indicate your preference for future levels of service.

"Level of service" describes the quality and amount of services offered by the municipality. It looks at how well services like road maintenance, waste collection, snow removal, and public safety meet the community's needs and expectations. A higher level of service typically means these

services are provided more often or at a better quality, while a lower level of service might mean they are less frequent or of lower quality.



For each of the following services, indicate your willingness to pay for improvements:

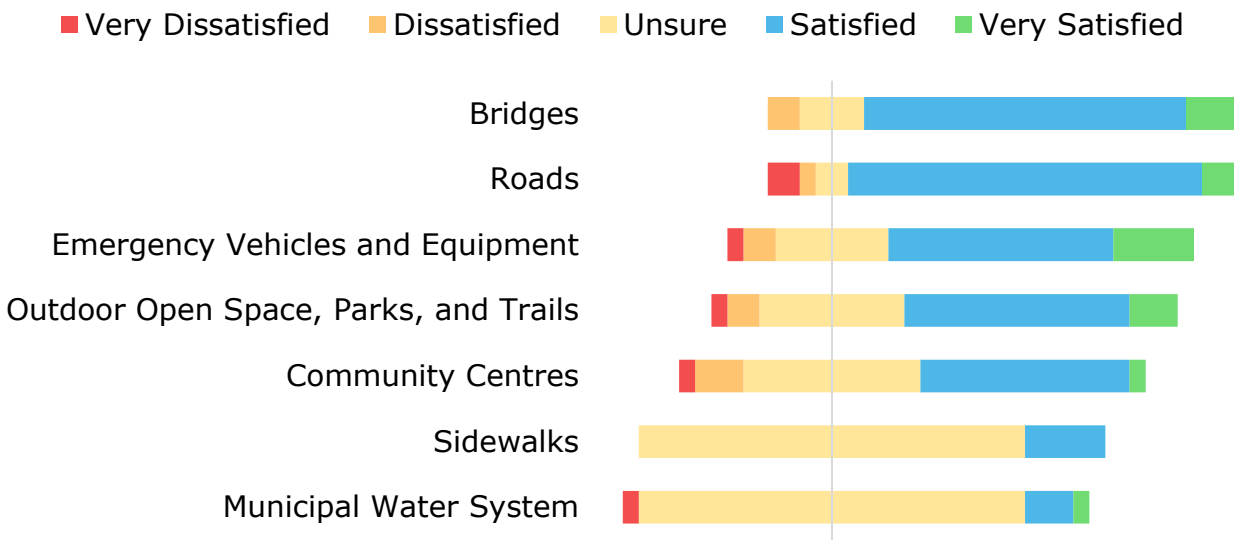


Municipal Infrastructure

How would you describe your experience with the following infrastructure in terms of AVAILABILITY & RELIABILITY?

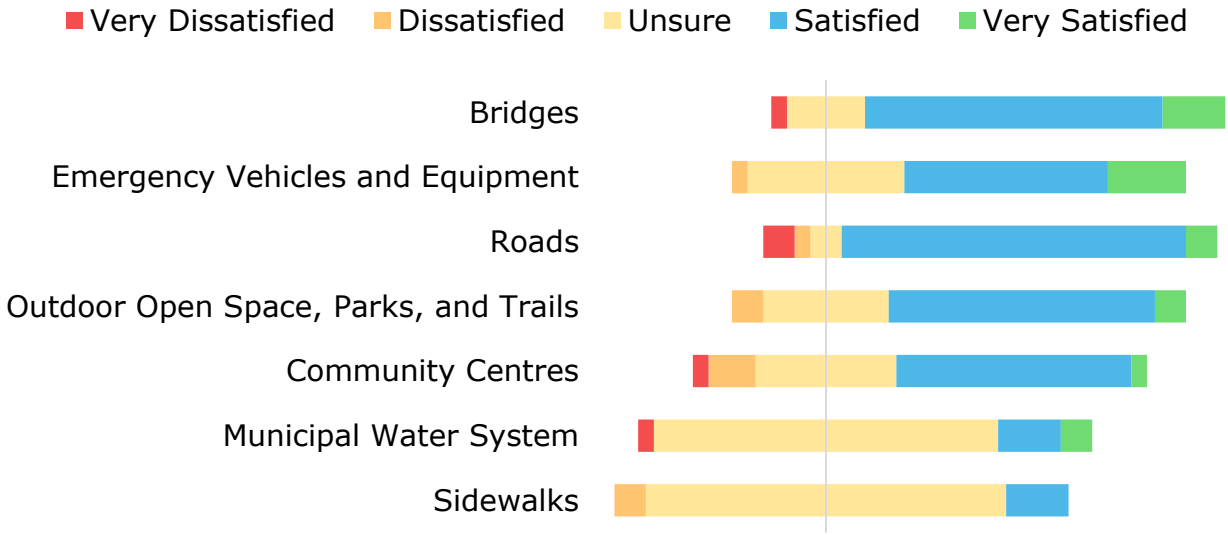
Availability/Reliability: refers to how well an infrastructure asset, like a road, bridge, or building, can continue working as expected without breaking down or facing major issues over time. It shows how dependable and consistent the asset is in doing its job. For example, a reliable road network allows for transportation without frequent problems, and a

reliable bridge handles heavy traffic and weather conditions without developing structural damage.



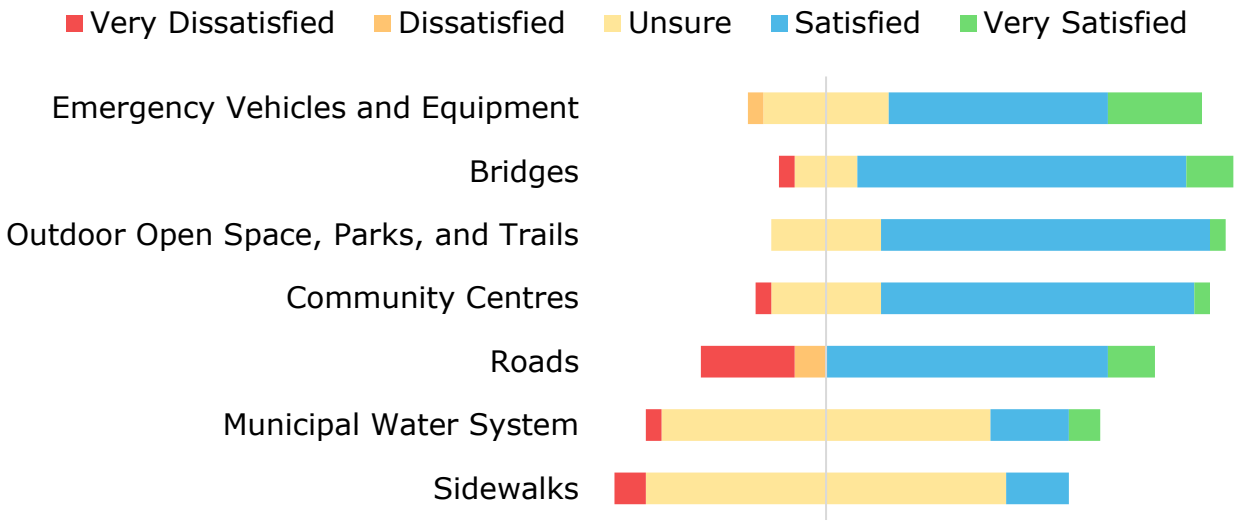
How would you describe your experience with the following infrastructure in terms of CONDITION?

Condition: relates to the physical state and structural integrity of an asset. It indicates the current quality and performance capability based on factors like wear and tear, age, maintenance history, and external factors such as weather or heavy use. The condition of a road, for instance, might be assessed based on surface smoothness, potholes, the presence of cracks, and overall safety.

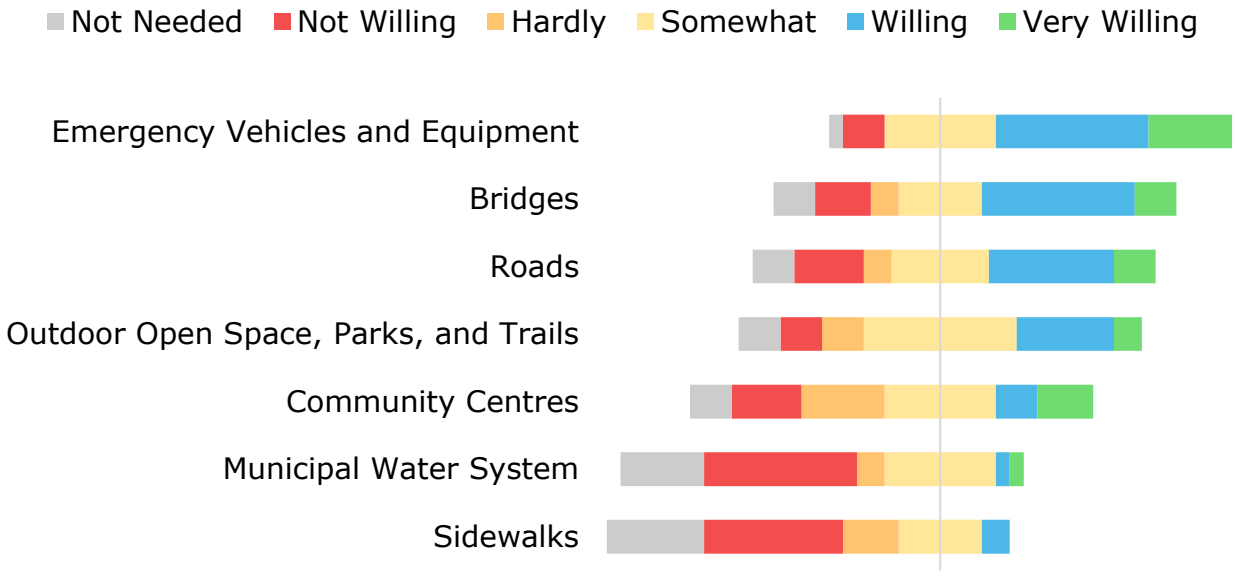


How would you describe your experience with the following infrastructure in terms of SAFETY?

Safety: refers to how well the infrastructure is designed, built, and maintained to protect people from harm. It means these structures are strong, reliable, and regularly checked to ensure they meet safety standards, reducing the risk of accidents or failures that could impact the community.



For the following, indicate your willingness to pay for improvements:



Appendix F Data Quality Dimensions

The quality of data affects the reliability of its outputs, and the trust organizations have in those outputs, especially when used to inform decisions. As a best practice, the quality of data can be evaluated based on the six data quality dimensions. These quality dimensions are as follows:

1. **Accuracy:** The information collected reflects reality and can be confirmed with a verifiable source (i.e., VIN information). An example of accuracy not being met is the in-service year on record is 1950 and the asset model indicates a service year of 1980. Accurate reporting assists in powerful and trusted reporting.
2. **Completeness:** Data is comprehensively collected so that it can deliver meaningful inferences and effectively inform decisions. For example, required fields are populated for all assets.
3. **Consistency:** Data on the same asset is consistent across multiple sources if applicable. For example, information in the Asset Management System matches information in the finance system.
4. **Timeliness:** Data is available when it is needed. This often requires limited lag time between the event that generates the asset data (i.e., condition assessment) and the updates to the system to reflect the event.
5. **Validity:** Consistent data format that is supported by any associated standards or structures. For example, the asset in service date is consistently formatted YYYY-MM-DD and not sometimes YYYY-DD-MM and month value is never greater than 12.
6. **Uniqueness:** Each asset appears only once in the system and there is no data duplication or overlaps. For example, each asset has a unique asset ID, no duplication of asset information.

Appendix G Condition Assessment Guidelines

The foundation of good asset management practice is accurate and reliable data on the current condition of infrastructure. Assessing the condition of an asset at a single point in time allows staff to have a better understanding of the probability of asset failure due to deteriorating condition.

Condition data is vital to the development of data-driven asset management strategies. Without accurate and reliable asset data, there may be little confidence in asset management decision-making which can lead to premature asset failure, service disruption and suboptimal investment strategies. To prevent these outcomes, the Township's condition assessment strategy should outline several key considerations, including:

- The role of asset condition data in decision-making
- Guidelines for the collection of asset condition data
- A schedule for how regularly asset condition data should be collected

Role of Asset Condition Data

The goal of collecting asset condition data is to ensure that data is available to inform maintenance and renewal programs required to meet the desired level of service. Accurate and reliable condition data allows municipal staff to determine the remaining service life of assets, and identify the most cost-effective approach to deterioration, whether it involves extending the life of the asset through remedial efforts or determining that replacement is required to avoid asset failure.

In addition to the optimization of lifecycle management strategies, asset condition data also impacts the Township's risk management and financial strategies. Assessed condition is a key variable in the determination of an asset's probability of failure. With a strong understanding of the probability of failure across the entire asset portfolio, the Township can develop strategies to mitigate both the probability and consequences of asset failure and service disruption. Furthermore, with condition-based determinations of future capital expenditures, the Township can develop long-term financial strategies with higher accuracy and reliability.

Guidelines for Condition Assessment

Whether completed by external consultants or internal staff, condition assessments should be completed in a structured and repeatable fashion, according to consistent and objective assessment criteria. Without proper guidelines for the completion of condition assessments there can be little confidence in the validity of condition data and asset management strategies based on this data.

Condition assessments must include a quantitative or qualitative assessment of the current condition of the asset, collected according to specified condition rating criteria, in a format that can be used for asset management decision-making. As a result, it is important that staff adequately define the condition rating criteria that should be used and the assets that require a discrete condition rating. When engaging with external consultants to complete condition assessments, it is critical that these details are communicated as part of the contractual terms of the project.

There are many options available to the Township to complete condition assessments. In some cases, external consultants may need to be engaged to complete detailed technical assessments of infrastructure. In other cases, internal staff may have sufficient expertise or training to complete condition assessments.

Developing a Condition Assessment Schedule

Condition assessments and general data collection can be both time-consuming and resource-intensive. It is not necessarily an effective strategy to collect assessed condition data across the entire asset inventory. Instead, the Township should prioritize the collection of assessed condition data based on the anticipated value of this data in decision-making. The International Infrastructure Management Manual (IIMM) identifies four key criteria to consider when making this determination:

1. **Relevance:** every data item must have a direct influence on the output that is required
2. **Appropriateness:** the volume of data and the frequency of updating should align with the stage in the assets life and the service being provided
3. **Reliability:** the data should be sufficiently accurate, have sufficient spatial coverage and be appropriately complete and current
4. **Affordability:** the data should be affordable to collect and maintain