Asset Management Plan 2025

psd**citywide**

This Asset Management Plan was prepared by:

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

Key Statistics

$24.8m   2023 Replacement Cost of Asset Portfolio

$122.6k   Replacement Cost of Infrastructure Per Household

81%   Percentage of Assets in Fair or Better Condition

57%   Percentage of Assets with Assessed Condition Data

$301k   Annual Capital Infrastructure Deficit

20 Years   Recommended Timeframe for Eliminating Annual Infrastructure Deficit

1.83%   Target Reinvestment Rate

0.62%   Actual Reinvestment Rate

Table of Contents

1.   Executive Summary

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

1.1   Scope

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

This AMP include the following asset categories:
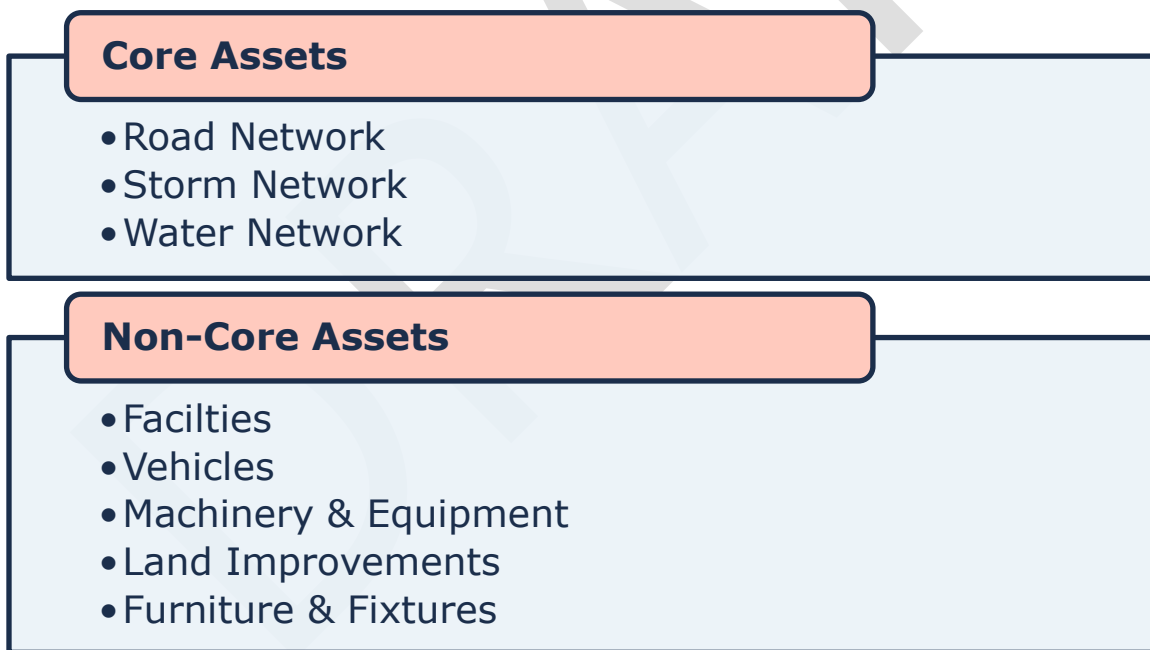
Core Assets

- Road Network
- Storm Network
- Water Network

Non-Core Assets

- Facilties
- Vehicles
- Machinery & Equipment
- Land Improvements
- Furniture & Fixtures

Figure 1 Core and Non-Core Asset Categories

1.2   O. Reg. 588/17 Compliance

With the development of this AMP the Township has achieved compliance with July 1, 2025, requirements under O. Reg. 588/17. This includes requirements for levels of service and inventory reporting for all asset categories. More detail on compliance can be found in section 2.5.1 O. Reg. 588/17 Compliance Review.

1.3   Findings

The overall replacement cost of the asset categories included in this AMP totals $24.8 million. 81% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 57% of assets. For the remaining 43% 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.

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 $454,000. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $153,000 towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $301,000.

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, while also achieving the Township's proposed level of service metrics. The following graphics show the annual tax/rate change required.
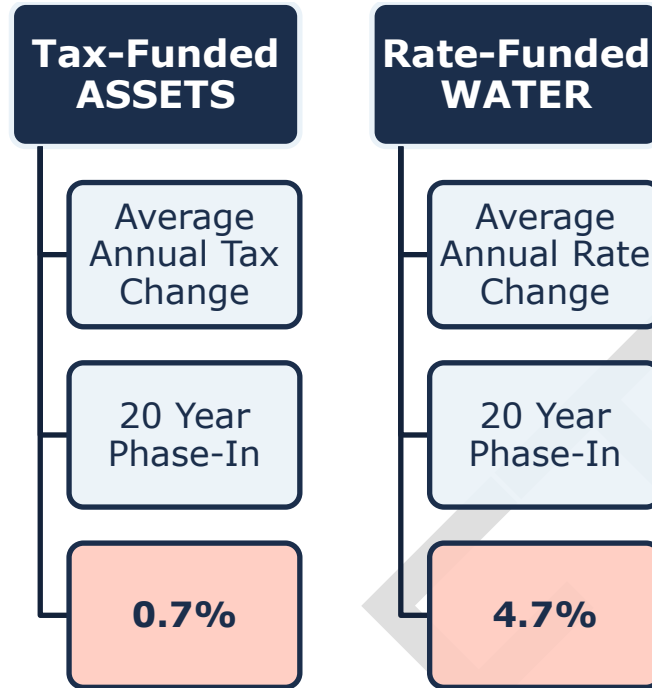
Figure 2 Proposed Tax/Rate Changes

2. Introduction & Context

2.1 Community Profile

Census Characteristic	Township of Matachewan	Ontario
Population 2021	268	14,223,942
Population Change 2016-2021	19.1%	5.8%
Total Private Dwellings	202	5,929,250
Population Density	0.5/km^2	15.9/km^2
Land Area	539.56 km^2	892,411.76 km^2

Table 1 Township of Matachewan Community Profile

The Township of Matachewan is a single tier municipality in the Timiskaming District located within Northeastern Ontario. The Township is located at the end of Ontario Highway 66 and along the Montreal River.

The Township was incorporated in 1995 but began as a trading post which was part of the Hudson's Bay Company. The Township has a history rooted in fur trading and mining but has gradually shifted to forestry and tourism.

The region is characterized by scenic landscape, which includes many lakes, rocky terrain, and dense forests. The natural scenery attracts outdoor enthusiasts and nature lovers with outdoor recreational activities including hunting, hiking, camping, and canoeing.

Demand in the region is notably driven by a variety of factors such as mining, forestry, and outdoor tourism. The Township has a rich mining heritage, and this history is often celebrated within the community. With the primary economic activities as mining and forestry, these industries can attract workforces within the region.

The Township has prioritized maintenance of its current infrastructure, allocating resources to ensure the ongoing functionality and resilience of its assets. This dedication highlights the Township's commitment to maintaining the effectiveness and integrity of its essential infrastructure, which supports the well-being of its residents and economic activities.

2.2   Climate Change

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

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

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

2.2.1   Matachewan Township Climate Profile

The Township of Matachewan is in Northeastern Ontario within the Timiskaming district. The Township is expected to experience notable effects of climate change which include higher average annual temperatures, an increase in total annual precipitation, and an increase in the frequency and severity of extreme events. According to Climatedata.ca – a collaboration supported by Environment and Climate Change Canada (ECCC) – the Township of Matachewan may experience the following trends:

Higher Average Annual Temperature:
- Between the years 1971 and 2000 the annual average temperature was 2.1 ºC

- Under a high emissions scenario, the annual average temperatures are projected to increase by 4.8 ºC by the year 2050 and over 9 ºC by the end of the century.

Increase in Total Annual Precipitation:
- Under a high emissions scenario, Matachewan is projected to experience an 14% increase in precipitation by the year 2051 and a 19% increase by the end of the century.

Increase in Frequency of Extreme Weather Events:
- It is expected that the frequency and severity of extreme weather events will change.
- In some areas, extreme weather events will occur with greater frequency and severity than others especially those impacted by Great Lake winds.

### 2.2.2   Integrating Climate change and Asset Management

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

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

2.3 Asset Management Overview

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

The acquisition of capital assets accounts for only 10-20% of their total cost of ownership. The remaining 80-90% comes from operations and maintenance. This AMP focuses its analysis on the capital costs to maintain, rehabilitate and replace existing municipal infrastructure assets.
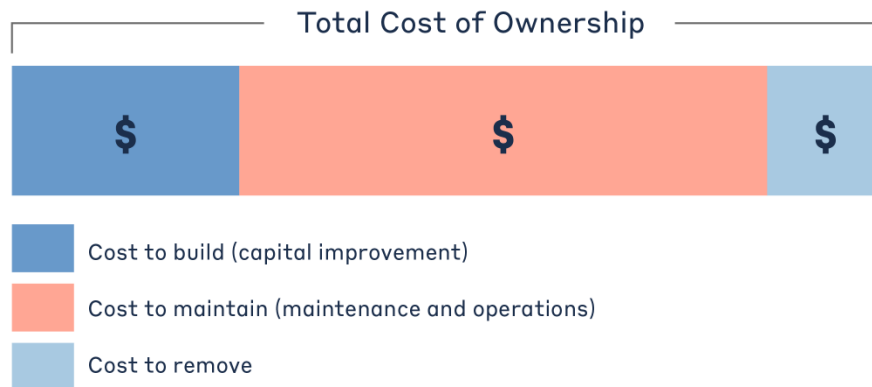
Figure 3 Total Cost of Asset Ownership

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

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

2.3.1   Foundational Asset Management Documentation

The industry-standard approach and sequence to developing a practical asset management program begins with a Strategic Plan/Priorities, followed by an Asset Management Policy and an Asset Management Strategy, concluding with an Asset Management Plan.
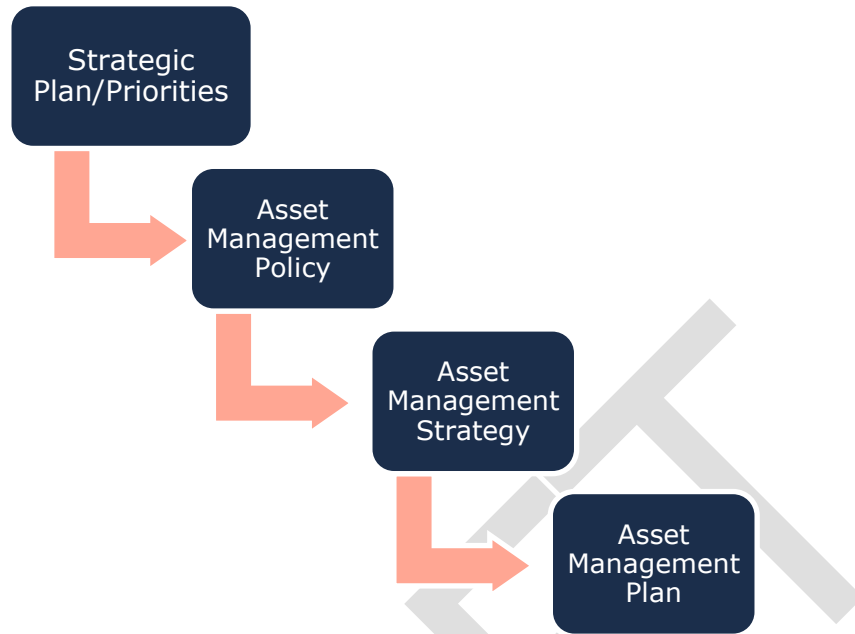
Figure 4 Foundational Asset Management Documents

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

Asset Management Policy

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

The Township of Matachewan's most recent Asset Management Policy, established through By-Law 2022-29, was adopted on September 21, 2022. The policy, along with this AMP, form the township's framework for meeting regulatory requirements, guiding infrastructure investment, and supporting sustainable service delivery.

Asset Management Strategy

An asset management strategy outlines the translation of organizational objectives into asset management objectives and provides a strategic overview of the activities required to meet these objectives. It provides greater detail than the policy on how the Township plans to achieve asset management objectives through planned activities and decision-making criteria.

The Township's Asset Management Policy contains many of the key components of an asset management strategy and may be expanded on in future revisions or as part of a separate strategic document.

Asset Management Plan

The asset management plan (AMP) presents the outcomes of the Township's asset management program and identifies the resource requirements needed to achieve a defined level of service. The AMP typically includes the following content:

- State of Infrastructure
- Asset Management Strategies
- Levels of Service
- Financial Strategies

The AMP is a living document that should be updated regularly as additional asset and financial data becomes available. This will allow the Township to re-evaluate the state of infrastructure and identify how the organization's asset management and financial strategies are progressing.

2.3.2   Key Concepts in Asset Management

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

Lifecycle Management Strategies

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

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

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

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

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

Table 2 Lifecycle Management: Typical Lifecycle Interventions

The Township's approach to lifecycle management is described within each asset category outlined in this AMP. Staff will continue to evolve and innovate current practices for developing and implementing proactive lifecycle strategies to determine which activities to perform on an asset and when they should be performed to maximize useful life at the lowest total cost of ownership.

Risk & Criticality

Asset risk and criticality are essential building blocks of asset management, integral in prioritizing projects and distributing funds where they are needed most based on a variety of factors. Assets in disrepair may fail to perform their intended function, pose substantial risk to the community, lead to unplanned expenditures, and create liability for the 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.

Formula to Assess Risk of Assets

$$\text{Risk} = \text{Probability of Failure} \times \text{Consequence of Failure}$$

Figure 5 Risk Equations

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

Probability of Failure

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

Consequence of Failure

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

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

Type of Consequence	Description
Direct Financial	Direct financial consequences are typically measured as the replacement costs of the asset(s) affected by the failure event, including interdependent infrastructure.
Economic	Economic impacts of asset failure may include disruption to local economic activity and commerce, business closures, service disruptions, etc. Whereas direct financial impacts can be seen immediately or estimated within hours or days, economic impacts can take weeks, months and years to emerge, and may persist for even longer.
Socio-political	Sociopolitical 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 an asset's failure on the community's long-term strategic objectives, including economic development, business attraction, etc.

Table 3 Risk Analysis: Types of Consequences of Failure

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

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

Levels of Service

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

The Township measures the level of service provided at two levels: Community Levels of Service, and Technical Levels of Service. This AMP includes those LOS that are required under O. Reg. 588/17 as well as any additional metrics the Township wishes to track.

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 the province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP.

Technical Levels of Service

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

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

Current and Proposed Levels of Service

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

Core Values

The core values behind levels of service reflect the Township's commitment to delivering services that meet community needs in a fair, responsible, and sustainable way. These values help guide how infrastructure is managed and how service expectations are set. By aligning asset management decisions with these values, the Township can provide services that people trust.

Value	Description
Accessible	Services are available and accessible for customers who require them
Reliable	Services are provided with minimal service disruption and are available to customers in line with needs and expectations
Safe	Services are delivered such that they minimize health, safety, and security risks
Affordable	Services are delivered at an affordable cost for both the organization and customer
Sustainable	Services are designed to be used efficiently. Long-term plans are in place to ensure that they are available to all customers into the future

Table 4 Levels of Service: Core Values

Public Engagement

The Township of Matachewan conducted a public engagement survey to gather resident feedback on municipal infrastructure, service performance, and investment priorities. Eighteen responses were received, with 89% from full-time residents and representation across adult age groups from 25 to 64.

Overall satisfaction was mixed: 45% of respondents reported being generally satisfied with their daily experience of infrastructure services, while 55% were unsatisfied. Water services, sidewalks, and community centers received the highest dissatisfaction ratings, while roads and parks/trails were more often rated as meeting expectations.

Opinions on current and future infrastructure investments were divided, with roughly half of respondents disagreeing that spending is aligned with community needs. Water services ranked as the top service priority, followed

by roads and winter control. The majority (56%) preferred making trade-offs within existing budgets rather than increasing taxes or fees.

When ranking factors for investment decisions, residents most often prioritized cost impacts to residents, preservation of existing assets, and public safety. Open comments emphasized water service reliability, better snow plowing coverage, and sidewalk safety.
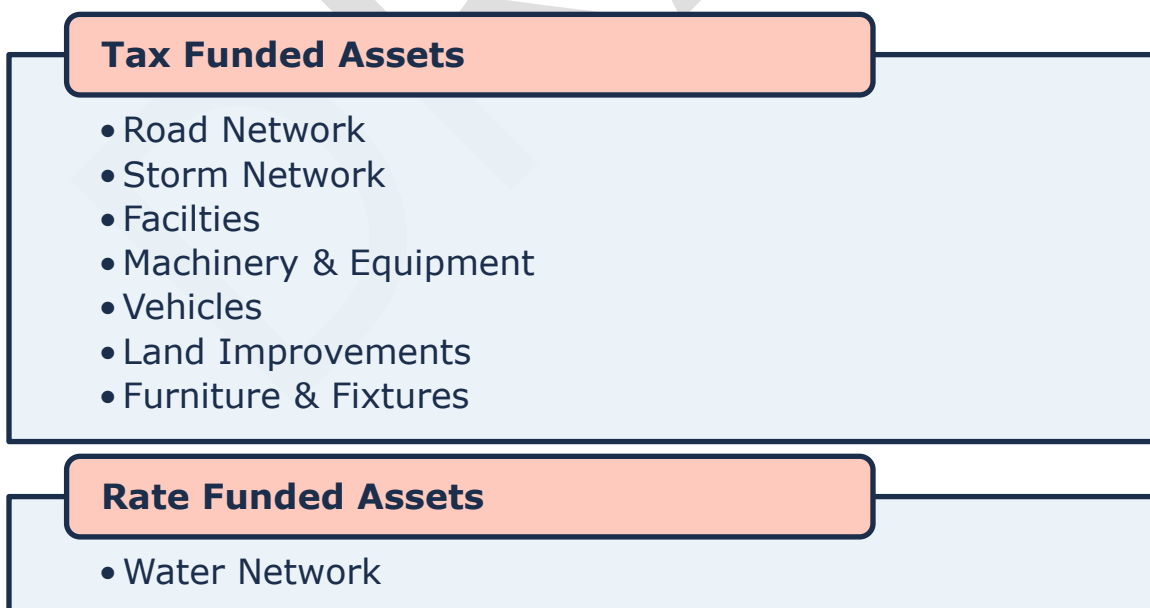
These results suggest that residents want the Township to focus on core infrastructure, particularly water services, while maintaining affordability and exploring external funding partnerships before raising taxes.

2.4   Scope & Methodology

2.4.1   Asset Categories for this AMP

This asset management plan for the Township of Matachewan is produced in compliance with O. Reg. 588/17. The July 2025 deadline under the regulation—the last of three AMPs—requires analysis of core and non-core asset categories, along with the proposed levels of service for the following ten years.

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

Tax Funded Assets

- Road Network
- Storm Network
- Facilties
- Machinery & Equipment
- Vehicles
- Land Improvements
- Furniture & Fixtures

Rate Funded Assets

- Water Network

Figure 6 Tax Funded and Rate Funded Asset Categories

2.4.2 Data Effective Date

It is important to note that this plan is based on data as of **December 2023** therefore, it represents a snapshot in time using the best available processes, data, and information at the Township. Strategic asset management planning is an ongoing and dynamic process that requires continuous data updates and dedicated data management resources.

2.4.3 Deriving Replacement Costs

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

User-Defined Cost and Cost Per Unit

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

Cost Inflation / CPI Tables

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

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

2.4.4 Estimated Service Life & Service Life Remaining

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

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

Figure 7 Service Life Remaining Calculation

2.4.5   Reinvestment Rate

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

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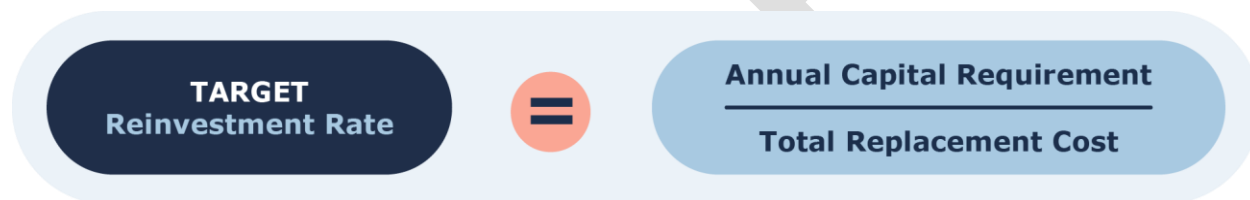

Figure 8 Target Reinvestment Rate Calculation
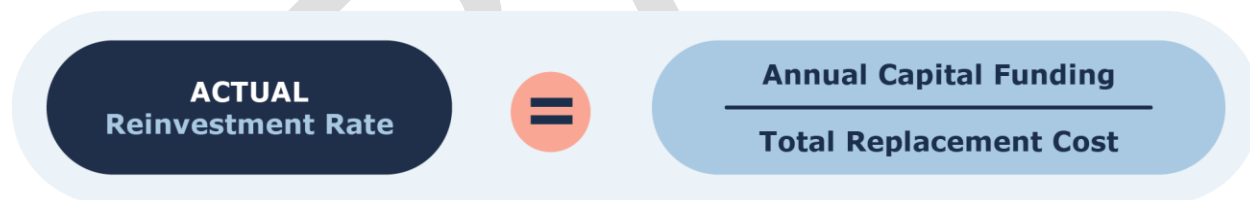
Figure 9 Actual Reinvestment Rate Calculation

2.4.6   Deriving Asset Condition

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

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the Township's asset portfolio. The table below outlines the condition rating system used in this AMP to determine asset condition. This rating system is aligned with the

Canadian Core Public Infrastructure Survey which is used to develop the Canadian Infrastructure Report Card. When assessed condition data is not available, service life remaining is used to approximate asset condition.

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

Table 5 Standard Condition Rating Scale

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

The table above summarizes the standard methodology for determining asset condition within this AMP. For those categories in which there is a different rating scale for condition assessment, they will be outlined within that category's "Approach to Condition Assessment" subsection. For instances where the scale is the same, only the approach for condition assessment will be outlined.

2.5 Ontario Regulation 588/17

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

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

Phase 1
2022

CORE
Assets

Included in your AMP

- Levels of Service
- Performance of each asset category
- Particulars per asset category
- Lifecycle activities to maintain current Level of Service per asset category

Phase II
2024

ALL
Assets

Included in your AMP

- Levels of Service
- Performance of each asset category
- Particulars per asset category
- Lifecycle activities to maintain current Level of Service per asset category

Phase III
2025

ALL
Categories

With additional requirements

- Proposed Levels of Service
- Explanation of proposed Levels of Service
- Proposed performance of asset categories
- Lifecycle management and financial strategy

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

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

2.5.1   O. Reg. 588/17 Compliance Review

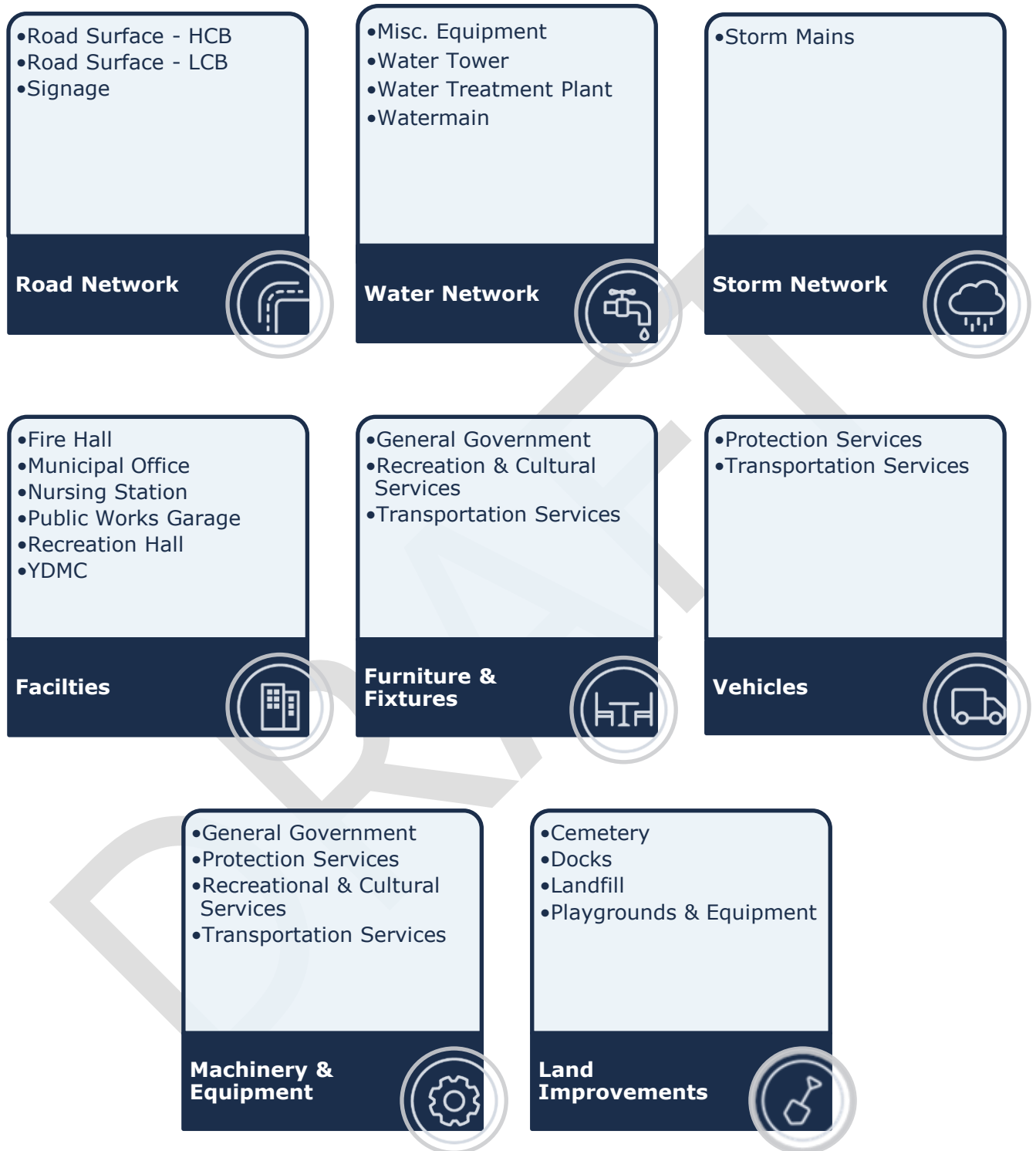| Requirement	O. Reg. 588/17 Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	4.1 – 11.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1 – 11.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.3 – 11.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.2 – 11.2	Complete
Description of Township's approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.2 & 4.4 – 11.2 & 11.4	Complete
Current/proposed levels of service in each category and performance measures	S.5(2), 1(i-ii) S.6 (1)	4.6 – 11.6	Complete
Performance measures in each category	S.5(2), 2 S. 6 (1), 2	4.6 – 11.6	Complete
Lifecycle activities needed for proposed levels of service for 10 years	S.5(2), 4 S. 6 (1), 4	4.4 – 11.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4 S. 6 (1), 4	4.6.3 – 11.6.3 & 13	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	12	Complete

Table 6 O. Reg. 588/17 Compliance Review

3.   Portfolio Overview – State of the Infrastructure

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

3.1   Asset Hierarchy & Data Classification

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

Road Network
- Road Surface - HCB
- Road Surface - LCB
- Signage

Water Network
- Misc. Equipment
- Water Tower
- Water Treatment Plant
- Watermain

Storm Network
- Storm Mains

Facilties
- Fire Hall
- Municipal Office
- Nursing Station
- Public Works Garage
- Recreation Hall
- YDMC

Furniture & Fixtures
- General Government
- Recreation & Cultural Services
- Transportation Services

Vehicles
- Protection Services
- Transportation Services

Machinery & Equipment
- General Government
- Protection Services
- Recreational & Cultural Services
- Transportation Services

Land Improvements
- Cemetery
- Docks
- Landfill
- Playgrounds & Equipment

Figure 11 Asset Hierarchy and Data Classification

3.2   Portfolio Overview

3.2.1   Total Replacement Cost of Asset Portfolio

The eight asset categories analyzed in this AMP have a total current replacement cost of $24.8 million. This estimate was calculated using user-defined costing, cost per unit, as well as inflation of historical or original costs to current date. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today. Figure 12 illustrates the replacement cost of each asset category.
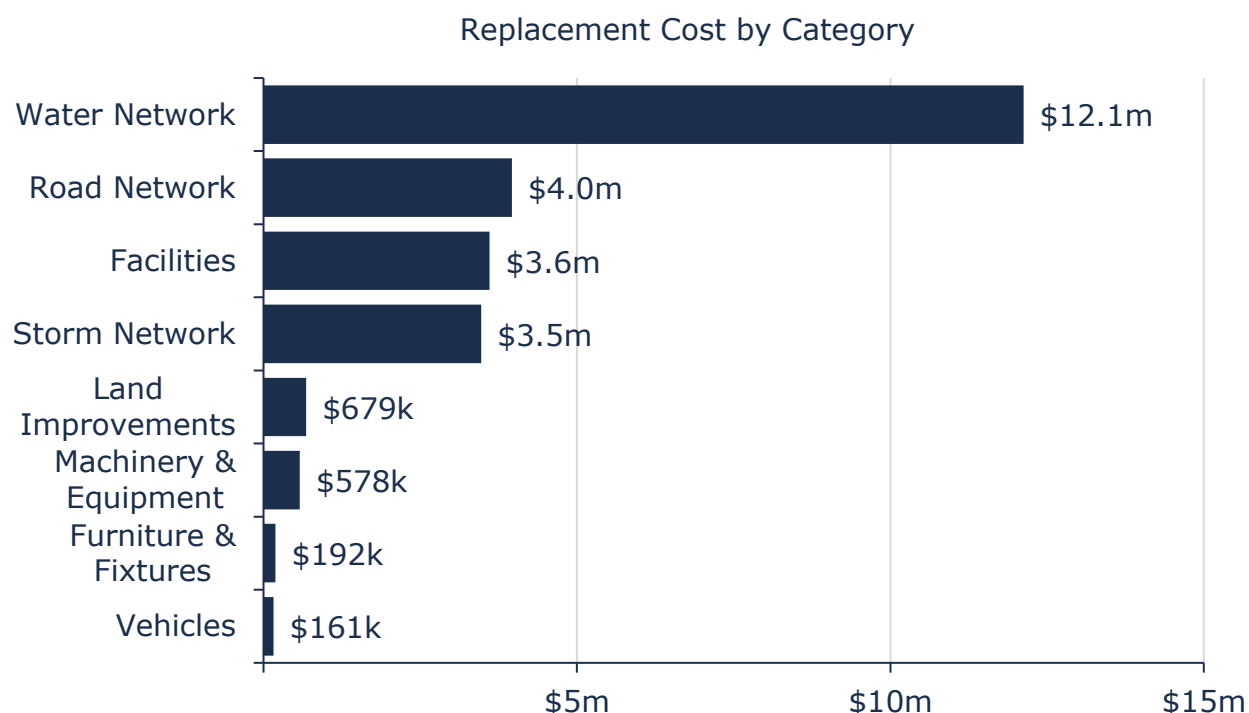
Replacement Cost by Category

Figure 12 Current Replacement Cost by Asset Category

3.2.2   Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps by comparing the target to the current reinvestment rate. To meet the Township's proposed levels of service, the required annual capital investment is $454,000, for a target portfolio reinvestment rate of 1.83%. Currently, the annual investment from sustainable revenue sources is $153,000, for a current portfolio reinvestment rate of 0.62%. Target and current re-investment rates by asset category are detailed below.
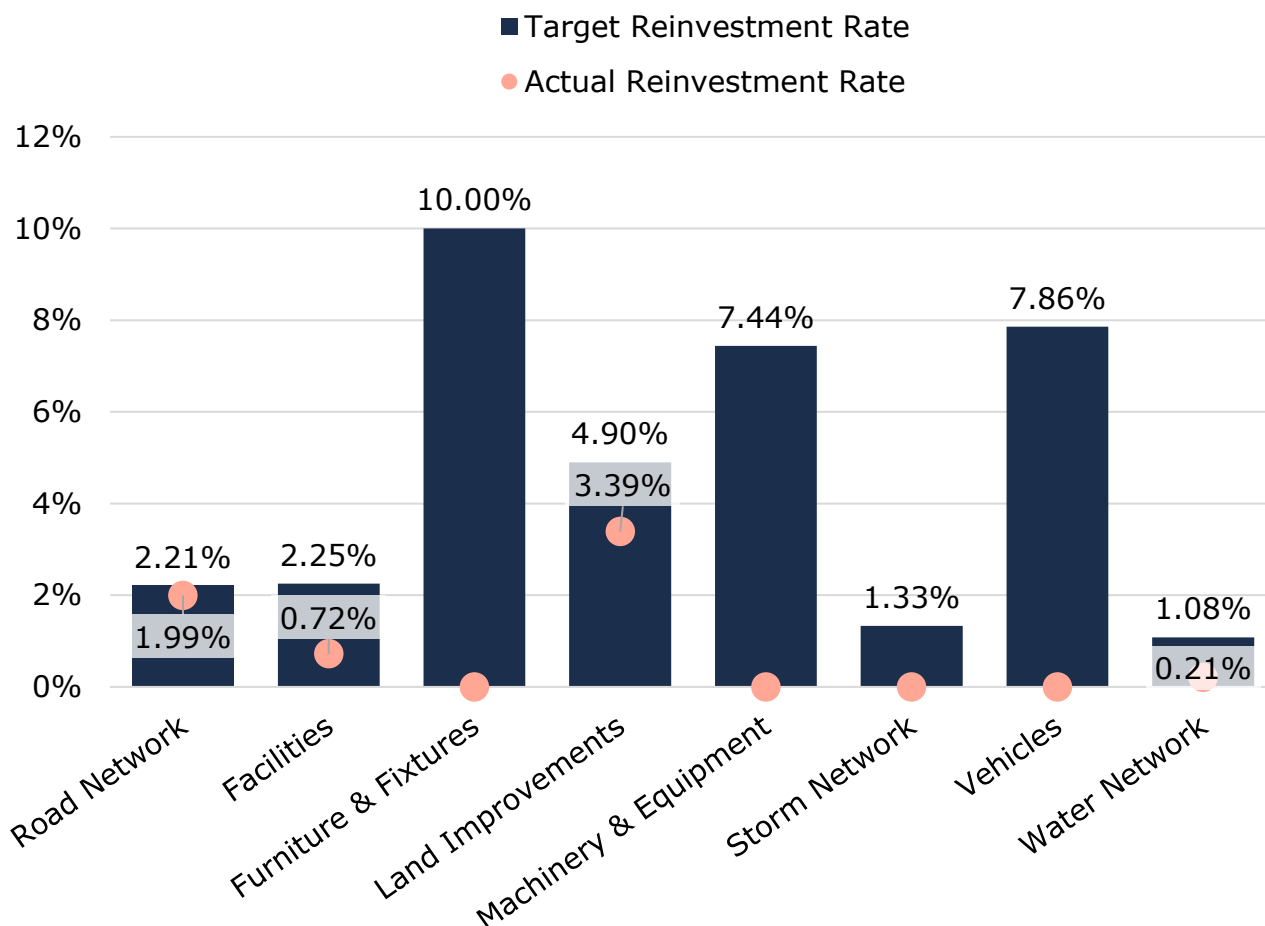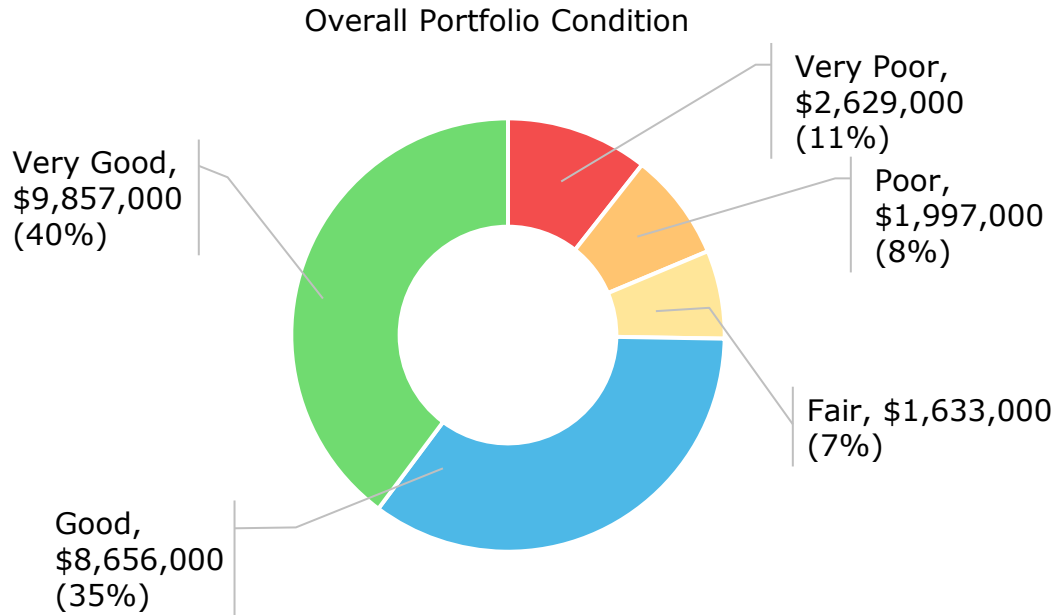
■ Target Reinvestment Rate
● Actual Reinvestment Rate

Figure 13 Current Vs. Target Reinvestment Rate

3.2.3   Condition of Asset Portfolio

Figure 14 and Figure 15 summarize asset condition at the portfolio and category levels, respectively. Based on both assessed condition and age-based analysis, 81% of the Township's infrastructure portfolio is in fair or better condition, with the remaining 19% in poor or worse condition. Typically, assets in poor or worse condition may require replacement or major rehabilitation in the immediate or short-term. Targeted condition assessments may help further refine the list of assets that may be candidates for immediate intervention, including potential replacement or reconstruction.

Similarly, assets in fair condition should be monitored for disrepair over the medium term. Keeping assets in fair or better condition is typically more cost-effective than addressing assets needs when they enter the latter stages of their lifecycle or decline to a lower condition rating, e.g., poor or worse.
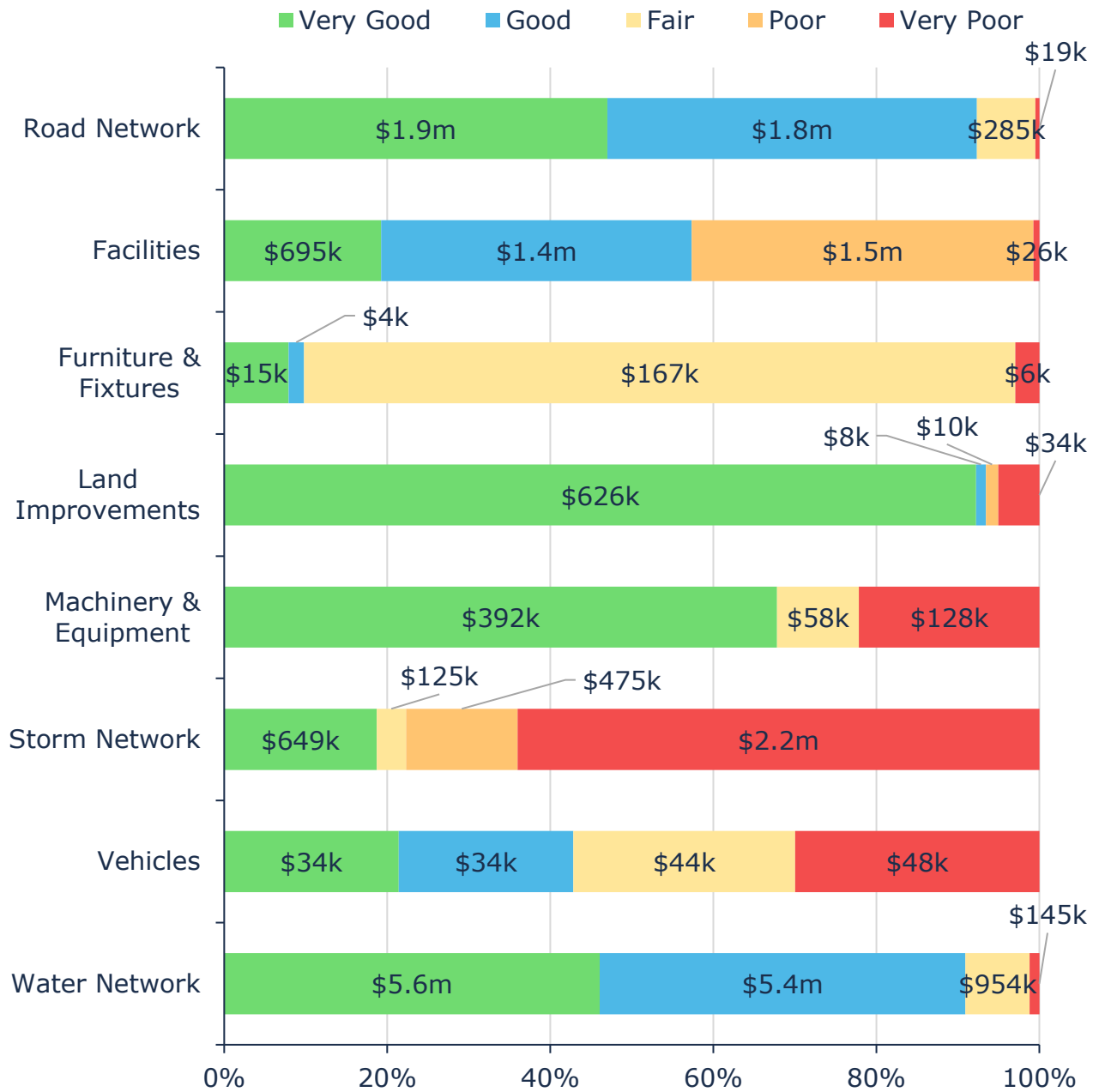
Condition data was available for 57% of all assets. For all remaining assets, age was used as an approximation of condition for most of these assets. Age-based condition estimations can skew data and lead to potential under- or overstatement of asset needs.

Overall Portfolio Condition

Very Poor, $2,629,000 (11%)

Poor, $1,997,000 (8%)

Fair, $1,633,000 (7%)

Good, $8,656,000 (35%)

Very Good, $9,857,000 (40%)

Figure 14 Asset Condition: Portfolio Overview

As further illustrated in Figure 15 at the category level, the majority of major, core infrastructure is in fair or better condition. However, 78% of the storm network assets are in poor or worse condition. These findings are based on in-field condition assessment data and age-based condition projections. See Table 7 for details on how condition data was derived for each asset segment.

Legend: ■ Very Good ■ Good ■ Fair ■ Poor ■ Very Poor

Road Network: Very Good $1.9m, Good $1.8m, Fair $285k, Very Poor $19k

Facilities: Very Good $695k, Good $1.4m, Poor $1.5m, Very Poor $26k

Furniture & Fixtures: Very Good $15k, Good $4k, Fair $167k, Very Poor $6k

Land Improvements: Very Good $626k, Good $8k, Poor $10k, Very Poor $34k

Machinery & Equipment: Very Good $392k, Fair $58k, Very Poor $128k

Storm Network: Very Good $649k, Poor $125k, Fair $475k, Very Poor $2.2m

Vehicles: Very Good $34k, Good $34k, Fair $44k, Very Poor $48k

Water Network: Very Good $5.6m, Good $5.4m, Fair $954k, Very Poor $145k

Value and Percentage of Asset Segments by Replacement Cost

Figure 15 Asset Condition by Asset Category

Source of Condition Data

This AMP relies on assessed condition for 57% 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. The table below identifies the source of condition data used throughout this AMP.

Asset Category	% of Assets with Assessed Condition	Source of Condition Data
Road Network	2%	Staff Assessments
Water Network	86%	Staff Assessments
Storm Network	100%	Staff Assessments
Facilities	0%	N/A
Vehicles	0%	N/A
Machinery & Equipment	0%	N/A
Land Improvements	0%	N/A
Furniture & Fixtures	87%	Staff Assessments

Table 7 Source of Condition Data

3.2.4   Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 21% of the Township's assets will require replacement within the next 10 years (not accounting for asset replacement backlog).

3.2.5 Risk Matrix

Using the risk equation and preliminary risk models,

1 - 4 Very Low $7,246,492 (29%)	5 - 7 Low $6,445,646 (26%)	8 - 9 Moderate $2,075,459 (8%)	10 - 14 High $6,163,761 (25%)	15 - 25 Very High $2,839,550 (11%)

Figure 16 shows how the Township's assets across the different asset categories are stratified within a risk matrix.

1 - 4 Very Low $7,246,492 (29%)	5 - 7 Low $6,445,646 (26%)	8 - 9 Moderate $2,075,459 (8%)	10 - 14 High $6,163,761 (25%)	15 - 25 Very High $2,839,550 (11%)

Figure 16 Risk Matrix: All Assets

The analysis shows that based on current risk models, approximately 11% of the Township's assets, with a current replacement cost of approximately $2.8 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.

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

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

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

Core Assets

4. Road Network

4.1 Inventory & Valuation

Table 8 summarizes the quantity, unit of measure, total replacement cost, and primary replacement cost method of each asset segment in the Township's road network inventory.

Segment[2]	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Road Surface - HCB	5,413	Length (m)	$3,342,936	Cost per Unit
Road Surface - LCB	1,555	Length (m)	$544,320	Cost per Unit
Signage	6	Quantity	$75,086	CPI
	Total		**$3,962,342**	

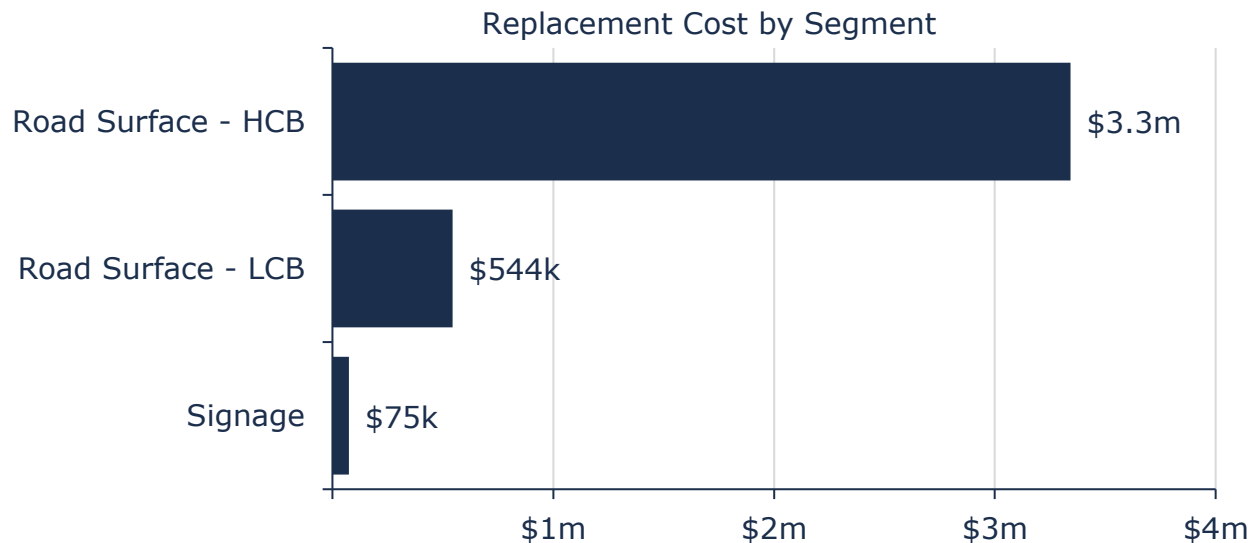*Table 8 Detailed Asset Inventory: Road Network*

Figure 17 Portfolio Valuation: Road Network

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[2] The Township also owns and manages 2,165.3 m of unpaved (gravel) roads. Since this road types doesn't carry significant operating costs, they have been excluded from this AMP.
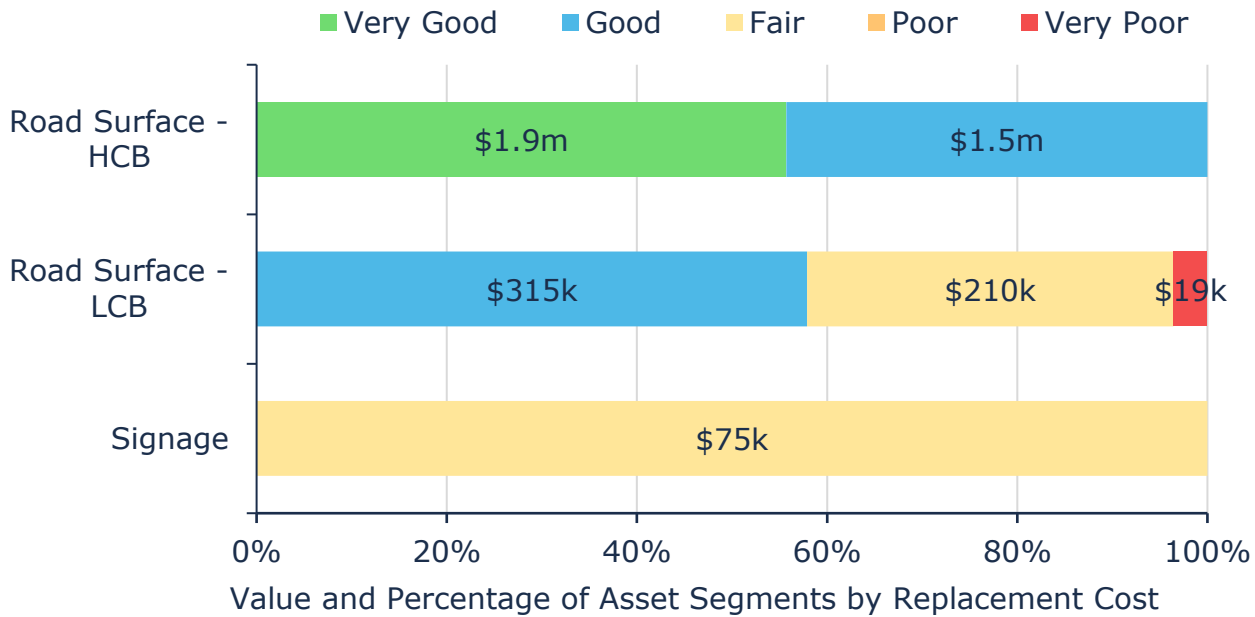
4.2   Asset Condition

Figure 18 summarizes the replacement cost-weighted condition of the Township's Road network. Based on a combination of field inspection data and age, 100% of assets are in fair or better condition; Condition assessments were available for 100% of signages, based on replacement cost. This condition data was projected from inspection date to current year to estimate their condition today.

Assets in poor or worse condition may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. As illustrated in Figure 18, the majority of the Township's Road network assets are in fair or better condition.
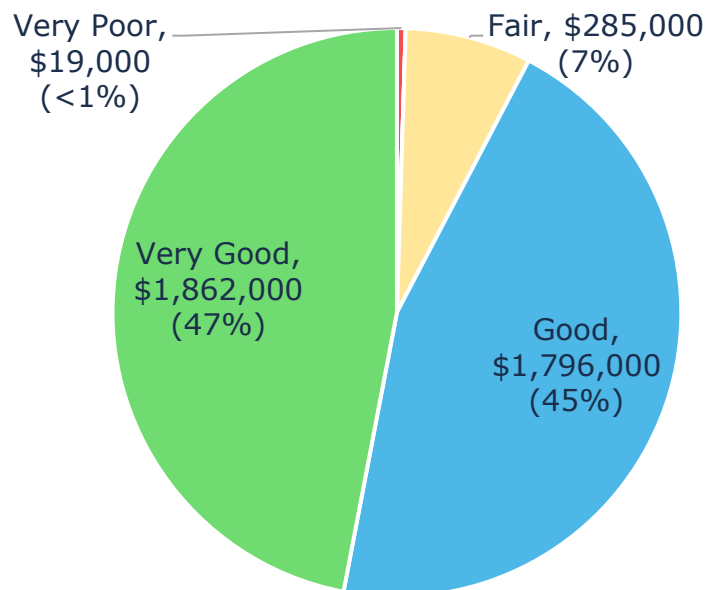
Figure 18 Asset Condition: Road Network Overall

As illustrated in Figure 19, based on condition assessments, the majority of the Township's Road network is in fair or better condition.

Figure 19 Asset Condition: Road Network by Segment

4.2.1 Current Approach to Condition Assessment

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

- Roads are visually inspected daily, by internal staff. There is no formal condition assessment program in place, however, the Township may consider contracting a third-party assessor to provide formal condition ratings for roads on a 5-year cycle.

4.3 Age Profile

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

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment

programs; inform the selection of optimal lifecycle strategies; and improve planning for potential long-term replacement spikes.

Figure 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.
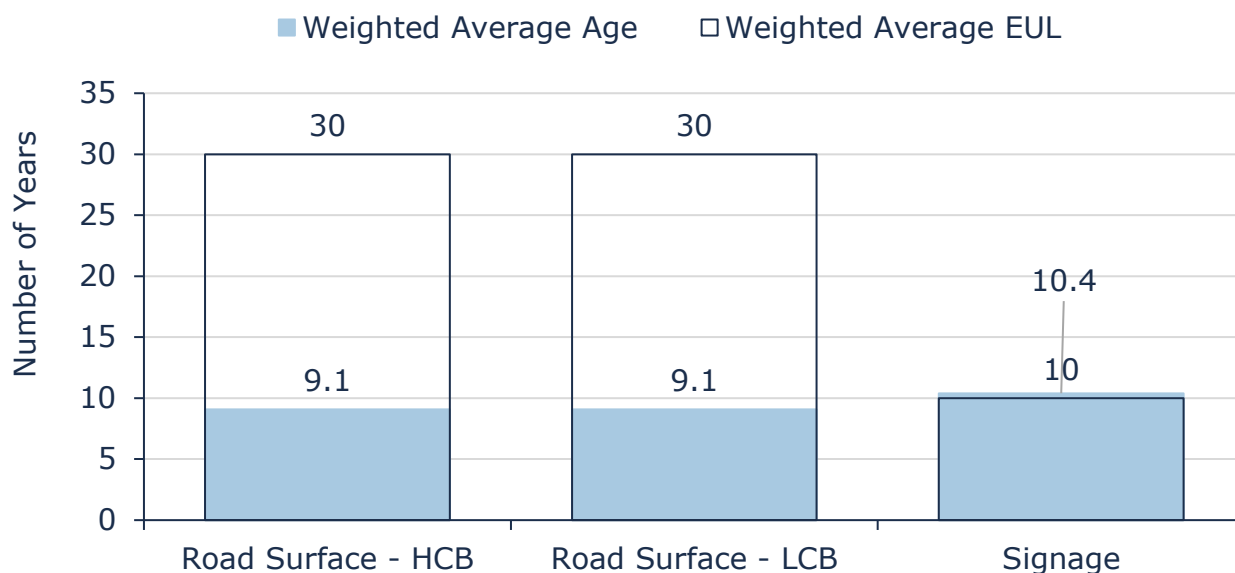

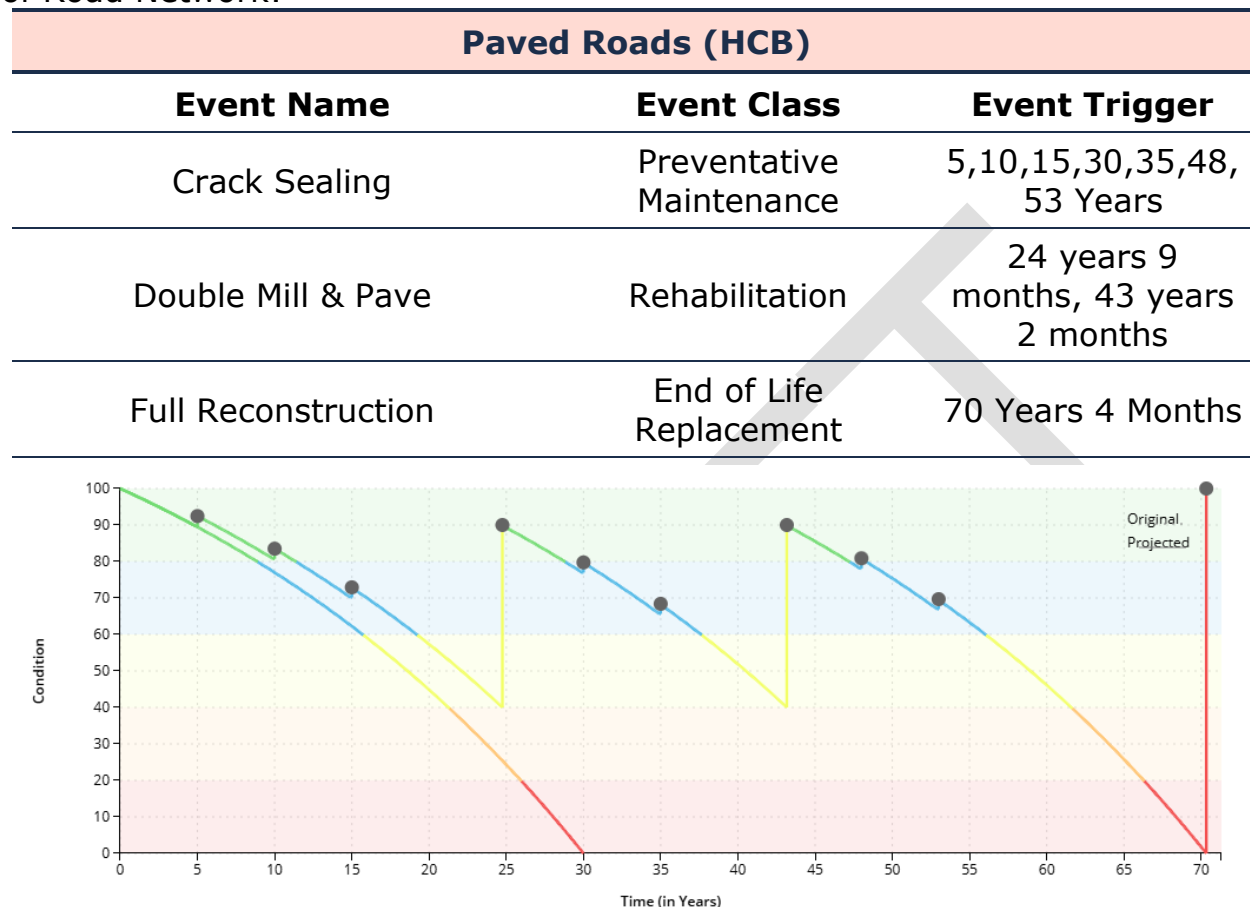*Figure 20 Estimated Useful Life vs. Asset Age: Road Network*

Although asset age is an important measurement for long-term planning, condition assessments provide a more accurate indication of actual asset needs.

4.4 Current Approach to Lifecycle Management

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

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

The following schedules outline the events taken by the Township in its care of Road Network:

Paved Roads (HCB)		
Event Name	**Event Class**	**Event Trigger**
Crack Sealing	Preventative Maintenance	5,10,15,30,35,48, 53 Years
Double Mill & Pave	Rehabilitation	24 years 9 months, 43 years 2 months
Full Reconstruction	End of Life Replacement	70 Years 4 Months

Table 9 Lifecycle Management Strategy: Road Network (HCB)

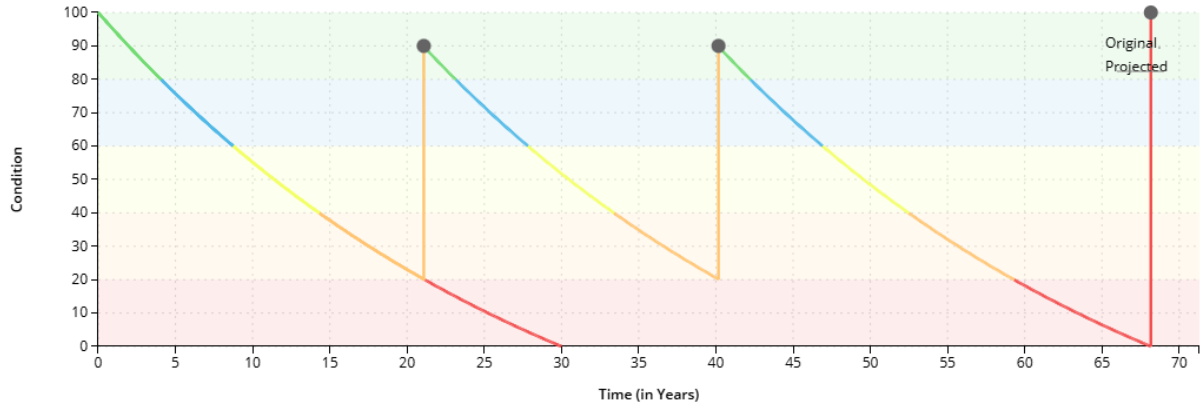| Paved Roads (LCB)		
Event Name	**Event Class**	**Event Trigger**
Double Mill & Pave	Rehabilitation	21 years 1 month, 40 years 2 months
Full Reconstruction	End of Life Replacement	68 Years 2 Months

Table 10 Lifecycle Management Strategy: Road Network (LCB)

4.5 Risk Analysis

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

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

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

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$3,128,156 (79%)	$696,916 (18%)	$137,270 (3%)	- (0%)	- (0%)

Figure 21 Risk Matrix: Road Network

4.6 Levels of Service

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

4.6.1 Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS (2024)
Community	Description, which may include maps, of the road network in the municipality and its level of connectivity	Scope	Appendix B: Level of Service Maps

Metric Type	KPI Metric	Service Attribute	Current LOS (2024)
	Description or images that illustrate the different levels of road class pavement condition	Quality	Very Poor: Widespread signs of deterioration. Requires remedial work to bring road up to standard. Service is affected. Poor: Large portions of road exhibiting deterioration with rutting, potholes, distortions, longitude and lateral cracking. Road is mostly below standard Fair: Some sections of road starting to deteriorate. Requires some remedial work and surface upgrade in near future Good: Road is in overall good condition. Few sections are starting to show signs of minimal deterioration Very Good: Road is well maintained and in excellent condition. Surface was newly or recently upgraded. No signs of deterioration or remedial work required
Technical	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km2)	Scope	N/A
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km2)		N/A

Metric Type	KPI Metric	Service Attribute	Current LOS (2024)
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km2)		0.034[3]
	Average pavement condition index for paved roads in the Township	Quality	HCB :79% LCB : 62%

Table 11: Road Network – Current Levels of Service

4.6.2   Levels of Service – Proposed

The scenarios that were used to analyse Matachewan Township's inventory were run for 69-years to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Capital Reinvestment Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Fair - this scenario utilizes a target average condition of 40% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for the road network.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)[4]	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	$3,962,000	62%	6.23	$87,000

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[3] The number of lanes is not known. This calculation assumes 2 lanes with a land area of 543.58 km[2].

[4] See 2.3.2

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)[4]	Annual Capital Reinvestment
Scenario 2 - Current Capital Investment Rate		60%	6.41	$79,000
Scenario 3 - Maintain Condition 40%		44%	8.27	$47,000

4.6.3   10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe (see 1.4).

Segment	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
HCB Roads	$6k	$4k	$24k	$1k	$8k	$5k	$4k	$32k	$1k	$209k
LCB Roads	-	-	-	-	-	-	-	-	-	-
Signage	-	$75k	-	-	-	-	-	-	-	-
Total	**$6k**	**$79k**	**$24k**	**$1k**	**$8k**	**$5k**	**$4k**	**$32k**	**$1k**	**$209k**

5.   Water Network

5.1   Inventory & Valuation

Table 12 summarizes the quantity and current replacement cost of the Township's various water network assets as managed in its primary asset management register, Citywide.

Segment	Quantity (Components)	Unit of Measure	Replacement Cost	Primary RC Method
Misc. Equipment	6	Quantity	$589,717	CPI
Water Tower	6	Quantity	$1,169,655	CPI
Water Treatment Plant	1	Quantity	$3,459,760	User-Defined
Watermain	9,205	Length (m)	$6,903,975	Cost per Unit
TOTAL			**$12,123,107**	

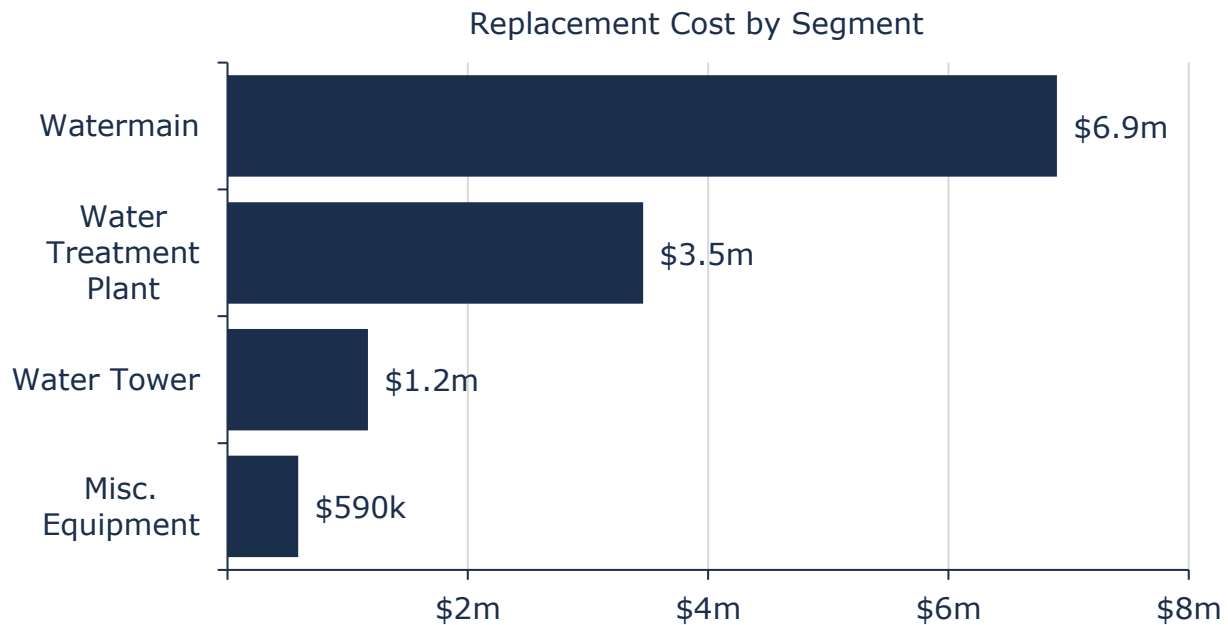*Table 12 Detailed Asset Inventory: Water Network*

Figure 22 Portfolio Valuation: Water Network
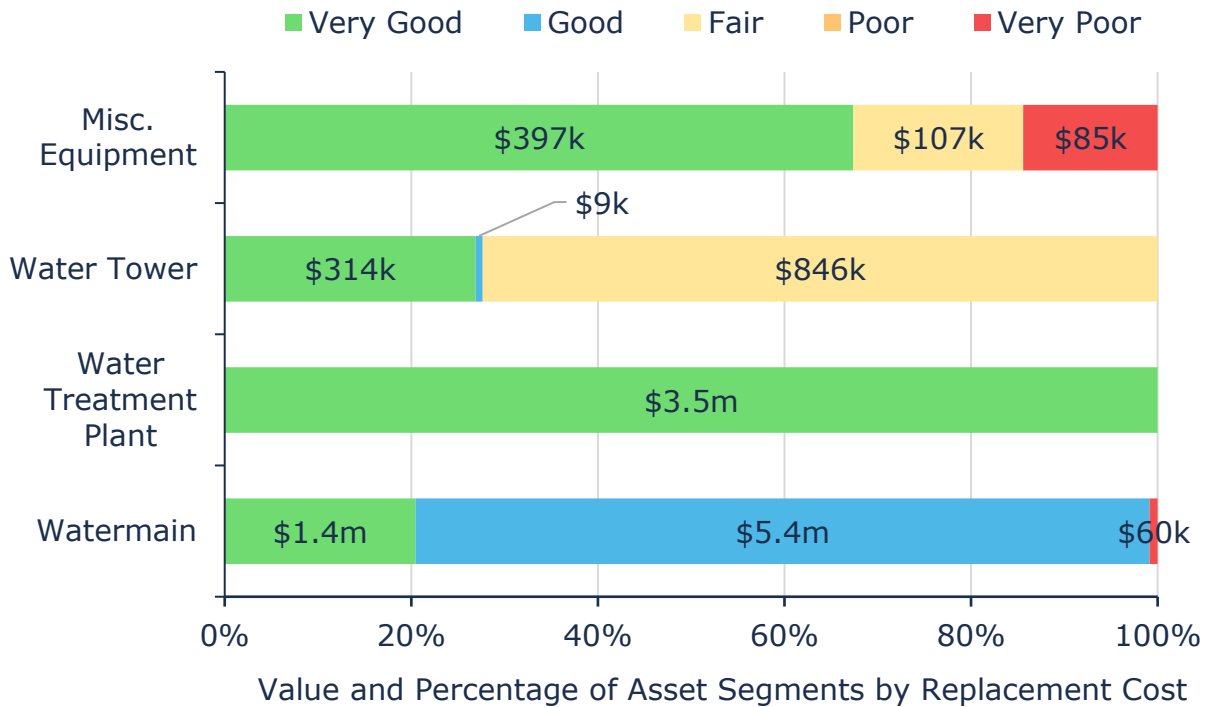
5.2   Asset Condition

Figure 23 summarizes the replacement cost-weighted condition of the Township's water network. Based on a combination of field inspection data and age, 99% of assets are in fair or better condition; the remaining 1% of assets are in poor to very poor condition. Condition assessments were available for 86% of assets in the category.

Assets in poor or worse condition may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.
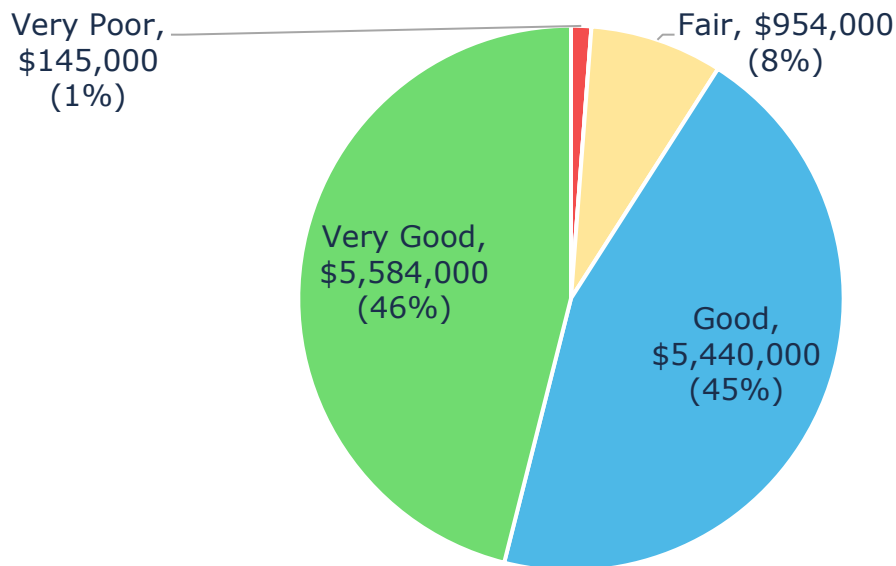
Figure 23 Asset Condition: Water Network Overall

As illustrated in Figure 24, the majority of the Township's water network assets are in fair or better condition.

Figure 24 Asset Condition: Water Network by Segment

5.2.1 Current Approach to Condition Assessment

Accurate and reliable condition data is important to estimating the remaining service life of assets and identifying the most cost-effective approach to managing assets. The following describes the Township's current approach:

- Staff primarily rely on the age and material of water mains to determine the projected condition of watermains. However, the Township recently conducted a leak detection analysis, via OCWA, as average water usage had increased from 26.8% in 2018, to 44.7% in 2022.
- The most recent condition assessment for the water treatment plant was completed in 2020. OCWA also conducts visual assessments on a regular basis to note defects and guide lifecycle activities.

5.3 Age Profile

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

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

Figure 25 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.
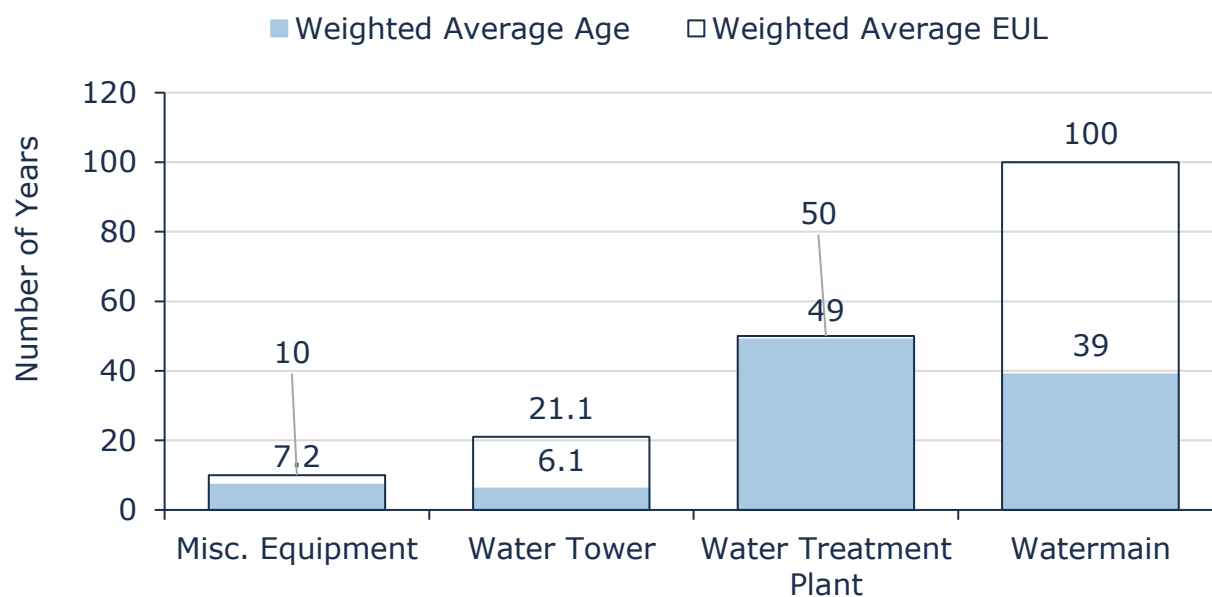
Figure 25 Estimated Useful Life vs. Asset Age: Water Network

5.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Main flushing is completed on 100% of the network every 2 years
Rehabilitation	Trenchless re-lining of water mains presents significant challenges and is not always a viable option

	In the absence of mid-lifecycle rehabilitative events, most mains are simply maintained with the goal of full replacement once it reaches its end-of-life
Replacement	Replacement activities are identified based on an analysis of the main break rate as well as any issues identified during regular maintenance activities
	OCWA is responsible for the maintenance, rehabilitation, and replacement of the water treatment plant

Table 13 Lifecycle Management Strategy: Water Network

5.5   Risk Analysis

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

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

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

1 - 4 Very Low $2,331,781 (19%)	5 - 7 Low $4,366,743 (36%)	8 - 9 Moderate $663,177 (5%)	10 - 14 High $4,679,653 (39%)	15 - 25 Very High $81,753 (<1%)

Figure 26 Risk Matrix: Water Network

5.6   Levels of Service

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

5.6.1   Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description, which may include maps, of the user groups or areas of the Township that are connected to the municipal water system	Scope	Water connectivity in the Township mirrors road & fire flow connectivity. Appendix B: Level of Service Maps
	Description, which may include maps, of the user groups or areas of the Township that have fire flow		Appendix B: Level of Service Maps
Community	Description of boil water advisories and service interruptions	Reliability	The Municipality has not experienced any service interruptions in 2022. The Township follows Ontario's Drinking Water Quality Management Standard (DWQMS). The Municipality delivers boil water advisories to affected households.
Technical	% of properties connected to the municipal water system	Scope	74%
	% of properties where fire flow is available		74%
	# 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	Reliability	0
	# of connection-days per year where water is not available due to water main breaks compared to the total		0.21%

Metric Type	KPI Metric	Service Attribute	Current LOS
	number of properties connected to the municipal water system		

Table 14: Water Network – Current Levels of Service

5.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Matachewan Township's inventory were run for 49-years to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Capital Reinvestment Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Fair - this scenario utilizes a target average condition of 40% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for the water network.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)[5]	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**		64%	10.58	$ 288,000
Scenario 2 - Current Capital Investment Rate	$12,123,000	30%	14.31	$ 25,000
Scenario 3 - Maintain Condition 40%		45%	12.96	$ 131,000

Table 15: Water Network - Proposed Levels of Service Scenarios

[5] See 2.3.2

5.6.3   10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe (see 1.4).

Segment	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Misc. Equipment	-	-	$107k	-	$397k	-	-	-	-	-
Water Tower	-	-	-	-	-	$846k	-	-	-	-
Water Treatment Plant	-	-	-	-	-	-	-	-	-	-
Watermain	-	-	-	-	-	-	-	-	-	-
Total	**-**	**-**	**$107k**	**-**	**$397k**	**$846k**	**-**	**-**	**-**	**-**

Table 16: Water Network - 10-Year Capital Forecast

6. Storm Network

6.1 Inventory & Valuation

Table 17 summarizes the quantity and current replacement cost of all storm network assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Storm Mains	10,060	Length (m)	$3,470,838	Cost per Unit
TOTAL			**$3,470,838**	

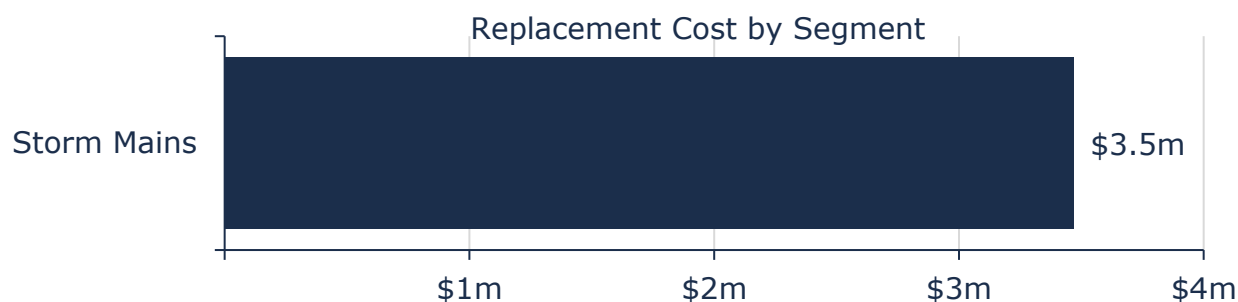*Table 17 Detailed Asset Inventory: Storm Network*

Figure 27 Portfolio Valuation: Storm Network

6.2 Asset Condition

Figure 28 summarizes the replacement cost-weighted condition of the Township's storm network assets. Based on condition assessment data, approximately 22% of assets are in fair or better 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.
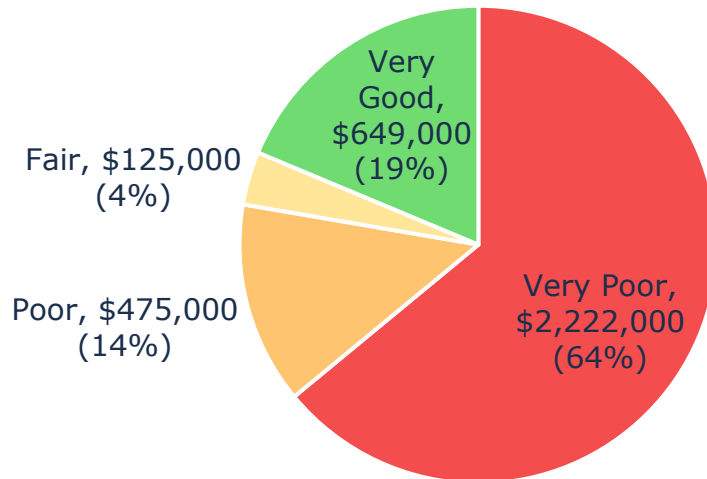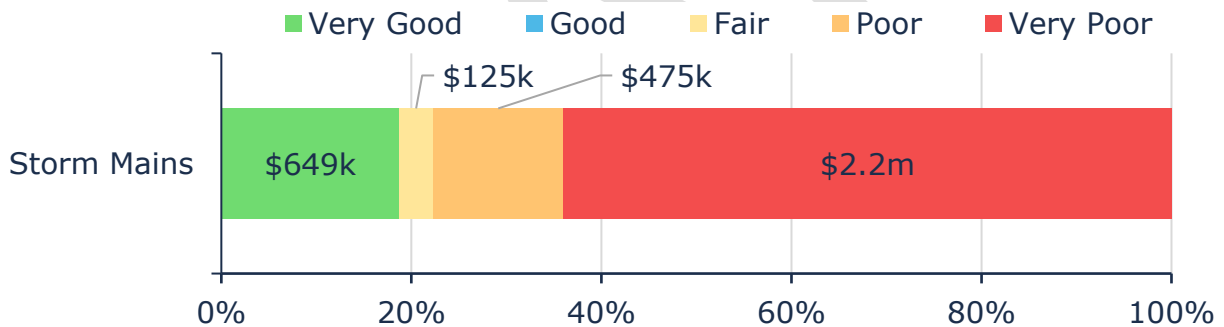
Figure 28 Asset Condition: Storm Network Overall

Figure 29 summarizes the age-based condition of storm network assets. The analysis illustrates that only 22% of storm mains are in fair or better condition, 78% of mains, with a current replacement cost of about $2,697,000, are in poor or worse condition.

Value and Percentage of Asset Segments by Replacement Cost

Figure 29 Asset Condition: Storm Network by Segment

6.2.1   Current Approach to Condition Assessment

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

- There are no formal condition assessment programs in place for the Storm Network. Culverts and ditches are visually inspected on an

annual basis, and defects are noted to inform lifecycle activities. Condition scores in this plan are from a network-wide assessment in 2016.

6.3 Age Profile

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

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

Figure 30 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets. Storm network assets generally remain well within their expected useful life.
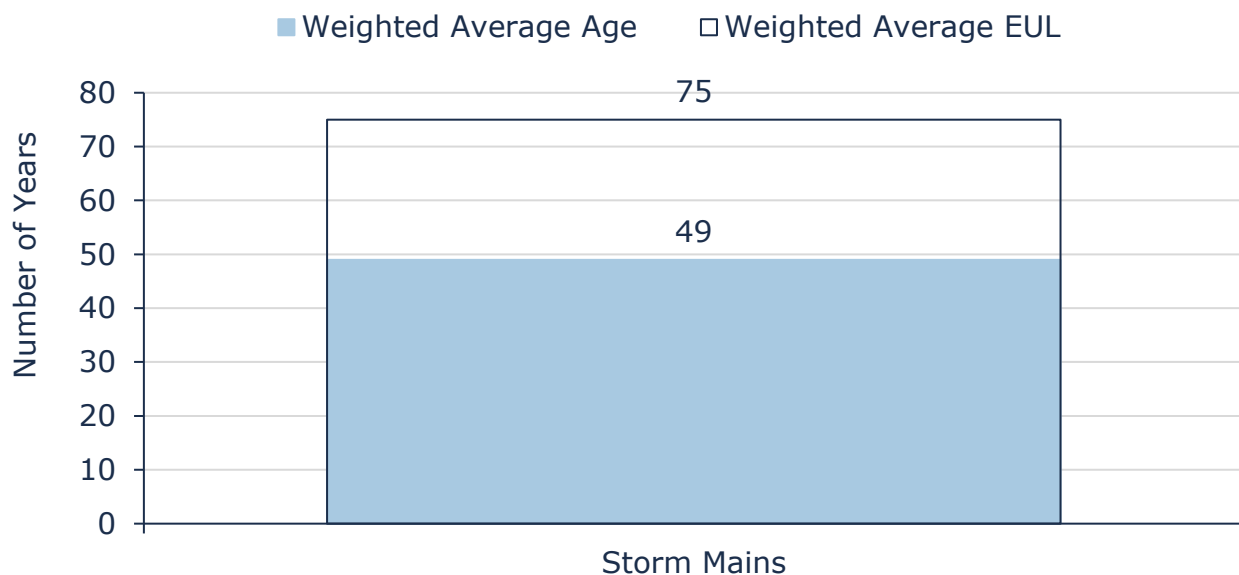
■ Weighted Average Age   □ Weighted Average EUL

Figure 30 Estimated Useful Life vs. Asset Age: Storm Network

6.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Primary activities include catch basin cleaning and storm main flushing, but only a small percentage of the entire network is completed per year.
	CCTV inspections and cleaning may be completed as budget becomes available, and this information will be used to drive forward rehabilitation and replacement plans.
Rehabilitation	Due to the relatively small size of the piped network, no mid-life interventions are performed.
Replacement	Without the availability of up-to-date condition assessment information replacement activities are purely reactive in nature

Table 18 Lifecycle Management Strategy: Storm Network

6.5 Risk Analysis

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

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

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

1 - 4 Very Low $468,372 (13%)	5 - 7 Low $300,323 (9%)	8 - 9 Moderate $295,493 (9%)	10 - 14 High $1,304,652 (38%)	15 - 25 Very High $1,101,999 (32%)

Figure 31 Risk Matrix: Storm Network

6.6 Levels of Service

The table that follows summarizes the Township's current and proposed 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.

6.6.1 Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description, which may include map, of the user groups or areas of the Township that are protected from flooding, including the extent of protection provided by the municipal Storm Sewer system	Scope	Appendix B: Level of Service Maps
Technical	% of properties in Township resilient to a 100-year storm	Scope	TBD[6]
	% of the municipal storm sewer management system resilient to a 5-year storm		100%[7]

Table 19: Storm Network – Current Levels of Service

6.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Matachewan Township's inventory were run for 34-years to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

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[6] The Township does not currently have data available to determine this technical metric. The rate of properties that are expected to be resilient to a 100-year storm is expected to be low.
[7] This is based on the observations of municipal staff.

Scenario 2: Current Capital Reinvestment Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Fair - this scenario utilizes a target average condition of 40% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for the storm network.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)[8]	Annual Capital Reinvestment
Scenario 1 – Lifecycle (selected)		88%	3.45	$46,000
Scenario 2 - Current Capital Investment Rate	$3,471,000	11%	11.69	-
Scenario 3 - Maintain Condition 40%		41%	8.8	$47,000

Table 20: Storm Network - Proposed Levels of Service Scenarios

6.6.3   10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe (see 1.4).

Segment	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Storm Mains	-	-	$475k	-	-	-	-	-	-	-
Total	**-**	**-**	**$475k**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Table 21: Storm Network - 10-Year Capital Forecast

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[8] See 2.3.2

Non-Core Assets

7. Facilities

7.1 Inventory & Valuation

Table 22 summarizes the quantity and current replacement cost of all Facilities assets available in the Township's asset register. Facilities assets are componentized. The quantity listed represents the number of asset records currently available for each department.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Fire Hall	5	Quantity	$273,815	CPI
Municipal Office	8	Quantity	$603,091	CPI
Nursing Station	8	Quantity	$1,346,714	CPI
Public Works Garage	7	Quantity	$171,843	CPI
Recreation Hall	5	Quantity	$168,251	CPI
YDMC	3	Quantity	$1,041,978	CPI
TOTAL			**$3,605,692**	

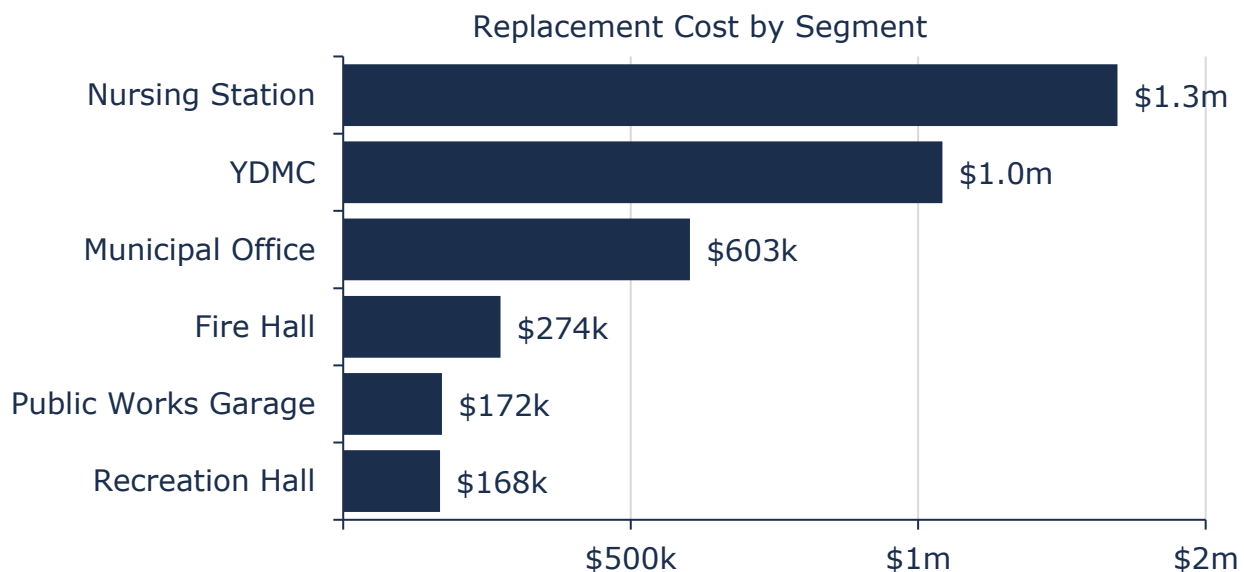*Table 22 Detailed Asset Inventory: Facilities*

Figure 32 Portfolio Valuation: Facilities

7.2   Asset Condition

Figure 33 summarizes the replacement cost-weighted condition of the Township's Facilities portfolio. Based on age data, 57% of Facilities assets are in fair or better condition. Aspects of some of 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. There is no assessment data available.
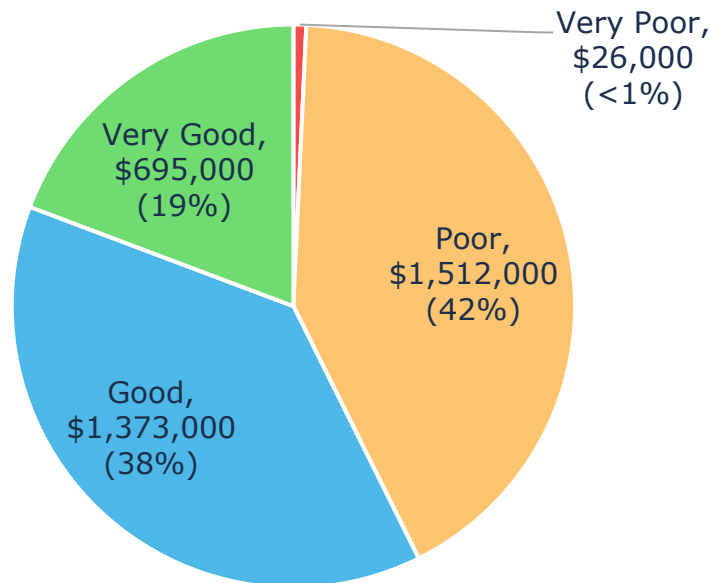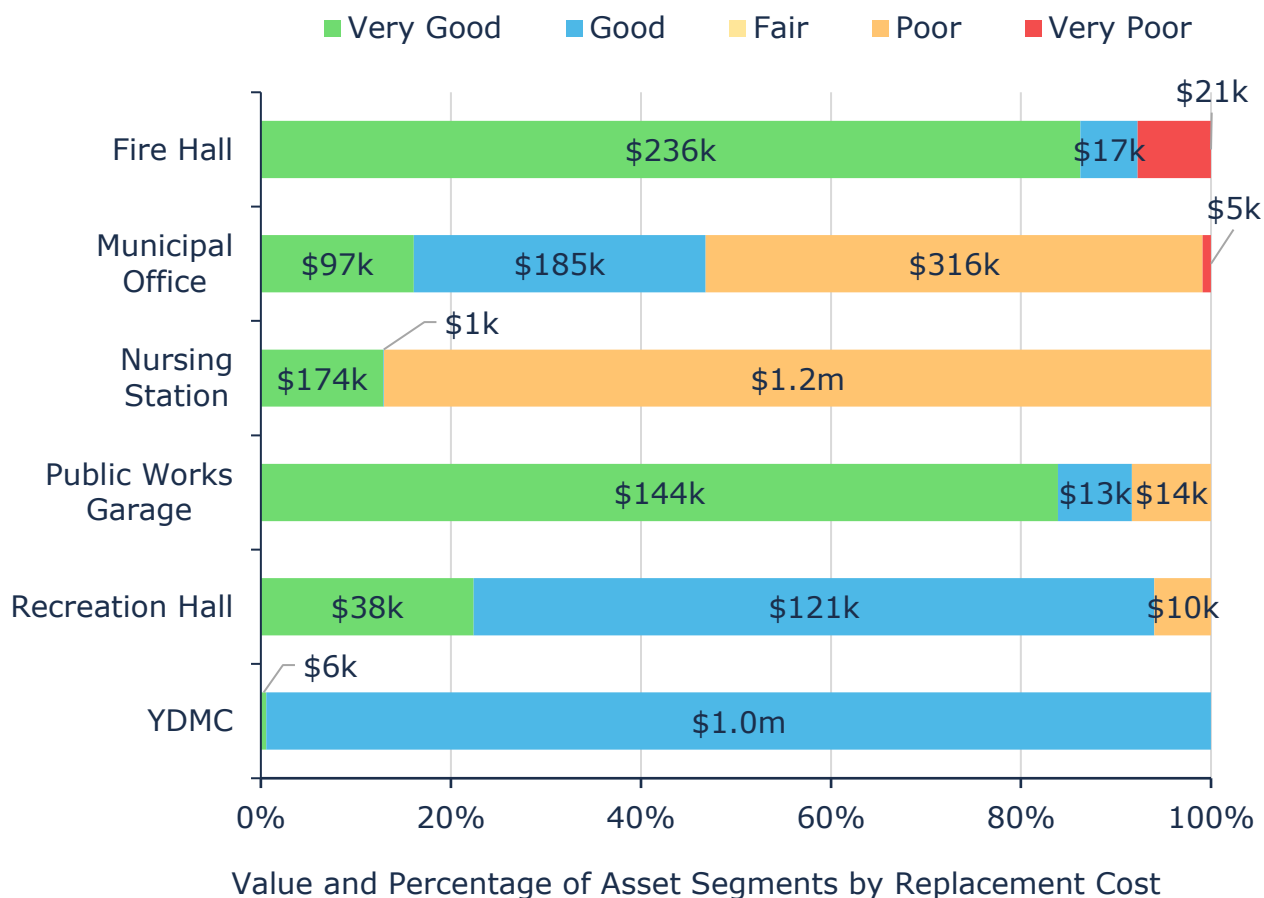

Figure 33 Asset Condition: Facilities Overall

Figure 34 summarizes the age-based condition of Facilities by each department. Overall, based on the information available, this asset category is in a very healthy state.

Figure 34 Asset Condition: Facilities by Segment

Facilities assets are unique in that they rarely require the need for replacement based solely on condition. It is typical that, in addition to condition, other factors, such as capacity, will impact the asset's ability to serve the purpose originally intended.[9]

7.2.1   Current Approach to Condition Assessment

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

- Comprehensive evaluations (when necessary) are primarily carried out by external consultants, while safety inspections are executed by internal staff.

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[9] Refer to section 13.

- The Township is in the process of collaborating with other municipalities to further expand condition assessments.

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.

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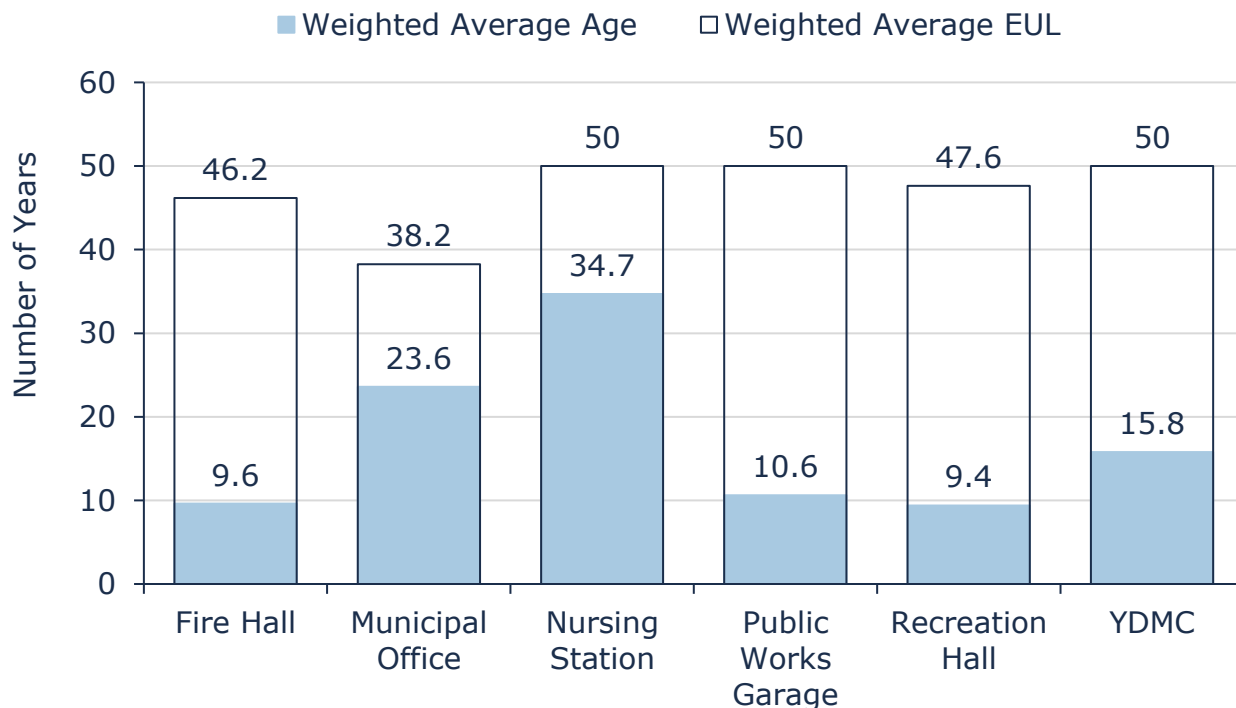

Figure 35 Estimated Useful Life vs. Asset Age: Facilities

7.4 Current Approach to Lifecycle Management

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

Table 23 outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Inspections and the cleaning of HVAC systems and furnaces are part of annual maintenance activities
	Every five years, thorough inspections are carried out, and minor repairs are conducted based on recommendations from the inspection
	Maintenance activities are initiated following the identification of safety, accessibility, and structural concerns during inspections
Rehabilitation	Rehabilitation activities are initiated based on the outcomes of inspections and the advice of consultants
Replacement	Consideration for replacement arises when an asset's condition has significantly worsened and when maintenance and rehabilitation are no longer cost-effective
	Review of trigger points are conducted periodically to ensure they align with other asset conditions and best practices

Table 23 Lifecycle Management Strategy: Facilities

7.5 Risk Analysis

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

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

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

1 - 4 Very Low $768,586 (21%)	5 - 7 Low $458,131 (13%)	8 - 9 Moderate $880,252 (24%)	10 - 14 High $21,119 (<1%)	15 - 25 Very High $1,477,604 (41%)

Figure 36 Risk Matrix: Facilities

7.6   Levels of Service

The table that follows summarizes 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.

7.6.1   Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description, which may include maps, of the types of facilities that the Township operates and maintains	Scope	Refer to section 7.1
	Describe criteria for rehabilitation and replacement decisions and any related long-term forecasts	Quality	Refer to sections 7.4 & 7.5
Technical	Average condition rating	Quality	Fair – 52

Table 24: Facilities – Current Levels of Service

7.6.2   Levels of Service – Proposed

The scenarios that were used to analyse Matachewan Township's inventory were run for 49-years to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Capital Reinvestment Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Fair - this scenario utilizes a target average condition of 40% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for facilities.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)[10]	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**		49%	13.07	$ 81,000
Scenario 2 - Current Capital Investment Rate	$3,606,000	22%	18.5	$ 26,000
Scenario 3 - Maintain Condition 40%		43%	13.91	$64,000

Table 25: Facilities - Proposed Levels of Service Scenarios

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[10] See 2.3.2

7.6.3   10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe (see 1.4).

Segment	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Fire Hall	-	-	-	-	-	-	-	-	-	-
Municipal Office	-	$5k	-	-	-	-	-	-	-	-
Nursing Station										
Public Works Garage										
Recreation Hall	-	-	-	$10k	-	-	-	-	-	-
YDMC										
Total	**-**	**$5k**	**-**	**$10k**	**-**	**-**	**-**	**-**	**-**	**-**

Table 26: Facilities - 10-Year Capital Forecast

8. Vehicles

8.1 Inventory & Valuation

Table 27 summarizes the quantity and current replacement cost of all vehicle assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Protection Services	2	Quantity	$68,895	User-Defined
Transportation Services	2	Quantity	$92,022	CPI
TOTAL			**$160,917**	

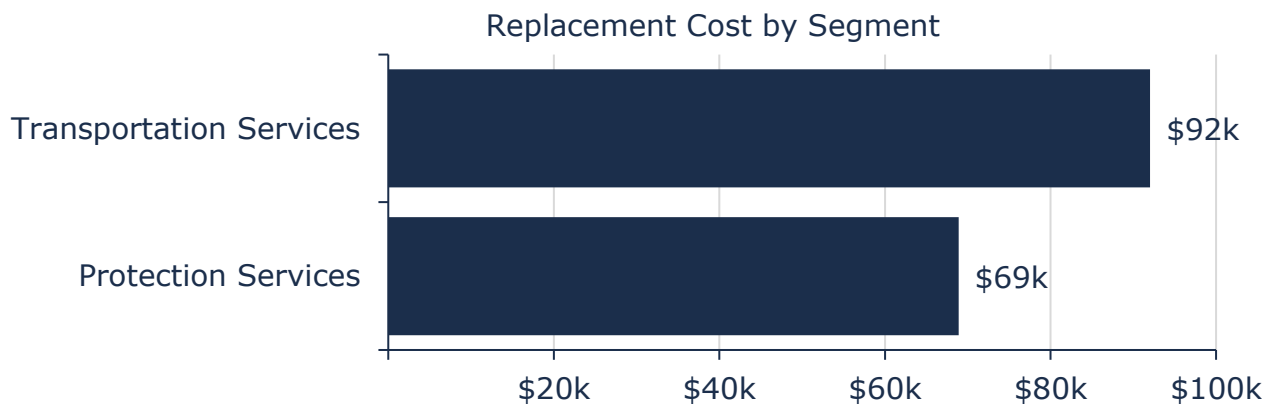*Table 27 Detailed Asset Inventory: Vehicles*

Figure 37 Portfolio Valuation: Vehicles

8.2 Asset Condition

Figure 38 summarizes the replacement cost-weighted condition of the Township's vehicles portfolio. Based primarily on age data, 70% of vehicles are in fair or better condition, with the remaining 30% are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition. No condition data is available for the vehicle assets.
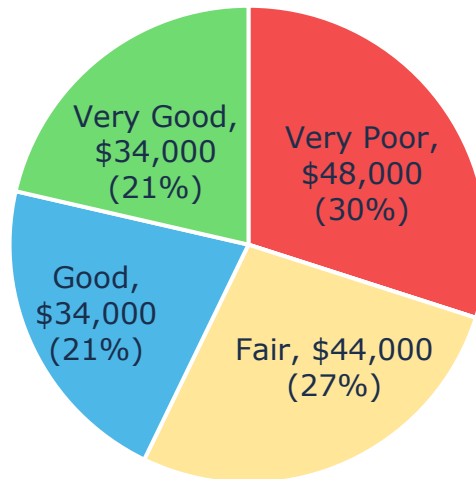
Figure 38 Asset Condition: Vehicles Overall

Figure 39 summarizes the condition of vehicles by use case. As can be seen, all the protection services assets are in fair or better condition, however, 52% of the transportation service, with the replacement cost of $48,000, are in poor or worse condition.
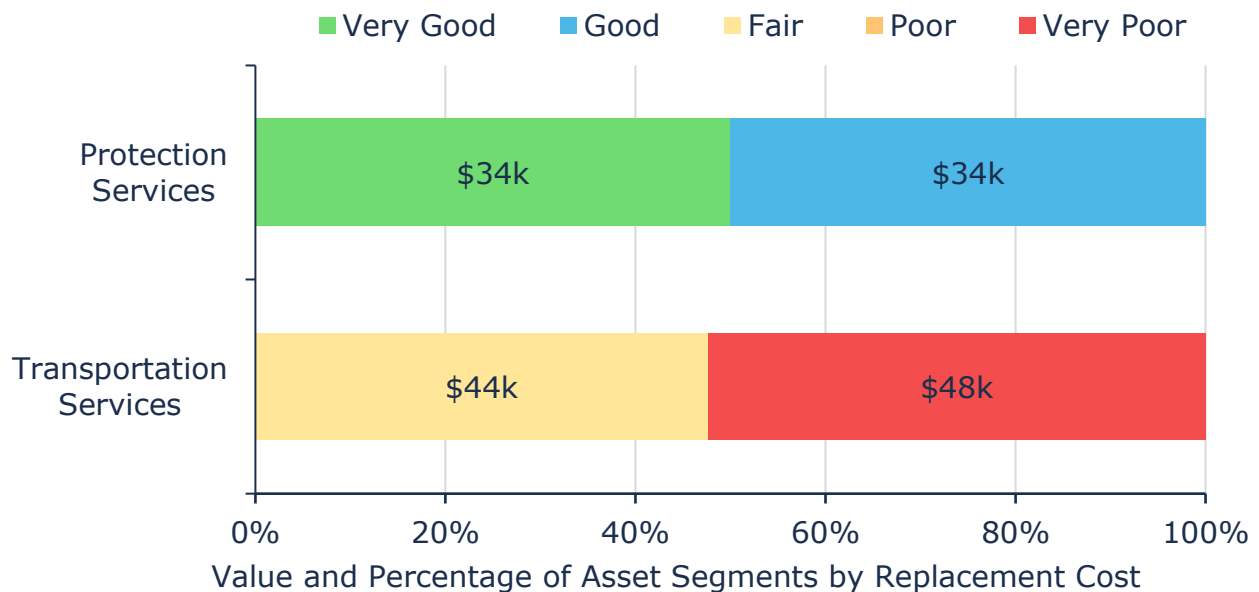

Figure 39 Asset Condition: Vehicles by Segment

8.2.1   Current Approach to Condition Assessment

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

- A visual inspection is performed prior to use of any vehicle. Daily inspections are also performed and carried out by internal staff
- Annual inspections are performed by external contractors on an annual basis and additionally, on an as-needed basis. The most recent annual inspection was completed in October 2023
- Inspections are primarily conducted by internal staff and use a condition rating criteria of good, fair, and poor
- The Township's protection assets receive mandated scheduled inspections, as required

8.3 Age Profile

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

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

Figure 40 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.
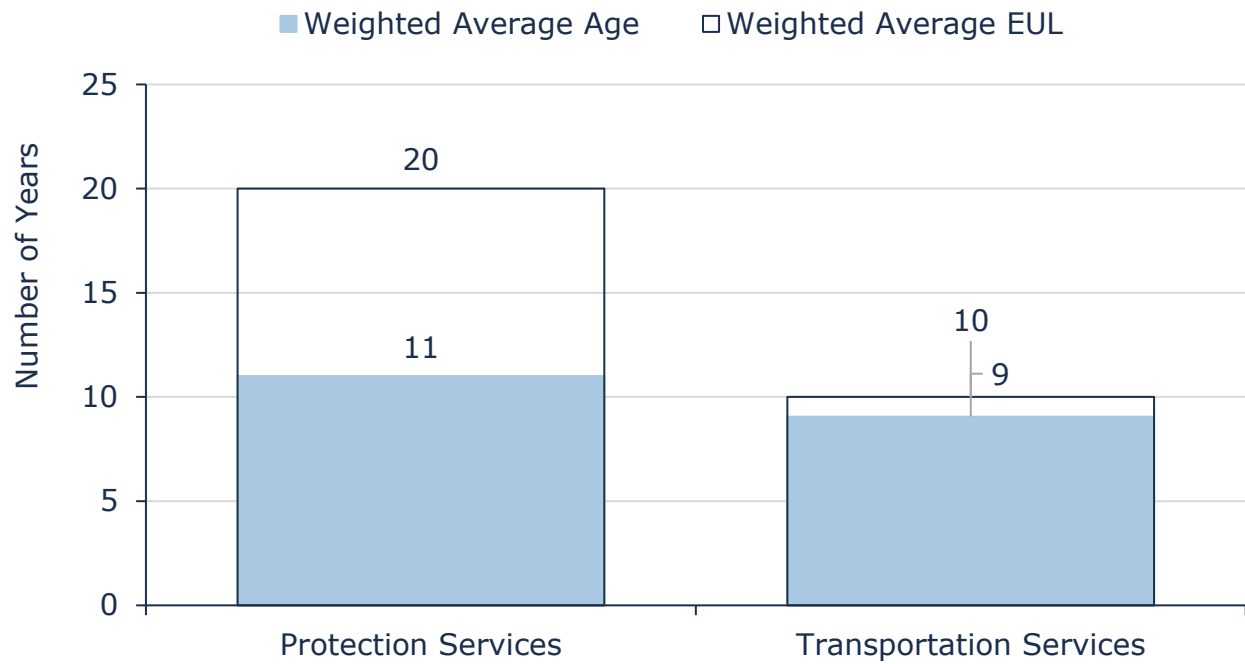
Figure 40 Estimated Useful Life vs. Asset Age: Vehicles

8.4   Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Regular maintenance tasks include inspections, tire rotations, minor repairs, and oil changes
	Vehicles are inspected daily, with repairs carried out on an as-needed basis
	Maintenance actions are initiated upon the detection of safety and mechanical problems during inspections
Rehabilitation	There are currently no rehabilitation measures implemented for vehicle assets
Replacement	Consideration for replacement arises when a vehicle's condition significantly worsens, and when maintenance is no longer cost-effective
	Vehicles nearing the end of their expected service life or those requiring frequent and expensive repairs are given priority for replacement

Table 28 Lifecycle Management Strategy: Vehicles

8.5   Risk Analysis

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

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

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

1 - 4 Very Low $34,448 (21%)	5 - 7 Low $34,448 (21%)	8 - 9 Moderate $43,822 (27%)	10 - 14 High - (0%)	15 - 25 Very High $48,200 (30%)

Figure 41 Risk Matrix: Vehicles

8.6   Levels of Service

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

8.6.1   Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS (2024)
Community	Description or images of the types of vehicles that the Township operates and the services that they help to provide to the community	Scope	Refer to section 8.1
	Describe criteria for rehabilitation and replacement decisions and any related long-term forecasts	Quality	Refer to sections 8.4 & 8.5
Technical	Average condition rating	Quality	Fair – 52%

Table 29: Vehicles – Current Levels of Service

8.6.2   Levels of Service – Proposed

The scenarios that were used to analyse Matachewan Township's inventory were run for 59-years to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system

which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Capital Reinvestment Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Fair - this scenario utilizes a target average condition of 40% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for vehicles assets.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)[11]	Annual Capital Reinvestment
Scenario 1 – Lifecycle (selected)		74%	5.76	$ 13,000
Scenario 2 - Current Capital Investment Rate	$161,000	13%	13.49	-
Scenario 3 - Maintain Condition 40%		54%	8.33	$12,000

Table 30: Vehicles - Proposed Levels of Service Scenarios

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[11] See 2.3.2

8.6.3   10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe (see 1.4).

Segment	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Protection Services	-	-	-	-	-	-	-	$34k	-	-
Transportation Services	$48k	-	$44k	-	-	-	-	-	-	-
Total	**$126k**	**$1.7m**		**$126k**	**$426k**	**$691k**	**$266k**	**$924k**	**$138k**	

Table 31: Vehicles - 10-Year Capital Forecast

9. Machinery & Equipment

9.1 Inventory & Valuation

Table 32 summarizes the quantity and current replacement cost of all machinery & equipment assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
General Government	9	Quantity	$71,321	CPI
Protection Services	9	Quantity	$156,647	CPI
Recreation & Cultural Services	9	Quantity	$100,746	User-Defined
Transportation Services	8	Quantity	$248,845	CPI
TOTAL			**$577,559**	

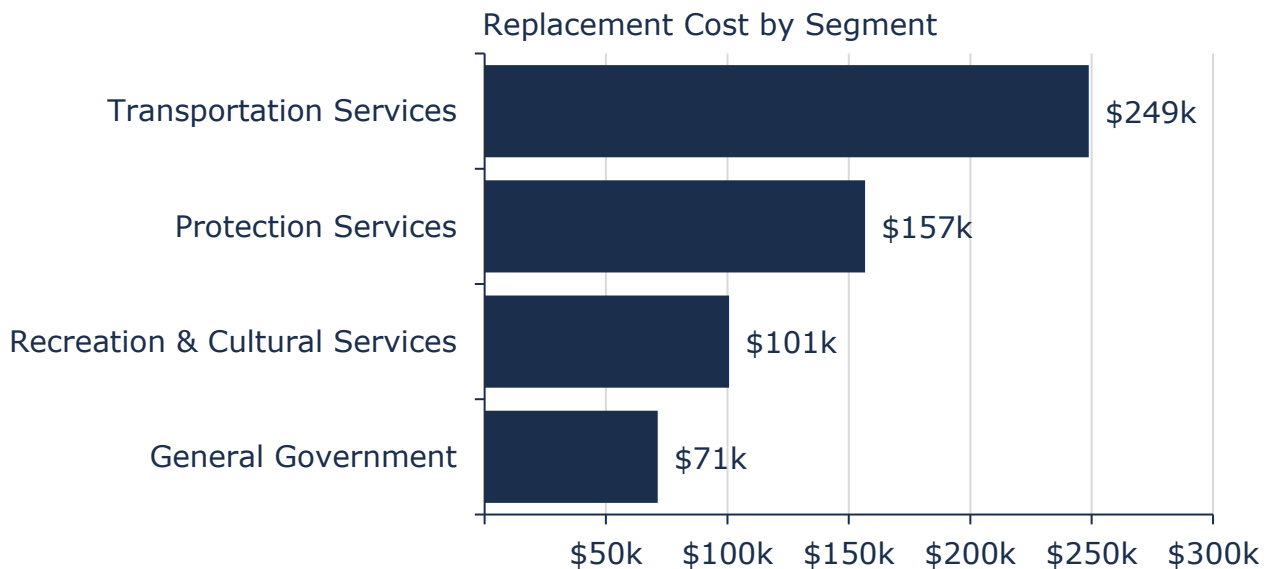*Table 32 Detailed Asset Inventory: Equipment*

*Figure 42 Portfolio Valuation: Machinery & Equipment*

9.2   Asset Condition

Figure 43 summarizes the replacement cost-weighted condition of the Township's equipment portfolio. Based on age data, 78% of assets are in fair or better condition; the remaining 22% are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.
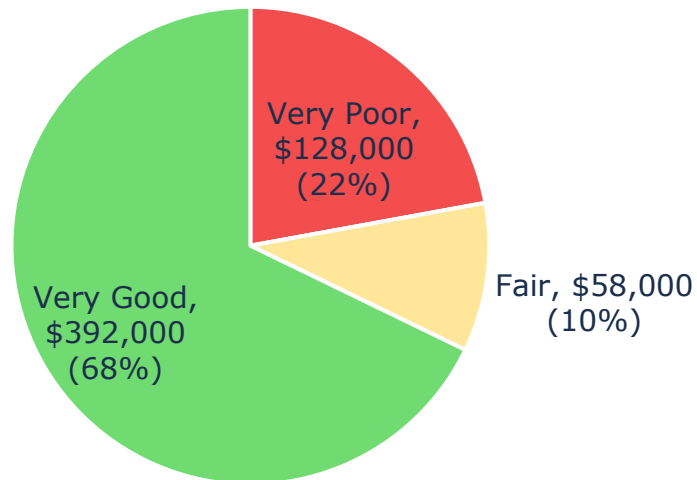
Figure 43 Asset Condition: Machinery & Equipment Overall

Figure 44 summarizes the age-based condition of machinery and equipment by each department. Most assets in poor or worse condition are concentrated in the general government and protection services segments.
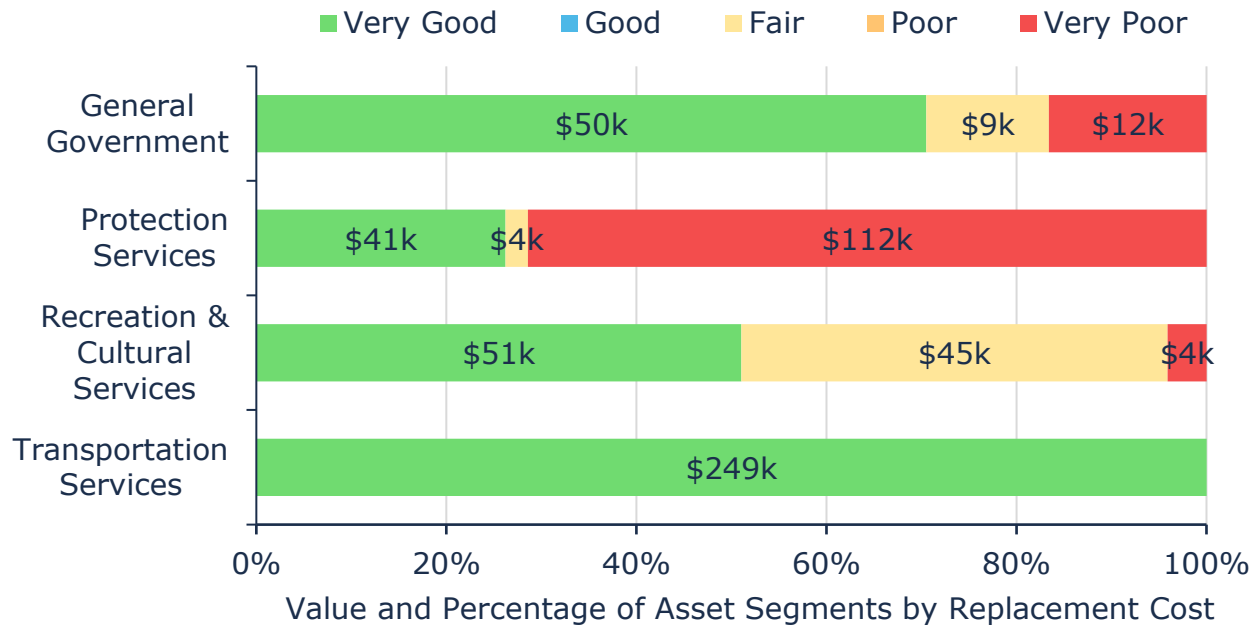
Figure 44 Asset Condition: Equipment by Segment

9.2.1   Current Approach to Condition Assessment

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

- Machinery and equipment valued over $5,000 are subject to annual assessments in accordance with the established internal policies, with the most recent inspection carried out in 2022
- Inspections are primarily conducted by internal staff and use a condition rating criteria of good, fair, and poor

9.3   Age Profile

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

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment

programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

Figure 45 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

Figure 45 Estimated Useful Life vs. Asset Age: Machinery & Equipment

9.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Standard maintenance procedures for machinery and equipment include inspections, minor repairs, and oil changes
	Inspections take place annually, with minor repairs carried out as necessary
	Maintenance activities are triggered based on inspection findings that highlight safety and structural concerns

Rehabilitation	There is currently no rehabilitation measures implemented for machinery and equipment assets
Replacement	The decision to replace machinery and equipment is made when their condition significantly declines to a point where maintaining them is no longer cost-effective
	Priority for replacement is given to assets approaching the end of their expected service life or those requiring frequent and expensive repairs

Table 33 Lifecycle Management Strategy: Machinery & Equipment

9.5 Risk Analysis

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

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

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

1 - 4 **Very Low** $223,939 (39%)	5 - 7 **Low** $203,930 (35%)	8 - 9 **Moderate** $45,200 (8%)	10 - 14 **High** $7,509 (1%)	15 - 25 **Very High** $96,981 (17%)

Figure 46 Risk Matrix: Machinery & Equipment

9.6 Levels of Service

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

9.6.1 Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description or images of the types of equipment that the Township operates and the services that they help to provide to the community	Scope	Refer to section 9.1
	Describe criteria for rehabilitation and replacement decisions and any related long-term forecasts	Quality	Refer to sections 9.4 & 9.5
Technical	Average condition rating	Quality	Good – 65%

Table 34: Machinery & Equipment – Current Levels of Service

9.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Matachewan Township's inventory were run for 29-years to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Capital Reinvestment Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Fair - this scenario utilizes a target average condition of 40% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for machinery & equipment assets.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)[12]	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**		76%	7.23	$ 43,000
Scenario 2 - Current Capital Investment Rate	$578,000	17%	17.16	-
Scenario 3 - Maintain Condition 40%		49%	12.27	$42,000

Table 35: Machinery & Equipment - Proposed Levels of Service Scenarios

9.6.3   10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe (see 1.4).

Segment	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
General Government	-	$9k	-	-	$12k	$25k	$7k	$15k	$4k	-
Protection Services	$33k	-	$4k	-	$31k	-	$10k	-	-	$7k
Recreation & Cultural Services	$4k	$45k	$23k	-	$2k	-	$22k	-	$4k	-
Transportation Services	$9k	-	$20k	-	$2k	-	-	-	$12k	-
Total	**$46k**	**$54k**	**$47k**	**-**	**$47k**	**$25k**	**$38k**	**$15k**	**$21k**	**$7k**

Table 36: Machinery & Equipment - 10-Year Capital Forecast

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[12] See 2.3.2

10. Land Improvements

10.1 Inventory & Valuation

Table 37 summarizes the quantity and current replacement cost of all land improvements assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Cemetery	7	Quantity	$120,621	CPI
Docks	1	Quantity	$10,245	CPI
Landfill	3	Quantity	$255,191	CPI
Playgrounds & Equipment	12	Quantity	$292,805	CPI
TOTAL			**$678,862**	

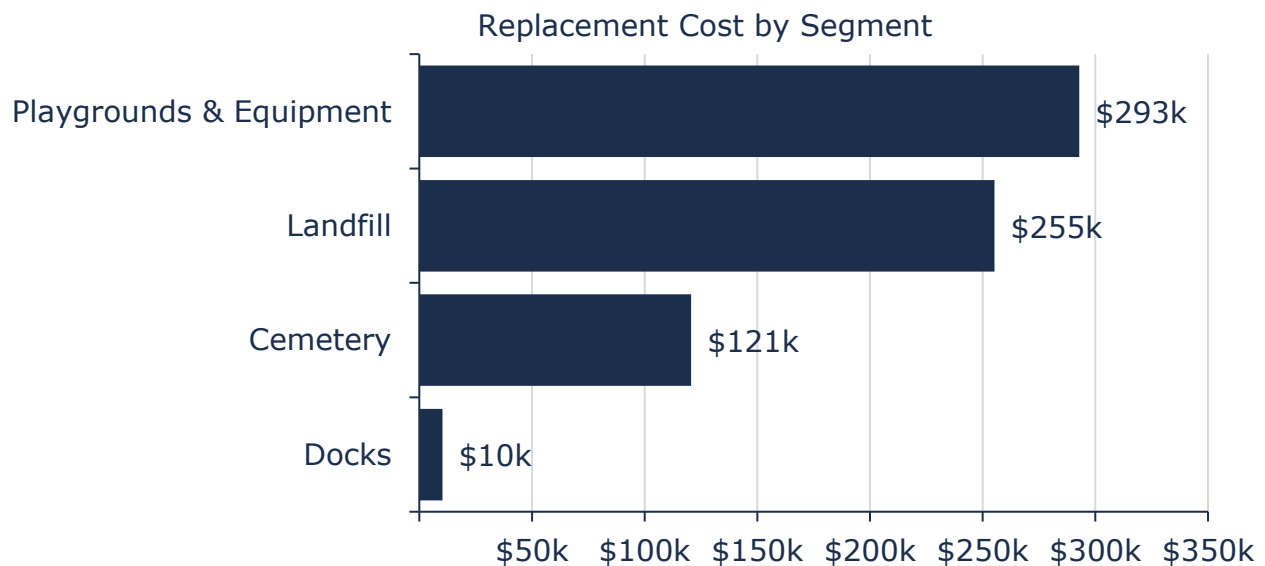*Table 37 Detailed Asset Inventory: Land Improvements*

Figure 47 Portfolio Valuation: Land Improvements

10.2 Asset Condition

Figure 48 summarizes the replacement cost-weighted condition of the Township's land improvements portfolio. Based on age data, 93% of assets are in fair or better condition; the remaining 7% are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.
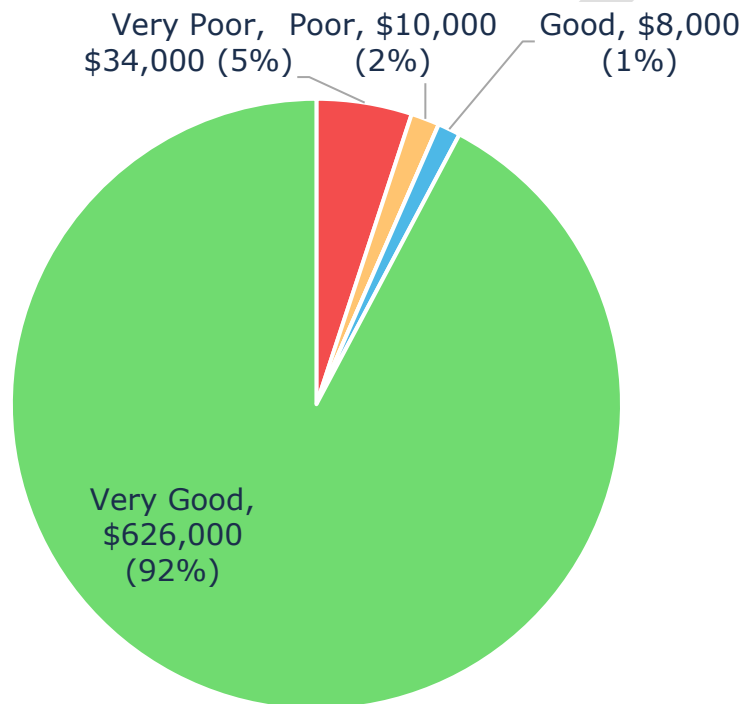
Figure 48 Asset Condition: Land Improvements Overall

Figure 49 summarizes the age-based condition of land improvements by each department. The majority of land improvements assets are in fair or better condition.
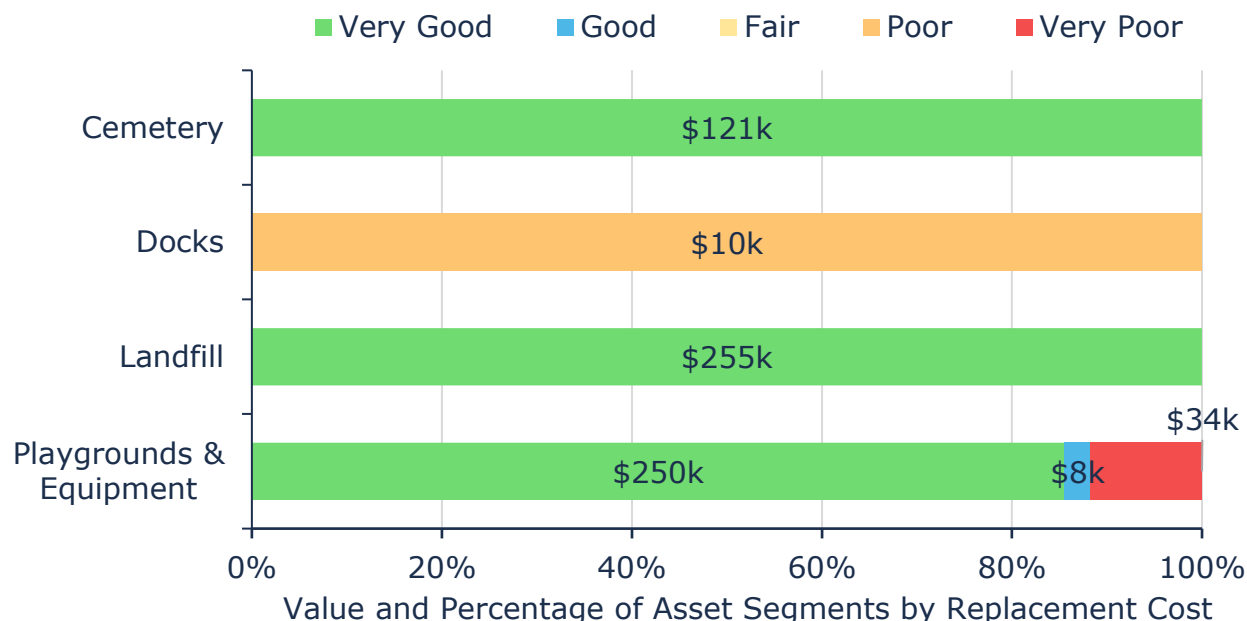
Figure 49 Asset Condition: Land Improvements by Segment

10.2.1   Current Approach to Condition Assessment

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

- The Township's campground, Pioneer Park, is evaluated annually by the Public Works department. These assessments are primarily conducted by internal staff
- Currently, these inspections are primarily conducted by internal staff and use a condition rating criteria of good, fair, and poor

10.3 Age Profile

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

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment

programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

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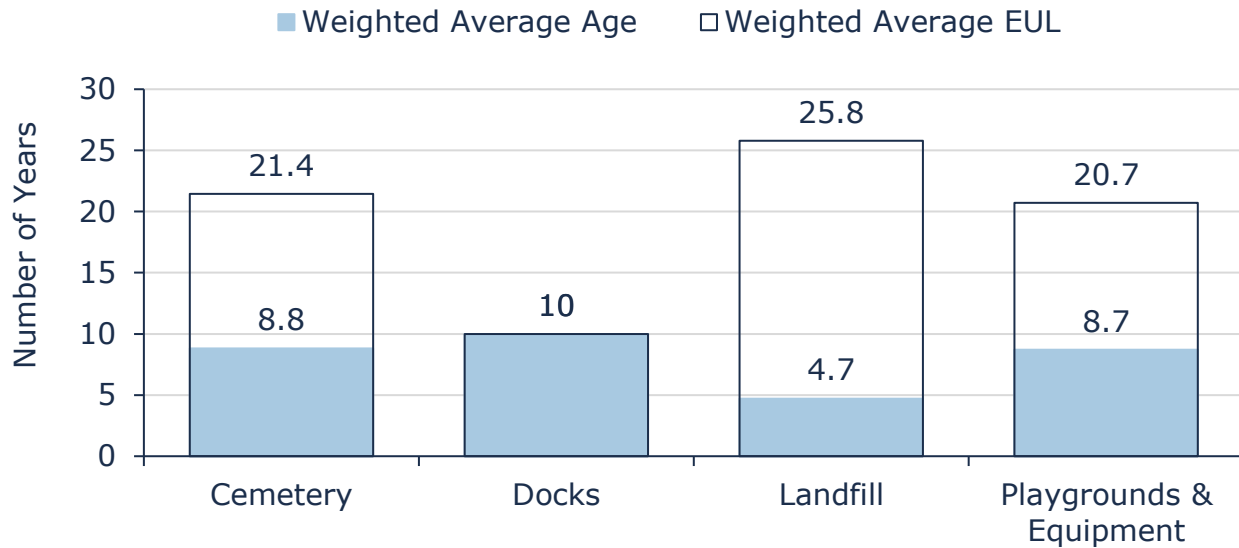

Figure 50 Estimated Useful Life vs. Asset Age: Land Improvements

10.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance	Maintenance activities are comprised of inspections, cleaning, minor repairs, and managing vegetation
	Maintenance actions are initiated following the detection of safety and structural concerns during inspections
Rehabilitation	There are currently no rehabilitation measures implemented for parks and land improvements assets
Replacement	Replacement of assets are considered when an asset has significantly deteriorated, and maintenance is no longer cost-effective
	Prioritization for replacement is given to assets either approaching the end of their service life or requiring frequent and expensive repairs
	Evaluation of trigger points for replacement occur regularly to ensure they are following best practices

Table 38 Lifecycle Management Strategy: Land Improvements

10.5 Risk Analysis

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

The matrix stratifies assets based on their individual probability and consequence of failure; each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is

gathered, the Township may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

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

1 - 4 Very Low $266,802 (39%)	5 - 7 Low $368,802 (54%)	8 - 9 Moderate $10,245 (2%)	10 - 14 High - (0%)	15 - 25 Very High $33,013 (5%)

Figure 51 Risk Matrix: Land Improvements

10.6 Levels of Service

The table that follows summarizes the Township's current and proposed 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.

10.6.1   Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description, which may include maps, of the land improvements that the Township operates and maintains	Scope	Refer to section 10.1
	Describe criteria for rehabilitation and replacement decisions and any related long-term forecasts	Quality	Refer to sections 10.4 & 10.5
Technical	Average condition rating	Quality	Very Good –88%

Table 39: Land Improvements – Current Levels of Service

10.6.2 Levels of Service – Proposed

The scenarios that were used to analyse Matachewan Township's inventory were run for 49-years to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Capital Reinvestment Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Fair - this scenario utilizes a target average condition of 40% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for land improvements.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)[13]	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**		76%	6.82	$ 33,000
Scenario 2 - Current Capital Investment Rate	$679,000	57%	10.4	$ 23,000
Scenario 3 - Maintain Condition 40%		54%	9.48	$17,000

Table 40: Land Improvements - Proposed Levels of Service Scenarios

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[13] See 2.3.2

10.6.3   10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe (see 1.4).

Segment	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Cemetery	-	-	-	-	-	$18k	$11k	-	-	-
Docks	$10k	-	-	-	-	-	-	-	-	-
Landfill										
Playgrounds & Equipment	-	-	-	$8k	-	-	-	-	-	-
Total	**$10k**	**-**	**-**	**$8k**	**-**	**$18k**	**$11k**	**-**	**-**	**-**

Table 41: Land Improvements - 10-Year Capital Forecast

11. Furniture & Fixtures

11.1 Inventory & Valuation

Table 32 summarizes the quantity and current replacement cost of all Furniture & Fixtures assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
General Government	15	Quantity	$94,740	CPI
Recreation & Cultural Services	6	Quantity	$88,987	CPI
Transportation Services	2	Quantity	$7,863	CPI
TOTAL			**$191,590**	

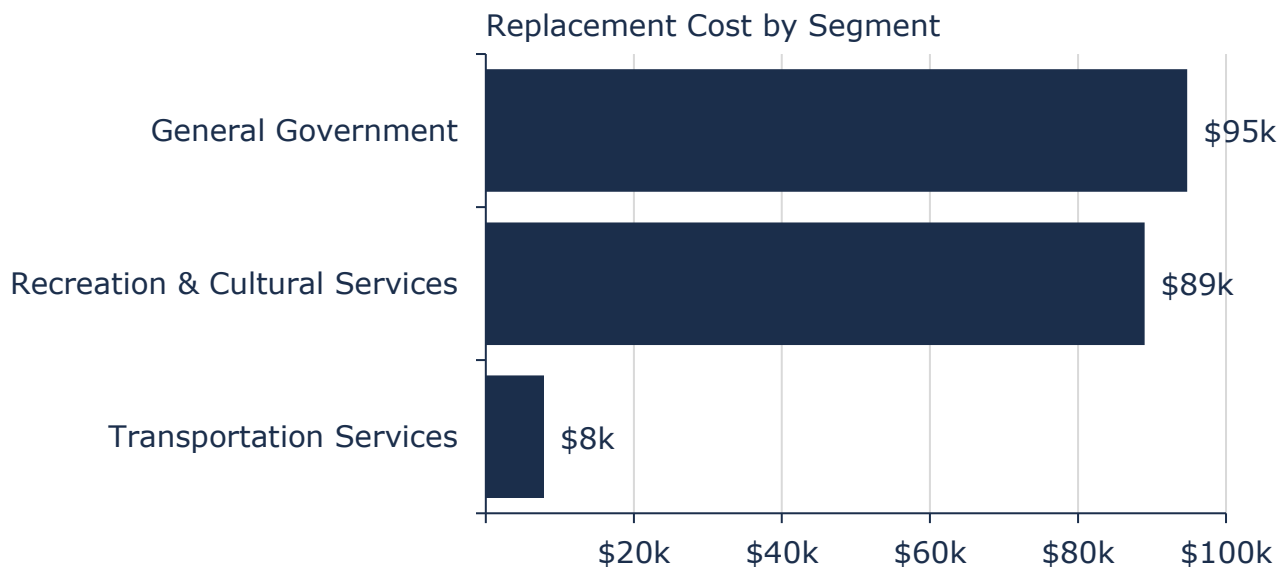*Table 42 Detailed Asset Inventory: Furniture & Fixtures*

Figure 52 Portfolio Valuation: Furniture & Fixtures

11.2 Asset Condition

Figure 43 summarizes the replacement cost-weighted condition of the Township's furniture & fixtures portfolio. Based on assessed condition and age

data, 97% of assets are in fair or better condition; the remaining 3% are in poor or worse condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.
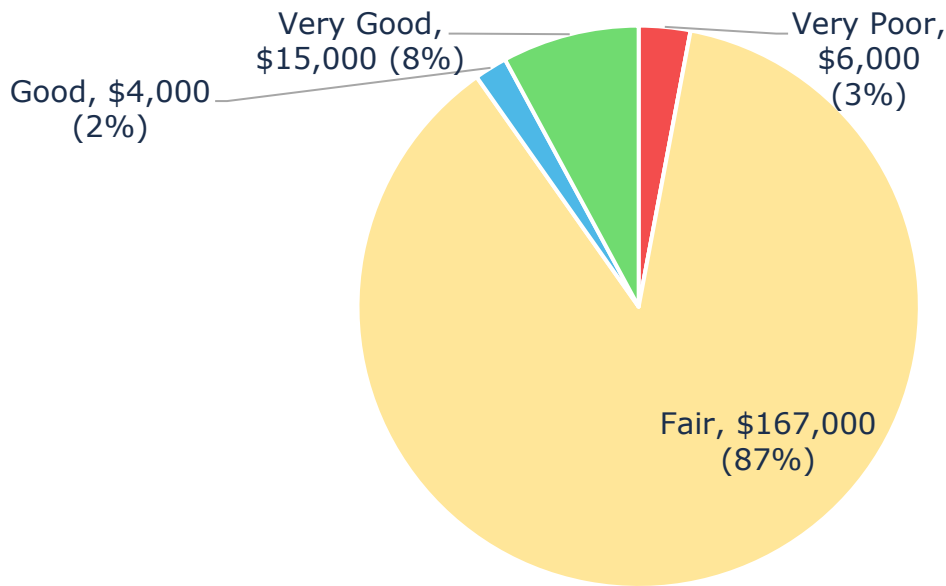
Figure 53 Asset Condition: Furniture & Fixtures Overall

Figure 44 summarizes the age-based condition of furniture & fixtures by each department. The majority of the assets are in fair or better condition.

Figure 54 Asset Condition: Furniture & Fixtures by Segment

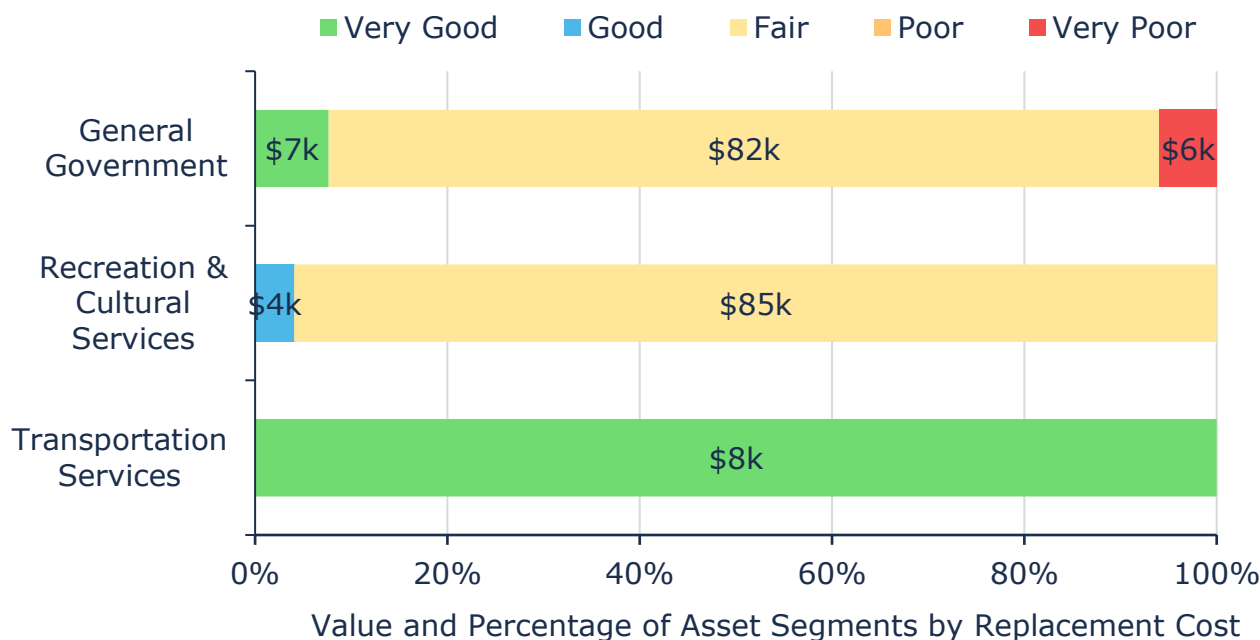### 11.2.1 Current Approach to Condition Assessment

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

- There are no formal condition assessment programs in place for furniture and fixture assets.

11.3 Age Profile

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

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

Figure 45 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

Figure 55 Estimated Useful Life vs. Asset Age: Furniture & Fixtures

11.4 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation/ Replacement	Lifecycle activities are primarily reactive, focusing on replacing assets at the end of life. Replacement priority is given to assets nearing the end of their service life or those with higher replacement costs.

Table 43 Lifecycle Management Strategy: Furniture & Fixtures

11.5 Risk Analysis

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

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

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

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

1 - 4 **Very Low** $24,408 (13%)	5 - 7 **Low** $16,354 (9%)	8 - 9 **Moderate** - (0%)	10 - 14 **High** $150,828 (79%)	15 - 25 **Very High** - (0%)

Figure 56 Risk Matrix: Furniture & Fixtures

11.6 Levels of Service

The table that follows summarizes the Township's current and proposed 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.

11.6.1   Levels of Service – Current

Metric Type	KPI Metric	Service Attribute	Current LOS
Community	Description or images of the types of furniture and fixtures that the Township operates and the services that they help to provide to the community	Scope	Refer to section 11.1
	Describe criteria for rehabilitation and replacement decisions and any related long-term forecasts	Quality	Refer to sections 11.4 & 11.5

Metric Type	KPI Metric	Service Attribute	Current LOS
Technical	Average condition rating	Quality	Fair – 60%

Table 44: Furniture & Fixtures – Current Levels of Service

11.6.2　Levels of Service – Proposed

The scenarios that were used to analyse Matachewan Township's inventory were run for 9-years to ensure all the lifecycles were included at least once. They are also all based on the data available in the asset management system which outlines estimated useful life and condition as well as replacement costs which all the results are based on.

Scenario 1: Current Lifecycle Activities - this scenario utilizes the current lifecycle activities outlined as current practice within each asset category. The condition and annual investment were then determined.

Scenario 2: Current Capital Reinvestment Rate - this scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the condition was determined.

Scenario 3: Target Condition Fair - this scenario utilizes a target average condition of 40% of the infrastructure within each asset category. The condition value was held, and the annual investment was then determined.

The table below outlines the results for each scenario for Furniture & Fixtures assets.

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)[14]	Annual Capital Reinvestment
Scenario 1 – Lifecycle **(selected)**	$192,000	53%	10.58	$ 19,000

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[14] See 2.3.2

Scenarios	Replacement Cost	Average Condition	Average Risk Rating (0-25)[14]	Annual Capital Reinvestment
Scenario 2 - Current Capital Investment Rate		12%	16.7	-
Scenario 3 - Maintain Condition 40%		45%	11.68	$19,000

Table 45: Furniture & Fixtures - Proposed Levels of Service Scenarios

11.6.3 10-Year Capital Forecast

Below is the projected ten-year capital forecast (scenario 1) needed to obtain full funding, within the recommended timeframe (see 1.4).

Segment	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
General Government	-	-	$6k	-	-	$82k	-	-	$7k	-
Recreation & Cultural Services	-	-	-	-	-	$85k	-	$4k	-	-
Transportation Services	-	-	-	-	-	-	-	-	$8k	-
Total	**-**	**-**	**$6k**	**-**	**-**	**$167k**	**-**	**$4k**	**$15k**	**-**

Table 46: Furniture & Fixtures - 10-Year Capital Forecast

Strategies

Growth

Financial Strategy

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 Matachewan Official Plan (May 2015)

The Township adopted the Official Plan in May of 2015. The purpose of the Plan is to set out goals and objectives to manage growth and development and the effects on the social, economic, and natural environment of the Township. The Plan is intended to guide development and manage evolving demand in the Township in a sustainable way that reflects community values.

The Official Plan is aligned with the 2011 Growth Plan for Northern Ontario and has been prepared through a lens of sustainability. Though the projected population growth is minimal, the Township is focused on efficient development.

The Township's economy and population are strongly tied to local mining activity. Matachewan supports mineral mining exploration within the Township and will pursue opportunities to utilize the community as a service centre for workers, manufacturing, research, and servicing hub for any existing and potential mine established in the area. Growth may also be promoted through tourism, forestry, park development, and green energy industries.

The following tables outlines the recorded population and private dwellings for Matachewan, based on 2021 Census data.

Historical Figures	1996	2001	2006	2011	2016	2021
Population	402	308	375	409	225	268
Population Change	N/A	-23.4%	21.8%	9.1%	-45.0%	19.1%
Private Dwellings	N/A	211	217	150	166	202

The 2021 Census reported Matachewan's population at 268, up from 225 in 2016. There are currently 202 private dwellings in the Township. The

Township is not expected to experience population growth; however, demand will likely evolve, thus requiring a change in asset management practices.

12.2 Regional growth

In 2021 the Come North Conference Report was produced by FedNor and Government of Canada. The document describes short, medium, and long-term objectives for all communities in Northern Ontario as it relates to population growth.

According to the report all 11 Census Districts in Northern Ontario (Nipissing, Parry Sound, Manitoulin, Sudbury, Greater Sudbury, Timiskaming, Cochrane, Algoma, Thunder Bay, Rainy River, Kenora) are currently experiencing the following trends: population decline, population aging, or labour shortages. The report highlights a risk of these communities becoming economically unsustainable unless population retention and attraction numbers improve. The risk is the result of the dependency ratio increasing. The dependency ratio is the ratio of people unable to support themselves without assistance; people between the ages of 0 and 14 and 64 and older.

The goal is to achieve a dependency ratio of 0.5. In 1996, every Census District was at or near the goal but by 2016, none were below and more than half had a ratio in excess of 0.6. The following graph displays the dependency ratio for each Census District in 1996 and 2016 along with a projected ratio for the year 2036.
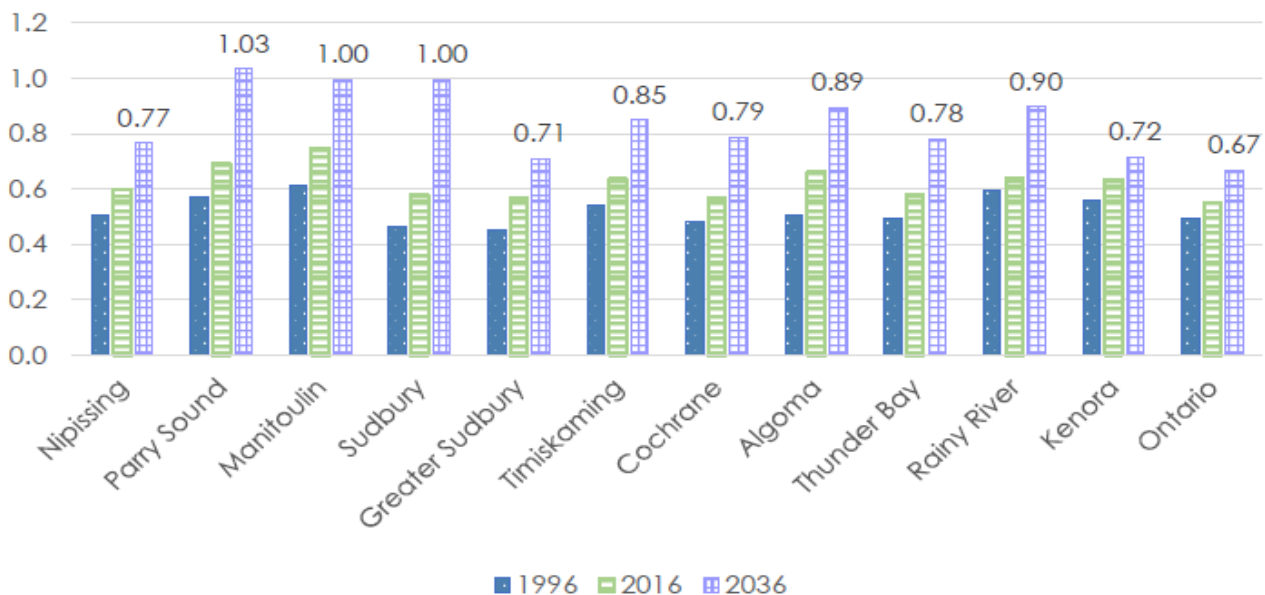
The Township of Matachewan is found in the Timiskaming district, which is expected to reach a dependency ratio of 0.85.

The population trends overall in the Northeastern Ontario are in decline. The following graph from the 2019 Timiskaming district report by the Northern Policy Institute, displays the population trends from 1986 to 2016.
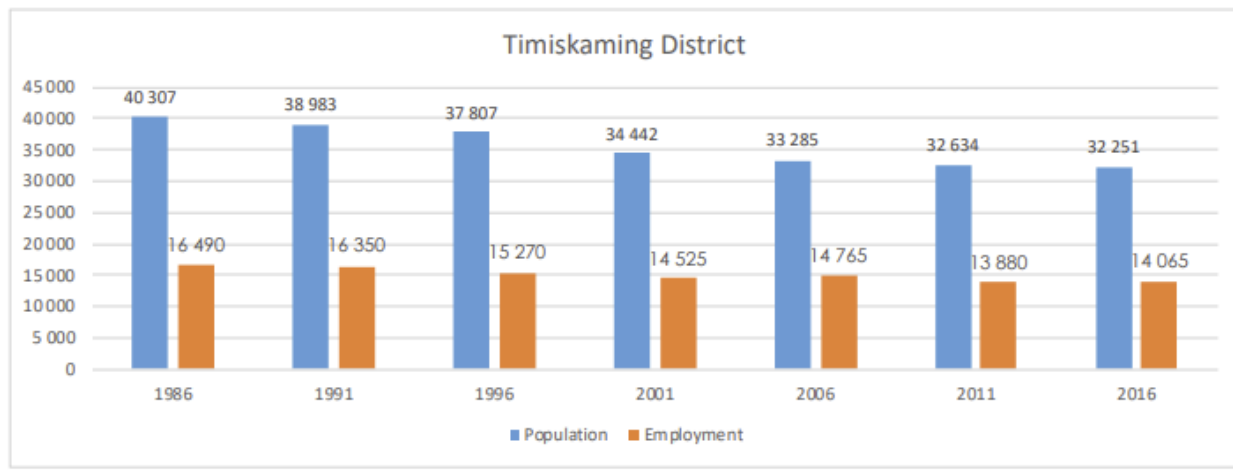
The following table, found in the same report, shows population projections in the Northeastern Ontario for the years 2021 to 2041.

Year	Ages 0-19	Ages 20-64	Ages 65+	Total
2021	6,347	17,362	8,029	31,738
2026	6,293	15,709	8,900	30,902
2031	6,092	14,628	9,436	30,156
2036	5,887	14,180	9,412	29,479
2041	5,751	14,014	9,137	28,902

The most recent census data from 2021, shows a slight decrease in the population, reaching a total of 31,424. According to census data, a significant portion of population decrease is within the 15-to-64-year age group, while there is an increase in population for the age of 65 years and over; thus further increasing the dependency ratio.

12.3 Impact of Growth on Lifecycle Activities

As the municipality's population is expected to remain the same with potential moderate increases and declines in the coming years, demand will evolve, and it is likely that funding will need to be reprioritized. As assets are constructed, retired, or acquired, they should be integrated into the AMP and asset register (Citywide). Furthermore, the municipality 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, to maintain the current level of service.

Township of Matachewan
Asset Management Plan 2025

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 Matachewan 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/proposed service levels
  - Requirements of contemplated changes in service
  - Requirements of anticipated growth
- 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:
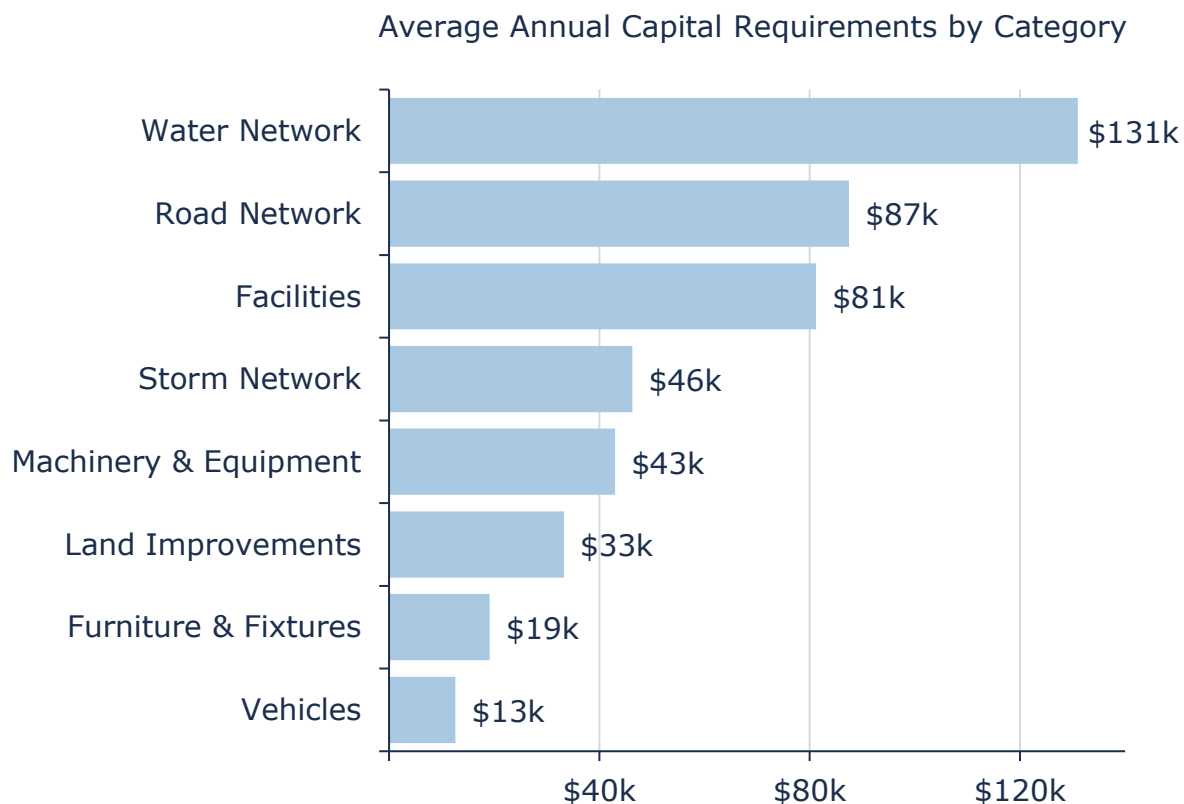
- To reduce financial requirements, consideration has been given to revising service levels downward
- All asset management and financial strategies have been considered. For example:
  - If a zero-debt policy is in place, is it warranted? If not, the use of debt should be considered
  - Do user fees 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, attain its proposed level of service KPIs, and ensure long-term sustainability. In total, the Township must allocate approximately $454 thousand annually to address capital requirements for the assets included in this AMP.

Average Annual Capital Requirements by Category

Category	Amount
Water Network	$131k
Road Network	$87k
Facilities	$81k
Storm Network	$46k
Machinery & Equipment	$43k
Land Improvements	$33k
Furniture & Fixtures	$19k
Vehicles	$13k

Figure 57 Annual Capital Funding Requirements by Asset Category

Where applicable, lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal of some of the main assets in these categories. The development of these strategies allows for a comparison of potential cost avoidance if the strategies were to be implemented. The following compares the two different strategies:

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

The implementation of a proactive lifecycle strategy leads to potential annual cost avoidance and better overall performance. As the lifecycle strategy scenario represents the lowest cost option available to the Township, we have used these annual requirements in the development of the financial strategy.

13.1.2   Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $153 thousand towards capital projects per year. Given the annual capital requirement of $454 thousand, there is currently a funding gap of $301 thousand annually.

Average Annual Capital Requirements vs. Actual Capital
Reinvestment by Category

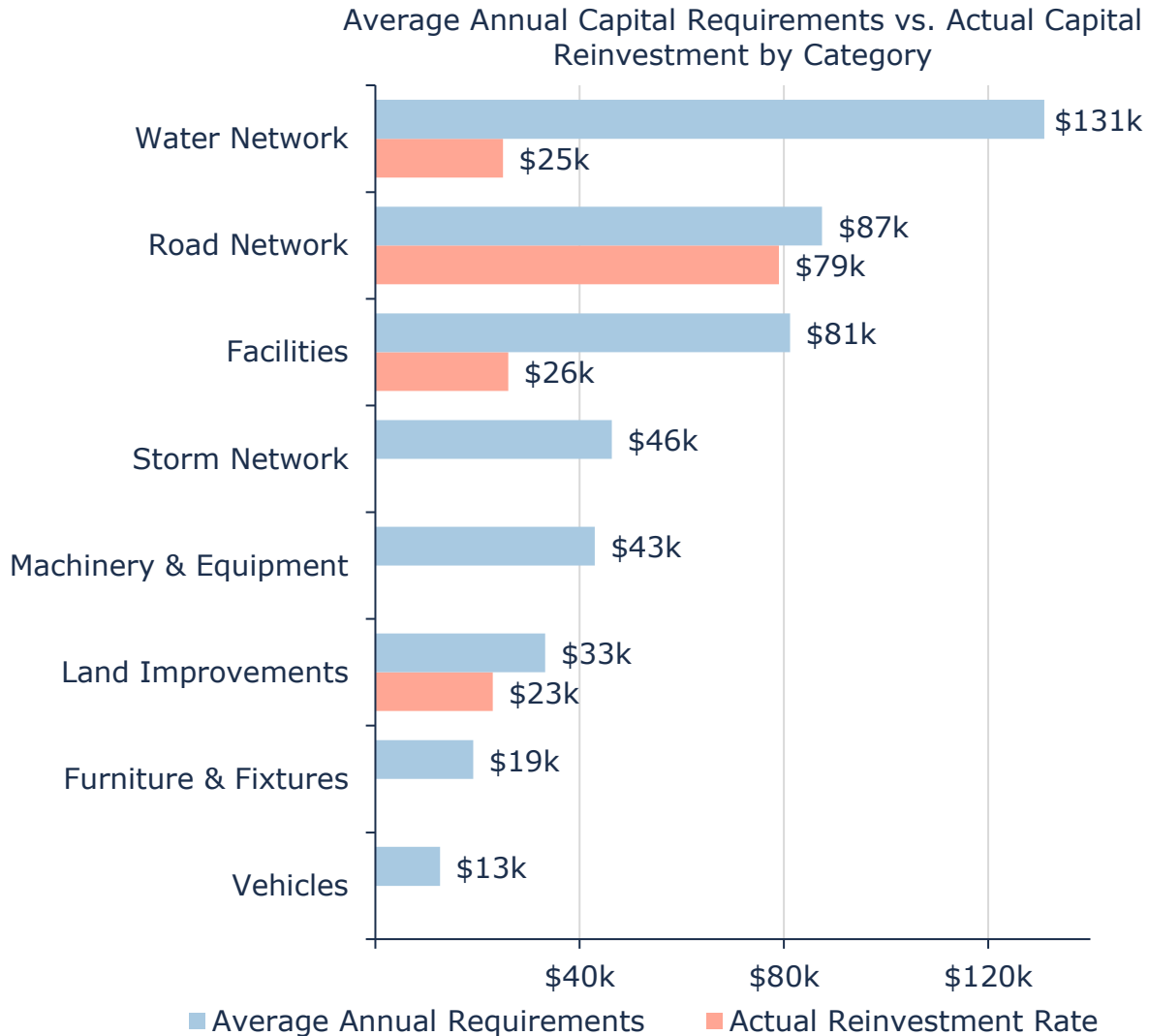*Figure 58 Annual Requirements vs. Capital Funding Available*

13.2 Funding Objective

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

- **Tax Funded Assets:** road network, storm network, facilities, vehicles, machinery & equipment, land improvements, and furniture & fixtures

- **Rate-Funded Assets:** water network

13.3 Financial Profile: Tax Funded Assets

13.3.1   Current Funding Position

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

Asset Category	Avg. Annual Require-ment	Annual Funding Available				Annual Deficit
		Property Taxation & Reserves[15]	CCBF	OCIF	Total Available	
Facilities	81,000	26,000	-	-	26,000	55,000
Furniture & Fixtures	19,000	-	-	-	-	19,000
Land Improvements	33,000	23,000	-	-	23,000	10,000
Machinery & Equipment	43,000	-	-	-	-	43,000
Road Network	88,000	37,000	17,000	25,000	79,000	9,000
Storm Network	46,000	-	-	-	-	46,000
Vehicles	13,000	-	-	-	-	13,000
Total	**323,000**	**86,000**	**17,000**	**25,000**	**128,000**	**195,000**

Table 47 Annual Available Funding for Tax Funded Assets

The average annual investment requirement for the above categories is approximately $323 thousand. Annual revenue currently allocated to these assets for capital purposes is approximately $128 thousand, leaving an annual deficit of about $195 thousand. Put differently, these infrastructure categories are currently funded at 39.6% of their long-term requirements.

13.3.2 Full Funding Requirements

In 2023, Matachewan Township had annual tax revenues of $1.39 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:

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[15] 5-year rolling average

Asset Category	Tax Change Required for Full Funding
Facilities	4.1%
Furniture & Fixtures	1.4%
Land Improvements	0.7%
Machinery & Equipment	3.2%
Road Network	0.7%
Storm Network	3.4%
Vehicles	1.0%
Total	**14.5**

Table 48 Tax Increase Requirements for Full Funding

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

	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	195,000	195,000	195,000	195,000
Change in Debt Costs	N/A	N/A	N/A	N/A
Resulting Infrastructure Deficit:	**195,000**	**195,000**	**195,000**	**195,000**
Tax Increase Required	14.6%	14.6%	14.6%	14.6%
Annually:	**2.9%**	**1.5%**	**1.0%**	**0.7%**

Table 49 Tax Increase Options 5-20 Years

13.3.3   Financial Strategy Recommendations

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

- increasing tax revenues by 0.7% each year for the next 20 years solely for the purpose of phasing in the proposed levels of service for asset categories covered in this section of the AMP
- adjusting tax revenue increases in future year(s) when allocations to capital expenditure exceed or fail to meet budgeted amounts
- allocating the current CCBF and OCIF revenue as outlined previously.
- reallocating appropriate revenue from categories in a surplus position to those in a deficit position, when applicable
- increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

- 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.[16]
- 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 within 20 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows a pent-up investment demand of $2.4 million, for tax funded assets.

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.

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[16] 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.

13.4 Financial Profile: Rate Funded Assets

13.4.1   Current Funding Position

The following tables show Matachewan Township's average annual asset investment requirements, current funding positions, and funding increases required to achieve its proposed condition (40) KPI over the next 10 years.

Asset Category	Avg. Annual Requirement	Annual Funding Available				Annual Deficit
		Rates	OCIF	To Operations	Total Available	
Water Network	131,000[17]	113,000	25,000	-113,000	25,000	106,000
Total	**131,000**	**113,000**	**25,000**	**-113,000**	**25,000**	**106,000**

Table 50 Annual Available Funding for Rate Funded Assets

The average annual investment requirement for the water network is $131 thousand. Annual revenue currently allocated to these assets for capital purposes is $25 thousand, leaving an annual deficit of $106 thousand. Put differently, the water network is currently funded at 19.1%.

13.4.2   Full Funding Requirements

In 2023, Matachewan's annual water revenue was $113,000. Without consideration of any other sources of revenue, to achieve the Township's proposed condition KPI of 40, would require the following changes:

Asset Category	Rate Change Required for proposed KPI
Water Network	93.8%

Table 51 Rate Increase Requirements to Achieve Proposed KPI

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

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[17] $131,000 represents the annual amount required for the Township to achieve its proposed condition KPI of 40. Refer to section 5.6.2

Water Network				
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	106,000	106,000	106,000	106,000
Rate Increase Required	93.8%	93.8%	93.8%	93.8%
Annually:	**18.8%**	**9.4%**	**6.3%**	**4.7%**

Table 52 Water Rate Increase Options 5-20 Years

13.4.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 20-year option for the water network. This involves achieving the Township's proposed condition KPI (40) over 20 years by:
- increasing rate revenues by 4.7% for water services each year for the next 20 years
- increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

- 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.
- 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.
- Any increase in rates required for operations would be in addition to the above recommendations.

Although this option achieves the Township's proposed condition KPI, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows the pent-up investment demand of $145 thousand in backlog, for the water network.

13.5 Use of Debt

The Township has no debt on assets included in this AMP. The revenue options outlined in this plan allow Matachewan to fully fund (tax-funded assets) and achieve its proposed condition KPI (rate funded assets) without the use of debt.

13.6 Use of Reserves

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

By asset category, the table below outlines the details of the reserves currently available to Matachewan.

Asset Category	Reserve Balances
Facilities	303,000
Furniture & Fixtures	279,000
Land Improvements	714,000
Machinery & Equipment	337,000
Road Network	635,000
Storm Network	279,000
Vehicles	337,000
Total Tax Funded:	**2,884,000**
Water Network	185,000
Total Rate Funded:	**185,000**

Table 53: Reserve Balances

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

- age and condition of infrastructure
- use and level of debt
- economic conditions and outlook
- internal reserve and debt policies

These reserves are available for use by applicable asset categories during the phase-in period to full funding. If required, available reserves and debt capacity can be used for high priority and emergency infrastructure investments in the short- to medium-term.

Appendices

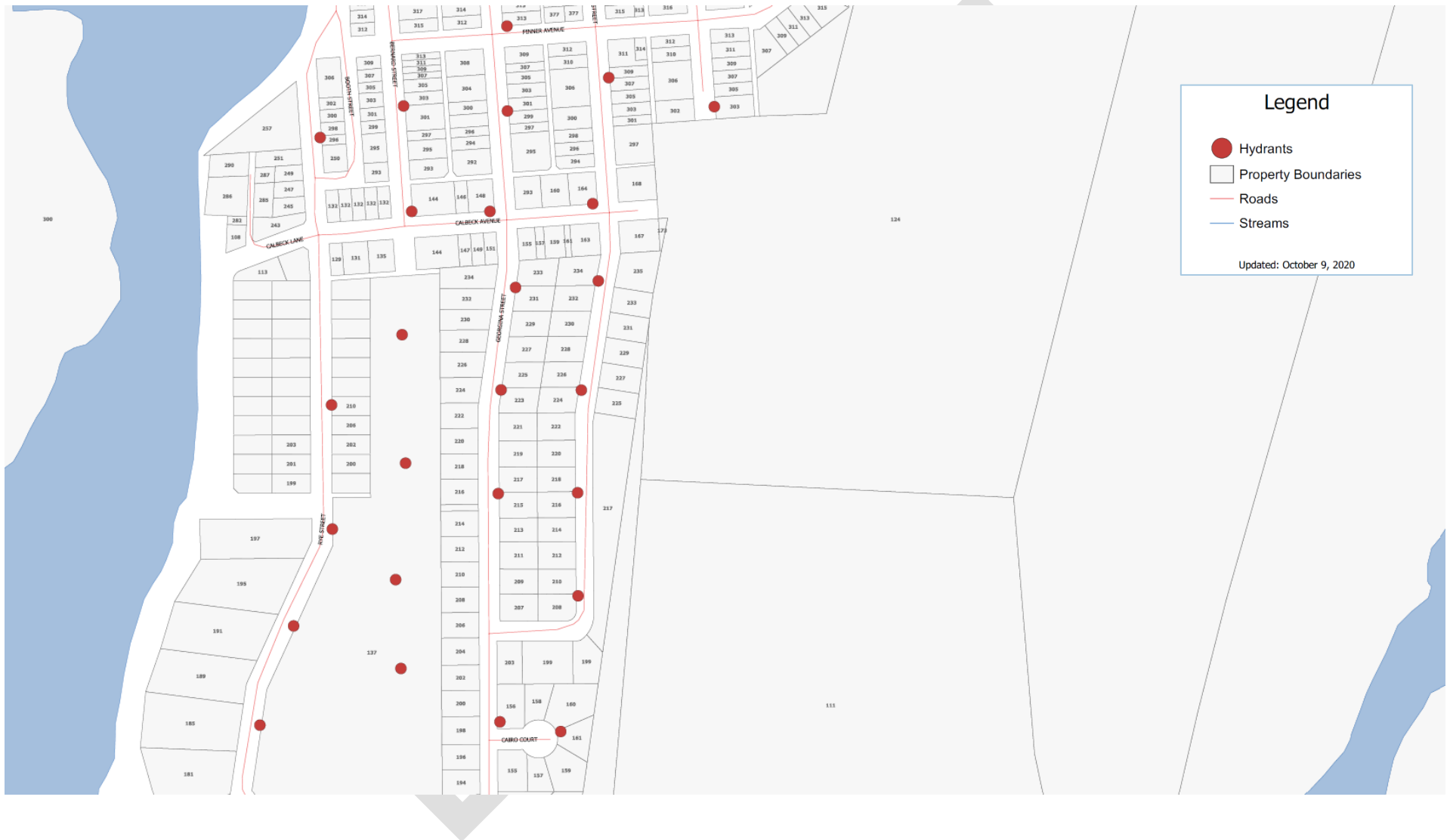Appendix A – Infrastructure Report Card

Appendix B – Level of Service Maps

Appendix A – Infrastructure Report Card

Asset Category	Replacement Cost	Average Condition	Financial Capacity	
Road Network	$ 4.0m	Good	Annual Requirement:	$88,000
			Funding Available:	$79,000
			Annual Surplus:	**$9,000**
Water Network	$ 12.1m	Good	Annual Requirement:	$131,000
			Funding Available:	$25,000
			Annual Deficit:	**$106,000**
Storm Network	$ 3.5m	Poor	Annual Requirement:	$46,000
			Funding Available:	$0
			Annual Deficit:	**$46,000**
Facilities	$ 3.6m	Fair	Annual Requirement:	$81,000
			Funding Available:	$26,000
			Annual Deficit:	**$55,000**
Vehicles	$ 161k	Fair	Annual Requirement:	$13,000
			Funding Available:	$0
			Annual Deficit:	**$13,000**
Machinery & Equipment	$ 578k	Good	Annual Requirement:	$43,000
			Funding Available:	$0
			Annual Surplus:	**$43,000**
Land Improvements	$ 679k	Very Good	Annual Requirement:	$33,000
			Funding Available:	$23,000
			Annual Deficit:	**$10,000**
Furniture & Fixtures	$ 192k	Good	Annual Requirement:	$19,000
			Funding Available:	$0
			Annual Deficit:	**$19,000**

Appendix B – Level of Service Maps & Photos

Road & Fire Flow Connectivity Map – Part 1

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Road & Fire Flow Connectivity Map – Part 2

Road & Fire Flow Connectivity Map – Part 3

Legend

● Hydrants
▢ Property Boundaries
— Roads
— Streams

Updated: October 9, 2020