Asset Management Plan

Township of Tehkummah

2023

This Asset Management Program was prepared by:

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

Key Statistics

Replacement cost of asset portfolio

$196.8 million

Replacement cost of infrastructure per household

$534,711 (2021)

Percentage of assets in fair or better condition

82%

Percentage of assets with assessed condition data

-

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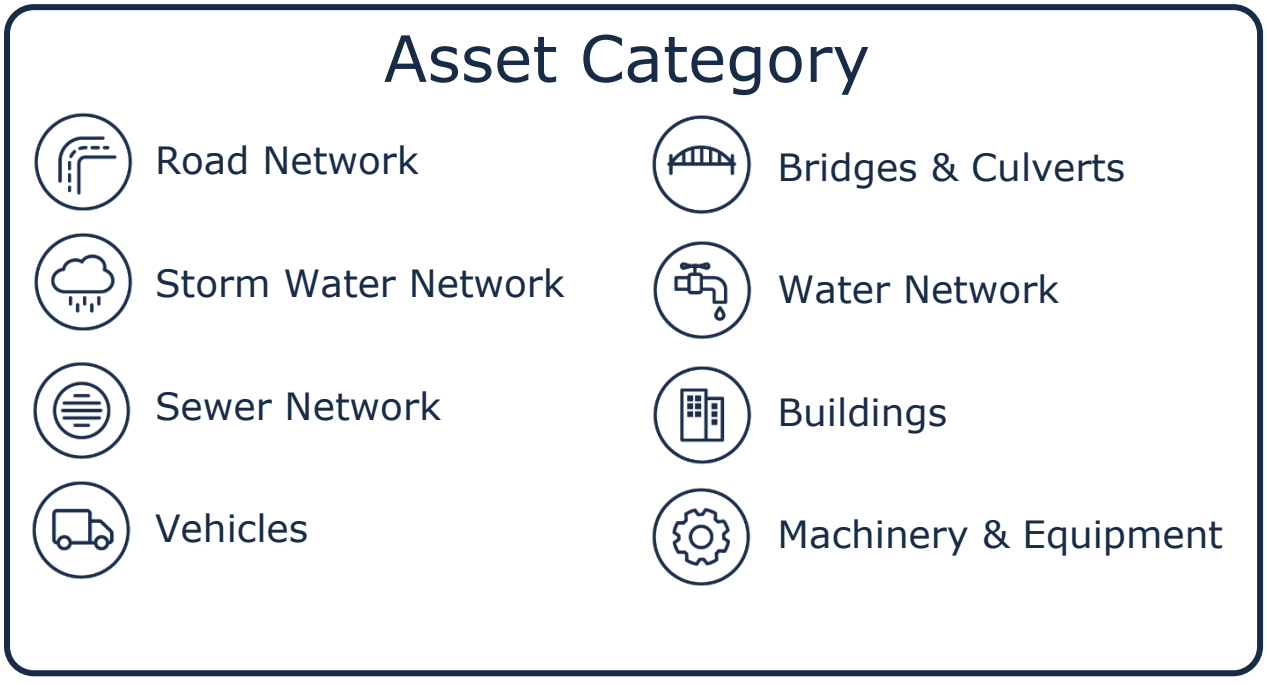
Executive Summary

Municipal infrastructure provides the foundation for the economic, social, and environmental health and growth of a community through the delivery of critical services. The goal of asset management is to deliver an adequate level of service in the most cost-effective manner. This involves the development and implementation of asset management strategies and long-term financial planning.

Scope

This AMP identifies the current practices and strategies that are in place to manage public infrastructure and makes recommendations where they can be further refined. Through the implementation of sound asset management strategies, the Township can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP include the following asset categories:



With the development of this AMP the Town has achieved compliance with O. Reg. 588/17 to the extent of the requirements that must be completed by July 1, 2022. There are additional requirements concerning proposed levels of service and growth that must be met by July 1, 2024 and 2025.

Findings

The overall replacement cost of the asset categories included in this AMP totals $196.8 million. Based on asset age, 82% of all assets analysed in this AMP are in fair or better condition and as assessed condition data was unavailable – 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 future infrastructure backlogs, and achieve long-term sustainability, the Township's average annual capital requirement totals $3.7 million.

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

Recommendations

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

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

1 Introduction & Context

Key Insights

- The Township of Tehkummah is a single-tier municipality located on the southern portion of Manitoulin Island within the District of Manitoulin, Ontario
- The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value ratepayers receive from the asset portfolio
- The Township's asset management policy provides clear direction to staff on their roles and responsibilities regarding asset management
- An asset management plan is a living document that should be updated regularly to inform long-term planning
- Ontario Regulation 588/17 outlines several key milestone and requirements for asset management plans in Ontario between July 1, 2022 and 2025

1.1 Tehkummah Community Profile

Census Characteristic	Township of Tehkummah	Ontario
Population 2021	450	14,223,942
Population Change 2016-2021	3.2	5.8
Total Private Dwellings	368	5,929,250
Population Density	3.4/km^2	15.9/km^2
Land Area	131.70 km^2	892,411.76 km^2

The Township of Tehkummah is a single-tier municipality located on the southern portion of Manitoulin Island within the District of Manitoulin, Ontario. Established in 1881, the Township encompasses an area of approximately 132 km² and had a recorded population of 450 residents in the 2021 Census. This results in a low population density of roughly 3.4 persons per square kilometre, reflecting its predominantly rural character.

The Township includes several small communities, with South Baymouth serving as a key settlement. South Baymouth is the northern ferry terminal for the MS Chi-Cheemaun, which connects Manitoulin Island to the Bruce Peninsula, making it an important transportation link for both residents and visitors. The community of Tehkummah hosts the municipal office, community hall, and public library, serving as the administrative centre. The Township also contains the former mill town of Michael's Bay and the historic site of Snowville, which today are largely unpopulated but remain part of its geographic footprint.

Demographically, Tehkummah has an aging population, with a significant proportion of residents over the age of 55. Median household incomes are below provincial averages, though housing costs are comparatively lower, contributing to long-term affordability. These demographic and economic characteristics influence demand for municipal services and the long-term sustainability of infrastructure investments.

The Township's economy is supported by seasonal tourism, agriculture, and small-scale service activities. Tourism is concentrated in South Baymouth during the ferry operating season, which increases temporary demand on roads, water, and emergency services. Agricultural activity and rural residential uses are more dispersed throughout the Township.

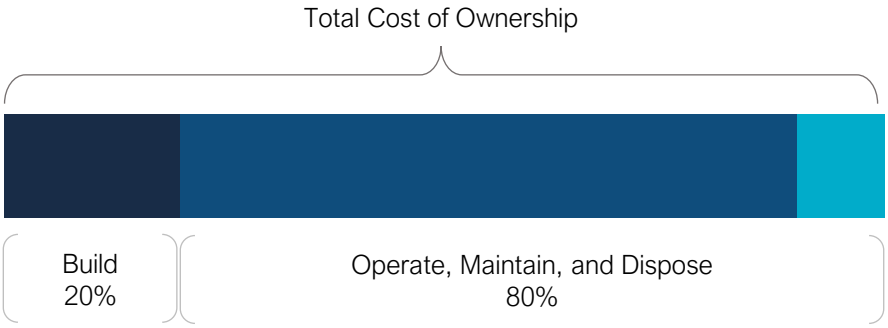
Municipal services are limited, with residents relying on nearby communities for higher-order healthcare, education, and commercial amenities. The Township maintains core infrastructure such as roads, bridges, culverts, water systems, and community facilities. A volunteer fire department provides local emergency response, supported by regional partnerships when required.

Tehkummah's natural environment also plays an important role in shaping infrastructure needs. The Township is traversed by the Manitou River and Blue Jay Creek, both of which have been the focus of rehabilitation efforts to maintain ecological health. Rural roads, culverts, and drainage infrastructure are particularly important in this context, as they support both daily transportation needs and environmental stewardship.

1.2 An Overview of Asset Management

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

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



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.

1.2.1 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 Township staff on their roles and responsibilities as part of the asset management program.

The Township adopted its Strategic Asset Management Policy in 2019 in accordance with Ontario Regulation 588/17. The objectives of the policy include:

- Prioritizing the need for existing and future assets to effectively deliver services
- Supporting sustainability and economic development
- Maintaining prudent financial planning and decision making

1.2.2 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 Strategic 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.

1.2.3 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.

1.3 Key Concepts in Asset Management

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

1.3.1 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 Township 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.

Lifecycle Activity	Description	Example (Roads)	Cost
Maintenance	Activities that prevent defects or deteriorations from occurring	Crack Seal	$
Rehabilitation/ Renewal	Activities that rectify defects or deficiencies that are already present and may be affecting asset performance	Mill & Re-surface	$$
Replacement/ Reconstruction	Asset end-of-life activities that often involve the complete replacement of assets	Full Reconstruction	$$$

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.

The Township's approach to lifecycle management is described within each asset category outlined in this AMP. Developing and implementing a proactive lifecycle strategy will help staff 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.

1.3.2 Risk Management Strategies

Municipalities generally take a 'worst-first' approach to infrastructure spending. Rather than prioritizing assets based on their importance to service delivery, assets in the worst condition are fixed first, regardless of their criticality. However, not all assets are created equal. Some are more important than others, and their failure or disrepair poses more risk to the community than that of others. For example, a road with a high volume of traffic that provides access to critical services poses a higher risk than a low volume rural road. These high-value assets should receive funding before others.

By identifying the various impacts of asset failure and the likelihood that it will fail, risk management strategies can identify critical assets, and determine where maintenance efforts, and spending, should be focused.

This AMP includes a high-level 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.

1.3.3 Levels of Service

A level of service (LOS) is a measure of what the Township is providing to the community and the nature and quality of that service. 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.

These measures include a combination of those that have been outlined in O. Reg. 588/17 in addition to performance measures identified by the Township as worth measuring and evaluating. The Township measures the level of service provided at two levels: Community Levels of Service, and Technical Levels of Service.

Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories (roads, bridges and culverts, water, wastewater, storm water) the Province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP. For non-core asset categories, the Township has determined the qualitative descriptions that will be used to determine the community level of service provided. These descriptions can be found in the Levels of Service subsection within each asset category.

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 (roads, bridges and culverts, water, wastewater, storm water) the Province, through O. Reg. 588/17, has provided technical metrics that are required to be included in this AMP. For non-core asset categories, the Township has determined the technical metrics that will be used to determine the technical level of service provided. These metrics can be found in the Levels of Service subsection within each asset category.

Current and Proposed Levels of Service

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

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

1.4 Ontario Regulation 588/17

As part of the *Infrastructure for Jobs and Prosperity Act, 2015*, the Ontario government introduced Regulation 588/17 - Asset Management Planning for Municipal Infrastructure (O. Reg 588/17). 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.

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

2019

Strategic Asset Management Policy

2022

Asset Management Plan for Core Assets with the following components:

1. Current levels of service
2. Inventory analysis
3. Lifecycle activities to sustain LOS
4. Cost of lifecycle activities
5. Population and employment forecasts
6. Discussion of growth impacts

2024

Asset Management Plan for Core and Non-Core Assets (same components as 2022) and Asset Management Policy Update

2025

Asset Management Plan for All Assets with the following additional components:

1. Proposed levels of service for next 10 years
2. Updated inventory analysis
3. Lifecycle management strategy
4. Financial strategy and addressing shortfalls
5. Discussion of how growth assumptions impacted lifecycle and financial

1.4.1 O. Reg. 588/17 Compliance Review

The following table identifies the requirements outlined in Ontario Regulation 588/17 for municipalities to meet by July 1, 2022. Next to each requirement a page or section reference is included in addition to any necessary commentary.

Requirement	O. Reg. Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	4.1.1 - 5.1.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1.1 - 5.1.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.1.3 - 5.1.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.1.2 – 5.1.2	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.1.2 – 5.1.2	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	4.1.5 - 5.1.5	Complete for Core Assets Only
Current performance measures in each category	S.5(2), 2	4.1.5 - 5.1.5	Complete for Core Assets Only
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.1.3 - 5.1.3	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	Appendix B	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	6.1 - 6.2	Complete

2 Scope and Methodology

Key Insights

- This asset management plan is divided between tax-funded and rate-funded categories
- The source and recency of replacement costs impacts the accuracy and reliability of asset portfolio valuation
- 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

2.1 Asset Categories Included in this AMP

This asset management plan for the Township of Tehkummah is produced in compliance with Ontario Regulation 588/17. The July 2022 deadline under the regulation—the first of three AMPs—requires analysis of only core assets (roads, bridges and culverts, water, wastewater, and storm water).

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

Asset Category	Source of Funding
Road Network	Tax Levy
Bridges & Culverts	
Storm Water Network	
Buildings	
Vehicles	
Machinery & Equipment	
Sewer & Water Network	User Rates

2.2 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/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 cost of the asset is inflated based on Consumer Price Index or Non-Residential Building Construction Price Index

User-defined costs based on reliable sources are a reasonably accurate and reliable way to determine asset replacement costs. Cost inflation is typically used in the absence of reliable replacement cost data. It is a reliable method for recently

purchased and/or constructed assets where the total cost is reflective of the actual costs that the Township incurred. As assets age, and new products and technologies become available, cost inflation becomes a less reliable method.

2.3 Estimated Useful Life and 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:

$$Service\ Life\ Remaining\ (SLR) = In\ Service\ Date + Estimated\ Useful\ Life(EUL) - Current\ Year$$

2.4 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:

$$Target\ Reinvestment\ Rate = \frac{Annual\ Capital\ Requirement}{Total\ Replacement\ Cost}$$

$$Actual\ Reinvestment\ Rate = \frac{Annual\ Capital\ Funding}{Total\ Replacement\ Cost}$$

2.5 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

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. Appendix E includes additional information on the role of asset condition data and provides basic guidelines for the development of a condition assessment program.

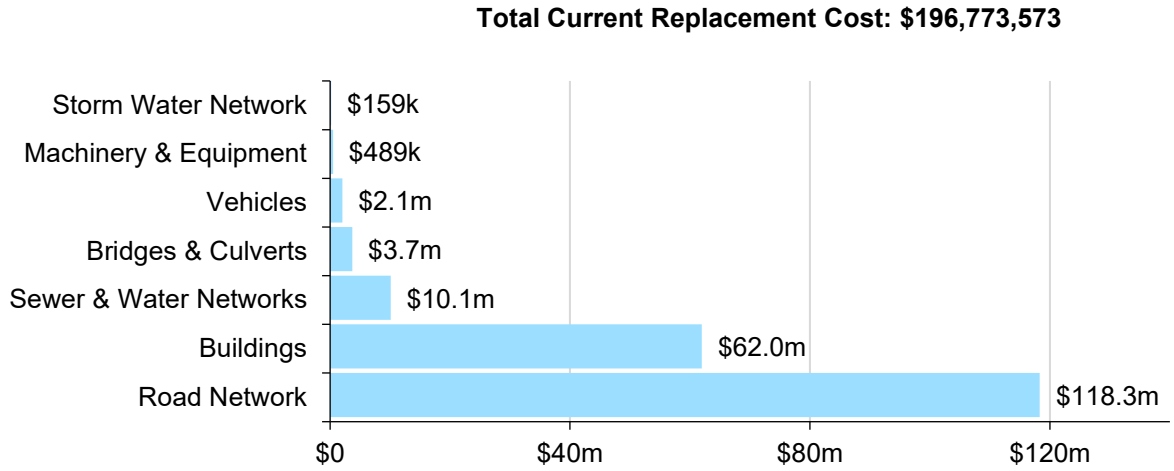
3 Portfolio Overview

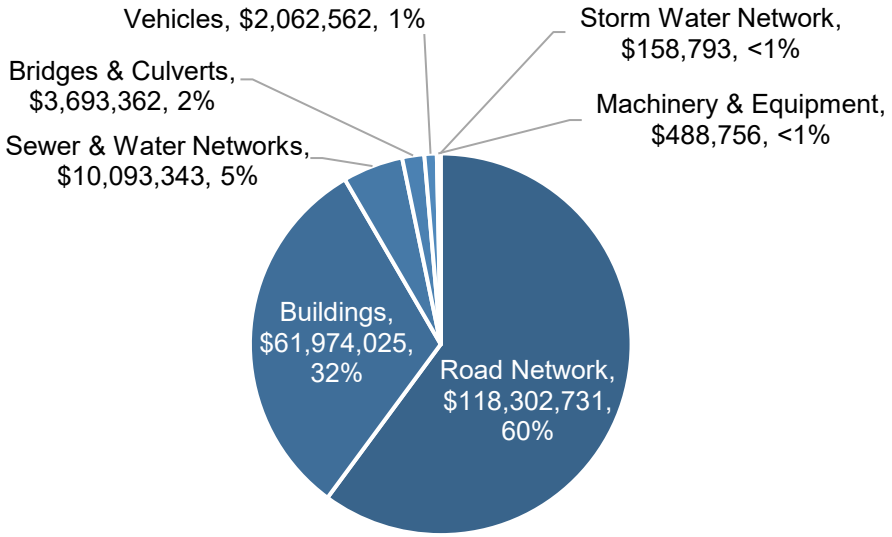
Key Insights

- The total replacement cost of the Township's asset portfolio is $196.8 million
- 82% of all assets are in fair or better condition
- Average annual capital requirements total $3.7 million per year across all assets

3.1 Total Replacement Cost of Asset Portfolio

The asset categories analyzed in this AMP have a total replacement cost of $196.8 million based on inventory data from 2021. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.





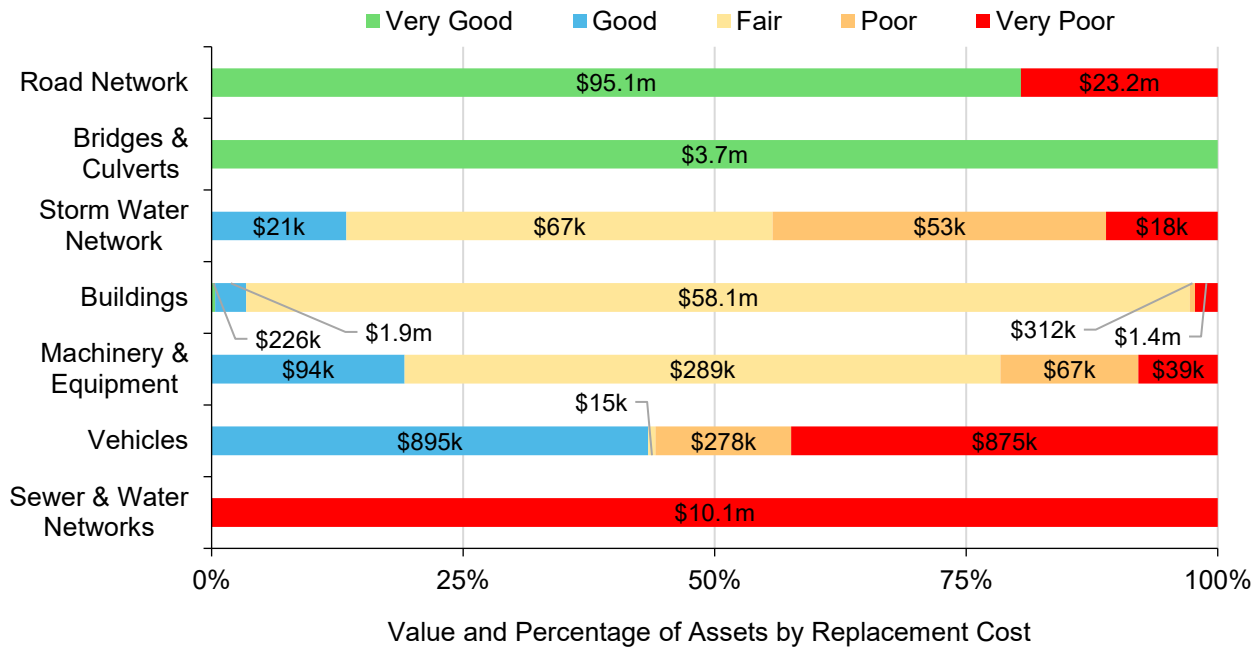
The following table identifies the methods employed to determine replacement costs across each asset category:

Asset Category	Notes
Road Network	CPI inflation of 2016 AMP replacement cost values
Bridges & Culverts	CPI inflation of 2016 AMP replacement cost values
Storm Water Network	CPI inflation of historical data
Buildings	CPI inflation of 2016 AMP replacement cost values
Vehicles	CPI inflation of 2016 AMP replacement cost values
Machinery & Equipment	CPI inflation of historical data
Sewer & Water Networks	CPI inflation of historical data

3.2 Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 82% of assets in Tehkummah are in fair or better condition. This estimate relies solely on age-based condition data.

While age can be 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.

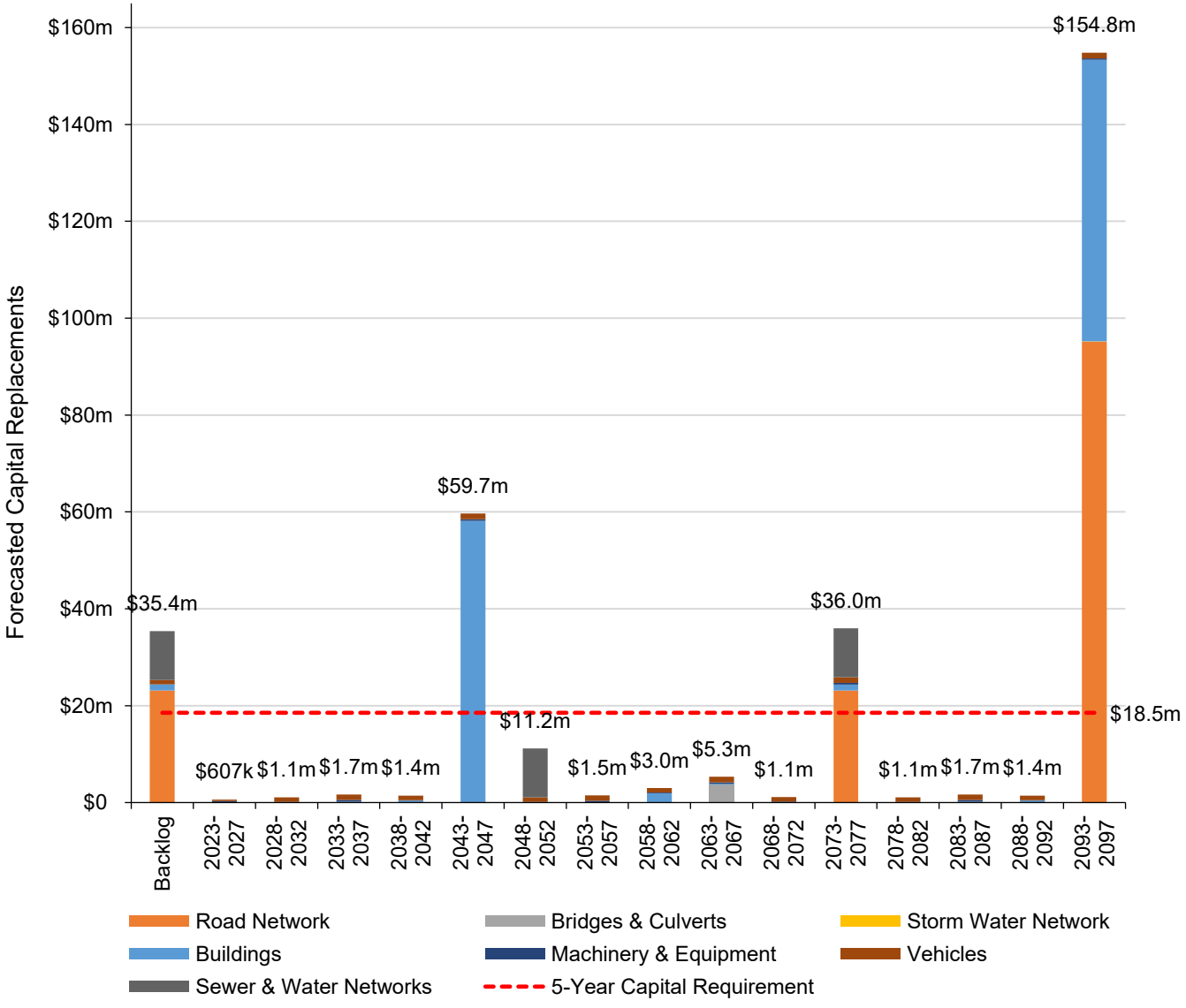


3.3 Service Life Remaining

Capital requirements over the next 10 years are identified in Appendix B.

3.4 Forecasted Capital Requirements

The development of a long-term capital forecast should include both asset rehabilitation and replacement requirements. With the development of asset-specific lifecycle strategies that include the timing and cost of future capital events, the Township can produce an accurate long-term capital forecast. The following graph identifies capital requirements over the next 75 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.



4 Analysis of Tax-funded Assets

Key Insights

- Tax-funded assets are valued at $186.7 million
- 86% of tax-funded assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for tax-funded assets is approximately $3.3 million
- Critical assets should be evaluated to determine appropriate risk mitigation activities and treatment options

4.1 Road Network

The road network is a critical component of the provision of safe and efficient transportation services and represents the highest value asset category in the Township's asset portfolio.

4.1.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Township's road network inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Surfaces	76 km	$118,303,000	$1,732,000
Total		**$118,303,000**	**$1,732,000**

Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

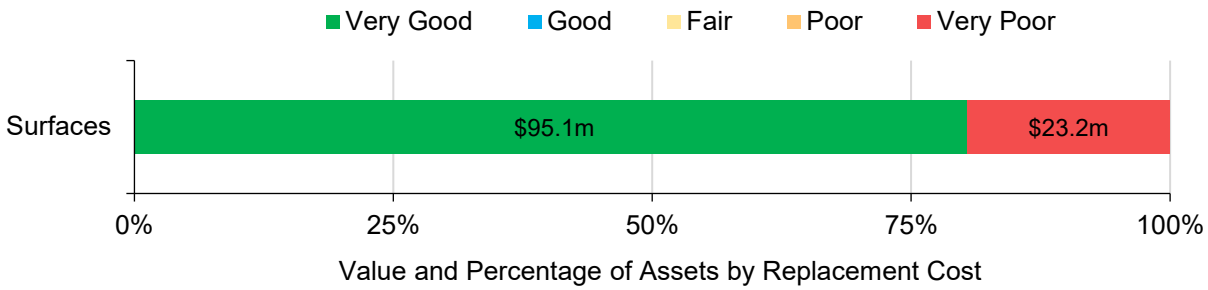
4.1.2 Asset Condition & Age

The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Age data is currently unavailable. Compiling age data from records may be a consideration for the next iteration of the AMP.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Surfaces	50	TBD	78% (Good)
Average		**TBD**	**78% (Good)**

The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale.



To ensure that the Township's road network continues to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation, and replacement activities is required to increase the overall condition of the roads.

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

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 vital for transportation and economic activity and are assessed informally throughout the daily activity of Township staff. Any issues identified during these daily assessments are documented for attention.
- Regular maintenance, like resurfacing and patching, can extend road life and reduce costs. Integrated planning can ensure that underground utilities are repaired at the same time as roadwork, minimizing disruption and making efficient use of resources.

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

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

4.1.3 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. The life expectancy of paved roadways is influenced by the design and quality of materials, construction practices, traffic volumes, and local environmental conditions. Typically, surface-treated roads have a lifespan of about 10 years. Gravel and earth roads typically have a lifespan of 60 to 75 years, provided they are regularly maintained. Maintenance activities like grading, ditching, and adding gravel are essential to preserve road quality.

Surface treated road projects or gravel road upgrades often present opportunities to coordinate the renewal or replacement of underground utilities such as water and sewer lines, storm drains, and utility conduits (hydro, gas, and telecommunications). This integrated approach minimizes future disruptions and maximizes cost efficiency.

The condition of paved roads can be assessed using the Pavement Condition Index (PCI), a scale from 0 (impassable) to 10 (excellent). Roads with a PCI of 5 typically require resurfacing, while those rated between 3 and 5 may need rehabilitation. Roads rated below 3 generally require full reconstruction. The Gravel Condition Index (GCI), rated from 0 to 100, can be used to assess road conditions. Roads with a GCI of 5 or below may require rehabilitation or reconstruction to restore acceptable service levels.

The Township should consider implementing a formalized assessment program which could then be used in conjunction with the following rehabilitation and replacement strategies.

The Township could employ a variety of strategies based on road classification, condition, and cost-effectiveness:

- Full pavement reconstruction with 80mm–120mm of hot mix asphalt (HMA)
- Milling and resurfacing with 50mm–75mm of HMA
- Surface treatment and crack sealing to extend life
- Pulverizing deteriorated pavement and resurfacing
- Spot repairs for localized defects

For gravel roads, options include replacing the upper gravel layer (50mm–100mm) or full reconstruction of the granular base and surface, depending on the severity of deterioration.

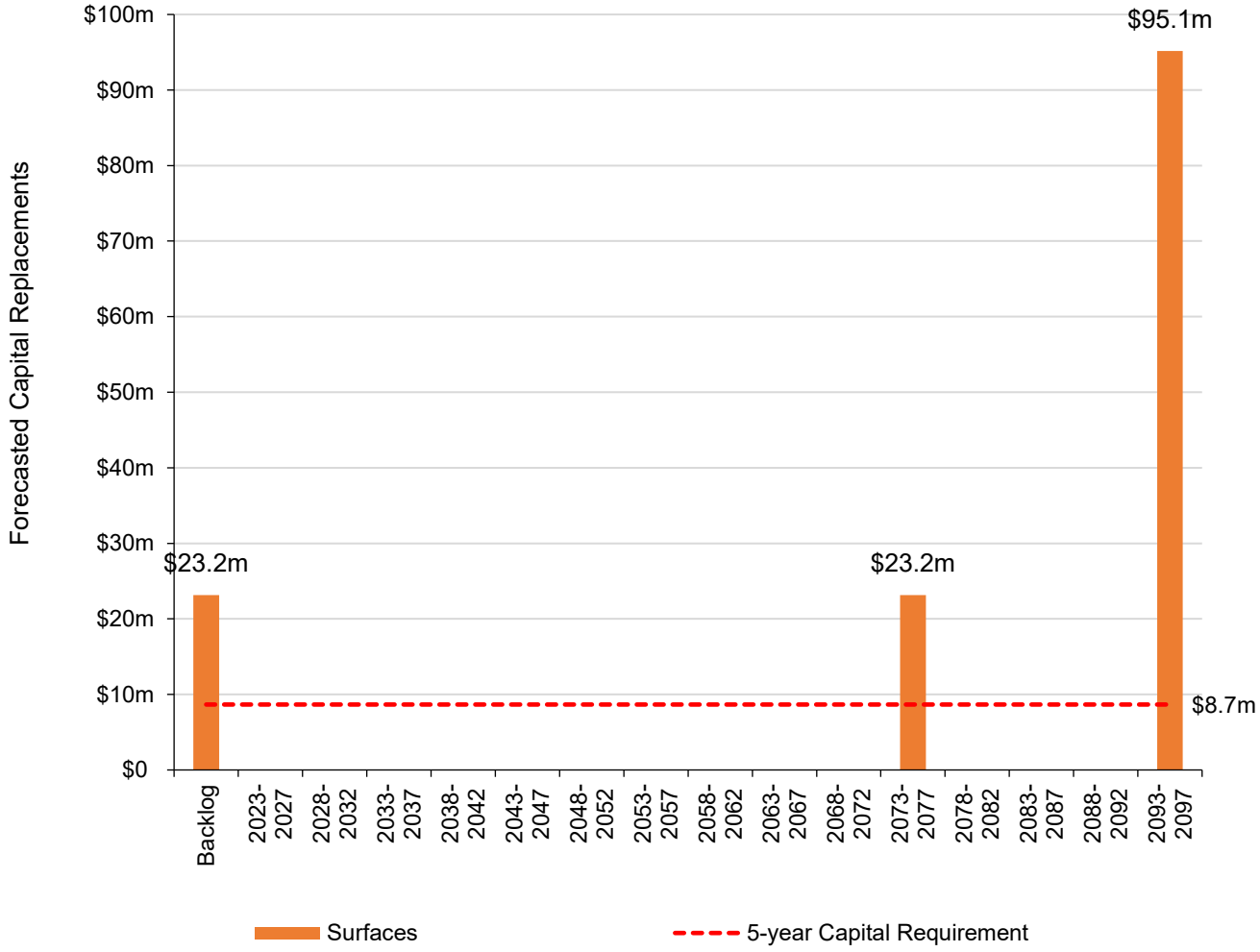
Delays in pavement rehabilitation can accelerate deterioration, leading to higher long-term repair costs and reduced service levels, increasing risks to road users and potential liability for the Township. Failure to maintain gravel roads can lead to

rapid degradation, higher maintenance costs, and a drop in service quality, increasing the risk of unsafe driving conditions.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 75 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.

It should be noted that data confidence in the current inventory is low and should be a primary focus for the next iteration of the Township's AMP.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

4.1.4 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2021 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

This is a high-level model developed for the purposes of this AMP and Township staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

The asset-specific attributes that Township staff utilize to define and prioritize the criticality of the road network are documented below:

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)

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

4.1.5 Levels of Service

The following tables identify the Township's current level of service for the road network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Township has selected for this AMP.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the road network.

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	See Appendix C
Quality	Description or images that illustrate the different levels of road class pavement condition	The condition of paved roads can be assessed using the Pavement Condition Index (PCI), a scale from 0 (impassable) to 10 (excellent). Roads with a PCI of 5 typically require resurfacing, while those rated between 3 and 5 may need rehabilitation. Roads rated below 3 generally require full reconstruction. The Gravel Condition Index (GCI), rated from 0 to 100, can be used to assess road conditions. Roads with a GCI of 5 or below may require rehabilitation or reconstruction to restore acceptable service levels.

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the road network.

Service Attribute	Technical Metric	Current LOS (2021)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km^2)	TBD
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km^2)	TBD
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)	TBD
Quality	Average pavement condition index for paved roads in the municipality	TBD
	Average surface condition for unpaved roads in the municipality (e.g. excellent, good, fair, poor)	TBD
Performance	Capital reinvestment rate	1.87%

Currently, the Township's inventory does not differentiate between surface types. This means the average condition of 78% is for all road surface assets.

4.1.6 Recommendations

Asset Inventory

- Review the inventory to determine whether all Township road network assets have been accounted for.
- Work towards documenting road surface types and gathering updated replacement costs from any recent projects or tenders.

Condition Assessment Strategies

- Consider completing a comprehensive condition assessment of all roads within the next 1-2 years.

Lifecycle Management Strategies

- Implement the identified lifecycle management strategies where possible to realize potential cost avoidance and maintain a high quality of road condition.
- Evaluate the efficacy of the Township's lifecycle management strategies at regular intervals to determine the impact cost, condition and risk.

Risk Management Strategies

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

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17 and those metrics that the Township believes to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

4.2 Bridges & Culverts

Bridges and culverts represent a critical portion of the transportation services provided to the community.

4.2.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Township's bridges and culverts inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Bridges	1	$3,693,000	$74,000
Total		**$3,693,000**	**$74,000**

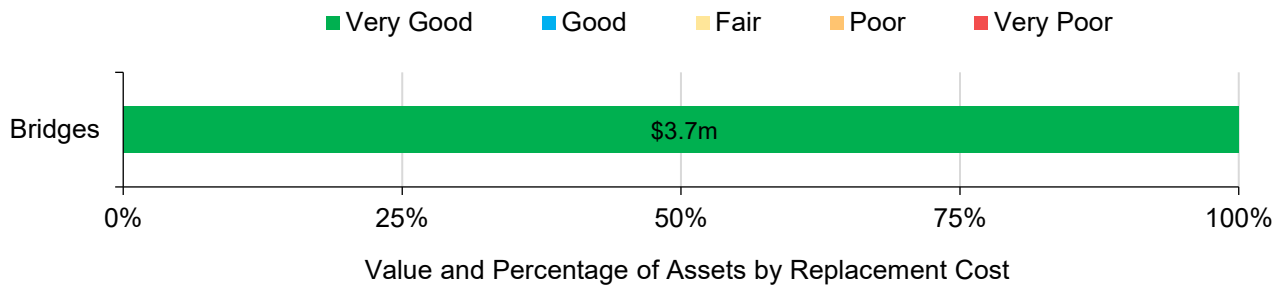
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

4.2.2 Asset Condition & Age

The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Bridges	50	9	86% (Very Good)
Average		**9**	**86% (Very Good)**

The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale.



To ensure that the Township's Bridges & Culverts continue to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation, and replacement activities is required to increase the overall condition of the bridges and culverts.

Each asset's Estimated Useful Life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

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:

- Bi-annual visual inspections are conducted, and if necessary, detailed bridge condition surveys are performed to more accurately assess the conditions
- Bridge components are individually assessed to document the severity, degree of deterioration, and overall condition

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

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

4.2.3 Lifecycle Management Strategy

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.

Bridges and culverts have life spans of 40 to 75 years, depending on construction materials and environmental exposure. Newer concrete structures generally last up to 75 years, while older or steel structures may have shorter service lives. These

assets are typically rehabilitated independently but may be coordinated with roadwork, such as widening or resurfacing projects, to enhance cost-effectiveness.

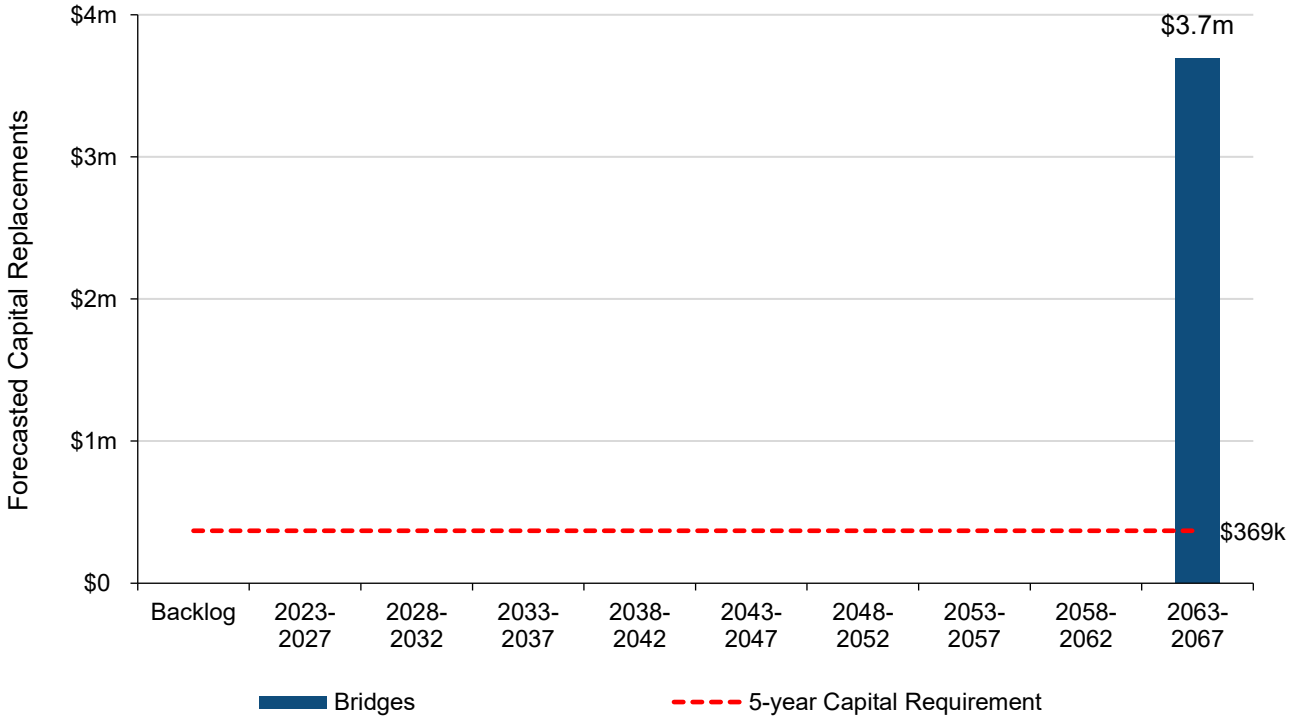
Bridge assessments focus on safety, service level, and structural condition, with visual inspections conducted every two years. Each bridge receives a Bridge Condition Index (BCI) score to determine priority.

Standard strategies that could be implemented include resurfacing asphalt decks around 15 years of age, patching and waterproofing decks at 30 years, and full deck replacement at 50 years, depending on inspection results. Failure to maintain bridges and culverts can compromise public safety and reduce service levels, potentially resulting in costly emergency repairs.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 45 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.

It should be noted that data confidence in the current inventory is low and should be a primary focus for the next iteration of the Township's AMP.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

4.2.4 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2021 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

This is a high-level model developed for the purposes of this AMP and Township staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

The asset-specific attributes that Township staff utilize to define and prioritize the criticality of bridges and culverts are documented below:

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)

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

4.2.5 Levels of Service

The following tables identify the Township's current level of service for bridges and culverts. These metrics include the technical and community level of service metrics

that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Township has selected for this AMP.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by bridges and culverts.

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	TBD
Quality	Description or images of the condition of bridges and culverts and how this would affect use of the bridges and culverts	The bridge is currently in very good condition which will not negatively impact its use

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by bridges and culverts.

Service Attribute	Technical Metric	Current LOS (2021)
Scope	% of bridges in the Township with loading or dimensional restrictions	TBD
Quality	Average bridge condition index value for bridges in the Township	86%
	Average bridge condition index value for structural culverts in the Township	N/A

4.2.6 Recommendations

Data Review/Validation

- Continue to review and validate inventory data, assessed condition data and replacement costs for all bridges and structural culverts upon the completion of OSIM inspections every 2 years.

Risk Management Strategies

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

Lifecycle Management Strategies

- This AMP only includes capital costs associated with the reconstruction of bridges and culverts. The Township should work towards identifying projected capital rehabilitation and renewal costs for bridges and culverts and integrating these costs into long-term planning. Consider implementing the life cycle strategies outlined within this AMP.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17 and those metrics that the Township believe to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

4.3 Storm Water Network

4.3.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Township's storm water network inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Drains	26 km	$159,000	$3,000
Total		**$159,000**	**$3,000**

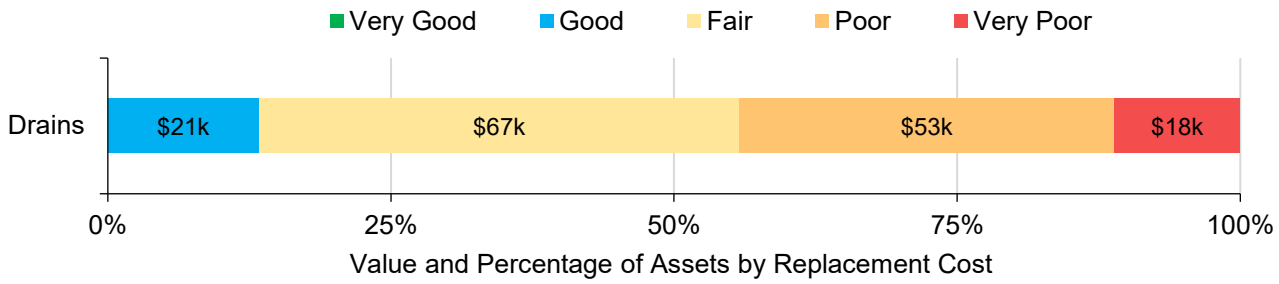
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

4.3.2 Asset Condition & Age

The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Drains	50	30.5	41% (Fair)
Average		**30.5**	**41% (Fair)**

The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale.



To ensure that the Township's storm water network continues to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle

management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the storm water network.

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

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:

- Municipal drains are reviewed based on useful life and visual inspections, with adjustments made as new data becomes available.

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

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

4.3.3 Lifecycle Management Strategy

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.

Stormwater infrastructure, including manholes and trunk sewers, can generally have a service life of 30 to 100 years. With proper maintenance, stormwater ponds and treatment structures can extend their operational lifespan to 75 years, ensuring effective stormwater management. Stormwater upgrades should be aligned with roadwork and other utility replacements (such as water, wastewater, hydro, and telecommunications) to optimize project costs and minimize disruption.

Condition assessments should involve CCTV inspections to identify deterioration, blockages, or structural issues. Climate change impacts, such as more frequent and

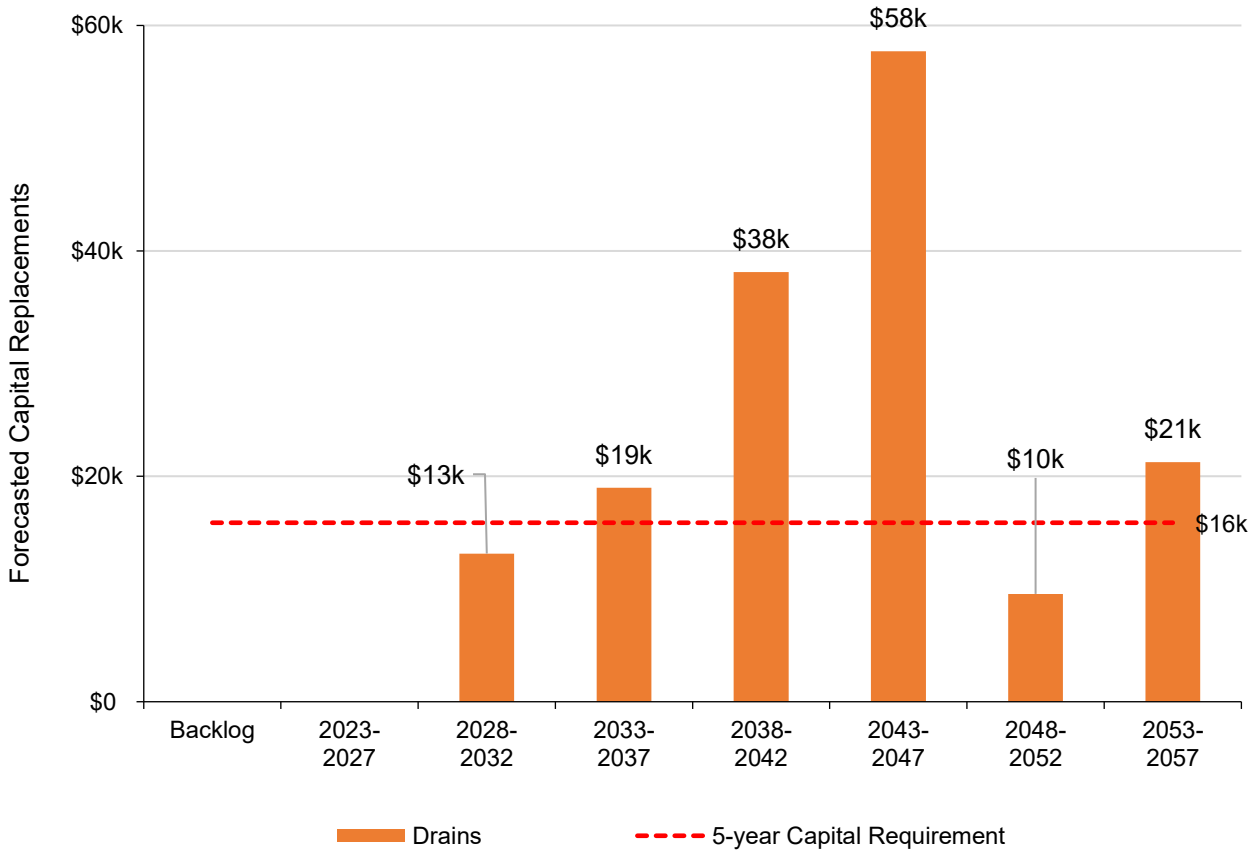
intense storms, should also be increasingly factored into planning. Assessments are recommended every 20 years or as needed when failures occur.

The current strategy is reactive replacement deteriorated or collapsed pipes, although minor repairs may also be feasible depending on inspection results. While stormwater failures are typically less disruptive than sanitary sewer failures, they can still lead to flooding, property damage, and reduced flow capacity. Ongoing maintenance is vital to preserve system performance.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 35 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.

It should be noted that data confidence in the current inventory is low and should be a primary focus for the next iteration of the Township's AMP.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

4.3.4 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2021 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

This is a high-level model developed for the purposes of this AMP and Township staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

The asset-specific attributes that Township staff utilize to define and prioritize the criticality of the storm water network are documented below:

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)

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

4.3.5 Levels of Service

The following tables identify the Township's current level of service for the storm water network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Township has selected for this AMP.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the storm water network.

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description, which may include map, of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal storm water system	TBD

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the storm water network.

Service Attribute	Technical Metric	Current LOS (2021)
Scope	% of properties in municipality resilient to a 100-year storm	TBD[1]
	% of the municipal storm water management system resilient to a 5-year storm	TBD%[1]

[1] 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.

4.3.6 Recommendations

Asset Inventory

- The Township's storm water network inventory remains at a basic level of maturity and staff do not have a high level of confidence in its accuracy or reliability. The development of a comprehensive inventory of the storm water network should be priority.

Condition Assessment Strategies

- The development of a comprehensive inventory should be accompanied by a system-wide assessment of the condition of all assets in the storm water network through CCTV inspections.

Risk Management Strategies

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

Lifecycle Management Strategies

- Document and review lifecycle management strategies for the storm water network on a regular basis to achieve the lowest total cost of ownership while maintaining adequate service levels.

Levels of Service

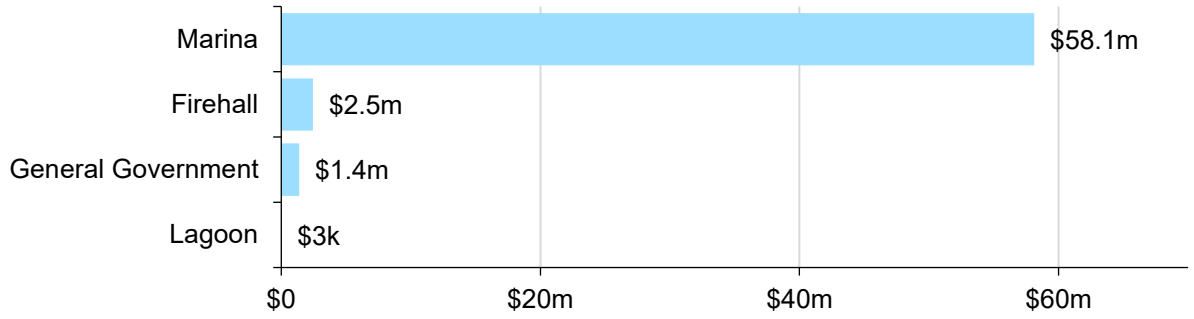
- Continue to measure current levels of service in accordance with the metrics that the Township has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

4.4 Buildings

4.4.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Township's buildings inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Firehall	2 assets	$2,456,000	$49,000
General Government	5 assets	$1,396,000	$28,000
Lagoon	1 asset	$3,000	$56
Marina	1 asset	$58,120,000	$1,162,000
Total		**$61,974,000**	**$1,239,000**



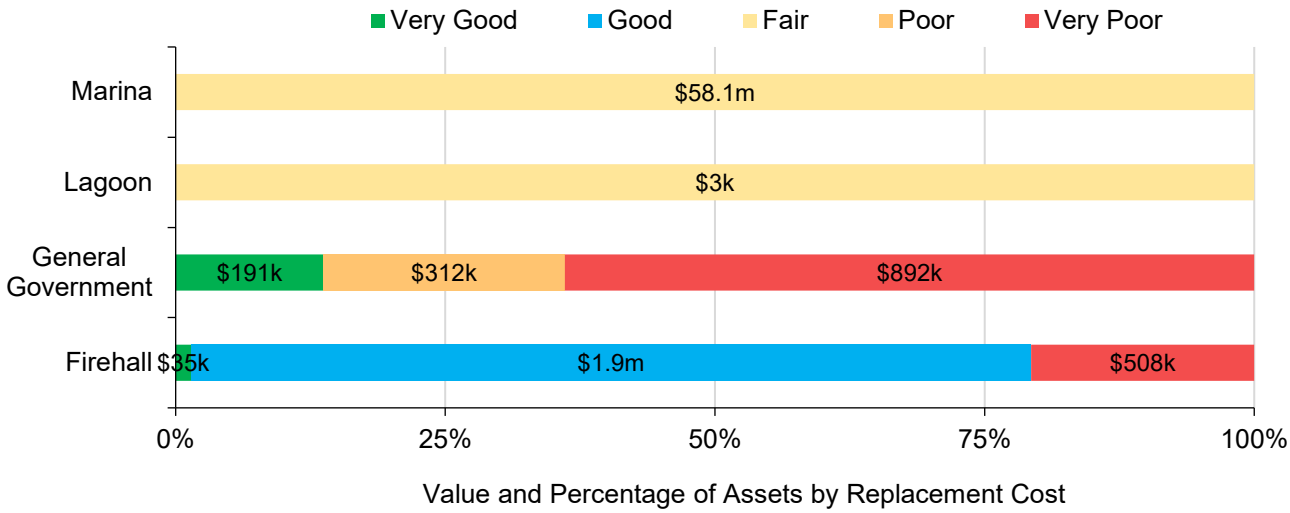
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

4.4.2 Asset Condition & Age

The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Firehall	50	25.5	61% (Good)
General Government	50	19.6	22% (Poor)
Lagoon	50	28	44% (Fair)
Marina	50	26	48% (Fair)
Average		**21.5**	**47% (Fair)**

The graph below visually illustrates the average condition for each asset segment on a very good to very poor.



To ensure that the Township's buildings and facilities continues to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the buildings and facilities.

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

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:

- As per the Township's 2016 AMP, the Township plans for facilities to undergo detailed engineering and architectural inspections every five years. These assessments would cover the entire building envelope and critical systems such as roofs, HVAC, plumbing, and accessibility features to ensure that public buildings remain safe, functional, and compliant with evolving standards

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

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

4.4.3 Lifecycle Management Strategy

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.

Municipal buildings typically have service lives of 15 to 50 years, with key components like roofs typically lasting 25 to 30 years. Major systems, such as HVAC and plumbing, require periodic upgrades to maintain safe and functional facilities. While buildings are managed individually, projects should be grouped where possible to leverage economies of scale. This approach reduces costs and operational disruptions.

The Facility Condition Index (FCI) can help identify priorities by comparing deferred maintenance costs to the building's replacement value. Regular assessments ensure compliance with safety codes, accessibility standards (AODA), and modern operational requirements. It is highly recommended to work towards componentizing building assets as different asset types have different lifespans and maintenance requirements which, along with a condition assessment, would allow for more accurate capital forecasting.

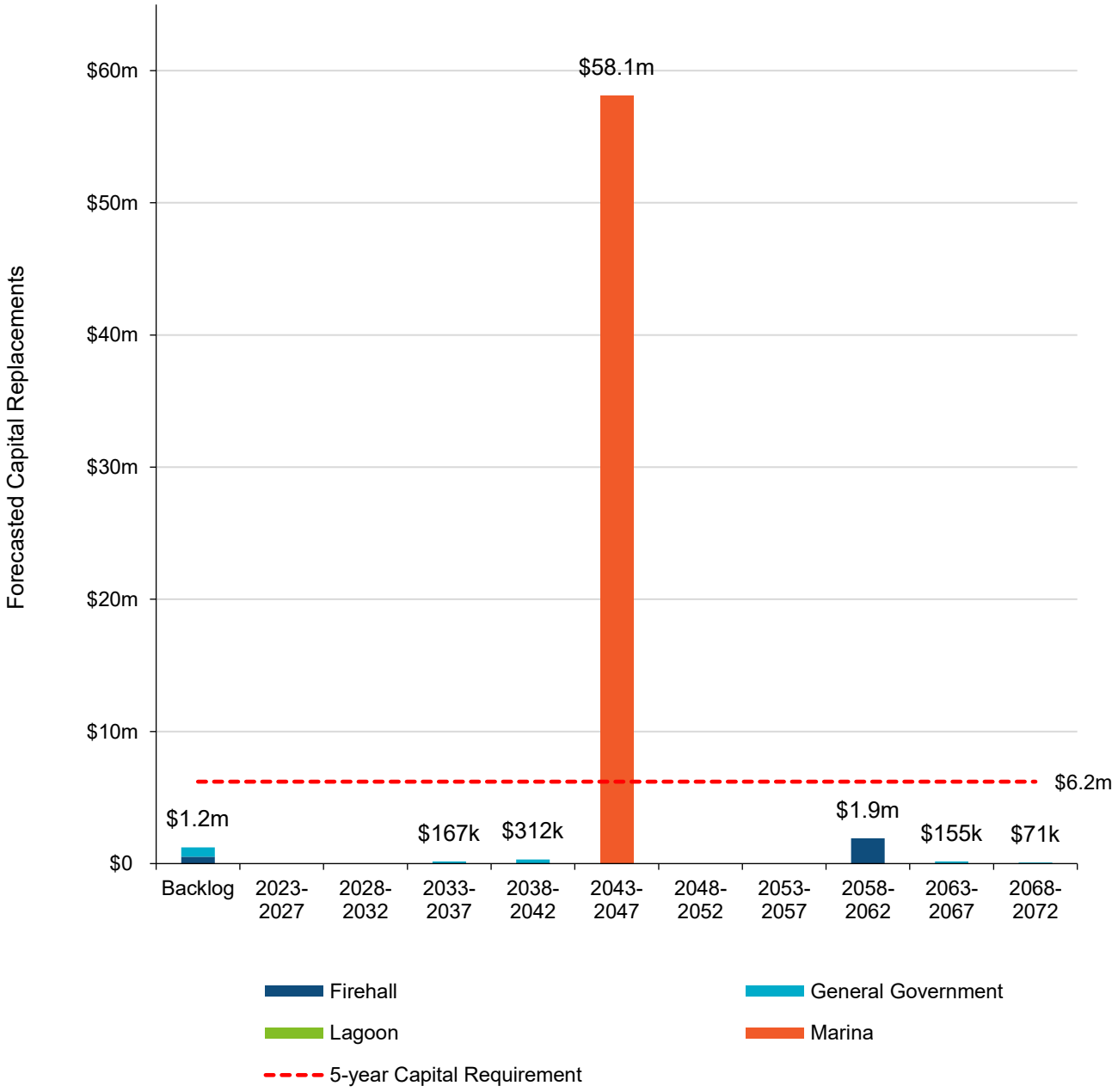
Rehabilitation should be scheduled based on the building's lifecycle stage and condition. Work may include energy efficiency upgrades, accessibility improvements, and modernization of mechanical systems. Neglected maintenance can lead to rising operational costs, potential safety issues, and premature asset failure, underlining the importance of routine inspections and upgrades.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph

identifies capital requirements over the next 50 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.

It should be noted that data confidence in the current inventory is low and should be a primary focus for the next iteration of the Township's AMP. Additionally, further componentization of building assets would improve capital forecasting accuracy.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

4.4.4 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2021 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

This is a high-level model developed for the purposes of this AMP and Township staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

The asset-specific attributes that Township staff utilize to define and prioritize the criticality of buildings and facilities are documented below:

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)

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

4.4.5 Levels of Service

The following tables identify the Township's current level of service for the buildings assets. These metrics include the performance measures that the Township has selected for this AMP.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the buildings assets.

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	A brief description of the types of assets included in this category	Buildings assets include firehalls, a marina, a municipal garage, office, and library, the town hall and community hall

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the buildings assets.

Service Attribute	Technical Metric	Current LOS (2021)
Scope	Average condition of assets weighted by replacement cost	47% (Fair%)
	% of assets in fair or better condition	97%
	% of assets in poor or lower condition	3%

4.4.6 Recommendations

Asset Inventory

- The Township's asset inventory contains a single record for all buildings. Facilities consist of several separate capital components that have unique estimated useful lives and require asset-specific lifecycle strategies. Staff should work towards a component-based inventory of all buildings to allow for component-based lifecycle planning.

Replacement Costs

- Gather accurate replacement costs and update on a regular basis to ensure the accuracy of capital projections.

Condition Assessment Strategies

- The Township should implement regular condition assessments for all facilities to better inform short- and long-term capital requirements.

Risk Management Strategies

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

Levels of Service

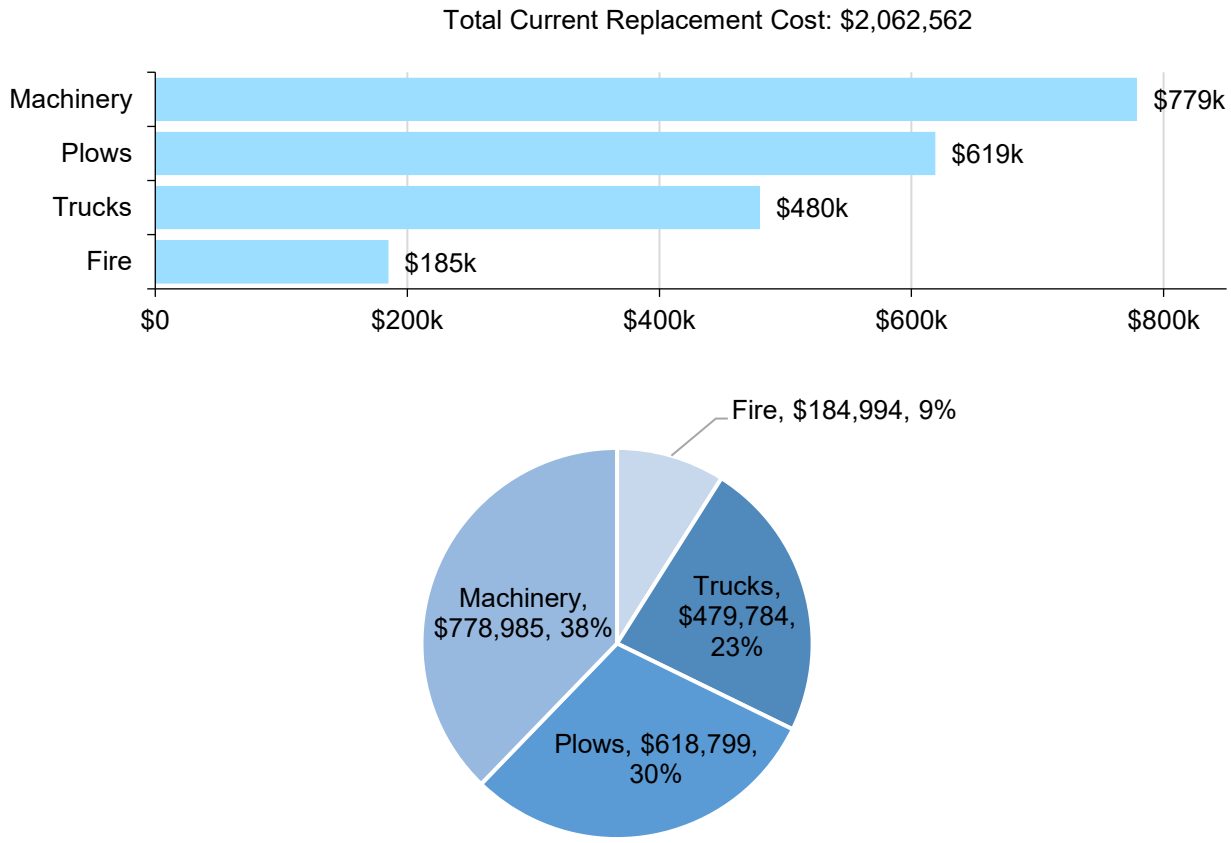
- Begin measuring current levels of service in accordance with the metrics that the Township has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

4.5 Vehicles

4.5.1 Asset Inventory & Costs

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's vehicles.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Fire	4	$185,000	$18,000
Machinery	4	$779,000	$78,000
Plows	2	$619,000	$62,000
Trucks	4	$480,000	$48,000
Total		**$2,063,000**	**$206,000**



Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

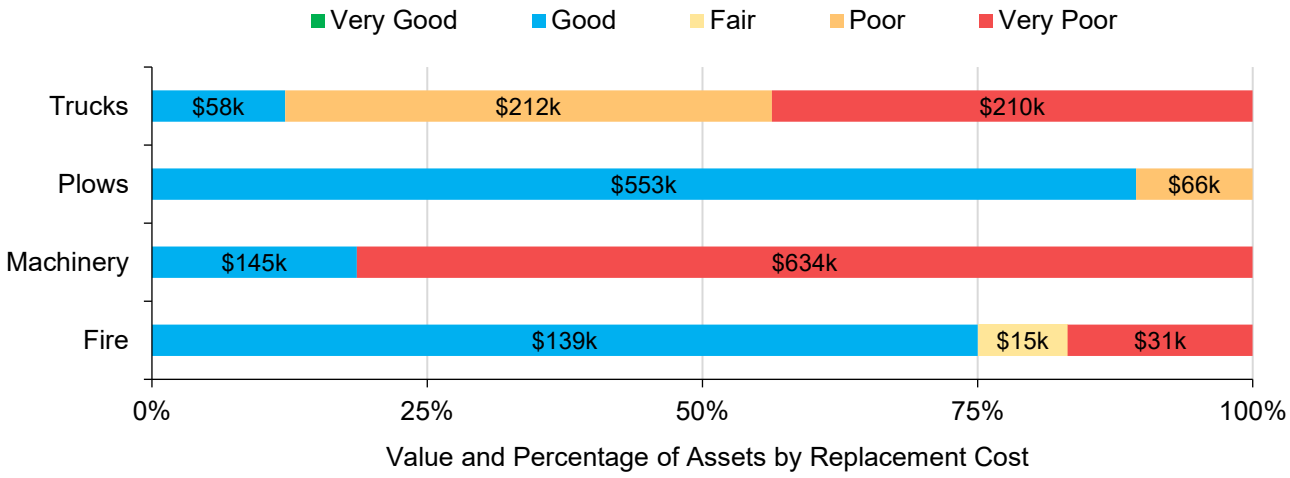
4.5.2 Asset Condition & Age

The table below identifies the current average condition and source of available condition data for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Age data is currently unavailable. Compiling age data from records may be a consideration for the next iteration of the AMP.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Fire	10	4.9	56% (Fair)
Machinery	10	15.7	14% (Very Poor)
Plows	10	5	70% (Good)
Trucks	10	8.9	23% (Poor)
Average		**9.2**	**37% (Poor)**

The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale.



To ensure that the Township's vehicles continue to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the vehicles.

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

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:

- Assessments will be based on estimated remaining useful life. Asset condition will be evaluated internally each year using a standardized rating scale (good, fair, poor), derived from the percentage of useful life remaining. The asset management plan will be updated annually to reflect any adjustments in estimated useful life or condition to ensure timely maintenance and replacement.

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

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

4.5.3 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that Township 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.

Vehicle and equipment life cycles can vary by type, typically ranging from 8 to 25 years. For example, pickup trucks last around 8–10 years, graders up to 20 years, and fire vehicles up to 25 years—although replacement schedules for fire vehicles and equipment is regulated. Fleet replacement planning is integrated with broader operational strategies, including environmental compliance, technological advancements, and service-level adjustments.

Decisions should be based on lifecycle cost analysis, considering repairs, insurance, fuel, depreciation, and downtime to determine the most cost-effective replacement schedule. Replacement should be considered when repair costs exceed 40% of their replacement value. Alternatives like leasing, refurbishing, or outsourcing services may also be considered where beneficial.

Aging or poorly maintained vehicles can lead to higher operational costs, increased downtime, and service interruptions, negatively impacting municipal operations and efficiency.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 20 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.

It should be noted that data confidence in the current inventory is low and should be a primary focus for the next iteration of the Township's AMP.

The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

4.5.4 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2021 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

This is a high-level model developed for the purposes of this AMP and Township staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

The asset-specific attributes that Township staff utilize to define and prioritize the criticality of vehicles are documented below:

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)

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

4.5.5 Levels of Service

The following tables identify the Township's current level of service for the vehicles assets. These metrics include the performance measures that the Township has selected for this AMP.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the vehicles assets.

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	A brief description of the types of assets included in this category	Vehicles assets include heavy equipment (grader, backhoe, tractor, plow trucks, mini excavator), trucks, and fire vehicles (tankers, pumpers, rescue vehicles)

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the vehicles assets.

Service Attribute	Technical Metric	Current LOS (2021)
Scope	Average condition of assets weighted by replacement cost	37% (Poor)
	% of assets in fair or better condition	44%
	% of assets in poor or lower condition	56%

4.5.6 Recommendations

Replacement Costs

- Gather accurate replacement costs and update on a regular basis to ensure the accuracy of capital projections.

Condition Assessment Strategies

- Identify condition assessment strategies for high value and high-risk equipment.
- Review assets that have surpassed their estimated useful life to determine if immediate replacement is required or whether these assets are expected to remain in-service. Adjust the service life and/or condition ratings for these assets accordingly.

Risk Management Strategies

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

Levels of Service

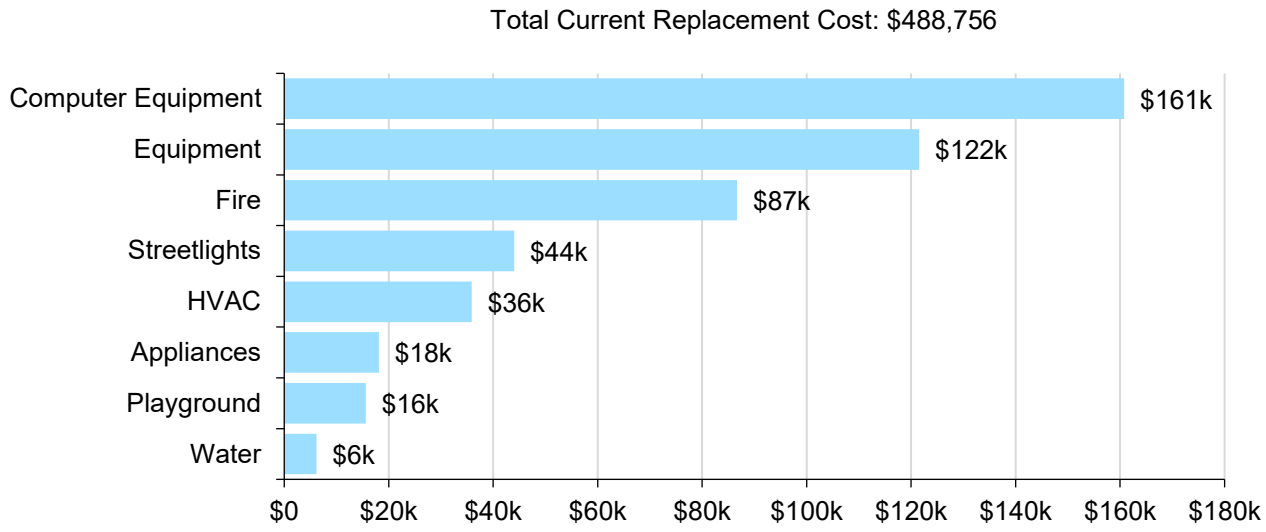
- Begin measuring current levels of service in accordance with the metrics that the Township has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

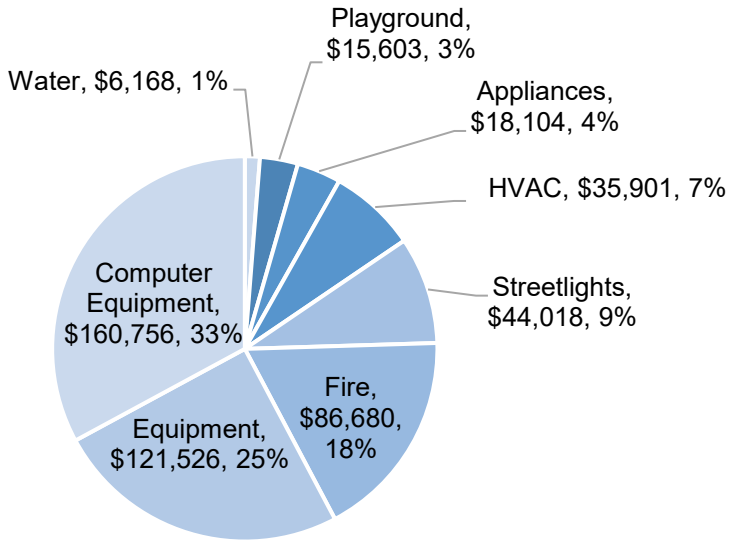
4.6 Machinery & Equipment

4.6.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Township's machinery and equipment inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Appliances	2	$18,000	$2,000
Computer Equipment	10	$161,000	$16,000
Equipment	19	$122,000	$12,000
Fire	4	$87,000	$9,000
HVAC	2	$36,000	$4,000
Playground	1	$16,000	$2,000
Streetlights	1	$44,000	$4,000
Water	1	$6,000	$1,000
Total		**$489,000**	**$49,000**





Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

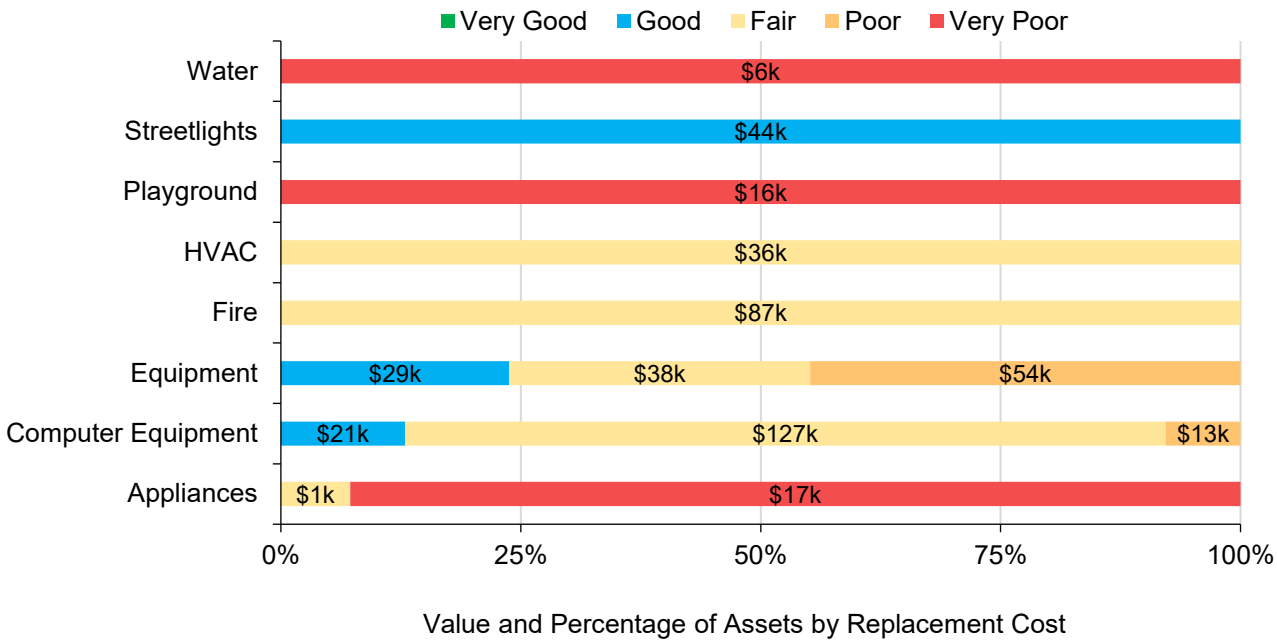
4.6.2 Asset Condition & Age

The table below identifies the current average condition and source of available condition data for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Age data is currently unavailable. Compiling age data from records may be a consideration for the next iteration of the AMP.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Appliances	10	9.3	4% (Very Poor)
Computer Equipment	10	4.8	48% (Fair)
Equipment	10 - 20	5	47% (Fair)
Fire	10	5.3	49% (Fair)
HVAC	10	5	49% (Fair)
Playground	10	19.1	0% (Very Poor)
Streetlights	10	2.5	75% (Good)
Water	10	14.1	0% (Very Poor)
Average		**21.5**	**47% (Fair)**

The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale.



Value and Percentage of Assets by Replacement Cost

To ensure that the Township's machinery and equipment continues to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the machinery and equipment.

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

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:

- Assessments will be based on estimated remaining useful life. Asset condition will be evaluated internally each year using a standardized rating scale (good, fair, poor), derived from the percentage of useful life remaining. The asset management plan will be updated annually to reflect any adjustments in estimated useful life or condition to ensure timely maintenance and replacement.

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

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

4.6.3 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that Township 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.

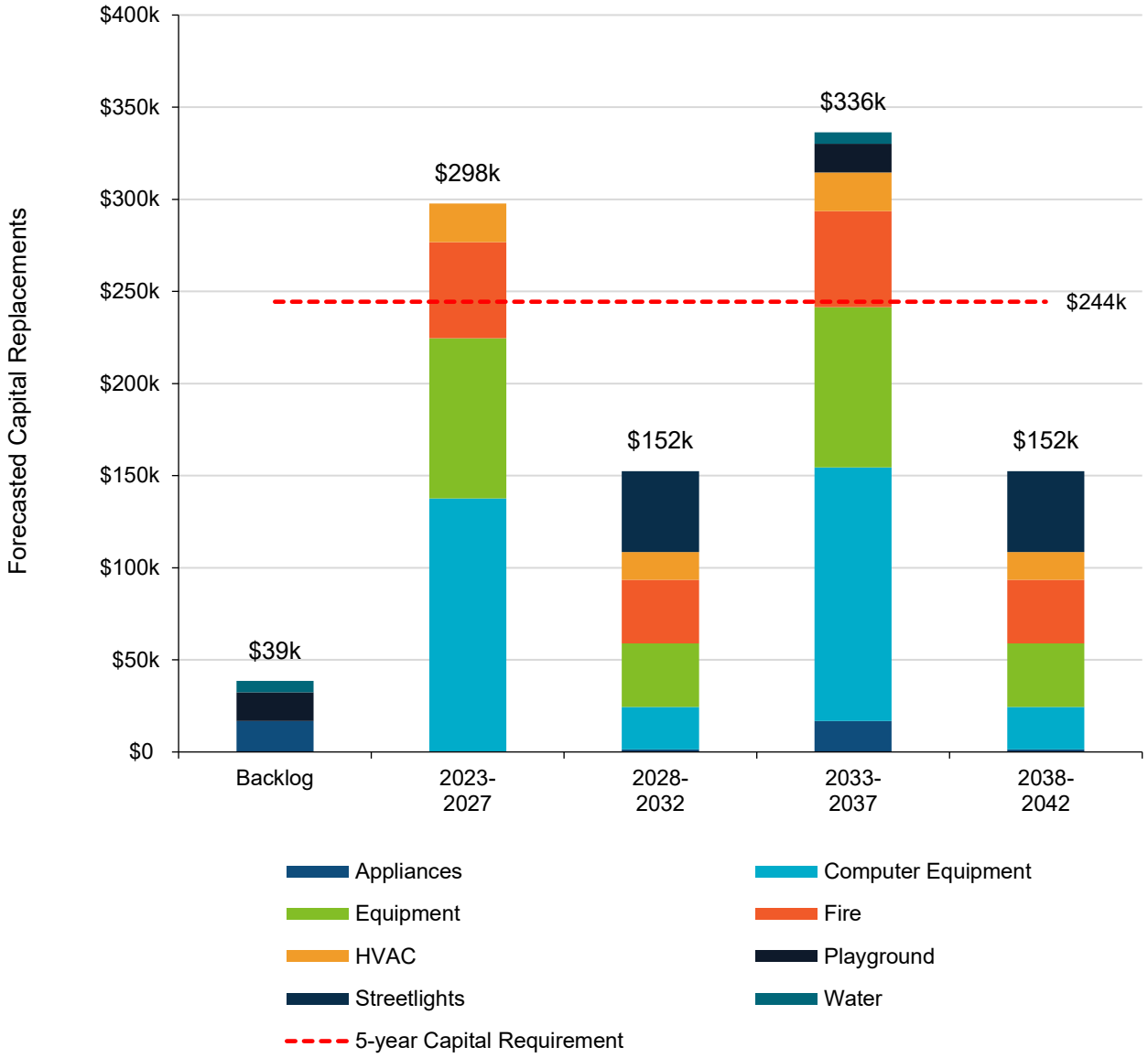
Machinery and equipment undergo visual inspections before operation. Maintenance and rehabilitation are performed on a case by case basis depending on the inspections but are reactive in nature.

Replacement decisions for machinery and equipment are based on lifecycle cost analysis, considering factors like repairs, insurance, fuel, depreciation, and downtime costs. If repair expenses exceed 40% of the replacement cost, replacement becomes the preferred strategy

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 20 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.

It should be noted that data confidence in the current inventory is low and should be a primary focus for the next iteration of the Township’s AMP.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

4.6.4 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2021 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

This is a high-level model developed for the purposes of this AMP and Township staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

The asset-specific attributes that Township staff utilize to define and prioritize the criticality of machinery and equipment are documented below:

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)

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

4.6.5 Levels of Service

The following tables identify the Township's current level of service for the machinery and equipment assets. These metrics include the performance measures that the Township has selected for this AMP.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the machinery and equipment assets.

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	A brief description of the types of assets included in this category	Machinery and equipment assets include appliances, computer equipment, miscellaneous equipment, fire equipment, HVAC, playground equipment, streetlights, water equipment

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the machinery and equipment assets.

Service Attribute	Technical Metric	Current LOS (2021)
Scope	Average condition of assets weighted by replacement cost	47% (Fair)
	% of assets in fair or better condition	78%
	% of assets in poor or lower condition	22%

4.6.6 Recommendations

Replacement Costs

- All replacement costs used in this AMP were based on the inflation of historical costs. These costs should be evaluated to determine their accuracy and reliability. Replacement costs should be updated according to the best available information on the cost to replace the asset in today's value.

Condition Assessment Strategies

- Identify condition assessment strategies for high value and high-risk equipment.
- Review assets that have surpassed their estimated useful life to determine if immediate replacement is required or whether these assets are expected to remain in-service. Adjust the service life and/or condition ratings for these assets accordingly.

Risk Management Strategies

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

Levels of Service

- Begin measuring current levels of service in accordance with the metrics that the Township has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

5 Analysis of Rate-funded Assets

Key Insights

- Rate-funded assets are valued at $10.1 million
- 0% of rate-funded assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for rate-funded assets is approximately $404,000
- Critical assets should be evaluated to determine appropriate risk mitigation activities and treatment options

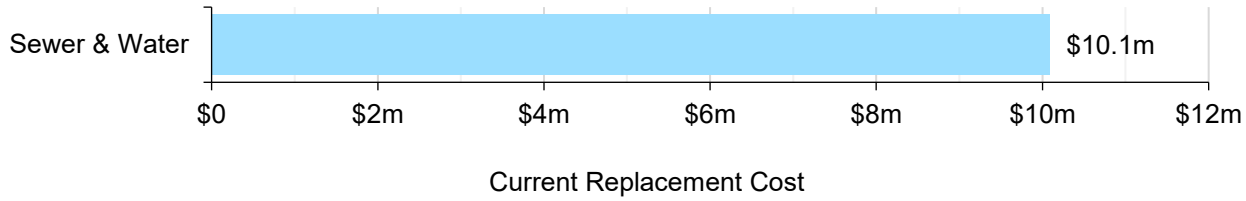
5.1 Sewer & Water Network

5.1.1 Asset Inventory & Costs

As this AMP is based solely on age-based condition and the sewer and water network inventories are currently pooled into one asset line item, all values throughout this category are subject to significant change upon further inventory review and refinement.

The table below includes the quantity, replacement cost method, and annual capital requirements of each asset segment in the Township's sewer and water network inventories.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Sewer & Water	TBD	$10,093,000	$404,000
Total		**$10,093,000**	**$404,000**



Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

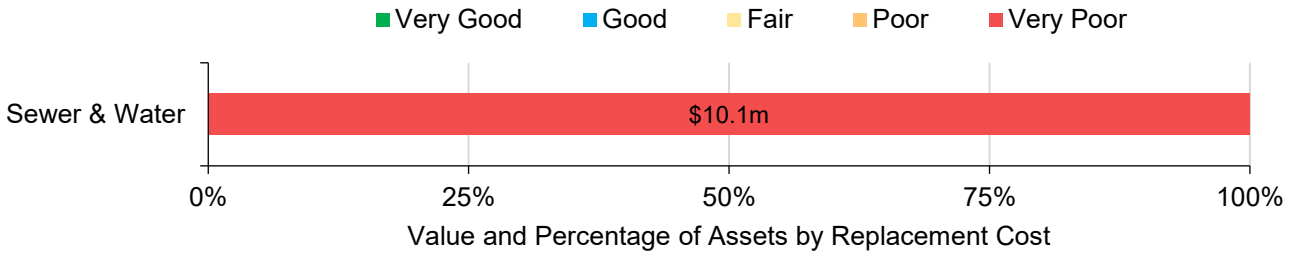
5.1.2 Asset Condition & Age

The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Age data for sewer and water assets requires review. Compiling age data from records and performing a condition assessment may be a consideration for the next iteration of the AMP.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Hydrants	25	30	0% (Very Poor)
Average		**30**	**0% (Very Poor)**

The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale.



To ensure that the Township's sewer and water networks continue to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the sewer and water networks.

Each asset's Estimated Useful Life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

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:

- Per the 2016 AMP, inspections of wastewater mains should be conducted at least once every five years using closed-circuit television (CCTV) technology. This approach allows the municipality to visually assess internal pipe conditions, identifying blockages, cracks, or structural weaknesses early to prevent failures and maintain reliable wastewater service.

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

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

5.1.3 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that Township 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.

Service life ranges from 15 to 100 years for sewer assets. Main components like wastewater trunks typically last 50 to 100 years if well maintained. Water system components typically last 30 to 100 years, depending on their type. For instance, watermains have a service life of 50 to 100 years, while valves and hydrants usually require replacement every 30 to 50 years.

Sewer and water infrastructure renewal should be coordinated with road resurfacing or reconstruction to replace aging sewer and water lines concurrently, to minimize costs and disruption. Condition assessments for sewer should use CCTV inspections and factors like material type, collapses, and capacity upgrades to determine urgency. Priority for the water network should be determined based on pipe age, material, break history, and environmental factors. Data from inspections and maintenance records should guide decisions.

Common rehabilitation and replacement methods for sewer include full replacement, spot repairs, joint sealing, and cured-in-place pipe (CIPP) lining to restore functionality. Rehabilitation and replacement approaches for water network assets include full replacement, cleaning and relining, or pipe bursting. Cathodic protection may be added to prevent corrosion and extend lifespan.

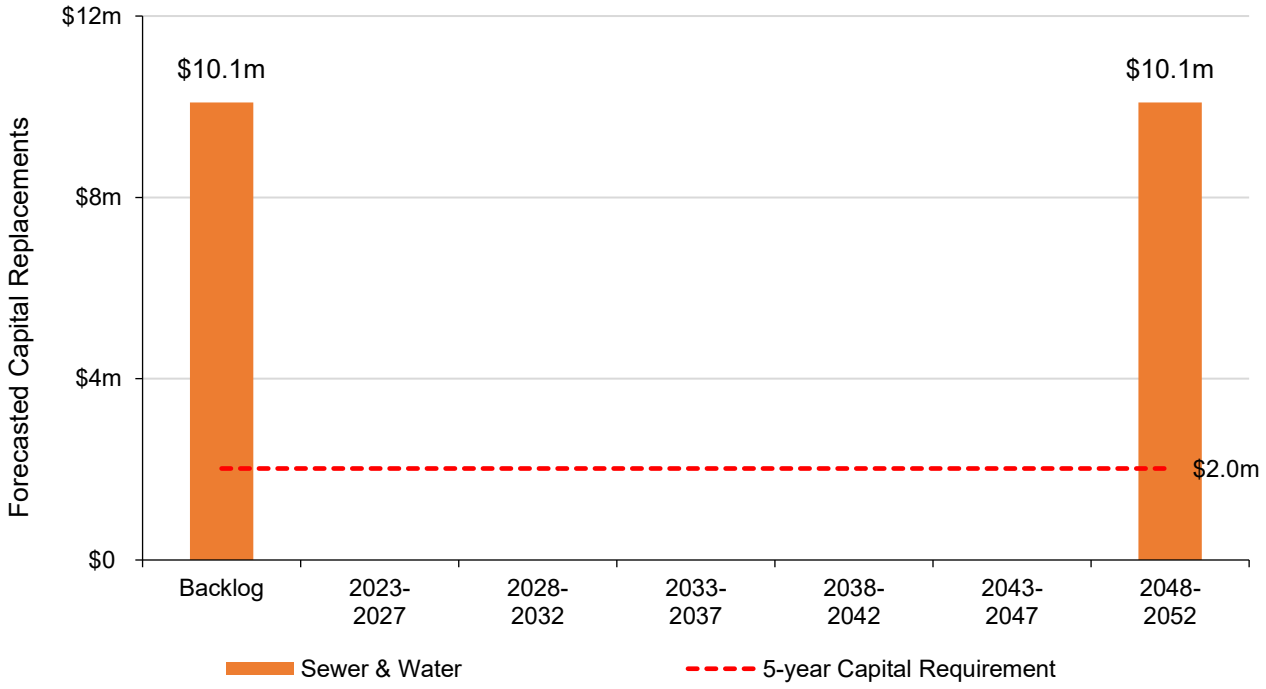
Failure of sewer systems can lead to backups, overflows, and environmental risks, emphasizing the need for consistent maintenance. Unexpected watermain failures can cause significant service disruptions and damage. Proactive maintenance can extend service life well beyond initial estimates.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 30 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.

It should be noted that data confidence in the current inventory is low and should be a primary focus for the next iteration of the Township’s AMP. The capital forecast

is heavily affected by all assets being pooled into one line item within the inventory and refining the data should be a high priority in the future.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

5.1.4 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2021 inventory data. See Appendix D for the criteria used to determine the risk rating of each asset.

This is a high-level model developed for the purposes of this AMP and Township staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that Township staff utilize to define and prioritize the criticality of the sewer and water networks are documented below:

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)

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

5.1.5 Levels of Service

The following tables identify the Township's current level of service for the sewer and water networks. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Township has selected for this AMP.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the sewer and water networks.

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system	TBD
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow	TBD

Service Attribute	Qualitative Description	Current LOS (2021)
	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system	TBD
	Description of boil water advisories and service interruptions	TBD
	Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes	TBD
	Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches	TBD
Reliability	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes	Stormwater can enter into sanitary sewers due to cracks in sanitary mains or through indirect connections (e.g. weeping tiles). In the case of heavy rainfall events, sanitary sewers may experience a volume of water and sewage that exceeds its designed capacity. In some cases, this can cause water and/or sewage to overflow backup into homes. The disconnection of weeping tiles from sanitary mains and the use of sump pumps and pits directing storm water to the storm drain system can help to reduce the chance of this occurring.
	Description of how sanitary sewers in the municipal wastewater system are	TBD

Service Attribute	Qualitative Description	Current LOS (2021)
	designed to be resilient to stormwater infiltration	
	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system	TBD

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the water network.

Service Attribute	Technical Metric	Current LOS (2021)
Scope	% of properties connected to the municipal water system	TBD
	% of properties where fire flow is available	TBD
	% of properties connected to the municipal wastewater system	TBD
Reliability	# of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system	TBD
	# of connection-days per year where water is not available due to water main breaks compared to the total number of properties connected to the municipal water system	TBD
	# of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system	TBD
	# of connection-days per year having wastewater backups compared to the total number of properties connected to the municipal wastewater system	TBD
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	TBD

5.1.6 Recommendations

Asset Inventory

- The pooled sewer and water asset requires further segmentation and length measurements to allow for asset-specific lifecycle planning and costing.

Replacement Costs

- Gather accurate replacement costs and update on a regular basis to ensure the accuracy of capital projections.

Condition Assessment Strategies

- Identify condition assessment strategies for high value and high-risk water network assets.

Risk Management Strategies

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

Levels of Service

- Continue to measure current levels of service in accordance with the metrics that the Township has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

6 Impacts of Growth

Key Insights

- Understanding the key drivers of growth and demand will allow the Township to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure
- Low population and employment growth is expected
- The costs of growth should be considered in long-term funding strategies that are designed to maintain the current level of service

6.1 Description of Growth Assumptions

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

6.1.1 District of Manitoulin Official Plan (October 2018)

The Official Plan for the District of Manitoulin provides a long-term framework to guide growth, land use, and development across the district. It establishes policies for land use planning, environmental protection, and sustainable economic development while recognizing the unique geographic, cultural, and environmental character of Manitoulin Island. The Official Plan serves as a strategic tool to balance growth with the preservation of natural resources, rural character, and cultural heritage. It also outlines responsibilities for municipalities within the district, ensuring coordinated and consistent decision-making aligned with provincial planning policies.

Within the Official Plan, the Township of Tehkummah is recognized as a rural municipality characterized by its agricultural lands, natural areas, and small settlement communities. Tehkummah's planning policies emphasize protecting agricultural uses, conserving natural resources, and directing growth to existing settlement areas to minimize sprawl and protect the rural landscape. The Official Plan acknowledges Tehkummah's role as part of the broader district framework, ensuring that any local growth or development aligns with the principles of sustainability, rural preservation, and community character set out in the district-wide plan.

The Official Plan assumes limited population and housing growth for Tehkummah over the planning horizon. Growth is expected to be modest, reflecting the Township's rural nature and demographic trends across Manitoulin Island, where population increases are generally small and steady rather than large-scale. The policies direct growth primarily toward established settlement areas within Tehkummah to maintain efficient service delivery and protect farmland and natural resources. The Official Plan anticipates that Tehkummah's growth will be shaped more by gradual residential development, seasonal/recreational uses, and the protection of agricultural and rural community values rather than significant industrial or urban expansion.

6.2 Impact of Growth on Lifecycle Activities

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

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

7 Appendices

Key Insights

- Appendix A includes a one-page report card with an overview of key data from each asset category
- Appendix B identifies projected 10-year capital requirements for each asset category
- Appendix C includes maps that have been used to visualize the current level of service
- Appendix D identifies the criteria used to calculate risk for each asset category
- Appendix E provides additional guidance on the development of a condition assessment program

7.1 Appendix A: Infrastructure Report Card

Asset Category	Replacement Cost (millions)	Asset Condition	Financial Capacity	
Road Network	$118.3	78%	Annual Requirement:	$1,732,000
Bridges & Culverts	$3.7	86%	Annual Requirement:	$74,000
Storm Water Network	$0.2	41%	Annual Requirement:	$3,000
Buildings	$62.0	47%	Annual Requirement:	$1,239,000
Vehicles	$2.1	37%	Annual Requirement:	$206,000
Machinery & Equipment	$0.5	47%	Annual Requirement:	$49,000
Sewer & Water Network	$10.1	0%	Annual Requirement:	$404,000
Overall	**$196.8**	**64%**	**Annual Requirement:**	**$3,707,000**

7.2 Appendix B: 10-Year Capital Requirements

The following tables identify the capital cost requirements for each of the next 10 years in order to meet projected capital requirements and maintain the current level of service.

Road Network											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Surfaces	$23.2m	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$23.2m	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Bridges & Culverts											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Bridges	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$0	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Storm Water Network											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Drains	$0	$0	$0	$0	$0	$0	$10k	$3k	$0	$0	$0
	$0	**$0**	**$0**	**$0**	**$0**	**$0**	**$10k**	**$3k**	**$0**	**$0**	**$0**

Buildings											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Firehall	$508k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
General Government	$725k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Lagoon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Marina	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$1.2m	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Vehicles											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Fire	$0	$0	$31k	$0	$0	$0	$15k	$139k	$0	$0	$0
Machinery	$634k	$0	$0	$0	$0	$0	$0	$0	$145k	$0	$0
Plows	$0	$0	$0	$66k	$0	$0	$0	$0	$553k	$0	$0
Trucks	$210k	$0	$0	$0	$212k	$0	$0	$58k	$0	$0	$0
	$844k	**$0**	**$31k**	**$66k**	**$212k**	**$0**	**$15k**	**$197k**	**$698k**	**$0**	**$0**

Machinery & Equipment											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Appliances	$0	$0	$0	$0	$0	$1k	$0	$0	$0	$0	$0
Computer Equipment	$0	$0	$0	$13k	$125k	$2k	$0	$21k	$0	$0	$0
Equipment	$0	$0	$0	$54k	$32k	$6k	$18k	$11k	$0	$0	$0
Fire	$0	$0	$0	$0	$52k	$34k	$0	$0	$0	$0	$0
HVAC	$0	$0	$0	$0	$21k	$15k	$0	$0	$0	$0	$0
Playground	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Streetlights	$0	$0	$0	$0	$0	$0	$0	$44k	$0	$0	$0
Water	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$39k	**$0**	**$0**	**$0**	**$67k**	**$231k**	**$59k**	**$18k**	**$76k**	**$0**	**$0**

Sewer & Water Networks											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Sewer & Water	$10.1m	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$10.1m	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

7.3 Appendix C: Level of Service Maps

Road Map

7.4 Appendix D: Risk Rating Criteria

Probability of Failure

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
All Categories	Condition	100%	80 – 100	1
			60 – 79	2
			40 – 59	3
			20 – 39	4
			0 – 19	5

Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
All Categories	Economic (100%)	Replacement Cost (100%)	$0 – $10,000	1
			$10,001 – $50,000	2
			$50,001 – $500,000	3
			$500,001 – $1,000,000	4
			$1,000,000+	5

7.5 Appendix E: Condition Assessment Guidelines

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

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

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

Role of Asset Condition Data

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

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

Guidelines for Condition Assessment

Whether completed by external consultants or internal staff, condition assessments should be completed in a structured and repeatable fashion, according to consistent and objective assessment criteria. Without proper guidelines for the completion of

condition assessments there can be little confidence in the validity of condition data and asset management strategies based on this data.

Condition assessments must include a quantitative or qualitative assessment of the current condition of the asset, collected according to specified condition rating criteria, in a format that can be used for asset management decision-making. As a result, it is important that staff adequately define the condition rating criteria that should be used and the assets that require a discrete condition rating. When engaging with external consultants to complete condition assessments, it is critical that these details are communicated as part of the contractual terms of the project. There are many options available to the Township to complete condition assessments. In some cases, external consultants may need to be engaged to complete detailed technical assessments of infrastructure. In other cases, internal staff may have sufficient expertise or training to complete condition assessments.

Developing a Condition Assessment Schedule

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

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