Asset Management Plan

Township of Nairn & Hyman

2025

TOWNSHIP OF NAIRN AND HYMAN

This Asset Management Program was prepared by:

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

Key Statistics

$69.5M	Replacement Cost of Asset Portfolio
$323K	Replacement Cost of Infrastructure Per Household
58%	Percentage of Assets in Fair or Better Condition
80%	Percentage of Assets with Assessed Condition Data
$1.2M	Annual Capital Infrastructure Deficit
15 Years	Recommended Timeframe to reach Proposed Levels of Service
1.3%	Target Investment Rate to meet Proposed Levels of Service
0.6%	Actual Investment Rate

Contents

Executive Summary

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

The overall replacement cost of the asset categories included in this AMP totals $69.5 million. 58% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 80% of assets. For the remaining 20% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (paved roads) and replacement only strategies (all other assets) to determine the lowest cost option to maintain the current level of service.

To meet the proposed levels of service, the Township's average annual capital requirement totals $811 thousand. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $412 thousand towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $399 thousand.

The Township has selected a phased strategy aimed at reaching 50% of full funding over the next 15 years. This approach reflects the financial limitations of taxpayers and ratepayers, offering a more manageable path forward while beginning to address priority infrastructure needs. This funding level represents a practical starting point under current conditions. The selected proposed levels of service are reflected in both the financial strategy and the 10-year capital requirements outlined in this plan.

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.

About this document

This asset management plan (AMP) for the Township of Nairn & Hyman was developed in accordance with Ontario Regulation 588/17 ("O. Reg 588/17"). It contains a comprehensive analysis of the Township's infrastructure portfolio. The AMP is a living document that should be updated regularly as additional asset and financial data becomes available.

Ontario Regulation 588/17

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

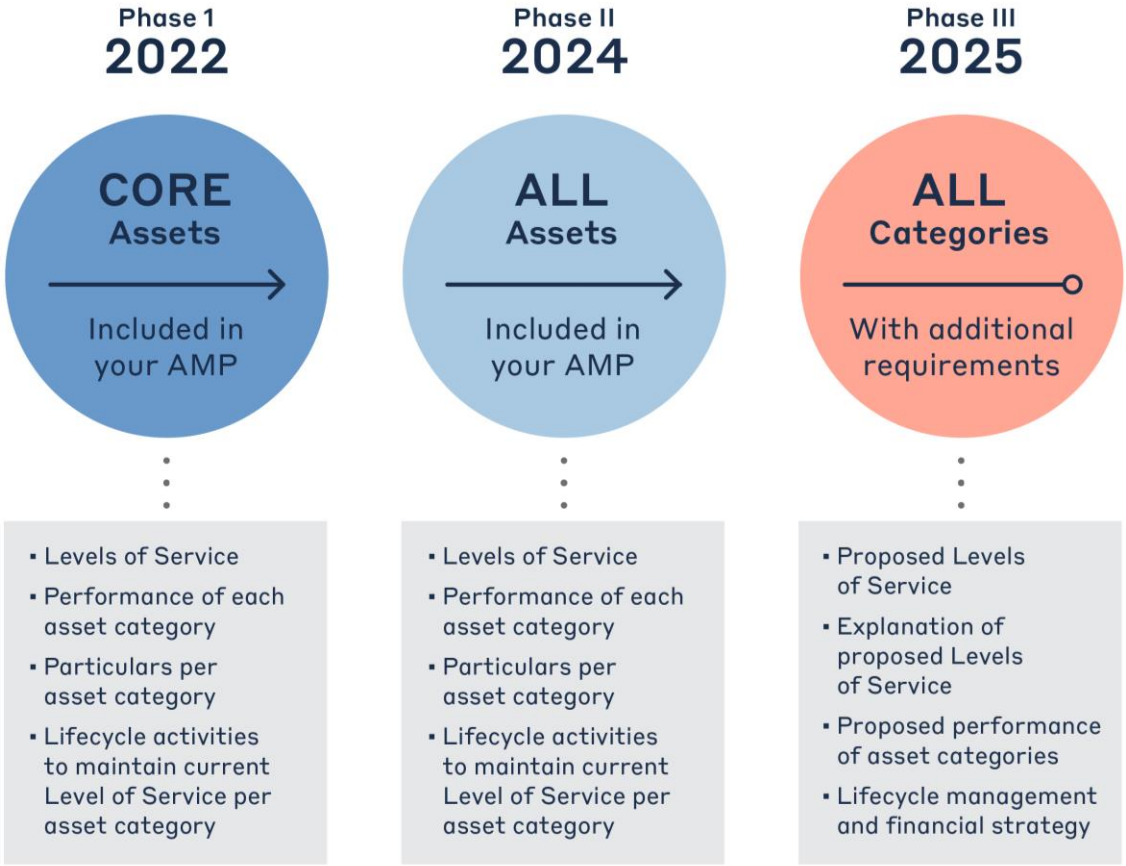


Figure 1: O. Reg. 588/17 Requirements and Reporting Deadlines

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

Nairn & Hyman Census Profile

Census Characteristic	Township of Nairn & Hyman	Ontario
Population 2021	373	14,223,942
Population Change 2016-2021	9.1%	5.8%
Total Private Dwellings	215	5,929,250
Population Density	2.3 per km^2	15.9 per km^2
Land Area	159.18 km^2	892,411.76 km^2

Table 1: Nairn and Hyman Census Profile

The Township of Nairn and Hyman is a single-tier municipality located in the Sudbury District of Ontario, approximately 50 kilometers west of Greater Sudbury. Incorporated on January 1, 1998, through municipal restructuring, the township covers an area of 159 square kilometers and had a population of 373 according to the 2021 Canadian Census. It includes the communities of Nairn Centre and Prospect Hill and is characterized by a predominantly rural landscape made up of forests, agricultural lands, and waterways.

The Township's economy is supported by agriculture, forestry, and hydroelectric power generation. One of its most significant infrastructure assets is the Nairn Falls Dam and Generating Plant on the Spanish River, which provides power primarily to mining operations in the region, with surplus electricity sold to Ontario Hydro. Despite its small population, the township maintains core municipal services through its administrative office located in Nairn Centre.

Residents of Nairn and Hyman enjoy a quiet, rural lifestyle with access to the natural beauty and recreational opportunities of Northern Ontario. The township's proximity to Greater Sudbury also offers access to urban amenities while preserving the advantages of small-town living. With its rich natural surroundings and strong ties to resource-based industries, Nairn and Hyman offers a balanced environment for residents seeking both economic opportunity and quality of life.

Scope

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

This AMP includes the following asset categories:

Figure 2: Core and Non-Core Asset Categories

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% comes from operations and maintenance. This AMP focuses its analysis on the capital costs to maintain, rehabilitate and replace existing municipal infrastructure assets.

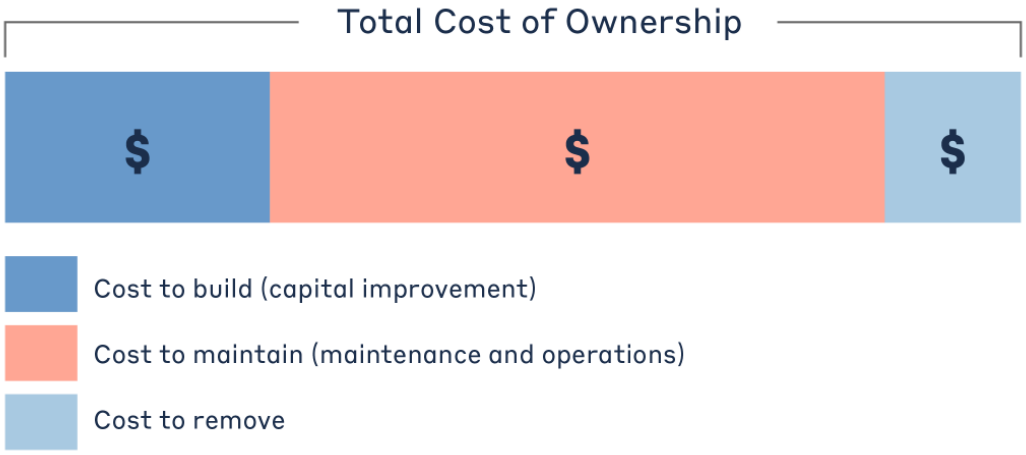


Figure 3: Total Cost of Asset Ownership

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

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

Foundational Documents

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

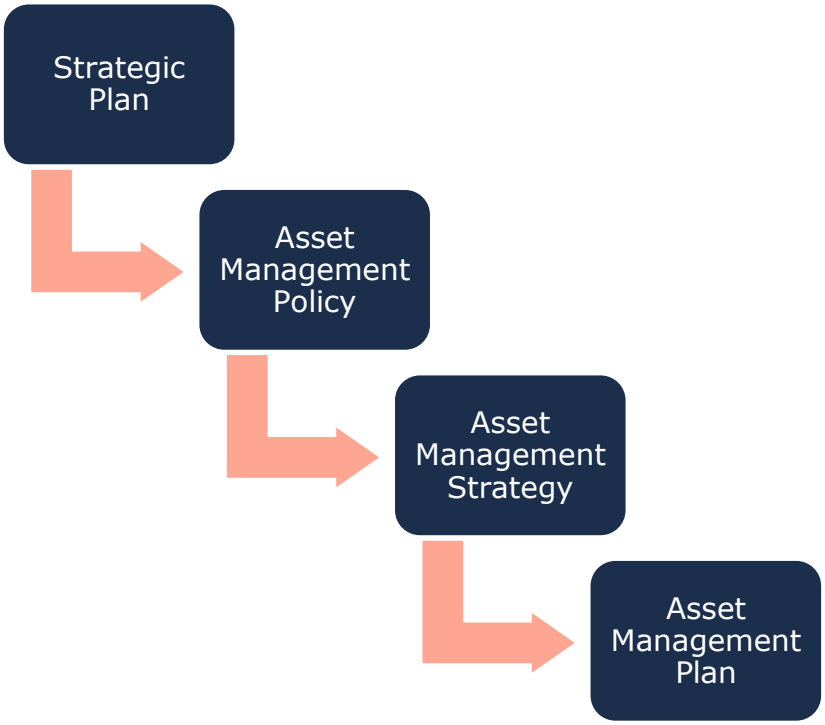


Figure 4: Foundational Asset Management Documents

Strategic Plan

The strategic plan has a direct, and cascading impact on asset management planning and reporting, making it a foundational element. At the beginning of each term, Council holds strategic planning exercises and discussions to identify major initiatives and administrative improvements it wishes to achieve during its tenure. Staff then identify the scope, resources, timing & other logistical matters associated with proposed initiatives.

Asset Management Policy

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

The Policy aims to provide a clear direction for managing the Township's infrastructure, aligning asset management with strategic goals, and ensuring that

assets are maintained at optimal levels to deliver reliable services to the community

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

Asset Management Plan

The asset management plan presents the outcomes of the Township of Nairn and Hyman'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 of Nairn and Hyman to re-evaluate the state of infrastructure and identify how the organization's asset management and financial strategies are progressing.

Key Concepts in Asset Management

Lifecycle Management Strategies

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

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

There are several field intervention activities that are available to extend the life of an asset. These activities can be generally placed into one of three categories:

maintenance, rehabilitation, and replacement. The table below provides a description of each type of activity and the general difference in cost.

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

Maintenance

- General level of cost is **$**
- All actions necSouth Brucery for retaining an asset as near as practicable to its original condition, but excluding rehabilitation or renewal. Maintenance does not increase the service potential of the asset
- It slows down deterioration and delays when rehabilitation or replacement is necSouth Brucery.

Rehabilitation / Renewal

- General level of cost is **$$$**
- Works to rebuild or replace parts or components of an asset, to restore it to a required functional condition and extend its life, which may incorporate some modification.
- Generally involves repairing the asset to deliver its original level of service (i.e. milling and paving of roads) without resorting to significant upgrading or replacement, using available techniques and standards.

Replacement

- General level of cost is **$$$$$**
- The complete replacement of an asset that has reached the end of its life, so as to provide a similar, or agreed alternative, level of service.
- Existing asset disposal is generally included.

Figure 5: Lifecycle Management Typical Lifecycle Interventions

The Township's approach to lifecycle management is described within each asset category. 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.

Risk and Criticality

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

important to the community than others, based on their financial significance, their role in delivering essential services, the impact of their failure on public health and safety, and the extent to which they support a high quality of life for community stakeholders.

Risk is a product of two variables: the probability that an asset will fail, and the resulting consequences of that failure event. It can be a qualitative measurement, (i.e. low, medium, high) or quantitative measurement (i.e. 1-5), that can be used to rank assets and projects, identify appropriate lifecycle strategies, optimize short- and long-term budgets, minimize service disruptions, and maintain public health and safety.

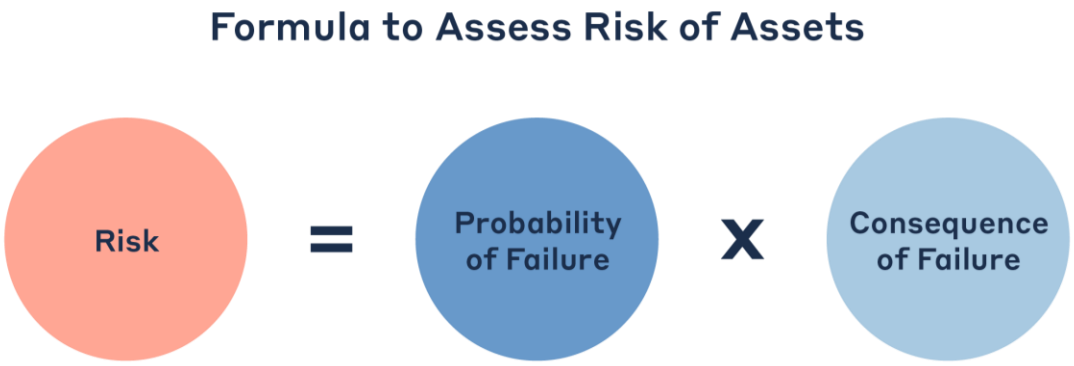


Figure 6: Risk Equations

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

Probability of Failure

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

Consequence of Failure

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

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

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

Table 2: Risk Analysis - Types of Consequences of Failure

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

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

Levels of Service

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

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, the Province, through O. Reg. 588/17, has provided qualitative descriptions that are required. For non-core asset categories, the Municipality has determined the qualitative descriptions that will be used. The metrics can be found in the levels of service subsection within each asset category.

Technical Levels of Service

Technical LOS 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 Municipality's asset management strategies on the physical condition of assets or the quality/capacity of the services they provide.

For core asset categories, the Province, through O. Reg. 588/17, has provided technical metrics that are required. For non-core asset categories, the Municipality determined the technical metrics that will be used. The metrics can be found in the levels of service subsection within each asset category.

Current and Proposed Levels of Service

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

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

Scope and Methodology

This asset management plan for the Township of Nairn and Hyman is produced in compliance with O. Reg. 588/17. The AMP summarizes the state of the infrastructure for Nairn and Hyman's asset portfolio, establishes current levels of service and the associated technical and customer-oriented key metrics, outlines lifecycle strategies for optimal asset management and performance, and provides financial strategies to reach sustainability for the asset categories listed below.

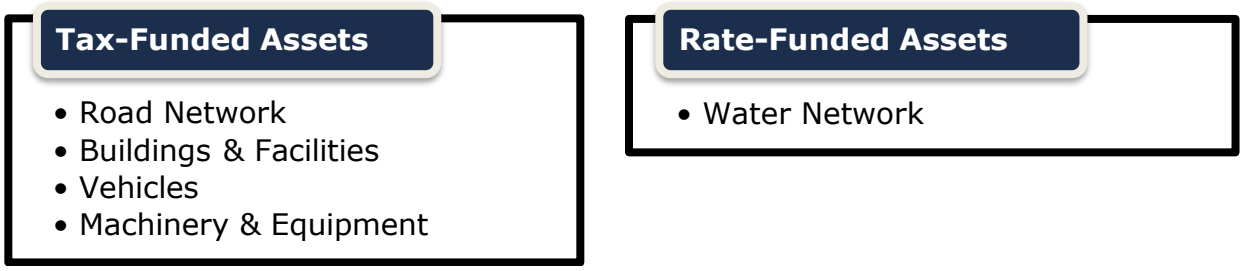


Figure 7: Tax- and Rate-Funded Assets

Data Effective Date

It is important to note that this plan is based on data as of December 31, 2023; therefore, it represents a snapshot in time using the best available processes, data, and information at the Township. Strategic asset management planning is an ongoing and dynamic process that requires continuous data updates and dedicated data management resources.

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. The two methodologies are:

- 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.

Estimated Useful Life and Service Life Remaining

The estimated useful life (EUL) of an asset is the period over which the Municipality expects the asset to be available for use and remain in service before requiring replacement or disposal. The EUL for each asset 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 date and its EUL, the Municipality can determine the service life remaining (SLR) for each asset. Using condition data and the asset's SLR, the Municipality can more accurately forecast when it will require replacement. The SLR is calculated as follows:

Figure 8: Service Life Remaining Calculation

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.

Figure 9: Target Reinvestment Rate Calculation

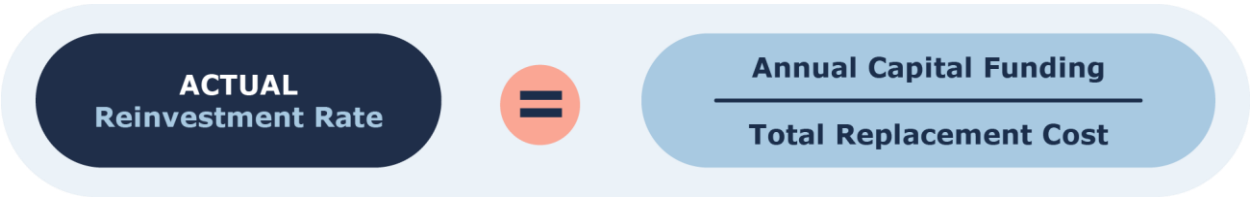


Figure 10: Actual Reinvestment Rate Calculation

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 Municipality'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.

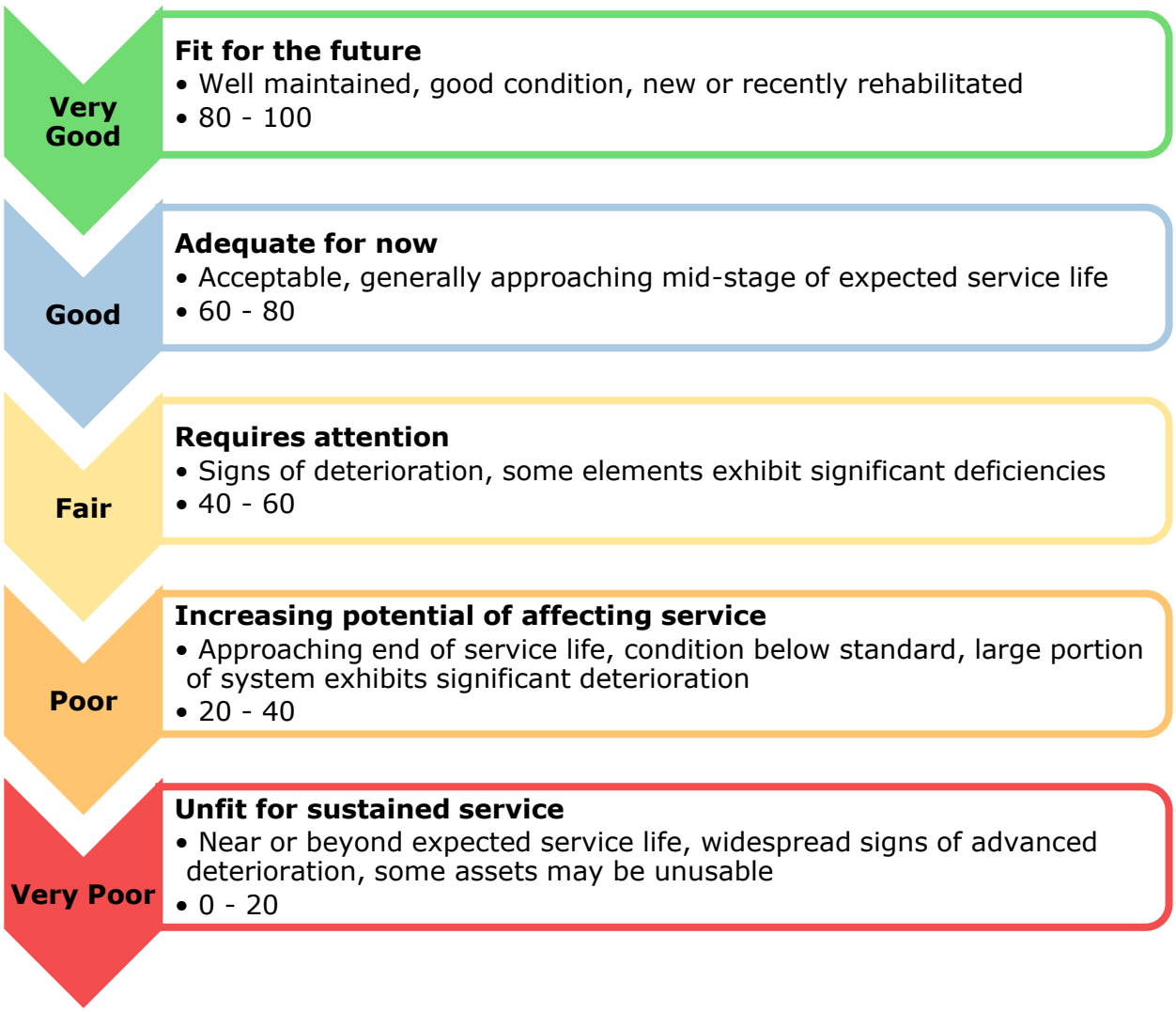


Figure 11: Standard Condition Rating Scale

The analysis 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 B: Condition Assessment Guidelines includes additional information on the role of asset condition data and provides basic guidelines for the development of a condition assessment program.

Limitations and Constraints

This AMP required substantial effort by staff. It was developed based on best-available data, and was subject to the following broad limitations, constrains, and assumptions:

- The analysis in this AMP is highly sensitive to several critical data fields, including an asset's estimated useful life, replacement cost, quantity, and in-service date. Inaccuracies or imprecisions in any of these fields can have substantial and cascading impacts on all reporting and analytics.
- User-defined and unit cost estimates, based typically on staff judgment, recent projects, or established through completion of technical studies, offer the most precise approximations of current replacement costs. When this isn't possible, historical costs incurred at the time of asset acquisition or construction can be inflated to present day. This approach, while sometimes necessary, and deployed in this AMP for some asset groups, can produce highly inaccurate estimates.
- In the absence of condition assessment data, age was used to estimate asset condition ratings. This approach can result in an over- or understatement of asset needs. As a result, financial requirements generated through this approach can differ from those produced by staff.
- Building and Facilities are not effectively componentized into their individual elements, major components, and minor components. These facilities contain thousands of individual assets, including the substructures, shell, interior assets, various electrical, plumbing, HVAC systems, and other complex equipment and furnishings. Each of these assets has its own useful life and replacement cost, and individual condition rating, as well as installation history. Without componentization, the value of condition ratings, age profiles, and long- and short-term forecasts remains limited.
- The risk models are designed to support objective project prioritization and selection. However, in addition to the inherent limitations that all models face, they also require availability of important asset attribute data to ensure that asset risk ratings are valid, and assets are properly stratified within the risk matrix. Missing attribute data can misclassify assets.

These limitations have a direct impact on most of the analysis presented in this AMP, including condition summaries, age profiles, long-term replacement and rehabilitation forecasts, and shorter term, 10-year forecasts that are generated from Citywide™, the Township's primary asset management system.

These challenges are quite common among municipalities and require long-term commitment and sustained effort by staff. As the Township's asset management program evolves and advances, the quality of future AMPs and other core documents that support asset management will continue to increase.

Proposed Levels of Service

Scope

Ontario Regulation 588/17 Proposed Levels of Service

The 2025 deadline requires that proposed Levels of Service (LOS) are demonstrated to be appropriate based on an assessment of:

1. Proposed LOS options and the risks associated with these options (i.e., asset reliability, safety, affordability) when considering the long-term sustainability of the municipality.
2. How proposed LOS may differ from current LOS.
3. Whether proposed LOS are achievable.
4. The municipality's ability to afford proposed LOS.

Additionally, a lifecycle management and financial strategy to support these LOS must be identified, covering a 10-year period and including:

1. Identification of lifecycle activities needed to provide the proposed LOS with consideration for:
    - Full lifecycle of assets.
    - Lifecycle activities options available to meet proposed LOS.
    - Risks associated with the options identified in sub-paragraph B, above.
    - Identification of which lifecycle activities identified in sub-paragraph B carry the lowest cost.
2. An estimate of the annual cost of meeting proposed LOS for a period of 10 years, separated by capital and operating expense.

Methodology

The LOS framework is a valuable tool for assessing and managing the performance of a system or service. Target levels of service for the Municipality have been developed through comprehensive engagement with Municipality staff and referencing resident satisfaction surveys. To achieve a target level of service goal, careful consideration of the following should be considered.

Financial Impact Assessment

- Assess historical expenditures/budget patterns to gauge feasibility of increasing budgets to achieve LOS targets
- Consider implications of LOS adjustments on other services, and other infrastructure programs (tradeoffs)

Infrastructure Condition Assessment

- Regularly assess the condition of critical infrastructure components.
- Use standardized condition indices or metrics to quantify the state of infrastructure.
- Identify non-critical components where maintenance can be deferred without causing severe degradation.
- Adjust condition indices or metrics to reflect the reduced maintenance budget.

Service Metrics

- Measure user satisfaction, response times, and other relevant indicators for the specific service.

Service Impact Assessment

- Evaluate potential impacts on user satisfaction and service delivery due to decreased infrastructure condition.

Risk Management

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

Service Improvement Metrics

- Analyze the performance of target levels of service regularly and incorporate more ambitious targets based on user satisfaction if required.

Timelines

Although O. Reg requires identification of expenditures for a 10-year period in pursuit of LOS targets, it does not require municipalities to identify the timeframe to achieve them.

- Careful consideration should be given to setting realistic targets for when LOS targets are to be achieved.

General Considerations for All Scenarios

Stakeholder Engagement:

- Regularly engage with stakeholders to gather feedback and communicate changes transparently.

Data-Driven Decision Making:

- Use data analytics to inform decision-making processes and identify areas for improvement.

Flexibility and Adaptability:

- Design the methodology to be flexible, allowing for adjustments based on evolving conditions and priorities.

Continuous Improvement:

- Establish a process for continuous review and improvement of the LOS methodology itself.

Proposed Levels of Service Overview

Through a comprehensive assessment, the following levels of service for 9 asset categories have been developed, aligning with the long-term interests of the Township. Achievability is the key consideration, with measures in place to ensure realistic targets. The Township's financial capacity was thoroughly reviewed, confirming its ability to sustain the proposed service levels. Complementing this, a detailed lifecycle management and financial strategy was developed, delineating necessary activities for each asset category. This strategy outlines the full lifecycle of assets, presents viable options for lifecycle activities, evaluates associated risks, and prioritizes cost-effective measures to maintain the proposed service standards.

Scenarios

The following three scenarios have been considered for establishing target levels of service for all asset categories included in this Asset Management Plan.

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

Scenario 1: Achieving Full Funding in 15 Years

Approach: This scenario assumes a phased annual tax increase of approximately 4.7%, and 5.2% for water rates, achieving full funding in 15 years.

Scenario 2: Achieving 75% Funding in 15 Years

Approach: This scenario assumes a phased annual tax increase of approximately 3.4%, and 4.2% for water rates, reaching 75% funding within 15 years.

Scenario 3: Achieving 50% Funding in 15 Years

Approach: This scenario assumes a phased annual tax increase of approximately 1.8%, and 3.0% for water rates, reaching 50% funding within 15 years.

Scenario Analysis

Scenario 1: Achieving Full Funding in 15 Years

This scenario outlines a phased funding approach, with an annual tax increase of approximately 4.7%, along with 5.2% increases in water rates, aiming to achieve full funding within 15 years. The approach focuses on ensuring the Township can fully fund its infrastructure needs over a set period. The following analysis considers the affordability, achievability, and associated risks of this scenario, evaluating how the proposed funding strategy aligns with both community expectations and long-term infrastructure sustainability.

Lifecycle Changes

Increasing capital investment to achieve full funding over 15 years would significantly improve the Township's ability to manage its infrastructure assets. This phased approach would allow for incremental funding increases, enabling proactive maintenance, timely upgrades, and early replacements, which would reduce the need for emergency repairs and extend asset lifecycles. The following lifecycle activities would be undertaken:

- Paved Roads
  - Full capacity to address road lifecycle needs, including timely resurfacing, addressing underlying base issues, and expanding reconstruction programs to cover deferred segments.
  - Comprehensive maintenance and reconstruction, with minimal backlog.
- Water Systems
  - Full pipe replacements and system upgrades completed proactively before service life ends, ensuring consistent water quality and reliable service.
- Buildings
  - No deferred maintenance; all upgrades and replacements are completed on schedule.
- Vehicles & Equipment
  - Regular, planned maintenance for all critical machinery to avoid breakdowns and downtime.
  - Fleet is consistently maintained and replaced according to an established lifecycle, reducing the risk of costly repairs and service disruptions.
- Addressing the backlog
  - Gradual reduction of the existing infrastructure backlog through a phased, sustainable funding strategy.

Sustainability and Feasibility of Proposed Service Levels

Of the three scenarios analyzed, Scenario 1 requires the highest tax increase. Reaching full funding immediately would require an increase of 97% in tax revenue, and 113.9% increases in water rates. This is not reasonable or realistic to achieve in

a short period of time. With the recommended implementation timeframe of 15 years, tax revenue would be increased gradually from $1.1 million to $2.1 million, and water revenue would be increased gradually from $160 thousand to $343 thousand.

Based on maintaining current funding levels and existing sustainable grant funding, the available capital funding over the next 10 years for Scenario 1 is indicated in the table below:

Source	Available Capital Funding									
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Tax Revenue	$455k	$507k	$562k	$619k	$679k	$742k	$807k	$876k	$948k	$1.0m
Water Rates	$13k	$19k	$26k	$33k	$40k	$48k	$56k	$64k	$72k	$81k

Table 3: Available Capital Funding Over Next 10 Years

The above table accounts for both current and future expenditures in order to achieve and maintain the service level option. This requires a combination of capital spending and saving (i.e. reserves) to ensure future large expenditures can be financed.

Risk Analysis

Evaluating the risks associated with each service level option is essential for balancing infrastructure needs, financial sustainability, and community expectations. By identifying and assessing these risks, the township can make informed decisions that support long-term service reliability.

Scenario 1 Risks

- Delayed Improvement: The Township will not see significant improvements in asset conditions or service levels until full funding is reached after 15 years. However, gradual improvements will be made over time as funding increases.
- Resource Constraints: Implementing and maintaining this service level option may stretch the Township's operational capacity, particularly if there are limited resources or capacity to handle the expanded scope of work over the long term.
- Public Perception: While these increases are technically achievable, there’s a possibility that residents may not fully support sustained increases over the long term, especially given the preference for moderate tax rates and the general satisfaction with current services.

Figure 12: Scenario 1 Risk Analysis

Scenario 2: Achieving 75% Funding in 15 Years

This scenario outlines a phased funding approach, with an annual tax increase of approximately 3.4%, along with 4.2% increases in water rates, aiming to achieve 75% funding within 15 years. The approach represents a more moderate level of funding while still addressing infrastructure needs.

The following analysis considers the affordability, achievability, and associated risks of this scenario, evaluating how the proposed funding strategy aligns with both community expectations and long-term infrastructure sustainability.

Lifecycle Changes

Increasing capital investment to achieve full funding over 15 years would significantly improve the township's ability to manage its infrastructure assets. This phased approach would allow for incremental funding increases, enabling proactive maintenance, timely upgrades, and early replacements, which would reduce the need for emergency repairs and extend asset lifecycles. The following lifecycle activities would be undertaken:

- Paved Roads
  - Some road resurfacing may be delayed, but critical repairs and resurfacing will still be prioritized.
- Water System
  - Proactive replacement of high-priority pipes and system components, with some deferred replacements based on asset condition.
- Buildings
  - Maintenance and upgrades prioritized for critical components, with some non-urgent upgrades deferred.
- Vehicles & Equipment
  - Replacement of essential vehicles is prioritized, but non-essential fleet replacements may be delayed.
  - Regular replacement and maintenance of key machinery, though some equipment replacements may be delayed or scaled back to meet budget constraints.

Sustainability and Feasibility of Proposed Service Levels

Of the three scenarios analyzed, Scenario 2 requires a moderate tax increase. Reaching 75% of full funding immediately would require an increase of 63.2% in tax revenue and 84.4% increase in water rates. This is not reasonable or realistic to achieve in a short period of time. With the recommended implementation timeframe of 15 years, tax revenue would be increased gradually from $1.1 million to $1.7 million, and water revenue would be increased gradually from $160 thousand to $300 thousand.

Based on these gradual proposed increases, while maintaining existing sustainable grant funding, the available capital funding over the next 10 years for Scenario 2 is indicated in the table below:

Source	Available Capital Funding									
	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Tax Revenue	$441k	$479k	$517k	$557k	$598k	$641k	$685k	$730k	$777k	$826k
Water Rates	$12k	$17k	$22k	$28k	$34k	$40k	$46k	$52k	$59k	$66k

Table 4: Available Capital Funding Over Next 10 Years

The above table accounts for both current and future expenditures in order to achieve and maintain the service level option. This requires a combination of capital spending and saving (i.e. reserves) to ensure future large expenditures can be financed.

Risk Analysis

Evaluating the risks associated with each service level option is essential for balancing infrastructure needs, financial sustainability, and community expectations. By identifying and assessing these risks, the township can make informed decisions that support long-term service reliability.

Scenario 2 Risks

- Delayed Improvement: The Township will not see significant improvements in asset conditions or service levels until 75% funding is reached after 15 years. However, gradual improvements will be made over time as funding increases.
- Infrastructure Backlog: There is a risk that the existing infrastructure backlog will continue to grow both during and after the 15-year phase-in period, as the Township will still fall short of full lifecycle funding. This could lead to escalating long-term costs, service disruptions, and reduced asset reliability over time.
- Resource Constraints: Implementing and maintaining this service level option may stretch the municipality's operational capacity, particularly if there are limited resources or capacity to handle the expanded scope of work over the long term.
- Public Perception: While these increases are technically achievable, there’s a possibility that residents may not fully support sustained increases over the long term, especially given the preference for moderate tax rates and the general satisfaction with current services.

Figure 13: Scenario 2 Risk Analysis

Scenario 3: Achieving 50% Funding in 15 Years

This scenario involves a phased tax increase of approximately 1.8% annually, along with 3.0% increases in water rates, aiming to achieve 50% funding within 15 years. The goal of this scenario is to provide a lower tax burden while making incremental progress toward meeting the municipality's infrastructure funding needs.

The following analysis considers the affordability, achievability, and associated risks of this scenario, evaluating how the proposed funding strategy aligns with both community expectations and long-term infrastructure sustainability.

Lifecycle Changes

Increasing capital investment to achieve 50% funding would lead to gradual improvements in managing infrastructure assets. This level of investment would support some proactive maintenance and early replacements but may not fully address aging infrastructure or reduce the backlog as effectively. The Township would maintain basic regulatory compliance but may face challenges in fully addressing infrastructure needs, potentially affecting the consistency of water service delivery. While asset lifecycles would extend, repairs and replacements may remain suboptimal. Ultimately, while the Township would maintain a basic level of infrastructure reliability, the ability to enhance service delivery would be constrained.

Sustainability and Feasibility of Proposed Service Levels

Scenario 3 requires a conservative tax increase, requiring the lowest increase of the three scenarios analyzed. Reaching 50% of full funding immediately would require an increase of 29.3% in tax revenue and 54.9% increase in water rates. This is not reasonable or realistic to achieve in a short period of time. With the recommended implementation timeframe of 15 years, tax revenue would be increased gradually from $1.1 million to $1.4 million, and water revenue would be increased gradually from $160 thousand to $251 thousand.

Based on these gradual proposed increases, while maintaining existing sustainable grant funding, the available capital funding over the next 10 years for Scenario 3 is indicated in the table below:

Source	Available Capital Funding									
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tax Revenue	$425k	$444k	$464k	$484k	$504k	$525k	$546k	$568k	$590k	$612k
Water Rates	$10k	$14k	$18k	$22k	$26k	$30k	$34k	$38k	$43k	$47k

Table 5: Available Capital Funding Over Next 10 Years

The above table accounts for both current and future expenditures in order to achieve and maintain the proposed levels of service. This requires a combination of capital spending and saving (i.e. reserves) to ensure future large expenditures can be financed.

Risk Analysis

Evaluating the risks associated with each service level option is essential for balancing infrastructure needs, financial sustainability, and community expectations. By identifying and assessing these risks, the municipality can make informed decisions that support long-term service reliability.

Scenario 3 Risks

- Infrastructure Backlog: Without immediate funding, there is a risk that the existing infrastructure backlog could continue to grow even after 50% funding has been reached, potentially leading to higher long-term costs and service disruptions.
- Service Disruptions & Regulatory Challenges: Aging infrastructure could cause service interruptions and make it difficult to meet regulatory requirements, resulting in potential compliance risks.
- Taxation Increase: While the annual increases are the most manageable, it may not provide enough funding to meet future service demands. This scenario may be more acceptable in the short term, but could become unsustainable in the long run if infrastructure needs continue to rise.
- Financial Instability & Grant Reliance: Insufficient funding may lead to a reliance on grants and reserves, creating financial uncertainty and limiting the ability to address future infrastructure needs.

Figure 14: Scenario 3 Risk Analysis

Preferred Approach and Rationale

The Township of Nairn and Hyman has selected Scenario 3 as its proposed level of service strategy, targeting to achieve 50% of full infrastructure funding over the next 15 years. This approach reflects the Township's small tax and ratepayer base and the need to adopt a fiscally cautious path forward. While the selected scenario is conservative, it is considered a financially realistic option given current budget constraints.

The Township recognizes the risks associated with underfunding infrastructure over time, including the potential for asset deterioration, increased maintenance costs, and reduced service levels. However, this risk is being managed through a commitment to prioritizing projects based on asset criticality, condition, and risk. This ensures that limited resources are directed toward the most urgent infrastructure needs. Additionally, the Township will actively pursue available grant opportunities and external funding programs to supplement capital investments and help offset the funding shortfall.

This approach is reflected in the Township's 10-year capital requirements and financial strategy, which emphasize affordability and gradual reinvestment. Although the scenario falls short of full lifecycle funding, it provides a starting point for maintaining core services while minimizing the financial burden on the community. As conditions change, including shifts in funding availability, infrastructure priorities, or community growth, the Township will revisit this approach and adjust as needed to improve long-term asset sustainability.

State of the Infrastructure

The state of the infrastructure (SOTI) summarizes the inventory, condition, age profiles, and other key performance indicators for the Township's infrastructure portfolio. Figure 2 illustrates how assets were classified within the infrastructure data hierarchy. Most reporting and analysis is presented at the segment level.

Asset Hierarchy and Data Classification

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

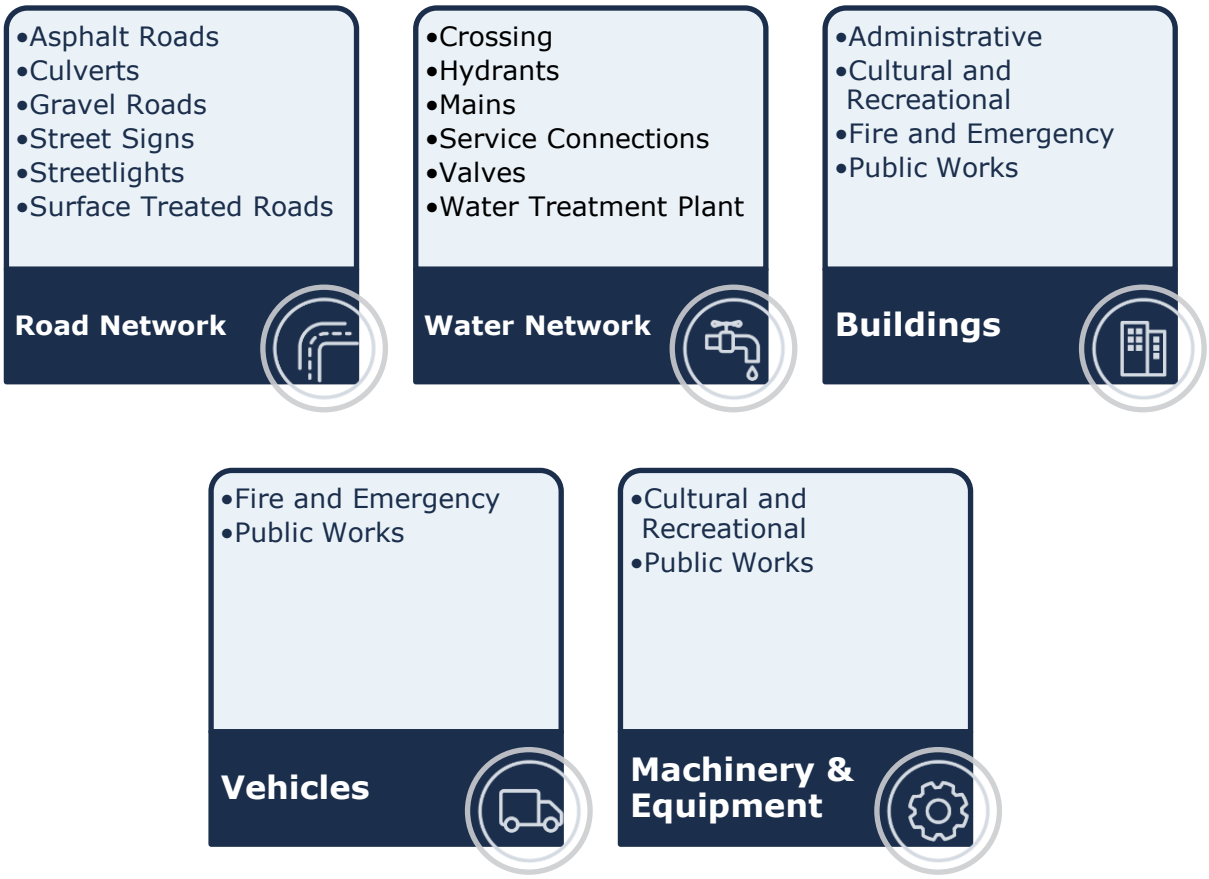


Figure 15: Asset Hierarchy and Data Classification

Portfolio Overview

The five asset categories analyzed in this asset management plan have a total current replacement cost of $69.5 million. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects the replacement of historical assets with similar, not necessarily identical, assets available for procurement today.

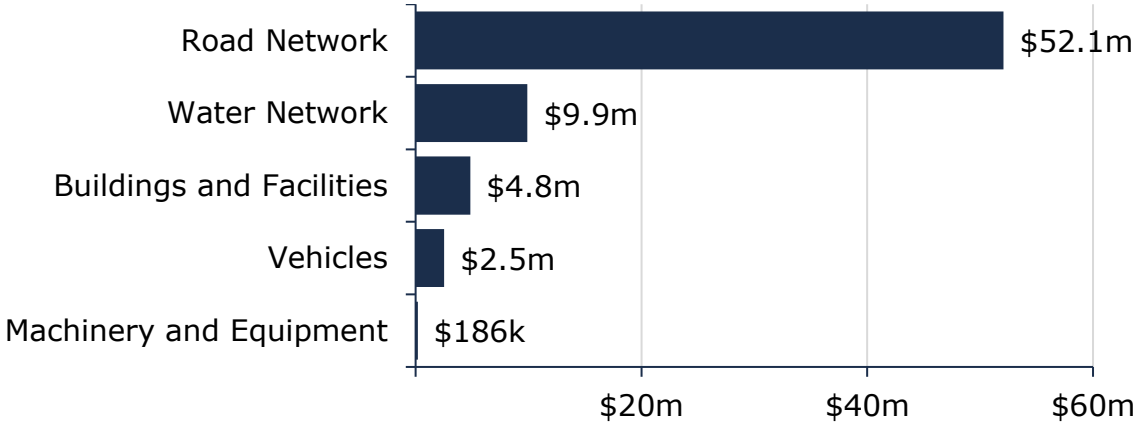


Figure 16: Current Replacement Cost by Asset Category

Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 58% of assets in Nairn and Hyman are in fair or better condition. This estimate relies on both age-based and field condition data.

Assessed condition data is available for the road network, buildings & facilities, and vehicles; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions.

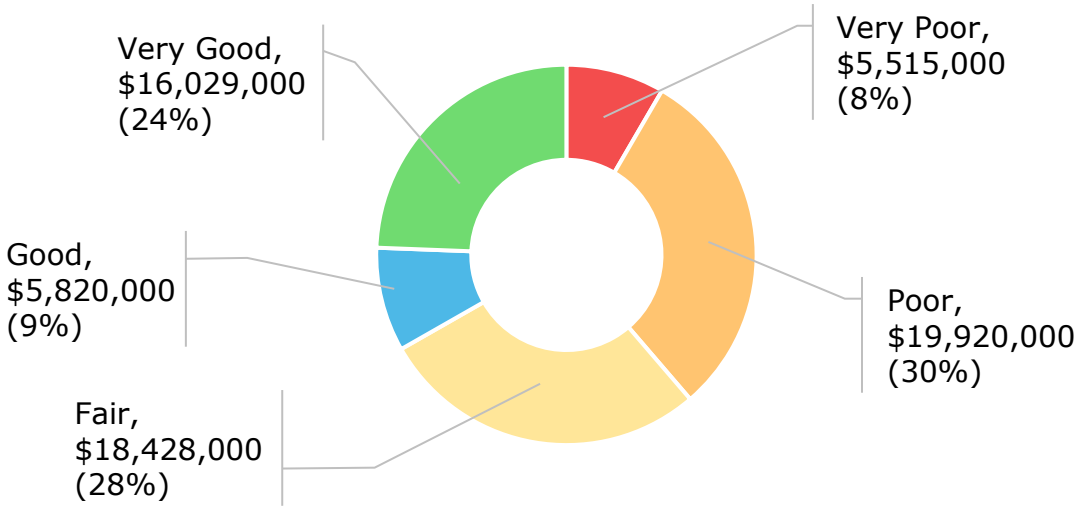


Figure 17: Condition of Asset Portfolio - Overall

The figure below illustrates the condition distribution across each asset segment.

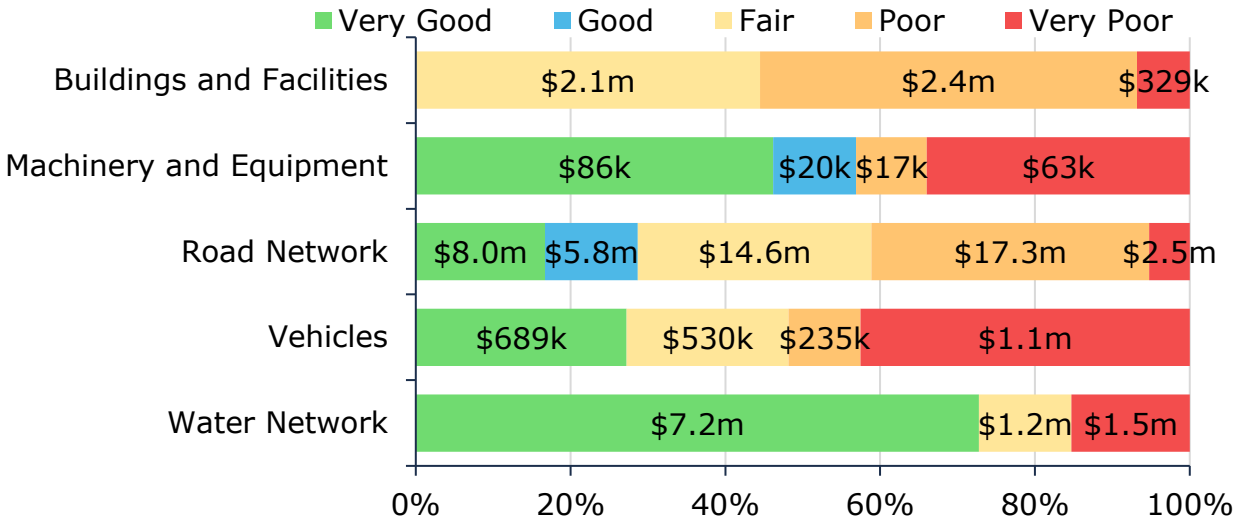


Figure 18: Condition of Asset Portfolio - by Asset Segment

Source of Condition Data

This asset management plan relies on assessed condition for 80% of assets, based on and weighted by replacement cost. For the remaining assets, aged is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

Asset Category	Asset Segment(s)	% of Assets with Assessed Conditions	Source of Condition Data
Road Network	Asphalt Roads	89%	Staff Assessments
	Gravel Roads	100%	
	Surface Treated Roads	100%	
Buildings	Administrative	100%	Staff Assessments
	Cultural and Recreational	100%	
	Fire and Emergency	100%	
	Public Works	59%	
Vehicles	Fire and Emergency	100%	Staff Assessments
	Public Works	100%	

Table 6: Source of Condition Data

Forecasted Long-term Replacement Needs

Aging assets require maintenance, rehabilitation, and replacement. The figure below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for all asset categories analyzed in this AMP. On average, $1.6 million is required each year to remain current with capital replacement needs for the Township's asset portfolio to maintain current levels of service (red dotted line).

The chart also illustrates a backlog of $3.8 million, comprising assets that remain in service beyond their estimated useful life. It is unlikely that all such assets are in a state of disrepair, requiring immediate replacements. This makes continued and expanded targeted and consistent condition assessments integral. Risk frameworks, proactive lifecycle strategies, and levels of service targets can then be used to prioritize projects, continuously refine estimates for both backlogs and ongoing capital needs and help select the right treatment for each asset. In addition, more effective componentization of buildings will improve these projections, including backlog estimates.

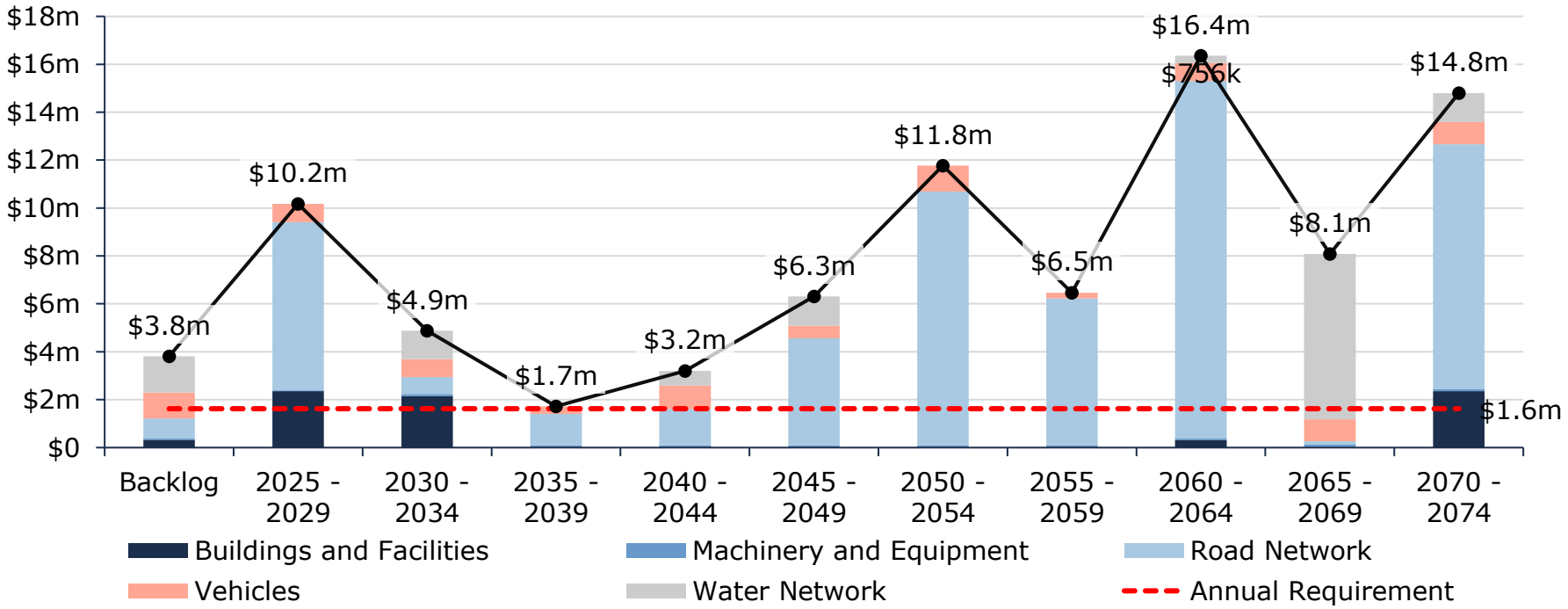


Figure 19: Forecasted Capital Requirements by Asset Category

Risk Matrix

Using the risk equation and preliminary risk models, the table below shows how assets across the different asset categories are stratified within a risk matrix.

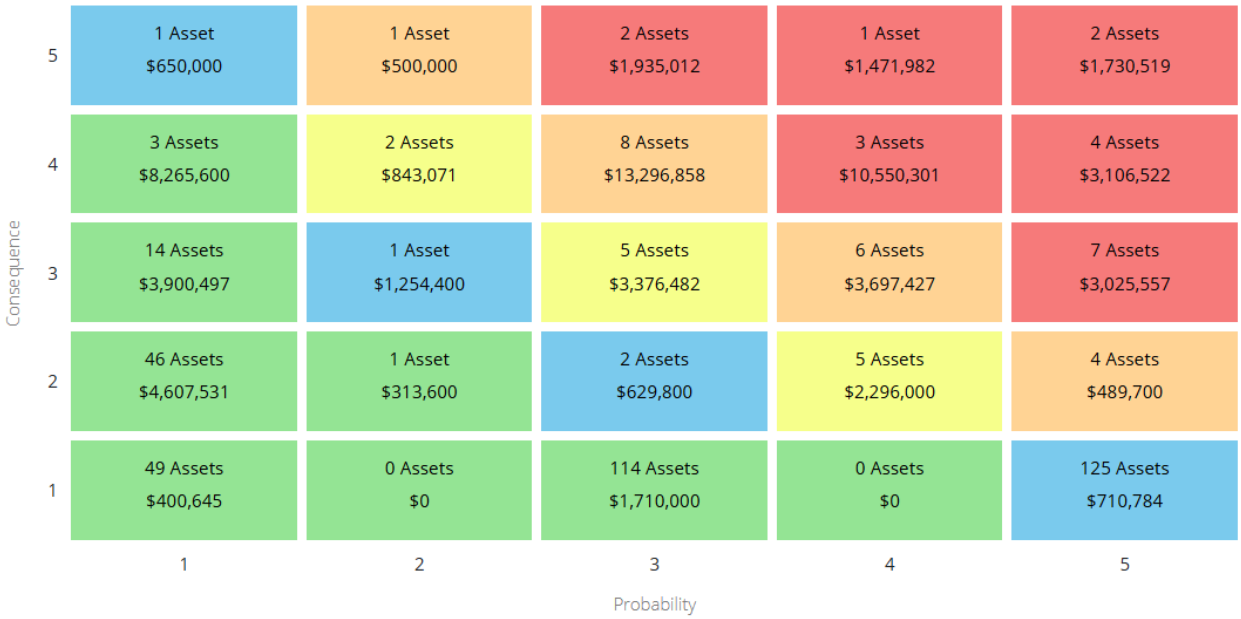
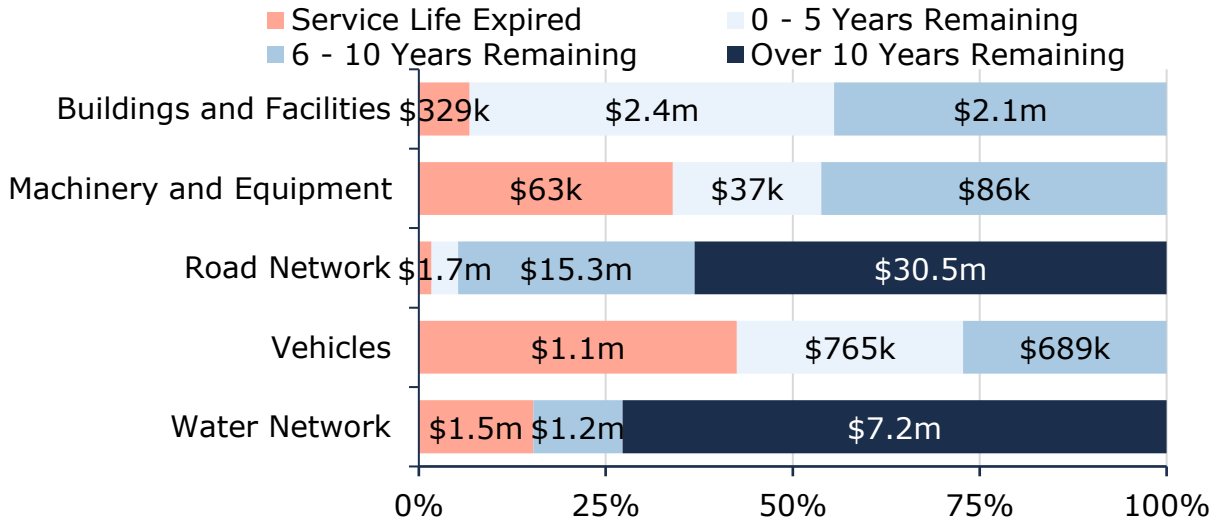


Figure 20: Risk Matrix - All Assets

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

Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 43% of the Township's assets will require replacement within the next 10 years.



Road Network

The Township's roads and roadside assets comprises the largest share of its infrastructure portfolio, with a current replacement cost of more than $52 million, distributed primarily between asphalt and surface treated roads. The Township also owns and manages other supporting infrastructure, including culverts, streetlights, street signs as well as municipal facilities, vehicles, machinery, and equipment that support the Township in the delivery of transportation services.

Inventory and Valuation

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

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Asphalt Roads	10	Km	CPI	$21,664,567
Culverts	978	Meters	User-Defined	$2,103,787
Gravel Roads	2.7	Km	CPI	$3,818,467
Street Signs	176	Assets	CPI	$124,561
Streetlights	81	Assets	CPI	$258,618
Surface Treated Roads	14.5	Km	CPI	$24,103,691
Total				**$52,073,691**

Table 7: Detailed Asset Inventory - Road Network

Asset Condition

The figure below summarizes the replacement cost-weighted condition of the Township's roads and roadside assets. Based on a combination of field inspection data and age, 55% of assets are in fair or better condition; the remaining 38% of assets are in poor or worse condition. Informal condition assessments conducted by Township staff were available for 100% of roads, based on replacement cost.

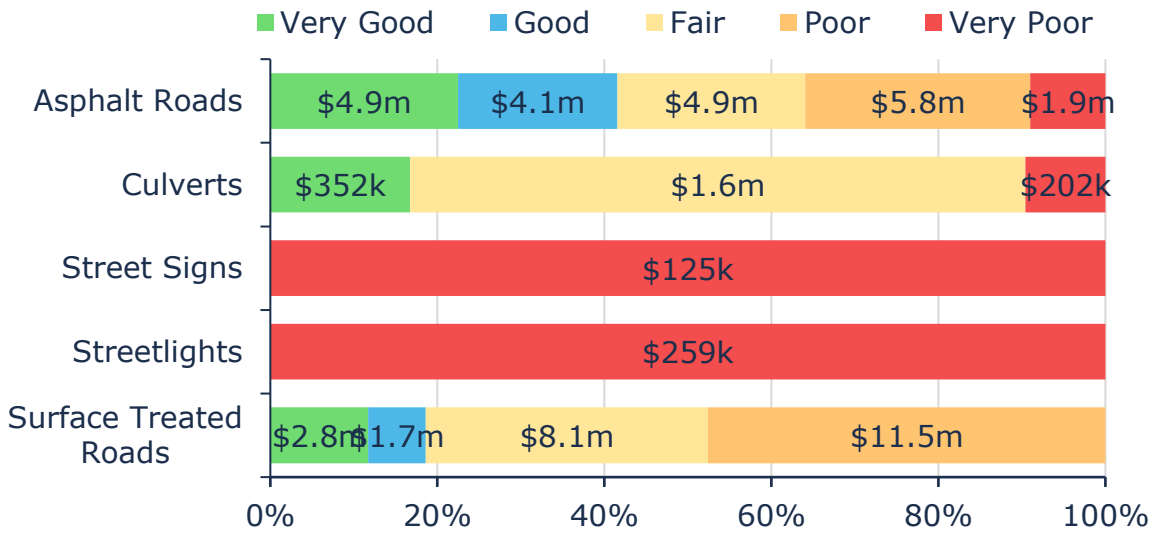


Figure 21: Road Network Average Condition

Age Profile

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

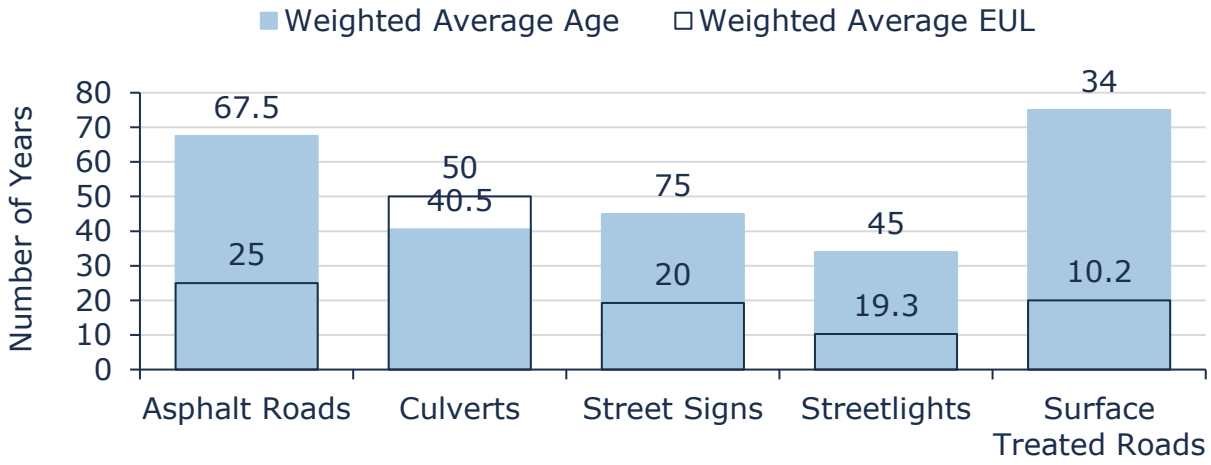


Figure 22: Road Network Average Age vs. Average EUL

The analysis shows that, based on in-service dates, asphalt and surface treated roads continue to remain in operation beyond their expected useful life. Condition assessments should be used to identify potential candidates for potential repair, renewal, or replacements.

Current Approach to Lifecycle Management

This section outlines the Township's current approach to managing its road assets. Key data was collected through staff discussions. As applicable, lifecycle models were also built in Citywide. These can be used by staff for ongoing reference and planning within the Township's asset management program. These models should be continuously refined and updated with new data as it becomes available.

Roads

A roads needs study (RNS) has been completed by an external consultant in the past for all paved and unpaved road sections. As part of the study, a pavement condition index (PCI) was calculated based on distress quantity, type, and severity. Staff formally conduct road patrols every 2 weeks and as needed informally; granular roads are also visually inspected during grading activities.

Condition assessments, staff judgment, traffic loads, and opportunity to bundle projects with water asset requirements (water) help inform the optimal lifecycle intervention that range from pothole repairs to potential rehabilitation.

Pothole repairs are completed annually based on deficiencies identified through regular road patrols and feedback from the public. Gravel roads are regraded multiple times a year, particularly in rural cottage areas.

Summer maintenance activities include grading, re-gravelling, applying dust suppressant, ditching, roadside mowing, tree trimming, brush cleanup, road sign maintenance, and line painting. Winter maintenance activities include snow plowing, salting, and snow removal.

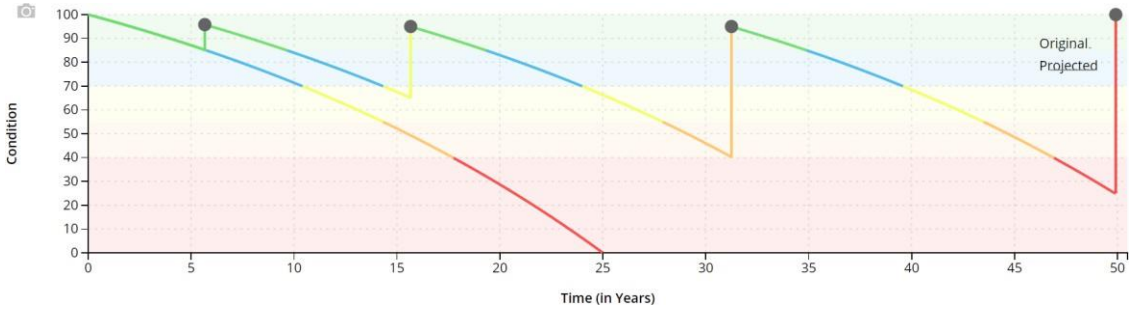
Preventative maintenance treatments like crack sealing are conducted on as-needed basis on selected road sections. Rehabilitative activities include mill and paving, asphalt overlaying, single and double surface treatments. On average, around 1-2 km of roads are resurfaced every other year. Roads are rehabilitated based on the results of road patrols, visual inspections and additional factors like growth, health and safety and social impact.

Road reconstruction projects (base and surface layers) are prioritized through road condition, risk, sub-surface asset requirements, consideration of growth, health and safety and social impact. Additional factors also include the type of traffic, for instance Old Nairn Road is primarily used by logging trucks and experiences increased deterioration, serving as a possible candidate for road widening and reconstruction.

The table below summarizes the Township's current lifecycle strategy for its asphalt roads and includes the state of the asset that may trigger the event (i.e., condition or age). Major rehabilitation and replacements are guided by both ride condition ratings and sub-surface asset requirements.

Table 8: Current Lifecycle Management Strategies – Asphalt Roads

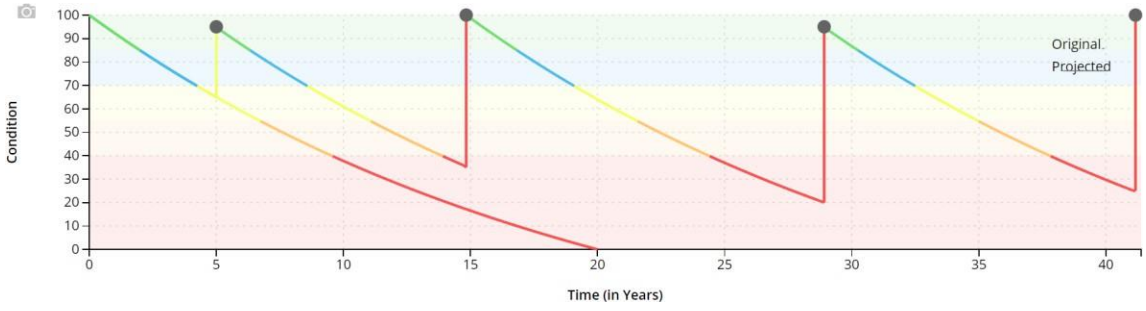
Event Name	Event Class	Event Range / Trigger
General Maintenance	Maintenance	As needed
Crack Sealing	Preventative Maintenance	Condition: 85 - 95
Single Surface Treatment	Rehabilitation	Condition: 65 - 85
Base Repairs and 40mm Asphalt Overlay	Rehabilitation	Condition: 40 - 55
Asset Reconstruction	Replacement	Condition: 25



The table below summarizes the Township's current lifecycle strategy for its surface treated roads and includes the state of the asset that may trigger the event (i.e., condition or age). Major rehabilitation and replacements are guided by both ride condition ratings and sub-surface asset requirements.

Table 9: Current Lifecycle Management Strategies – Surface Treated Roads

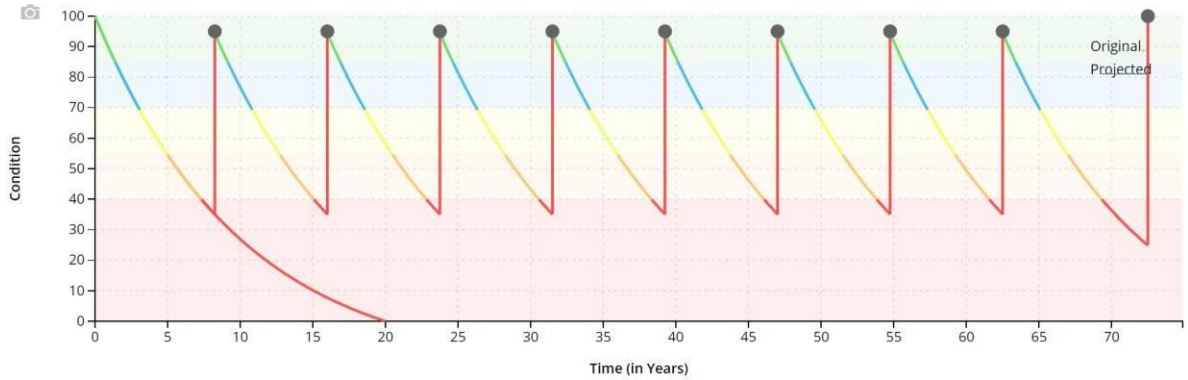
Event Name	Event Class	Event Range / Trigger
General Maintenance	Maintenance	As needed
Single Surface Treatment	Rehabilitation	Condition: 65 - 85
Double Surface Treatment	Rehabilitation	Condition: 35 - 65
G/ST Rehabilitation	Rehabilitation	Condition: 20 - 35
Asset Reconstruction	Replacement	Condition: 20



The table below summarizes the Township's current lifecycle strategy for its gravel roads and includes the state of the asset that may trigger the event (i.e., condition or age). Major rehabilitation and replacements are guided by both ride condition ratings and sub-surface asset requirements.

Table 10: Current Lifecycle Management Strategies – Gravel Roads

Event Name	Event Class	Event Range / Trigger
General Maintenance	Maintenance	As needed
Dust Control/Suppressant	Maintenance	Annually (localized)
G/ST Rehabilitation	Rehabilitation	Condition: 35 - 55
Asset Reconstruction and/or Asset Surface Upgrade	Replacement	Condition: 25



The above noted strategies illustrate the importance of maintenance and rehabilitation, extending the serviceable life of both asphalt and surface treated surfaces. Although staff indicated that each activity is typically completed only once before the next, more invasive treatment is applied, the strategy may benefit from integration of planned or forecasted replacements of water mains. This may require multiple applications of a maintenance or rehabilitation treatment to bundle and synchronize the road section's eventual replacement with sub-surface asset requirements.

Culverts

Culvert repairs and replacements are completed annually based on deficiencies identified through regular road patrols and feedback from the public.

Streetlights and Street Signs

Streetlights and street signs are inspected as per O. Reg. 239/02, and undergo repairs and replacements based on road patrols and feedback from the public.

Forecasted Long-term Replacement Needs

The table below illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's roads and roadside. This analysis was run until 2074 to capture at least one iteration of replacement for the longest-lived asset in the asset register. The Township's average annual requirements (red dotted line) total $1.2 million for all assets in the roads and roadside category. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

It also shows a backlog $828 thousand, comprising assets that have reached the end of their useful life. The projections are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades. They are based on asset replacement costs, age analysis, condition data when available, as well as lifecycle modeling (roads only). The lifecycle modeling included preventative maintenance, general maintenance, and rehabilitative activities.

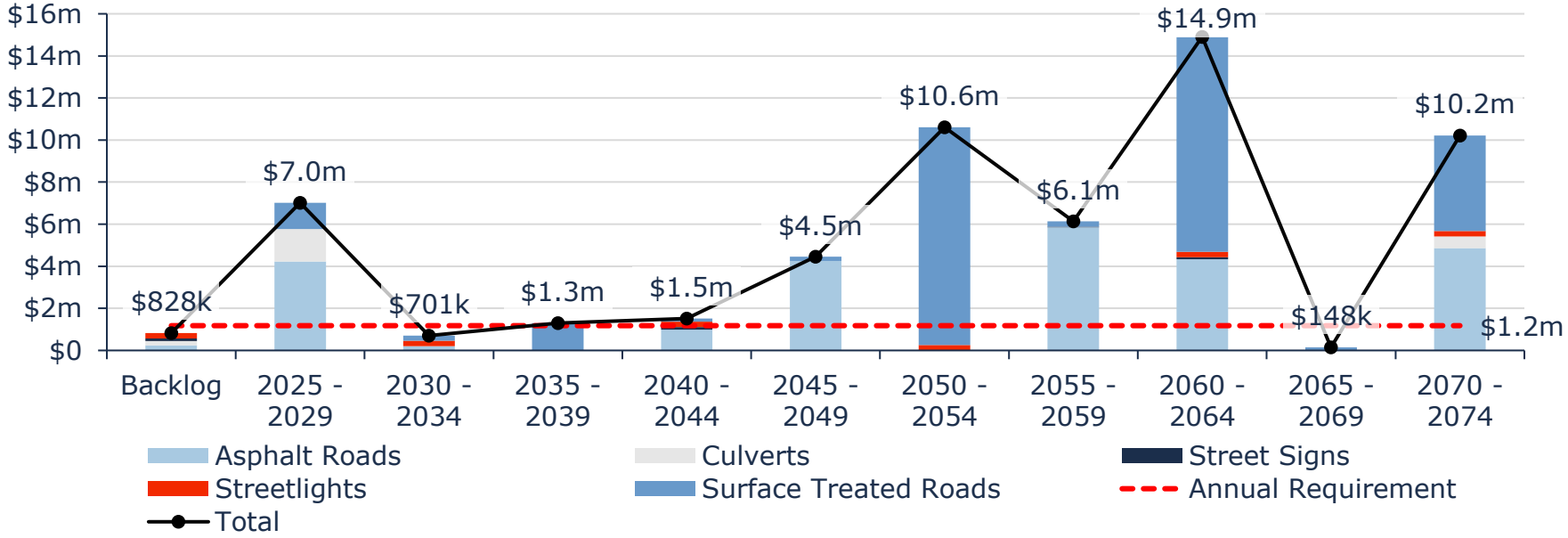


Figure 23: Forecasted Capital Replacement Requirements – Road Network

Often, the magnitude of capital needs is substantially higher than most municipalities can afford to fund. It is also unlikely that all assets will need to be rehabilitated or fully reconstructed as forecasted above. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. Regular pavement condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

System-generated 10-Year Replacement Forecast

The table below summarizes the projected cost of capital lifecycle activities (rehabilitation and replacements) that may be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register. They can be different from actual capital forecasts. Consistent data updates, particularly condition, replacement costs, and regular upkeep of lifecycle models, will improve the alignment between the system generated expenditure requirements, and the Township's capital expenditure forecasts.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2031
Asphalt Roads	$3.9m	-	-	$336k	-	$204k	-	-	-	-
Surface Treated Roads	-	-	-	-	$1.6m	-	-	-	-	-
Culverts	-	-	-	-	-	-	-	-	-	-
Streetlights	-	-	-	-	-	-	-	-	-	$252k
Street Signs	$940k	$25k	$270k	-	-	$190k	-	-	-	$55k
Total	**$4.8m**	**$25k**	**$270k**	**$336k**	**$1.6m**	**$394k**	**-**	**-**	**-**	**$307k**

Figure 24: System-generated 10-Year Capital Replacement Forecast – Road Network

Risk Analysis

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 available inventory data.

1 - 4 **Very Low** $5,310,981 (10%)	5 - 7 **Low** $6,274,805 (12%)	8 - 9 **Moderate** $2,205,912 (4%)	10 - 14 **High** $22,696,014 (44%)	15 - 25 **Very High** $15,585,979 (30%)

Figure 25: Road Network Risk Matrix

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The table below provides an overview of the different data points and allocations utilized to determine the risk rating for each road and roadside asset.

Probability of Failure (POF)		**Consequence of Failure (COF)**	
Paved Roads			
POF Critera	Asset Data Point	COF Criteria	Asset Data Point
Performance (85%)	Asset Condition	Direct Financial (70%)	Asset Replacement Cost
Operational (15%)	Service Life Remaining	Operational (15%)	Road Class
		Strategic (10%)	AADT
Unpaved Roads			
POF Critera	Asset Data Point	COF Criteria	Asset Data Point
Performance (85%)	Asset Condition	Direct Financial (70%)	Asset Replacement Cost
Operational (15%)	Service Life Remaining	Operational (15%)	Road Class
		Strategic (10%)	AADT
All Other Assets			
POF Critera	Asset Data Point	COF Criteria	Asset Data Point
Performance (85%)	Asset Condition	Direct Financial (80%)	Asset Replacement Cost
Operational (15%)	Service Life Remaining	Strategic (20%)	Asset Type

Table 11: Risk Rating Criteria – Road Network

Levels of Service

The tables that follow summarize the Township's current levels of service with respect to prescribed KPIs under Ontario Regulation 588/17.

<table>
<tr><th>Service Attribute</th><th>Qualitative Description</th><th>Current Level of Service</th></tr>
<tr><td rowspan="2">Scope</td><td>Description, which may include maps, of the road network in the Municipality and its level of connectivity</td><td>The Township's road network spans a total of 28 km primarily within a rural setting, with areas of semi-urban development. The road network consists of approximately 10 km of high class bituminous (HCB) roads, 15 km of low class bituminous (LCB) roads and 3 km of unpaved roads. The road network also contains other roadside appurtenances such as culverts, streetlights, and street signs.

The overall road network is comprised of two areas that are located along Highway 17; the local roads that make up the Nairn Centre Townsite and the Sand Bay Road system that would include local roads around the Spanish River and out to the Sand Bay Village on Agnew Lake.</td></tr>
<tr><td>Quality</td><td>Description or images that illustrate the different levels of road class pavement condition.</td><td>Every road section receives a pavement condition index (PCI) rating (0-100).

The rating incorporates pavement roughness measurements and surface distresses (type, quantity, severity).

Ratings are categorized into 5 general qualitative descriptors as detailed below:

<table><tr><th>PCI Label</th><th>PCI Range</th></tr><tr><td>Excellent</td><td>85-100</td></tr><tr><td>Good</td><td>70-85</td></tr><tr><td>Fair</td><td>55-70</td></tr><tr><td>Poor</td><td>30-55</td></tr><tr><td>Very Poor</td><td>0-30</td></tr></table></td></tr>
</table>

Table 12: Community Levels of Service – Road Network

Service Attribute	Qualitative Description	Current Level of Service
Scope	Lane-km of arterial roads per land area (km/km^2)	0 (km/km^2)
	Lane-km of collector roads per land area (km/km^2)	0 (km/km^2)
	Lane-km of local roads per land area (km/km^2)	0.33 (km/km^2)
Quality	Average pavement condition for paved roads in the Municipality	53 - Fair
	Average surface condition for unpaved roads in the Municipality (e.g., excellent, good, fair, poor)	Good
Performance	Actual capital reinvestment rate	0.8%
	Target capital reinvestment rate	1.1%
	Operating costs for unpaved (loose top) roads per Lane-km	Relevant information not available at this time; staff will have this ready for the next iteration of the AMP

Table 13: Technical Levels of Service – Road Network

Proposed Levels of Service

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

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

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased tax increase of approximately 4.7% annually, reaching full funding within 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 3.4% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 50% funding within 15 years

Table 14: Proposed LOS Scenarios

PLOS Analysis

The following table compares three funding scenarios, illustrating how varying levels of capital investment impact asset condition, risk, and overall performance over time.

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	73.30%	77.10%	77.18%	69.63%
	Average Asset Risk	8.81	8.65	8.33	10.35
	Average Annual Investment	$1,177,775			
	Capital re-investment rate	2.3%			
Scenario 2	Average Condition	73.30%	75.57%	76.76%	66.89%
	Average Asset Risk	8.81	8.94	8.48	11.02
	Average Annual Investment	$883,331			
	Capital re-investment rate	1.7%			
Scenario 3	Average Condition	73.30%	62.99%	62.82%	56.05%
	Average Asset Risk	8.81	11.81	11.29	12.84
	Average Annual Investment	$588,888			
	Capital re-investment rate	1.1%			

Table 15: Road Network Scenario Analysis

The following figure illustrates the projected condition of the asset category under each of the three investment level scenarios, demonstrating how varying reinvestment strategies impact overall asset condition over time.

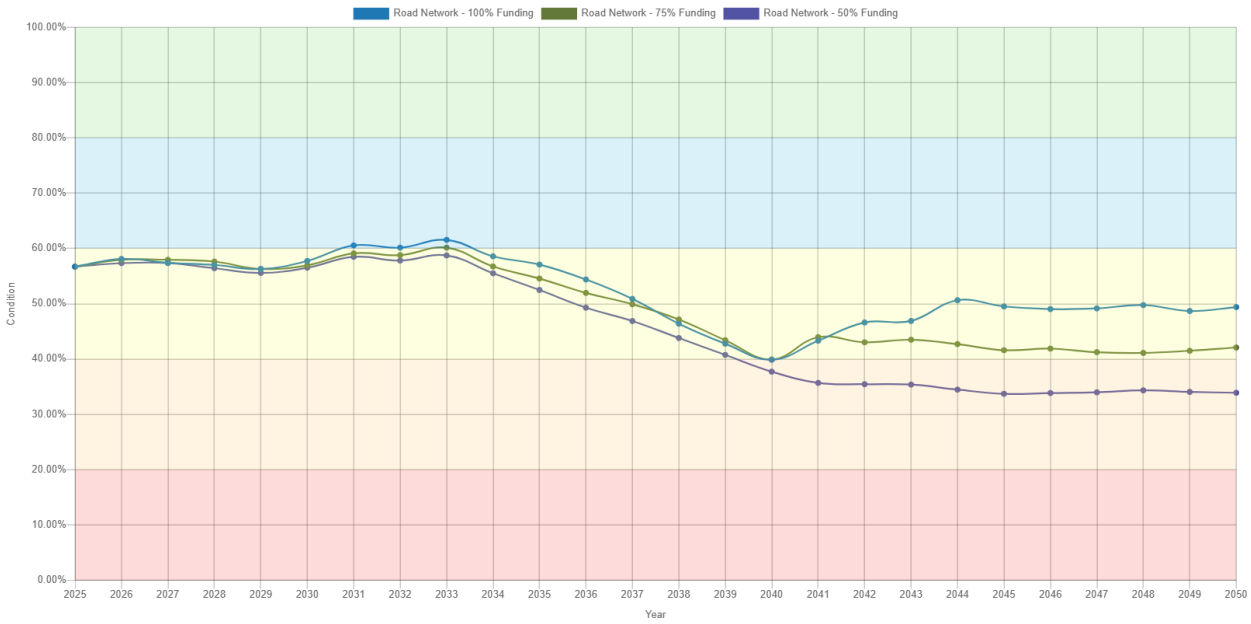


Figure 26: Road Network Scenario Comparison

Water Network

The Township's Water Ntework inventory includes mains, service connections, hydrants, valves, crossings, and a treatment facility that comprises a total current replacement cost of approximately $9.9 million. It is the second highest value category in the Township's asset portfolio. The majority of assets were installed in the mid-1990s, and as such most of the network is still early in its service life.

Inventory and Valuation

The table below summarizes the quantity and current replacement cost of all water distribution and treatment assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Crossing	5	Assets	CPI	$148,618
Hydrants	23	Assets	Cost per Unit	$241,500
Mains	5,864	Meters	Cost per Unit	$6,537,803
Service Connections	23	Assets	CPI	$205,208
Valves	15	Assets	CPI	$73,265
Water Treatment Plant	6	Assets	User-Defined	$2,699,773
Total				**$9,906,167**

Table 16: Detailed Asset Inventory - Water Network

Asset Condition

The figure below summarizes the replacement cost-weighted condition of the Township's water assets. Based on a combination of field inspection data and age, 85% of assets are in fair or better condition; the remaining 15% of assets are in poor or worse condition.

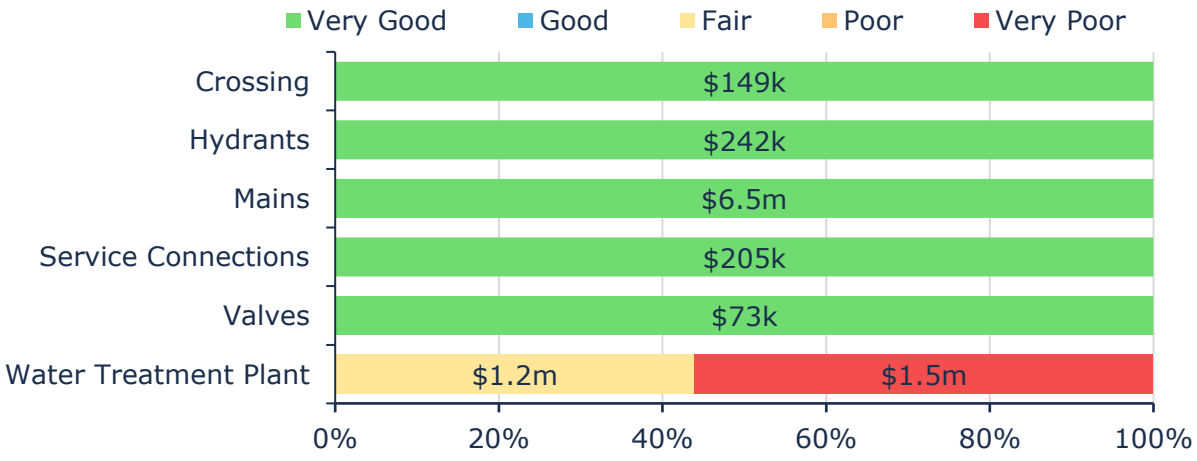


Table 17: Water Network Asset Condition

Age Profile

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

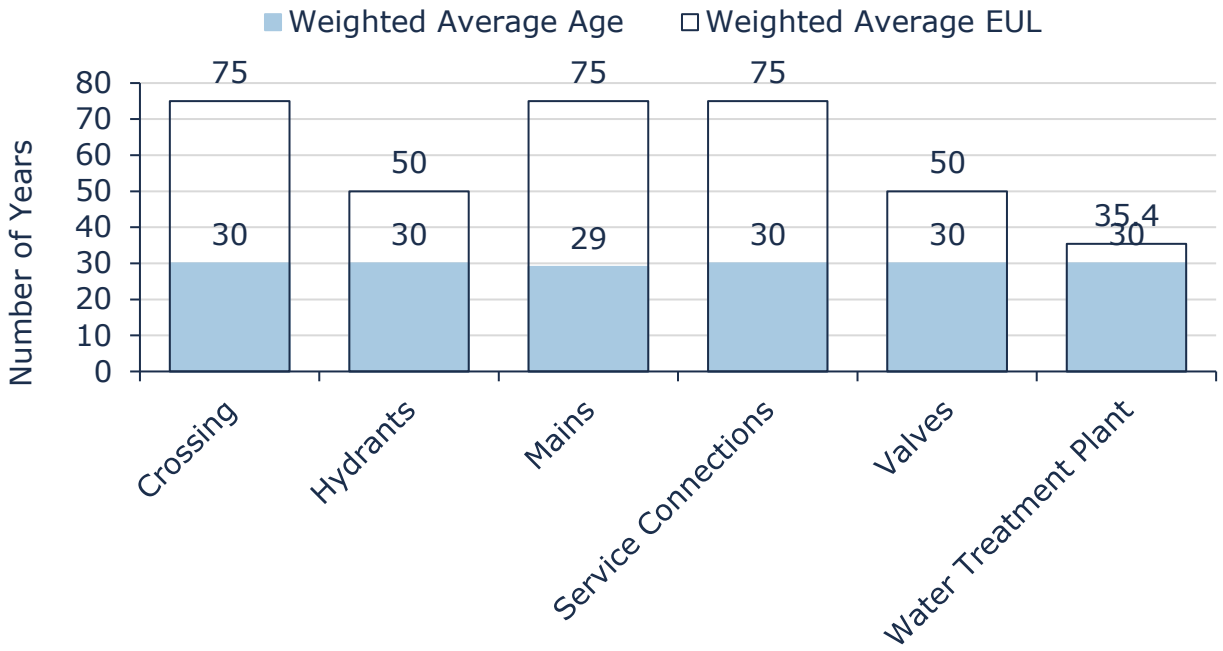


Figure 27: Water Network Average Age vs. Average EUL

Age analysis reveals that, on average, most of the water assets in the earlier stages of their life. However, assets that represent the water treatment plant are approaching their end of life. Facilities have hundreds to thousands of individual element and components. As noted previously, water treatment facilities are not componentized. In the absence of componentization, age analysis was only possible at the site level, rather than at the major element or component level.

Current Approach to Lifecycle Management

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

Apart from the inspections required under O. Reg. 170/03: Drinking Water Systems, the Township also conducts an annual inspection of all water assets. The Ontario Clean Water Agency (OCWA) also provides the Township with multi-year forecasts on recommended maintenance, rehabilitative and replacement activities that are further reviewed by staff.

Mains, Service Connections, Crossings

Water mains are assessed on as-needed basis and often in coordination with road and/or sub-surface construction projects. Staff rely on asset age, pipe material and

diameter, location, and available CCTV assessments to determine the projected condition of water mains.

Water mains also undergo spot repair and main replacement is generally coordinated with road and/or sub-surface capital projects, but critical asset data like main breaks, main location, age, pipe material and diameter are also factored into the prioritization process. In the absence of mid-lifecycle rehabilitative events, most mains are simply maintained with the goal of full replacement once it reaches its end-of-life.

The table below summarizes the Township's current lifecycle strategy for its water mains and includes the state of the asset that may trigger the event (i.e., condition or age). Capital replacements are guided by a multitude of factors, including but not limited to the coordination between road reconstruction and other sub-surface asset requirements.

Event Name	Event Class	Event Range / Trigger
Valve Maintenance	Maintenance	Annually
Directional Flushing	Maintenance	Annually
Hydrant Flushing	Maintenance	Annually
Asset Replacement	Replacement	Condition: 20

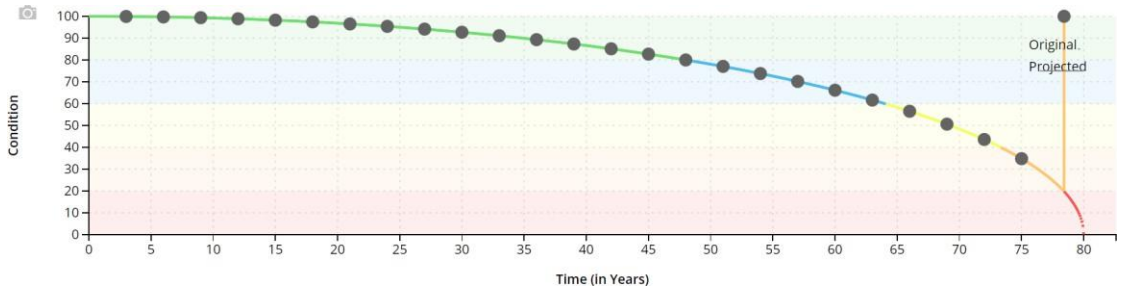


Figure 28: Current Lifecycle Management Strategies – Water Mains

Hydrants and Valves

OCWA maintains all hydrants throughout the Township and conducts routine maintenance that includes inspections and flushing. Fire hydrants are typically painted every 3-5 years. Valves undergo routine maintenance that includes inspections, cleaning, and valve exercising.

Treatment Plant

Water facilities are managed in partnership with OCWA, who conduct annual inspections and provide the Township with annual reports, as well as multi-year capital and operating forecasts. Every year the Township discusses capital budget needs for capital repairs to items such as pump replacements, facility repairs, and pump station repairs.

Forecasted Long-term Replacement Needs

The figure below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's water asset portfolio. The Township's average annual requirements (red dotted line) total $188 thousand for all water assets. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

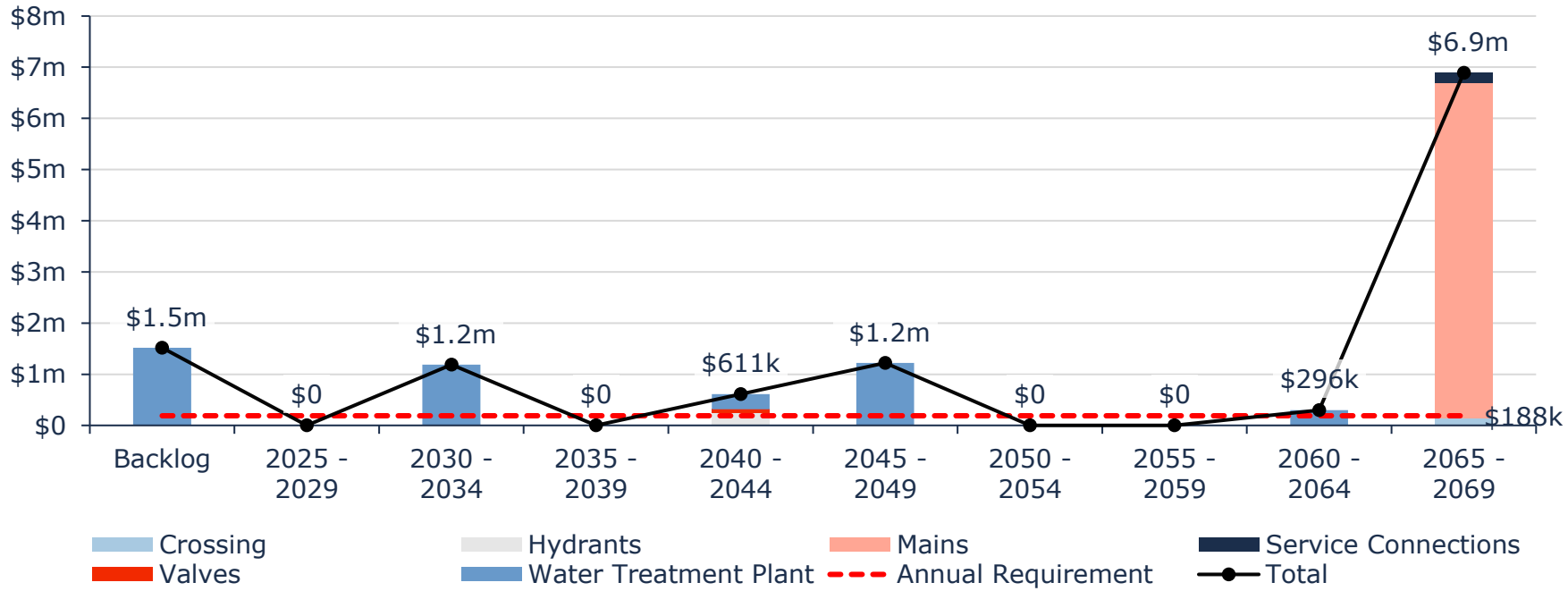


Figure 29: Water Network Forecasted Capital Requirements

The chart also illustrates an age-based backlog of $1.5 million, dominated by water treatment plant assets. These projections and estimates are based on current asset records, their replacement costs, and age analysis only. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

It is highly unlikely that all assets will require replacements as forecasted, particularly given the potential for

coordinating projects with road work. However, a review of useful life estimates, break histories, as well as componentization and condition assessment of the water treatment plant may help uncover hidden needs and help refine backlog estimates.

System-generated 10-Year Replacement Forecast

The table below summarizes the projected cost of lifecycle activities (capital replacement only) that will need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register, which was limited to asset age, replacement cost, and useful life. In addition, as treatment facilities are not componentized, no element- or component-level replacement needs could be forecasted.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Crossing	-	-	-	-	-	-	-	-	-	-
Hydrants	-	-	-	-	-	-	-	-	-	-
Mains	-	-	-	-	-	-	-	-	-	-
Service Connections	-	-	-	-	-	-	-	-	-	-
Valves	-	-	-	-	-	-	-	-	-	-
Water Treatment Plant	-	-	-	-	-	-	$1.2m	-	-	-
Total	**-**	**-**	**-**	**-**	**-**	**-**	**$1.2m**	**-**	**-**	**-**

Table 18: System-generated 10-Year Replacement Forecast – Water Network

Lifecycle Management Strategies

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

Table 19: Water Network Typical Lifecycle Interventions

Risk Analysis

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 available inventory data.

1 - 4 Very Low $7,206,394 (73%)	5 - 7 Low - (0%)	8 - 9 Moderate - (0%)	10 - 14 High $30,500 (<1%)	15 - 25 Very High $2,669,273 (27%)

Table 20: Water Network Risk Matrix

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The table below provides an overview of the different data points and allocations utilized to determine the risk rating for each water asset.

Probability of Failure (POF)		**Consequence of Failure (COF)**	
Water Linear Assets			
POF Critera	Asset Data Point	COF Criteria	Asset Data Point
Performance (80%)	Asset Condition	Direct Financial (80%)	Asset Replacement Cost
Operational (20%)	Service Life Remaining	Operational (20%)	Pipe Diameter (mm)
Water Non-Linear Assets			
POF Critera	Asset Data Point	COF Criteria	Asset Data Point
Performance (80%)	Asset Condition	Direct Financial (80%)	Asset Replacement Cost
Operational (20%)	Service Life Remaining	Strategic (20%)	Asset Type

Table 21: Risk Rating Criteria – Water Infrastructure

Levels of Service

The tables that follow summarize the Township's current levels of service with respect to prescribed KPIs under Ontario Regulation 588/17.

Service Attribute	Qualitative Description	Current Level of Service
Scope	1. Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system.	Water Network services the townsite of Nairn Centre, this includes 127 residential units, 17 apartments, 1 Garage, 2 Restaurants, and 2 other Businesses. The outlying areas such as Birch Street, Sand Bay Road and properties around Agnew Lake are not serviced by the Water System. The Township owns the assets that support the supply, treatment, storage, transmission and distribution of safe drinking water. The water system was built to support growth in the municipality and is currently only running at 27% capacity. The Township employs Ontario Clean Water Agency to manage the water treatment system.
	2. Description, which may include maps, of the user groups or areas of the municipality that have fire flow.	All areas of the system have fire flow, this assumption is made on the point that wherever there is a hydrant there is fire flow.
Reliability	Description of boil water advisories and service interruptions.	No boil water advisories were issued during the reporting period.

Table 22: Community Levels of Service – Water

Service Attribute	Qualitative Description	Current Level of Service
Scope	1. Percentage of properties connected to the municipal water system.	27%
	2. Percentage of properties where fire flow is available.	27%
Reliability	1. The number of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system.	0
	2. The number of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system.	0
Performance	Actual annual capital reinvestment rate	0.1%
	Target annual capital reinvestment rate	1.0%

Table 23: Technical Levels of Service – Water Network

Proposed Levels of Service

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

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

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased rate increase of approximately 5.2% annually, reaching full funding within 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased rate increase of approximately 4.2% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased rate increase of approximately 3.0% annually, reaching 50% funding within 15 years

Table 24: Proposed LOS Scenarios

PLOS Analysis

The following table compares three funding scenarios, illustrating how varying levels of capital investment impact asset condition, risk, and overall performance over time.

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	72.33%	65.30%	65.49%	64.58%
	Average Asset Risk	7.3	7.96	7.66	8.03
	Average Annual Investment		$188,386		
	Capital re-investment rate		1.9%		
Scenario 2	Average Condition	72.33%	62.63%	64.71%	56.28%
	Average Asset Risk	7.3	8.33	7.73	9.05
	Average Annual Investment		$141,290		
	Capital re-investment rate		1.4%		
Scenario 3	Average Condition	72.33%	62.64%	54.20%	45.92%
	Average Asset Risk	7.3	8.33	9.91	10.82
	Average Annual Investment		$94,193		
	Capital re-investment rate		1.0%		

Table 25: Water Network Scenario Analysis

The following figure illustrates the projected condition of the asset category under each of the three investment level scenarios, demonstrating how varying reinvestment strategies impact overall asset condition over time.

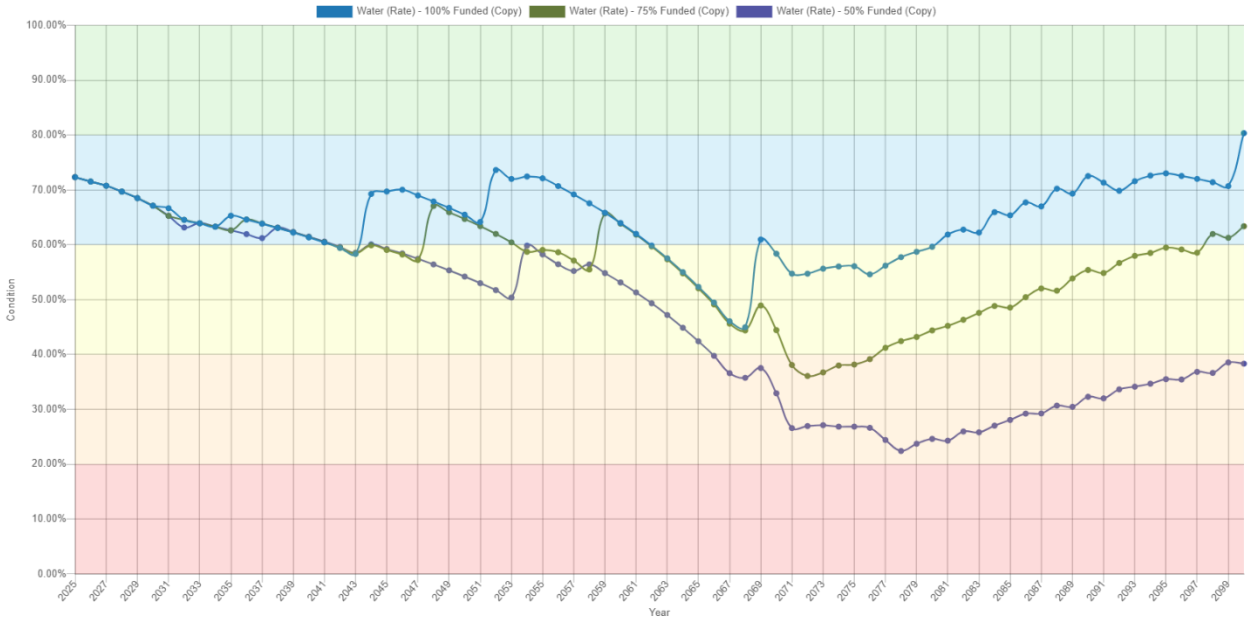


Figure 30: Water Network Scenario Comparison

Buildings and Facilities

The Township's buildings and facilities inventory is managed in Citywide, and comprises of 10 assets, that represent 10 individual facilities. These are owned by the Township and maintained by various departments that provide key administrative, protective, recreational, and cultural services to the community.

Inventory and Valuation

The current inventory poses serious limitations for accurate and long-term asset management planning. Due to its origins from a pooled, finance-based inventory the current listing of buildings and facilities assets are not componentized and lack accuracy.

The table below summarizes the quantity and current replacement cost of buildings and facilities as managed in the Township's asset register.

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Administrative	1	Assets	CPI	$170,496
Cultural and Recreational	4	Assets	CPI	$1,717,638
Fire and Emergency	2	Assets	CPI	$2,355,645
Public Works	3	Assets	CPI	$590,374
Total				**$4,834,153**

Table 26: Detailed Asset Inventory - Buildings & Facilities

Asset Condition

The figure below summarizes the replacement cost-weighted condition of the Township's buildings and facilities. Based on a combination of field inspection data and age, 44% of assets are in fair or better condition; the remaining 56% of assets are in poor or worse condition.

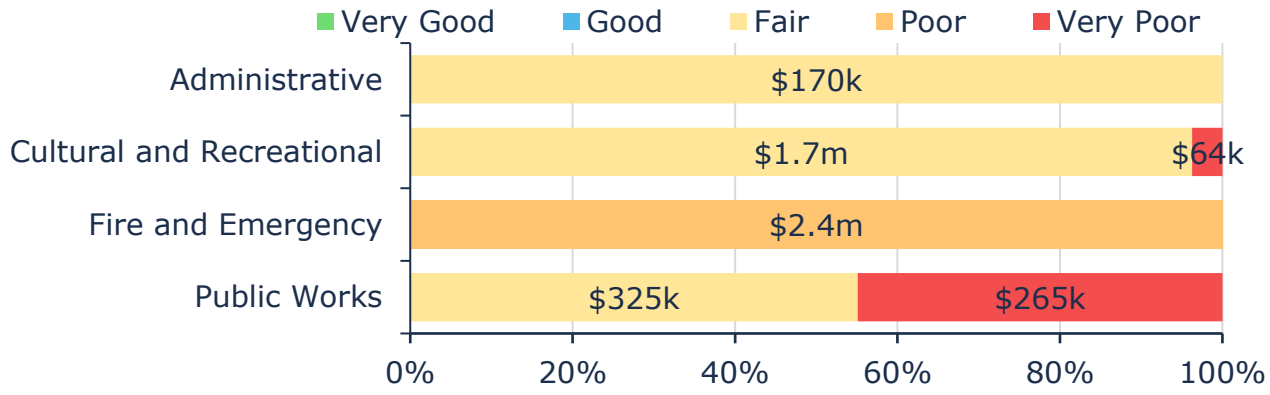


Figure 31: Buildings & Facilities Average Condition

Age Profile

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

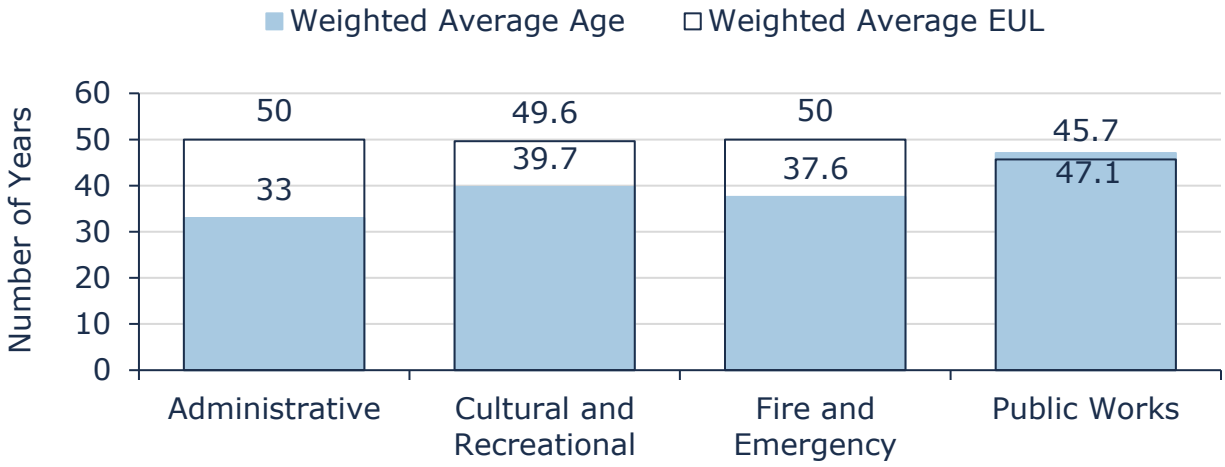


Figure 32: Buildings & Facilities Average Age vs. Average EUL

Age analysis reveals that on average, assets that represent the Public Works facilities are approaching their end of life. As noted previously for the water treatment facility, the Township has not yet componentized its facilities. In the absence of componentization, age analysis was only possible at the site level, rather than at the major element or component level.

Current Approach to Lifecycle Management

Municipal buildings and facilities are subject to regular inspections to identify health and safety requirements as well as structural deficiencies that require additional attention.

- Critical facilities have a detailed maintenance and rehabilitation schedule, while the maintenance of other facilities is dealt with on a case-by-case basis.
- Staff conduct assessments strategically as facilities approach their end-of-life to determine whether replacement or rehabilitation is appropriate.

Forecasted Long-term Replacement Needs

The figure below illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's buildings and facilities. These projections are based on asset replacement costs, age analysis, and condition data. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

The Township's average annual requirements (red dotted line) for buildings and facilities total $98 thousand. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

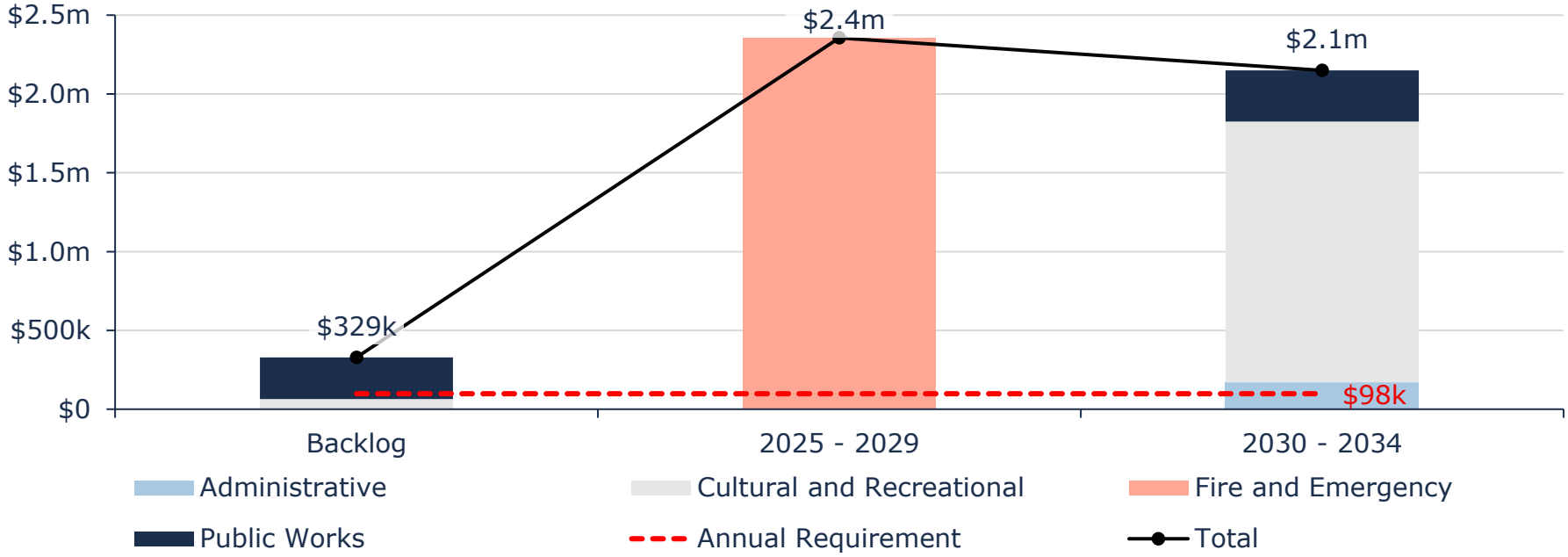


Figure 33: Forecasted Capital Replacement Requirements – Buildings and Facilities

There are major replacement spikes on the horizon for the next 10 years as assets reach the end of their useful life. It is highly unlikely that all assets will require full reconstruction or replacement. With proactive lifecycle management, the life of most assets can be extended by many years in a cost-effective manner. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing

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

System-generated 10-Year Replacement Forecast

The table below summarizes the projected cost of lifecycle activities (capital replacement only) that will need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register, which was limited to asset age, replacement cost, and useful life. In addition, as all of the buildings and facilities have not yet been componentized, no element- or component-level replacement needs could be forecasted.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Administrative	-	-	-	-	-	-	$170k	-	-	-
Cultural and Recreational	-	-	-	-	-	-	$1.7m	-	-	-
Fire and Emergency	$2.4m	-	-	-	-	-	-	-	-	-
Public Works	-	-	-	-	-	-	$325k	-	-	-
Total	**$2.4m**	**-**	**-**	**-**	**-**	**-**	**$2.1m**	**-**	**-**	**-**

Table 27: System-generated 10-Year Capital Replacement Forecast – Buildings and Facilities

Risk Analysis

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 available inventory data.

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
- (0%)	- (0%)	- (0%)	$713,958 (15%)	$4,120,195 (85%)

Figure 34: Buildings & Facilities Risk Matrix

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The table below provides an overview of the different data points and allocations utilized to determine the risk rating for each water asset.

Probability of Failure (POF)		Consequence of Failure (COF)	
Buildings and Facilities			
POF Critera	Asset Data Point	COF Criteria	Asset Data Point
Performance (80%)	Asset Condition	Direct Financial (80%)	Asset Replacement Cost
Operational (20%)	Service Life Remaining	Strategic (20%)	Facility Function

Table 28: Risk Rating Criteria – Buildings and Facilities

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

Levels of Service

The tables that follow summarize the Township's current levels of service with respect to Township developed KPIs under Ontario Regulation 588/17.

Service Attribute	Qualitative Description	Current Level of Service
Accessible and Reliable	List of facilities that meet accessibility standards and any work that has been undertaken to achieve alignment	Municipal Office and Community Centre meet accessibility standards. Work was undertaken in 2017. The Nairn Fire Hall is currently under renovations to meet accessibility standards.
Safe and Regulatory	Description of monthly and annual facilities inspection process	All facilities are inspected on a weekly basis to ensure a safe and reliable experience for users.
Affordable	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on municipal facilities	The Township strives to perform maintenance to maintain the current good/fair levels of service and to provide users with a safe environment.
Sustainable	Description of the current condition of municipal facilities and the plans that are in place to maintain or improve the provided level of service	The Township does not currently have data available to determine this qualitative metric. Staff are working to gather this metric for the next iteration of the AMP that is required in 2025.

Table 29: Community Levels of Service – Buildings and Facilities

Service Attribute	Qualitative Description	Current Level of Service
Accessible and Reliable	Number of unplanned facility closures	0
	Number of service requests about unsafe conditions in facilities	0
Safe and Regulatory	Number of identified defects	0
	Annual O&M costs / number of municipal facilities	$18,000
Affordable	Actual annual capital reinvestment rate	0.1%
	Target annual capital reinvestment rate	1.0%
Sustainable	Average condition of Buildings and Facilities	35% - Poor

Table 30: Technical Levels of Service – Buildings and Facilities

Proposed Levels of Service

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

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

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased tax increase of approximately 4.7% annually, reaching full funding within 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 3.4% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 50% funding within 15 years

Table 31: Proposed LOS Scenarios

PLOS Analysis

The following table compares three funding scenarios, illustrating how varying levels of capital investment impact asset condition, risk, and overall performance over time.

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	29.21%	5.28%	27.58%	25.55%
	Average Asset Risk	19.99	23.32	19	19.25
	Average Annual Investment		$98,267		
	Capital re-investment rate		2.0%		
Scenario 2	Average Condition	29.21%	1.75%	14.29%	18.45%
	Average Asset Risk	19.99	23.94	21.54	20.7
	Average Annual Investment		$73,701		
	Capital re-investment rate		1.5%		
Scenario 3	Average Condition	29.21%	1.76%	9.49%	10.36%
	Average Asset Risk	19.99	23.94	22.46	22.31
	Average Annual Investment		$49,134		
	Capital re-investment rate		1.0%		

Table 32: Buildings & Facilities Scenario Analysis

The following figure illustrates the projected condition of the asset category under each of the three investment level scenarios, demonstrating how varying reinvestment strategies impact overall asset condition over time.

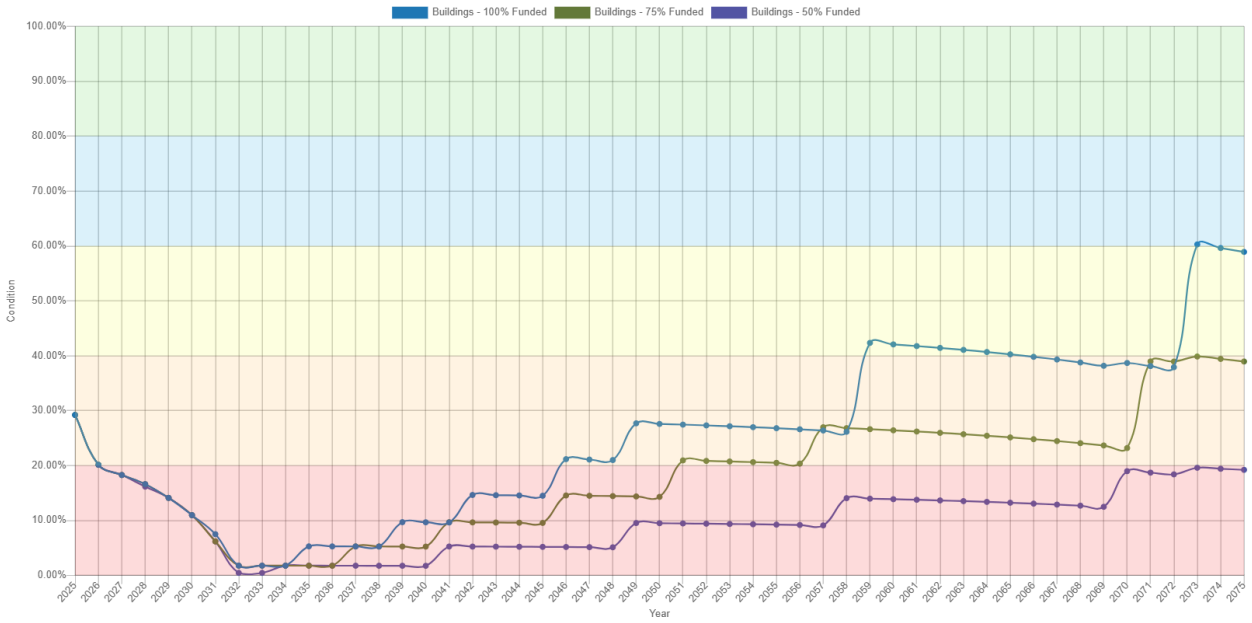


Figure 35: Buildings & Facilities Scenario Comparison

Machinery and Equipment

The Township's machinery and equipment asset inventory consists of 5 unique assets and is managed in Citywide.

Inventory and Valuation

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

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Cultural and Recreational	3	Assets	User-Defined	$105,742
Public Works	2	Assets	CPI	$80,117
Total				**$185,859**

Table 33: Detailed Asset Inventory - Machinery & Equipment

Asset Condition

The figure below summarizes the replacement cost-weighted condition of the Township's buildings and facilities. Based on age-only analysis, 57% of assets are in fair or better condition; the remaining 43% of assets are in poor or worse condition.

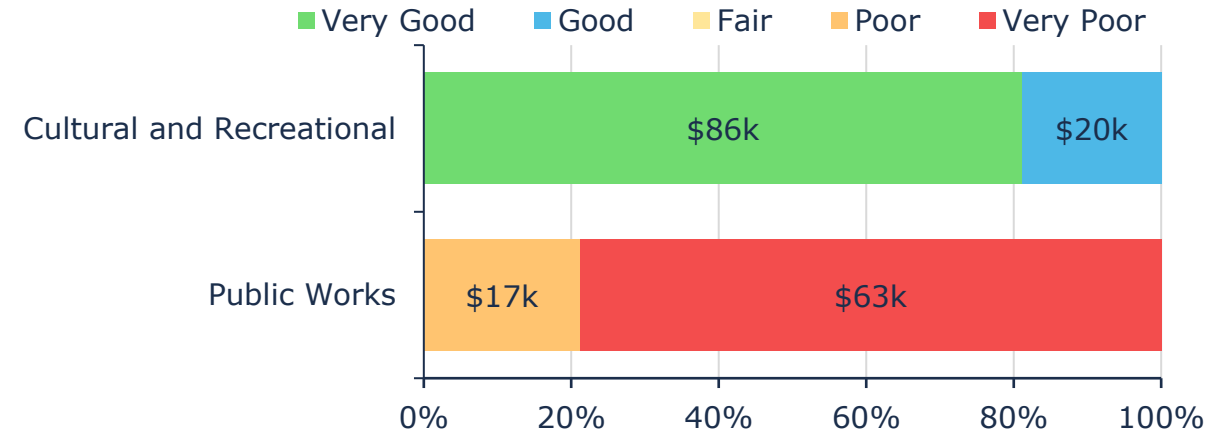


Figure 36: Machinery & Equipment Average Condition

Age Profile

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

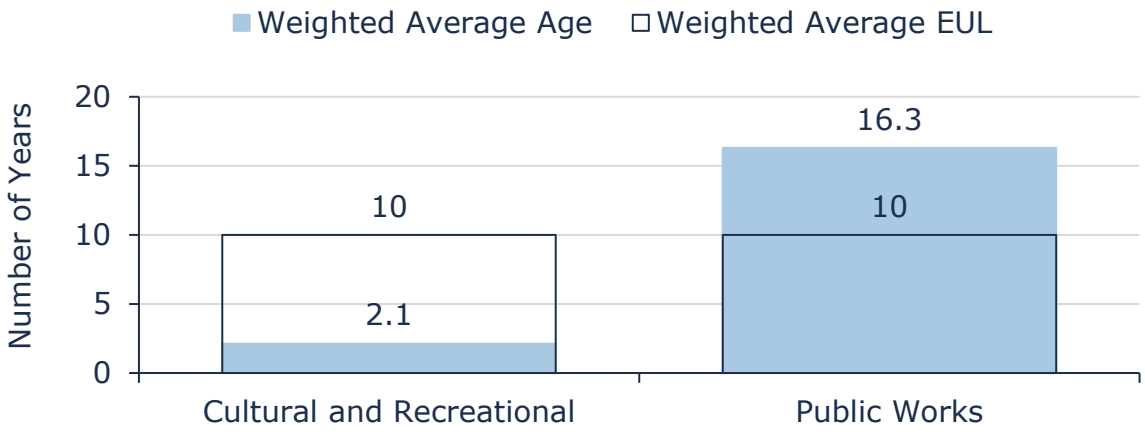


Figure 37: Machinery & Equipment Average Age vs. Average EUL

An analysis of asset age indicates that, on average, the Township's Public Works machinery and equipment have exceeded their expected service lives. This suggests a high likelihood of increased maintenance needs, reduced reliability, and potential service disruptions. The findings underscore the need for strategic reinvestment and prioritization to ensure the continued effectiveness and safety of Public Works operations.

Current Approach to Lifecycle Management

This section outlines the Township's current approach to managing its machinery and equipment assets. Key data was collected through staff discussions. As applicable, lifecycle models were also built in Citywide. These can be used by staff for ongoing reference and planning within the Township's asset management program. These models should be continuously refined and updated with new data as it becomes available.

- Staff complete regular visual inspections of machinery and equipment assets to ensure they are in an adequate state of repair. Staff also conduct formal inspections of outdoor play space, fixed play structures and surfacing in accordance with CAN/CSA-Z614 and required as per O. Reg. 137/15.
- Maintenance activities for machinery and equipment assets vary by department but are generally based on the manufacturer's recommendations and supplemented by the expertise of staff.
- The replacement of machinery and equipment assets depends on deficiencies identified by operators that may impact their ability to complete required tasks.

Forecasted Long-term Replacement Needs

The figure below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's machinery and equipment assets. The Township's average annual requirements (red dotted line) total $19k for all machinery and equipment assets. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

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

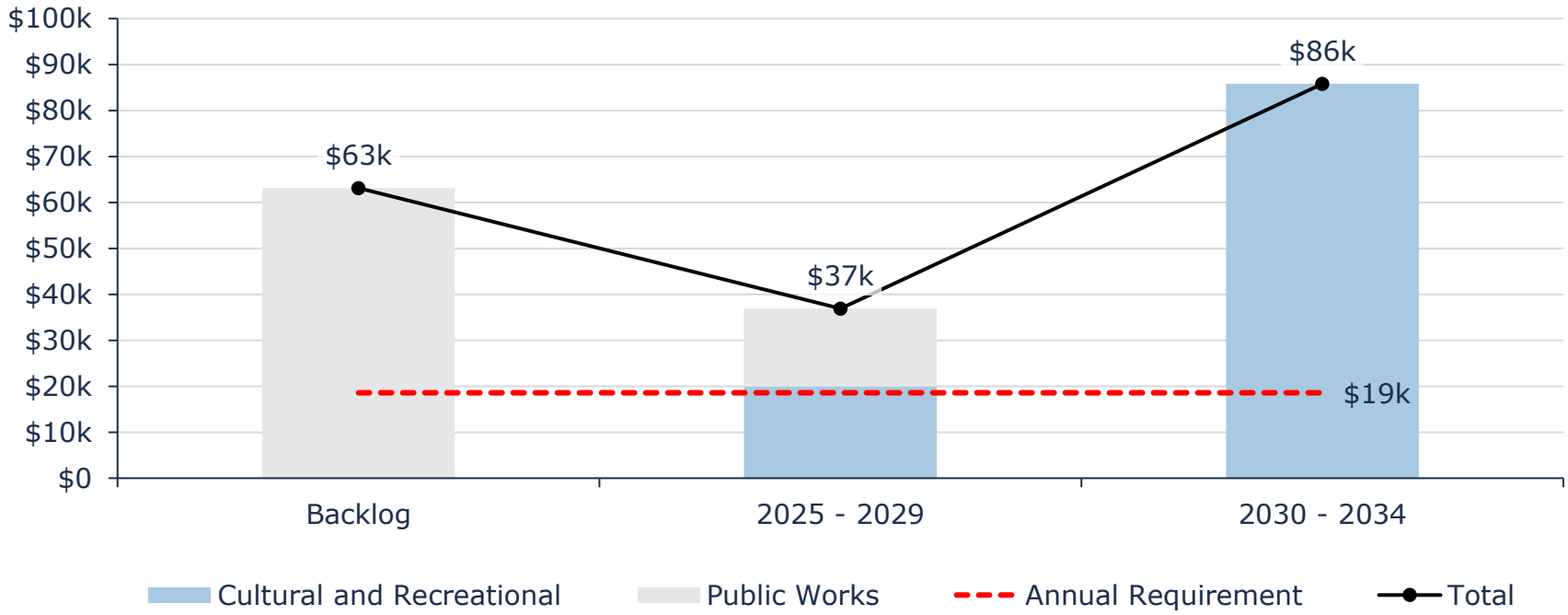


Figure 38: Forecasted Capital Replacement Requirements – Machinery and Equipment

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced as forecasted, while others may be replaced as part of a coordinated capital project. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves, and identifying assets that may be candidates for further inspections. Staff inspections may also help reduce long-term projections by providing more accurate condition data for assets than age. In addition, a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

System-generated 10-Year Replacement Forecast

The table below summarizes the projected cost of lifecycle activities (capital replacement only) that may be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register. As no assessed condition data was available for machinery and equipment assets, only age was used to determine forthcoming replacement needs. These projections can be different from actual capital forecasts. Consistent data updates, especially condition, will improve the alignment between the system generated expenditure requirements.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Cultural and Recreational	-	-	-	$20k	-	-	-	-	-	$86k
Public Works	$17k	-	-	-	-	-	-	-	-	-
Total	**$17k**	**-**	**-**	**$20k**	**-**	**-**	**-**	**-**	**-**	**$86k**

Table 34: System-generated 10-Year Replacement Forecast – Machinery and Equipment

Risk Analysis

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 available inventory data.

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$85,798 (46%)	$19,944 (11%)	- (0%)	$16,966 (9%)	$63,151 (34%)

Table 35: Machinery & Equipment Risk Matrix

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The table below provides an overview of the different data points and allocations utilized to determine the risk rating for each water asset.

Probability of Failure (POF)		Consequence of Failure (COF)	
Machinery and Equipment			
POF Critera	Asset Data Point	COF Criteria	Asset Data Point
Performance (80%)	Asset Condition	Direct Financial (80%)	Asset Replacement Cost
Operational (20%)	Service Life Remaining	Strategic (20%)	Asset Type

Table 36: Risk Rating Criteria – Machinery and Equipment

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

Levels of Service

The tables that follow summarize the Township's current levels of service with respect to Township developed KPIs under Ontario Regulation 588/17.

Service Attribute	Qualitative Description	Current Level of Service
Safe and Regulatory	Description of the equipment inspection process and any licensing requirements for operators	Relevant information not available at this time; staff will have this ready for the next iteration of the AMP
Sustainable	Description of the current condition of equipment and the plans that are in place to maintain or improve the provided level of service	Relevant information not available at this time; staff will have this ready for the next iteration of the AMP

Table 37: Community Levels of Service – Machinery and Equipment

Service Attribute	Qualitative Description	Current Level of Service
Safe and Regulatory	% of equipment where pre/post inspections are completed	100%
Affordable	Actual annual capital reinvestment rate	0.2%
	Target annual capital reinvestment rate	5.0%
Sustainable	Average condition of machinery & equipment	58% - Fair

Table 38: Technical Levels of Service – Machinery and Equipment

Proposed Levels of Service

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

The tables and graphs below explain the proposed levels of service scenarios that were analyzed for Machinery & Equipment assets. Further PLOS analysis at the portfolio level can be found in Proposed Levels of Service Scenario Analysis.

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased tax increase of approximately 4.7% annually, reaching full funding within 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 3.4% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 50% funding within 15 years

Table 39: Proposed LOS Scenarios

PLOS Analysis

The following table compares three funding scenarios, illustrating how varying levels of capital investment impact asset condition, risk, and overall performance over time.

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	53.13%	18.36%	66.92%	52.02%
	Average Asset Risk	10.22	15.76	7.65	10.29
	Average Annual Investment		$18,586		
	Capital re-investment rate		10.0%		
Scenario 2	Average Condition	53.13%	18.98%	44.82%	36.05%
	Average Asset Risk	10.22	15.76	11.16	12.92
	Average Annual Investment		$13,939		
	Capital re-investment rate		7.5%		
Scenario 3	Average Condition	53.13%	8.91%	19.32%	21.76%
	Average Asset Risk	10.22	17.13	15.61	15.15
	Average Annual Investment		$9,293		
	Capital re-investment rate		5.0%		

Table 40: Machinery & Equipment Scenario Analysis

The following figure illustrates the projected condition of the asset category under each of the three investment level scenarios, demonstrating how varying reinvestment strategies impact overall asset condition over time.

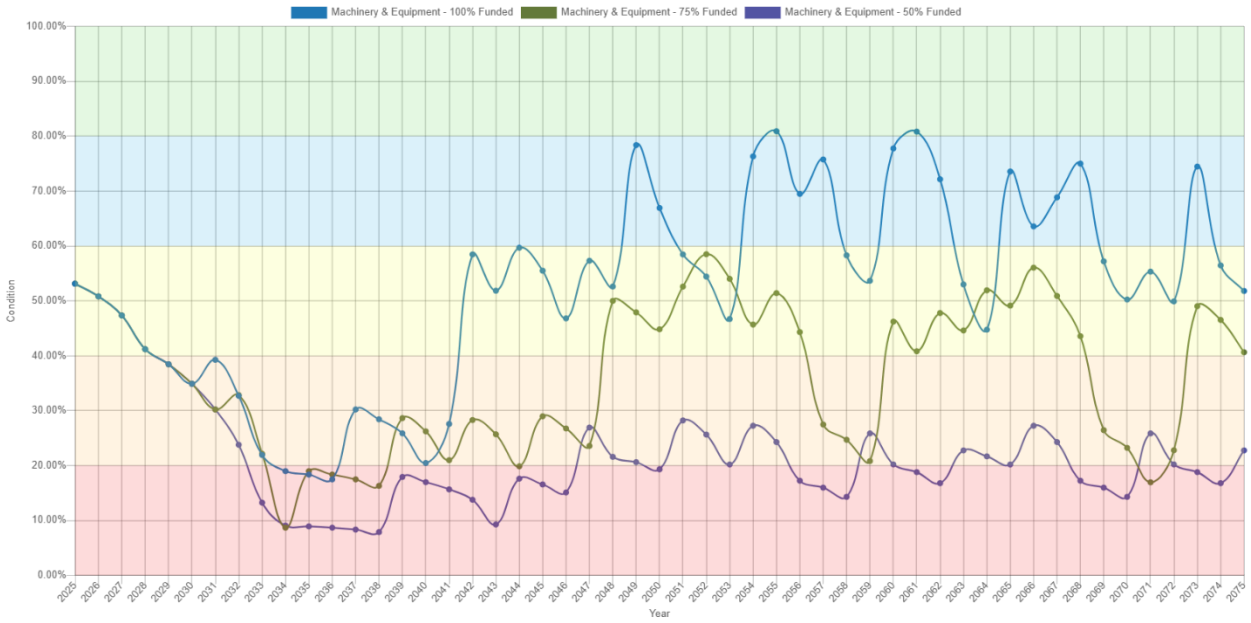


Figure 39: Machinery & Equipment Scenario Comparison

Vehicles

The Township's vehicles inventory is managed in Citywide and allow staff to efficiently deliver municipal services and personnel in addition to supporting service areas such as fire rescue and emergency vehicles that support emergency services as well as light- and heavy-duty vehicles that support the maintenance of Township infrastructure and address service requests.

Inventory and Valuation

The table below summarizes the quantity and current replacement cost of vehicle assets:

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Fire and Emergency	3	Assets	CPI	$1,908,280
Public Works	4	Assets	CPI	$622,452
Total				**$2,530,732**

Table 41: Detailed Asset Inventory - Vehicles

Asset Condition

The figure below summarizes the replacement cost-weighted condition of the Township's buildings and facilities. Based on a combination of field inspection data and age, 48% of assets are in fair or better condition; the remaining 52% of assets are in poor or worse condition.

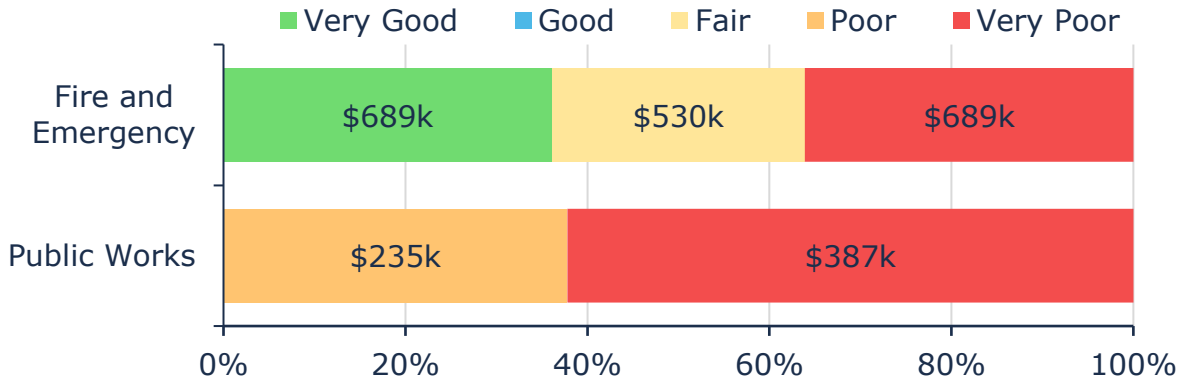


Figure 40: Vehicles Average Condition

Age Profile

The figure below illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of

individual assets.

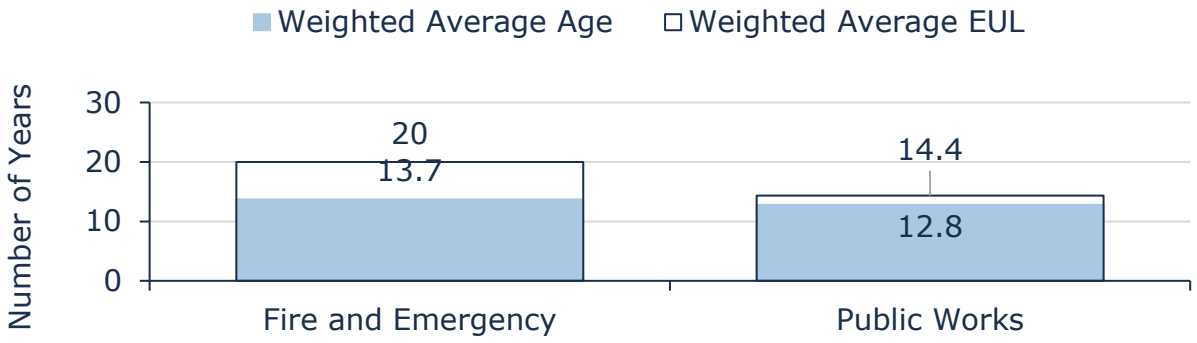


Figure 41: Vehicles Average Age vs. Average EUL

An analysis of asset age indicates that, on average, the Township's Public Works machinery and equipment have exceeded their expected service lives. This suggests a high likelihood of increased maintenance needs, reduced reliability, and potential service disruptions. The findings underscore the need for strategic reinvestment and prioritization to ensure the continued effectiveness and safety of Public Works operations.

Current Approach to Lifecycle Management

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

Fire and Emergency

There are formal condition assessments conducted on fire and emergency vehicles in accordance with regulations including National Fire Protection Association (NFPA) codes and standards for fire service-related fleet assets. The mileage of vehicles is used as proxy to determine remaining useful life and relative vehicle condition, that along with vehicle age and departmental usage, dictate the prioritization of asset replacement.

Public Works

Staff complete regular visual inspection of public works vehicles to ensure they are in an adequate state of repair prior to operation. Annual preventative maintenance activities include system components check and additional detailed inspections. The mileage of vehicles is used as proxy to determine remaining useful life and relative vehicle condition, that along with vehicle age and departmental usage, dictate the prioritization of asset replacement.

Forecasted Long-term Replacement Needs

The figure below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's vehicle assets. The Township's average annual requirements (red dotted line) total $140 thousand for all vehicle assets. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

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

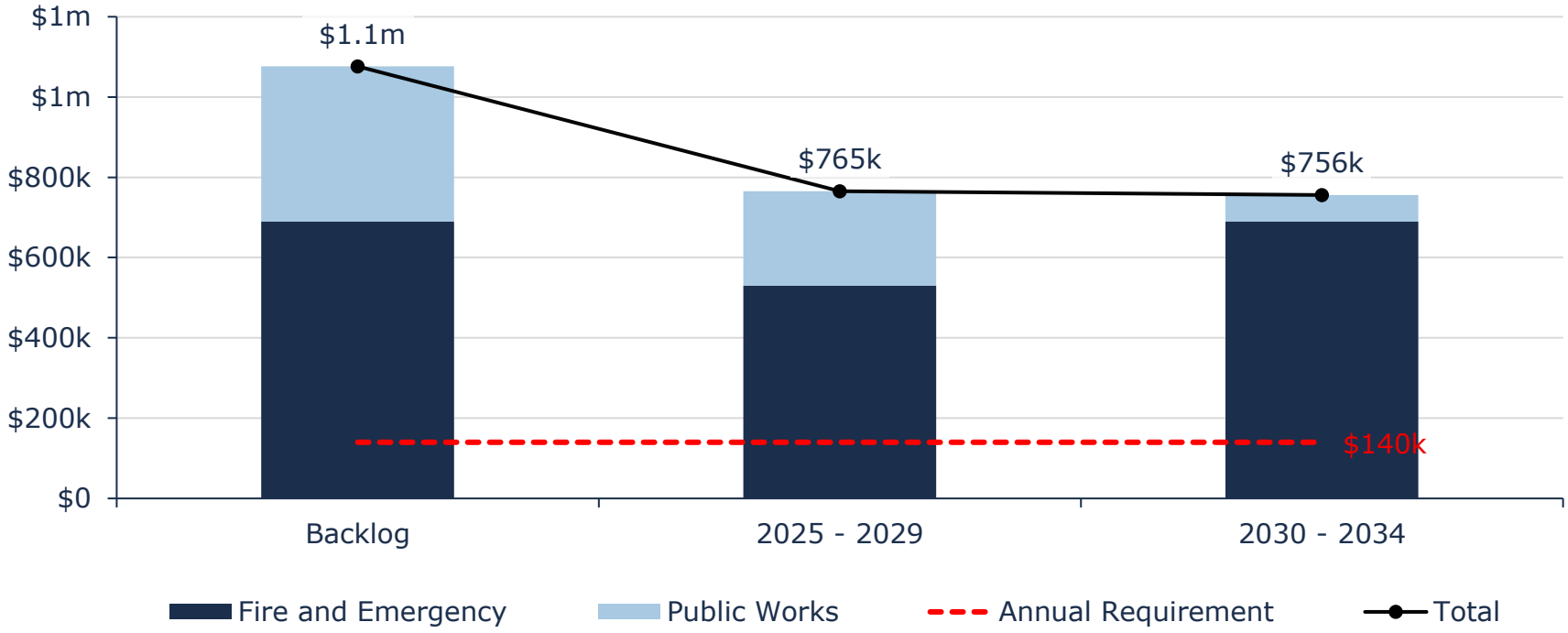


Figure 42: Forecasted Capital Replacement Requirements – Vehicles

System-generated 10-Year Replacement Forecast

The table below summarizes the projected cost of lifecycle activities (capital replacement only) that will need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register. For vehicle assets, no condition information was available. As a result, this system-generated 10-year forecast relies only on asset age and replacement cost. These projections can be different from actual capital forecasts. Consistent data updates, especially condition, will improve the alignment between the system generated expenditure requirements, and the Township's capital expenditure forecasts.

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Fire and Emergency	-	-	$530k	-	-	-	-	-	$689k	-
Public Works	$235k	-	-	-	-	-	-	-	$67k	-
Total	**$235k**	**-**	**$530k**	**-**	**-**	**-**	**-**	**-**	**$756k**	**-**

Table 42: System-generated 10-Year Replacement Forecast – Vehicles

Risk Analysis

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 available inventory data.

1 - 4 Very Low - (0%)	5 - 7 Low $689,101 (27%)	8 - 9 Moderate - (0%)	10 - 14 High - (0%)	15 - 25 Very High $1,841,631 (73%)

Figure 43: Vehicles Risk Matrix

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The identification of critical assets allows the Township to determine appropriate risk mitigation strategies and treatment options. Risk mitigation may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data.

The table below provides an overview of the different data points and allocations utilized to determine the risk rating for each water asset.

Probability of Failure (POF)		**Consequence of Failure (COF)**	
Vehicle Assets			
POF Criteria	Asset Data Point	COF Criteria	Asset Data Point
Performance (80%)	Asset Condition	Direct Financial (80%)	Asset Replacement Cost
Operational (20%)	Service Life Remaining	Strategic (20%)	Asset Type

Table 43: Risk Rating Criteria – Vehicles

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

Lifecycle Management Strategies

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

Table 44: Vehicles Typical Lifecycle Interventions

Levels of Service

The tables that follow summarize the Township's current levels of service with respect to prescribed KPIs under Ontario Regulation 588/17.

Service Attribute	Qualitative Description	Current Level of Service
Safe and Regulatory	Description of the routine maintenance and check-up procedures	Relevant information not available at this time; staff will have this ready for the next iteration of the AMP
Sustainable	List of day-to-day vehicles in operation and the replacement values of those assets	Relevant information not available at this time; staff will have this ready for the next iteration of the AMP

Table 45: Community Levels of Service – Vehicles

Service Attribute	Qualitative Description	Current Level of Service
Accessible and Reliable	Percentage of vehicles that are idle	0
	Percentage of vehicle utilization	100%
Affordable	Actual annual capital reinvestment rate	0.1%
	Target annual capital reinvestment rate	2.8%
Sustainable	Average condition of municipal vehicles	37% - Poor

Table 46: Technical Levels of Service – Vehicles

Proposed Levels of Service

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

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

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased tax increase of approximately 4.7% annually, reaching full funding within 15 years

Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 3.4% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 50% funding within 15 years

Table 47: Proposed LOS Scenarios

PLOS Analysis

The following table compares three funding scenarios, illustrating how varying levels of capital investment impact asset condition, risk, and overall performance over time.

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	31.98%	14.18%	39.58%	43.38%
	Average Asset Risk	18.22	21.77	16.63	15.63
	Average Annual Investment	$139,880			
	Capital re-investment rate	5.5%			
Scenario 2	Average Condition	31.98%	7.93%	38.57%	27.41%
	Average Asset Risk	18.22	22.94	17.07	19.01
	Average Annual Investment	$104,910			
	Capital re-investment rate	4.2%			
Scenario 3	Average Condition	31.98%	1.97%	19.37%	14.75%
	Average Asset Risk	18.22	24.1	20.83	21.59
	Average Annual Investment	$69,940			
	Capital re-investment rate	2.8%			

Table 48: Vehicles Scenario Analysis

The following figure illustrates the projected condition of the asset category under each of the three investment level scenarios, demonstrating how varying reinvestment strategies impact overall asset condition over time.

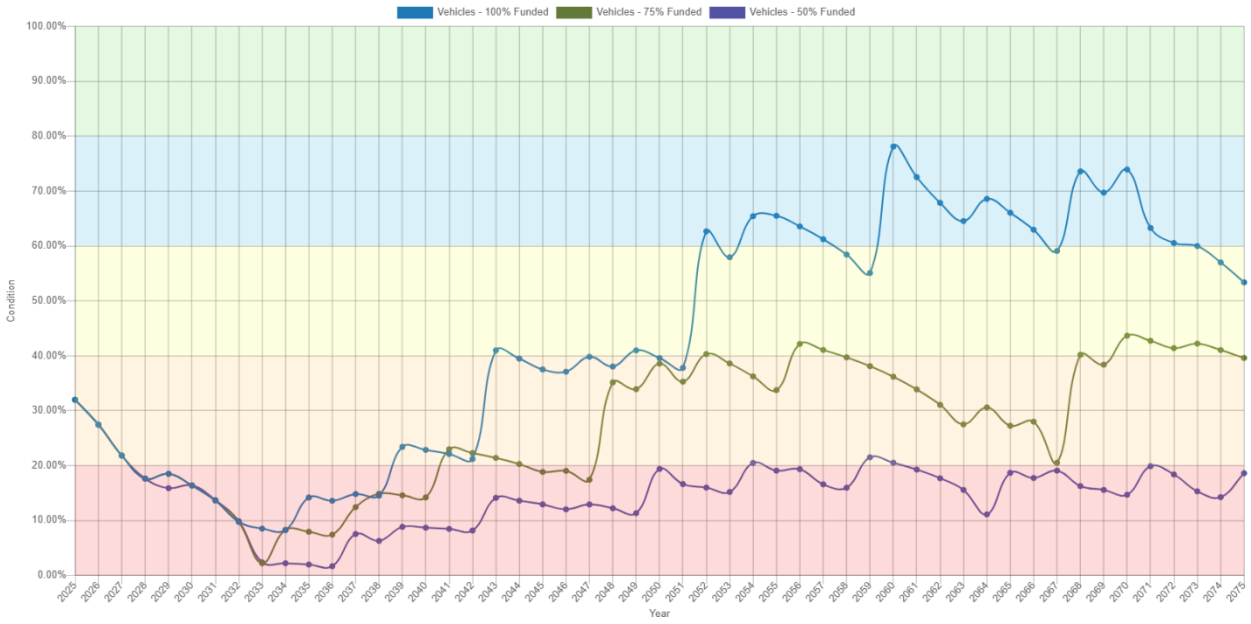


Figure 44: Vehicles Scenario Comparison

Financial Strategy

Each year, the Township of Nairn and Hyman makes important investments in its infrastructure's maintenance, renewal, rehabilitation, and replacement to ensure assets remain in a state of good repair. However, spending needs typically exceed fiscal capacity. In fact, most municipalities continue to struggle with annual infrastructure deficits. Achieving the proposed levels of service for infrastructure programs will take many years and should be phased-in gradually to reduce burden on the community.

This plan identifies the financial requirements necessary to meet the identified proposed levels of service. These requirements are based on the financial requirements for existing assets as of December 31, 2023. However, the required funding is based on meeting the proposed levels of service, with consideration for any additional financial impacts from economic and population growth. The financial plan considers and accounts for traditional and non-traditional sources of municipal funding.

This financial strategy is designed around two key elements: the average annual capital requirement, and the average annual capital funding currently available. The annual requirement is calculated based on the replacement cost and service life of each asset, and, where possible, includes lifecycle modeling. These values are then aggregated to determine category-level funding needs.

Available capital funding is based on an average of historical capital expenditure, including contributions to capital reserves. For Nairn and Hyman, average reserve contributions from 2022-2024 was used to establish a baseline projection of available capital funding.

Only reliable and predictable sources of capital funding are used to benchmark funds that may be available on any given year. The funding sources include:

- Revenue from taxation allocated to reserves for capital purposes
- Revenue from water rates allocated to capital reserves
- The Canada Community Benefits Fund (CCBF), formerly the Federal Gas Tax Fund
- The Ontario Community Infrastructure Fund (OCIF)
- The Ontario Municipal Partnership Fund (OMPF)

Although provincial and federal infrastructure programs can change with evolving policy, CCBF, and OCIF are considered as permanent and predictable.

Annual Capital Requirements

The annual requirements represent the amount the Township should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs, and achieve long-term sustainability. For most asset categories the annual requirement has been calculated based on a "replacement only" scenario, in which capital costs are only incurred at the construction and replacement of each asset.

However, for the road network, lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal. The development of these strategies allows for a comparison of potential cost avoidance if the strategies were to be implemented.

The following table compares two scenarios for the road network:

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

Table 49: Annual Requirement Comparison

Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Paved Roads	$2,145,884	$1,177,775	$968,109

The implementation of a proactive lifecycle strategy for paved roads leads to a potential annual cost avoidance of approximately $968 thousand for the road network. This represents an overall reduction of the annual requirements by 45%.

As the lifecycle strategy scenario represents the lowest cost option available to the Township, we have used this annual requirement in the development of the financial strategy. However, if lifecycle activities are deferred due to funding constraints, the Township may face higher long-term costs, accelerated asset deterioration, and an increased risk of service disruption.

The table below outlines the total average annual capital requirements for existing assets in each category, based on the proposed levels of service. With a total replacement cost of $69.5 million, the estimated annual capital requirement across all asset categories is approximately $811 thousand.

The table also illustrates the system-generated, equivalent target reinvestment

rate for the proposed levels of service, calculated by dividing the annual capital requirements by the total replacement cost of each category. The cumulative target reinvestment for these categories is estimated at 1.2%.

Table 50: Average Annual Capital Requirements

Asset Category	Replacement Cost	Annual Capital Requirements	Target Reinvestment Rate
Road Network	$52,073,691	$588,888	1.0%
Buildings & Facilities	$4,834,153	$49,134	5.0%
Machinery & Equipment	$185,859	$9,293	1.1%
Vehicles	$2,530,732	$69,940	2.8%
Water	$9,906,167	$94,193	1.0%
Total	**$69,530,601**	**$811,447**	**1.2%**

Financial Profile: Tax Funded Assets

Current Funding Levels

The table below summarizes how current funding levels compare with funding required for the proposed levels of service. At existing levels, the Township is funding 50.8% of its annual capital requirements for all infrastructure analyzed. This creates a total annual funding deficit of $400 thousand.

Table 51: Current Funding Levels

Asset Category	Annual Capital Requirements	Annual Funding Available	Annual Infrastructure Deficit	Funding Level
Road Network	$588,888	$396,676	$192,212	67.4%
Buildings & Facilities	$49,134	$2,439	$46,695	5.0%
Machinery & Equipment	$9,293	$436	$8,857	4.7%
Vehicles	$69,940	$5,935	$64,006	8.5%
Water	$94,193	$6,585	$87,608	7.0%
Total	**$811,447**	**$412,070**	**$399,377**	**50.8%**

Table 52: Required Funding vs Current Funding Position

Asset Category	Avg. Annual Requirement	Annual Funding Available						Annual Deficit
		Taxes	Reserves	CCBF	OCIF	OMPF	Total Available	
Road Network	$588,888	$91,319	$96,964	$23,792	$100,000	$84,600	$396,676	$192,212
Buildings & Facilities	$49,134		$2,439				$2,439	$46,695
Machinery & Equipment	$9,293		$436				$436	$8,857
Vehicles	$69,940		$5,935				$5,935	$64,006
Total	**$717,254**		**$105,774**	**$23,792**	**$100,000**	**$84,600**	**$405,485**	**$311,769**

The average annual investment requirement for the above categories is $717,254. Annual revenue currently allocated to these assets for capital purposes is $405,485, leaving an annual deficit of $311,769. Put differently, these infrastructure categories are currently funded at 56.5% of their long-term requirements.

Closing the Gap

Eliminating annual infrastructure funding shortfalls is a difficult and long-term endeavor for municipalities. Achieving the funding required to support the proposed levels of service, while maintaining affordability for residents, will require time and deliberate financial planning.

This section outlines how Nairn and Hyman can gradually work toward closing the annual capital funding shortfall using its own-source revenues, such as property taxes and utility rates. This approach avoids the use of additional debt for existing assets and supports the Township's goal of sustainably increasing investment to maintain and improve service delivery. By phasing in additional funding as financial capacity allows, the Township can begin to align infrastructure spending with service level expectations and the priorities identified through community and stakeholder engagement.

50% Funding Requirements Tax Revenues

As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, achieving 50% of full funding would require a 29.3% tax change over time.

To achieve this increase, several scenarios have been developed using phase-in periods ranging from five to twenty years. Shorter phase-in periods may place too high a burden on taxpayers, whereas a phase-in period beyond 20 years may see a continued deterioration of infrastructure, leading to larger backlogs.

Table 53: Phasing in Annual Tax Increases – 50% of full funding

Asset Category	Tax Change Required for 50% of full funding
Road Network	18.1%
Buildings & Facilities	4.4%
Machinery & Equipment	0.8%
Vehicles	6.0%

Funding 50% of the annual capital requirements allows the Township to address some critical infrastructure needs while aligning with the community's tolerance for tax increases. However, this funding level leaves a significant gap, and with limited reserves available, those funds are expected to be drawn down over time, reducing the Township's capacity to respond to future or unexpected needs. To mitigate the impact, the Township will prioritize critical projects and pursue grant opportunities as they arise.

We recommend allocating available resources toward reducing the identified infrastructure deficit.

Table 54: Phase-in Period for 50% of full funding

	Phase-in Period for 50% of full funding			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	$311,769	$311,769	$311,769	$311,769
Tax Increase Required	29.4%	29.4%	29.4%	29.4%
Annually:	**5.3%**	**2.7%**	**1.8%**	**1.3%**

Proposed levels of service play a role in the development of the Annual Average Requirement discussed above. For comparison, the tax impact for each level of service option is provided below:

Table 55: Scenarios Annual Impact on Taxation

Annual Impact on Taxation				
Change in Levels of Service	**5 Year**	**10 Year**	**15 Year**	**20 Year**
Full Funding	14.6%	7.1%	4.7%	3.5%
75% Funding	10.4%	5.1%	3.4%	2.5%
50% Funding	5.3%	2.7%	1.8%	1.3%
Recommended	5.3%	2.7%	1.8%	1.3%

Financial Strategy Recommendations

Considering all the above information, we recommend the 15-year option to achieve the proposed levels of service. This involves 50% funding being achieved over 15 years by:

a) Increasing tax revenues by 1.8% each year for the next 15 years solely for the purpose of phasing in 50% funding to the asset categories covered in this section of the AMP.

b) Allocating the current Canada Community-Building Fund (Formerly known as Gas Tax Fund), OCIF, and OMPF revenue as outlined previously.

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

d) Leveraging additional, non-sustainable revenue sources such as one-time grants, surpluses, and reserves, as supplementary funding to advance asset management goals.

Notes:

1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. By Provincial AMP rules, this periodic funding cannot be incorporated into an AMP unless there are firm commitments in place. We have included OCIF formula-based funding, if applicable, since this funding is a multi-year commitment2.
2. We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

Although this option achieves 50% funding on an annual basis in 15 years and provides financial sustainability over the period modeled, the recommendations

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

do require prioritizing capital projects to fit the resulting annual funding available. Current data shows a pent-up investment demand of $828k for the Road Network, $329k for municipal Buildings, $63k for Machinery & Equipment, and $866k for Vehicles.

Financial Profile: Rate Funded Assets

Current Funding Levels

The table below summarizes how current funding levels compare with funding required for each asset category. At existing levels, the Township is funding 7.0% of its annual capital requirements for the proposed levels of service for rate-supported infrastructure.

Asset Category	Avg. Annual Requirement	Annual Funding Available		Annual Deficit
		Rate Reserves	Total Available	
Water Network	$94,193	$6,585	$6,585	$87,608

Table 56: Required Funding vs Current Funding Position

The average annual investment requirement for the above categories is $94,193. Annual revenue currently allocated to these assets for capital purposes is $6,585, leaving an annual deficit of $87,608. Put differently, these infrastructure categories are currently funded at 7.0% of their long-term requirements for proposed levels of service.

Closing the Gap

Eliminating annual infrastructure funding shortfalls is a difficult and long-term endeavor for municipalities. Considering the Township's current funding position, it will require many years to reach the funding level required for the proposed levels of service.

This section outlines how the Township of Nairn and Hyman can close the annual funding deficits using own-source revenue streams, i.e., utility rates, and without the use of additional debt for existing assets.

50% Funding Requirements Rate Revenues

In 2024, Nairn and Hyman had annual water revenues of $159,632. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, achieving 50% funding would require a 54.9% rate change over time.

Asset Category	Rate Change Required for 50% of full funding

Water Network	54.9%

Table 57: Phasing in Annual Rate Increases

Funding 50% of the annual capital requirements allows the Township to address some critical water infrastructure needs while aligning with the community's tolerance for rate increases. However, this funding level leaves a significant gap, and with limited reserves available, those funds are expected to be drawn down over time, reducing the Township's capacity to respond to future or unexpected needs. To mitigate the impact, the Township will prioritize critical water projects and pursue grant opportunities as they arise.

	Water Network			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	$87,608	$87,608	$87,608	$87,608
Rate Increase Required	54.9%	54.9%	54.9%	54.9%
Annually:	**9.2%**	**4.5%**	**3.0%**	**2.3%**

Table 58: Phase-in Period for 50% funding - Rates

Similarly to the Tax Funded asset, the proposed levels of service play a role in the development of the Annual Average Requirement. For comparison, the rate impact for each level of service option is provided below:

Annual Impact on Water Rates				
Change in Levels of Service	**5 Year**	**10 Year**	**15 Year**	**20 Year**
Full Funding	16.5%	7.9%	5.2%	3.9%
75% Funding	13.1%	6.4%	4.2%	3.2%
50% Funding	9.2%	4.5%	3.0%	2.3%
Recommended	9.2%	4.5%	3.0%	2.3%

Table 59: Scenarios Annual Impact on User Rates

Financial Strategy Recommendations

Considering all the above information, we recommend the 15-year option for the water network and the sanitary network. This involves 50% of full funding being achieved over 15 years by:

a) increasing rate revenues by 3.0% for water services each year for the next 15 years solely for the purpose of phasing in 50% funding to the asset categories covered in this section of the AMP.
b) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

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

Although this option achieves 50% funding on an annual basis in 15 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows a pent-up investment demand of $1.5m for the Water Network.

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

Use of Reserves

Available Reserves

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

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

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

Asset Category	Balance at December 31, 2024
Road Network	$180,566
Buildings & Facilities	$16,762
Machinery & Equipment	$20,000
Vehicles	$272,389
Total Tax Funded:	**$489,717**
Water Network	$156,828
Total Rate Funded:	$156,828

Table 60: Reserve Balances

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

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

These reserves are available for use by applicable asset categories during the phase-in period toward achieving 50% of full funding. This allows the scenarios to assume that, if required, available reserves and debt capacity can be used for high priority and emergency infrastructure investments in the short- to medium-term.

Growth

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

Based on the 2021 Census, the community's current population is 373 residents, an increase of 9.1% from 2016 that exceeds the provincial average rate of 5.8%, although historically the Township has experienced a decline in population from 2006 to 2016. Table provides a summary of the total historical population.

Growth Plan for Northern Ontario

The Township's Official Plan (2012) identified the importance of coordination in land use planning decisions and identifies a series of related interests and projects that shall be considered and to the extent reasonable and required, be in accordance with. The Growth Plan for Northern Ontario is identified as a related interest. The Northern Ontario Growth Plan's (2010-2035) purpose is to enable growth planning that is integrated across municipal boundaries within a common geographic perspective (i.e., Northern Ontario) and to ensure a long-term and coordination visions of growth policies among all levels of government. The intended result is coordinated decision making that reflects diverse needs of rural, urban, remote, and Aboriginal communities

Impact on Levels of Service

In compliance with O. Reg. 588/17, the Township has considered growth-related impacts in developing its proposed levels of service. While substantial infrastructure expansion is not currently anticipated, the following considerations have been made:

- **Roads and Bridges:** Future population or economic growth may lead to increased traffic volume or heavier vehicle usage, which could affect asset deterioration rates. LOS targets account for maintenance and renewal to preserve safety and accessibility.
- **Recreation and Community Buildings**: Should population or tourism increase, the Township may need to review accessibility, hours of operation, or maintenance standards to sustain service quality.
- **Fire Protection:** Demand increases due to development or population shifts will be monitored through ongoing review of Fire Master Plans and related KPIs.

As required by the regulation, the Township will continue to monitor growth indicators and update LOS targets in response to observed or anticipated changes.

Recommendations & Considerations

Financial Strategies

1. Review feasibility of adopting a full-funding scenario that achieve 50% of average annual requirements for the asset categories analyzed in this AMP. This involves:
    a. implementing a 1.8% annual tax increase over a 15-year phase-in period and allocating the full increase in revenue toward tax-funded asset categories;
    b. implementing a 3.0% rate increase for water over a 15-year phase-in period,
    c. continued allocation of OCIF, CCBF, OMPF, and NORDS funding as previously outlined in Table ;
    d. using risk frameworks and staff judgement to prioritize projects, particularly to aid in elimination of existing infrastructure backlogs;

Although difficult to capture, inflation costs, supply chain issues, and fluctuations in commodity prices will also influence capital expenditures.

Better Asset Management Through Better Asset Data

1. Ensure the development of a centralized asset inventory, with a high level of data maturity and integrity, in the Citywide database in order to use database functionality and operationalize asset management.
2. Componentize facilities data using Uniformat II Code standard for building classifications. This can be accomplished during building condition assessments. This will improve long-term replacement projections and better align system-generated forecasts with capital budgets.
3. Continuously review, refine, and calibrate lifecycle and risk strategies to better reflect actual practices and improve capital projections. In particular:
    a. the timing of various lifecycle events, the triggers for treatment, anticipated impacts of each treatment, and costs;
    b. the various attributes used to estimate the likelihood and consequence of asset failures, and their respective weightings.
4. Asset management planning is highly sensitive to replacement costs. Periodically update replacement costs based on recent projects, invoices, or estimates, as well as condition assessments, or any other technical reports and studies. Material and labour costs can fluctuate due to local, regional, and broader market trends, and substantially so during major world events. As a result, accurately estimating the replacement cost of like-for-like assets can be challenging. Ideally, several recent projects over multiple years should be used. Staff judgement and historical data can help attenuate extreme and temporary fluctuations in cost estimates and keep them realistic.

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

Risk and Levels of Service

6. Risk models and matrices can play an important role in identifying high-value assets, and developing an action plan which may include repair, rehabilitation, replacement, or further evaluation through condition assessments. As a result, project selection and the development of multi-year capital plans can become more strategic and objective. Initial models have been built into Citywide for all asset groups. These models reflect current data, which was limited. As the data evolves and new attribute information is obtained, these models should also be refined and updated.
7. Available data on current performance should be centralized and tracked to support any calibration of service levels for long-term tracking of O. Reg. 588's requirements on proposed levels of service.
8. Staff should monitor evolving local, regional, and environmental trends to identify factors that may shape the demand and delivery of infrastructure programs. These can include population growth, and the nature of population growth; climate change and extreme weather events; and economic conditions and the local tax base. This data can also be used to review service level targets.

Appendix A: Proposed LOS 10-Year Capital Requirements

The table below outlines the capital cost requirements for recommended lifecycle activities, as generated through the Township's asset management software. These projections are based on annual budgets that start at current funding levels and gradually increase over a 15-year period to reach a 50% funding level, using Scenario 3 for all assets, as outlined in Proposed Levels of Service. For more information, please refer to the Financial Strategy.

Table 61: Scenario 3 10-Year Capital Requirements

Asset Category	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Road Network	$396k	$410k	$288k	$336k	$698k	$486k	$480k	$286k	$730k	$451k
Water Network	-	$10k	$20k	-	-	-	-	-	$138k	-
Buildings and Facilities	-	-	-	-	$22k	-	-	-	-	$64k
Machinery and Equipment	-	-	-	-	-	-	-	-	-	$17k
Vehicles	-	-	-	-	-	$67k	-	-	-	-
TOTAL	**$396k**	**$420k**	**$308k**	**$336k**	**$719k**	**$552k**	**$480k**	**$286k**	**$868k**	**$531k**

Appendix B: 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

Appendix C: Risk Rating Criteria

Risk Definitions

Risk	Integrating a risk management framework into your asset management program requires the translation of risk potential into a quantifiable format. This will allow you to compare and analyze individual assets across your entire asset portfolio. Asset risk is typically defined using the following formula: **Risk = Probability of Failure (POF) x Consequence of Failure (COF)**
Probability of Failure (POF)	The probability of failure relates to the likelihood that an asset will fail at a given time. The current physical condition and service life remaining are two commonly used risk parameters in determining this likelihood.
POF - Structural	The likelihood of asset failure due to aspects of an asset such as load carrying capacity, condition or breaks
POF - Functional	The likelihood of asset failure due to its performance
POF - Range	**1 - Rare 2 - Unlikely 3 - Possible 4 - Likely 5 - Almost Certain**
Consequences of Failure (COF)	The consequence of failure describes the overall effect that an asset's failure will have on an organization's asset management goals. Consequences of failure can range from non-eventful to impactful: a small diameter water main break in a subdivision may cause several rate payers to be without water service for a short time. However, a larger trunk water main may break outside a hospital, leading to significantly higher consequences.
COF - Financial	The monetary consequences of asset failure for the organization and its customers
COF - Social	The consequences of asset failure on the social dimensions of the community
COF - Environmental	The consequence of asset failure on an asset's surrounding environment
COF - Operational	The consequence of asset failure on the Town's day-to-day operations
COF - Health & safety	The consequence of asset failure on the health and well-being of the community
COF - Economic	The consequence of asset failure on strategic planning
COF - Range	**1 - Insignificant 2 - Minor 3 - Moderate 4 - Major 5 - Severe**