



Asset Management Plan 2025

Township of Papineau-Cameron

June 2025



This Asset Management Plan was prepared by:



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

Key Statistics

\$9.3 m	2023 Replacement Cost of Asset Portfolio
\$19 k	Replacement Cost of Infrastructure Per Household
95%	Percentage of Assets in Fair or Better Condition
95%	Percentage of Assets with Assessed Condition Data
\$141 k	Annual Capital Infrastructure Deficit
15 Years	Recommended Timeframe for Eliminating Annual Infrastructure Deficit
4.9%	Proposed Level of Service: Target Investment Rate
3.4%	Actual Investment Rate

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1. Executive Summary

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

1.1 Scope

This Asset Management Plan (AMP) identifies the Township proposed level of service over a ten-year period and estimates the associated costs and risks of delivery. It identifies the Township's projected sustainable funding and funding shortfalls to meet the proposed Level of Service. Strategies for addressing the funding gap are included. As an appendix to this report, and as reported in the 2024 compliant AMP, current practices and strategies that are in place to manage public infrastructure and recommendations for their enhancement are provided. Through the implementation of sound asset management strategies, the Township of Papineau-Cameron can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP includes the following asset categories:



Figure 1 Core and Non-Core Asset Categories

1.2 Compliance

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

1.3 Findings

The overall replacement cost of the asset categories included in this AMP totals \$9.3 million. 95% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 95% of assets. For the remaining 5% 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 LOS, the Township's average annual capital requirement totals \$456 thousand. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately \$315 thousand towards capital projects or reserves per year. As a result, there is currently an annual funding gap of \$141 thousand.

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

1.4 Recommendations

A financial strategy was developed to address the annual capital funding gap based on meeting the proposed LOS. The following graphics shows annual tax change required to eliminate the Township's infrastructure deficit based on a 15-year plan:

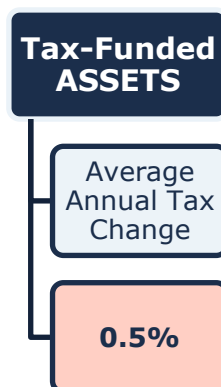


Figure 2 Proposed Tax Changes

Beyond the financial recommendations, there are recommendations to guide continuous refinement of the Township's asset management program. These include:

- Review asset data and information to maintain a complete and accurate dataset. Focus first on the most impactful fields of replacement cost, assessed condition, and lifecycle activities. Also consider asset quantity information and helpful attribute data such location details.
- Consider the use of third-party professionals to conduct a Roads Needs Study and a Building Condition Assessment (BCA) to improve the quality of data available to inform decisions.
- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- On a regular annual basis measure current LOS and compare with proposed LOS annual targets. Where there is a significant difference between the two, work to understand the primary causes.

2. Introduction & Context

2.1 Community Profile

Census Characteristic	Township of Papineau-Cameron	Ontario
Population 2021	982	14,223,942
Population Change 2016-2021	-3.3%	5.8%
Total Private Dwellings	495	5,929,250
Population Density	1.7/km ²	15.9/km ²
Land Area	564.23 km ²	892,411.76 km ²

Table 1 Township of Papineau-Cameron Community Profile

The Township of Papineau-Cameron is a single tier municipality in the Nipissing District located within Northeastern Ontario. The Township is situated east of Lake Nipissing, and on the south side of Ottawa River.

Papineau Township was incorporated in 1888 and was named after Louis-Joseph Papineau, a prominent figure in Canadian history. Cameron Township was named after Chief Justice Sir Matthew Crooks Cameron and in 1992 Papineau and Cameron Townships were amalgamated. The Township consists of communities of Klock, Morel, and Rankin. These communities are multi-cultural, having strong roots to First Nations, French, and English heritage. The region historically served as a central hub for economic activities including fur trade, forestry, and agriculture.

The region is characterized by its stunning natural environment which includes forests, lakes, and rivers. The Township's natural beauty and outdoor recreational opportunities make it a popular destination for outdoor enthusiasts. Visitors can enjoy seasonal activities like fishing, hiking, boating, and snowmobiling in the area's lakes and forests.

The economy of Papineau-Cameron has historically been based on resource industries such as forestry, mining, and agriculture. These industries continue to play a role in the local economy, but there has also been diversification into tourism and outdoor recreational activities due to the natural beauty of the region.

The Township has prioritized maintenance of its current infrastructure, allocating resources to ensure the ongoing functionality and resilience of its assets. This dedication highlights the Township's commitment to maintaining the effectiveness and integrity of its essential infrastructure.

2.2 Climate Change

Climate change can cause severe impacts on human and natural systems around the world. The effects of climate change include increasing temperatures, higher levels of precipitation,

droughts, and extreme weather events. In 2019, Canada's Changing Climate Report (CCCR 2019) was released by Environment and Climate Change Canada (ECCC).

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

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

2.2.1 Papineau-Cameron Climate Profile

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

Higher Average Annual Temperature:

- Between the years 1971 and 2000 the annual average temperature was 3.9 °C
- Under a high emissions scenario, the annual average temperatures are projected to increase by 2.7 °C by the year 2050 and over 6.6 °C by the end of the century.

Increase in Total Annual Precipitation:

- Under a high emissions scenario, Papineau-Cameron is projected to experience an 13% increase in precipitation by the year 2051 and a 18% increase by the end of the century.

Increase in Frequency of Extreme Weather Events:

- It is expected that the frequency and severity of extreme weather events will change.

2.2.2 Integration Climate Change and Asset Management

Asset management practices aim to deliver sustainable service delivery - the delivery of services to residents today without compromising the services and well-being of future residents. Climate change threatens sustainable service delivery by reducing the useful life of an asset and

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

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

2.3 Asset Management Overview

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

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

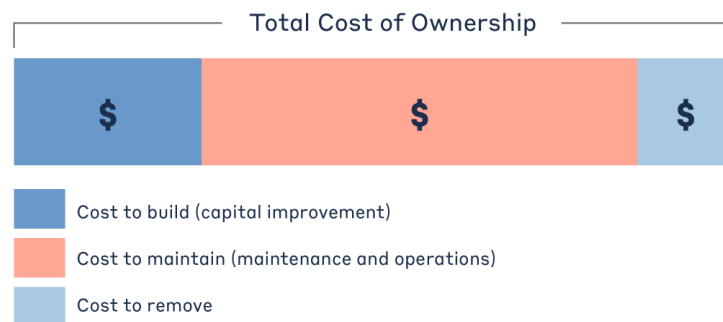


Figure 3 Total Cost of Asset Ownership

These costs can (and often do) 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.

2.3.1 Foundational Asset Management Documentation

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

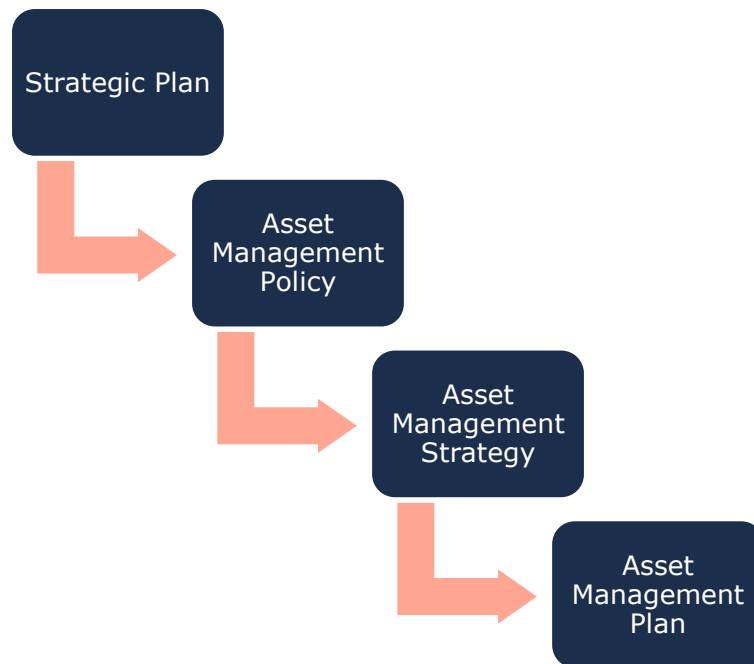


Figure 4 Foundational Asset Management Documents

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

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.

On October 8th, 2019, the Council of Papineau-Cameron approved 'Resolution 2019-197', in accordance with Ontario Regulation 588/17. The Asset Management Policy provides a framework for the development and implementation of the Municipality's asset management program. It is intended to guide the consistent use of asset management across the organization, to facilitate logical and evidence-based decision-making for the management of municipal infrastructure assets and to support the delivery of sustainable community services now and in the future.

Asset Management Strategy

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

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

Asset Management Plan

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

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

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

2.3.2 Key Concepts in Asset Management

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

Lifecycle Management Strategies

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

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

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

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

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

Table 2 Lifecycle Management: Typical Lifecycle Interventions

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

Risk & Criticality

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

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

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

Formula to Assess Risk of Assets

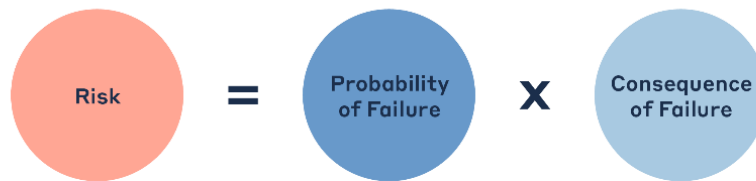


Figure 5 Risk Equations

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

Probability of Failure

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

Consequence of Failure

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

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

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

Table 3 Risk Analysis: Types of Consequences of Failure

The 2024 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. Appendix A to E includes risk summaries by asset class and Appendix G details risk models used for each asset category.

Levels of Service

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

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

Community Levels of Service

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

Technical Levels of Service

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

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

Current and Proposed Levels of Service

Current LOS reflects the current technical LOS for (most often) a group of assets as of a defined past measurement date. In contrast, a Proposed LOS reflects 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 the proposed LOS values required. Meaning, a Proposed LOS may be maintaining or even reducing current performance.

Regardless of what the selected Proposed LOS is, O. Reg 588/17 requires Municipalities to demonstrate the feasibility of the Proposed LOS. This must consider the associated costs, risks, and impact of population and economic activity over the period (O. Reg. 588/17 6,2). The proceeding sections outline O. Reg 588/17 reporting requirements and how the Municipality's AMP meets them, while noting any additional considerations made.

2.4 Scope & Methodology

2.4.1 Asset Categories for this AMP

This asset management plan for the Township of Papineau-Cameron is produced in compliance with O. Reg. 588/17. The July 2025 deadline under the regulation requires analysis of proposed levels of service for all asset categories.

As reported in the 2024 compliant AMP, Appendix A to E summarizes the state of the infrastructure for the Township's asset portfolio and establishes current levels of service and the associated technical and customer-oriented key metrics. The Asset Management Plan considers the following tax-funded asset categories:

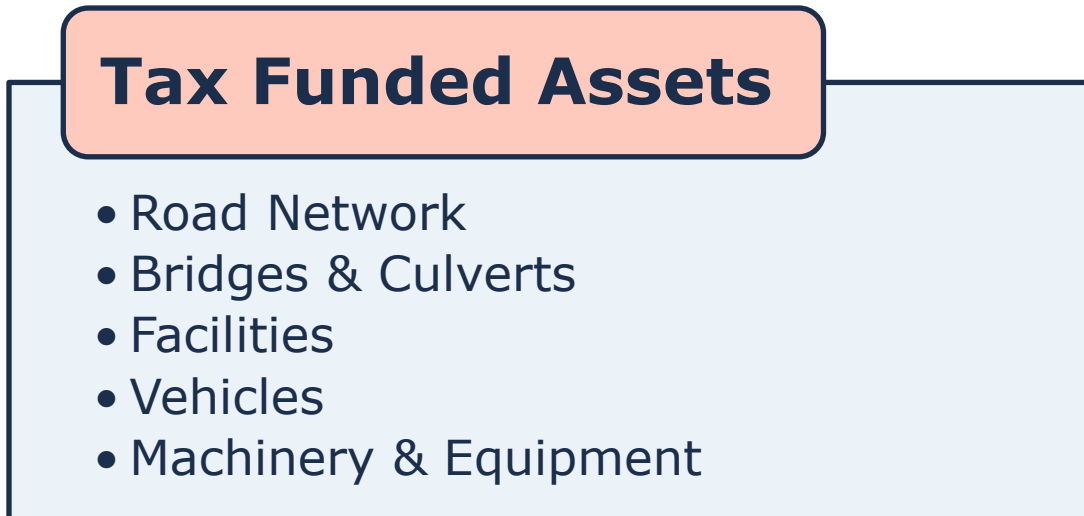


Figure 6 Tax Funded and Rate Funded Asset Categories

2.4.2 Data Effective Date

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

2.4.3 Deriving Replacement Costs

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

User-Defined Cost and Cost Per Unit

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

Cost Inflation / CPI Tables

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

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

2.4.4 Estimated Service Life & Service Life Remaining

The estimated useful life (EUL) of an asset is the period over which the Township expects the asset to be available for use and remain in service before requiring replacement or disposal. The

EUL for each asset in this AMP was assigned according to the knowledge and expertise of municipal staff and supplemented by existing industry standards when necessary.

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



Figure 7 Service Life Remaining Calculation

2.4.5 Reinvestment Rate

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

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



Figure 8 Target Reinvestment Rate Calculation

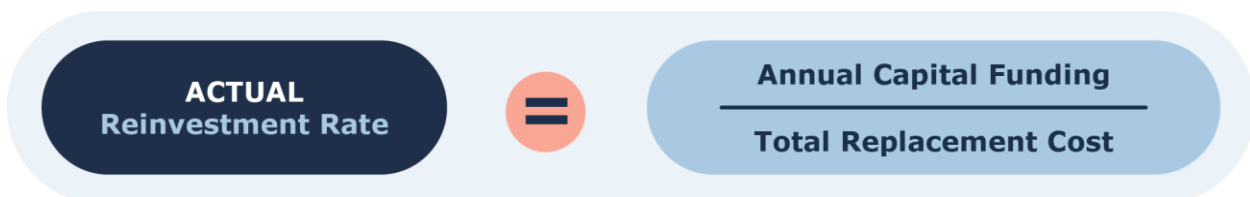


Figure 9 Actual Reinvestment Rate Calculation

2.4.6 Deriving Asset Condition

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

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

Canadian Infrastructure Report Card. When assessed condition data is not available, service life remaining is used to approximate asset condition.

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

Table 4 Standard Condition Rating Scale

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

2.5 Ontario Regulation 588/17

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

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

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

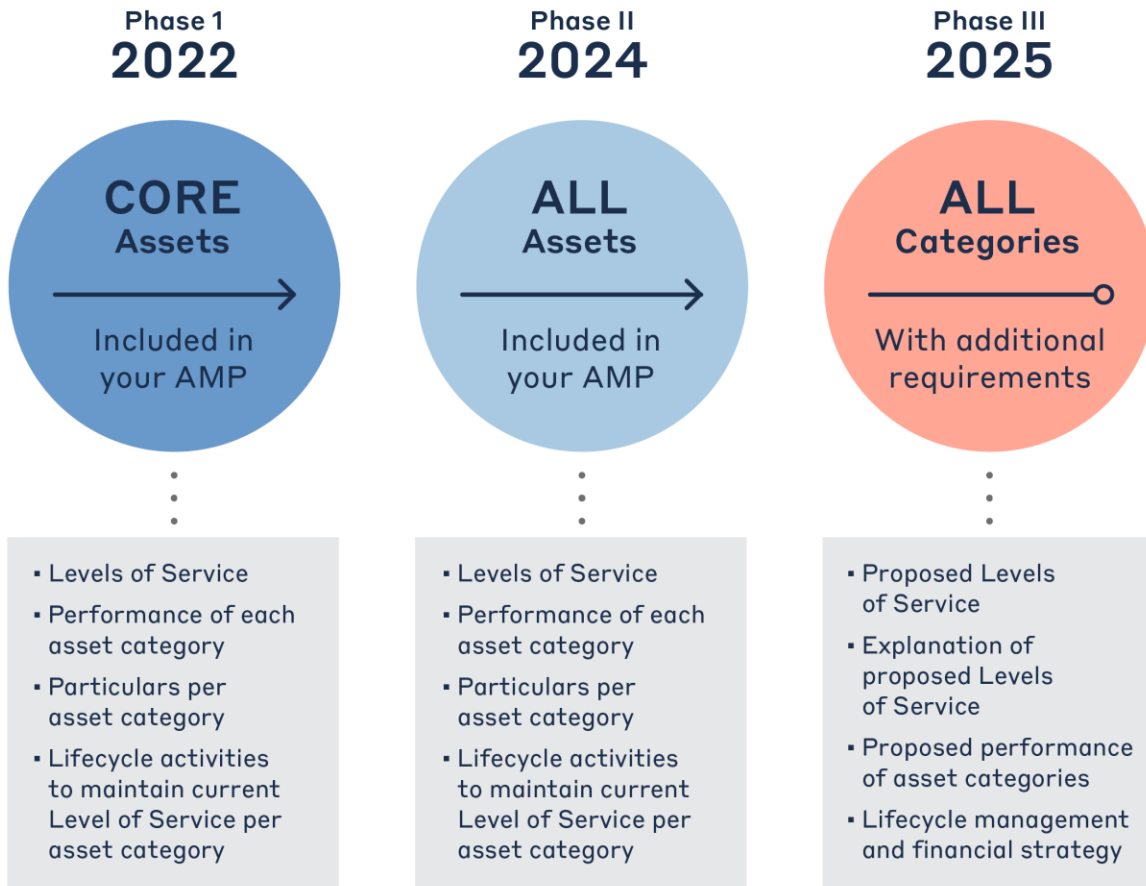


Figure 10 O. Reg. 588/17 Requirements and Reporting Deadlines

2.5.1 O. Reg. 588/17 Compliance Review

The following table identifies the requirements outlined in Ontario Regulation 588/17 for municipalities to meet by July 1, 2025. Next to each requirement a page or section reference is included in addition to any necessary commentary.

Requirement	O. Reg. 588/17 Section	AMP Section Reference	Status
Growth assumptions Considerations for Proposed LOS	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	4.2	Complete
Proposed LOS over 10 years for each asset category	6 (1) 1	5.2.5	Complete
Why Proposed LOS are Appropriate	6 (1) 2 (i., ii,iii,iv)	5.2.1-5.2.4	Complete
Proposed LOS 10-year Breakdown	6 (1) 3	5.2.5 & Appendix A to E	Complete

Proposed LOS Lifecycle Management	6 (1) 4 (i., A,B, C, D)	5.2.3	Complete
Proposed LOS Financial Strategy	6 (1) 4 (i.,D,ii.,iii.,iv.)	6	Complete
Proposed LOS Risk Management	6 (1), (B)	5.2.2	Complete

2.5.2 General and Extraordinary Assumptions

The analysis completed throughout this AMP is based on the best available information and data at the time of the document's publication. It is recognized that the noted assumptions and associated information inputs may change over time, and this may affect the Municipality's ability to meet the Proposed LOS or the accuracy of the Proposed LOS reporting.

- Asset condition information is reported based on OSIM reports and internal staff estimates and most associated recommendations including capital investments and maintenance activities.
- Asset deterioration is based on the respective EUL and where available the reported assessed condition. It is recognized that assets deterioration will not exactly match the forecasted deterioration rate, but the projections represent the best estimation of future conditions.
- Population and economic activity projections are based on the 2021 Canadian census and Come North Conference Report
- All financial information is based on asset costs as of December 2022 and 2023 and 2022, 2023 and 2024 budget financial information (i.e. revenues, expenditures, debentures) The cost impacts of inflation on future expenses and/or revenues are not reflected.

3. Portfolio Overview – State of the Infrastructure

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

3.1 Asset Hierarchy & Data Classification

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

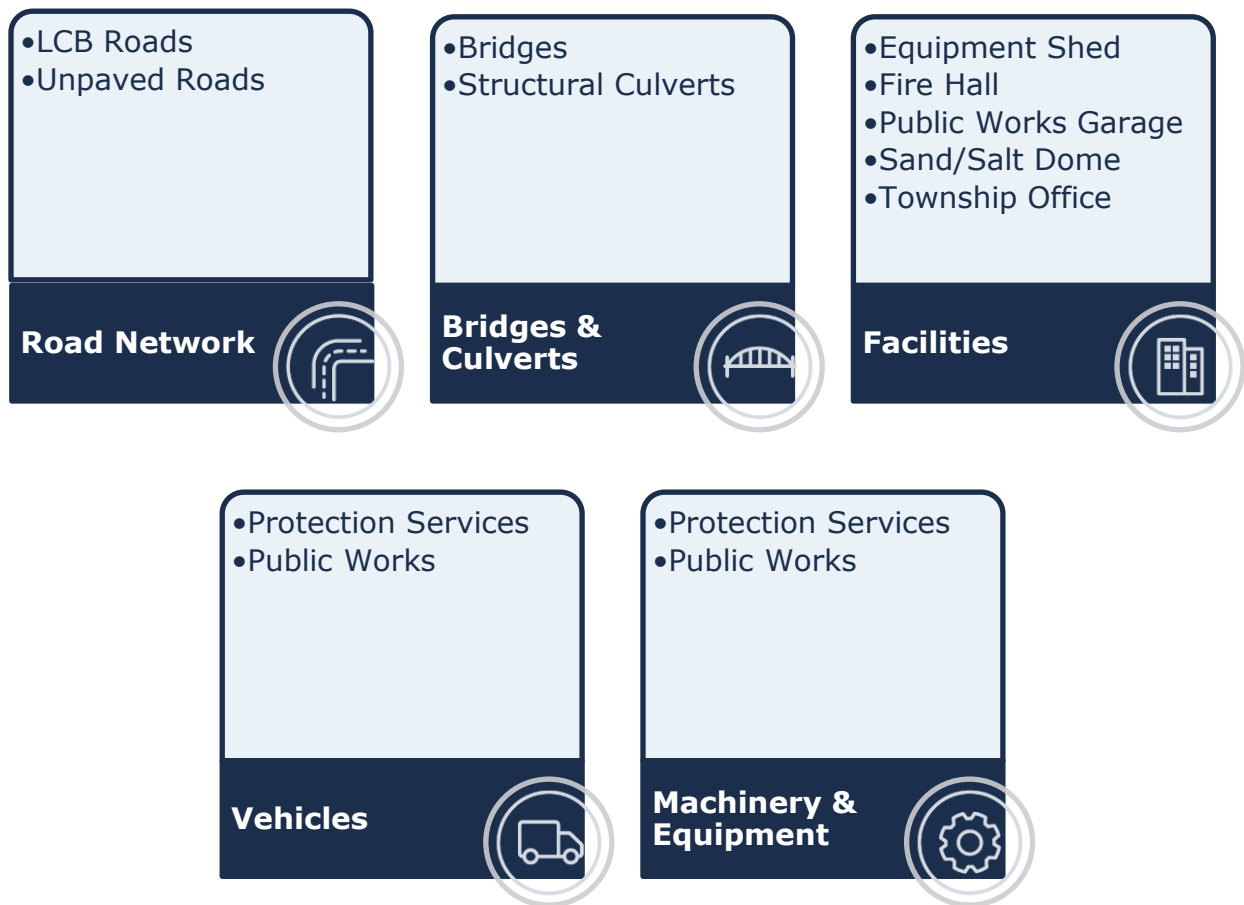


Figure 11 Asset Hierarchy and Data Classification

3.2 Portfolio Overview

3.2.1 Total Replacement Cost of Asset Portfolio

The five asset categories analyzed in this Asset Management Plan have a total current replacement cost of \$9.3 million. This estimate was calculated using user-defined costing, as well as inflation of historical or original costs to current date. This estimate reflects the replacement of historical assets with similar, not necessarily identical, assets available for procurement today. Figure 12 illustrates the replacement cost of each asset category; at 32% of the total portfolio, roads form the largest share of the Township's asset portfolio, followed by Vehicles at 20%.

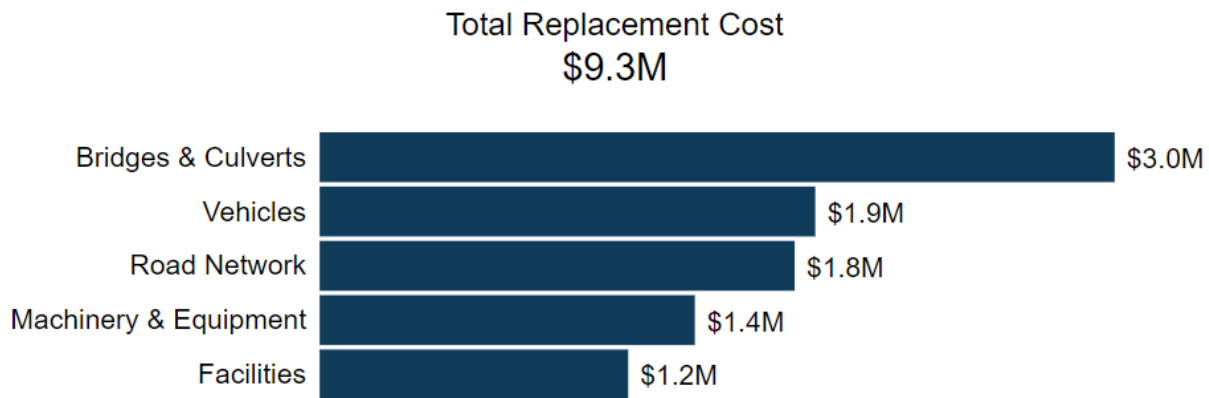


Figure 12 Current Replacement Cost by Asset Category

3.2.2 Condition of Asset Portfolio

Figure 13 summarize asset conditions at the portfolio and category levels, respectively. Based on both assessed condition and age-based analysis, 95% of the Township's infrastructure portfolio is in fair or better condition, with the remaining 5% in poor or worse condition. Typically, assets in poor or worse condition may require replacement or major rehabilitation in the immediate or short-term. Targeted condition assessments may help further refine the list of assets that may be candidates for immediate intervention, including potential replacement or reconstruction.

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

Condition data was available for all of the road network, bridges & culverts, vehicles, facilities, and machinery & equipment.

Further, when assessed condition data was available, it was projected to current year-end (2023). This 'projected condition' can generate lower condition ratings than those established at the time of the condition assessment. The rate of this deterioration will also depend on lifecycle curves used to project conditions over time.

As further illustrated in Figure 13 at the category level, the majority of road assets, vehicles, machinery & equipment, facilities, and half of the bridges & culverts are in fair or better condition, based on in-field condition assessment data. Most vehicles are also in fair or better

condition, based on recent condition assessments. See Table 5 for details on how condition data was derived for each asset segment.

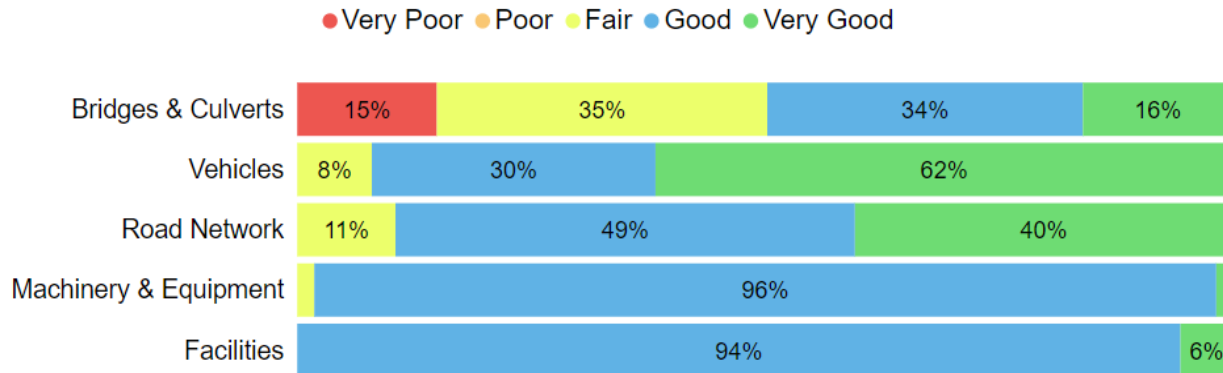


Figure 13 Asset Condition by Asset Category

As outlined previously, buildings and facilities are not componentized into their individual major elements and components. This limits the validity of current condition estimates as they are presented only at the 'parent' asset level, such as 'Fire Station #1', or 'Municipal Office'.

Source of Condition Data

This AMP relies on assessed condition for 95% of assets, based on and weighted by replacement cost. For the remaining assets, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. Table 5 below identifies the source of condition data used throughout this AMP.

Asset Category	Asset Segment(s)	% of Assets with Assessed Conditions	Source of Condition Data
Road Network	Paved Roads	100%	Staff Assessments
Bridges & Culverts	All	100%	2024 OSIM Report
Facilities	All	99%	Staff Assessments Age-Based
Vehicles	All	100%	Staff Assessments
Machinery & Equipment	All	100%	Staff Assessments

Table 5 Source of Condition Data

3.2.3 Service Life Remaining

Most assets have six or more years of useful life remaining, based on asset age, available assessed condition data and estimated useful life. By asset category, this varies slightly with bridges and facilities having all assets with over 10 years of life remaining while the other categories have more diversity. This is summarized in Figure 15 below.

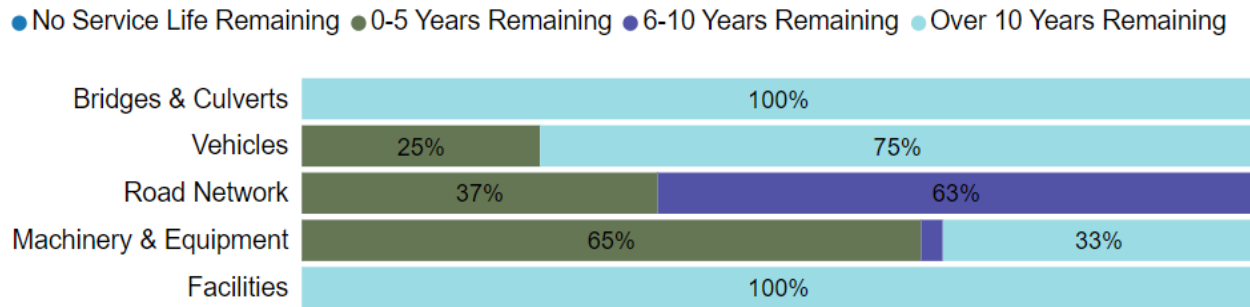


Figure 14 Service Life Remaining by Asset Category

3.2.4 Risk Matrix

Using the risk equation and preliminary risk models, Figure 15 shows how assets across the different asset categories are stratified within a risk matrix.

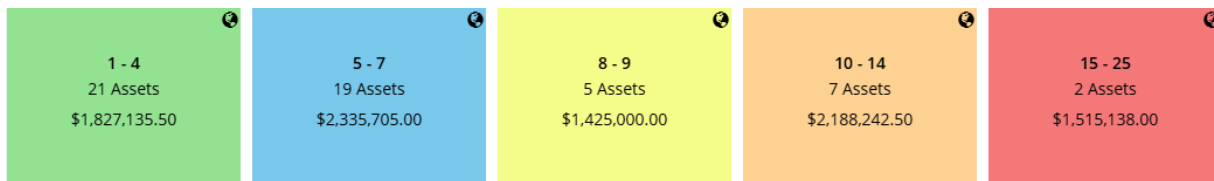


Figure 15 Risk Matrix: All Assets

The analysis shows that based on current risk models, when weighted by replacement cost approximately 16% of the Township's assets, with a current replacement cost of approximately \$1.5 million, carry a risk rating of 15 or higher (red) out of 25. Assets in this group may have a high probability of failure based on available condition data and age-based estimates and were most essential to the Township.

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

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

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

4. Portfolio Risk & Criticality

4.1 Qualitative Risk

The Township has noted key trends, challenges, and risks to service delivery that they are currently facing. The most prominent qualitative risks across all asset categories are:

Capital Funding Strategies



The timely replacement of Papineau-Cameron's assets is critical to the community. With multiple assets replacements due within a short period of time, a significant amount of funding is needed. As discussed further in Proposed LOS, the Township's existing funding levels are less than the amount required to meet proposed Levels of service. This funding shortfall is expected to lead to increased frequency and severity of asset failures.

Asset Data & Information



An increase in the frequency and intensity of precipitation events can result in flooding and washouts, which negatively impacts the Township's roads and bridges and culverts. This is further exacerbated by freeze-thaw cycles. For example, Cameron Road experienced a severe washout event in recent years. While the Township has since taken measures (i.e. installation of secondary pipe on Cameron Road culvert), the increasing frequency of extreme weather events will continue negatively impact the Township's assets.

4.2 Description of Growth Assumptions

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

4.2.1 East Nipissing Official Plan (June 2021)

The East Nipissing Planning Board covers the areas of Papineau-Cameron, Mattawan, and Calvin.

The Official Plan has been approved with modifications as of June 26th, 2021. The Official Plan spans a 25-year time horizon (2021-2046) and will be revised no less frequently than 10 years after it has come into effect and every five years thereafter. The Official Plan has been prepared based on four key components:

1. Community Development
2. Environmental Stewardship
3. Community Health and Safety
4. Resource Management

The overall goal is to attain a healthy economic base that supports sustainable and orderly community development while conserving the attributes and resources of the rural area.

The Rural Lands include most of Cameron Township and about half of Papineau Township which is endowed with natural resources whose extraction or development, including value-added land-use activities, support the economic base of East Nipissing. Resource-based uses include mineral aggregate extraction, forestry, and agriculture.

Servicing development will be principally through individual on-site water and sewage systems. No new municipal water or sewer services are anticipated over the life of the Official Plan (2021-2046).

The Township will be receiving assistance from the Northern Ontario Resource Development Support (NORDS) program to help build infrastructure and promote economic development. The Township will also receive municipal infrastructure support through the Ontario Community Infrastructure Fund (OCIF), which provides funding for communities to renew and rehabilitate critical infrastructure.

The following table summarizes the historical population and household statistics for the Municipality of Papineau-Cameron from the StatsCan Census. As the table details, population has remained relatively stagnant over the period of 1996 to 2021.

Historical Figures	1996	2001	2006	2011	2016	2021
Population	973	997	1,058	978	1,016	982
Population Change	N/A	2.5%	6.1%	-7.6%	3.9%	-3.3%
Private Dwellings	N/A	510	532	439	514	495

Table 6: Population Statistics

4.2.2 Growth Plan for Northern Ontario (2011)

The Growth Plan for Northern Ontario was prepared under Ontario's Places to Grow Act and authorizes the Province to identify and designate growth planning areas. The Growth Plan also authorizes the Province to develop strategic growth plans for the defined planning areas. The six theme areas which the Growth Plan is structured around include economy, people, communities, infrastructure, environment, and Aboriginal peoples.

The Papineau-Cameron Official Plan addresses these themes in a variety of ways. The key factors addressed by the Papineau-Cameron Official Plan relating to the growth of the community, in compliance with the Growth Plan for Northern Ontario, include designating areas within the Township of Papineau-Cameron for economic and residential growth, protecting key environmental resources, and providing a local framework to assist in the implementation of regional economic plans.

4.2.3 Regional Growth

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

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

The goal is to achieve a dependency ratio of 0.5. As summarized in Figure 16 below, in 1996, every Census District was at or near a 0.5 ratio, by 2016 there were no districts that were below 0.5 and more than half had a ratio in excess of 0.6. The dependency ratio is projected to further increase by 2036 with districts ranging between 0.67 (Greater Sudbury) and 1.03 (Parry Sound).

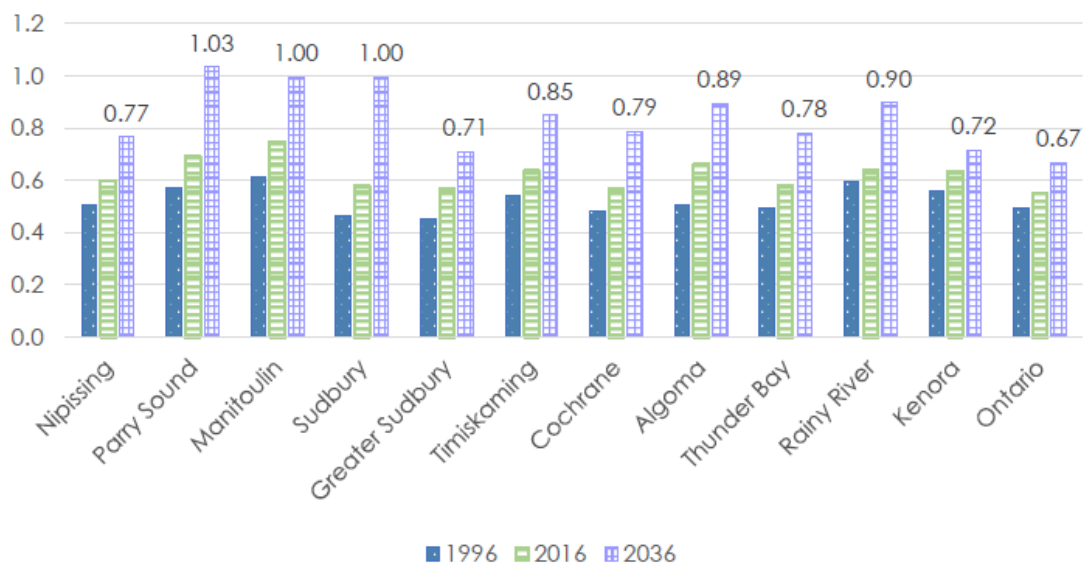


Figure 16: Dependency Ratio Historical and Geographical Summary

The Township of Papineau-Cameron is found in the Nipissing District, which is expected to reach a dependency ratio of 0.77.

The population trends within the Nipissing District have been fluctuating as seen in the graph below. The following graph from the 2019 Northern Projections Nipissing District Human Capital Series report by the Northern Policy Institute, displays the population trends from 1991 to 2016.

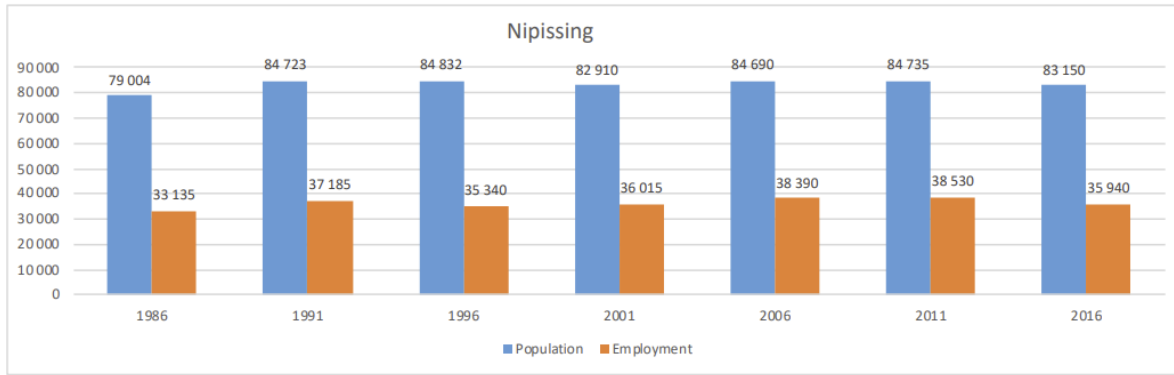


Figure 17: Historic Population Trends

The following table, found in the same report, shows population projections in the Nipissing District for the years 2021 to 2041.

Year	Ages 0-19	Ages 20-64	Ages 65+	Total
2021	16,879	51,301	20,048	88,228
2026	16,780	48,399	23,159	88,338
2031	16,370	46,061	25,876	88,307
2036	16,006	45,516	26,681	88,203
2041	15,727	45,585	26,814	88,126

Table 7: Population Projections Nipissing District

The most recent census data from 2021 shows a slight increase in the population, reaching a total of 84,716, which is significantly lower than the projected population. According to census data, a significant population increase is seen in the population of 65 and older and a slight decline in the 0 to 19 and 20 to 64 age ranges: thus, further increasing the dependency ratio.

The Town of Papineau-Cameron population projections for the period of 2021 to 2035 show a very slight annual increase of 0.2% or 1.6 additional people per annum. This represents a projected change from 965 in 2021 to 988 persons in 2035.

4.3 Impact of Growth on Lifecycle Activities

The District of Nipissing is not expected to experience material population growth in the coming years. This is largely a result of an aging population as illustrated by an increasing dependency ratio as noted above. As a result, it is expected that construction of additional infrastructure (i.e. an expanded road network) is not required and that the Municipality of Papineau Cameron will be able to service any residential growth by maintaining the existing infrastructure.

Lifecycle costs in this report, including in Proposed Levels of Service, therefore do not reflect any net new infrastructure assets.

5. Proposed Levels of Service

5.1 Overview

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

Current LOS reflects the current technical LOS for (most often) a group of assets as of a defined *past* measurement date. In contrast, a Proposed LOS reflects 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 the proposed LOS values required. Meaning, a Proposed LOS may be maintaining or even reducing current performance.

O. Reg. 588/17 requires Municipalities to report on Proposed Levels of Service, including an overview of the following:

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

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

1. Identification of lifecycle activities needed to provide the proposed LOS.
2. Annual costs over the next 10 years to achieve the proposed LOS.
3. Identification of proposed funding projected to be available.

5.2 Proposed LOS Options & Analysis

5.2.1 Setting Proposed LOS Options: Process and Considerations

To determine three suitable proposed LOS scenarios to analyze, a three-step review process was conducted. This is summarized below:

1. Strategic Document Review

Relevant strategic documents were reviewed to identify infrastructure and asset management priorities and goals which may help guide suitable Proposed LOS scenarios. These documents included:

- A. Housing Targets: District of Nipissing Social Services Administration Board
 - o Detailed overview of existing and forecasted population projections for the period of 2021-2035
 - o Growth projections signal anticipated future demands for infrastructure, a required consideration in Proposed LOS analysis
- B. Mattawa & Area: Community Safety Well-Being Plan

- Produced by Papineau Cameron and the surrounding municipalities (Township of Mattawa, Municipality of Calvin, Municipality of Mattawan) the plan seeks to promote a healthy, safe, and economically vibrant community
- A coordinated effort by the surrounding municipalities signals that shared services are a viable lifecycle management strategy

2. Resident Engagement

The Township of Papineau-Cameron issued a resident satisfaction survey in 2023. Surveys were mailed with the Spring 2023 tax bills to 868 households. In total, 42 survey responses were submitted, representing a 4.8% response rate. The survey contained a total of 15 questions regarding satisfaction levels with various municipal services and provided an opportunity for additional feedback. Findings of relevance to setting proposed LOS included the following:

Priority Areas of Investment

- Economic growth was identified as the most important area of focus signaling the importance of balancing infrastructure investment levels with ratepayer affordability
- Recreation and senior care were identified as priority areas of investment; consultations with Township staff later revealed that recreation services are primarily supported through shared services with neighboring municipalities and that senior care is provided through a co-operatively owned non-municipal seniors' home. Therefore, investment to recreation and senior care assets owned by the Township was deemed non-applicable.
- Investment in the road network, including repairs, was identified as an infrastructure priority.

Existing Satisfaction levels

- Most respondents indicated that they have a very good or good quality of life, suggesting that the existing levels of service provided are generally accepted.
- 86% of respondents indicated they were very satisfied or somewhat satisfied with road maintenance and snow removal, suggesting that the current level of service for the roads is generally accepted

3. Discovery Sessions

Findings from the resident questionnaire, the Housing Targets, and Community Safety and Wellbeing Plan were consolidated, and a meeting was held with Township staff to discuss. Additional considerations for setting Proposed LOS were confirmed and identified, specifically:

- While the survey results provide good insights some caution about their quality of representation must be taken due to the sample size
- At this time staff resourcing is not identified as a barrier to increased levels of service
- Through shared services with neighboring municipalities, Papineau-Cameron residents can access recreation services; development of Papineau-Cameron Township recreation services is not a priority considering initial investment requirements against the quality and affordability of the existing arrangement.
- Following the loss of a pulp and paper mill about 15 years ago, the Township's tax base is almost entirely residential. Tax-based revenue increases are generally not palatable to

rate payers and rarely supported by the council. Increased infrastructure investment is most likely only to be funded from upper levels of government (i.e. Grants and transfer payments).

- While the Township's exiting debt payments are scheduled to end in 2028, additional debts are expected to be incurred at that time to fund equipment purchases at the Township's new landfill. Therefore, reallocating debt payments to the capital budget is not anticipated.

Considering all the above, the following three scenarios were selected for analysis and consideration as a Proposed LOS:

Table 8: Annual Capital Budgets by PLOS Scenario

Scenario	Annual Capital Budget Amount
1	\$456,000 annually
2	\$320,000 in year one; increased by \$27,000 annually for 5 years (ending at \$456,000)
3	\$320,000 annually

The above scenarios represent the Proposed LOS options. General infrastructure and operational risks associated with each scenario option are summarized in section 5.2.2. below.

5.2.2 Proposed LOS Options: Analysis

Several key areas of consideration were deployed in the selection of the Proposed LOS. These primarily were:

1. Associated Risks
2. Affordability
3. Achievability

The proceeding sections outline the above noted considerations and analysis information.

Proposed LOS Options: Risks

Table 8 below details the qualitative risks associated with each of the Proposed LOS and the anticipated relative severity of each scenario.

Table 9: Proposed LOS Option Risks

Risks Associated with Proposed LOS Options			
Applicable Scenario(s)	Relative Severity	Risk	Defined
1	High	Reliance on Grants	Increased capital funding requirements are not palatable to ratepayers and the additional investment can only be funded by conditional grants, as they become available. While grants and senior government funding reduce the burden on rate payers, they are considered an unsustainable revenue source. The Township will be more vulnerable to changes in provincial and federal policy and funding programs.
2	Mid		
3	lowest		
3	High	Increased Infrastructure Backlog	The average annual capital investment is less than the average annual capital requirement. Therefore, for many years assets are insufficiently funded, and lifecycle management is not optimal. Reduced and/or deferred lifecycle activities threaten reliability and increase the potential for costly (and unbudgeted) repairs to maintain service.
2	Mid		
1	Lowest		
3	High	Increased Rate of Asset Failure	Underinvestment in assets will result in a lower average condition and an increased rate of asset failure. This will affect the reliability of infrastructure, and the quality of service provided.
2	Mid		
1	Lowest		

3	High	Increased Severity of Asset Failure	Underinvestment in assets is correlated to an increased severity of asset failure. This may mean that assets are beyond the point of repair and require premature replacement. In some instances, this may result in a period where the Township does not have functional assets that are critical to their operations.
2	Mid		
1	Lowest		

In addition to the above noted qualitative risks, there are measurable risks held by each asset. Risks are quantified based on the respective probability and consequence of asset failure models outlined in Section 4 and detailed in Appendix G. Figure 18 below illustrates the average portfolio risk under each scenario over time. Scenario one has the lowest average risk but by a very small margin to scenario two (8.99 vs. 9.01); scenario three has an average risk score of 10.91, which is considerably higher than average risk for scenario 1 and 2. This is summarized in Table 9 below.

Table 10: Average Risk by Scenario

Scenario	Average Risk
1	8.99/25
2	9.01/25
3	10.91/25

Risk is dynamic and changes over time. Figure 18 below illustrates projected risk over time for each scenario.

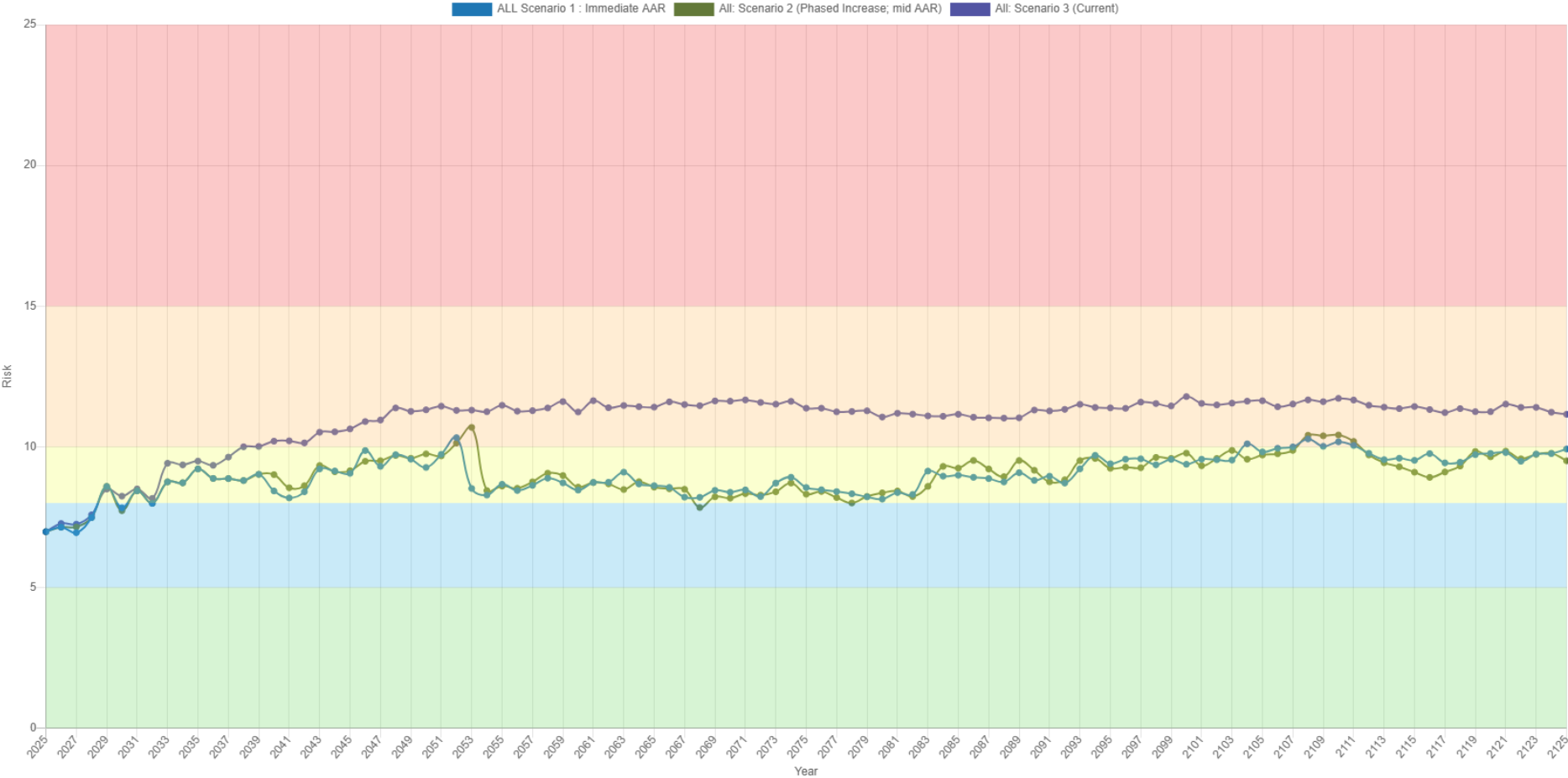


Figure 18: Average Risk Over Time

Proposed LOS Options: Affordability & Strategic Alignment

The Discovery session provided several key insights that guided priority areas of investment. Notable items are:

- Importance of balancing infrastructure investment levels with ratepayer affordability
- Investment in the road network, including repairs, was identified as an infrastructure priority.
- 86% of respondents indicated they were very satisfied or somewhat satisfied with road maintenance and snow removal, suggesting that the current level of service for the roads is generally accepted

Considering the above, investment levels under each scenario were strategically allocated based on asset category. All the identified capital investment needs for Roads and Bridges and Structural Culverts are funded while the lower priority asset categories do not receive full funding. Scenarios 1 and 2 provide a higher level of investment compared to total need across all asset categories and overall then investment levels under scenario 3.

Table 11: Scenarios & Asset Investment Levels

Asset Category	Scenario 1: % of Total Need Funded (by year 1)	Scenario 2: % of Total Need Funded² (by year 5)	Scenario 3: % of Total Need Funded
Vehicles	76%	76%	41%
Machinery and Equipment	75%	75%	39%
Buildings	78%	78%	43%
Road	100%	100%	78%
Bridges & Culverts	100%	100%	100%
Total	87%	87%	60%

The Financial Strategy (Section 6) provides details into affordability analysis of the selected option. Some key considerations when reviewing all Proposed LOS options are:

- The Township is limited in their available revenue sources; their tax base is almost entirely residential and alternative revenue streams are unlikely
- While there are debentures scheduled to expire soon, the Township anticipates taking on new debt shortly. Therefore, additional capital funding from paydown of debt is not anticipated.
- As noted in the discovery session, the Township does not realistically foresee the ability to increase the capital budget to \$456,000 via tax base revenues.
- Therefore, the proposed LOS is only affordable where there is additional funding from other levels of government. As noted in Table 8 (Section 5.2.2.) this is an identified risk. The Township continues to apply for grant funding from other levels of government. This, or other stable government transfers (e.g. OCIFs), are required to afford the proposed LOS.

² Percentage funded is based on the Average Annual Requirement as reported in the 2024 Asset Management Plan.

Proposed LOS Option: Additional Considerations

Achievability

Scenario 1: The capital funding increases very significantly in the first year. There may be some challenges in procuring and mobilizing investment, however these are not considered very severe in nature.

Scenario 2: The annual increase in capital funding is a modest amount and phased gradually over time. With the existing staff capacity to execute additional work there was no expressed concern about executability.

Scenario 3: There is no change in investment levels under this scenario. The Township does not anticipate issues in executing on this level of service.

5.3 Selected Proposed LOS

The three above noted scenarios were analyzed and results were reviewed, With consideration for achievability, risks, and affordability, the Township of Papineau Cameron selected **Scenario 2** as their Proposed Level of service. The financial strategy and 10-year capital forecasts reported herein reflect scenario 2.

Scenario 2: Capital budget begins at \$320,000 in year one; increased by \$27,000 annually for 5 years (ending at \$456,000)

The table below identifies the required capital funding to meet the proposed LOS targets over a ten-year period. Capital budget is prioritized to roads and bridges which reach 100% of their average annual requirement by year five. Otherwise, capital investment is allocated across each asset category proportionally to its average annual capital requirement. Since vehicles, machinery and equipment assets are a lower priority to roads and bridges, their average annual capital investment requirement is funded at between 75 and 78% by year five. The capital investment requirements by year and asset category are summarized below. As noted, capital investment is increased for the first five years and then stabilizes.

Table 12: Proposed LOS Capital Funding Requirements

Required Annual Capital Funding (\$'000)					
Asset Category	'25	'26	'27	'28	'29-34
Vehicles	84	88	92	96	100

Machinery & Equipment	81	84	88	91	95
Buildings	15	16	16	17	18
Road	132	147	162	177	192
Bridges & Culverts	35	39	43	47	51
Total Capital	347	374	402	429	456

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

It is important to note that an AMP is a dynamic document which should be reviewed regularly to ensure up-to-date information is incorporated including accurate replacement costs, changes in inventory, changes in available funding sources, and reflection on progress made on previous recommendations.

5.2.4 Required Lifecycle Strategies

The following tables details the anticipated lifecycle strategy changes that are required to meet the proposed LOS:

Asset Category	Lifecycle Changes to Reach PLOS	AMP Section
Road Network	No lifecycle changes, annual capital spending increase only	7.6
Bridges & Culverts	No lifecycle changes, annual capital spending increase only	7.11
Facilities	No lifecycle changes, annual capital spending increase only	7.16
Vehicles	No lifecycle changes, annual capital spending increase only	7.21
Machinery & Equipment	No lifecycle changes, annual capital spending increase only	7.26

Changes to Community and Technical Levels of Service for Scenario 1

The Township of Papineau-Cameron does not anticipate any changes to qualitative community levels of services for any of the asset categories included within this AMP. All asset categories will see adjustments to their technical levels of service over time, particularly relating to capital reinvestment rate and average condition of assets. Proposed LOS are informed by the above noted levels of investment; these values are summarized in the next section.

5.2.5 Proposed LOS Over 10 Years

The proposed LOS is based on each asset category's metrics and the funding levels as discussed earlier. Table X below summarizes the proposed LOS overtime based on this analysis.

Table 13: Proposed LOS Metrics

LOS Metric	2022 LOS	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35
Road Network												
Paved Roads: Average Condition (%) ³	74	63	58	55	52	52	52	46	48	40	47	40
Bridges & Structural Culverts												
Briges & Culverts: Average Condition (%)	70;60	58	56	54	52	51	49	47	45	58	56	55
Facilities												
% Of facilities that are in good or very good condition	100	100	100	100	40	20	20	20	20	20	20	20
% of Facilities in fair condition	0	0	0	0	60	80	80	80	80	80	80	80
% Of facilities that are in poor or very poor condition	0	0	0	0	0	0	0	0	0	0	0	0
Average Condition (%)	0	67	65	63	61	59	57	55	53	51	49	47
Vehicles												

³ The condition of assets—especially where estimated based on age relative to expected service life— will deteriorate over time. Declining condition is not necessarily a reflection of poor maintenance or asset functionality.

LOS Metric	2022 LOS	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35
% of vehicles that are in good/very good condition	92	50	50	63	50	13	13	50	50	38	13	
% of vehicles that are in fair condition	8	25	38	38	25	38	25	38	38	25	38	
% of vehicles that are in poor/very poor condition	0	25	12.5	0.0	25.0	50.0	62.5	12.5	12.5	37.5	50.0	
Machinery & Equipment												
% of assets that are in good/very good condition	98	10	10	20	10	0	10	20	30	30	40	
% of assets that are in fair condition	2	70	50	50	30	20	10	0	0	0	20	
% of assets that are in poor/very poor condition	0	20	40	30	60	80	80	80	70	70	40	

Financial Strategy

The Township is allocating approximately \$220,000 towards capital projects, on an annual basis

To meet the Proposed LOS there is an average annual capital requirement and funding gap of \$141,000

For tax-funded assets, we recommend increasing tax revenues by 0.5% each year for the next 15 years to achieve the proposed levels of service

6. Financial Strategy Overview

For an asset management plan to be effective and meaningful, it must be integrated with financial planning and long-term budgeting. The development of a comprehensive financial plan will allow Township of Papineau-Cameron to identify the financial resources required for sustainable asset management based on existing asset inventories, proposed levels of service, and projected growth requirements.

The Township's 2024 AMP identified the financial requirements for:

- a. Existing assets
- b. Existing service levels
- c. Requirements of contemplated changes in service levels (none identified in the 2024 plan)
- d. Requirements of anticipated growth (none identified)

This plan (2025 AMP) identifies the financial requirements to meet the identified proposed LOS. Like the 2024 AMP it is based on the financial requirements for existing assets, however the required funding is based on meeting the proposed LOS (as summarized in Section 5.1) 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, which are:

2. Use of traditional sources of municipal funds:
 - a. Tax levies
 - b. User fees
 - c. Debt
 - d. Development charges
3. Use of non-traditional sources of municipal funds:
 - a. Reallocated budgets
 - b. Partnerships
 - c. Procurement methods
4. Use of Senior Government Funds:
 - a. CCBF (Formerly Gas Tax)
 - b. Annual grants

Note: Periodic grants are normally not included due to Provincial requirements for firm commitments. However, if moving a specific project forward is wholly dependent on receiving a one-time grant, the replacement cost included in the financial strategy is the net of such grant being received.

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

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

6.1 Proposed LOS: Annual Requirements & Capital Funding

The annual requirements represent the amount the Township should allocate annually to each asset category to meet the proposed LOS. For the Township of Papineau-Cameron, the proposed LOS provides for an annual capital investment of \$456,000 which is (by year 5) equal to 87% of the annual capital investment required (\$526,000) to replace each asset when it's reached its useful life. Generally, this means that under this proposed LOS assets are being replaced later than recommended. However, it should be noted that this level of investment is a significant increase from the current level of investment (\$315,000) and therefore the proposed LOS is still higher than it would be if existing levels of capital funding continued.

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 of the Township's roads.

6.1.1 Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately \$315,000 towards capital projects per year. Given the annual capital requirement of \$456,000 under the selected proposed LOS scenario, there is currently a funding gap of \$141,000 annually.

6.1.2 Funding Objective

We have developed a scenario that would enable Papineau-Cameron to achieve full funding required to meet the proposed LOS within 1 to 20 years for the following assets:

1. **Tax Funded Assets:** Road Network, Bridges & Culverts, Facilities, Vehicles, and Machinery & Equipment

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

For each scenario developed we have included strategies, where applicable, regarding the use of cost containment and funding opportunities.

6.2 Financial Profile: Tax Funded Assets

6.2.1 Current Funding Position

The following tables show, by asset category, Papineau-Cameron's average annual asset investment requirements, current funding positions⁴, and funding increases required to achieve full funding and proposed LOS funding levels.

Table 14: Proposed LOS Current Funding Position

Asset Category	Avg. Annual Requirement	Avg. Annual Requirement (PLOS; yr 5)	Annual Funding Available			Annual Deficit		
			Taxes	Gas Tax	OCIF	Total Available	AAR	PLOS
Bridges & Culverts	\$51,000	\$51,000	\$25,149		\$54,000	\$79,149	-28,149	-28,149
Facilities	\$23,000	\$18,000	\$11,342			\$11,342	11,658	6,658
Machinery & Equipment	\$127,000	\$95,000	\$62,626			\$62,626	64,374	32,374
Road Network	\$192,000	\$192,000	\$50,791		\$46,000	\$96,791	95,209	95,209
Vehicles	\$132,000	\$100,000	\$65,092			\$65,092	66,908	34,908
Total	\$525,000	\$456,000	\$215,000		\$100,000	\$315,000	210,000	141,000

To meet the proposed LOS, the average annual investment requirement for the above categories is \$456,000. Annual revenue currently allocated to these assets for capital purposes is \$315,000 leaving an annual deficit of \$141,000. Put differently, the current level of investment is 69% of the investment needed to achieve the proposed LOS.

⁴ It is noted that the Township may be financially constrained by operating and/or capital deficits held by the East Nipissing Home for the Aged, also known as Casselhome. This may impact the annual funding available for infrastructure asset investment.

6.2.2 Full Funding Requirements

In 2022, Township of Papineau-Cameron has annual tax revenues of \$1,633,783. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding and funding to meet the proposed LOS would require the following tax change over time:

Table 15: Tax Changes Required

Asset Category	Tax Change Required for Full Funding	Tax Change Required for PLOS
Bridges & Culverts	-1.8%	-1.7%
Facilities	0.7%	0.4%
Machinery & Equipment	3.9%	2.0%
Road Network	5.8%	5.8%
Vehicles	4.0%	2.1%
Total	12.8%	8.6%

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

- a) Papineau-Cameron's debt payments for these asset categories will be decreasing by \$134,000 by 2029

Table 16: Recommended Reallocations

	Without Capturing Changes				With Capturing Changes			
	5 Years	10 Years	15 Years	20 Years	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit (PLOS)	\$141,000	\$141,000	\$141,000	\$141,000	\$141,000	\$141,000	\$141,000	\$141,000
Change in Debt Costs	N/A	N/A	N/A	N/A	-\$134,000	-\$134,000	-\$134,000	-\$134,000
Change in OCIF Grants	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Resulting Infrastructure Deficit:	\$116,000	\$116,000	\$116,000	\$116,000	-\$6,000	-\$6,000	-\$6,000	-\$6,000
Tax Increase Required	8.6%	8.6%	8.6%	8.6%	-0.4%	-0.4%	-0.4%	-0.4%

Annually:	1.4%	0.7%	0.5%	0.4%	-0.1%	-0.1%	-0.1%	-0.1%
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Our recommendations include capturing the above changes and allocating them to the infrastructure deficit outlined above. The table below outlines this concept and presents several options:

6.2.3 Financial Strategy Recommendations

Although Papineau-Cameron's current debt is due to expire within the next 5 years, it is anticipated that the Township will incur additional debt at the time of expiry and for this reason we do not recommend considering any of the options that capture changes in debt costs above. With all things considered, we recommend the 15-year option. This involves proposed levels of service being achieved over 15 years by:

- a) Increasing tax revenues by 0.5% each year for the next 15 years solely for the purpose of phasing in the proposed levels of service for asset categories covered in this section of the AMP.
- b) Reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
- c) Allocating the current OCIF revenue as outlined previously.
- d) Increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

- 1. As noted above, since the Township is expected to incur additional debt once the current outstanding debt expires, we have not considered any expected changes in debt costs in our recommendation. However, any debt cost reductions that are realized net of any additional debt taken on once the current debt expires should be reallocated to the infrastructure deficit as outlined in the scenario in the table above that captures changes in debt costs.
- 2. 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 commitment⁵.

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.

⁵ 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.

6.3 Use of Debt

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

- a) the ability to stabilize tax & user rates when dealing with variable and sometimes uncontrollable factors
- b) equitable distribution of the cost/benefits of infrastructure over its useful life
- c) a secure source of funding
- d) flexibility in cash flow management

Debt management policies and procedures with limitations and monitoring practices should be considered when reviewing debt as a funding option. In efforts to mitigate increasing commodity prices and inflation, interest rates have been rising. Sustainable funding models that include debt need to incorporate the now current realized risk of rising interest rates. The following graph shows the historical changes to the lending rates:

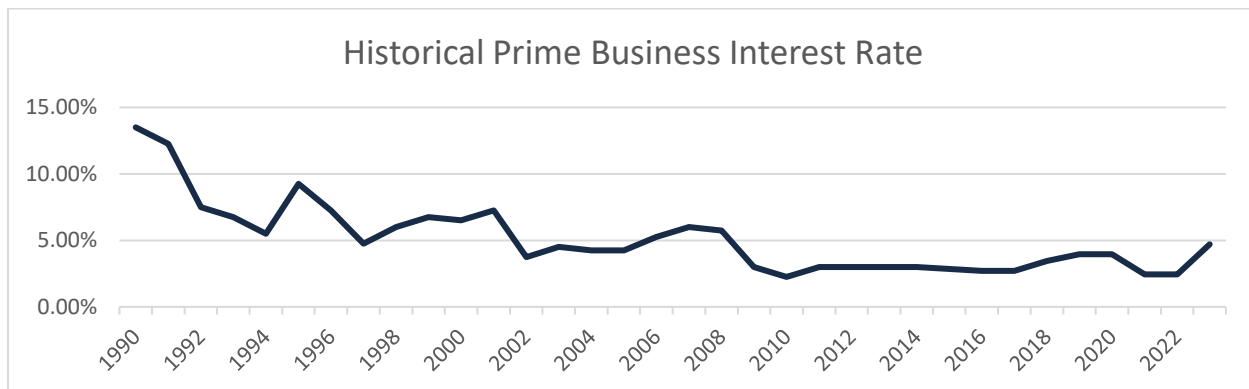


Figure 19: Historic Interest Rate

A change in 15-year rates from 5% to 7% would change the premium from 45% to 65%. Such a change would have a significant impact on a financial plan.

The following tables outline how Papineau-Cameron has historically used debt for investing in the asset categories as listed. There is currently \$324,000 of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of \$134,000 in 2024.

Table 17: Use of Debt in the Last 5 Years

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2018	2019	2020	2021	2022
Bridges & Culverts						
Facilities						

Machinery & Equipment	\$55,000					
Road Network						
Vehicles	\$269,000	\$23,600	\$235,000	\$300,000		
Total Tax Funded:	\$324,000	\$0	\$23,600	\$235,000	\$300,000	0

Table 18: Future Debt Payments

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2024	2025	2026	2027	2028	2029	2034
Bridges & Culverts							
Facilities							
Machinery & Equipment	\$14,000	\$14,000	\$14,000	\$14,000	\$7,000		
Road Network							
Vehicles	\$120,000	\$64,000	\$64,000	\$32,000			
Total Tax Funded:	\$134,000	\$78,000	\$78,000	\$46,000	\$7,000	0	0

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

6.4 Use of Reserves

6.4.1 Available Reserves

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

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

By asset category, the table below outlines the details of the reserves currently available to Papineau-Cameron.

Table 19: Reserve Balances

Asset Category	Balance at December 31, 2023
Bridges & Culverts	\$153,000
Facilities	\$53,000
Machinery & Equipment	\$53,000
Road Network	\$111,000
Vehicles	\$53,000
Total Tax Funded:	\$423,000

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

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

These reserves are available for use by applicable asset categories during the phase-in period to full funding. This coupled with Papineau-Cameron's judicious use of debt in the past, allows the scenarios to assume that, if required, available reserves and debt capacity can be used for high priority and emergency infrastructure investments in the short- to medium-term.

7. Recommendations & Key Considerations

7.1 Financial Strategies

- 1 Increasing tax revenues by 0.5% each year for the next 15 years solely for the purpose of phasing in the proposed levels of service for asset categories covered in this section of the AMP.
- 2 Reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
- 3 Allocating the current OCIF revenue as outlined previously.
- 4 Increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

7.2 Asset Data

1. Continuously review, refine, and calibrate lifecycle and risk profiles to better reflect actual practices and improve capital projections. In particular:
 - a. the timing of various lifecycle events, the triggers for treatment, anticipated impacts of each treatment, and costs
 - b. the various attributes used to estimate the likelihood and consequence of asset failures, and their respective weightings
2. Asset management planning is highly sensitive to replacement costs. Periodically update replacement costs based on recent projects, invoices, or estimates, as well as condition assessments, or any other technical reports and studies. Material and labour costs can fluctuate due to local, regional, and broader market trends, and substantially so during major world events. Accurately estimating the replacement cost of like-for-like assets can be challenging. Ideally, several recent projects over multiple years should be used. Staff judgement and historical data can help attenuate extreme and temporary fluctuations in cost estimates and keep them realistic.
3. Like replacement costs, an asset's established serviceable life can have dramatic impacts on all projections and analyses, including condition, long-range forecasting, and financial recommendations. Periodically reviewing and updating these values to better reflect in-field performance and staff judgement is recommended.

7.3 Risk & Levels of Service

1. Risk models and matrices can play an important role in identifying high-value assets, and developing an action plan which may include repair, rehabilitation, replacement, or further evaluation through condition assessments. As a result, project selection and the development of multi-year capital plans can become more strategic and objective. Initial models have been built into Citywide for all asset groups. These models reflect current

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

2. On a regular, annual basis measure the current LOS for each metric and chart this against the proposed LOS. Where there are significant differences between the two, work to understand what the differences are and why they have occurred. As necessary adjust lifecycle activities to support achievement of proposed LOS.
3. Staff should monitor evolving local, regional, and environmental trends to identify factors that may shape the demand and delivery of infrastructure programs. These can include population growth, and the nature of population growth; climate change and extreme weather events; and economic conditions and the local tax base. This data can also be used to review service level targets.

Appendices

Appendix A: Road Network

The Township's road network has a current replacement cost of more than \$1.8 million, distributed primarily between paved and unpaved roads.

7.4 Inventory & Valuation

Table 19 below summarizes the quantity and current replacement cost of the Township's various road network assets as managed in its primary asset management register, Citywide.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Unpaved Roads	72.87	Kilometers	Not Planned for Replacement ⁶	Cost/Unit
LCB Roads	18.48	Kilometers	\$1,801,800	Cost/Unit
TOTAL			\$1,801,800	

Table 20 Detailed Asset Inventory: Road Network

Total Replacement Cost
\$1.8M



Figure 20 Portfolio Valuation: Road Network

7.5 Asset Condition & Age

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

Table 21: Condition & Age Summary: Roads

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
LCB Roads	12	83 Years ⁷	76% (Good)

⁶ Gravel roads undergo perpetual operating and maintenance activities. If maintained properly, they can theoretically have a limitless service life.

⁷ All road assets currently have an in-service date of 1940. This is because Papineau-Cameron does not know the initial construction date of its roads. While the in-service dates are not accurate, Papineau-Cameron has gone through the exercise of updating its roads

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

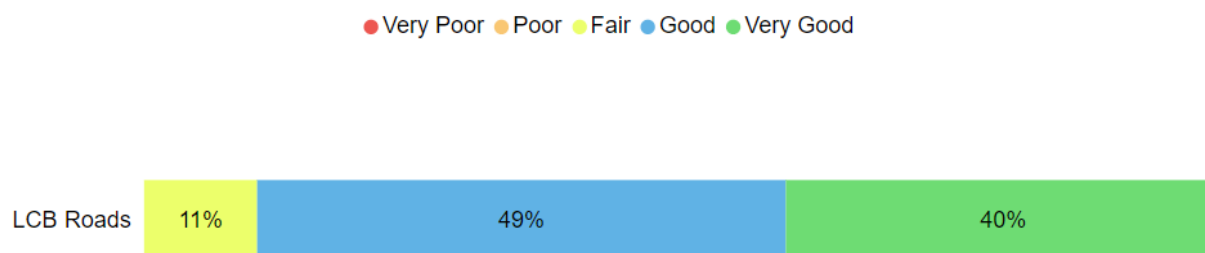


Figure 21 Asset Condition: Road Network by Segment

7.6 Current Approach to Lifecycle Management

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

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

Paved Roads (LCB)		
Event Name	Event Class	Event Trigger
Double Surface Treatment	Rehabilitation	Condition (50)
Single Surface Treatment	Rehabilitation	Condition (50)
Full Reconstruction	Replacement	Condition (20-30)

Table 22 Lifecycle Management Strategy: Road Network (LCB Roads)

condition and is utilizing institutional knowledge and assessed condition, as opposed to relying on the age of an asset to forecast schedule rehab/replacement events.

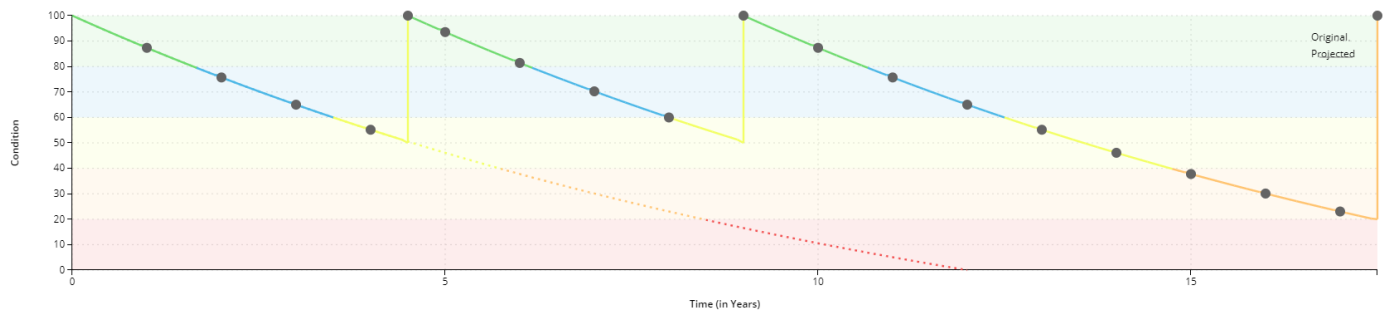


Table 23: Lifecycle Management Strategy: Unpaved Roads

Unpaved Roads ⁸		
Event Name	Event Class	Event Trigger
Grading	Maintenance	Annually
Dust Suppressant	Maintenance	Annually
Re-Gravelling	Rehabilitation	Every 5-7 Years

⁸ Documented operating and maintenance activities. If maintained properly, unpaved roads can theoretically have a limitless service life.

7.7 Risk Analysis

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

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

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



Figure 22 Risk Matrix: Road Network

7.8 Levels of Service

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

7.8.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)				
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	See Appendix B				
Quality	Description or images that illustrate the different levels of road class pavement condition	In absence of a third-party Roads Needs Study, Papineau-Cameron staff have updated its LCB roads using the following internal condition scale: <table><tr><th>Condition</th><th>Rating</th></tr><tr><td>Very Good</td><td>80-100</td></tr></table>	Condition	Rating	Very Good	80-100
Condition	Rating					
Very Good	80-100					

Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

Table 24 O. Reg. 588/17 Community Levels of Service: Road Network

7.8.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km ²)	N/A
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km ²)	0.02 ⁹
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km ²)	0.04 ¹⁰
Quality	Average pavement condition index for paved roads in the municipality	74%
	Average surface condition for unpaved roads in the municipality (e.g., excellent, good, fair, poor)	Good

Table 25 O. Reg. 588/17 Technical Levels of Service: Road Network

Proposed Levels of Service: Road Network

As detailed in section 5 Proposed LOS, the Municipality ran multiple scenarios to determine an achievable, affordable, and appropriate proposed LOS. Based on the analysis completed, the Municipality selected Scenario 2¹¹.

⁹ With the number of lanes not known, an assumption of 2 was used in this calculation.

¹⁰ With the number of lanes not known, an assumption of 2 was used in this calculation.

¹¹ Scenario 2: Capital budget begins at \$320,000 in year one; increased by \$27,000 annually for 5 years (ending at \$456,000)

The following graph summarizes the projected average condition for paved roads between 2025 and 2034. Projected condition is based on the lifecycle management strategy and is confined by a set capital budget further detailed in Section 5 Proposed LOS.

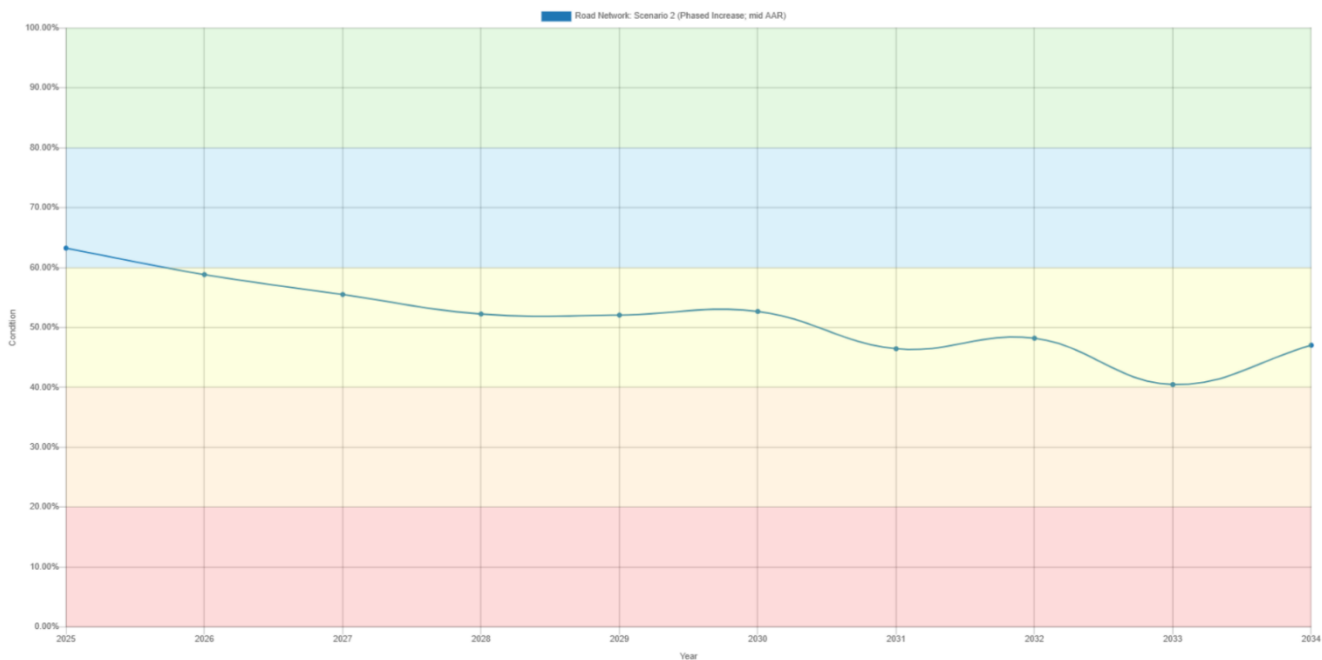


Figure 23: Road Proposed LOS- Condition

The following table details the proposed LOS for the condition of paved road assets over a ten-year period for the road network.

LOS Metric	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35
Paved Roads: Average Condition (PLOS, %) ¹²	63	58	55	52	52	52	46	48	40	47	40

Unpaved roads are expected to fluctuate in condition from year to year but generally through the identified lifecycle approach they remain in good condition.

¹² The condition of assets—especially where estimated based on age relative to expected service life— will deteriorate over time. Declining condition is not necessarily a reflection of poor maintenance or asset functionality.

7.8.3 Recommendations

Asset Inventory

- Review and update replacement costing details on a 1–2-year cycle, utilizing cost/unit pricing, to ensure the Road Network’s valuation stays up to date.

Condition Assessment Strategies

- Update condition information regularly, as it becomes available, to ensure capital forecasts are reliable.
- The Township should consider utilizing a third-party engineering/consulting firm to conduct a formal Roads Needs Study.

Lifecycle Management Strategies

- Review and update lifecycle management strategies (triggers, costing, impact, etc.) for the Township’s LCB roads.

Risk Management Strategies

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

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17 and those metrics that the Township believes to provide meaningful and reliable inputs into asset management planning.
- On a regular, annual basis measure the current LOS for each metric and chart this against the proposed LOS. Where there are significant differences between the two, work to understand what the differences are and why they have occurred. As necessary adjust lifecycle activities to support achievement of proposed LOS.

Appendix B: Bridges & Culverts

The Township's transportation network also includes bridges and structural culverts, with a current replacement cost of \$3 million.

7.9 Inventory & Valuation

Table 26 below summarizes the quantity and current replacement cost of bridges and culverts. The Township owns and manages two bridges and 11 structural culverts.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Bridges	2	Assets	\$686,123	CPI
Culverts	11	Components	\$2,329,598	CPI
TOTAL			\$3,015,721	

Table 26 Detailed Asset Inventory: Bridges & Culverts

Total Replacement Cost
\$3.0M



Figure 24 Portfolio Valuation: Bridges & Culverts

7.10 Asset Condition & Age

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

Table 27: Age and Condition Information Bridges & Culverts

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Bridges	75	42 Years	70% (Good)
Culverts	50	15 Years 8 Months	60% (Good)
Average		19 Years 9 Months	62% (Good)

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

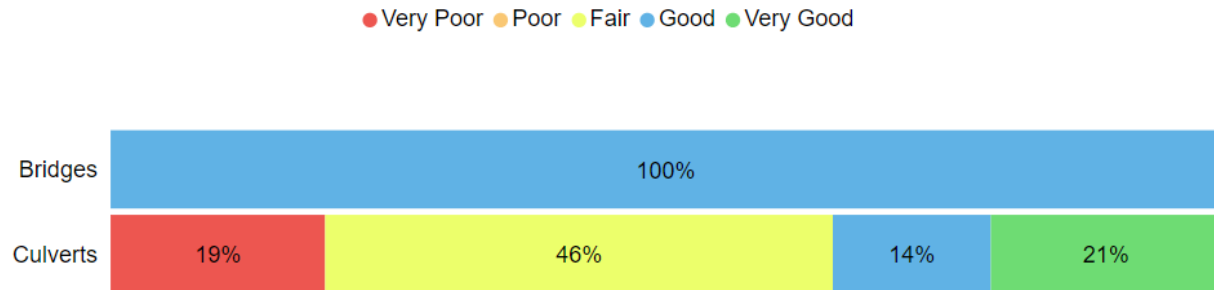


Figure 25: Condition Summary Bridges & Culverts

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

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

7.11 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation and Replacement	All lifecycle activities are driven by the results of mandated structural inspections completed according to the Ontario Structure Inspection Manual (OSIM)
Inspection	The most recent inspection report was completed in 2023 by K. Smart Associates Limited

Table 28 Lifecycle Management Strategy: Bridges & Culverts

7.12 Risk Analysis

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

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

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



Figure 26 Risk Matrix: Bridges & Culverts

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

- missed opportunities for cost savings and increases in lifecycle costs;

- deferral of vital projects, or further lending and borrowing;
- accelerated asset deterioration and premature failure, which may lead to public health and safety hazards, and disruption of services to the Township's residential and commercial base;
- a decline in public satisfaction with the Township's service standards and the resulting reputational damage;
- Bridges are inherently vital to the Township's transportation infrastructure, and their failures can disconnect communities, lead to public health and safety incidents, and can impede the efficient flow of residential and commercial traffic.

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

7.13 Levels of Service

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

7.13.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	Bridges and structural culverts are a key component of the municipal transportation network that supports various types of vehicles, including: heavy transport, motor vehicles, emergency vehicles and cyclists. Of all the Townships's structures, only structure 7 (Chenier Road) has a loading or dimensional restriction.
Quality	Description or images of the condition of bridges and culverts and how this would affect use of the bridges and culverts	See Appendix F: Level of Service Maps & Photos

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

7.13.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of bridges in the Township with loading or dimensional restrictions	15%
Quality	Average bridge condition index value for bridges in the Township	70
	Average bridge condition index value for structural culverts in the Township	60

Proposed Levels of Service: Bridges & Culverts

As detailed in section 5 Proposed LOS, the Municipality ran multiple scenarios to determine an achievable, affordable, and appropriate proposed LOS. Based on the analysis completed, the Municipality selected Scenario 2¹³.

The following graph summarizes the projected average condition for bridges and structural culverts between 2025 and 2034. Projected condition is based on the lifecycle management strategy¹⁴ and is confined by a set capital budget further detailed in Section 5 Proposed LOS.

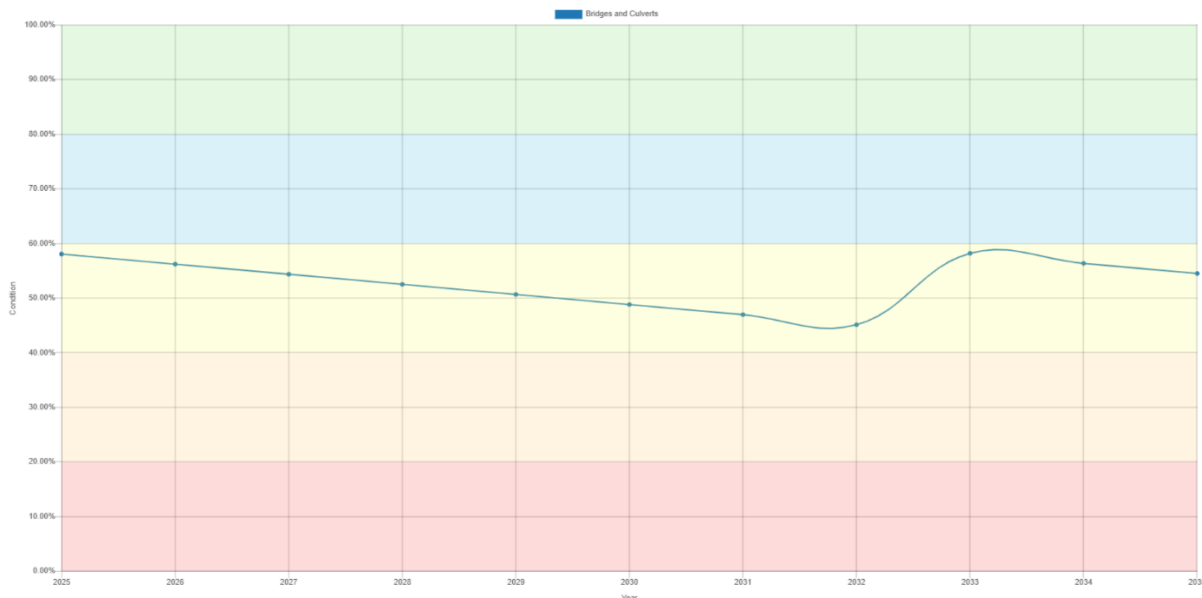


Figure 27: Bridges & Culverts Proposed LOS- Condition

¹³ Scenario 2: Capital budget begins at \$320,000 in year one; increased by approximately \$27,000 annually for 5 years (ending at \$456,000)

¹⁴ This is noting that at the Township's discretion not all OSIM recommendations are included in the analysis.

The following table details the proposed LOS for the condition of bridges and structural culvert assets annually until 2035.

LOS Metric	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35
Briges & Culverts: Average Condition (PLOS, %)	58	56	54	52	51	49	47	45	58	56	55

It is projected that the percentage of bridges and structural culverts with loading restrictions will not increase over the period of analysis (2025-2035). No additional capital costs are anticipated from this Proposed LOS.

7.13.3 Recommendations

Data Review/Validation

- Continue to review and validate inventory data, assessed condition data and replacement costs for all bridges and structural culverts upon the completion of OSIM inspections every 2 years.
- Incorporate all OSIM recommendations as lifecycle events (i.e. rehabilitations, replacements) so that capital requirements are accurately documented.

Risk Management Strategies

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

Lifecycle Management Strategies

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

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17 and those metrics that the Township believe to provide meaningful and reliable inputs into asset management planning.
- On a regular, annual basis measure the current LOS for each metric and chart this against the proposed LOS. Where there are significant differences between the two, work to understand what the differences are and why they have occurred. As necessary adjust lifecycle activities to support achievement of proposed LOS

Appendix C: Facilities

The Township's facilities portfolio includes Equipment shed, fire hall, public works, sand/salty dome, and township office assets. The total current replacement of facilities is estimated at more than \$1.2 million.

7.14 Inventory & Valuation

Table 303 below summarizes the quantity and current replacement cost of all facility assets available in the Township's asset register. None of the facilities are componentized. The quantity listed represents the number of asset records currently available for each segment.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Equipment Shed	1	Assets	\$65,400	User-Defined
Fire Hall	1	Assets	\$230,000	User-Defined
Public Works Garage	1	Assets	\$210,000	User-Defined
Sand/Salt Dome	1	Assets	\$400,000	User-Defined
Township Office	1	Assets	\$265,000	User-Defined
TOTAL	5		\$1,170,400	

Table 30 Detailed Asset Inventory: Facilities

Total Replacement Cost
\$1.2M

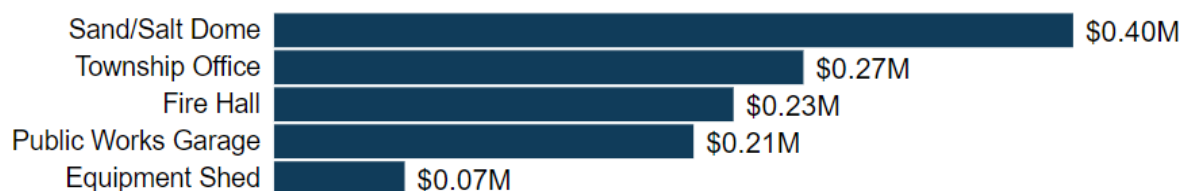


Figure 28: Facilities Replacement Cost

7.15 Asset Condition & Age

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

Table 31: Facilities Condition and Replacement Cost Summary

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Equipment Shed	50	3 Years	94% (Very Good)
Fire Hall	50	29 Years	70% (Good)
Public Works Garage	50	54 Years	70% (Good)
Sand/Salt Dome	50	14 Years	72% (Good)
Township Office	50	54 Years	70% (Good)
Average		38 Years 10 Months	71% (Good)

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

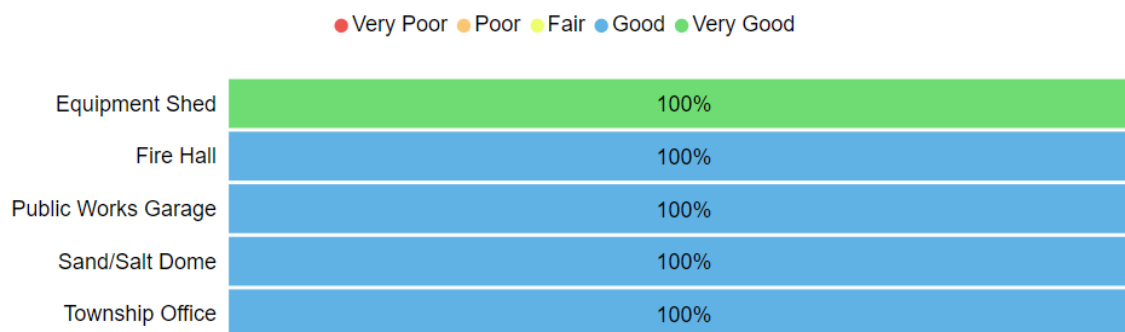


Figure 29: Facility Condition Breakdown

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

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

7.16 Current Approach to Lifecycle Management

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

Table 30 below outlines the Township's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Facilities are not subject to routine, scheduled inspections. Currently, inspections are conducted on an ad-hoc basis
	The Township's Fire Hall receives scheduled mandated inspections
	Renewals and replacements are scheduled by utilizing staff knowledge and expertise.

Table 32 Lifecycle Management Strategy: Facilities

7.17 Risk Analysis

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

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

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



Figure 30 Risk Matrix: Facilities

7.18 Levels of Service

7.18.1 Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2023)
Regulatory	Description of monthly and annual facilities inspection process	Refer to section 4.3.3
Quality	Description of the current condition of municipal facilities and the plans that are in place to maintain or improve the provided level of service	Papineau-Cameron's facilities are in 'good condition'. With the recent addition to the fire hall, along with the new (2022) equipment shed, there are no immediate needs for the Township's facilities.

Table 33 Community Levels of Service: Facilities

7.18.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Quality	% Of facilities that are in good or very good condition	100%
	% Of facilities that are in poor or very poor condition	0%

Table 34 Technical Levels of Service: Facilities

Proposed Levels of Service: Facilities

As detailed in section 5 Proposed LOS, the Municipality ran multiple scenarios to determine an achievable, affordable, and appropriate proposed LOS. Based on the analysis completed, the Municipality selected Scenario 2¹⁵.

The following graph summarizes the projected average condition for facility assets between 2025 and 2034. Projected condition is based on the lifecycle management strategy and is confined by a set capital budget further detailed in Section 5 Proposed LOS. The table that follows reports on the percentage of facility assets in very good or good condition and the percentage of assets in poor or very poor condition as defined the LOS metric.

¹⁵ Scenario 2: Capital budget begins at \$320,000 in year one; increased by \$27,000 annually for 5 years (ending at \$456,000)

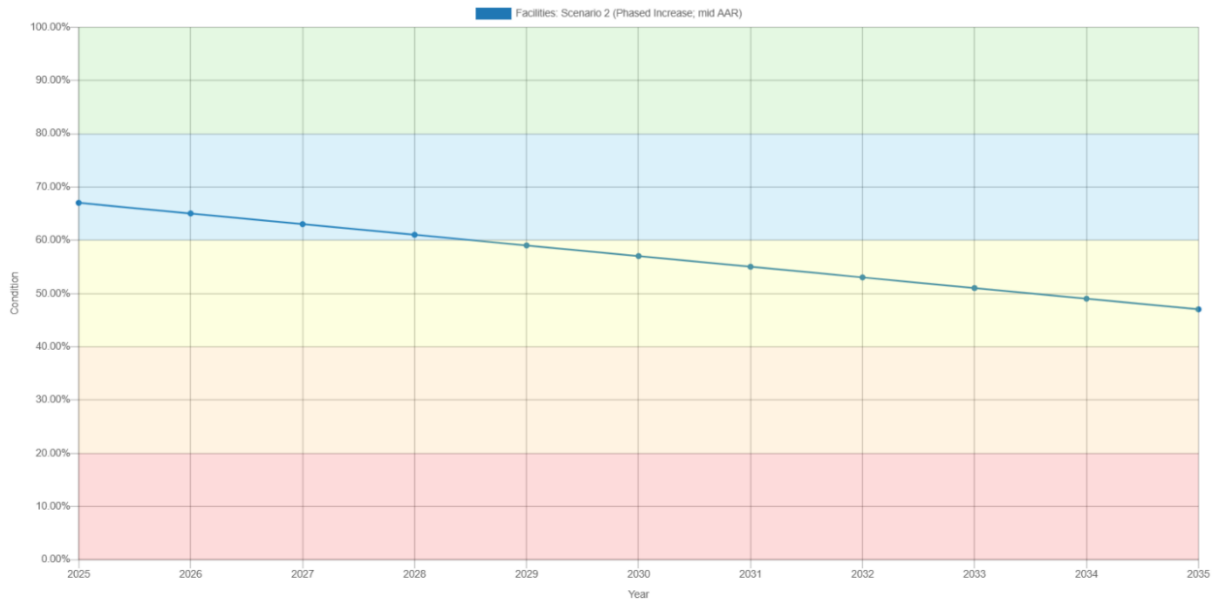


Figure 31: Facilities Proposed LOS- Condition

The following table details the proposed LOS for the condition of facilities assets over a ten-year period.

Table 35: Proposed LOS- Facilities

LOS Metric	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34	'35
% Of facilities that are in good or very good condition	100	100	100	40	20	20	20	20	20	20	20
% of Facilities in fair condition	0	0	0	60	80	80	80	80	80	80	80
% Of facilities that are in poor or very poor condition	0	0	0	0	0	0	0	0	0	0	0
Average Condition (%)	67	65	63	61	59	57	55	53	51	49	47

7.18.3 Recommendations

Asset Inventory

- The Township's asset inventory contains a single record for all facilities. Facilities consist of several separate capital components that have unique estimated useful lives and require asset-specific lifecycle strategies. A building condition assessment (BCA) will create a component-based inventory of all facilities, which will allow for component-based lifecycle planning.

Replacement Costs

- Update replacement costs on a regular basis to ensure the accuracy of capital projections.

Condition Assessment Strategies

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

Risk Management Strategies

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

Levels of Service

- On a regular, annual basis measure the current LOS for each metric and chart this against the proposed LOS. Where there are significant differences between the two, work to understand what the differences are and why they have occurred. As necessary adjust lifecycle activities to support achievement of proposed LOS

Appendix D: Vehicles

The Township's vehicles total current replacement of is estimated at approximately \$1.9 million.

Papineau-Cameron owns and operates a variety of vehicles, including:

- Tandem axle trucks for winter control activities
- Fire rescue vehicles to provide emergency services
- Pick-up trucks to support the maintenance of the transportation network

7.19 Inventory & Valuation

Table 33 below summarizes the quantity and current replacement cost of all vehicles assets available in the Township's asset register.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Protection Services	5	Assets	\$1,205,000	User-Defined
Public Works	3	Assets	\$675,000	User-Defined
TOTAL			\$1,880,000	

Table 36 Detailed Asset Inventory: Vehicles

Total Replacement Cost
\$1.9M



Figure 32 Portfolio Valuation: Vehicles

7.20 Asset Condition & Age

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

Table 37: Age and Condition Summary: Vehicles

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Protection Services	5-25	8 Years	80%
Public Works	5-20	3 Years 8 Months	78%

Average	6 Years 4 Months	80%
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The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale.

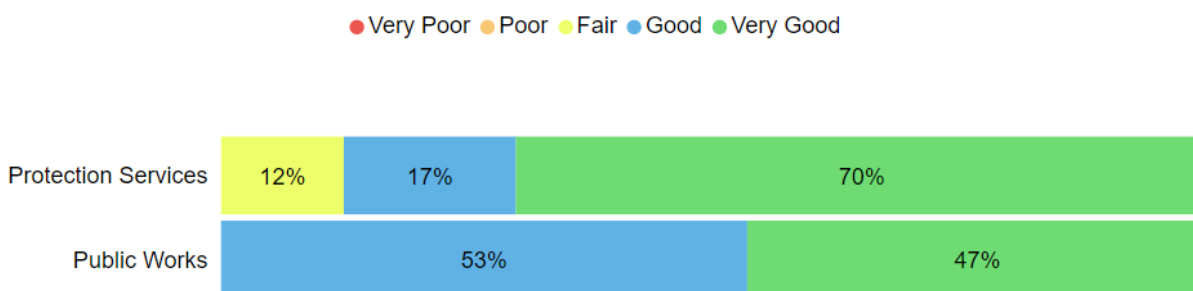


Figure 33 Asset Condition: Vehicles by Segment

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

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

7.21 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Visual inspections completed and documented daily/weekly
	A weekly maintenance schedule is in place for all public works vehicles
	Commercial vehicles are subject to annual safety inspections on various components
	The inspection of fire protection vehicles are mandated

Replacement	The Township relies on the expertise of its internal staff to forecast when its public works vehicles will need replacement
	Pertinent vehicle attributes such as age, kilometers and annual repair costs are taken into consideration when determining appropriate treatment options

Table 38 Lifecycle Management Strategy: Vehicles

7.22 Risk Analysis

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

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

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

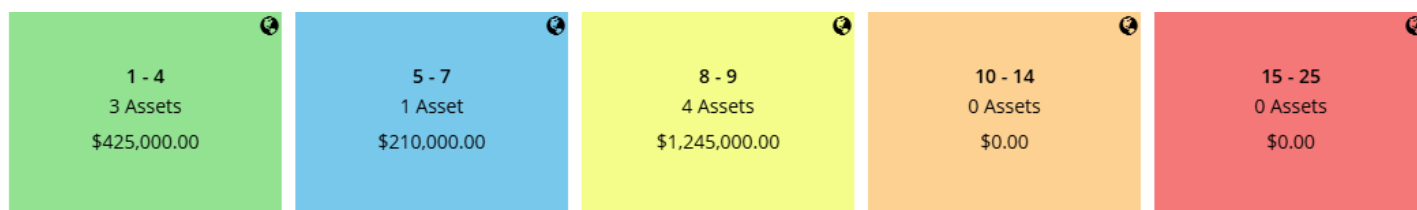


Figure 34 Risk Matrix: Vehicles

7.23 Levels of Service

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

7.23.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Quality	Description of the current condition of municipal vehicles and the plans	Papineau-Cameron's vehicles are in very good condition. Vehicles receive daily

that are in place to maintain or improve the provided level of service	inspection by internal staff. Major rehabilitative work is completed by an external mechanic on a scheduled basis
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Table 39 Community Levels of Service: Vehicles

7.23.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Quality	% of vehicles that are in good/very good condition	92%
	% of vehicles that are in fair condition	8%
	% of vehicles that are in poor/very poor condition	0%

Table 40 Technical Levels of Service: Vehicles

Proposed Levels of Service: Vehicles

As detailed in section 5 Proposed LOS, the Municipality ran multiple scenarios to determine an achievable, affordable, and appropriate proposed LOS. Based on the analysis completed, the Municipality selected Scenario 2¹⁶.

The following graph summarizes the projected average condition for vehicles assets between 2025 and 2035. Projected condition is based on the lifecycle management strategy and is confined by a set capital budget further detailed in Section 5 Proposed LOS. The table that follows reports on the percentage of facility assets in very good or good condition and the percentage of assets in poor or very poor condition as defined the LOS metric.

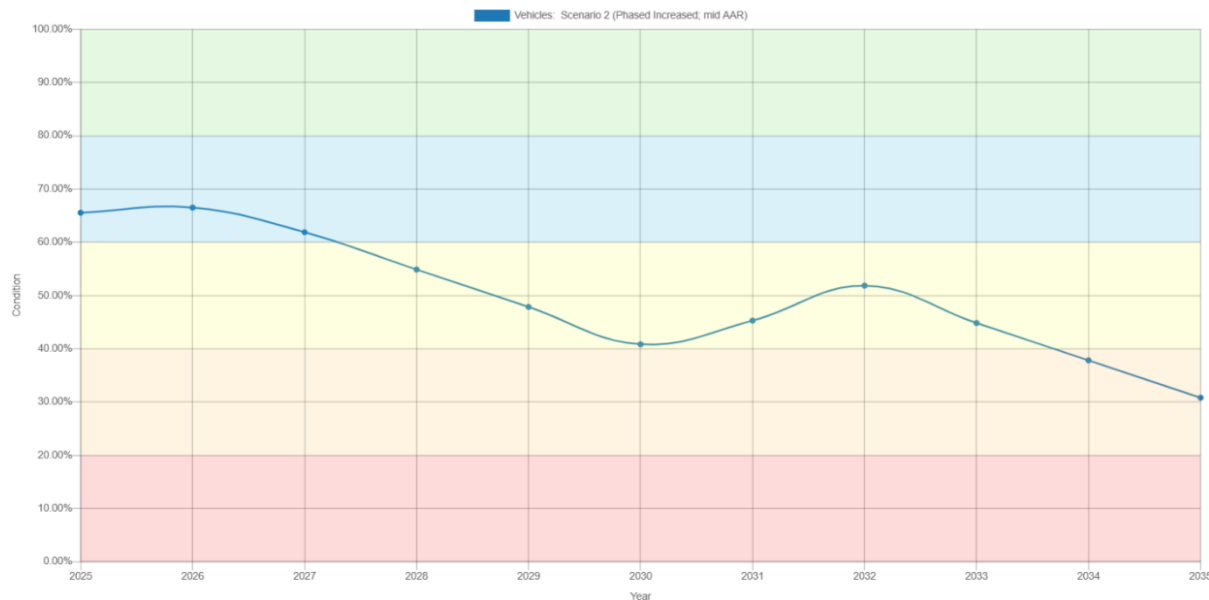


Figure 35: Proposed LOS Vehicles- Condition

¹⁶ Scenario 2: Capital budget begins at \$320,000 in year one; increased by \$27,000 annually for 5 years (ending at \$456,000)

The following table details the proposed LOS for the condition of vehicles assets over a ten-year period.

Table 41: Proposed LOS Vehicles

LOS Metric	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
% of vehicles that are in good/very good condition	50	50	63	50	13	13	50	50	38	13
% of vehicles that are in fair condition	25	38	38	25	38	25	38	38	25	38
% of vehicles that are in poor/very poor condition	25	12.5	0.0	25.0	50.0	62.5	12.5	12.5	37.5	50.0

7.23.3 Recommendations

Replacement Costs

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

Condition Assessment Strategies

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

Risk Management Strategies

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

Levels of Service

- On a regular, annual basis measure the current LOS for each metric and chart this against the proposed LOS. Where there are significant differences between the two, work to understand what the differences are and why they have occurred. As necessary adjust lifecycle activities to support achievement of proposed LOS

Appendix E: Machinery & Equipment

The Township's machinery and equipment portfolio includes Excavators Backhoes, Street sweepers, Culvert steamers, Trailers, Graders. The total current replacement of machinery and equipment is estimated at approximately \$1.4 million.

7.24 Inventory & Valuation

Table 37 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	Replacement Cost	Primary RC Method
Protection Services	2	Assets	\$19,500	CPI
Public Works	8	Assets	\$1,403,800	CPI
TOTAL			\$1,423,300	

Table 42 Detailed Asset Inventory: Machinery & Equipment

Total Replacement Cost
\$1.4M



Figure 36 Portfolio Valuation: Machinery & Equipment

7.25 Asset Condition & Age

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

Table 43: Asset Condition & Age Summary: Machinery & Equipment

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Protection Services	10-15	12 Years 7 Months	68%
Public Works	5-20	9 Years 5 Months	69%
Average		10 Years	69

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

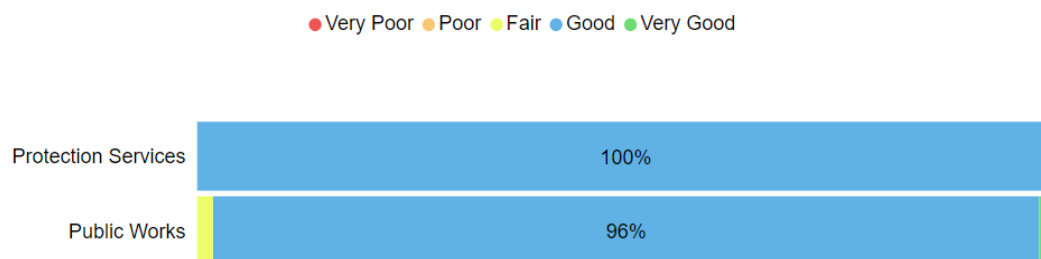


Figure 37 Asset Condition: Machinery & Equipment by Segment

7.26 Current Approach to Lifecycle Management

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

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

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	A weekly maintenance schedule is in place for all public works machinery & equipment The inspection of fire protection vehicles are mandated
Replacement	The Township relies on the expertise of its internal staff to forecast when its assets will need replacement Pertinent attributes such as age, manhours and annual repair costs are taken into consideration when determining appropriate treatment options

Table 44 Lifecycle Management Strategy: Machinery & Equipment

7.27 Risk Analysis

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

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

probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the Township may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

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

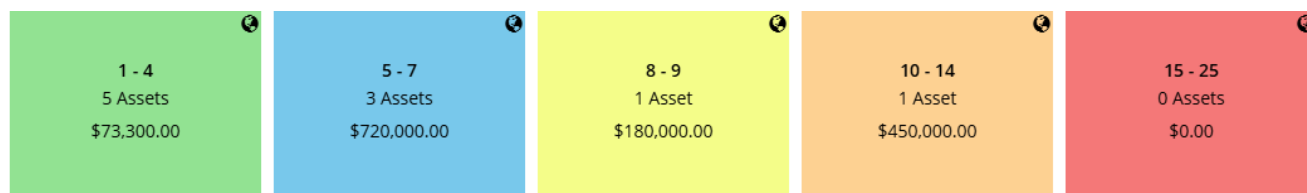


Figure 38 Risk Matrix: Machinery & Equipment

7.28 Levels of Service

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

7.28.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Quality	Description of the current condition of municipal vehicles and the plans that are in place to maintain or improve the provided level of service	Papineau-Cameron's machinery & equipment assets are in good condition. Assets receive regular, scheduled inspection by internal staff. Major rehabilitative work is completed by an external mechanic on a scheduled basis

Table 45 Community Levels of Service: Machinery & Equipment

7.28.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Quality	% of assets that are in good/very good condition	98%
	% of assets that are in fair condition	2%
	% of assets that are in poor/very poor condition	0%

Table 46 Technical Levels of Service: Machinery & Equipment

Proposed Levels of Service: Machinery & Equipment

As detailed in section 5 Proposed LOS, the Municipality ran multiple scenarios to determine an achievable, affordable, and appropriate proposed LOS. Based on the analysis completed, the Municipality selected Scenario 2¹⁷.

The following graph summarizes the projected average condition for machinery and equipment assets between 2025 and 2035. Projected condition is based on the lifecycle management strategy and is confined by a set capital budget further detailed in Section 5 Proposed LOS. The table that follows reports on the percentage of facility assets in very good or good condition and the percentage of assets in poor or very poor condition as defined the LOS metric.

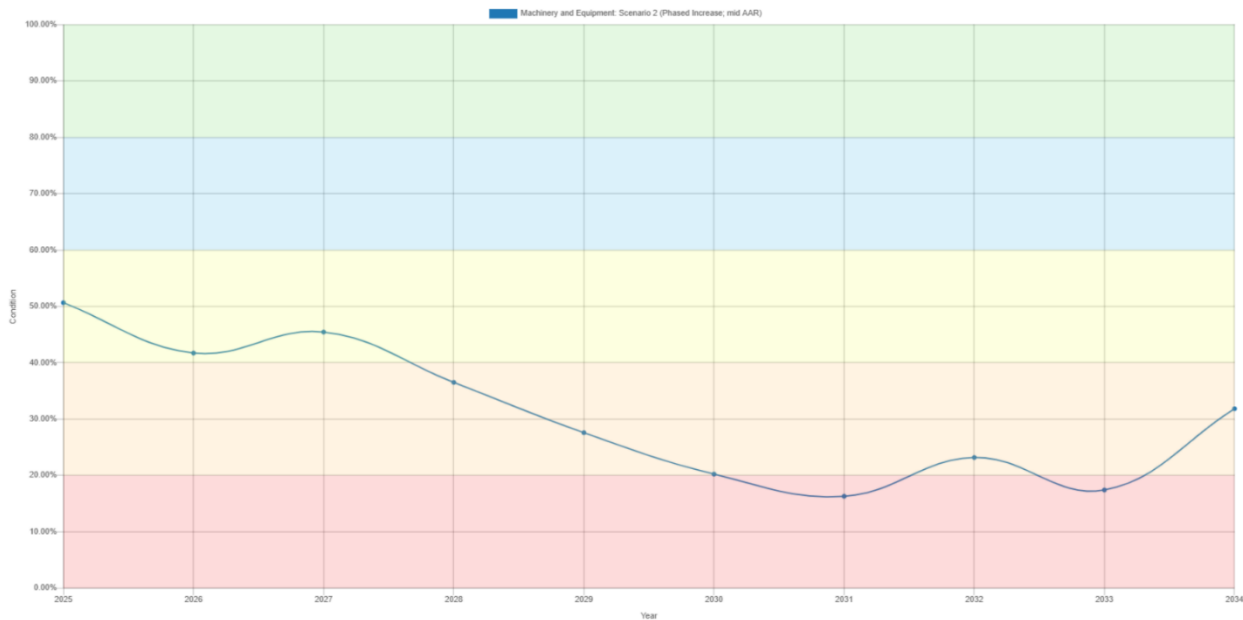


Figure 39: Proposed LOS- Condition Machinery & Equipment

The following table details the proposed LOS for the condition of machinery and equipment assets over a ten-year period.

Table 47: Proposed LOS - Machinery & Equipment

LOS Metric	'25	'26	'27	'28	'29	'30	'31	'32	'33	'34
% of assets that are in good/very good condition	10	10	20	10	0	10	20	30	30	40
% of assets that are in fair condition	70	50	50	30	20	10	0	0	0	20
% of assets that are in poor/very poor condition	20	40	30	60	80	80	80	70	70	40

¹⁷ Scenario 2: Capital budget begins at \$320,000 in year one; increased by \$27,000 annually for 5 years (ending at \$456,000)

7.28.3 Recommendations

Replacement Costs

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

Condition Assessment Strategies

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

Risk Management Strategies

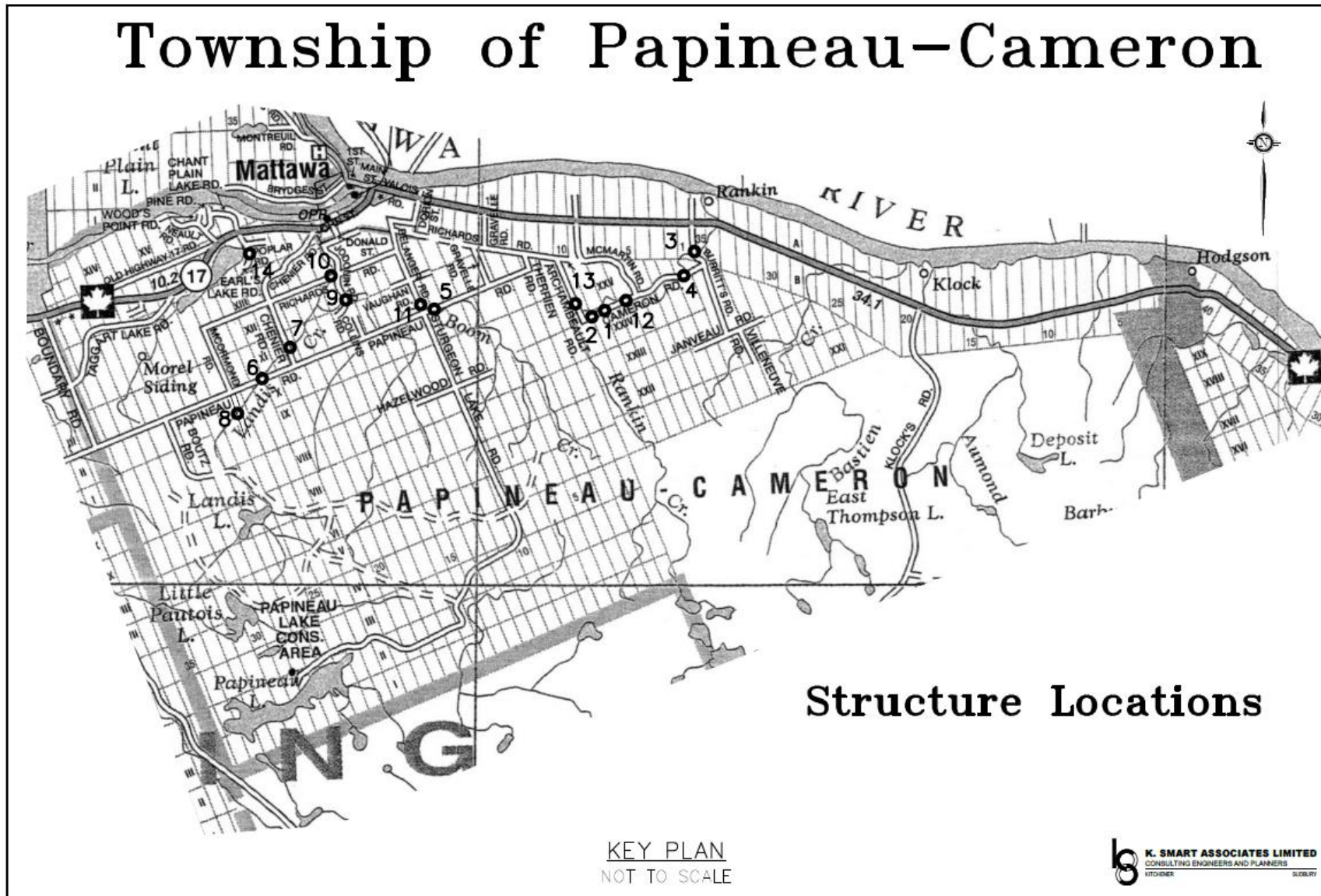
- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models (when applicable) on a regular basis and adjust according to an evolving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

Levels of Service

- On a regular, annual basis measure the current LOS for each metric and chart this against the proposed LOS. Where there are significant differences between the two, work to understand what the differences are and why they have occurred. As necessary adjust lifecycle activities to support achievement of proposed LOS.

[illegible]

Bridge & Culverts Structure Locations:



Images of Bridge in Good Condition

Bridge 5 – Papineau Road

Inspected: September 25th, 2023



1. East Approach (looking west)



3. Wearing Surface (looking east)



6. South Elevation



7. East Abutment

Images of Culvert in Good Condition

Bridge 10 – Richards Road

Inspected: September 25th, 2023



3. Wearing Surface (looking west)



4. North Barrier (looking east)



6. North Elevation



8. West Wall

Images of Culvert in Very Good Condition

Bridge 13 – Archambeault Road

Inspected: September 25th, 2023



2. South Approach (looking north)



4. East Elevation



5. Inside North Barrel (looking east)



6. Inside South Barrel (looking east)

Appendix G: Risk Rating Criteria

Probability of Failure				
Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Road Network (LCB / Gravel Roads) Bridges & Culverts Facilities Vehicles Machinery & Equipment	Condition	50%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Service Life Remaining	50%	<40	1
			30-40	2
			20-30	3
			10-20	4
			0-10	5

Table 48 Probability of Failure Criteria & Weights

Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Road Network (LCB / Gravel Roads)	Economic (100%)	Replacement Cost (75%)	<\$100,000	1
			\$100,000 - \$250,000	2
			\$250,000 - \$500,000	3
			\$500,000 - \$1,000,000	4
			\$1,000,000+	5
	Road Class (25%)	Road Class (25%)	> 2 - Minor	1
			> 3 - Moderate	2
			> 4 - Major	3
Bridges & Culverts Facilities Vehicles Machinery & Equipment	Economic (100%)	Replacement Cost (100%)	\$0-\$100,000	1
			\$100,000-\$250,000	2
			\$250,000-\$500,000	3
			\$500,000-\$1,000,000	4
			\$1,000,000+	5

Table 49 Consequence of Failure Criteria & Weights