

# Asset Management Plan

---

The Township of Papineau-  
Cameron

2023

This Asset Management Program was prepared by:



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

# Key Statistics

Replacement cost of  
asset portfolio

**\$9.3** million

Replacement cost of  
infrastructure per  
household

**\$ 18,770** (2021)

Percentage of assets in fair  
or better condition

**95%**

Percentage of assets with  
assessed condition data

**95%**

Target reinvestment  
rate

**4.7%**

Actual reinvestment  
rate

**3.4%**

Annual capital  
infrastructure deficit

**\$121** thousand

# Table of Contents

Executive Summary .....	1
Scope .....	1
Findings .....	2
Recommendations .....	3
1 Introduction & Context.....	4
1.1 Papineau-Cameron Community Profile .....	5
1.2 An Overview of Asset Management.....	6
1.3 Key Concepts in Asset Management.....	8
1.4 Climate Change.....	11
1.5 Ontario Regulation 588/17 .....	13
2 Scope and Methodology .....	15
2.1 Asset Categories Included in this AMP .....	16
2.2 Deriving Replacement Costs .....	16
2.3 Estimated Useful Life and Service Life Remaining.....	17
2.4 Reinvestment Rate .....	17
2.5 Deriving Asset Condition.....	18
3 Portfolio Overview .....	19
3.1 Total Replacement Cost of Asset Portfolio .....	20
3.2 Target vs. Actual Reinvestment Rate .....	20
3.3 Condition of Asset Portfolio .....	21
3.4 Forecasted Capital Requirements .....	22
4 Analysis of Tax-funded Assets.....	23
4.1 Road Network .....	24
4.2 Bridges & Culverts .....	33
4.3 Facilities .....	41
4.4 Vehicles .....	49
4.5 Machinery & Equipment.....	57
5 Impacts of Growth.....	65
5.1 Description of Growth Assumptions .....	66
5.2 Impact of Growth on Lifecycle Activities .....	69
6 Financial Strategy.....	70
6.1 Financial Strategy Overview .....	71

6.2	Funding Objective.....	74
6.3	Financial Profile: Tax Funded Assets .....	75
6.4	Use of Debt .....	79
6.5	Use of Reserves .....	82
7	Appendices .....	84
	Appendix A: 10-Year Capital Requirements .....	85
	Appendix B: Level of Service Maps .....	87
	Appendix C: Condition Assessment Guidelines .....	92
	Appendix D: Minimum Maintenance Standards (MMS 239/02).....	94

# Executive Summary

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

## Scope

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

This AMP include the following asset categories:

### Asset Category

 Road Network	 Bridges & Culverts
 Vehicles	 Facilities
 Machinery & Equipment	

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

## Findings

The overall replacement cost of the asset categories included in this AMP totals \$9.3 million. 95% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 95% of assets, by utilizing both external reports/studies as well as relying on institutional knowledge. 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. 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/bridges & culverts) and replacement only strategies (all other assets) to determine the lowest cost option to maintain the current level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Township's average annual capital requirement totals \$436 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 \$121 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.

# Recommendations

A financial strategy was developed to address the annual capital funding gap. To maintain its current tax rate, the Township should dedicate \$220,000 annually, for capital asset management going forward.

Further recommendations to guide continuous refinement of the Township's asset management program include:

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



# 1 Introduction & Context

## Key Insights

The 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

An asset management plan is a living document that should be updated regularly to inform long-term planning

Ontario Regulation 588/17 outlines several key milestone and requirements for asset management plans in Ontario between July 1, 2022, and 2025

# 1.1 Papineau-Cameron 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 <sup>2</sup>	15.9/km <sup>2</sup>
Land Area	564.23 km <sup>2</sup>	892,411.76 km <sup>2</sup>

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.

The Township was incorporated in 1888 and was named after Louis-Joseph Papineau, a prominent figure in Canadian history. 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.

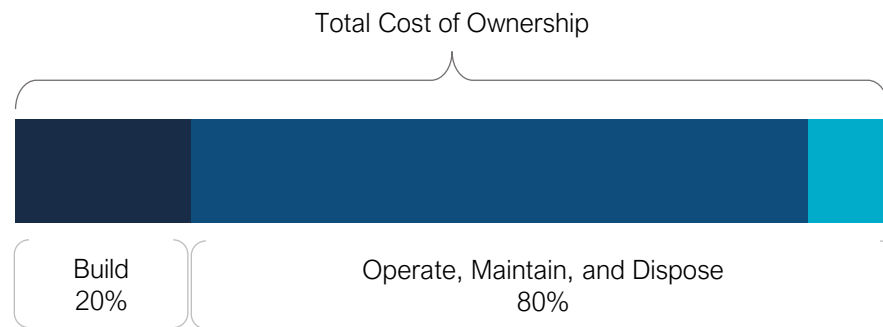
The economy of Papineau-Cameron has historically been based on resource industries such as forestry, mining, and agriculture. These industries continue to play a role in the local economy, but there has also been diversification into tourism and outdoor recreational activities due to the natural beauty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

## 1.2 An Overview of Asset Management

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

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



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

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

## 1.2.1 Asset Management Policy

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

On 2019-10-08, The Council of Papineau-Cameron approved 'Resolution 2019-197', in accordance with Ontario Regulation 588/17. The purpose of the policy is to provide 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.

## 1.2.2 Asset Management Strategy

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

## 1.2.3 Asset Management Plan

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

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

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

# 1.3 Key Concepts in Asset Management

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

## 1.3.1 Lifecycle Management Strategies

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

To ensure that 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.

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

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

The Township’s approach to lifecycle management is described within each asset category outlined in this AMP. Developing and implementing a proactive lifecycle strategy will help staff to determine which activities to perform on an asset and when they should be performed to maximize useful life at the lowest total cost of ownership.

### 1.3.2 Risk Management Strategies

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

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

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

### 1.3.3 Levels of Service

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

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

#### Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories (roads, bridges and culverts, water, wastewater, stormwater) the province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in

this AMP. For non-core asset categories, the Township has determined the qualitative descriptions that will be used to determine the community level of service provided. These descriptions can be found in the Levels of Service subsection within each asset category.

## Technical Levels of Service

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

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

## Current and Proposed Levels of Service

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

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

## 1.4 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.

### 1.4.1 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](http://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.

## 1.4.2 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.

## 1.5 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). Along with creating better performing organizations, more liveable and sustainable communities, the regulation is a key, mandated driver of asset management planning and reporting. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them.

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

**2019**

Strategic Asset Management Policy

**2022**

Asset Management Plan for Core Assets with the following components:

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

**2024**

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

**2025**

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

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

# 1.5.1 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, 2024. Next to each requirement a page or section reference is included in addition to any necessary commentary.

<b>Requirement</b>	<b>O. Reg. Section</b>	<b>AMP Section Reference</b>	<b>Status</b>
Summary of assets in each category	S.5(2), 3(i)	4.1.1 - 5.2.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1.1 - 5.2.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.1.3 - 5.2.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.1.2 - 5.2.2	Complete
Description of municipality’s approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.1.2 - 5.2.2	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	4.1.6 - 5.2.6	Complete
Current performance measures in each category	S.5(2), 2	4.1.6 - 5.2.6	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.1.4 - 5.2.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	Appendix A	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	6.1-6.2	Complete

# 2 Scope and Methodology

## Key Insights

This asset management plan includes 5 asset categories

Asset information and data was collected from a variety of sources and consolidated into The Papineau-Cameron's CityWide asset inventory

The source and recency of replacement costs impacts the accuracy and reliability of asset portfolio valuation

Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life

# 2.1 Asset Categories Included in this AMP

This asset management plan for the Township of Papineau-Cameron is produced in compliance with Ontario Regulation 588/17. The July 2024 deadline under the regulation requires analysis on both core and non-core asset categories.

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

Asset Category	Source of Funding
Road Network	
Bridges & Culverts	
Facilities	Tax Levy
Vehicles	
Machinery & Equipment	

# 2.2 Deriving Replacement Costs

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

- User-Defined Cost and Cost/Unit:** Based on costs provided by municipal staff which could include average costs from recent contracts; data from engineering reports and assessments; staff estimates based on knowledge and experience
- Cost Inflation/CPI Tables:** Historical cost of the asset is inflated based on Consumer Price Index or Non-Residential Building Construction Price Index

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

## 2.3 Estimated Useful Life and Service Life Remaining

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

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

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

## 2.4 Reinvestment Rate

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

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

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

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

## 2.5 Deriving Asset Condition

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

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

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

The analysis in this AMP is based on assessed condition data only as available. In the absence of assessed condition data, asset age is used as a proxy to determine asset condition. Appendix C includes additional information on the role of asset condition data and provides basic guidelines for the development of a condition assessment program.

# 3

## Portfolio Overview

### Key Insights

The total replacement cost of the Township's asset portfolio is \$9.3 million

The Township's target re-investment rate is 4.7%, and the actual re-investment rate is 3.4%, contributing to an expanding infrastructure deficit

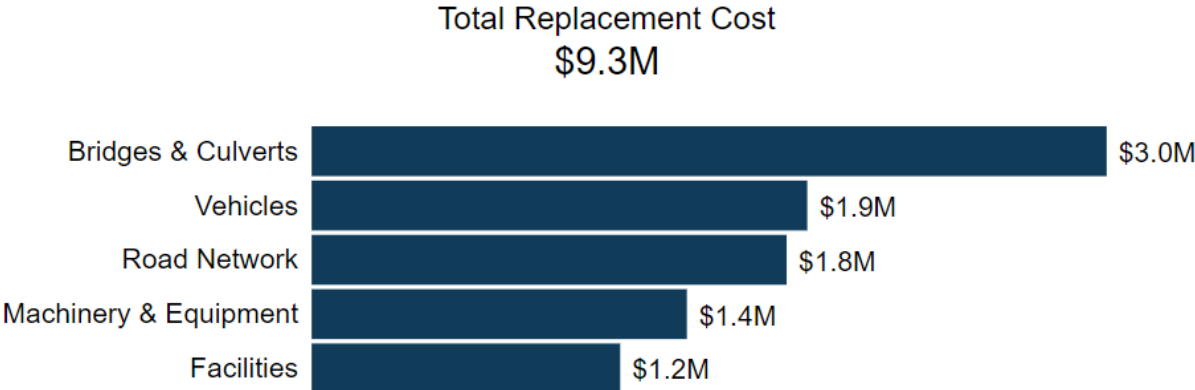
95% of all assets are in fair or better condition

Average annual capital requirements total \$436 thousand per year across all assets



# 3.1 Total Replacement Cost of Asset Portfolio

The asset categories analyzed in this AMP have a total replacement cost of \$9.3 million based on inventory data from 2022. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.



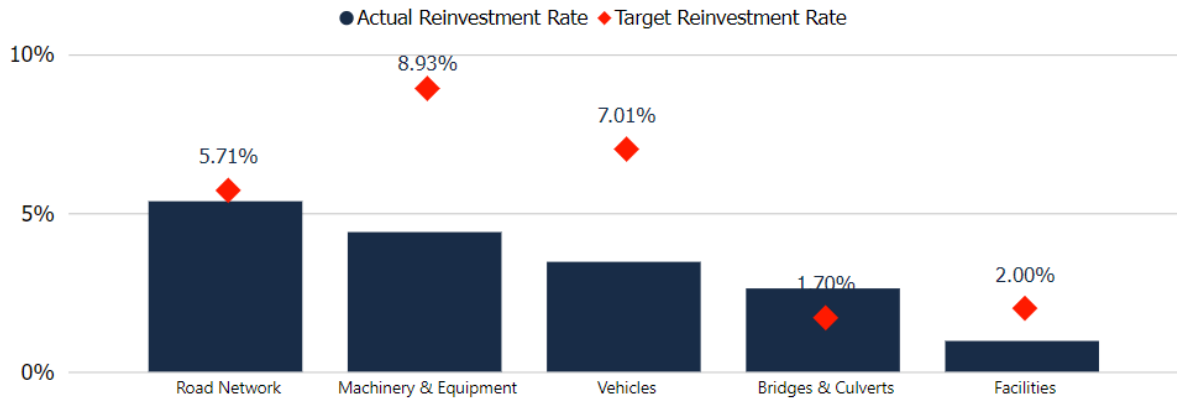
The following table identifies the methods employed to determine replacement costs across each asset category:

Asset Category	Replacement Cost Method
Road Network	Cost/Unit
Bridges & Culverts	CPI Tables User-Defined
Facilities	User-Defined
Vehicles	User-Defined
Machinery & Equipment	User-Defined

# 3.2 Target vs. Actual Reinvestment Rate

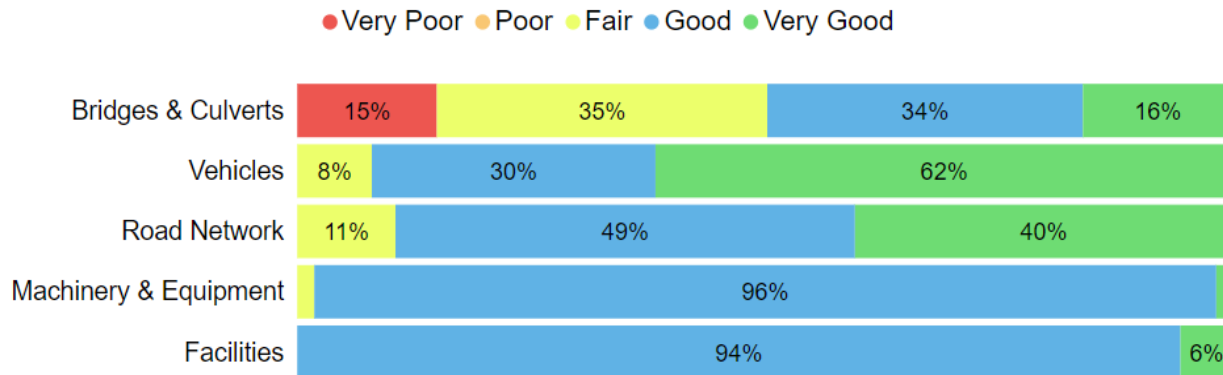
The graph below depicts funding gaps or surpluses by comparing target vs actual reinvestment rate. To meet the long-term replacement needs, the Township should be allocating approximately \$436 thousand annually, for a target reinvestment rate of 4.7%. Actual annual spending on infrastructure totals approximately \$315

thousand, for an actual reinvestment rate of 3.4%



### 3.3 Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 95% of assets in Papineau-Cameron are in fair or better condition. This estimate relies on both age-based and field condition data.



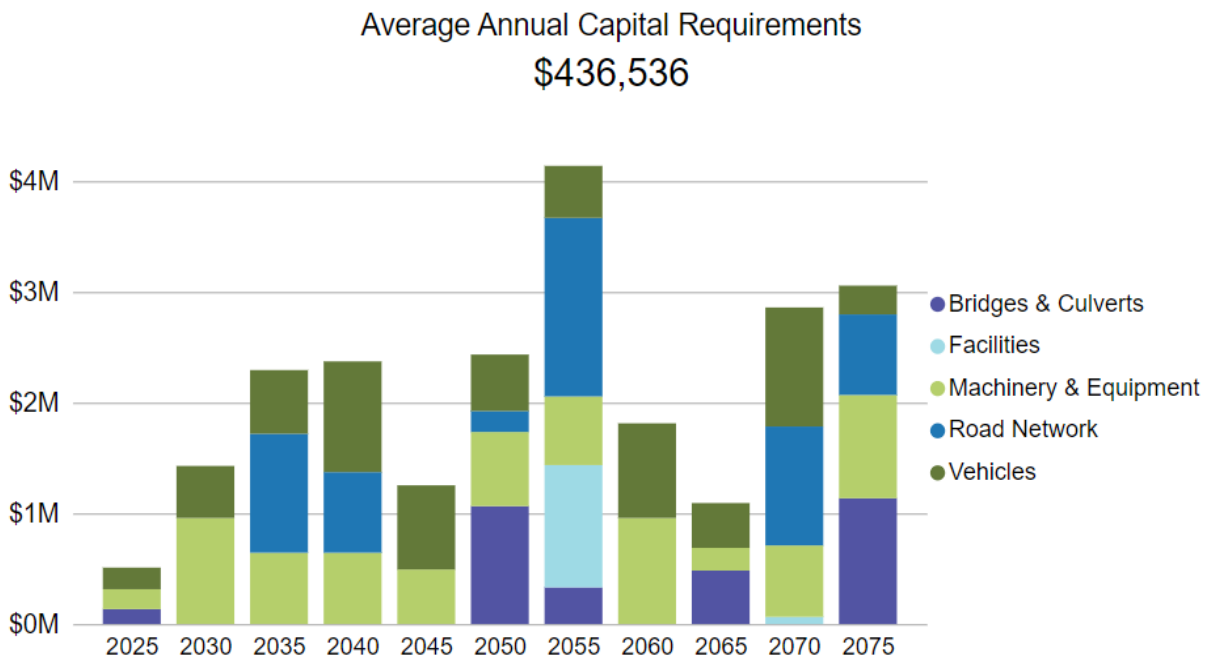
This AMP relies on assessed condition data for 95% of assets. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

Asset Category	Asset Segment	% of Assets with Assessed Condition	Source of Condition Data
Road Network	Paved Roads	100%	Staff Assessments
Bridges & Culverts	All	100%	OSIM Report
Facilities	All	99%	Staff Assessments Age-Based

Vehicles	All	100%	Staff Assessments
Machinery & Equipment	All	100%	Staff Assessments

### 3.4 Forecasted Capital Requirements

The development of a long-term capital forecast should include both asset rehabilitation and replacement requirements. With the development of asset-specific lifecycle strategies that include the timing and cost of future capital events, the Township can produce an accurate long-term capital forecast. The following graph identifies capital requirements over the next 50-55 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.



# 4 Analysis of Tax-funded Assets

## Key Insights

Tax-funded assets are valued at \$9.3 million

95% of tax-funded assets are in fair or better condition

The average annual capital requirement to sustain the current level of service for tax-funded assets is approximately \$436 thousand

Critical assets should be evaluated to determine appropriate risk mitigation activities and treatment options

## 4.1 Road Network

The road network is a critical component of the provision of safe and efficient transportation services.

### 4.1.1 Asset Inventory & Costs

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

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Unpaved Roads	18.48 kms	Not Planned for Replacement <sup>1</sup>	
LCB Roads	72.847 kms	\$1,801,800	\$102,960
<b>Total</b>		<b>\$1,801,800</b>	<b>\$102,960</b>

Total Replacement Cost  
\$1.8M

LCB Roads  \$1.80M

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

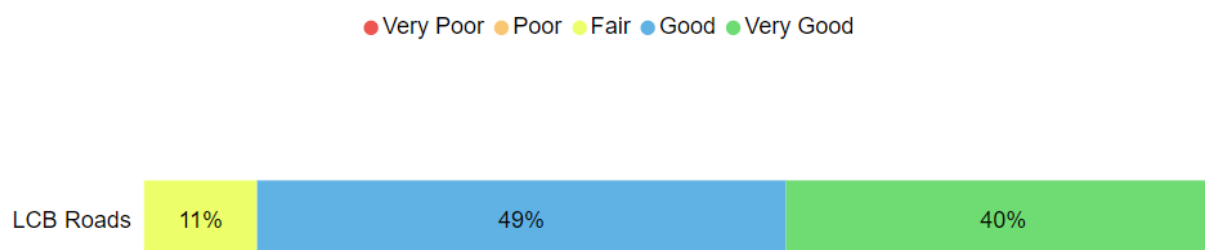
### 4.1.2 Asset Condition & Age

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

<sup>1</sup> Gravel roads undergo perpetual operating and maintenance activities. If maintained properly, they can theoretically have a limitless service life.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
LCB Roads	12	83 Years <sup>2</sup>	76% (Good)
<b>Average</b>		<b>83 Years</b>	76% (Good)

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



To ensure that the Township’s road network 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 roads.

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

## Current Approach to Condition Assessment

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

<sup>2</sup> 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 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.

- Staff conduct internal assessments on roads in accordance with Minimum Maintenance Standards (MMS 239/02)<sup>3</sup>
- Daily route patrols and inspections are also conducted internally, with an emphasis on the networks LCB roads in the Spring (post freeze-thaw cycle)
- Quarterly check-ins are conducted by staff of various levels to ensure that critical assets are discussed

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

<b>Condition</b>	<b>Rating</b>
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

---

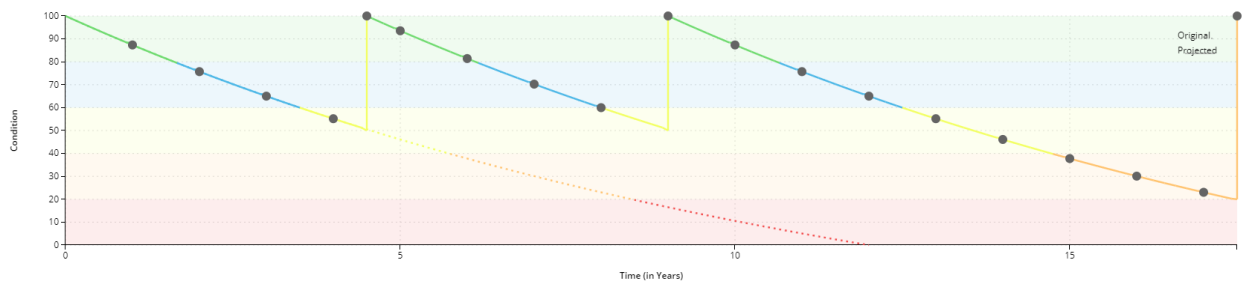
<sup>3</sup> Refer to Appendix D for a comprehensive breakdown of road classification, mandated operation & maintenance activities, and response times.

## 4.1.3 Lifecycle Management Strategy

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

The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of LCB 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)



Unpaved Roads <sup>4</sup>		
Event Name	Event Class	Event Trigger
Grading	Maintenance	Annually
Dust Suppressant	Maintenance	Annually
Re-Gravelling	Rehabilitation	Every 5-7 Years

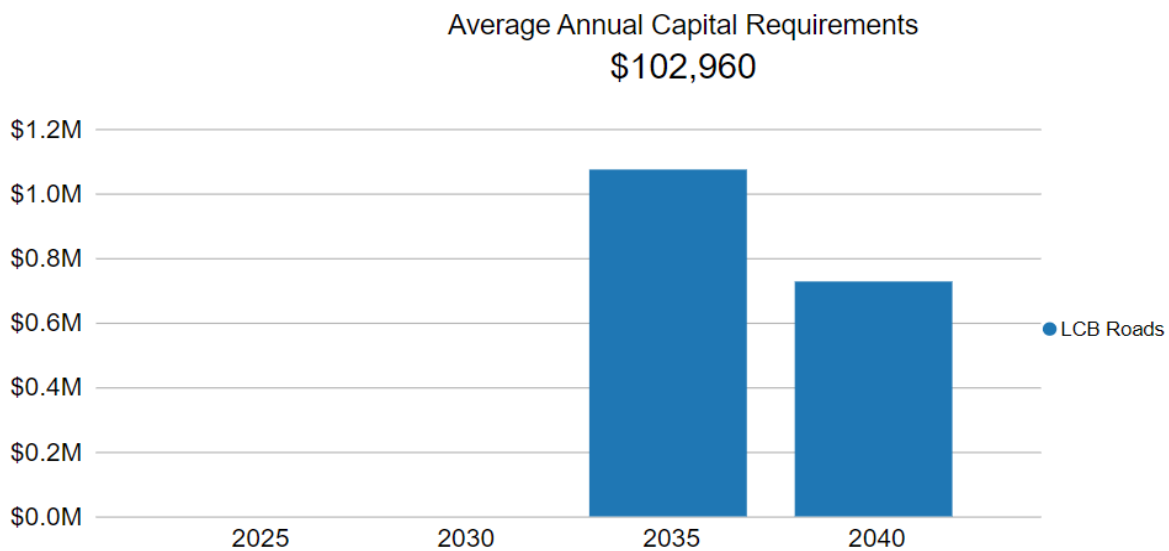
<sup>4</sup> Documented operating and maintenance activities. If maintained properly, unpaved roads can theoretically have a limitless service life.



## Forecasted Capital Requirements

Based on the lifecycle strategies identified previously for LCB roads, and assuming the end-of-life replacement of all other assets in this category, the following graph forecasts capital requirements for the road network.

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 15-20. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.



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

## 4.1.4 Risks to Current Asset Management Strategies

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

### Climate Change & Extreme Weather



An increase in the frequency and intensity of precipitation events can result in flooding of sections of the road network, particularly on gravel roads. Further issues can arise as a result of flooding and poor drainage including accelerated deterioration caused by freeze-thaw cycles. Staff identified that in recent years, Papineau Road has experienced severe flooding. While the Township has since taken measures, extreme weather events will continue to impact the rest of the its road network.

### Capital Funding Strategies



Major capital rehabilitation and replacement projects are often entirely dependent on the availability of grant funding opportunities. When grants are not available, rehabilitation and replacement projects may be deferred. Due to the dependence on grants, Papineau-Cameron must complete large scale projects over several years. For example, in 2023, the Township completed a large-scale project, over 6 years, on Archambeault Road. With the completion of the project, Papineau-Cameron and neighboring municipalities will receive critical services (fire protection) in a more efficient manner.

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

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

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

## 4.1.5 Levels of Service

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

### Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2022)												
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	<p data-bbox="794 953 1403 1094">In absence of a third-party Roads Needs Study, Papineau-Cameron staff have updated its LCB roads using the following internal condition scale:</p> <table border="1" data-bbox="899 1142 1295 1486"> <thead> <tr> <th data-bbox="915 1152 1073 1188">Condition</th> <th data-bbox="1143 1152 1247 1188">Rating</th> </tr> </thead> <tbody> <tr> <td data-bbox="915 1209 1073 1245">Very Good</td> <td data-bbox="1143 1209 1247 1245">80-100</td> </tr> <tr> <td data-bbox="915 1266 992 1302">Good</td> <td data-bbox="1143 1266 1247 1302">60-80</td> </tr> <tr> <td data-bbox="915 1323 976 1358">Fair</td> <td data-bbox="1143 1323 1247 1358">40-60</td> </tr> <tr> <td data-bbox="915 1379 987 1415">Poor</td> <td data-bbox="1143 1379 1247 1415">20-40</td> </tr> <tr> <td data-bbox="915 1436 1062 1472">Very Poor</td> <td data-bbox="1143 1436 1247 1472">0-20</td> </tr> </tbody> </table>	Condition	Rating	Very Good	80-100	Good	60-80	Fair	40-60	Poor	20-40	Very Poor	0-20
Condition	Rating													
Very Good	80-100													
Good	60-80													
Fair	40-60													
Poor	20-40													
Very Poor	0-20													

## Technical Levels of Service

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

<b>Service Attribute</b>	<b>Technical Metric</b>	<b>Current LOS (2022)</b>
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km <sup>2</sup> )	N/A
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km <sup>2</sup> )	0.02 <sup>5</sup>
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km <sup>2</sup> )	0.04 <sup>6</sup>
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

<sup>5</sup> With the number of lanes not known, an assumption of 2 was used in this calculation.

<sup>6</sup> With the number of lanes not known, an assumption of 2 was used in this calculation.

## 4.1.6 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.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

# 4.2 Bridges & Culverts

Bridges and culverts represent a critical portion of the transportation services provided to the community. The Department of Public Works is responsible for the maintenance of all bridges and culverts located across municipal roads with the goal of keeping structures in an adequate state of repair and minimizing service disruptions.

## 4.2.1 Asset Inventory & Costs

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

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Bridges	2	\$686,123	\$9,148
Culverts	11	\$2,329,598	\$42,092
<b>Total</b>		<b>\$3,015,721</b>	<b>\$51,240</b>

Total Replacement Cost  
**\$3.0M**



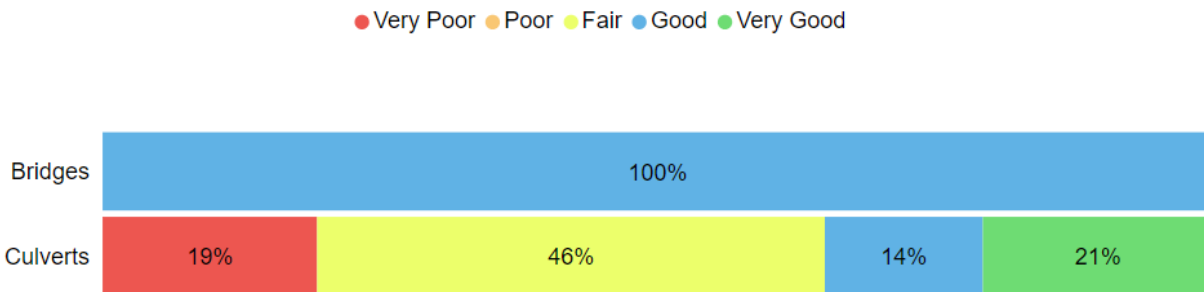
Each asset’s replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurately represent realistic capital requirements.

## 4.2.2 Asset Condition & Age

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

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

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



To ensure that the Township’s Bridges & Culverts continue to provide an acceptable level of service, 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.

# Current Approach to Condition Assessment

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

- Condition assessments of all bridges and culverts with a span greater than or equal to 3 meters are completed every 2 years in accordance with the Ontario Structure Inspection Manual (OSIM)
- Internally, staff inspect structures which are in poor condition (as per OSIM report)

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

<b>Condition</b>	<b>Rating</b>
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20



### 4.2.3 Lifecycle Management Strategy

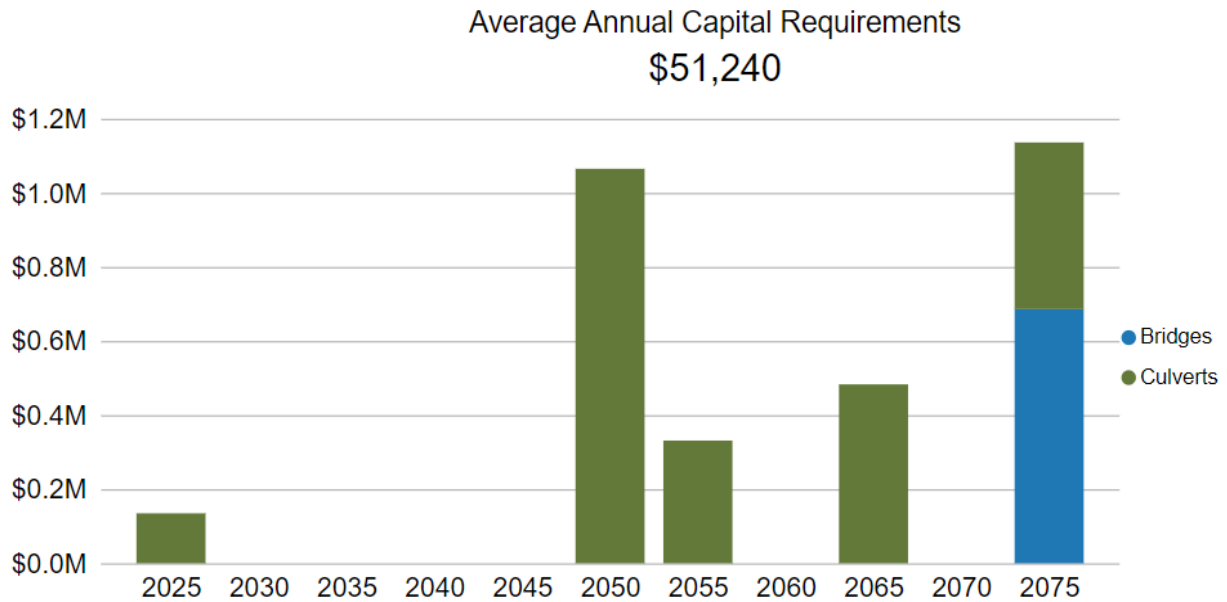
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

<b>Activity Type</b>	<b>Description of Current Strategy</b>
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

## Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 50-55 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.



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

## 4.2.4 Risks to Current Asset Management Strategies

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

### Climate Change & Extreme Weather



An increase in the frequency and intensity of precipitation events can result in flooding and washouts, which negatively impacts the Township’s 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.

### Capital Funding Strategies



Major capital rehabilitation and replacement projects are often entirely dependent on the availability of grant funding opportunities. When grants are not available, rehabilitation and replacement projects may be deferred. Due to the dependence on grants, Papineau-Cameron must complete large scale projects over several years. For example, The Township’s latest OSIM report has indicated that bridge structure 7 (Chenier Road) should be replaced in 1-5 years due to its poor condition. To address this, Papineau-Cameron will be allocating significant funds over a five-year period.<sup>7</sup>

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

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

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

<sup>7</sup> Refer to appendix A.

## 4.2.5 Levels of Service

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

### Community Levels of Service

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

<b>Service Attribute</b>	<b>Qualitative Description</b>	<b>Current LOS (2022)</b>
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 B

### Technical Levels of Service

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

<b>Service Attribute</b>	<b>Technical Metric</b>	<b>Current LOS (2020)</b>
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

## 4.2.6 Recommendations

### Data Review/Validation

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

### Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models (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.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

## 4.3 Facilities

Papineau-Cameron owns and maintains numerous facilities that provide key services to the community. These include:

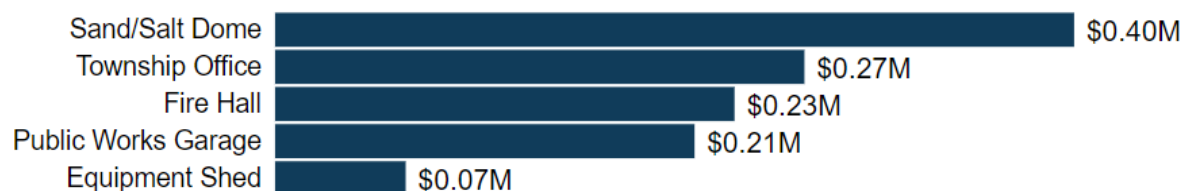
- Equipment shed
- Fire hall
- Public works garage
- Sand/salt dome
- Township office

### 4.3.1 Asset Inventory & Costs

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

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Equipment Shed	1	\$65,400	\$1,308
Fire Hall	1	\$230,000	\$4,600
Public Works Garage	1	\$210,000	\$4,200
Sand/Salt Dome	1	\$400,000	\$8,000
Township Office	1	\$265,000	\$5,300
<b>Total</b>		<b>\$1,170,400</b>	<b>\$23,408</b>

Total Replacement Cost  
\$1.2M



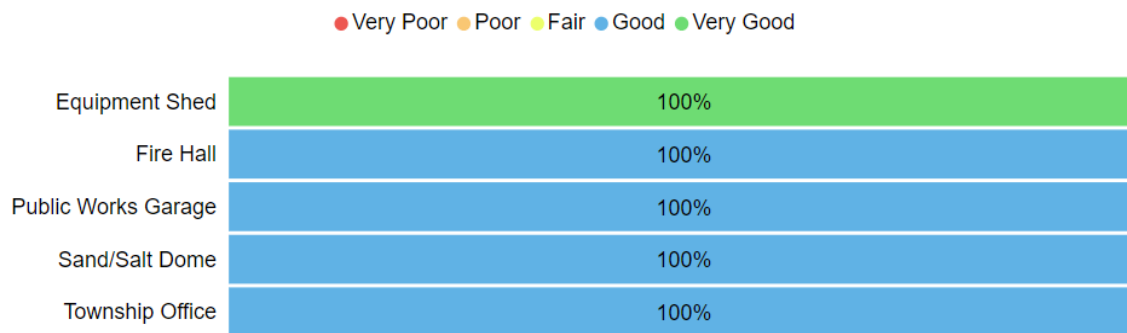
Each asset’s replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurately represent realistic capital requirements.

### 4.3.2 Asset Condition & Age

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
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)
<b>Average</b>		<b>38 Years 10 Months</b>	<b>71% (Good)</b>

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



To ensure that the Township’s buildings and facilities continues to provide an acceptable level of service, 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.

# Current Approach to Condition Assessment

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

- Currently, there is no formal condition assessment program.
- Facilities receive internal inspections on an ad-hoc basis. The Township relies on internal resources to ensure that municipal buildings are in a state of adequate condition.

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

<b>Condition</b>	<b>Rating</b>
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20



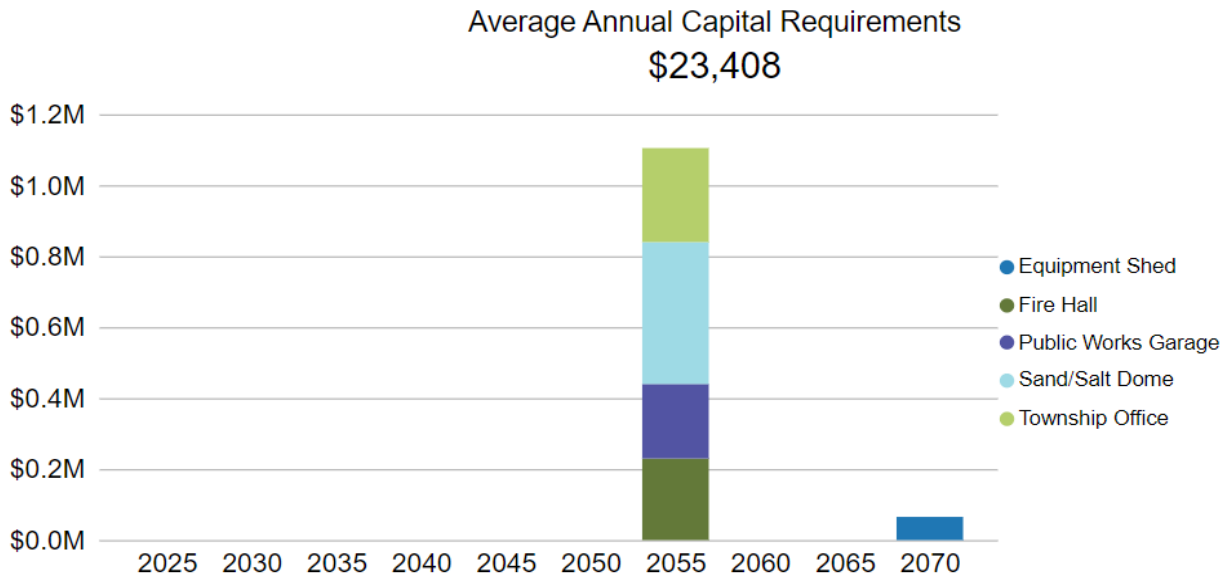
### 4.3.3 Lifecycle Management Strategy

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

<b>Activity Type</b>	<b>Description of Current Strategy</b>
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.

## Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 45-50 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.



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

## 4.3.4 Risks to Current Asset Management Strategies

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



### **Asset Data & Information**

Like other municipalities of similar size, Papineau-Cameron has not gone through the process of getting an external engineering firm to conduct a thorough building condition assessment (BCA) of its facilities. BCAs are reports which provide Municipalities with valuable information pertaining to assets: replacement costs, scheduled replacement dates, estimated useful lives, assessed conditions, and so on. BCAs also provide a complete and thorough componentization of facility assets by categorizing building components, while utilizing the UNIFORMAT II coding hierarchy. Ultimately, a BCA will allow the municipality to better plan for its facilities (replacement, EULs, scheduled events, etc.) on a component basis.

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

<b>Probability of Failure (POF)</b>	<b>Consequence of Failure (COF)</b>
Condition	Replacement Cost (Financial)

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

## 4.3.5 Levels of Service

The following tables identify the Township’s current level of service for facilities. These metrics include the community and technical level of service metrics that the Township has decided to report.

### Community Levels of Service

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

<b>Service Attribute</b>	<b>Qualitative Description</b>	<b>Current LOS (2022)</b>
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.

### Technical Levels of Service

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

<b>Service Attribute</b>	<b>Technical Metric</b>	<b>Current LOS (2022)</b>
Quality	% Of facilities that are in good or very good condition	100%
	% Of facilities that are in poor or very poor condition	0%

## 4.3.6 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

- Continue to measure current levels of service in this AMP.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

## 4.4 Vehicles

Vehicles allow staff to efficiently deliver municipal services and personnel. Papineau-Cameron owns and operate 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

### 4.4.1 Asset Inventory & Costs

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

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Protection Services	5	User-Defined	\$1,205,000
Public Works	3	User-Defined	\$675,000
			<b>\$1,880,000</b>

Total Replacement Cost  
**\$1.9M**



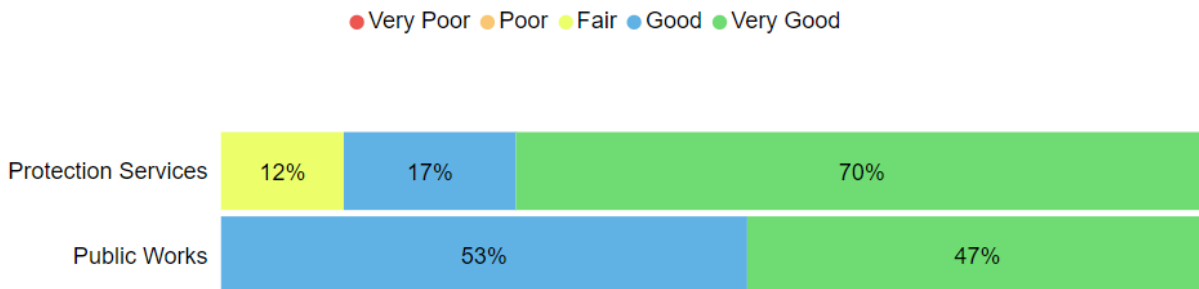
Each asset’s replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurately represent realistic capital requirements.

## 4.4.2 Asset Condition & Age

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

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%
<b>Average</b>		<b>6 Years 4 Months</b>	<b>80%</b>

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



To ensure that the Township’s vehicles continue to provide an acceptable level of service, 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.

### Current Approach to Condition Assessment

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

- Staff complete regular visual inspections of vehicles to ensure they are in state of adequate repair prior to operation
- CVOR vehicle are subject to annual safety inspections
- Kilometres, purchase to repair ratio, and general condition of the asset, are used as proxies to determine remaining useful life and relative vehicle condition

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

<b>Condition</b>	<b>Rating</b>
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20



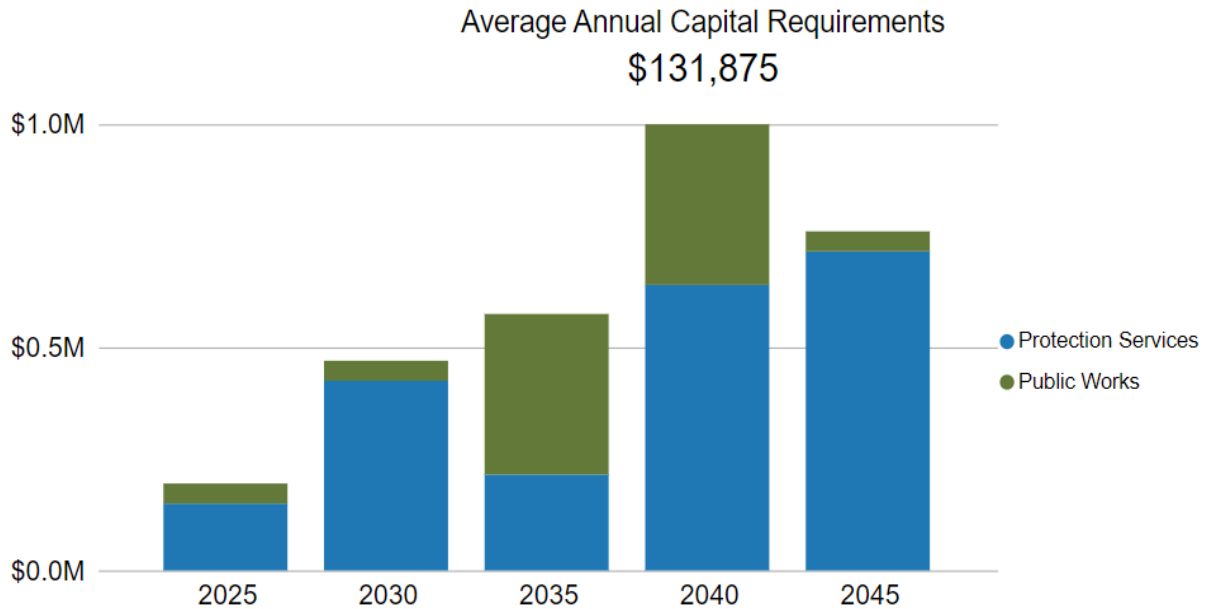
### 4.4.3 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. 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
	CVOR vehicles are subject to annual safety inspections on various components
Replacement	The inspection of fire protection vehicles are mandated
	The Township relies on the expertise (ex. purchase cost to annual repair ratio) of its internal staff to forecast when its public works vehicles will need replacement
	Pertinent vehicle attributes such as: age, kilometres and annual repair costs are taken into consideration when determining appropriate treatment options

## Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 20-25 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.



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

## 4.4.4 Risks to Current Asset Management Strategies

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



### Capital Funding Strategies

The timely replacement of Papineau-Cameron’s vehicles is critical to the community. With multiple assets, including both fire protection and snow removal vehicles scheduled for replacement in the coming years (refer to appendix A), the Township must ensure that appropriate funding is in place so that there is no disruption in critical services provided to the community.

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)
Asset Age	
Kilometres	

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

## 4.4.5 Levels of Service

The following tables identify the Township’s current level of service for vehicles. These metrics include the community and technical level of service metrics that the Township has decided to report.

### Community Levels of Service

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

<b>Service Attribute</b>	<b>Qualitative Description</b>	<b>Current LOS (2022)</b>
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 vehicles are in very good condition. Vehicles receive daily inspection by internal staff. Major rehabilitative work is completed by an external mechanic on a scheduled basis

### Technical Levels of Service

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

<b>Service Attribute</b>	<b>Technical Metric</b>	<b>Current LOS (2022)</b>
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%

## 4.4.6 Recommendations

### Replacement Costs

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

### Condition Assessment Strategies

- Identify condition assessment strategies for high value and high-risk equipment.
- Review assets that have surpassed their estimated useful life (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

- Continue to measure current levels of service established in this AMP.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

## 4.5 Machinery & Equipment

To maintain the high quality of public infrastructure and support the delivery of core services, Papineau-Cameron staff own and employ various types of machinery and equipment. This includes:

- Excavators
- Backhoes
- Street sweepers
- Culvert steamers
- Trailers
- Graders

Keeping machinery and equipment in an adequate state of repair is critical to maintain a high level of service.

### 4.5.1 Asset Inventory & Costs

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

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Protection Services	2	\$19,500	\$1,800
Public Works	8	\$1,403,800	\$125,253
<b>Total</b>		<b>\$1,423,300</b>	<b>\$127,053</b>

Total Replacement Cost  
\$1.4M



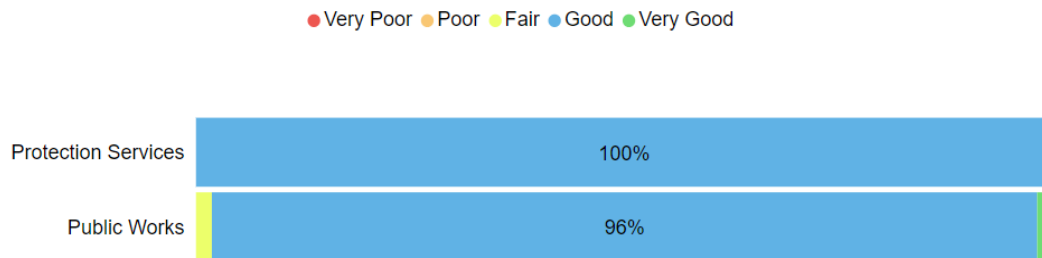
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurately represent realistic capital requirements.

## 4.5.2 Asset Condition & Age

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

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%
<b>Average</b>		<b>10 Years</b>	<b>69</b>

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



To ensure that the Township’s machinery and equipment 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 machinery and equipment.

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

# Current Approach to Condition Assessment

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

- Staff complete regular visual inspections of machinery & equipment assets to ensure they are in state of adequate repair prior to operation
- The manhours, purchase to repair ratio, and general condition of the asset, are used as proxies to determine remaining useful life and relative vehicle condition

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

<b>Condition</b>	<b>Rating</b>
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20



### 4.5.3 Lifecycle Management Strategy

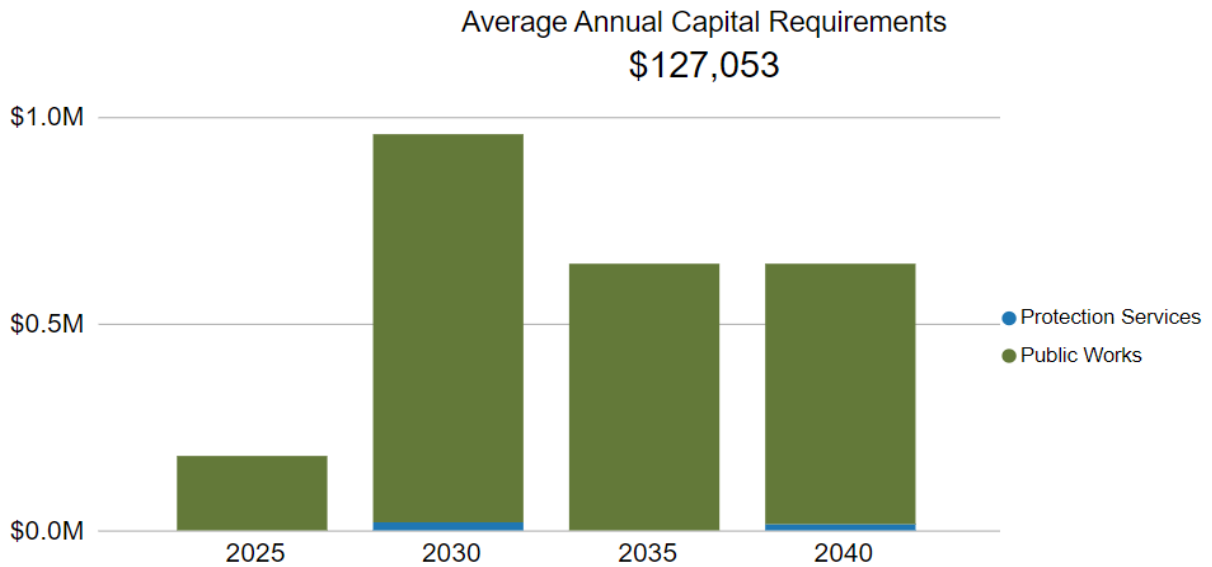
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

<b>Activity Type</b>	<b>Description of Current Strategy</b>
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 (ex. purchase cost to annual repair ratio) 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

## Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 15-20 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.



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

## 4.5.4 Risks to Current Asset Management Strategies

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



### Capital Funding Strategies

The timely replacement of Papineau-Cameron’s machinery & equipment assets is critical to the community. With multiple public works assets (backhoe, grader, & street sweeper) all scheduled for replacement in the next 5-10 years (refer to appendix A), the Township must ensure that appropriate funding is in place so that there is no disruption in critical services provided to the community.

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)
Asset Age	
Hours of Operation	

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

## 4.5.5 Levels of Service

The following tables identify the Township’s current level of service for machinery & equipment. These metrics include the community and technical level of service metrics that the Township has decided to report.

### Community Levels of Service

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

<b>Service Attribute</b>	<b>Qualitative Description</b>	<b>Current LOS (2022)</b>
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

### Technical Levels of Service

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

<b>Service Attribute</b>	<b>Technical Metric</b>	<b>Current LOS (2020)</b>
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%

## 4.5.6 Recommendations

### Replacement Costs

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

### Condition Assessment Strategies

- Identify condition assessment strategies for high value and high-risk 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

- Continue to measure current levels of service established in this AMP.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

# 5

## Impacts of Growth

### Key Insights

Understanding the key drivers of growth and demand will allow the Township to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure

Moderate fluctuation and employment growth is expected

The costs of growth should be considered in long-term funding strategies that are designed to maintain the current level of service

# 5.1 Description of Growth Assumptions

The demand for infrastructure and services will change over time based on a combination of internal and external factors. Understanding the key drivers of growth and demand will allow the Township to 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.

## 5.1.1 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 including community development, environmental stewardship, community health and safety, and 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 of 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 be receiving 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.

<b>Historical Figures</b>	<b>1996</b>	<b>2001</b>	<b>2006</b>	<b>2011</b>	<b>2016</b>	<b>2021</b>
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

## 5.1.2 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.

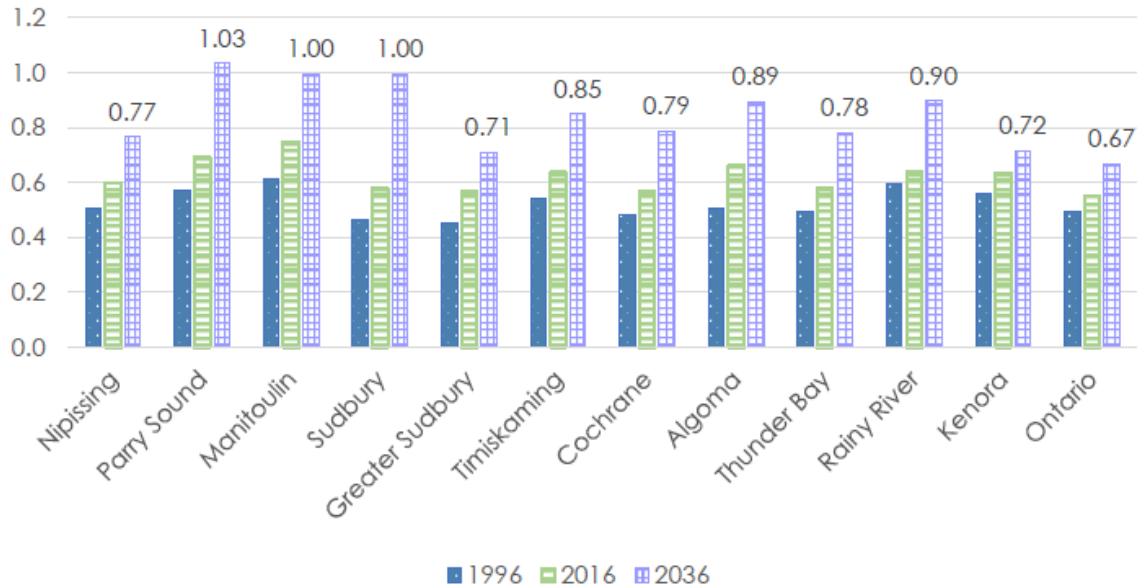
## 5.1.3 Regional Growth

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.

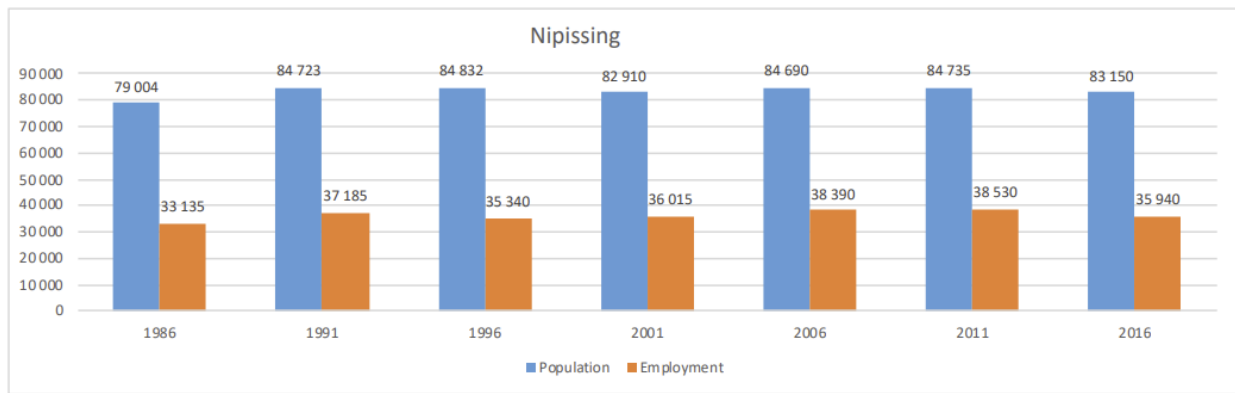
The goal is to achieve a dependency ratio of 0.5. In 1996, every Census District was at or near the goal by 2016; there were no districts that were below and more than half had a ratio in excess of 0.6. The following graph displays the dependency ratio for each Census District in 1996 and 2016 along with a projected ratio for the year 2036.





The Township of 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.



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

<b>Year</b>	<b>Ages 0-19</b>	<b>Ages 20-64</b>	<b>Ages 65+</b>	<b>Total</b>
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

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.

## 5.2 Impact of Growth on Lifecycle Activities

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

As the municipality’s population is expected to remain the same with potential moderate increases and declines in the coming years, demand will evolve, and it is likely that funding will need to be reprioritized. As growth-related assets are constructed, retired, or acquired, they should be integrated into the AMP. Furthermore, the municipality will need to review the lifecycle costs of growth-related infrastructure. These costs should be considered in long-term funding strategies that are designed to, at a minimum, to maintain the current level of service.

# 6

## Financial Strategy

### Key Insights

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

An annual capital requirement and funding gap of \$116,000

For tax-funded assets, we recommend maintaining the current tax rate

## 6.1 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, desired levels of service, and projected growth requirements.

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

1. The financial requirements for:
  - a. Existing assets
  - b. Existing service levels
  - c. Requirements of contemplated changes in service levels (none identified for this plan)
  - d. Requirements of anticipated growth (none identified for this plan)
2. Use of traditional sources of municipal funds:
  - a. Tax levies
  - b. User fees
  - c. Reserves
  - d. Debt
  - e. 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. 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.

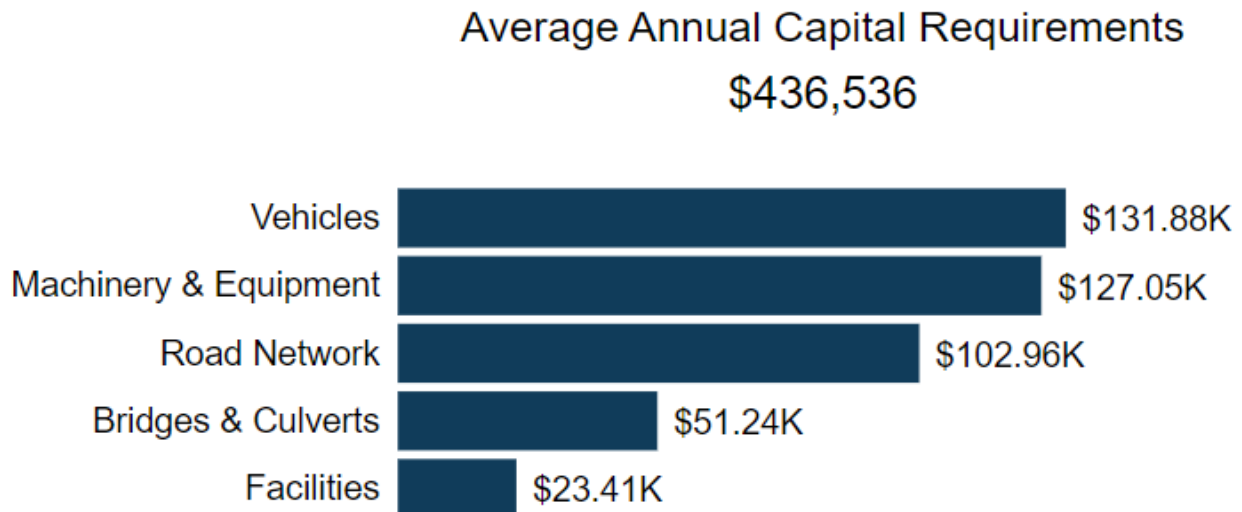
If the financial plan component results in a funding shortfall, the Province requires the inclusion of a specific plan as to how the impact of the shortfall will be managed. In determining the legitimacy of a funding shortfall, the Province may evaluate a Township's approach to the following:

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.

## 6.1.1 Annual Requirements & Capital Funding

### Annual Requirements

The annual requirements represent the amount the Township should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs, and achieve long-term sustainability. In total, the Township must allocate approximately \$436 thousand annually to address capital requirements for the assets included in this AMP.



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

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. The development of these strategies allows for a comparison of potential cost avoidance if the strategies were to be implemented. The following table compares two scenarios for the Road Network:

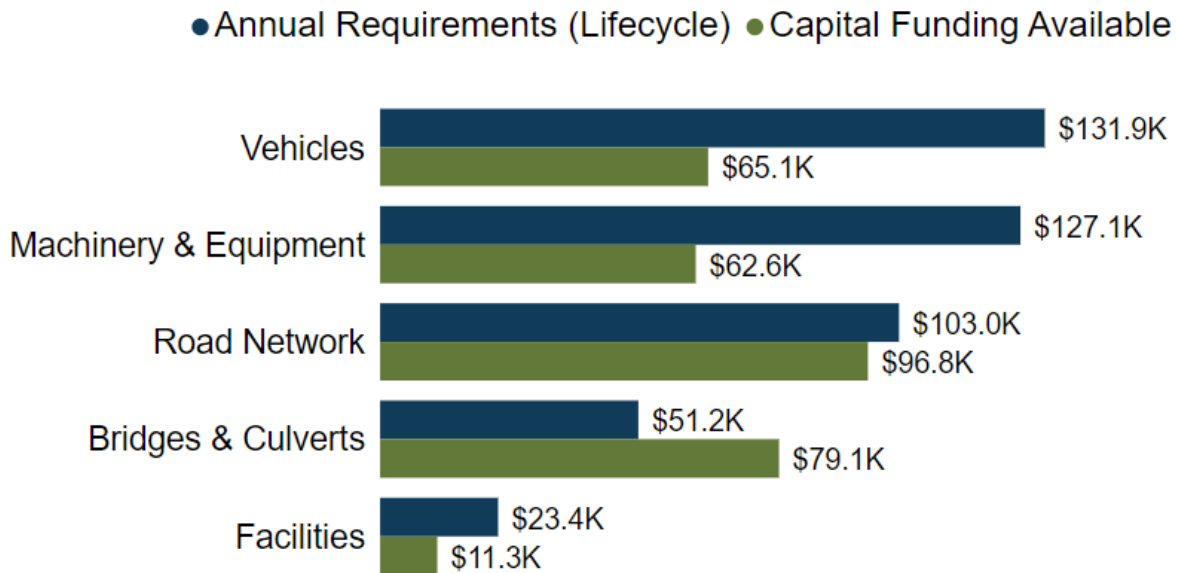
1. **Replacement Only Scenario:** Based on the assumption that assets deteriorate and – without regularly scheduled maintenance and rehabilitation – are replaced at the end of their service life.
2. **Lifecycle Strategy Scenario:** Based on the assumption that lifecycle activities are performed at strategic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

Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Road Network	\$150,150	\$102,960	\$47,190

The implementation of a proactive lifecycle strategy for roads leads to a potential annual cost avoidance of \$47,190 for the Road Network. This represents an overall reduction of the annual requirements by 31%. As the lifecycle strategy scenario represents the lowest cost option available to the Township, we have used these annual requirements in the development of the financial strategy.

## 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 \$436,000, there is currently a funding gap of \$121,000 annually.



## 6.2 Funding Objective

We have developed a scenario that would enable Papineau-Cameron to achieve full funding 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.

# 6.3 Financial Profile: Tax Funded Assets

## 6.3.1 Current Funding Position

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

Asset Category	Avg. Annual Requirement	Annual Funding Available			Annual Deficit	
		Taxes	Gas Tax	OCIF		Total Available
Bridges & Culverts	\$51,000	\$25,734		\$54,000	\$79,734	-\$28,734
Facilities	\$23,000	\$11,605			\$11,605	\$11,394
Machinery & Equipment	\$127,000	\$64,083			\$64,083	\$62,917
Road Network	\$103,000	\$51,972		\$46,000	\$97,972	\$5,028
Vehicles	\$132,000	\$66,606			\$66,606	\$65,394
	<b>\$436,000</b>	<b>\$220,000</b>		<b>\$100,000</b>	<b>\$320,000</b>	<b>\$116,000</b>

The average annual investment requirement for the above categories is \$436,000. Annual revenue currently allocated to these assets for capital purposes is \$315,000 leaving an annual deficit of \$121,000. Put differently, these infrastructure categories are currently funded at 73% of their long-term requirements.

## 6.3.2 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 would require the following tax change over time:

Asset Category	Tax Change Required for Full Funding
Bridges & Culverts	-1.8%
Facilities	0.7%
Machinery & Equipment	3.9%
Road Network	0.3%
Vehicles	4.0%
	<b>7.1%</b>



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 within 5 years.

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:

	Without Capturing Changes				With Capturing Changes			
	5 Years	10 Years	15 Years	20 Years	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	\$116,000	\$116,000	\$116,000	\$116,000	\$116,000	\$116,000	\$116,000	\$116,000
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
<b>Resulting Infrastructure Deficit:</b>	\$116,000	\$116,000	\$116,000	\$116,000	-\$18,000	-\$18,000	-\$18,000	-\$18,000
Tax Increase Required	7.1%	7.1%	7.1%	7.1%	-1.1%	-1.1%	-1.1%	-1.1%
<b>Annually:</b>	<b>1.4%</b>	<b>0.7%</b>	<b>0.5%</b>	<b>0.4%</b>	<b>-0.3%</b>	<b>-0.2%</b>	<b>-0.1%</b>	<b>-0.1%</b>

### 6.3.3 Financial Strategy Recommendations

Papineau-Cameron has not historically had a static contribution to capital. However, the year over year contributions have proven to be sufficient at effectively maintaining all asset classes covered under the AMP. The following recommendations should be considered to ensure the continuance of this effect asset management plan:

- a) Maintain the current tax rate but dedicate at least \$220,000 per year to capital asset management. The capital contributions should be allocated proportionality to the asset class based on the Average Annual Requirement. Any excess contributions for that asset class each year should be allocated the appropriate reserve account for future year expenditures.
- b) Reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
- c) When realized, reallocating the debt cost reductions of \$134,000 to the infrastructure deficit as outlined above.
- d) Allocating the current OCIF revenue as outlined previously.
- e) Increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

#### Notes:

- 1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. By Provincial AMP rules, this periodic funding cannot be incorporated into an AMP unless there are firm commitments in place. We have included OCIF formula-based funding, if applicable, since this funding is a multi-year commitment<sup>8</sup>.
- 2. Although the above model shows a that a decrease in taxes should be required, a review of the 10-year capital expenditures compared against the recommended capital contribution of \$220,000 shows that no excess taxation was taken. This means that the revenues collected match the expenses without creating a backlog of capital work. By standardizing the capital contribution each-year, Papineau-Cameron will continue to develop a better understanding of the of the adequacy of the contribution and when the AMP is revisited in 2025 another analysis will be completed.

---

<sup>8</sup> 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.

3. Furthermore, the debt payment decrease will not be fully realized until the 5<sup>th</sup> year of the recommendation which is also justification for maintaining the tax rate over the short-term.

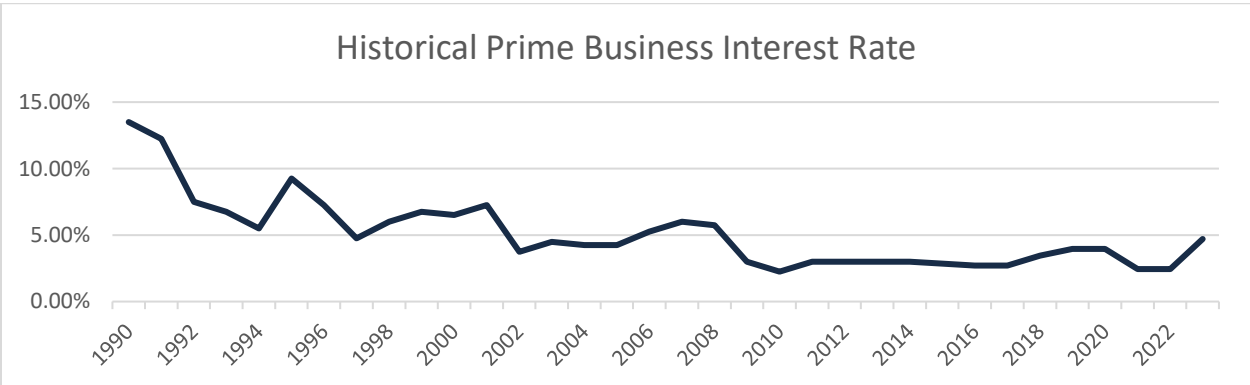
Prioritizing future projects will require the current data to be replaced by condition-based data. Although our recommendations include no further use of debt, the results of the condition-based analysis may require otherwise.

# 6.4 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:



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.

For reference purposes, the following table outlines the premium paid on a project if financed by debt. For example, a \$1 million project financed at 3.0%<sup>9</sup> over 15 years would result in a 26% premium or \$260 thousand of increased costs due to interest payments. For simplicity, the table does not consider the time value of money or the effect of inflation on delayed projects.

<sup>9</sup> Current municipal Infrastructure Ontario rates for 15-year money is 3.2%.

Table 1: Premiums Paid

Interest Rate	Number of Years Financed					
	5	10	15	20	25	30
<b>7.0%</b>	22%	42%	65%	89%	115%	142%
<b>6.5%</b>	20%	39%	60%	82%	105%	130%
<b>6.0%</b>	19%	36%	54%	74%	96%	118%
<b>5.5%</b>	17%	33%	49%	67%	86%	106%
<b>5.0%</b>	15%	30%	45%	60%	77%	95%
<b>4.5%</b>	14%	26%	40%	54%	69%	84%
<b>4.0%</b>	12%	23%	35%	47%	60%	73%
<b>3.5%</b>	11%	20%	30%	41%	52%	63%
<b>3.0%</b>	9%	17%	26%	34%	44%	53%
<b>2.5%</b>	8%	14%	21%	28%	36%	43%
<b>2.0%</b>	6%	11%	17%	22%	28%	34%
<b>1.5%</b>	5%	8%	12%	16%	21%	25%
<b>1.0%</b>	3%	6%	8%	11%	14%	16%
<b>0.5%</b>	2%	3%	4%	5%	7%	8%
<b>0.0%</b>	0%	0%	0%	0%	0%	0%

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.

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	
<b>Total Tax Funded:</b>	<b>\$324,000</b>	<b>0</b>	<b>\$23,600</b>	<b>\$235,000</b>	<b>\$300,000</b>	<b>0</b>

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			
<b>Total Tax Funded:</b>	<b>\$134,000</b>	<b>\$78,000</b>	<b>\$78,000</b>	<b>\$46,000</b>	<b>\$7,000</b>	<b>0</b>	<b>0</b>

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

# 6.5 Use of Reserves

## 6.5.1 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.

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
<b>Total Tax Funded:</b>	<b>\$423,000</b>

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.

## 6.5.2 Recommendation

In 2025, Ontario Regulation 588/17 will require Papineau-Cameron to integrate proposed levels of service for all asset categories in its asset management plan update. We recommend that future planning should reflect adjustments to service levels and their impacts on reserve balances.



# 7 Appendices

## Key Insights

Appendix A identifies projected 10-year capital requirements for each asset category

Appendix B includes several maps that have been used to visualize the current level of service

Appendix C provides additional guidance on the development of a condition assessment program

Appendix D Appendix: Minimum Maintenance Standards (MMS 239/02)

# Appendix A: 10-Year Capital Requirements

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

Road Network											
Segment	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
LCB Roads	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

Bridges & Culverts											
Segment	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Culverts	\$0	\$0	\$45,000	\$45,000	\$45,000	\$45,000	\$45,000	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$0</b>	<b>\$0</b>	<b>\$45,000</b>	<b>\$45,000</b>	<b>\$45,000</b>	<b>\$45,000</b>	<b>\$45,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

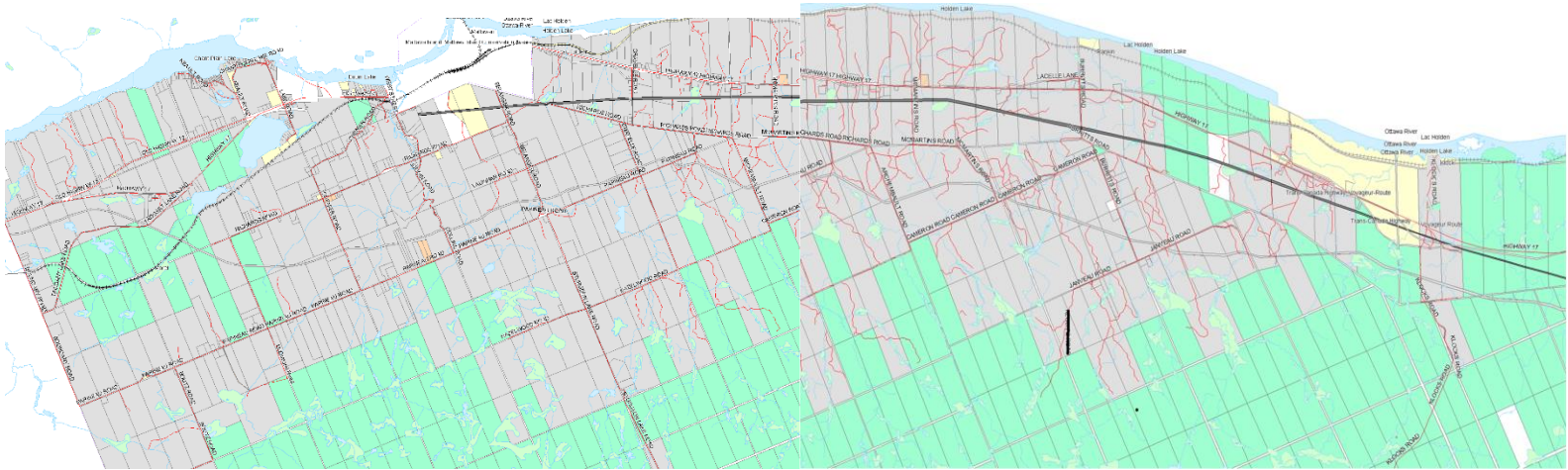
Facilities											
Segment	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Equipment Shed	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fire Hall	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Public Works Garage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sand/Salt Dome	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Township Office	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>

<b>Vehicles</b>											
<b>Segment</b>	<b>Backlog</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
Protection Services	\$0	\$0	\$0	\$0	\$0	\$150,000	\$0	\$0	\$0	\$0	\$215,000
Public Works	\$0	\$0	\$0	\$0	\$0	\$0	\$45,000	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$150,000</b>	<b>\$45,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$215,000</b>

<b>Machinery &amp; Equipment</b>											
<b>Segment</b>	<b>Backlog</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>	<b>2030</b>	<b>2031</b>
Protection Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$15,000	\$0
Public Works	\$0	\$0	\$0	\$0	\$0	\$0	\$180,000	\$0	\$0	\$450,000	\$26,000
<b>Total:</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$180,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$465,000</b>	<b>\$26,000</b>

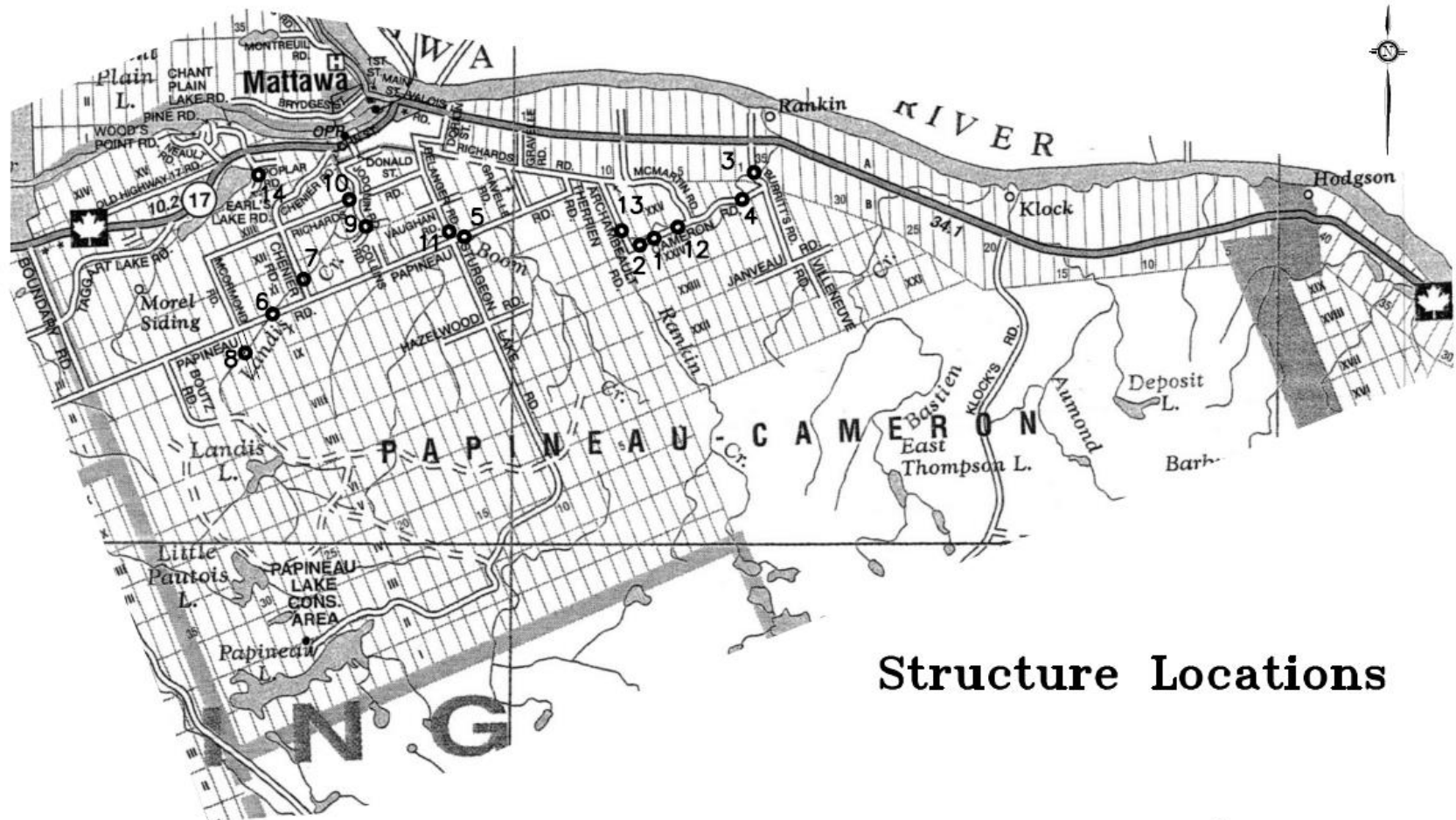
# Appendix B: Level of Service Maps

## Road Network Map



Bridges & Culverts Structure Locations

# Township of Papineau-Cameron



## Structure Locations

KEY PLAN  
NOT TO SCALE

**K. SMART ASSOCIATES LIMITED**  
CONSULTING ENGINEERS AND PLANNERS  
LITONER SLEBURY

\\slebury\proj\2012\0873\0873.dwg: 0873 - Structure Locations Key Plan HP Top 11/01/2012 2:48:40 PM

## Images of Bridge in Good Condition

Bridge 5 – Papineau Road

Inspected: September 25<sup>th</sup>, 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 25<sup>th</sup>, 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 25<sup>th</sup>, 2023



2. South Approach (looking north)



4. East Elevation



5. Inside North Barrel (looking east)



6. Inside South Barrel (looking east)



# Appendix C: Condition Assessment Guidelines

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

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

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

## Role of Asset Condition Data

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

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

## Guidelines for Condition Assessment

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

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

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

## Developing a Condition Assessment Schedule

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

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

# Appendix D: Minimum Maintenance Standards (MMS 239/02)

## 3.1 Class 4 Roads – Patrolling frequency minimum once every 14 days

Class 4 Highway	Surface Area	Depth	Height	Response Time
Snow Accumulation	n/a	8 cm	n/a	16 hours
Icy Roadways	n/a	n/a	n/a	12 hours
Shoulder Drop-offs	n/a	8 cm	n/a	14 days
Cracks	5 cm (width)	5 cm	n/a	180 days
Debris (except snow, ice, slush)	As soon as practicable, after becoming aware			
Surface Discontinuities	n/a	n/a	5 cm	21 days
Regulatory & Warning Signs	n/a	n/a	n/a	30 days
Luminaries	n/a	n/a	n/a	14 days
		<b>Potholes</b>		
Paved Surface	1000 cm <sup>2</sup>	8 cm	n/a	14 days
Non-paved Surface	1500 cm <sup>2</sup>	10 cm	n/a	14 days
Paved & Non-paved Shoulder	1500 cm <sup>2</sup>	10 cm	n/a	30 days
Bridge Deck Spalls	1000 cm <sup>2</sup>	8 cm	n/a	7 days

## 3.2 Class 5 Roads – Patrolling frequency minimum once every 30 days

Class 5 Highway	Surface Area	Depth	Height	Response Time
Snow Accumulation	n/a	10 cm	n/a	24 hours
Icy Roadways	n/a	n/a	n/a	16 hours
Shoulder Drop-offs	n/a	8 cm	n/a	30 days
Cracks	5 cm (width)	5 cm	n/a	180 days
Debris (except snow, ice, slush)	As soon as practicable, after becoming aware			
Surface Discontinuities	n/a	n/a	5 cm	21 days
Regulatory & Warning Signs	n/a	n/a	n/a	30 days
Luminaries	n/a	n/a	n/a	14 days
		<b>Potholes</b>		
Paved Surface	1000 cm <sup>2</sup>	8 cm	n/a	30 days
Non-paved Surface	1500 cm <sup>2</sup>	12 cm	n/a	30 days
Paved & Non-paved Shoulder	1500 cm <sup>2</sup>	12 cm	n/a	60 days
Bridge Deck Spalls	1000 cm <sup>2</sup>	8 cm	n/a	7 days

## 3.3 Class 6 Roads – Ontario Regulation 239/02 does not apply to Class 6 roads. Patrolling frequency will be determined by the Road Superintendent.

4.0 ROAD LISTING

Road Name	From	To	Length (km)	Surface	Road Class	Road Type
JODOUIN	Donald	Richards	1.294	Hard Surface	4	Year Round
JODOUIN	Richards	End-South	0.940	Gravel	5	Year Round
JODOUIN	Jodouin-South	End (Collins)	0.737	2.10, 2.11	Unassumed	& 2.9 Forced
CHENIER	Hwy 17	Richards	2.838	Hard Surface	4	Year Round & Forced Road
CHENIER	Richards	Papineau	2.025	Gravel	5	Year Round
CHENIER	Chenier	Power Line S.	0.779	Unassumed Road Allowance		
RICHARDS	McOrmond	Chenier	2.033	Gravel	4	Year Round
RICHARDS	Chenier	Jodouin	2.148	Gravel	4	Year Round
RICHARDS	Jodouin	Belanger	1.941	Hard Surface	4	Year Round
RICHARDS	Belanger	Gravelle	2.397	Gravel	6	Year Round & Forced Road
RICHARDS	Gravelle	Gravelle	0.245	Gravel	4	Year Round
RICHARDS	Gravelle	Therrien	1.254	Gravel	5	Year Round
RICHARDS	Therrien	Archembeault	0.861	Gravel	5	Year Round
THERRIEN	Richards	Papineau	0.395	Gravel	6	Year Round
PAPINEAU	Boundary	Boutz	2.094	Gravel	5	Year Round
PAPINEAU	Boutz	McOrmond	2.068	Gravel	5	Year Round
PAPINEAU	McOrmond	Chenier	2.029	Gravel	5	Year Round
PAPINEAU	Chenier	Collins	2.030	Gravel	5	Year Round
PAPINEAU	Collins	Belanger	1.946	Gravel	5	Year Round
PAPINEAU	Belanger	Sturgeon Lake	0.141	Gravel	5	Year Round
PAPINEAU	Sturgeon Lake	Gravelle	2.051	Gravel	5	Year Round
PAPINEAU	Gravelle	Therrien	1.221	Gravel	5	Year Round
PAPINEAU	Papineau	End - North	0.293	Gravel	6	Year Round
COLLINS	Collins - North	End (Jodouin)	0.737	2.10, 2.11	Unassumed	& 2.9 Forced
BOUTZ	Papineau	End - South	5.121	Gravel	6	Year Round & Seasonal Annual
MCORMOND	Richards	Papineau	1.999	Gravel	5	Year Round
MCORMOND	Papineau	End - South	2.097	Gravel	6	Seasonal Annual
STURGEON LAKE	Papineau	Hazelwood	2.079	Gravel	5	Year Round
STURGEON LAKE	Hazelwood	End - South	4.336	Gravel	6	Seasonal Annual
HAZELWOOD	Sturgeon Lake	End - West	1.719	Gravel	5	Year Round
HAZELWOOD	Sturgeon Lake	End - East	1.408	Gravel	5	Year Round
HAZELWOOD	Hazelwood East	End - East	2.430	Unassumed Road Allowance		
BELANGER	Dorion	Richards	0.733	Hard Surface	5	Year Round
BELANGER	Richards	Vaughan	1.019	Hard Surface	5	Year Round
BELANGER	Vaughan	Vaughan	0.015	Hard Surface	5	Year Round
BELANGER	Vaughan	Papineau	0.985	Hard Surface	5	Year Round
VAUGHAN	Belanger	End - West	0.721	Gravel	6	Year Round & Forced Road
VAUGHAN	Belanger	End - East	0.680	Gravel	6	Year Round & Forced Road
BOUNDARY	Papineau	Taggart Lake	2.017	Gravel	5	Year Round
BOUNDARY	Taggart Lake	Hwy 17	2.090	Hard Surface		CALVIN TWP.
TAGGART LAKE	Boundary	Hwy 17	4.526	Gravel	5	Year Round & Forced Road
GRAVELLE	Hwy 17	Richards	1.161	Gravel	5	Year Round
GRAVELLE	Richards	Papineau	1.185	Gravel	5	Year Round
GRAVELLE	Papineau	End - South	2.027	Unassumed Road Allowance		
CHANT PLEIN LAKE	Hwy 17	Pine	1.526	Hard Surface	5	Year Round & Forced Road
CHANT PLEIN LAKE	Pine	Neault	0.598	Hard Surface	5	Year Round & Forced Road
PINE	Chant Plein Lk	End - North	0.077	Hard Surface	6	Forced Road
NEAULT	Old Hwy 17	Chant Plein Lk	0.573	Hard Surface	5	Year Round
NEAULT	Chant Plein Lk	Wood Point	0.291	Hard Surface	5	Year Round & Forced Road
NEAULT	Wood Point	End - West	1.065	Hard Surface	5	Year Round & Forced Road
WOODS POINT	Neault	End - North	0.220	Gravel	6	Private

COPY

OLD HWY 17	Hwy 17	Neault	0.058	Hard Surface	5	Year Round	
OLD HWY 17		Neault	Hwy 17	4.096	Hard Surface	5	Year Round
LABELLE	Hwy 17	End - West	0.218	Hard Surface	6	Year Round & Forced Road	
EARL LAKE	Hwy 17	Poplar	0.053	Hard Surface	5	Year Round	
EARL LAKE	Poplar	End - South	0.824	Hard Surface	5	Year Round	
POPLAR	Earls Lake	End - East	0.210	Gravel	6	Year Round & Forced Road	
MOORES	Hwy 17	End - West	0.353	Hard Surface	6	Year Round & Forced Road	
BURRITTS	Hwy 17	Cameron	1.324	Gravel	5	Year Round	
BURRITTS	Cameron	Janveau	2.044	Gravel	5	Year Round	
BURRITTS	Janveau	End - South	Forced & Resource Access Road – Crown Land				
BURRITTS	Hwy 17	End - North	0.204	Gravel	6	Seasonal Annual	
JANVEAU	Burritts	End - West	0.988	Gravel	5	Year Round	
JANVEAU	End - West	End - West	0.350	Unassumed Road Allowance			
JANVEAU	Burritts	Villeneuve	1.896	Gravel	5	Year Round	
JANVEAU	Villeneuve	End - East	0.986	Gravel	6	Year Round	
VELLENEUVE	Janveau	End - South	1.184	Gravel	6	Year Round & Forced Road	
CAMERON	Archembeault	McMartin	1.861	Gravel	6	Year Round	
CAMERON	McMartin	Burritts	2.100	Gravel	5	Year Round	
McMARTIN	Hwy 17	Cameron	3.220	Gravel	5	Year Round & Forced Road	
MARTEL	Hwy 17	End - South	0.125	Gravel	6	Year Round	
MARTEL	End - South	Richards	0.865	Unassumed Road Allowance			
MARTEL	Hwy 17	End - North	1.360	Unassumed Road Allowance			
RAIL CORRIDOR	mile marker 70	Nip. / Renfrew	21.0	Unassumed Road Allowance			
TEE LAKE	Boutz	End - South		Resource Access Road – Crown Land			
ARCHAMBEAULT	Richards	Cameron	1.866	Gravel	6	Year Round	
ARCHAMBEAULT	Cameron	147 ft. South Cameron	0.045	Gravel	6	Year Round	
ARCHAMBEAULT	147 ft. South Cameron	End - South	0.104	Unassumed Road Allowance			
LACELLE LANE	Burritts North	End - West	0.134	Unassumed Road Allowance			
ANITA'S LANE	McMartin	Richards	0.807	Unassumed Road Allowance			
ANITA'S LANE	Anita's Lane	Archembeault	0.743	Forced Road			
KLOCKS	Hwy 17	End - South		Resource Access Road – Crown Land			
KLOCKS	Hwy 17	Rail Corridor	1.134	Unassumed Road Allowance			