

Asset Management Plan

Municipality of Mattawan

2021

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This Asset Management Program was prepared by:



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Key Statistics

Replacement cost of
asset portfolio

\$5.1 million

Replacement cost of
infrastructure per household

\$49,000 (2016)

Percentage of assets in fair or
better condition

56%

Percentage of assets with
assessed condition data

84%

Annual capital
infrastructure deficit

\$123,000

Recommended timeframe
for eliminating annual
infrastructure deficit

20 Years

Target reinvestment
rate

2.4%

Actual reinvestment
rate

0%

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Executive Summary

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

Scope

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

This AMP includes the following asset categories:

Asset Category

 Bridges & Culverts	 Road Network
 Buildings	 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, 2022. There are additional requirements concerning proposed levels of service and growth that must be met by July 1, 2024 and 2025.

Findings

The overall replacement cost of the asset categories included in this AMP totals \$5.1 million. 56% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 84% of assets. For the remaining 16% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a replacement-only strategy to determine the costs required 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 Municipality's average annual capital requirement totals \$123,000. Based on a historical analysis of sustainable capital funding sources, the Municipality is committing \$0 towards capital projects or reserves per year as all funds are used for operational activities. As a result, there is currently an annual funding gap of approximately \$123,000.

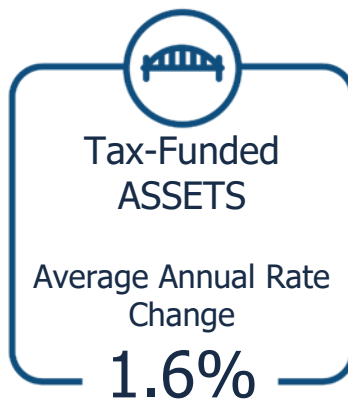
It is important to note that this AMP represents a snapshot in time and is based on the best available processes, data, and information at the Municipality. Strategic asset management planning is an ongoing and dynamic process that requires continuous improvement and dedicated resources.

Annual Increase
Per Household



Recommendations

A financial strategy was developed to address the annual capital funding gap. The following graphic shows the annual tax change required to eliminate the Municipality's infrastructure deficit based on a 20-year plan:



Tax-Funded
ASSETS

Average Annual Rate
Change

1.6%

Recommendations to guide continuous refinement of the Municipality's asset management program include:

- Continue to refine and update asset information as made available
- Undertake CityWide inventory training and asset management training for staff
- Operationalize existing database and develop short- and long-term capital projections
- Evaluate the efficacy of the Municipality's lifecycle management strategies at regular intervals to determine the impact on cost, condition, and risk.
- Continue to measure current levels of service and work towards compliance for O. Reg 588/17 2024 and 2025 requirements
- Consider the development of a dedicated capital budget

1 Introduction & Context

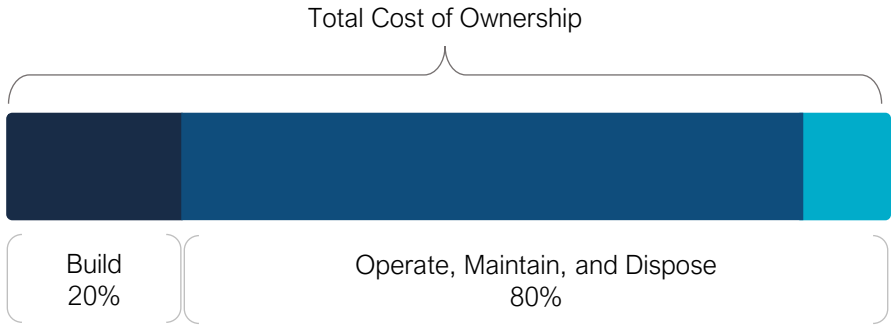
Key Insights

- 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
- The Municipality's asset management policy provides clear direction to staff on their roles and responsibilities regarding asset management
- An asset management plan is a living document that should be updated regularly to inform long-term planning
- Ontario Regulation 588/17 outlines several key milestones and requirements for asset management plans in Ontario between July 1, 2022 and 2025

1.1 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% is derived from operations and maintenance. This asset management plan (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 a broader asset management program. The industry-standard approach 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.

1.1.1 Asset Management Policy

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

The Municipality adopted By-law No. 2019-11 which included a "Strategic Asset Management Policy" and "State of Maturity Report" on June 13th, 2019 in accordance with Ontario Regulation 588/17.

The asset management plan satisfies the policy statement 4 section 4

"The Municipality will develop an asset management plan that incorporates all infrastructure categories and municipal infrastructure assets that meet the capitalization threshold outlined in the organization's Tangible Capital Asset Policy. It will be updated at least every five years following 2024 in accordance with O. Reg. 588/17 requirements, to promote, document and communicate continuous improvement of the asset management program."

1.1.2 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 municipality plans to achieve asset management objectives through planned activities and decision-making criteria.

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

1.1.3 Asset Management Plan

The asset management plan (AMP) presents the outcomes of the municipality'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 municipality to re-evaluate the state of infrastructure and identify how the organization's asset management and financial strategies are progressing.

1.2 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.

1.2.1 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.

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

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

The Municipality'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.

1.2.2 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.

Potential risks that affect the Municipality's service delivery should be captured. This AMP includes a high-level identification of the risks posed by undertaking the current lifecycle activities to achieve the current levels of service. The risks reflect the key challenges and trends that the Municipality may face when delivering the expected services.

1.2.3 Levels of Service

A level of service (LOS) is a measure of what the Municipality 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 Municipality as worth measuring and evaluating. The Municipality 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 & 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 Municipality 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 municipality'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 & Culverts, Water, Wastewater, Stormwater) the Province, through O. Reg. 588/17, has provided technical metrics that are required to be included in this AMP.

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 Municipality 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 Municipality. They should also be determined with consideration of community expectations, fiscal capacity, regulatory requirements, corporate goals, and long-term sustainability. Once proposed levels of service have been established, and before July 2025, the Municipality must identify a lifecycle management and financial strategy which allows these targets to be achieved.

1.3 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

2024

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

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

2025

Asset Management Policy Update and an Asset Management Plan for All Assets with the following additional components:

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

1.3.1 O. Reg. 588/17 Compliance Review

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

Requirement	O. Reg. Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	4.1.1 - 4.4.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1.1 - 4.4.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.1.3 - 4.4.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.1.2 – 4.4.2	Complete
Description of municipality’s approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.1.2 – 4.2.2	Complete for Core Assets Only
Current levels of service in each category	S.5(2), 1(i-ii)	4.1.6 - 4.2.6	Complete for Core Assets Only
Current performance measures in each category	S.5(2), 2	4.1.6 - 4.2.6	Complete for Core Assets Only
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.1.4 - 4.2.4	Complete for Core Assets Only
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)	5.1 – 5.2	Complete

2 Scope and Methodology

Key Insights

- This asset management plan includes 4 asset categories and consists of tax-funded categories
- The source and recency of replacement costs impact 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 Assets categories included in this AMP

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

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

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

2.2 Deriving Replacement Costs

There is 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 Municipality 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 Municipality 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 Municipality can determine the service life remaining (SLR) for each asset. Using condition data and the asset's SLR, the Municipality can more accurately forecast when it will require replacement. The SLR is calculated as follows:

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

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

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the Municipality’s asset portfolio. The table below outlines the condition rating system used in this AMP to determine asset conditions. 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, the 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 the end of service life, condition below standard, a large portion of the 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.

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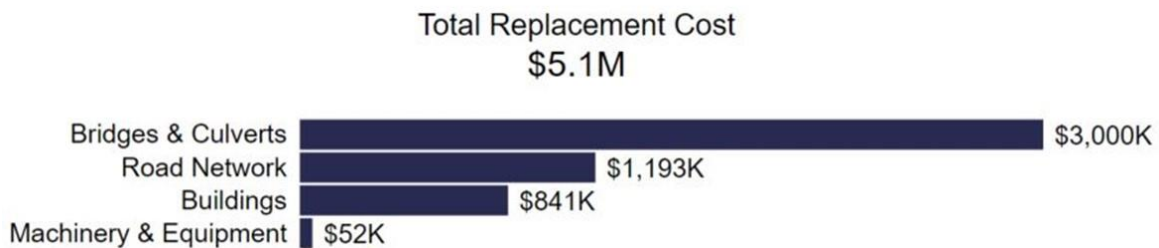
Portfolio Overview

Key Insights

- The total replacement cost of the Municipality's asset portfolio is \$5.1 million
- The Municipality's target re-investment rate is 2.4%, and the actual reinvestment rate is 0%, contributing to an expanding infrastructure deficit
- 56% of all assets are in fair or better condition
- 22% of assets are projected to require replacement in the next 10 years
- Average annual capital requirements total approximately \$123,000 per year across all assets

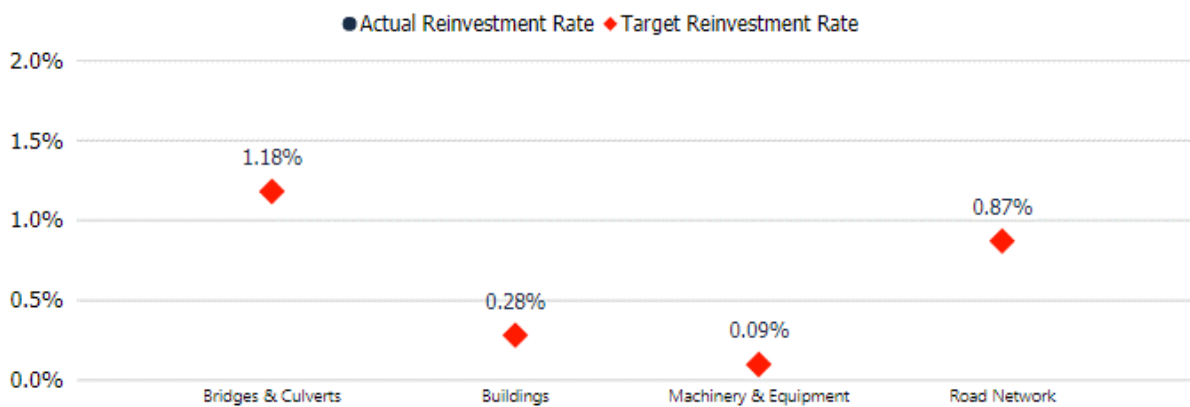
3.1 Total Replacement Cost of Asset Portfolio

The asset categories analyzed in this AMP have a total replacement cost of \$5.1 million based on inventory data from 2020. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects the replacement of historical assets with similar, not necessarily identical, assets available for procurement today.



3.2 Target vs. Actual Reinvestment Rate

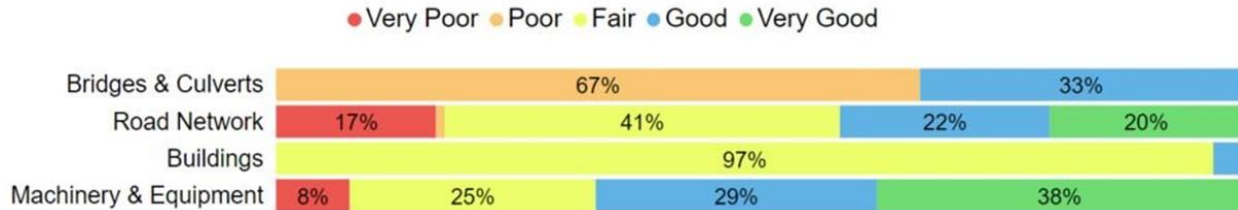
The graph below depicts funding gaps or surpluses by comparing target vs actual reinvestment rates. To meet the long-term replacement needs, the Municipality should be allocating approximately \$123,000 annually, for a target reinvestment rate of 2.41%. Actual annual capital spending on infrastructure totals approximately \$0, for an actual reinvestment rate of 0%¹.



¹ The Municipality currently funds its assets through an operating budget.

3.3 Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 56% of assets in Mattawan are in fair or better condition. This estimate relies on both age-based and field condition data.

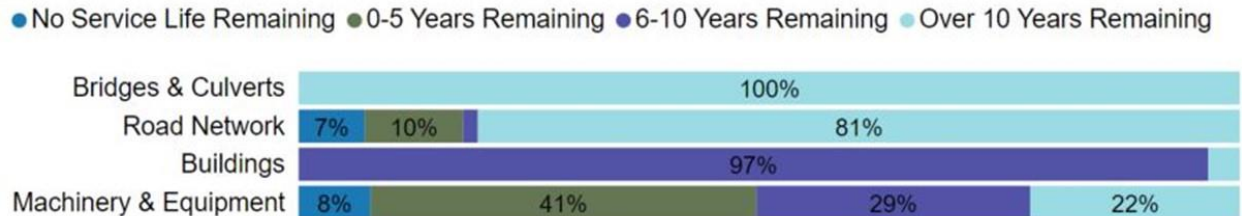


This AMP relies on assessed condition data for 84% of assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table 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	All	38%	Staff Assessments
Bridges & Culverts	Bridges	100%	2019 OSIM Report
Buildings	All	97%	Staff Assessments
Machinery & Equipment	All	25%	Staff Assessments

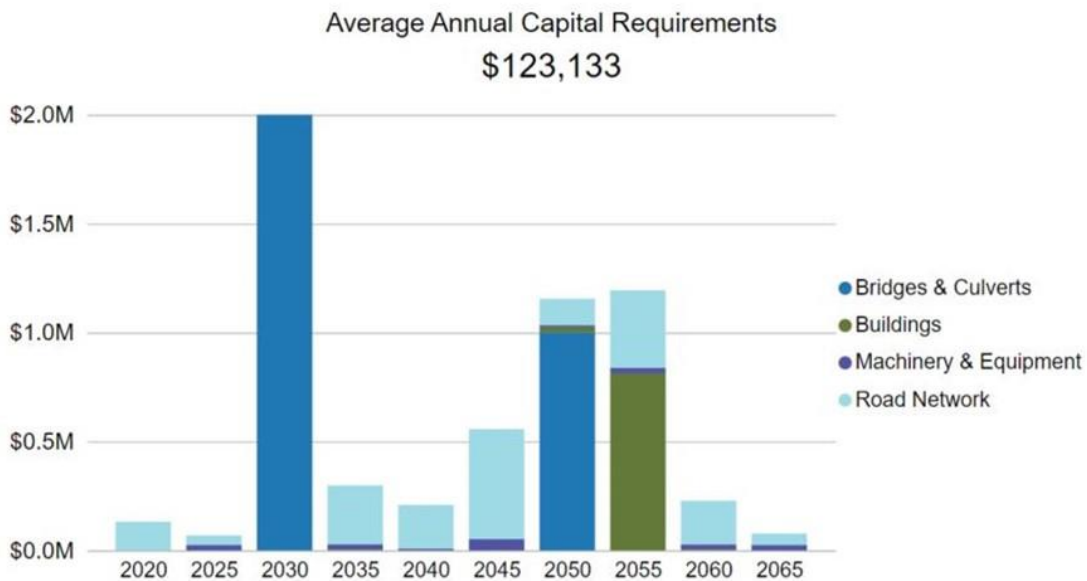
3.4 Service Life Remaining

Based on asset age, available assessed condition data, and estimated useful life, 22% of the Municipality’s assets will require replacement within the next 10 years. Capital requirements over the next 10 years are identified in Appendix A.



3.5 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 Municipality can produce an accurate long-term capital forecast. The following graph identifies capital requirements over the next 50 years.



4 Analysis of Tax-funded Assets

Key Insights

- Tax-funded assets are valued at \$5.1 million
- 56% 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 \$123 thousand

4.1 Road Network

The Road Network is a critical component of the provision of safe and efficient transportation services and represents a significant value asset category in the Municipality's asset portfolio. It includes all municipally owned and maintained roadways in addition to supporting roadside infrastructure, such as culverts with a span of under 3 meters. The Municipality's roads are maintained by the Contracted Road Staff.

4.1.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method, and total replacement cost of each asset segment in the Municipality's Road Network inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Culverts < 3 meter span	129	49% CPI Tables, 51% Cost/Unit	\$723,278
Unpaved Roads	25.4 km	Cost/Unit	\$469,900
			\$1,193,178

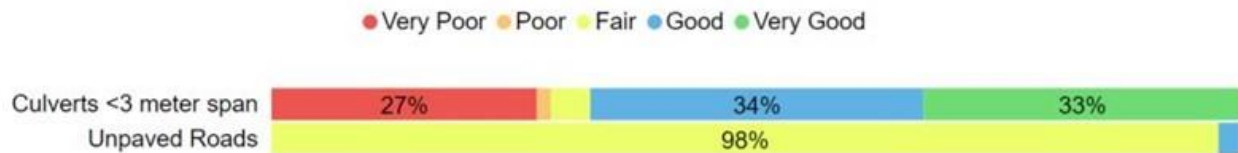
Total Replacement Cost
\$1.2M



4.1.2 Asset Condition

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	Average Condition (%)	Average Condition Rating	Condition Source
Culverts < 3 meter span	56%	Fair	100% Age-Based
Unpaved Roads	60%	Good	96% Assessed
	58%	Fair	38% Assessed



Current Approach to Condition Assessment

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

- Road patrols are completed weekly for all roads by Road Supervisor
- Older roadside culvert (under 3m span) pipes are inspected on an annual basis
- While roadside culverts are checked less often, they are expected to be part of an inspection program

4.1.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Road Network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. The assessed condition may increase or decrease the average service life remaining.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Culverts < 3 meter span	20 - 50 Years	14.1	15.5
Unpaved Roads	45 Years	63.8	27.5
		18.7	16.5



Each asset's Estimated Useful Life should 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.

4.1.4 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.

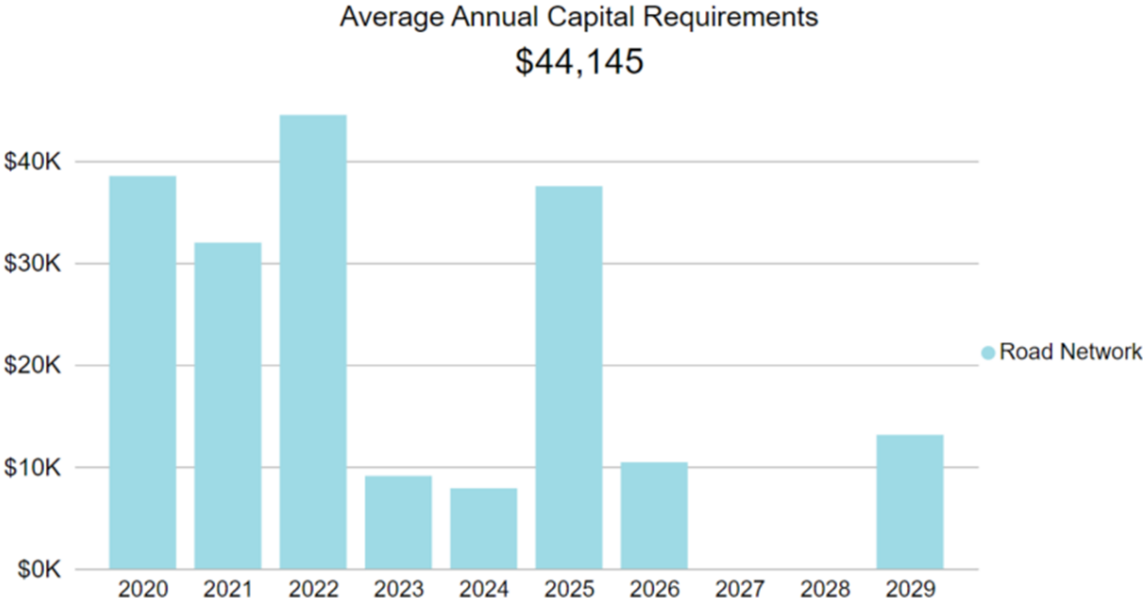
The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of gravel roads.

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation, and Replacement	Grading is completed throughout the year to maintain the roads
	Dust suppressant is applied on an annual basis
	Gravel is reapplied to the roads on an as-needed basis according to Road Supervisor recommendations based on field observations
	Ditching is completed periodically
	A backhoe and sod are utilized to level and remedy roadside culverts that have lost cover due to erosion; staff prioritize based on criticality and condition of culverts
	Gravel roads are perpetually maintained and are generally not replaced unless there is an underlying structural issue

Forecasted Capital Requirements

Based on the lifecycle strategies identified previously, 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 annual capital requirement represents the average amount per year that the Municipality should allocate towards funding rehabilitation and replacement needs to meet future capital needs.



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.

4.1.5 Risks to Current Asset Management Strategies

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



Climate Change & Extreme Weather Events

An increase in freeze/thaw cycles causes roads to heave and settle. This can cause accelerated deterioration. When the ditches are filled with water, freeze/thaw makes the terrain conditions more difficult to maintain. Additional sanding is required. The uncertainty surrounding the impact of extreme weather events can make changing conditions difficult to plan for.



Capital Funding

There is some uncertainty on the ability to adequately fund lifecycle requirements from available revenues. Given the small tax base of the municipality, additional tax revenue can mean a larger tax increase for a single household compared to that of larger municipalities.

4.1.6 Levels of Service

The following tables identify the Municipality’s current level of service for the Road Network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Municipality 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 (2020)
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>Routine road patrols identify 8 different types of deficiencies including potholes, soft shoulders, debris on the road, drainage, warning/hazard on road, regulatory issue for signs, road on bridge issue, and information signs.</p> <p>Roads that do not exhibit any of these deficiencies are considered to be in Very Good condition. Depending on the severity and extent of the 8 deficiency types, roads will receive a Good, Fair, Poor, or Very Poor rating.</p>

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2020)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km ²)	0/201
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km ²)	0/201
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km ²)	50.8/201 ²
Quality	Average pavement condition index for paved roads in the municipality	N/A ³
	Average surface condition for unpaved roads in the municipality (e.g. excellent, good, fair, poor)	Good

² Where the number of lanes was not specified, it was assumed that the road had 2 lanes.

³ The Municipality of Mattawan does not currently own any paved roads.

4.1.7 Recommendations

Asset Inventory

- Review roadside culvert inventory and update attribute information (e.g. quantity and unit of measure) to ensure standardization of all asset segments.
- Staff should undertake CityWide inventory training to gain knowledge on uploading and updating assets and utilize tools available to run capital projections.
- Collect and track inventory of roadside ditches, capturing important attribute information so that it can be included in the asset management program.

Condition Assessment Strategies

- Develop an internal condition assessment for road and culvert assets to capture consistent and reliable information.
- Capture internal condition ratings on assets and input this information into the inventory on a regular basis (e.g. yearly).

Lifecycle Management Strategies

- Evaluate the efficacy of the Municipality's lifecycle management strategies at regular intervals to determine the impact on cost, condition, and risk.

Risk Management Strategies

- Consider procuring extra supplies (e.g. sand) when there are deals for emergency preparedness, subject to budgetary and space constraints.

Levels of Service

- Re-evaluate the value of each culvert and consider whether to dispose or replace them based on performance, budgetary constraints, and levels of service expected.
- 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 & Culverts represent a critical portion of the transportation services provided to the community. Public Works staff is responsible for the maintenance of all bridges located across municipal roads to keep structures in an adequate state of repair and minimize service disruptions. There are two bridges at the Municipality of Mattawan – Murphy Bridge and Burke Bridge. The Municipality does not own any structural (greater than 3-meter span) culverts.

4.2.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method, and total replacement cost of each asset segment in the Municipality’s Bridges & Culverts inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Bridges	2	User-Defined Cost	\$3,000,000
			\$3,000,000

Total Replacement Cost
\$3.0M

Bridges  \$3.0M

4.2.2 Asset Condition

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	Average Condition (%)	Average Condition Rating	Condition Source
Bridges	42%	Fair	100% Assessed
	42%	Fair	100% Assessed

● Very Poor ● Poor ● Fair ● Good ● Very Good



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

Currently, Murphy's Bridge is closed as it is structurally unsafe. The bridge is expected to be replaced and reopened by the end of 2021.

Current Approach to Condition Assessment

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

- Condition assessments of all bridges are completed every 2 years per the Ontario Structure Inspection Manual (OSIM). The most recent inspection report was completed in 2019 by K. Smart Associates Ltd.
- These findings are verified by Public Works Staff through visual inspections, such as looking at the bridges' underside for cracking or any other indicators of issues

4.2.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Bridges & Culverts assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. The assessed condition may increase or decrease the average service life remaining.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Bridges	50 Years	48.7	23.9
		48.7	23.9

● No Service Life Remaining ● 0-5 Years Remaining ● 6-10 Years Remaining ● Over 10 Years Remaining



Each asset's Estimated Useful Life should 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.

4.2.4 Lifecycle Management Strategy

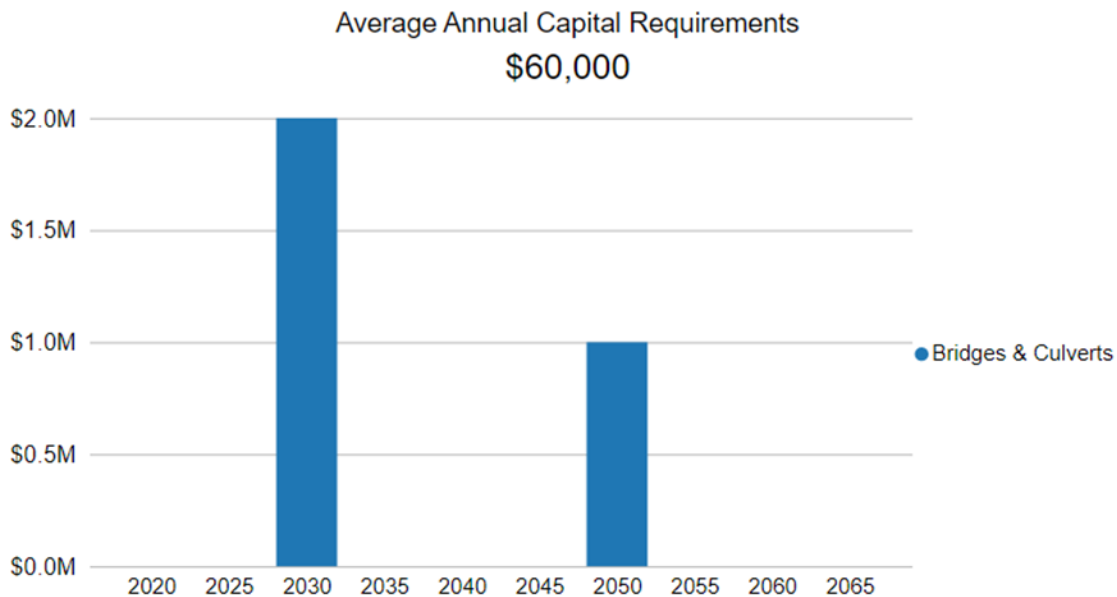
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation, and Replacement	<p>All lifecycle activities are driven by the results of mandated structural inspections completed according to the Ontario Structure Inspection Manual</p> <p>In-house maintenance activities are completed periodically such as regular cleaning, maintaining guide rails, applying sealant, etc.</p>

Forecasted Capital Requirements

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



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.

4.2.5 Risks to Current Asset Management Strategies

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



Capital Funding

The rehabilitation and/or replacement of bridges is heavily dependent on the availability of grant funding for capital projects. Capital costs for bridges can be substantial, and when grant funding is unavailable it can be challenging to fund necessary capital works through sustainable revenue sources. Necessary repairs can be deferred, but this affects the Levels of Service provided.



Climate Change & Extreme Weather Events

The changing climate can lead to more rain and freezing temperature events, increasing freeze/thaw cycles. Moisture seeps into the depths of the foundation and freezing temperatures have heaved parts of the structure e.g. guide rails. This can cause accelerated deterioration and increase the level of maintenance required.

4.2.6 Levels of Service

The following tables identify the Municipality’s current level of service for Bridges & Culverts. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Municipality 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 & Culverts.

Service Attribute	Qualitative Description	Current LOS (2020)
Scope	Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	The bridges support regular vehicular and truck traffic. Snowplows traverse over them during snowfall. With the logging operations in the area, transport trucks are common and may carry excavators.
Quality	Description or images of the condition of bridges & culverts and how this would affect use of the bridges & 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 & Culverts.

Service Attribute	Technical Metric	Current LOS (2020)
Scope	% of bridges in the Municipality with loading or dimensional restrictions	0
Quality	Average bridge condition index value for bridges in the Municipality	42
	Average bridge condition index value for structural culverts in the Municipality	N/A ⁴

⁴ The Municipality of Mattawan does not currently own any structural (greater than 3 meters) culverts.

4.2.7 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.
- Staff should undertake CityWide inventory training to gain knowledge on uploading and updating assets and utilize tools available to run capital projections.

Lifecycle Management Strategies

- This AMP only includes capital costs associated with the reconstruction of bridges and culverts. The Municipality 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.
- 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 Buildings

This AMP primarily focuses on core asset categories as defined in O. Reg. 588/17. Buildings are not considered a core municipal infrastructure.

The Municipality of Mattawan owns and maintains an office and a garage. A high-level analysis of this category is provided.

The Municipality will work towards improving data quality and meeting all requirements required prior to July 1, 2024.

4.3.1 Asset Inventory & Replacement Cost

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

Asset Segment	Quantity (components)	Replacement Cost Method	Total Replacement Cost
Garage	1	User-Defined Cost	\$25,000
Office	1 (2)	User-Defined Cost	\$815,912
			\$840,912

Total Replacement Cost
\$840.9K

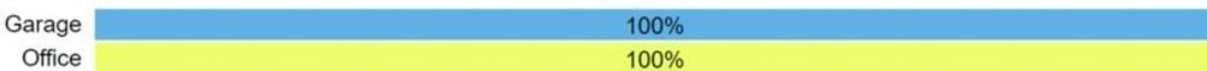


4.3.2 Asset Condition

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	Average Condition (%)	Average Condition Rating	Condition Source
Garage	60%	Good	Age-based
Office	58%	Fair	99.6% Assessed
	59%	Fair	96.5% Assessed

● Very Poor ● Poor ● Fair ● Good ● Very Good



To ensure that the Municipality's Buildings continues to provide an acceptable level of service, the Municipality 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.

A potential renovation plan is being considered for the office building. Should it be completed, the Estimated Useful Life is expected to increase, and the condition rating would improve. Consideration is also being given to replacing the garage roof.

4.3.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Buildings assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. The assessed condition may increase or decrease the average service life remaining.

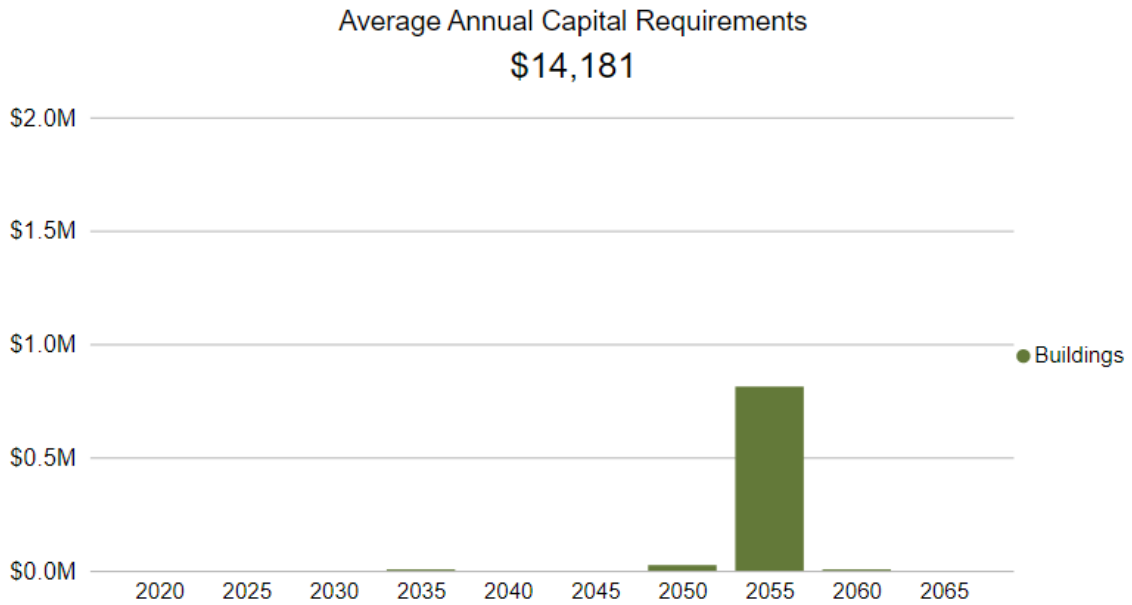
Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Garage	50 Years	20.0	30.0
Office	25 - 60 Years	32.0	10.5
		28.0	17.0



Each asset's Estimated Useful Life should 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.

4.3.4 Forecasted Capital Requirements

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



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 Machinery & Equipment

This AMP primarily focuses on core asset categories as defined in O. Reg. 588/17. Machinery & Equipment are not considered a core municipal infrastructure.

The Municipality of Mattawan owns and uses equipment that provides key services to the community. These include:

- Office equipment
- IT equipment
- Chainsaws, brush saw
- Fire pump with hoses, generator
- Signs and safety equipment

A high-level analysis of this category is provided. For most of these assets, the Municipality does not currently have assessed condition data.

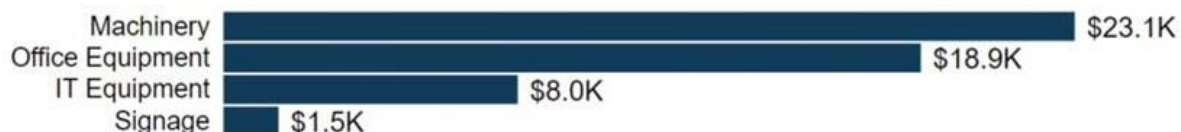
The Municipality will work towards improving data quality and meeting all requirements required prior to July 1, 2024.

4.4.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Municipality’s Machinery & Equipment inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Office Equipment	2	21% CPI Tables, 79% User-Defined	\$18,949
Machinery	6	62% CPI Tables, 38% User-Defined	\$23,130
IT Equipment	4	100% User-Defined	\$8,000
Signage	1	100% User-Defined	\$1,500
			\$51,579

Total Replacement Cost
\$51.6K



4.4.2 Asset Condition

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	Average Condition (%)	Average Condition Rating	Condition Source
IT Equipment	80%	Very Good	Age-Based
Machinery	71%	Good	57% Assessed
Office Equipment	48%	Fair	Age-Based
Signage	87%	Very Good	Age-Based
	64%	Good	25% Assessed

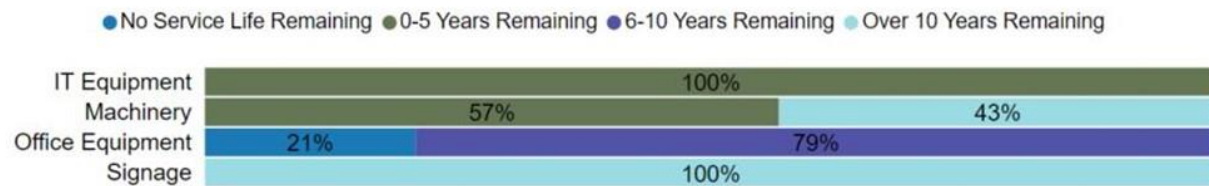


To ensure that the Municipality's Machinery & Equipment continues to provide an acceptable level of service, the Municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination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

4.4.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Machinery & Equipment assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. The assessed condition may increase or decrease the average service life remaining.

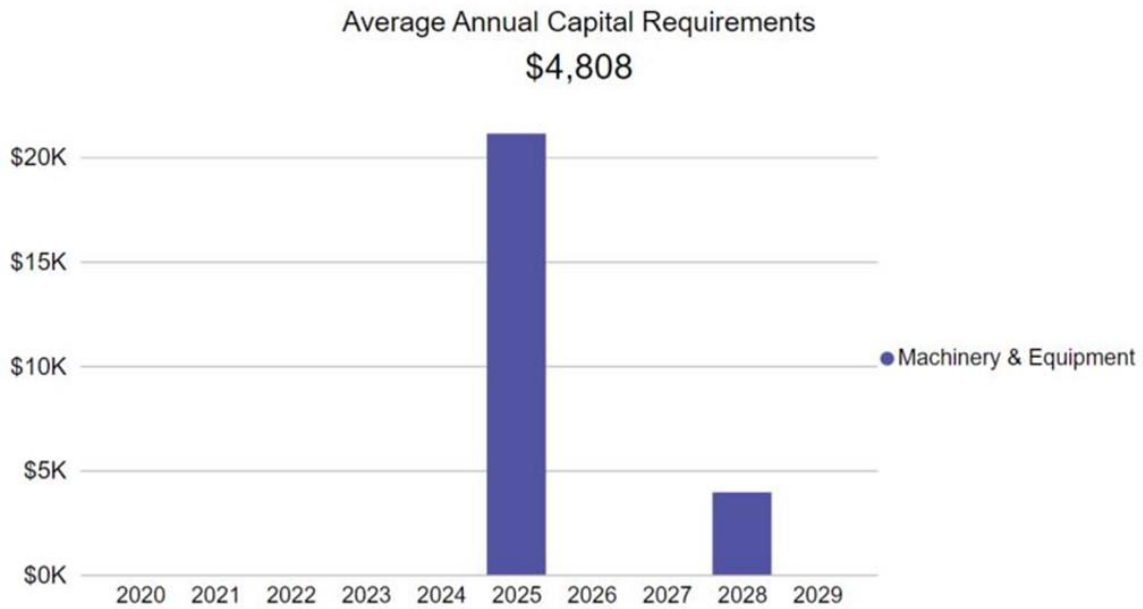
Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
IT Equipment	5 Years	1.0	4.0
Machinery	10 - 25 Years	11.4	8.9
Office Equipment	10 - 15 Years	10.0	2.5
Signage	15 Years	2.0	13.0
		8.1	7.1



Each asset's Estimated Useful Life should 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.

4.4.4 Forecasted Capital Requirements

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



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.

5

Impacts of Growth

Key Insights

- Understanding the key drivers of growth and demand will allow the Municipality to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure
- Minimal changes to population and employment are 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 Municipality to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure. Increases or decreases in demand can affect what assets are needed and what level of service meets the needs of the community.

5.1.1 East Nipissing Official Plan (January 2021)

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

The Official Plan has been enacted and passed by the Corporation of the Municipality of Mattawan as of February 11th, 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.

Mattawan makes up two-thirds of the Rural Lands 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 following table summarizes the historical population, employment, and household statistics for the Municipality of Mattawan from the StatsCan Census. There may be changes in the distribution of full-time and part-time labour. Overall, minimal changes to population and employment are expected in the short term.

Year	2006	2011	2016
Population	147	162	161
Employment	95	Not Available	55
Households	65	75	75

5.2 Impact of Growth on Lifecycle Activities

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

Planning for forecasted population growth may require the expansion of existing infrastructure and services. As growth-related assets are constructed or acquired, they should be integrated into the Municipality's AMP. While the addition of residential units may add to the existing assessment base and offset some of the costs associated with growth, 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, maintain the current level of service.

6

Financial Strategy

Key Insights

- The Municipality is committing \$0 towards capital projects per year from sustainable revenue sources
- Given the annual capital requirement of \$123,000, there is currently a funding gap of \$123,000 annually
- For tax-funded assets, we recommend increasing tax revenues by 1.6% each year for the next 20 years to achieve a sustainable level of funding

6.1 Financial Strategy Overview

For an asset management plan to be effective and meaningful, it must be integrated with a long-term financial plan (LTFP). The development of a comprehensive financial plan will allow the Municipality of Mattawan 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
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 Municipality's approach to the following:

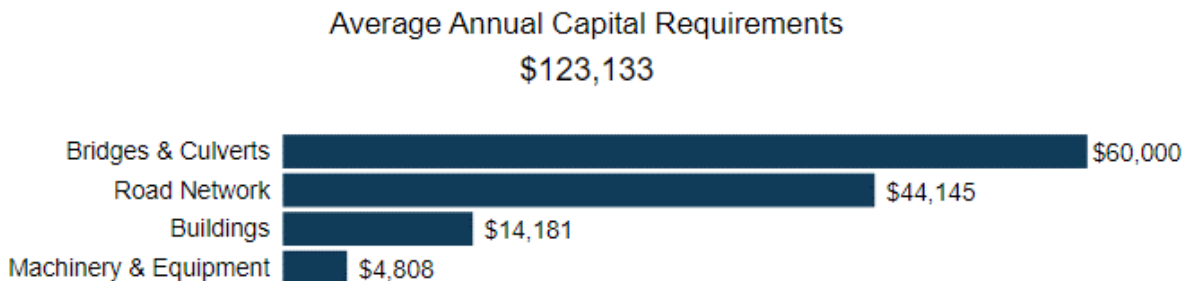
1. In order to reduce financial requirements, consideration has been given to revising service levels downward.

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 Municipality 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 Municipality must allocate approximately \$123k annually to address capital requirements for the assets included in this AMP.



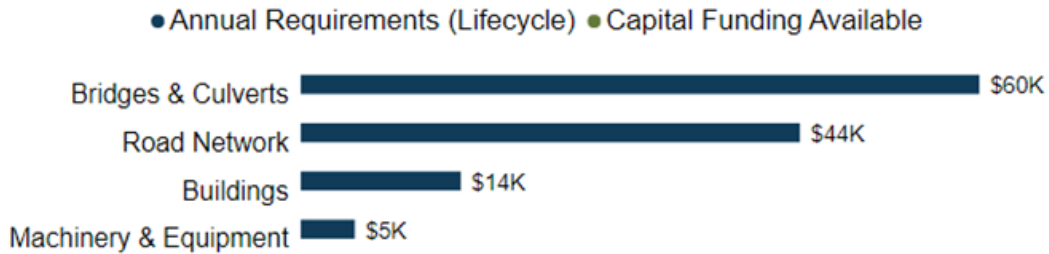
For all asset categories, the annual requirement has been calculated based on a “replacement only” scenario, in which capital costs are only incurred at the construction and replacement of each asset. Although the Municipality relies on a replacement-only scenario, a lifecycle strategy scenario is also described below should the Municipality incorporate measures that yield benefits through preventative maintenance or rehabilitation activities in the future.

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 a replacement is required.

The implementation of a proactive lifecycle strategy for assets can lead to potential annual cost avoidance. As the Replacement scenario represents the most cost-effective option available to the Municipality, 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 Municipality is committing \$0 towards capital projects per year. Given the annual capital requirement of \$123,000, there is currently a funding gap of \$123,000 annually.



6.2 Funding Objective

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

1. **Tax Funded Assets:** Road Network, Bridges & Culverts, Buildings, Machinery & Equipment

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, Mattawan’s average annual capital expenditure (CapEx) 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	
Road Network	44,000					
Bridges & Culverts	60,000					
Buildings	14,000					
Machinery & Equipment	5,000					
	123,000	0	0⁵	0⁵	0	123,000

The average annual CapEx requirement for the above categories is \$123k. Annual revenue currently allocated to these asset categories for CapEx is \$0 leaving an annual deficit of \$123k. Put differently, these asset categories are currently funded at 0% of their long-term requirements.

6.3.2 Full Funding Requirements

In 2020, the Municipality of Mattawan had annual tax revenues of \$364k. 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
Road Network	12.1%
Bridges & Culverts	16.5%
Buildings	3.8%
Machinery & Equipment	1.4%
	33.8%

⁵ Currently, all sustainable grants and transfers are being allocated towards Operating expenditures

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

- a) Mattawan’s formula-based OCIF grant is scheduled to remain at \$50k in 2020 for their operating expenditure (OPEX).
- b) Mattawan’s debt payments for these asset categories will be decreasing by \$8k over the next 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 options⁶:

	Without Capturing Changes				With Capturing Changes			
	5 Years	10 Years	15 Years	20 Years	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	123,000	123,000	123,000	123,000	123,000	123,000	123,000	123,000
Change in Debt Costs	N/A	N/A	N/A	N/A	-8,000	-8,000	-8,000	-8,000
Change in OCIF Grants	N/A	N/A	N/A	N/A	0	0	0	0
Resulting Infrastructure Deficit	123,000	123,000	123,000	123,000	115,000	115,000	115,000	115,000
Tax Increase Required	33.8%	33.8%	33.8%	33.8%	31.6%	31.6%	31.6%	31.6%
Annually	6.8%	3.4%	2.3%	1.7%	6.3%	3.2%	2.1%	1.6%

⁶ The capturing changes options assume no new debt is issued to allow for changes in debt costs to offset a portion of the tax increases required.

6.3.3 Financial Strategy Recommendations

At present time, Mattawan's CapEx funding strategy has been as capital project needs arise, to look to grants, debt, and/or cash on hand. Considering this and all the above information, we are recommending that Mattawan consider the 20-year option. This involves full funding being achieved over 20 years by:

- a) creating a capital budget to direct funds towards CapEx projects.
- b) when realized, reallocating the debt cost reductions of \$8k to the infrastructure deficit as outlined above.
- c) increasing tax revenues by 1.6% each year for the next 20 years solely to phase in full funding to the asset categories covered in this section of the AMP.
- d) allocating the current gas tax and OCIF revenue as outlined previously.
- e) allocating the scheduled OCIF grant increases to the infrastructure deficit as they occur.
- f) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
- g) 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 commitment⁷.
2. We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

Although this option achieves full CapEx funding on an annual basis in 20 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows a pent-up investment demand of \$45k for the Road Network, & \$4k for Machinery & Equipment.

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.

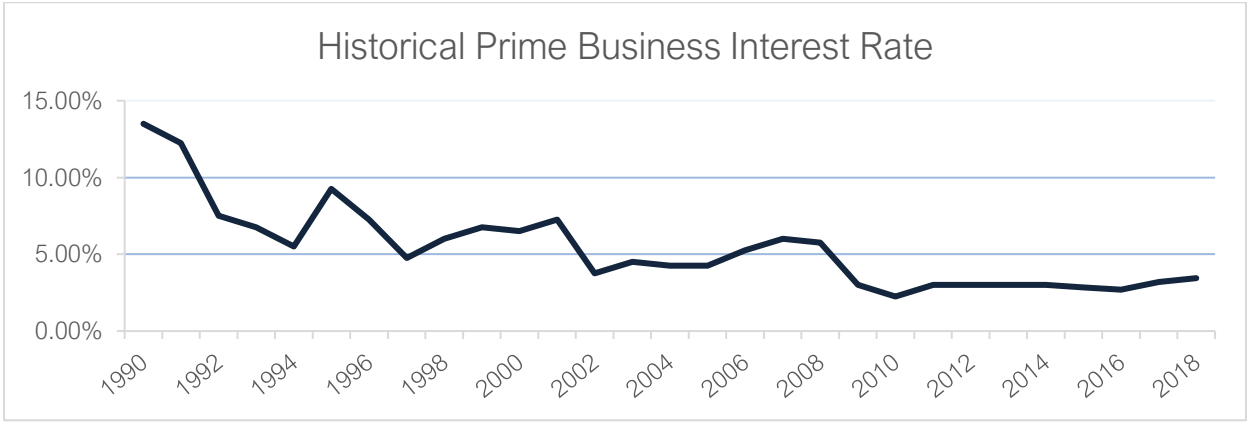
⁷ The Municipality should take advantage of all available grant funding programs and transfers from other levels of government. While OCIF has historically been considered a sustainable source of funding, the program is currently undergoing review by the provincial government. This review may result in changes that impact its availability.

6.4 Use of Debt

For reference purposes, the following table outlines the premium paid on a project if financed by debt. For example, a \$100k project financed at 3.0%⁸ over 15 years would result in a 26% premium or \$26k 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.

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

It should be noted that current interest rates are near all-time lows. Sustainable funding models that include debt need to incorporate the risk of rising interest rates. The following graph shows where historical lending rates have been:



⁸ Current municipal Infrastructure Ontario rates for 15-year money is 3.2%.

A change in 15-year rates from 3% to 6% would change the premium from 26% to 54%. Such a change would have a significant impact on a financial plan.

The following tables outline how Mattawan has historically used debt for investing in the asset categories as listed. There is currently \$8,000 of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of \$8,000. well within its provincially prescribed maximum of \$5,366,000.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2016	2017	2018	2019	2020
Road Network	8,000	35,000				
Bridges & Culverts						
Buildings						
Machinery & Equipment						
Total Tax Funded:	8,000	35,000	0	0	0	0

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2020	2021	2022	2023	2024	2025	2030
Road Network	8,000	8,000					
Bridges & Culverts							
Buildings							
Machinery & Equipment							
Total Tax Funded:	8,000	8,000	0	0	0	0	0

The revenue options outlined in this plan allow Mattawan 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

At present time, the Municipality of Mattawan does not have formally defined reserves. The Municipality had net financial assets totalling \$227k as of December 31, 2020. Put differently, this means this is how much cash the Municipality would theoretically have if all financial assets were liquidated to cash, and all liabilities were settled.

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

- 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 Mattawan'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 Mattawan 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 A: 10-Year Capital Requirements

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

Road Network											
Asset Segment	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Culverts - <3 meter span	\$45,412	\$38,526	\$31,992	\$44,513	\$9,107	\$7,896	\$37,527	\$10,447	\$0	\$0	\$13,134
Unpaved Roads	\$75,850	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	\$121,262	\$38,526	\$31,992	\$44,513	\$9,107	\$7,896	\$37,527	\$10,447	\$0	\$0	\$13,134

Bridges & Culverts											
Asset Segment	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

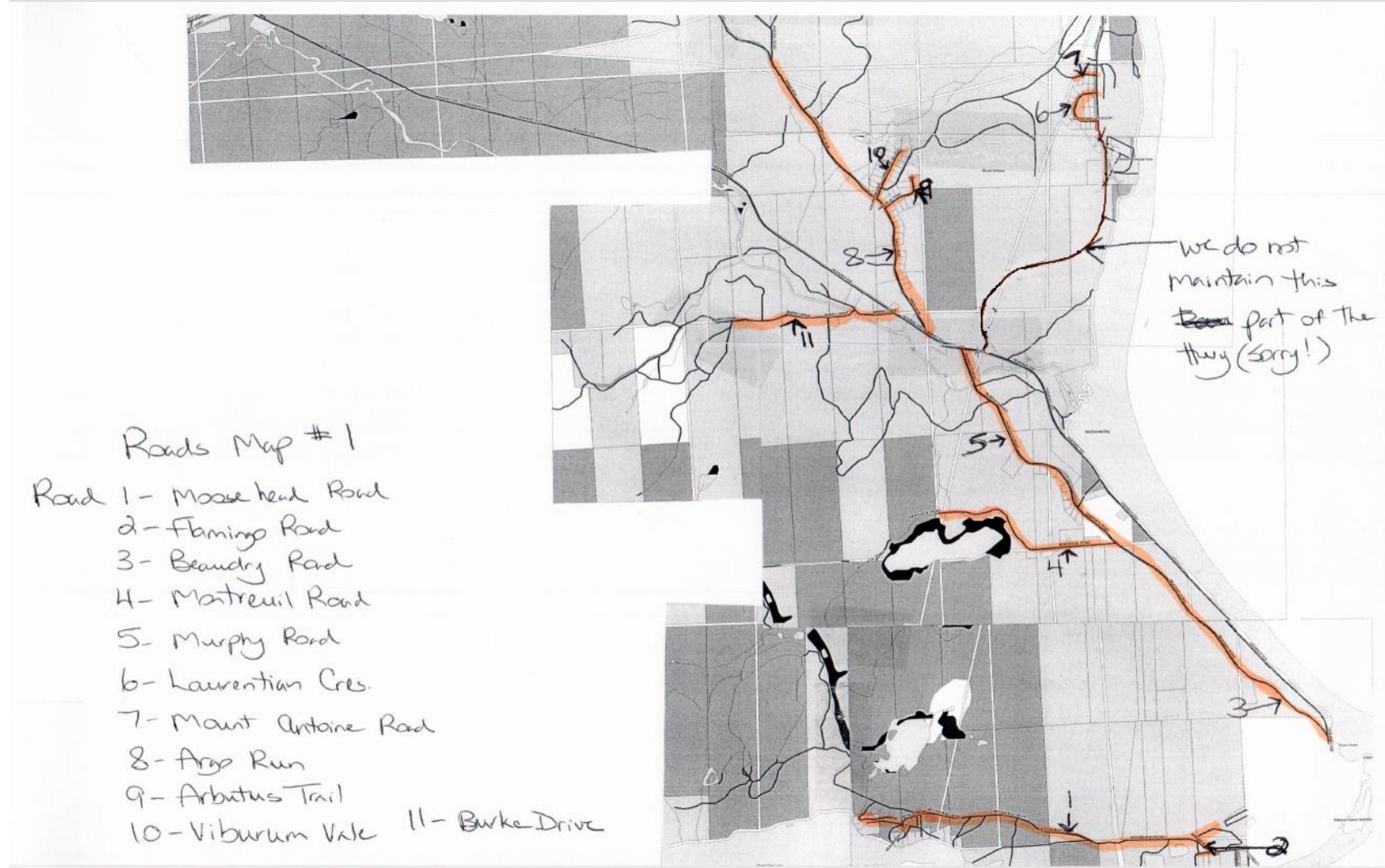
Buildings											
Asset Segment	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Garage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Office	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Machinery & Equipment											
Asset Segment	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Machinery	\$0	\$0	\$0	\$0	\$0	\$0	\$13,130	\$0	\$0	\$0	\$0
Office Equipment	\$3,949	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Signage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
IT Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$8,000	\$0	\$0	\$0	\$0
	\$3,949	\$0	\$0	\$0	\$0	\$0	\$21,130	\$0	\$0	\$0	\$0

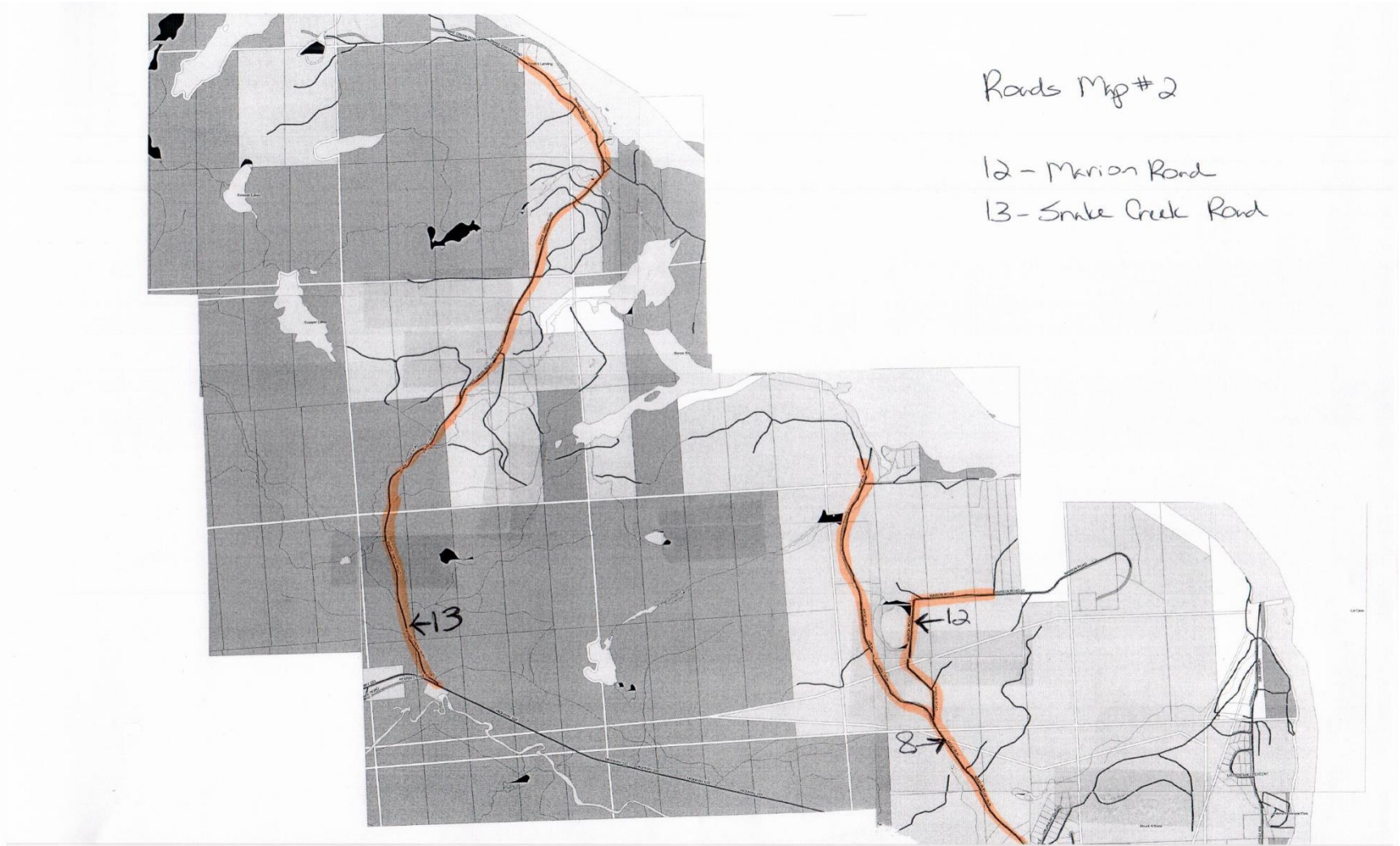
All Asset Categories											
Asset Segment	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Road Network	\$121,262	\$38,526	\$31,992	\$44,513	\$9,107	\$7,896	\$37,527	\$10,447	\$0	\$0	\$13,134
Bridges & Culverts	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Buildings	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Machinery & Equipment	\$3,949	\$0	\$0	\$0	\$0	\$0	\$21,130	\$0	\$0	\$0	\$0
	\$125,211	\$38,526	\$31,992	\$44,513	\$9,107	\$7,896	\$58,657	\$10,447	\$0	\$0	\$13,134

Appendix B: Level of Service Maps

Road Network Map 1



Road Network Map 2



Images of Bridge in Good Condition

Burke Drive Bridge
Inspected: October 4th, 2019



South Approach Looking North



Deck Looking Northeast



South Abutment Wall, East Elv



East Elevation Looking NW



Post to Beam Connection



Soffit of East Space

Images of Bridge in Poor Condition

Murphy Road Bridge
Inspected: October 4th, 2019



South Approach Looking North



West Fascia South End Cracks



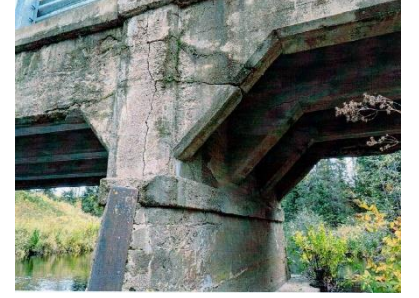
North Abutment with Crack



South Pier - Looking SE



South Span Connection - cracks



South Pier - Top Portion

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 conditions.

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 Municipality'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 Municipality'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 Municipality 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 Municipality 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 Municipality 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 Municipality should prioritize the collection of assessed condition data based on the anticipated value of this data in decision-making. The International Infrastructure Management Manual (IIMM) identifies four key criteria to consider when making this determination:

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