

Asset Management Plan



2024



This Asset Management Program was prepared by:



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

Key Statistics

Replacement cost of asset
portfolio

\$10.3 million

Percentage of assets in fair or
better condition

46%

Annual capital infrastructure
deficit

\$631,000

Target reinvestment rate

5%

Replacement cost of
infrastructure per household

\$59,000 (2021)

Percentage of assets with
assessed condition data

68%

Recommended timeframe for
eliminating annual
infrastructure deficit

20 Years

Actual reinvestment rate

1%

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

This AMP include the following asset categories:

	Bridges & Culverts		Buildings
	Road Network		Machinery and Equipment
	Rolling Stock		

With the development of this AMP the Township 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 \$10.3 million. Nearly half, or 46% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 68% of assets. For the remaining 32% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP. The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (paved roads) and replacement only strategies (all other assets) to determine the lowest cost option to maintain the current level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Township's average annual capital requirement totals \$498,000. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately \$138 thousand towards capital projects or reserves per year. As a result, there is currently an annual funding gap of \$361 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.

Annual Capital Requirements Per Household



Recommendations

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



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

- To ensure accurate data complete regular data review and updates
- For assets that do not yet have condition assessments, consider a strategy for obtaining them; for assets with condition assessments ensure they are completed on a regular schedule and in a uniform manner.
- Develop and regularly review short- and long-term plans to meet capital requirements.
- Regularly measure current levels of service and identify sustainable proposed levels of service.

1 Introduction & Context

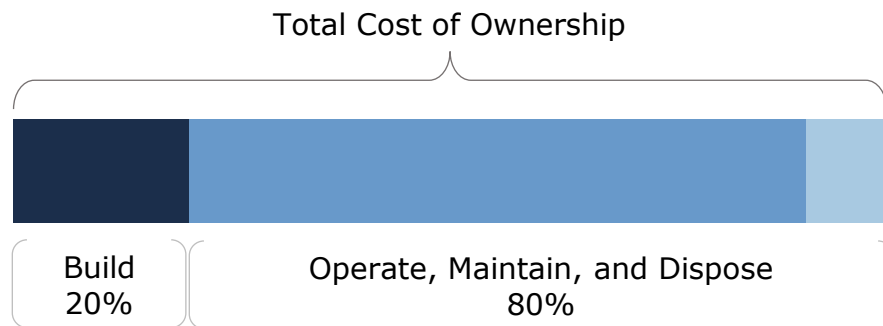
Key insights

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

1.1 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.

1.1.1 Asset Management Policy

An asset management policy represents a statement of the principles guiding the Township's approach to asset management activities.

The Township adopted its Strategic Asset Management Policy on July 17th, 2018, in accordance with Ontario Regulation 588/17. The Asset Management Policy discusses the purpose and background of Asset Management and how it aligns with the Township's strategic directions. Roles and responsibilities in asset management are also identified and key asset management principles are outlined. These key principles include:

- Forward Looking
- Strategically Aligned
- Evidence-based
- Service Focused

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

1.1.3 Asset Management Plan

This document 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 evaluate the plan's progress.

1.2 Key Asset Management Concepts

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
Preventative Maintenance	Activities that prevent defects or deteriorations from occurring	Crack Seal	\$
General Maintenance	Activities that focus on current defects or inhibit deterioration	Pothole Repairs	\$
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	\$\$\$
Replacement Upgrade	Asset end-of-life activities that involve the replacement of an asset to an 'upgraded' asset	Gravel Road to an Asphalt Road	\$\$\$\$

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.

1.2.2 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 road with low traffic volumes. 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.

1.2.3 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 required by 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 & Culverts, Water, Wastewater, Stormwater) O. Reg 588/17 prescribes the qualitative descriptions. 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 O. Reg. 588/17, has provided required technical metrics. For Dorion Township these mandated metrics apply to their roads, bridges, and structural culvert assets.

Current and Proposed Levels of Service

This AMP focuses on measuring the current level of service provided to the community. As per O. Reg. 588/17 by 2024 the Township will be required to also report on proposed LOS. The proposed LOS must be detailed for each of the 10 years following 2024; this is a requirement for all asset types and associated LOS.

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, the Township 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) and Asset Management Policy Update

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

Requirement	O. Reg. Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	4.1.1 - 5.2.1	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 Township’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 B	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	6.1-6.2	Complete

2 Scope and Methodology

Key Insights

- This asset management plan includes five (5) asset categories: roads, bridges, buildings, rolling stock, and machinery and equipment
- 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 Included Asset Categories

This Asset Management Plan is produced in compliance with Ontario Regulation 588/17. The July 2024 deadline under the regulation—the second of three AMPs—requires analysis of only all assets. In advance of the 2025 O. Reg. 588/17 deadline the Township has elected to also begin meeting the inventory and financial analysis requirements for all assets.

In accordance with legislative requirements, this AMP summarizes the following:

- State of the infrastructure for the Township’s asset portfolio
- Current Levels of Service (LOS) including technical and customer LOS
- Lifecycle strategies for asset management and performance
- Financial strategies to reach sustainability for all assets under ownership

The Town’s asset portfolio consists of the following asset categories which are all funded from tax levy:

Asset Category
Road Network
Bridges & Culverts
Facilities
Machinery & Equipment
Rolling Stock

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. For each asset category, the condition rating system used is outlined in subsequent sections of the AMP. When assessed condition data is not available, service life remaining is used to approximate asset condition.

3 Portfolio Overview

Key Insights

- The total replacement cost of the Township’s asset portfolio is \$10.3 million
- The Township’s target re-investment rate is 5%, and the actual re-investment rate is 1%, contributing to an expanding infrastructure deficit
- About half or 47% of all assets are in fair or better condition
- 41% of assets are projected to require replacement in the next 10 years (excluding gravel roads)
- Average annual capital requirements total \$498 thousand per year across all assets

Standard Tables and Graphs Defined

Throughout this report the following terms, reports, and references are used frequently. These are defined as follows:

The **Average Condition** (%) is a weighted value based on replacement cost. The Estimated Useful Life 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.

The **annual capital requirement** represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs to meet future capital needs.

Risk matrices provide a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within each asset category based on 2020 inventory data.

Total Replacement costs are based on a replacement date of 2020 and include all assets in each respective category less any which are not planned for replacement.

3.1 State of the Infrastructure Summary

Table 1 below summarizes the Township’s asset inventory and financial capacity position.

Asset Category	Replacement Cost (millions)	Asset Condition	Financial Capacity	
Road Network	\$4.1	0%	Annual Requirement:	\$274,651
			Funding Available:	\$116,000
			Annual Deficit:	\$159,000
Bridges & Culverts	\$2	38%	Annual Requirement:	\$40,534
			Funding Available:	\$1,000
			Annual Deficit:	\$40,000
Buildings	\$3.3	58%	Annual Requirement:	\$91,222
			Funding Available:	\$1,000
			Annual Deficit:	\$90,000
Machinery & Equipment	\$.4	15%	Annual Requirement:	\$39,652
			Funding Available:	\$19,000
			Annual Deficit:	\$21,000
Rolling Stock	\$.5	30%	Annual Requirement:	\$51,813
			Funding Available:	\$1,000
			Annual Deficit:	\$51,000
Overall	\$10.3	45%	Annual Requirement:	\$497,871
			Funding Available:	\$138,000
			Annual Deficit:	\$361,000

Table 1: Infrastructure Report Card

3.2 Portfolio Total Replacement Cost

Figure 1 below summarizes the Townships total replacement cost by asset category. Overall, total replacement costs are \$10.3 million based on inventory data from 2020.

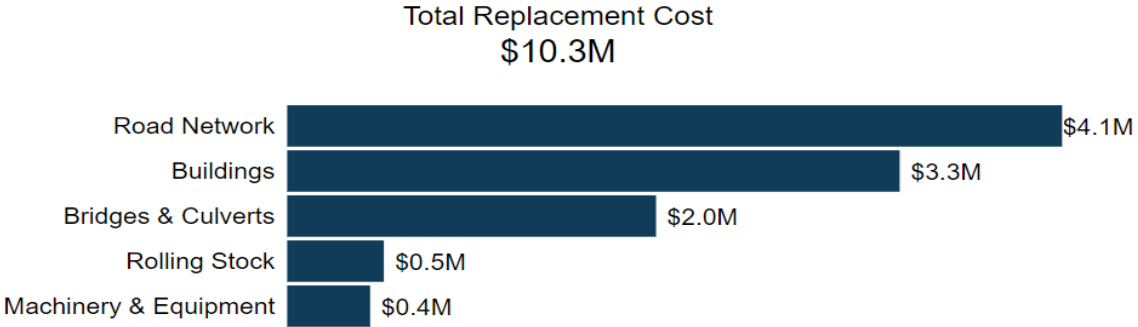


Figure 1: Total Portfolio Replacement Cost

3.3 Target vs. Actual Reinvestment Rate

Figure 2: Target vs. Actual Reinvestment Rate 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 \$498 thousand annually, for a target reinvestment rate of 5%. Actual annual spending on infrastructure totals approximately \$138 thousand, for an actual reinvestment rate of 1%.

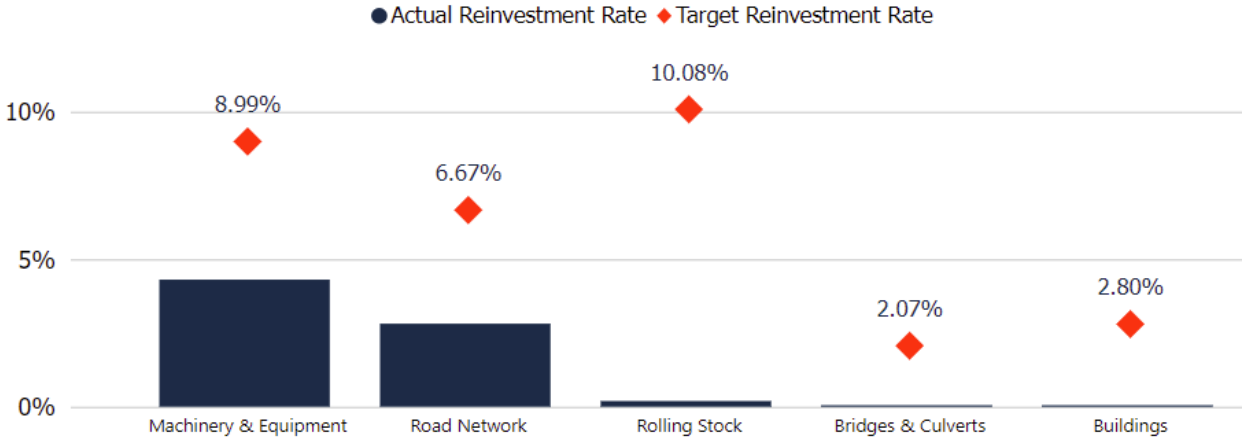


Figure 2: Target vs. Actual Reinvestment Rate

3.4 Condition of Asset Portfolio

Figure 3 below summarizes asset condition distribution by asset class.

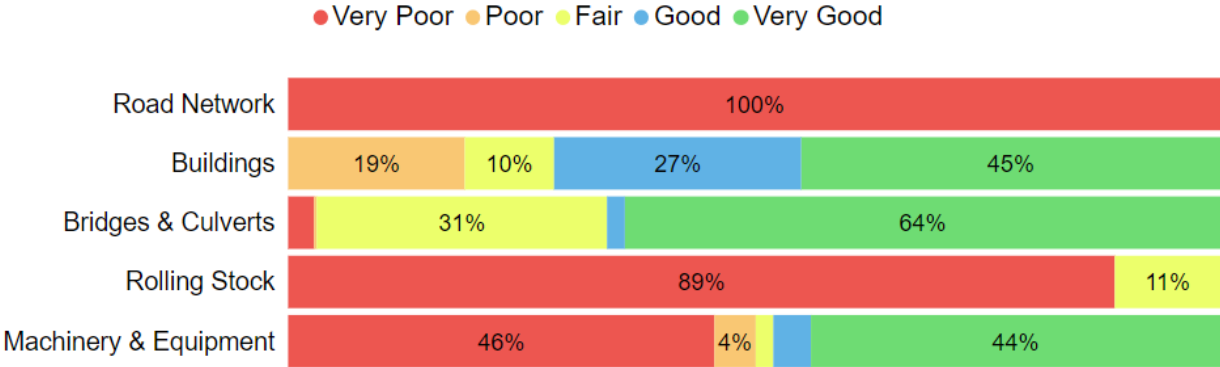


Figure 3: Portfolio Condition Summary Breakdown

This AMP relies on assessed condition data for 68% 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 most accurately reflects an assets condition and its ability to perform its intended function(s). **Table 2** 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	73%	Internal Staff Assessments, Age-Based
Bridges & Culverts	Bridges	100%	Engineering Consultants
Bridges & Culverts	Culverts	11%	Internal Staff Assessments
Buildings	All	100%	Engineering Consultants
Machinery & Equipment	All	0%	Age-Based
Rolling Stock	All	0%	Age-Based

Table 2: Condition Source Table

3.5 Service Life Remaining

Figure 4 below summarizes remaining useful life by asset category. This varies significantly by asset category; road network assets have all exceeded their service life but almost all bridge and culvert assets have over 10 years of life remaining. Most rolling stock assets are beyond their service life which contrasts with buildings where most building components have over 10 years of service life remaining.

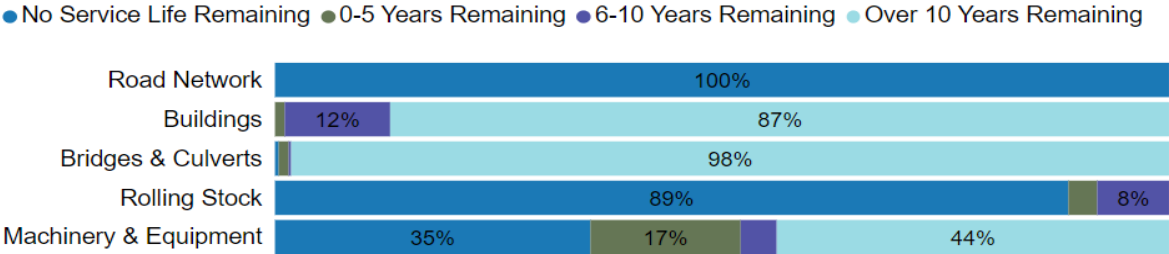


Figure 4: Portfolio Summary Breakdown Service Life Remaining

3.6 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.

Figure 5 identifies capital requirements over the next 50 years; these costs are reported in cumulative 5-year totals with the average annual capital requirement indicated at almost \$500,000.

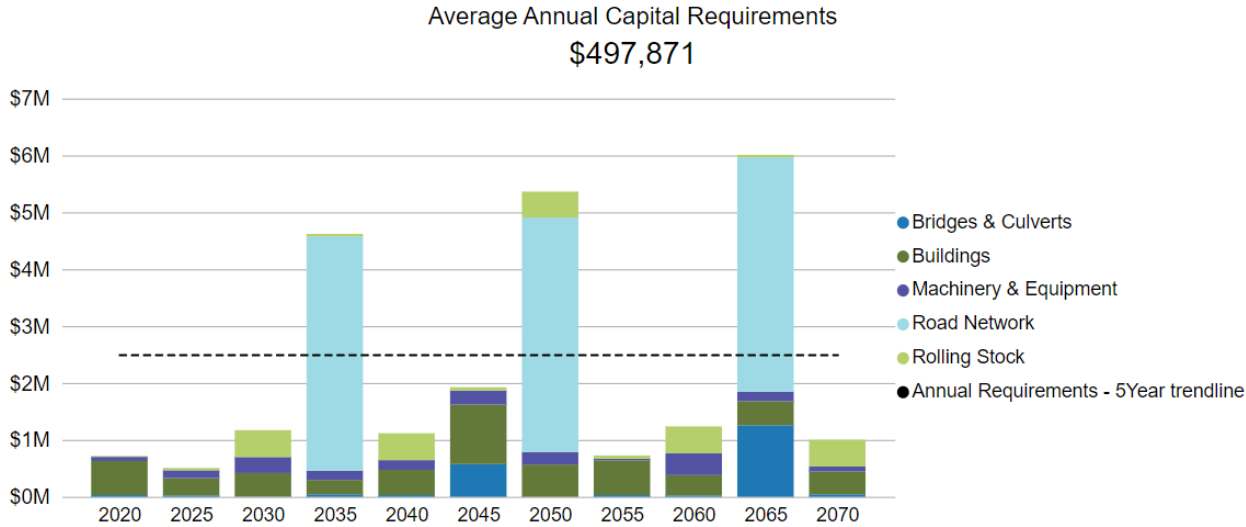


Figure 5: Portfolio Summary of Long-Term Capital Requirements

4 Asset Analysis

Key Insights

- All assets are tax-funded and have a total 2020 replacement value of \$10.2 million.
- About half of the asset portfolio is in fair or better condition.
- The average annual capital requirement to sustain the current level of service for tax-funded assets is \$498,000.
- Critical assets should be evaluated to determine appropriate risk mitigation activities and treatment options.

4.1 Road Network

The Road Network is a critical component of the provision of safe and efficient transportation services and represents the highest value asset category in the Township’s asset portfolio. Dorion Township’s road network is composed of 11.2 km paved roads, (Dorion Loop Road and Ouimet Canyon Road), and 30.5 km of gravel roads.

4.1.1 Asset Inventory & Replacement Cost

Table 3 and **Figure 6** below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township’s Road Network inventory.

Asset Segment	Quantity (m)	Replacement Cost Method	Total Replacement Cost
Gravel Roads	30,583	CPI Tables ¹	\$1,127,000
Paved Roads	11,200	CPI Tables	\$2,993,000
			\$4,120,000

Table 3: Road Network Replacement Cost Table

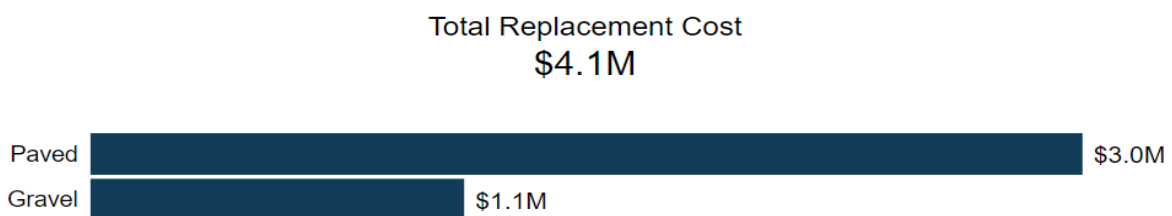


Figure 6: Road Network Replacement Cost Summary

¹ Gravel roads have been included as they comprise the majority of the Township’s Road Network with the exception of two asphalt road segments. However, the lifecycle management strategies for these assets consist of perpetual maintenance activities funded by an operational budget and annual rehabilitation strategies funded through an annual capital budget.

4.1.2 Asset Condition

Table 4 and **Figure 7** below identifies the average condition and source of available condition data for each asset segment. The majority of road segments rely solely on age-based condition calculations with the exception of 11 km of asphalt.

Asset Segment	Average Condition Rating	Condition Source
Paved Roads	Very Poor	100% Assessed
Gravel Roads	Very Poor	100% Age-Based
Very Poor		73% Assessed

Table 4: Road Network Condition Source Table

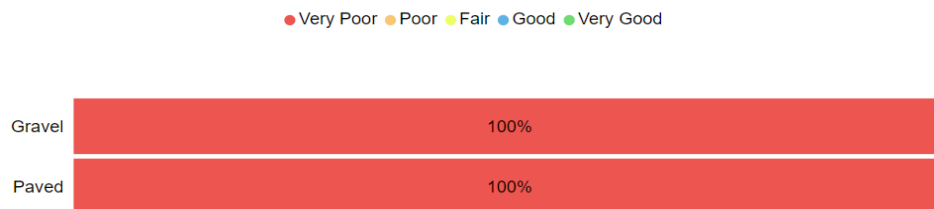


Figure 7: Road Network Condition Summary

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 road patrols on a regular basis; additional patrols may be triggered by significant weather events.
- To enable more rigorous road condition analysis, the Township recently purchased a road assessment system which they are in the process of implementing.

Historically, and in this AMP, the condition assessment rating scales in **Table 5** below are used:

Condition	Rating
Very Good	8 and above
Good	6 and above
Fair	4 and above
Poor	2 and above
Very Poor	0 and above

Table 5: Road Network Condition Rating Scale

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. Assessed condition may increase or decrease the average service life remaining. These metrics are summarized in **Table 6** and **Figure 8** below.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Paved Roads (Asphalt)	15-20 Years	68.4	-53.4
Gravel Roads	15 Years	54.8	-2.7
			-49.2

Table 6: Road Network Estimated Useful Life & Averages Table

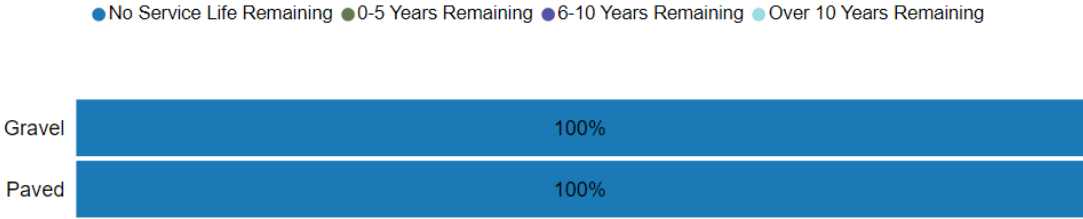


Figure 8: Road Network Service Life Remaining Summary

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

Instead of allowing the roads to deteriorate until replacement is required, strategic maintenance and rehabilitation is expected to extend the service life of roads at a lower total cost.

Table 7: Paved Roads Lifecycle Strategy below summarizes the maintenance activities the Township currently applies to paved roads. Currently, rehabilitation activities are not completed but are being considered as a future activity.

Paved Roads (Asphalt)		
Event Name	Event Class	Event Trigger
Patching	Maintenance	Condition
Ditching & Brushing	Maintenance	Once Annually
Replacement	Capital	Condition

Table 7: Paved Roads Lifecycle Strategy

In future years, the Township may wish to consider implementing additional preventative maintenance and rehabilitation measures such as crack sealing and mill and overlays. Such interventions, especially when appropriately time, can extend an assets total life, improve its condition, and carry a lower total lifecycle cost than if such interventions were not implemented. For the purposes of illustration, a lifecycle model has been provided below based on the interventions detailed in **Table 8**.

Paved Roads Example Lifecycle Model			
Event Name	Event Class	Event Trigger	Event Impact
Crack Sealing	Preventative Maintenance	Every 5 years (7 instances)	None
Mill & Overlay	Rehabilitation	Asset Condition 3.8	Adds 12 Years of EUL
Replacement	Capital	Condition 1.8	Improves conditoin to 5 (100%)

Table 8: Example - Paved Roads Table of Events

Completing these lifecycle activities extends the assets projected life from 20 years to 40 years. These activities and their impact on condition and asset deterioration is illustrated in **Figure 9** on the following page.

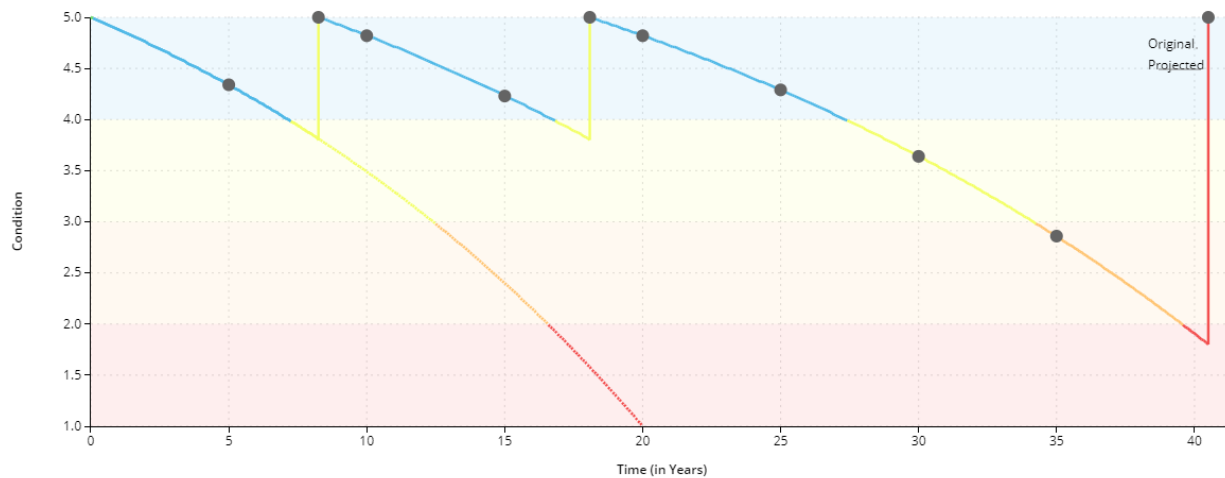


Figure 9: Example: Paved Roads Lifecycle Model

Gravel roads typically have poor base construction. This can lead to wheel track rutting in wet weather, and traffic will continually displace gravel from the surface to the shoulder and ditch areas during wet and dry weather. Maintaining the shape of the road surface and shoulder is essential to ensure proper performance and to provide a sufficient level of service for the public.

Therefore, the management of gravel roads is not through major rehabilitation and replacement, but rather through good perpetual maintenance and some minor rehabilitation which depend on a few basic principles: proper techniques and cycles for grading; the use and upkeep of good surface gravel; and dust abatement and stabilization. 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.

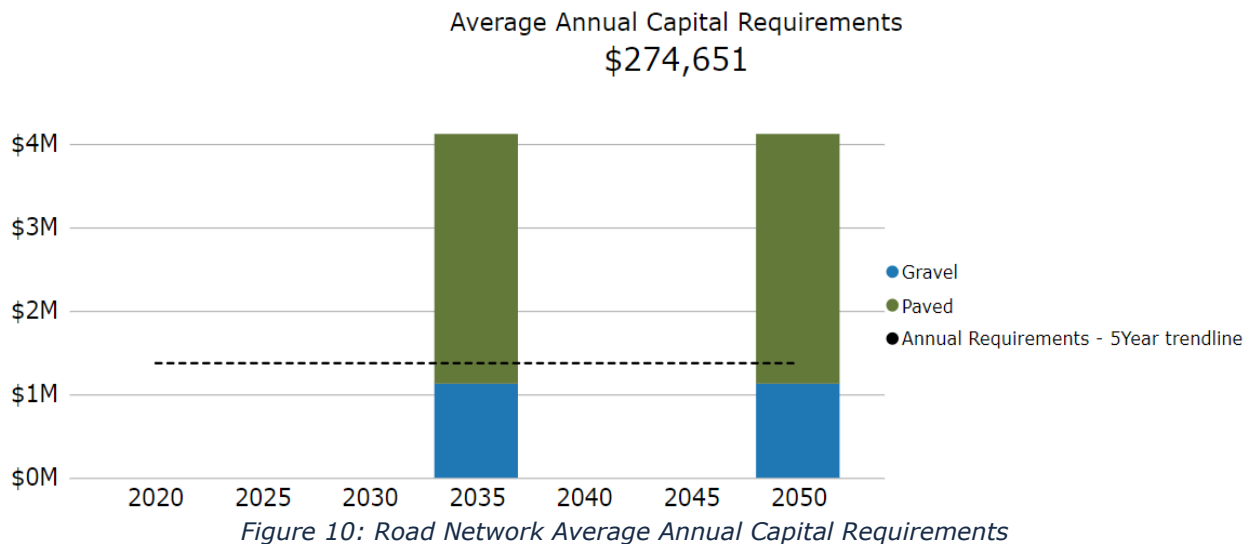
The following lifecycle strategies in **Table 9** have been documented to illustrate the perpetual maintenance and rehabilitation required to keep gravel roads in a good state of repair.

Gravel Roads		
Event Name	Event Class	Event Trigger
Gravelling	Maintenance	Condition
Grading	Maintenance	As Needed
Dust Abatement	Preventative Maintenance	Annual treatment

Table 9: Gravel Roads Lifecycle Strategy

4.1.5 Forecasted Capital Requirements

Figure 10 below illustrates the forecasted capital requirements for the Road Network². The annual capital requirement is the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs to meet future capital needs. All other capital requirements are report in five-years cumulative totals.



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

4.1.6 Risk & Criticality

Risk Matrix

Figure 11: Road Network Risk Matrix on the following page illustrates the quantitative risk rating and **Table 10** lists the parameters used to determine the risk rating of each road segment and all road network appurtenances.

² Most lifecycle activities for the Township’s gravel roads are funded from operational dollars. These events are excluded from annual capital requirements.



Figure 11: Road Network Risk Matrix

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

Table 10: Road Network Risk Parameters

See **Appendix B: Risk Rating Criteria** for details.

Risks to Current Asset Management Strategies

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



Remote Location

Dorion Township is in Northern Ontario and is 75 kilometers from the nearest major urban centre of Thunder Bay. The Township’s location can sometimes reduce the pool of interested contractors for road capital projects and/or result in location-based cost premiums.



Capital Funding Strategies

In some instances, the Township may rely on funding programs for replacement and rehabilitation of their assets. Sometimes these funding programs are specific to select project components and require the Township to cover other project costs (i.e., engineering, contract administration). If the Township is unable to cover the requisite project costs the available funding is often rendered inaccessible. This funding structure and requirements create risks to obtaining the needed capital funding.

4.1.7 Levels of Service

Table 11 below and **Table 12** on the following page identify the Township’s current level of service for the Road Network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Township has selected for this AMP.

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	Dorion Township’s road network is composed of 11.2 km paved roads, (Dorion Loop Road and Ouimet Canyon Road), and 30.5 km of gravel roads. A map of the road network and it’s connectivity is provided in Figure 12 on the following page.
Quality	Description or images that illustrate the different levels of road class pavement condition	<p>Condition assessments for paved roads are conducted internally by Public Works Staff. Roads are rated as follows:</p> <p>Very Poor: Pavement is in very poor condition with extensive severe defects. Ride ability is very poor, and the surface is very rough and uneven.</p> <p>Poor: Pavement is in poor condition with frequent patterns of moderate defects. Ride ability is poor, and the surface is rough and uneven.</p> <p>Fair: Pavement is in fair condition with intermittent patterns of slight to moderate defects. Ride ability is fair, and surface is slightly rough and uneven.</p> <p>Good: Pavement is in good condition with accumulating slight defects. Ride ability is good with intermittent slightly rough and uneven sections.</p> <p>Very Good: Pavement is in excellent condition with few visible defects. Ride ability is excellent with few areas of very slight distortion.</p>

Table 11: Road Network Community LOS

Service Attribute	Technical Metric	Current LOS (2022)
Accessible	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km ²) ³	0.05
Performance	Average pavement condition index for paved roads in the municipality	Very Poor
	Average surface condition for unpaved roads in the municipality (e.g., excellent, good, fair, poor)	Very Poor
	Capital reinvestment rate	2.82%

Table 12: Road Network Technical LOS



Figure 12: Road Network Connectivity

³ There are no class 1,2,5 or 6 roads in the Township. For this reason, only metrics on class 3 and 4 are reported.

4.1.8 Recommendations

Asset Inventory

- Review inventory information for other roadside appurtenances like sidewalks and streetlights to ensure the asset inventory is comprehensive.
- Ensure that as road assets are assumed they are transferred from the Future Acquisitions to the Township's active asset registry. (i.e., paved roads, gravel etc.)

Condition Assessment Strategies

- Ensure that all updated road assessment condition information is promptly uploaded into the system.
- The last comprehensive assessment of the road network was completed in late 2018. Consider completing an updated comprehensive assessment of all roads every 3-5 years.

Lifecycle Management Strategies

- Continue to implement road maintenance strategies and work to advance the implementation of rehabilitation strategies too.

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.
- If it is identified that any additional attribute information would be of valuable to the risk models, review feasibility of collecting and maintaining data and explore requisite actions (i.e., data collection).

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

The Township’s 1 bridges and 18 structural 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 & Replacement Cost

Table 13 and **Figure 13** summarizes the replacement cost and quantities of the Township’s Bridges & Culverts inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Bridges	1 Bridge Structure	CPI Tables	\$555,000
Structural Culverts	18 Culvert Components	CPI Tables	\$1,406,000
			\$1,961,000

Table 13: Bridges & Structural Culverts Replacement Cost Table

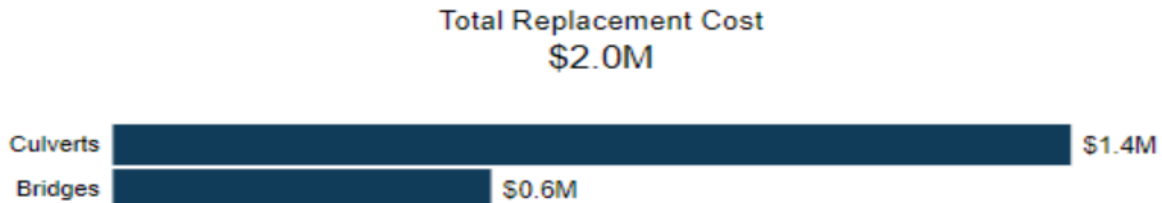


Figure 13: Bridge & Structural Culverts Replacement Cost Summary

4.2.2 Asset Condition

Table 14 and **Figure 14** below identify the current average condition and source of available condition data for each asset segment.

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Bridges	54	Fair	100% Assessed
Structural Culverts	92	Very Good	11% Assessed
	81%	Very Good	36% Assessed

Table 14: Bridges & Structural Culverts Average Condition Table

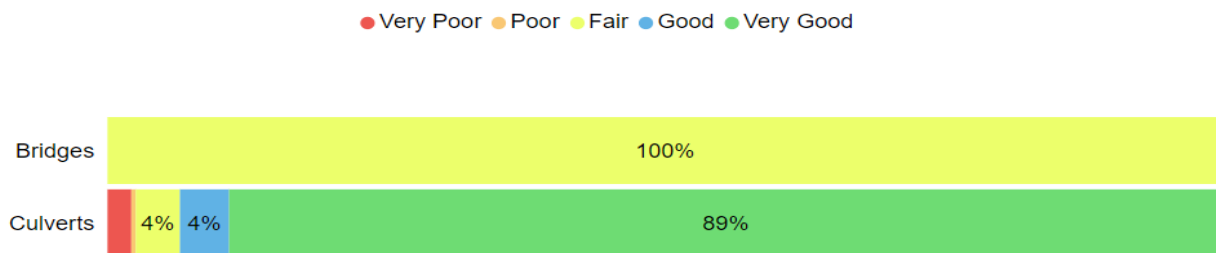


Figure 14: Bridge & Structural Culverts Condition Distribution Summary

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 two (2) years in accordance with the Ontario Structure Inspection Manual (OSIM)
- Generally, replacement and rehabilitation activities are completed based on OSIM recommendations.
- Condition is based on the rating ranges described in **Table 15**

Condition	Rating
Very Good	8 and above
Good	6 and above
Fair	4 and above
Poor	2 and above
Very Poor	0 and above

Table 15: Bridges & Culverts Condition Rating Scale

4.2.3 Estimated Useful Life & Average Age

Table 16 and **Figure 15** below summarize the Estimated Useful Life (EUL), average age, and average service life remaining for Bridges & Culverts assets.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Bridges	50 Years	60.5	27.2
Structural Culverts	35-50 Years	37.8	17
		38.9	17.7

Table 16: Bridges & Structural Culverts Estimated Useful Life & Averages Table

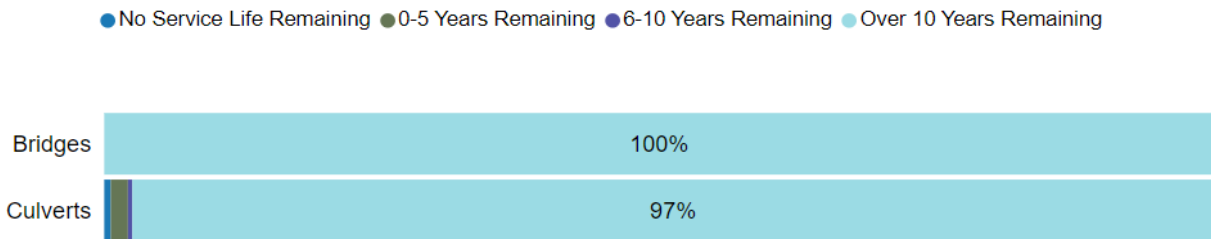


Figure 15: Bridges & Structural Culverts Service Life Remaining Summary

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

Lifecycle management strategies work to proactively manage asset deterioration.

Table 17 below summarizes the Townships current practices.

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation and Replacement	<p>Most lifecycle activities are driven by the results of mandated structural inspections completed according to the Ontario Structure Inspection Manual (OSIM).</p> <p>Public Works staff complete maintenance activities like bridge sweeping and washing based on findings from regular patrols of bridges and culverts.</p>
Inspection	<p>The most recent OSIM inspection report was completed in 2020. Internal inspections are completed each spring when bridges are swept and washed.</p> <p>Bridge patrols are also completed weekly and following significant weather events.</p>

Table 17: Bridge & Structural Culverts Current Lifecycle Strategies

4.2.5 Forecasted Capital Requirements

As illustrated in **Figure 16** the average annual capital requirements for bridges and structural culverts combined is \$40,534. The cumulative five-year capital requirements for bridge and structural culvert assets varies significantly by year with spikes in 2045 and 2065. These capital requirements are forecasted until 2070.

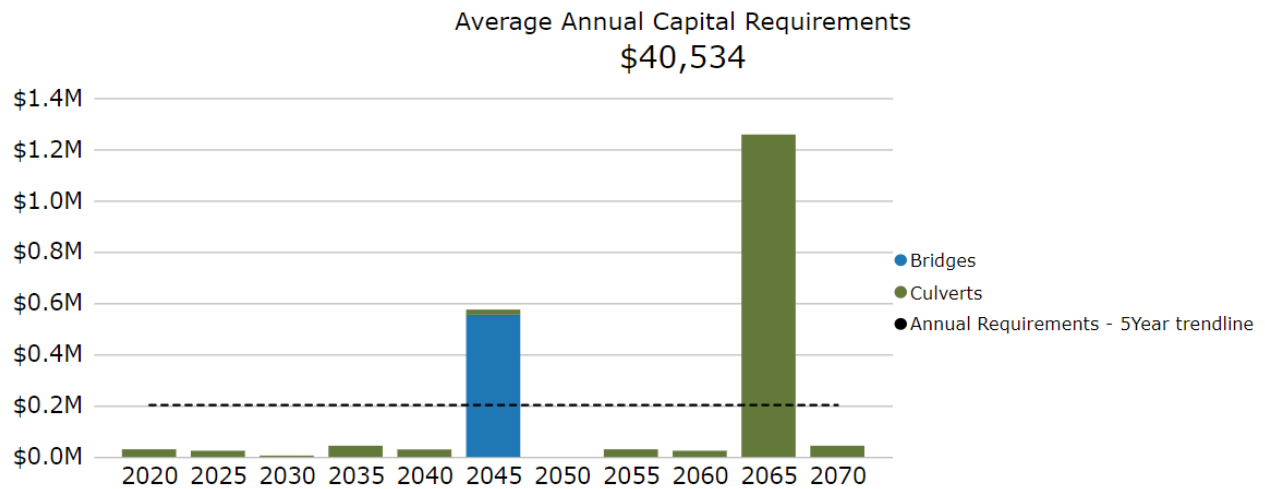


Figure 16: Bridges & Structural Culverts Average Annual Requirements

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: 10-Year Capital Requirements**.

4.2.6 Risk & Criticality

Risk Matrix

The risks held by Bridge and Structural Culverts assets is summarized in **Figure 17**: Bridge & Structural Culvert Risk Matrix below. These scores are based on the risk parameters described in **Table 18** below.



Figure 17: Bridge & Structural Culvert Risk Matrix

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

Table 18: Bridges & Structural Culverts Risk Parameters

See **Appendix B: Risk Rating Criteria** for details.

Risks to Current Asset Management Strategies

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

Staffing Constraints



Dorion Township has a small number of municipal staff who are responsible for managing a multitude of asset types across a large geographic area. Many asset interventions and assessments require warmer weather to complete. Due to the Township’s northern location, summers tend to be short. Constraints in both the number of staff available to complete asset management activities and a limited window of time to complete the work is a qualitative risk for the Township.

4.2.7 Levels of Service

Table 19 and **Table 20** identify the Township’s current community and technical level of service (LOS) for Bridges & Culverts. These include metrics that are required as part of O. Reg. 588/17 as well as any additional measures that the Township has selected for this AMP.

Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	The Township’s 1 bridges and 18 structural culverts are a key component of the municipal transportation network. With the exception of Coldwater Bridge which has a 12 tonne load limit ⁴ , none of the bridges or structural culverts have load restrictions. Therefore most types of vehicles, can cross the Township’s bridges and structural culverts without restriction.
Quality	Description or images of the condition of bridges & culverts and how this would affect use of the bridges & culverts	<p>Bridge and structural culvert condition is assessed based on a range of very poor to very good. The Township’s bridge was most recently assessed in fair condition. Structural culverts assessments ranged from poor to good. See Figure 18 on the following page.</p> <p>With ongoing maintenance and rehabilitation as required, bridges and culverts are expected to operate regularly without restrictions.</p>

Table 19: Bridge & Structural Culverts Community LOS

⁴ Following repairs to the deteriorated piles the bridge is expected to return to its original design capacity of 20-ton load limit.

Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2022)
Scope	% of bridges in the Township with loading or dimensional restrictions	100% ⁵
Quality	Bridge condition index value for the one bridge in the Township	Fair (BCI 54)
	Average bridge condition index value for structural culverts in the Township	Poor (BCI 38)
Performance	Capital re-investment rate	.05%

Table 20: Bridge & Structural Culverts Technical LOS

Bridge & Structural Culverts: 2020 Assessment Images



Cold Water Bridge— Fair Condition



Valley Drive Culvert—Very Poor Condition-



Spring Creek Drive Culvert— Fair Condition



Meadow Brooke Lane Culvert— Good Condition

Figure 18: Bridge & Structural Culverts Condition Images

⁵ The Coldwater Drive Bridge normally has a load limit of 20 ton.

4.2.8 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.
- As part of OSIM reporting require the successful proponent to provide replacement costs and estimated costs of recommended lifecycle events to enable more accurate capital planning and budgeting.
- When updating and uploading data consider including attribute information like associated special routes (i.e., school), and detour length around bridge.

Risk Management Strategies

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

Lifecycle Management Strategies

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

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 Buildings

4.3.1 Asset Inventory & Replacement Cost

Table 21 and **Figure 19** below summarize the Township’s building inventory replacement costs and methods.

Asset Segment	Quantity (componentized)	Replacement Cost Method	Total Replacement Cost
Administration	52	User-Define Unit Rate	\$864,000
Firehall Centennial Building	85	User-Define Unit Rate	\$1,257,000
Museum	24	User-Define Unit Rate	\$252,000
Public Works Garage Building	67	User-Define Unit Rate	\$882,000
			\$3,256,000

Table 21: Buildings Inventory Replacement Cost Table

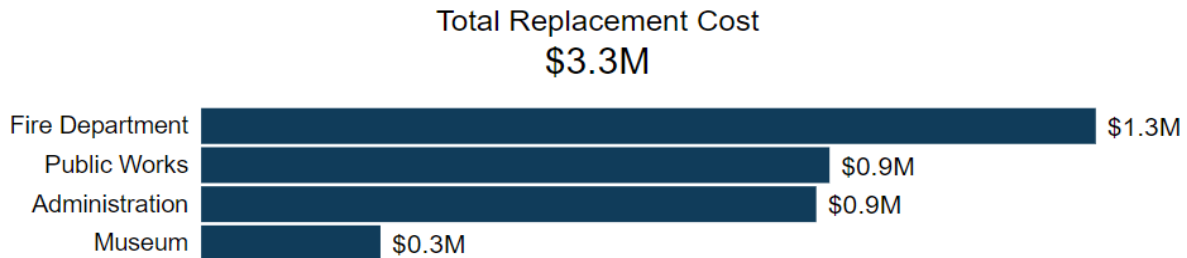


Figure 19: Buildings Replacement Costs Summary

4.3.2 Asset Condition

Table 22 and **Figure 20** below summarize the average condition and source of available condition data for each asset segment of the Township’s Building assets.

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Administration	77	Good	100% Assessed
Firehall Centennial Building	86	Very Good	100% Assessed
Museum	75	Good	100% Assessed
Public Works Garage Building	74	Good	100% Assessed
	70%	Good	100% Assessed

Table 22: Buildings Condition Summary Table

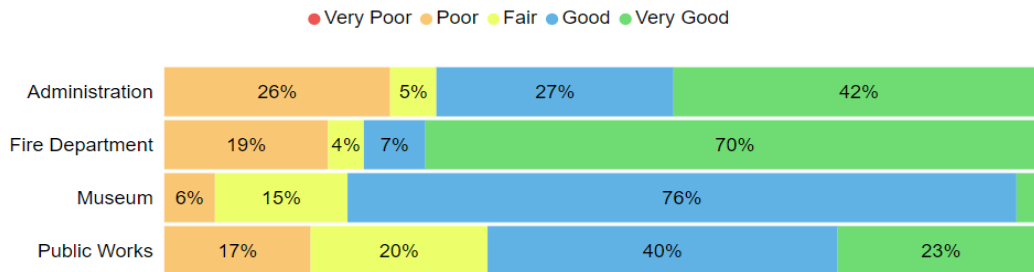


Figure 20: Building Assets Condition Distribution Summary

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 for their buildings:

- Building Condition Assessments (BCA) were completed in 2021 by a third-party consultant.
- BCAs are a process of systematically inspecting, reviewing, and documenting the state of buildings and facilities.
- Using UNIFORMAT II classification system, the BCA provides an assessed condition score for each building component based on visual review.

- Assets are identified using UNIFOMRAT II which is based on three levels of componentization: a major building group (Level 1), a component group (Level 2) and specific components (Level 3).

Facility assets condition is based on the following rating scale in **Table 23**.

Condition	Rating
Very Good	4.1 and above
Good	3.1 and above
Fair	2.1 and above
Poor	1.1 and above
Very Poor	0 and above

Table 23: Building Assets Condition Rating Scale

4.3.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Building assets has been assigned according to a combination of established industry standards and third-party assessment findings. **Table 24** summarizes the average age, Estimated Useful life, and average service life remaining of Building assets. This is further described in **Figure 21** below.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Administration	10-60 Years	17.8	21.9
Firehall Centennial Building	10-85 Years	19.3	20.6
Museum	15-70 Years	24.3	22.1
Public Works Garage Building	10-65 Years	18.9	19.4
		19.4	20.8

Table 24: Buildings Estimated Useful Life & Averages Table

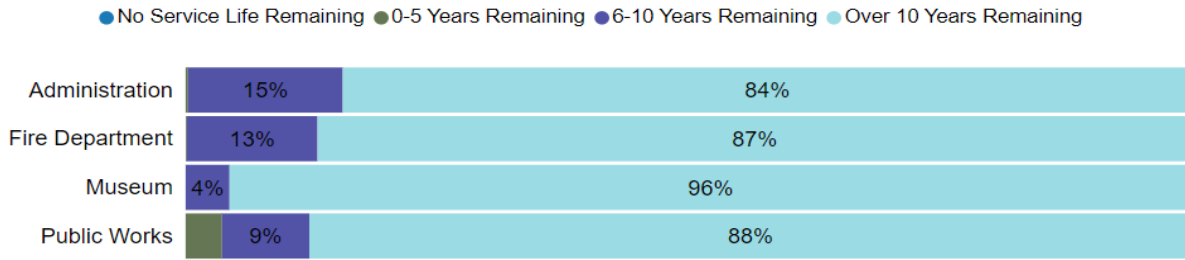


Figure 21: Building Assets Service Life Remaining Summary

4.3.4 Forecasted Capital Requirements

As detailed in **Figure 22** the average annual capital requirements for building assets are \$91,222. When reviewing capital costs in 5-year cumulative totals, costs vary by year spiking most significantly between 2045 and 2049.

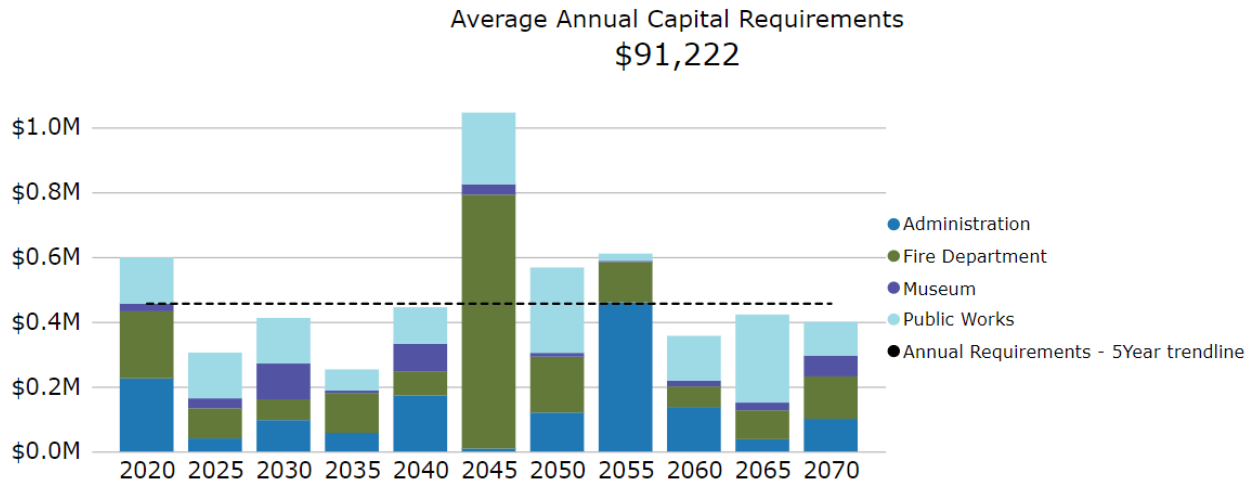


Figure 22: Buildings Average Annual Capital Requirements

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: 10-Year Capital Requirements**.

4.3.5 Risk & Criticality

Risk Matrix

Risk held by building assets is summarized in **Figure 23: Buildings Risk Matrix** and based on the parameters in **Table 25** below. Risk scores are based on 2020 inventory data.



Figure 23: Buildings Risk Matrix

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

Table 25: Buildings Risk Parameters

See **Appendix B: Risk Rating Criteria** for details.

4.3.6 Levels of Service

Table 11 and Table 27 on the following pages identify the Township’s current level of service for the Buildings. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Township has selected for this AMP.

Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Quality	Appropriate actions and interventions are taken to ensure the regular safe use of Facilities assets.	Facilities are maintained and continuously improved by public works staff. Senior staff complete weekly walks through of all facilities to review interior and exterior components include HVAC, electrical, and plumbing systems. All activities conducted within facilities are documented in a daily diary and transparently communicated to council on a monthly basis.
Sustainable	There are long-term plans in place for the renewal and replacement of Facilities components.	In 2020, the Township of Dorion hired an external consultant to complete Building Condition Assessments (BCA) of their facilities. This project involved the identification of all building components (i.e. windows, doors, roof, etc.) and an estimation of their current condition and near and long-term investment requirements. This has provided the Township with a more robust understanding of their asset's investment requirements. The Township is working to develop their financial strategies to better support their identified long-term capital investment requirements.
User-Access	Facilities assets are available for public use and programming, suggestions and complaints are received and responded to in a timely manner.	Regular inspection and cleaning are completed to ensure that assets are available for public use. Where issues and/or concerns are identified, they are escalated to Senior staff.

Table 26. Buildings Community LOS

Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Quality	Average Condition of Assets	70%
	Actual Capital Reinvestment Rate	0.03%
Performance	Annual Capital Investment	\$1k
	Target Capital Reinvestment Rate	2.8%
	Average Annual Capital Requirement	\$91k

Table 27. Buildings Technical LOS

4.3.7 Recommendations

Data Review/Validation

- Continue to review and validate inventory data, assessed condition data and replacement costs for all building assets especially upon the completion of capital projects and BCA updates.
- Review assessments findings and incorporate into long-term financial planning (i.e., reserve requirements) to ensure that as investment is required, the required funding resources are available.

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.

4.4 Machinery & Equipment

The Township owns a variety of machinery and equipment assets, primarily these include:

- Fire Gear
- Library Materials
- Public Works Equipment

4.4.1 Asset Inventory & Replacement Cost

Table 28 and **Figure 24** below summarize machinery and equipment assets replacement costs and methodology.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Appliances/ Food Service Equipment	1	CPI Tables	\$32,000
Library	3115	CPI Tables	\$74,000
Mobile Equipment	16	CPI Tables	\$335,000
			\$441,000

Table 28: Machinery & Equipment Replacement Cost Table

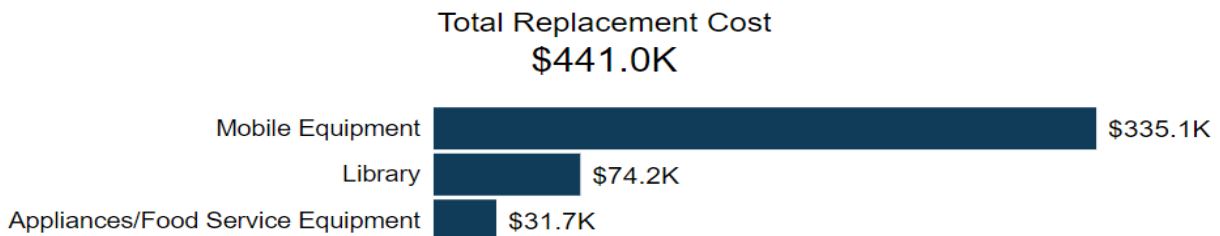


Figure 24: Machinery & Equipment Replacement Cost Distribution

4.4.2 Asset Condition

The average condition and source of available condition data for each asset segment of Machinery and Equipment assets is summarized in **Table 29** and **Figure 25** below.

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Appliances/ Food Service Equipment	0	Very Poor	100% Age-based
Library	8	Very Poor	100% Age-based
Mobile Equipment	55	Fair	100% Age-based
	43%	Fair	Age-Based

Table 29: Machinery & Equipment Assets Average Condition Table

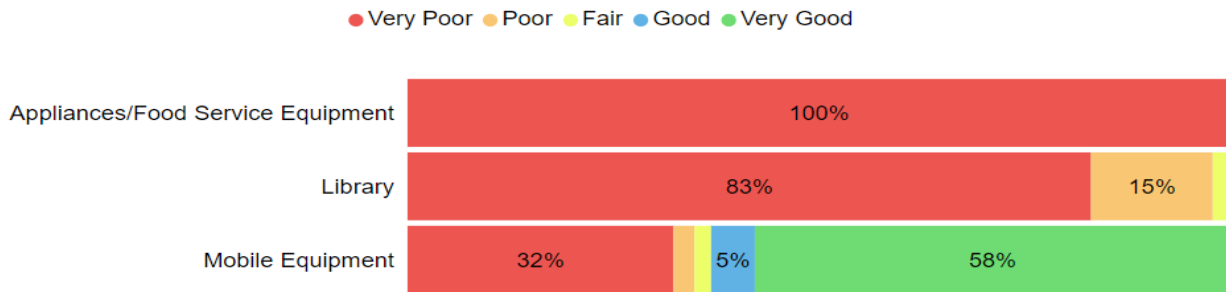


Figure 25: Machinery & Equipment Condition Distribution Summary

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. Currently, the condition of all machinery and equipment assets is based on asset age and useful life. Condition scores are based on the following scale in **Table 30**, below.

Condition	Rating
Very Good	80 and above
Good	60 and above
Fair	40 and above
Poor	20 and above
Very Poor	0 and above

Table 30: Machinery & Equipment Condition Rating Scale

4.4.3 Estimated Useful Life & Average Age

The Estimated Useful Life (EUL), average age and average service life remaining of machinery and equipment assets is summarized in **Table 31** and **Figure 26** below.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Appliances/ Food Service Equipment	15 Years	28.5	-13.5
Library	10	14.2	-4.2
Mobile Equipment	5-15 Years	7.3	1.6
		12.4	-2.7

Table 31: Machinery & Equipment Assets Estimated Useful Life and Averages Table

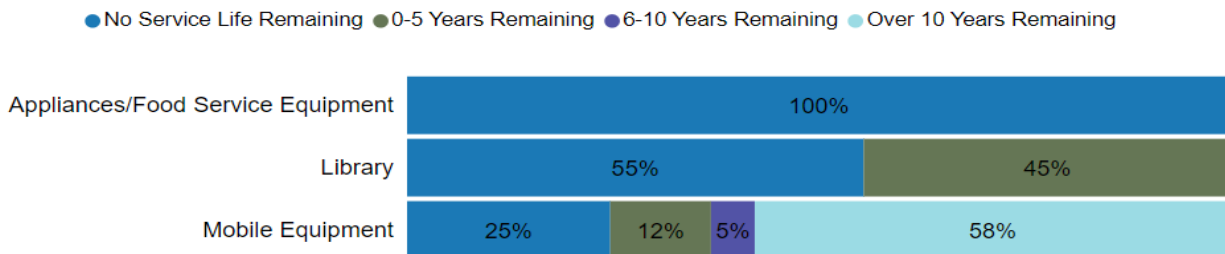


Figure 26: Machinery & Equipment Service Life Remaining Summary

4.4.4 Forecasted Capital Requirements

Figure 27 below identifies that the average annual capital requirements for machinery and equipment assets is \$39,652. Capital Requirement costs reported in cumulative 5-year bins is also reported and spike significantly between 2030 and 2034. Capital requirements are reported until 2035 at which point all assets have gone through one full iteration of replacement.

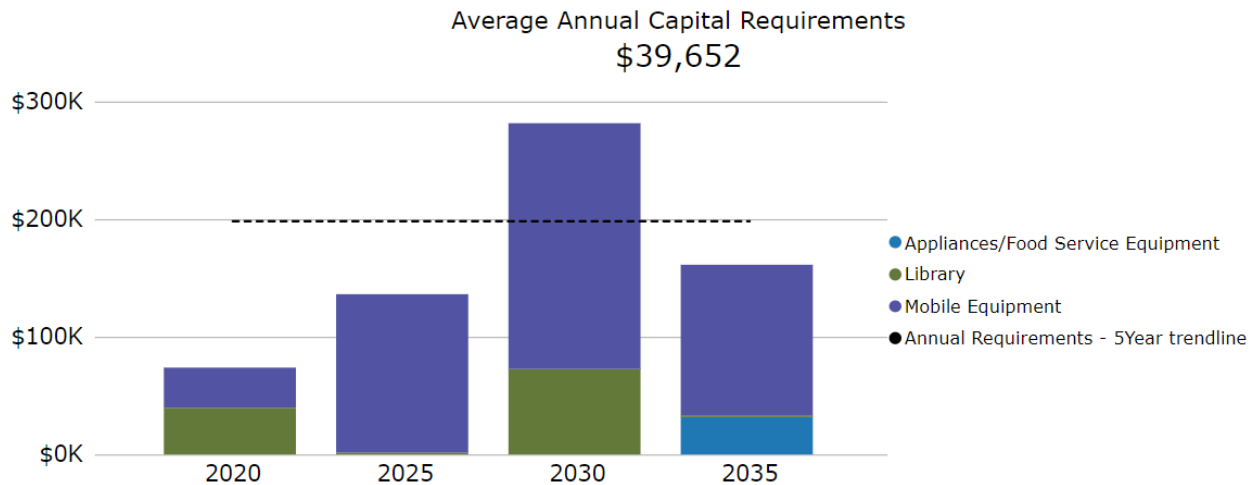


Figure 27: Machinery & Equipment Average Annual Requirements

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: 10-Year Capital Requirements**.

4.4.5 Risk & Criticality

Risk Matrix

Risks held by machinery and equipment assets is summarized in **Figure 28** below. These risk scores are based on the probability of failure and the consequence of failure metrics outlined in

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

Table 32 below.



Figure 28: Machinery & Equipment Risk Matrix

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

Table 32: Machinery & Equipment Risk Parameters

See **Appendix B: Risk Rating Criteria** for details.

4.4.6 Levels of Service

Table 33 and Table 34 on the following page identify the Township’s current level of service for the Machinery & Equipment. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Township has selected for this AMP.

Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Quality	Appropriate actions and interventions are taken to ensure the regular safe use of Machinery & Equipment assets.	Machinery & equipment assets are inspected regularly and are maintained for use as per their useful life. Maintenance is tailored to each asset based upon use and is well documented.
Sustainable	There are long-term plans in place for the renewal and replacement of Machinery & Equipment assets	Asset replacement decisions consider the assets age, hours of use, current performance, and anticipated future life which are often correlated with the assets Estimate Useful life. The Township does have a general reserve for larger machinery and equipment assets. When funds are drawn from the reserve, contributions are initiated to build back up the reserve balance.

Table 33. Machinery & Equipment Community LOS

Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Quality	Average Condition of Assets	43%
	Actual Capital Reinvestment Rate	4.31%
Sustainable	Annual Capital Investment	\$19k
	Target Capital Reinvestment Rate	8.99%
	Average Annual Capital Requirement	\$40k

Table 34. Machinery & Equipment Technical LOS

4.4.7 Recommendations

Data Review/Validation

- Continue to review, validate, and update inventory data, especially assessed condition data and replacement costs. For select machinery and equipment assets it may be valuable to also collect make, model, and serial number details too.

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.

4.5 Rolling Stock

Rolling stock assets allow staff to efficiently deliver services and personnel. Rolling stock are primarily used for Fire Protection and Public Works.

4.5.1 Asset Inventory & Replacement Cost

Table 35 and **Figure 29** below summarize rolling stock assets quantity and replacement cost, distribution, and method.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Freightliner Rompauer	1	CPI Tables	\$266,000
Freightliner Tanker	1	CPI Tables	\$189,441
Pick-up Truck	1	CPI Tables	\$58,000
			\$514,000

Table 35: Rolling Stock Replacement Cost Table

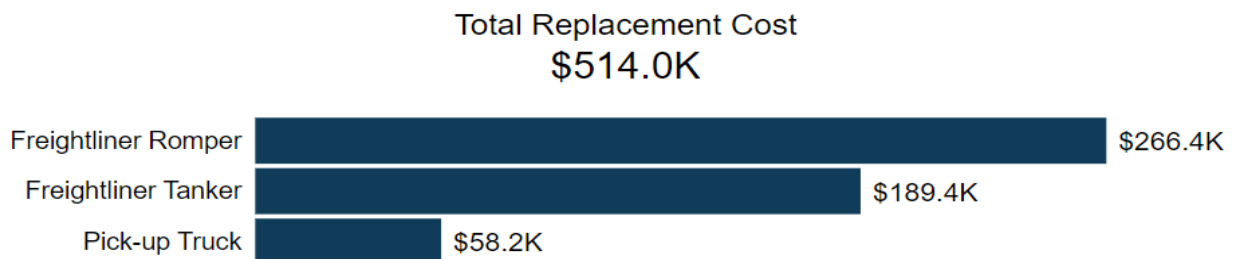


Figure 29: Rolling Stock Replacement Cost Distribution

4.5.2 Asset Condition

Rolling Stock assets average condition, and source of condition information is summarized in **Table 36**, and **Figure 30** below.

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Freightliner Romper	0	Very Poor	Age-Based
Freightliner Tanker	0	Very Poor	Age-Based
Pick-up Truck	53	Fair	Age-Based
	6 %	Very Poor	Age-Based

Table 36: Rolling Stock Assets Average Condition Table

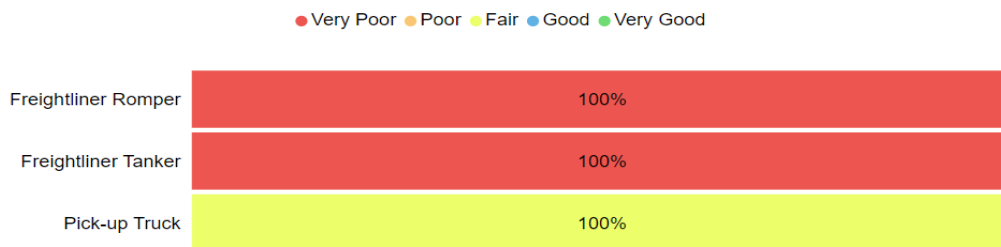


Figure 30: Rolling Stock Condition Summary

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. Currently condition is derived based on the assets estimated useful life and its age. Condition scores are based on the following scale in **Table 37** below.

Condition	Rating
Very Good	80 and above
Good	60 and above
Fair	40 and above
Poor	20 and above
Very Poor	0 and above

Table 37: Rolling Stock Condition Rating Scale

4.5.3 Estimated Useful Life & Average Age

Rolling stock assets Estimated Useful Life and average age and service life remaining are summarized in **Table 38** and in **Figure 31** below.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Freightliner Romper	10 Years	24.5	-14.5
Freightliner Tanker	10 Years	13.5	-3.5
Pick-up Truck	10 Years	4.3	4.4
		10.2	-1.0

Table 38: Rolling Stock Assets Estimated Useful Life and Averages Table

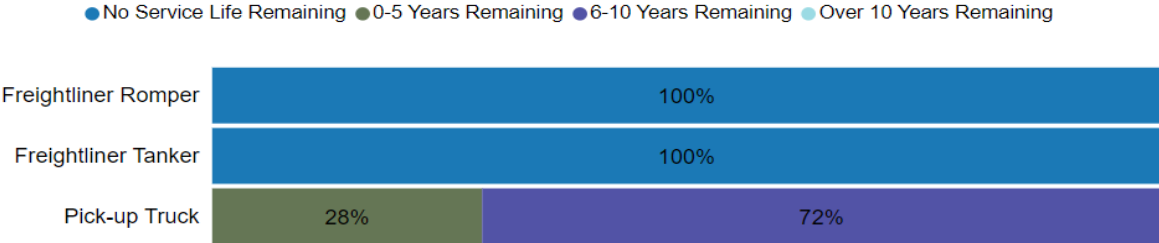


Figure 31: Rolling Stock Assets Service Life Remaining Summary

4.5.4 Forecasted Capital Requirements

As detailed in **Figure 32** on the following page, the average annual capital requirement for rolling stock assets is \$51,813. Capital requirements in 5-year cumulative totals is also provided; between 2030 and 2034 the five-year capital requirement jumps significantly.

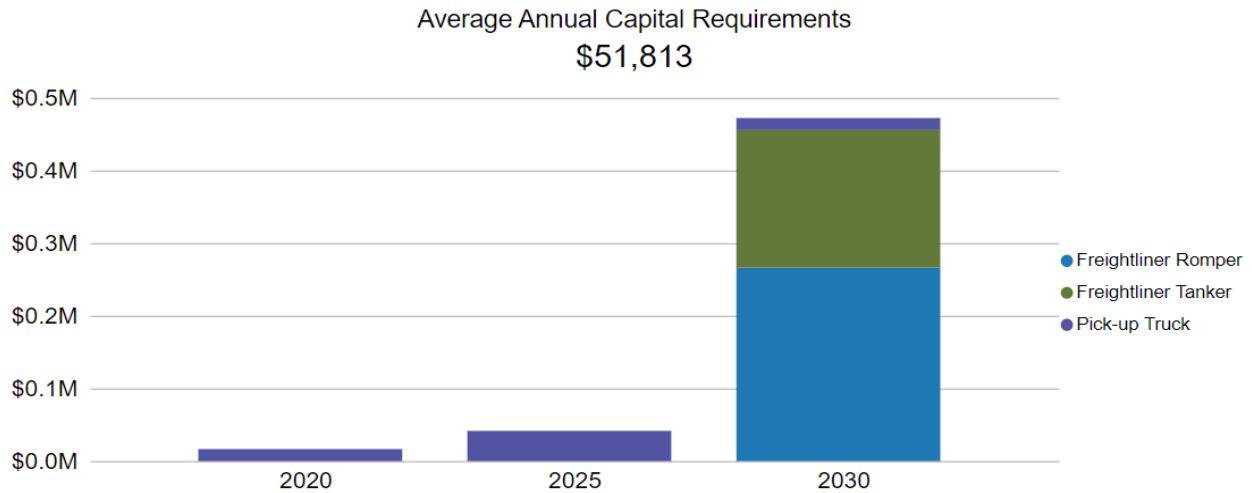


Figure 32: Average Annual Capital Requirements Rolling Stock Assets

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: 10-Year Capital Requirements**.

4.5.5 Risk & Criticality

Risks held by rolling stock assets is summarized in **Figure 33** below. These risk scores are based on the probability of failure and the consequence of failure metrics outlined in **Table 39** below.



Figure 33: Rolling Stock Risk Matrix

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

Table 39: Rolling Stock Risk Parameters

See **Appendix B: Risk Rating Criteria** for details.

4.5.6 Levels of Service

Table 40 and Table 41 on the following page identify the Township’s current level of service for the Rolling Stock. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Township has selected for this AMP.

Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Quality	Appropriate actions and interventions are taken to ensure the regular safe use of Rolling Stock assets.	Circle checks are completed before each use and assets are routinely inspected and maintained based on their hours of use. Repairs and maintenance are completed by the Township's staff or an external mechanic as required. All maintenance activities are documented in repair logs.
Sustainable	There are long-term plans in place for the renewal and replacement of Rolling Stock assets	Rolling stock asset replacement decisions are predominantly based on asset failure and are handled within the context of the year of replacements financial plan and the Public Works reserve levels. Critical asset components are pre-purchased and available to lower the service impact of asset failure.

Table 40. Rolling Stock Community LOS

Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Quality	Average Condition of Assets	6%
	Actual Capital Reinvestment Rate	0.19%
Sustainable	Annual Capital Investment	\$1k
	Target Capital Reinvestment Rate	10.8%
	Average Annual Capital Requirement	\$52k

Table 41. Rolling Stock Technical LOS

4.5.7 Recommendations

Data Review/Validation

- Regularly review asset inventory information to ensure it is accurate and comprehensive.
- For higher value and/or more critical assets consider collecting assessed condition information.

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.

5 Impacts of Growth

Key Insights

- 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
- Population and employment growth is not expected to be significant and where there is population growth the Township plans for it to be serviced by private well and septic services and accessible through the existing road network.
- Where there is anticipated growth the costs of it shall 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 and the upgrade or disposal of existing infrastructure more effectively. Increases or decreases in demand can affect what assets are needed and what level of service meets the needs of the community.

5.1.1 Dorion Township Official Plan

In January 2020, the Township adopted a new Official Plan to address matters of local planning interest including guiding the future development of the Township.

The Official plan outlines the Township’s intention to foster low density developments in the established Settlement Area (SA) with servicing by well water and septic instead of municipal water and wastewater services. Further, the official plan outlines the intention that any new development be serviced by the existing road network rather than expanding the road network.

Settlement Areas are the intended focal point for community growth and development and the primary location for new development. Settlement areas are designated for a wide range of land-uses including residential, commercial, tourist, and alternative energy development.

5.1.2 Dorion Population & Economic Activity

Since the mid-1980’s the Township has experienced sustained population loss. This is outlined in the table below. Based on this historical pattern the Township does not anticipate population growth in the future.

Year	Total Population	% Change
2021	375	18.7
2016	316	-22
2011	338	-38
2006	376	-66
2001	442	-30
1996	472	-41
1991	513	-1
1986	514	

In 2020 and 2019 respectively, expansion of Highway 11/17 and the construction of the East-West Tie Transmission Line Project began. The construction and management of both projects are external to the Township. These projects, however, may be connected to the population growth that occurred between 2016 and 2021. The Township plans to respond to this potential growth by requiring new development to be serviced by well-water and septic systems and that it be accessible from the existing road network. This removes the need to expand infrastructure services beyond existing levels. There are no anticipated impacts on asset lifecycle resulting from this very modest potential population growth. Current levels of service are expected to be maintained.

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.

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

A requirement of O. Reg. 588/17 is to describe future population or economic activity assumptions and how such demand may impact and/or relate to asset lifecycles.

6 Financial Strategy

Key Insights

- The Township is committing approximately \$138 thousand towards capital projects per year from sustainable revenue sources
- Given the annual capital requirement of \$499 thousand, there is currently a funding gap of \$361 thousand annually
- For tax-funded assets, we recommend increasing tax revenues by 2.1% 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 financial planning and long-term budgeting. The development of a comprehensive financial plan will allow The Township of Dorion 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. 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 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 \$498 thousand annually to address capital requirements for the assets included in this AMP.

Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately \$138 thousand towards capital projects per year. Given the annual capital requirement of \$499 thousand, there is currently a funding gap of \$361 thousand annually. **Figure 34** illustrates the Capital Funding Available in comparison to the Annual Capital Requirements needed to achieve long-term sustainability.

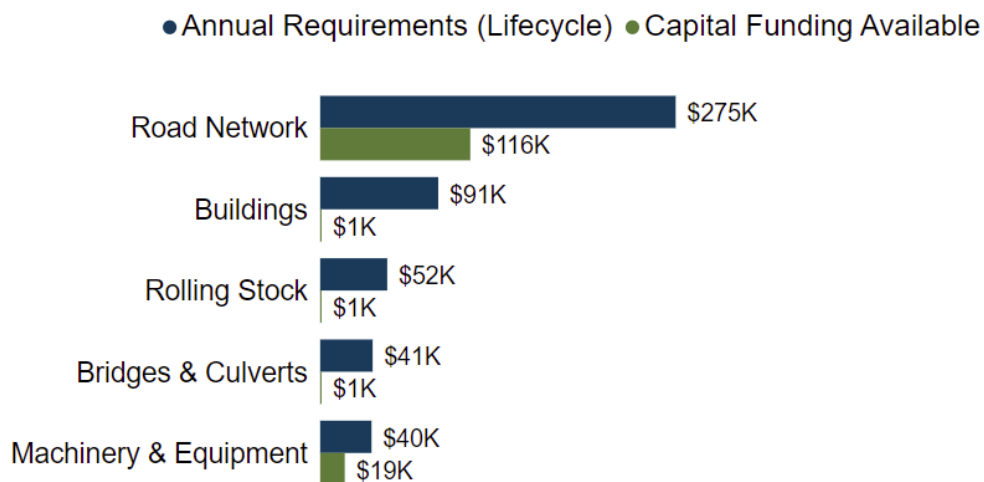


Figure 34: Annual Capital Requirements vs Available Funding

6.2 Funding Objective

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

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

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

Table 42 below identifies, by asset category, Dorion Township’s average annual asset 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	OCIF	Taxes to Reserves Available		
Bridges & Culverts	41,000	1,000		1,000	40,000	
Buildings	91,000	1,000		1,000	90,000	
Machinery & Equipment	40,000	0		19,000	21,000	
Road Network	275,000	66,000	50,000		116,000	159,000
Rolling Stock	52,000	1,000			1,000	51,000
	499,000	69,000	50,000	19,000	138,000	361,000

Table 42: Doiron’s Current Funding Position Summary Table

The average annual CapEx requirement for the above categories is \$499 thousand. Annual revenue currently allocated to these assets for capital purposes is \$138 thousand leaving an annual deficit of \$361 thousand. Put differently, these infrastructure categories are currently funded at 28% of their long-term requirements.

6.3.2 Full Funding Requirements

In 2020, the Township of Dorion had annual tax revenues of \$138 thousand. As illustrated in **Table 43** below, 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	6.3%
Buildings	14.1%
Machinery & Equipment	3.3%
Road Network	24.8%
Rolling Stock	8.0%
Total	56.5%
	6.3%

Table 43: Full Funding Tax Rate Change Summary

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

- a) Dorion Township's debt payments for these asset categories will be decreasing by \$20,000 over the next 5 years and by \$32,000 over the next 10 years. Although not shown in the table, debt payment decreases will be \$32,000 over the next 15 and 20 years, respectively.

Our recommendations include capturing the above changes and allocating them to the infrastructure deficit outlined above. The **Table 44** below outlines this concept and presents several options:

	Without Capturing Changes (In Years)				With Capturing Changes (In Years)			
	5	10	15	20	5	10	15	20
Infrastructure Deficit	361,000	361,000	361,000	361,000	361,000	361,000	361,000	361,000
Change in Debt Costs	N/A	N/A	N/A	N/A	-20,000	-32,000	-32,000	-32,000
Change in OCIF Grants	N/A	N/A	N/A	N/A				
Resulting Infrastructure Deficit:	361,005	361,010	361,015	361,020	341,005	329,010	329,015	329,020
	361,000	361,000	361,000	361,000	341,000	329,000	329,000	329,000
Tax Increase Required	56.4%	56.4%	56.4%	56.4%	53.3%	51.4%	51.4%	51.4%
Annually:	9.4%	4.6%	3.1%	2.3%	9.0%	4.3%	2.9%	2.1%

6.3.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 20-year option. This involves full funding being achieved over 20 years by:

- a) when realized, reallocating the debt cost reductions to the infrastructure deficit as outlined above.
- b) increasing tax revenues by 2.1% each year for the next 20 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
- c) allocating the current gas tax and OCIF revenue as outlined previously.
- d) allocating the scheduled OCIF grant increases to the infrastructure deficit as they occur.
- e) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
- f) 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 commitment⁶.
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 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 \$4.12 million for the Road Network, \$147K for Machinery & Equipment, and \$456K for Rolling Stock.

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

6.4 Use of Debt

For reference purposes, **Table 45** outlines the premium paid on a project if financed by debt. For example, a \$1M project financed at 3.0%⁷ over 15 years would result in a 26% premium or \$260,000 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%

Table 45: Use of Debt Financing Table of Reference

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:

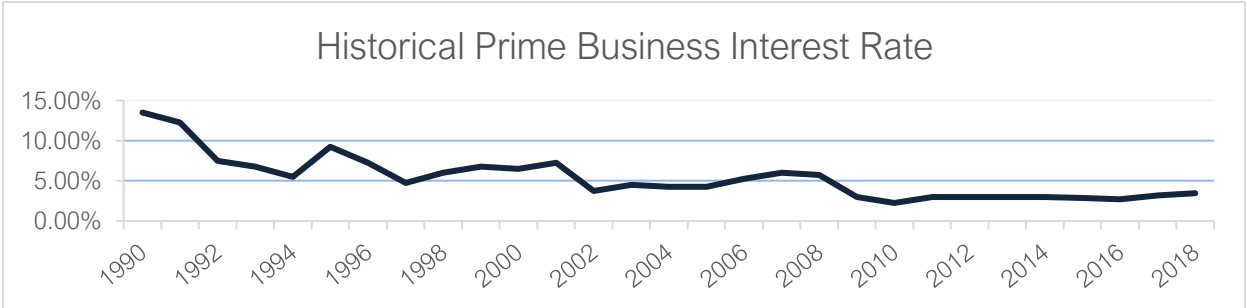


Figure 35: Historical Prime Business Interest Rate

⁷ 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.

Table 46 outlines how Dorion Township has historically used debt and **Table 47** looks at the next 10 years for investing in the asset categories as listed. There is currently \$123 thousand of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of \$32 thousand, well within its provincially prescribed maximum of \$134 thousand.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2016	2017	2018	2019	2020
Bridges & Culverts	104,000				120,000	
Buildings						
Road Network						
Rolling Stock	19,000	61,000				
Total Tax Funded:	123,000	61,000	0	0	120,000	0

Table 46: Dorion's Historical Use of Debt – Past 5 Years

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2020	2021	2022	2023	2024	2025	2030
Bridges & Culverts	12,000	12,000	12,000	12,000	12,000	12,000	0
Buildings							
Road Network							
Rolling Stock	20,000						
Total Rate Funded:	!B12 Is Not In Table	12,000	12,000	12,000	12,000!	12,000!	!H12 Is Not In Table

Table 47: Dorion's Current Use of Debt - Next 10 Years

The revenue options outlined in this plan allow Dorion Township 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, Table 48 below outlines the details of the reserves currently available to Dorion Township.

Asset Category	Balance at December 31, 2020
Bridges & Culverts	0
Buildings	26,000
Machinery & Equipment	217,000
Road Network	0
Rolling Stock	0
Total Tax Funded:	243,000

Table 48: Dorion Township Current Reserves

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 Dorion Township’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 2024, Ontario Regulation 588/17 will require Dorion Township 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.

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

7 Appendices

Key Insights

- Appendix A identifies projected 10-year capital requirements for each asset category.
- Appendix B identifies the criteria used to calculate risk for each asset category.
- Appendix C provides additional guidance on the development of a condition assessment program.

7.1 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.

Roads											
Asset Segment	Backlog	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Roads (Paved)	\$2,992,552	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Roads (Gravel)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$2,992,552	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Bridges & Culverts											
Asset Segment	Backlog	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Culverts	\$8,267	\$0	\$0	\$21,803	\$0	\$24,436	\$0	\$0	\$0	\$0	\$5,507
Total	\$8,267	\$0	\$0	\$21,803	\$0	\$24,436	\$0	\$0	\$0	\$0	\$5,507

Buildings											
Asset Segment	Backlog	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Administration	\$0	\$0	\$193,950	\$26,820	\$5,000	\$3,900	\$1,000	\$0	\$35,620	\$0	\$7,000
Firehall Centennial Building	\$0	\$0	\$162,285	\$38,650	\$5,750	\$0	\$42,250	\$0	\$45,150	\$5,500	\$1,250
Museum	\$0	\$0	\$12,400	\$8,100	\$3,500	\$16,720	\$0	\$0	\$14,000	\$0	\$3,000
Public Works Garage Building	\$0	\$8,000	\$100,700	\$750	\$33,250	\$0	\$5,300	\$1,080	\$131,800	\$3,000	\$0
Total	\$0	\$8,000	\$469,335	\$74,320	\$47,500	\$20,620	\$48,550	\$1,080	\$226,570	\$8,500	\$11,250

Machinery & Equipment

Asset Segment	Backlog	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Appliances/ Food Service Equipment	\$31,743	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Library	\$41,119	\$7,000	\$13,502	\$7,217	\$3,762	\$1,595	\$0	\$0	\$0	\$0	\$0
Mobile Equipment	\$82,649	\$25,650	\$1,863	\$0	\$6,741	\$6,726	\$0	\$1,863	\$17,790	\$108,299	\$0
	\$155,511	\$32,650	\$15,365	\$7,217	\$10,503	\$8,321	\$0	\$1,863	\$17,790	\$108,299	\$0

Rolling Stock

Asset Segment	Backlog	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Freightliner Rompuer	\$266,351	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Freightliner Tanker	\$189,441	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pick-up Truck	\$0	\$0	\$0	\$0	\$16,556	\$0	\$41,640	\$0	\$0	\$0	\$0
	\$455,792	\$0	\$0	\$0	\$16,556	\$0	\$41,640	\$0	\$0	\$0	\$0

All Asset Categories

Asset Segment	Backlog	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Roads	\$2,992,552	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Bridges & Culverts	\$8,267	\$0	\$0	\$21,803	\$0	\$24,436	\$0	\$0	\$0	\$0	\$5,507
Buildings	\$0	\$8,000	\$469,335	\$74,320	\$47,500	\$20,620	\$48,550	\$1,080	\$226,570	\$8,500	\$11,250
Machinery & Equipment	\$155,511	\$32,650	\$15,365	\$7,217	\$10,503	\$8,321	\$0	\$1,863	\$17,790	\$108,299	\$0
Rolling Stock	\$455,792	\$0	\$0	\$0	\$16,556	\$0	\$41,640	\$0	\$0	\$0	\$0
Total	\$3,612,122	\$40,650	\$484,700	\$103,340	\$74,559	\$53,377	\$90,190	\$2,943	\$244,360	\$116,799	\$16,757

7.2 Appendix B: Risk Rating Criteria

7.2.1.1 Probability of Failure

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

7.2.1.2 Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Roads (Paved)	Economic (100%)	Replacement Cost (100%)	All	4
Bridges & Culverts	Economic (100%)	Replacement Cost (100%)	\$0-\$200,000	1
			\$200,000-\$400,000	2
			\$400,000-\$800,000	3
			\$800,000-\$1,000,000	4
			\$1,000,000+	5
Buildings	Economic (100%)	Replacement Cost (100%)	\$0-\$2,000	1
			\$2,000-\$6,000	2
			\$6,000-\$10,000	3
			\$10,000-\$50,000	4
			\$50,000+	5

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Land Improvements	Economic (100%)	Replacement Cost (100%)	\$0-\$25,000	1
			\$25,000-\$50,000	2
			\$50,000-\$100,000	3
			\$100,000-\$250,000	4
			\$250,000+	5
Machinery & Equipment	Economic (100%)	Replacement Cost (100%)	\$0-\$2,000	1
			\$2,000-\$6,000	2
			\$6,000-\$10,000	3
			\$10,000-\$50,000	4
			\$50,000+	5
Vehicles	Economic (100%)	Replacement Cost (100%)	\$0-\$25,000	1
			\$25,000-\$60,000	2
			\$60,000-\$100,000	3
			\$100,000-\$300,000	4
			\$300,000+	5

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 Township staff to determine the remaining service life of assets, and identify the most cost-effective approach to deterioration, whether it involves extending the life of the asset through remedial efforts or determining that replacement is required to avoid asset failure.

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

Guidelines for Condition Assessment

Whether completed by external consultants or internal staff, condition assessments should be completed in a structured and repeatable fashion, according to consistent and objective assessment criteria. Without proper guidelines for the completion of condition assessments there can be little confidence in the validity of condition data and asset management strategies based on this data.

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

Developing a Condition Assessment Schedule

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

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