

Asset Management Plan

Township of Prince

2022

Document Revision History

2022-04-28	Version 1
2022-06-01	Final Version



This Asset Management Program was prepared by:



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

Key Statistics

Replacement cost of
asset portfolio

\$21.76 million

Replacement cost of
infrastructure per household

\$47,096 (2021 Census)

Percentage of assets in
fair or better condition

84%

Percentage of assets with
assessed condition data

93%

Annual capital
infrastructure deficit

\$141,000

Recommended timeframe for
eliminating annual
infrastructure deficit

10 Years

Target reinvestment rate

1.76%

Actual reinvestment rate

1.11%

Table of Contents	
Scope.....	1
Findings	2
Recommendations	4
1.1 An Overview of Asset Management.....	7
Executive Summary.....	1
1.2 Key Concepts in Asset Management.....	11
1.3 Ontario Regulation 588/17	15
1 Introduction & Context.....	6
2.1 Asset categories included in this AMP.....	18
2.2 The Asset Inventory.....	18
2.3 Deriving Replacement Costs	19
2 Scope and Methodology	17
2.4 Estimated Useful Life and Service Life Remaining	19
2.5 Deriving Annual Capital Requirements.....	19
2.6 Reinvestment Rate.....	20
2.7 Deriving Asset Condition	20
3.1 Total Replacement Cost of Asset Portfolio	23
3.2 Target vs. Actual Reinvestment Rate.....	23
3.3 Condition of Asset Portfolio	24
3.4 Service Life Remaining	24
3 Portfolio Overview	22
3.5 Annual Capital Requirements.....	25
3.6 Forecasted Capital Requirements.....	26
3.7 Risk & Criticality.....	27
4.1 Road Network.....	29
6.1 Financial Strategy Overview	72
6.2 Funding Objective.....	75
6.3 Financial Profile: Tax Funded Assets	76
4 Analysis of Tax-funded Assets.....	28

6.4 Use of Debt.....80

6.5 Use of Reserves.....82

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 of Prince can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP include the following asset categories:

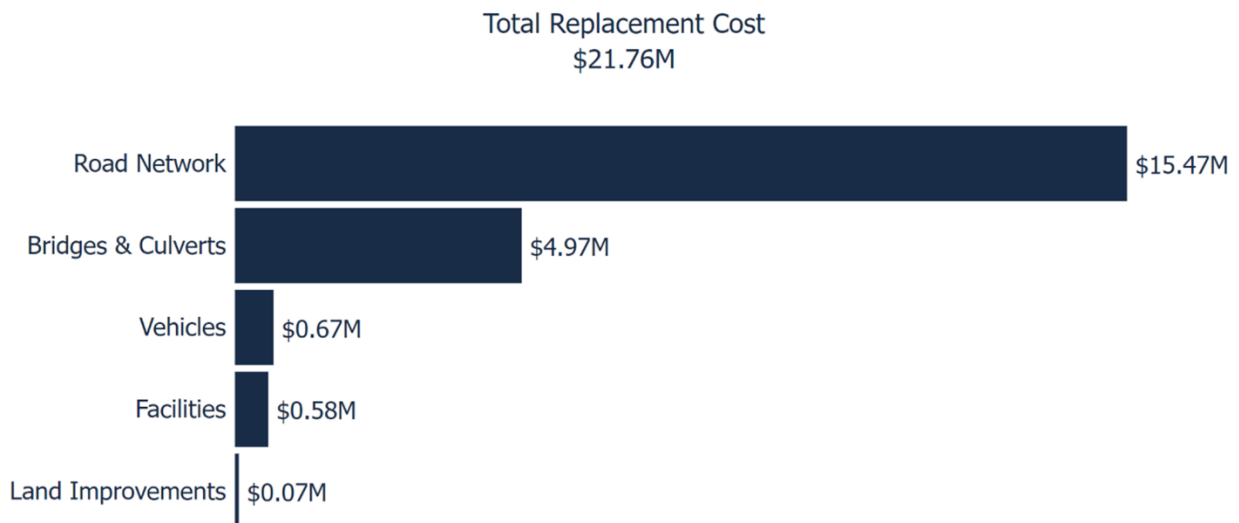
Asset Category

 Road Network	 Bridges & Culverts
 Facilities	 Vehicles
 Land Improvements	

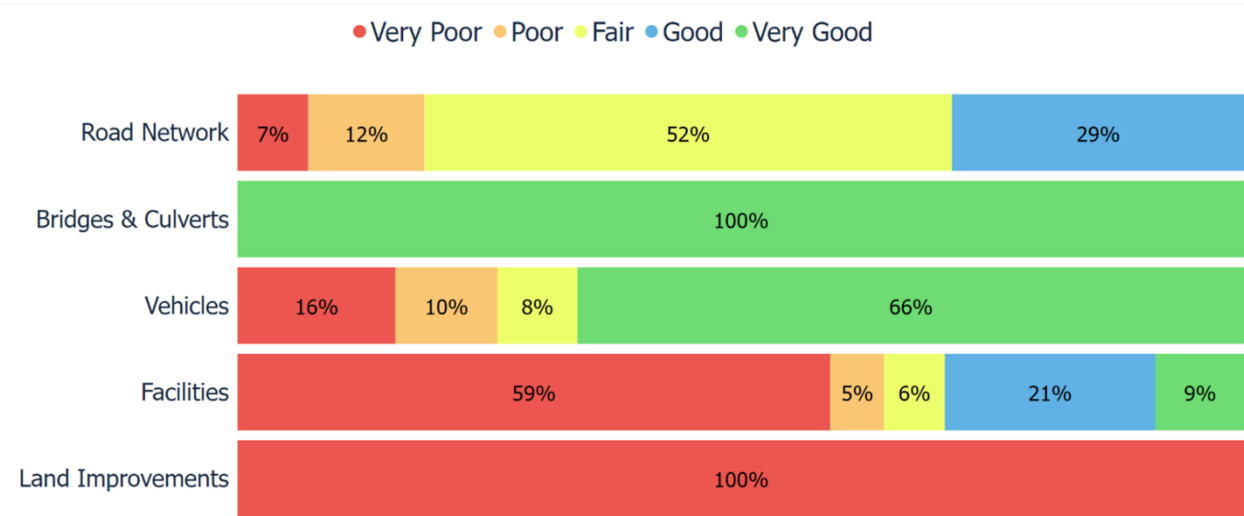
With the development of this AMP the Township of Prince has achieved compliance with O. Reg. 588/17 to the extent of the requirements that must be completed by July 1, 2022. There are additional requirements concerning proposed levels of service and growth that must be met by July 1, 2024 and 2025.

Findings

The overall replacement cost of the asset categories includes in this AMP totals to \$21.76 million. This is based on asset information in the portfolio as of the end of 2020.



About 84% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 93% of assets.



For the remaining 7% 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 accuracy and completeness of the asset inventory is another critical input to accurate asset management planning. It is important to review and update the primary asset inventory to ensure that it is at a higher level of data maturity for the next iteration of the 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 (for paved roads) and replacement only strategies (for 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 \$383,000. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately \$242,000 towards capital projects or reserves per year. As a result, there is currently an annual funding gap of \$141,000.

Annual Capital Requirements Per Household



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

Recommendations

A financial strategy was developed to address the annual capital funding gap. The following graphics shows annual tax/rate change required to eliminate the Township's infrastructure deficit based on a 10-year period:



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

- Reviewing asset data to update and maintain a complete and accurate centralized asset inventory
- Developing a condition assessment strategy with a regular schedule

-
- Reviewing and updating lifecycle management strategies
 - Developing and regularly reviewing short- and long-term plans to meet capital requirements
 - Continuing to measure current levels of service and identify sustainable proposed levels of service

1 Introduction & Context

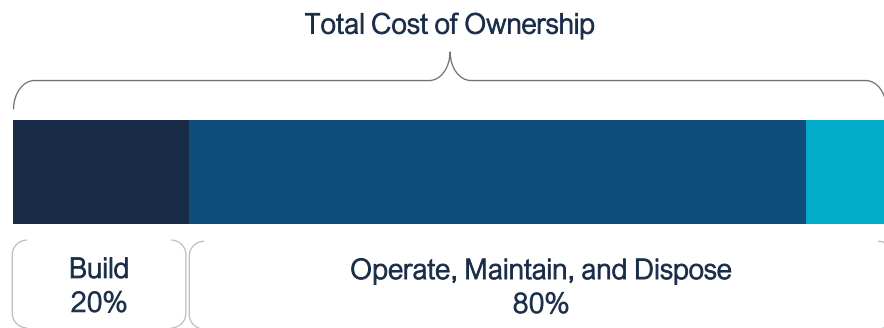
Key Insights

- 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
- A municipal asset management program is a combination of several disciplines or business functions, including management, financial and economic analyses, engineering and operations and maintenance
- 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 dynamic 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

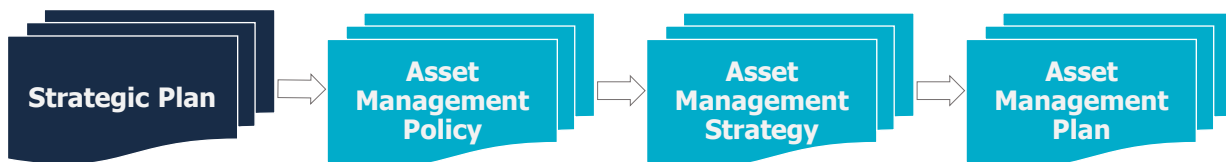
Municipalities are responsible for managing and maintaining a broad portfolio of infrastructure assets to deliver services to the community. The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value ratepayers 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 diagram below depicts an industry standard approach and sequence developing a practical asset management program. Beginning 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. It aligns with the organizational strategic plan and provides clear direction to municipal staff on their roles and responsibilities as part of the asset management program.

The Township of Prince adopted **Policy Number: F06-0500-18** “Strategic Asset Management Policy”, on September 10th, 2018 in accordance with accordance with Ontario Regulation 588/17.

The stated objectives of the policy are to:

- Provide a framework for implementing asset management to enable a consistent and strategic approach to all levels of the organization
- Demonstrate Council’s commitment to support the implementation of asset management methods that are consistent with their priorities and objectives
- Provide guidance to staff responsible for asset management
- Provide transparency and accountability and demonstrate the validity of decision-making process which combine strategic plans, budgets, service levels and risks

The policy provides a foundation for the development of an asset management program within the Township. It covers key components that define a comprehensive asset management policy:

- The policy’s objectives dictate the use of asset management practices to ensure all assets meet the agreed levels of service in the most efficient and effective manner;
- the policy commits to, where appropriate, incorporating asset management in the Township’s other plans;
- there are formally defined roles and responsibilities of internal staff and stakeholders;
- the policy statements are well defined.

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

The strategy provides a long-term outlook on the overall asset management program development and strengthening key elements of its framework. Unlike the asset

management plan, the asset management strategy should not evolve and change frequently

The Township's Strategic 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 (AMP)

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

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

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

This document is an AMP that uses the updated asset inventory and has been prepared in accordance with O. Reg. 588/17.

1.2 Key Concepts in Asset Management

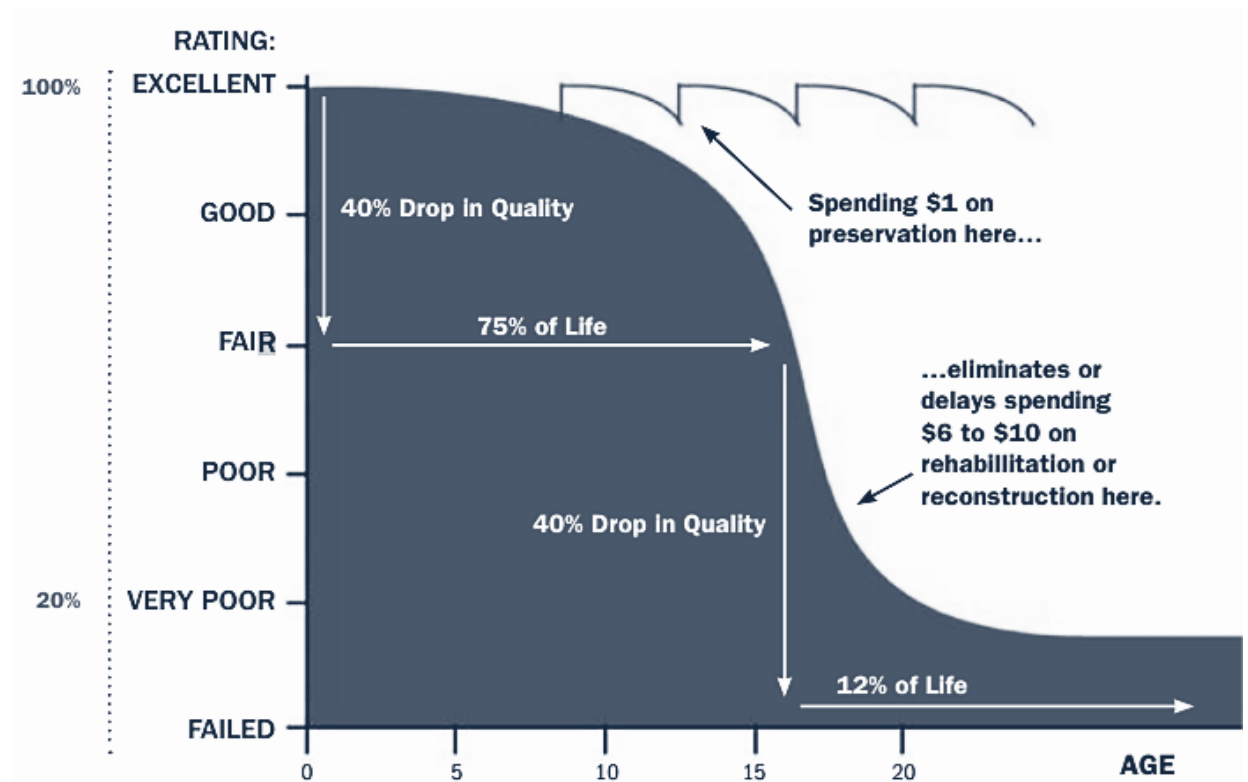
Effective asset management integrates several key components, including lifecycle management, risk management, and levels of service. These concepts are applied throughout this asset management plan and are described below in greater detail.

1.2.1 Lifecycle Management Strategies

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

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Since costs to rehabilitate tend to increase towards the end of life of an asset, proactive and timely intervention will lead to lower lifecycle costs.

This concept is further illustrated by the graphic below, highlighting the cost impact of a maintenance activity contrasted by the cost impact of a rehabilitative activity later in the life of the asset.



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

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

Lifecycle Activity	Description	Example (Roads)	Cost
Maintenance	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 a Surface Treated Road	\$\$\$

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

1.2.2 Risk Management Strategies

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

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

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

Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives.

For core asset categories (Roads, Bridges & Culverts, Water, Sanitary, Storm Water) the Province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP.

For non-core asset categories, the Township will define the qualitative descriptions that will be used to determine the community level of service by the July 2024 deadline.

Technical Levels of Service

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

For core asset categories (Roads, Bridges & Culverts, Water, Wastewater, Stormwater) the Province, through O. Reg. 588/17, has provided technical metrics that are required to be included in this AMP.

For non-core asset categories, the Township will define the technical metrics that will be used to determine the technical level of service by the July 2024 deadline.

Current and Proposed Levels of Service

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

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

1.3 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

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

A Strategic Asset Management Policy update and an Asset Management Plan for All Assets with the following additional components:

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

1.3.1 O. Reg. 588/17 Compliance Review

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

Requirement	O. Reg. Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	4.1.1 - 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 for Core Assets Only
Current performance measures in each category	S.5(2), 2	4.1.6 - 5.2.6	Complete for Core Assets Only
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.1.4 - 5.2.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	Appendix A	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	6.1-6.2	Complete

2 Scope and Methodology

Key Insights

- This asset management plan includes 5 asset categories that are tax-funded
- Asset data from various data sources was consolidated into the Township's tangible capital asset inventory to establish it as the primary asset inventory
- The source and recency of replacement costs impacts the accuracy and reliability of asset portfolio valuation
- Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life

2.1 Asset categories included in this AMP

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

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

2.2 The Asset Inventory

Asset Category	Source of Funding
Road Network	
Bridges & Culverts	
Facilities	Tax Funded
Vehicles	
Land Improvements	

The asset information presented in this AMP has been developed from the asset inventory in CityWide Asset Manager™.

The asset inventory was restructured through the establishment of an industry standard asset hierarchy, and critical asset fields were standardized. In addition to this, and where possible, duplicate data was removed and asset data gaps were addressed.

2.3 Deriving Replacement Costs

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

User-Defined Cost and Cost/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/Adjusted 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.

2.4 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:

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

2.5 Deriving Annual Capital Requirements

By dividing the replacement cost of an asset with the asset's estimated useful life and factoring in the cost and impact of any lifecycle activities, the average annual capital requirements can be derived. The average annual requirement is calculated as follows:

$$\begin{aligned} \text{Annual Capital Requirement (Lifecycle Scenario)} &= \\ &= \frac{(\text{Replacement Cost} + \text{Cost of Lifecycle Activities})}{(\text{Estimated Useful Life (EUL)} + \text{Impact of Lifecycle Activities})} \end{aligned}$$

$$\text{Annual Capital Requirement (Replacement Only Scenario)} = \frac{\text{Replacement Cost}}{\text{Estimated Useful Life (EUL)}}$$

2.6 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:

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

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

2.7 Deriving Asset Condition

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

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

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

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

3

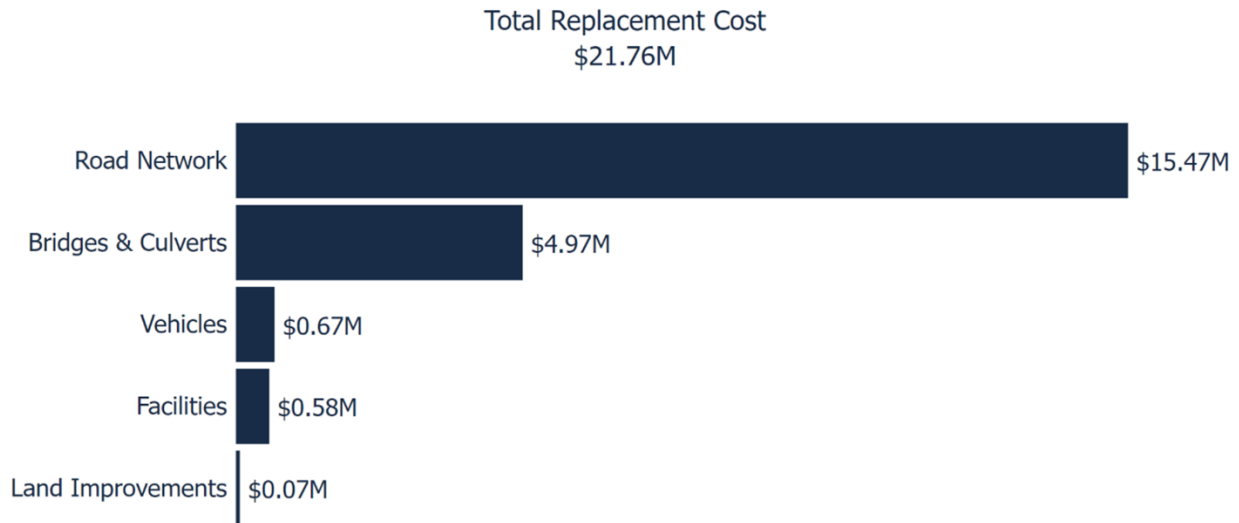
Portfolio Overview

Key Insights

- The total replacement cost of the Township's asset portfolio is \$21.76 million
- The Township's target re-investment rate is 1.76%, and the actual re-investment rate is 1.11%, contributing to an expanding infrastructure deficit
- 84% of all assets are in fair or better condition
- 74% of assets are projected to require replacement in the next 10 years
- Average annual capital requirements total \$383,000 per year across all assets
- Annual capital funding available by the Township totals \$242,000 across all assets

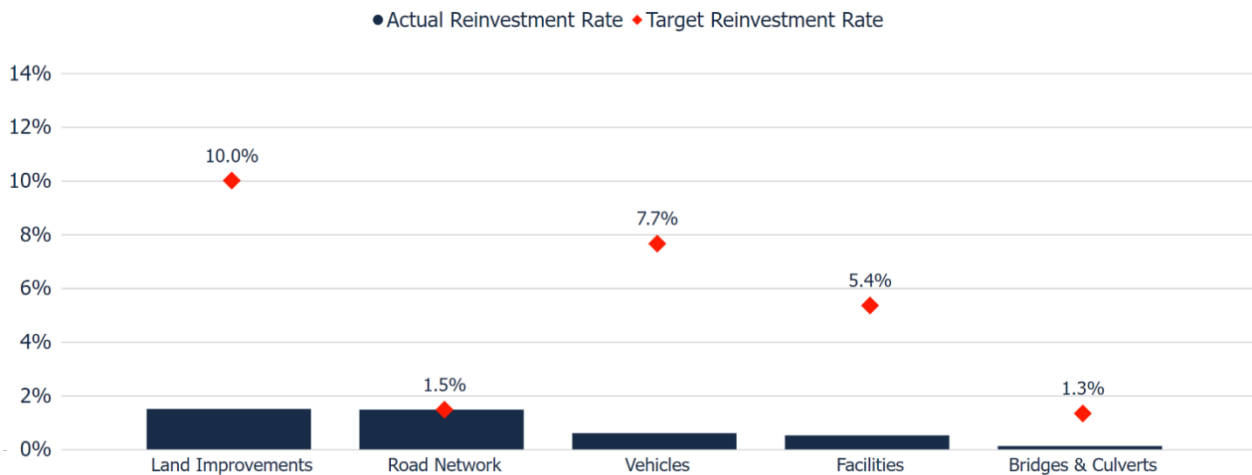
3.1 Total Replacement Cost of Asset Portfolio

The asset categories analyzed in this AMP have a total replacement cost of \$21.76 million based on inventory data at the end of 2020. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.



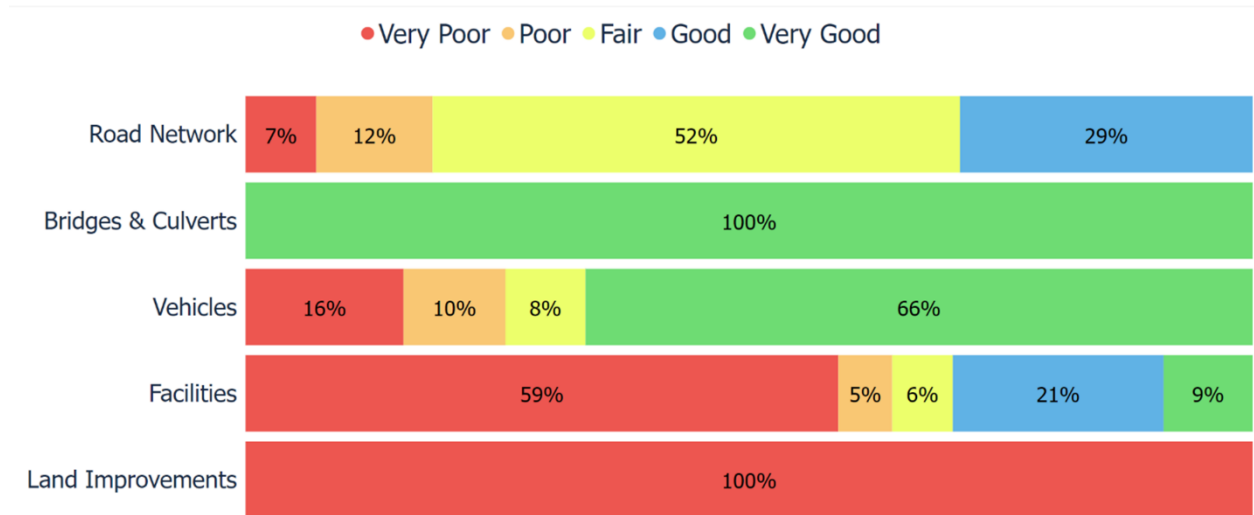
3.2 Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps or surpluses by comparing the target vs the actual reinvestment rate. To meet the long-term replacement needs, the Township should be allocating approximately \$343,000 annually, for a target reinvestment rate of 1.76%. Actual annual spending on infrastructure totals approximately \$242,000 for an actual reinvestment rate of 1.11%.



3.3 Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 84% of assets in Prince are in fair or better condition. This estimate relies on both age-based and field condition data. It is also important to acknowledge that for certain larger assets such as facilities, having a componentized inventory will produce a more accurate condition and forecast, rather than just an asset.



This AMP relies on assessed condition data for 93% of assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

3.4 Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 74% of the Township’s assets will require replacement within the next 10 years. Capital requirements over the next 10 years are identified in Appendix B.

Asset Category	% of Assets with Assessed Condition	Source of Condition Data
Road Network	99%	Staff Assessments (Workshop)
Bridges & Culverts	100%	2020 OSIM Report
Facilities	0%	Age-based
Land Improvements	0%	Age-based
Vehicles	0%	Age-based

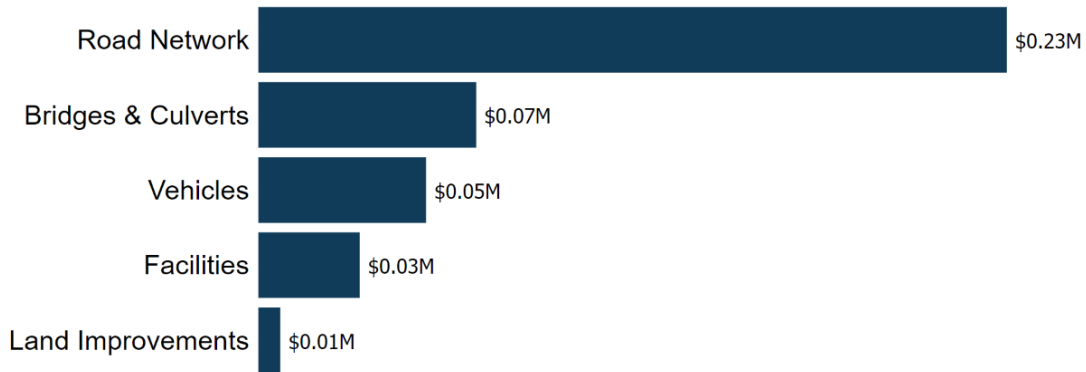
● No Service Life Remaining
 ● 0-5 Years Remaining
 ● 6-10 Years Remaining
 ● Over 10 Years Remaining



3.5 Annual Capital Requirements

Based on the replacement cost of the assets, the estimated useful life, the cost and impact of lifecycle activities, the average annual capital requirements can be calculated for each category in the asset portfolio. This is the average annual amount required to maintain the current level of service that the Township is providing.

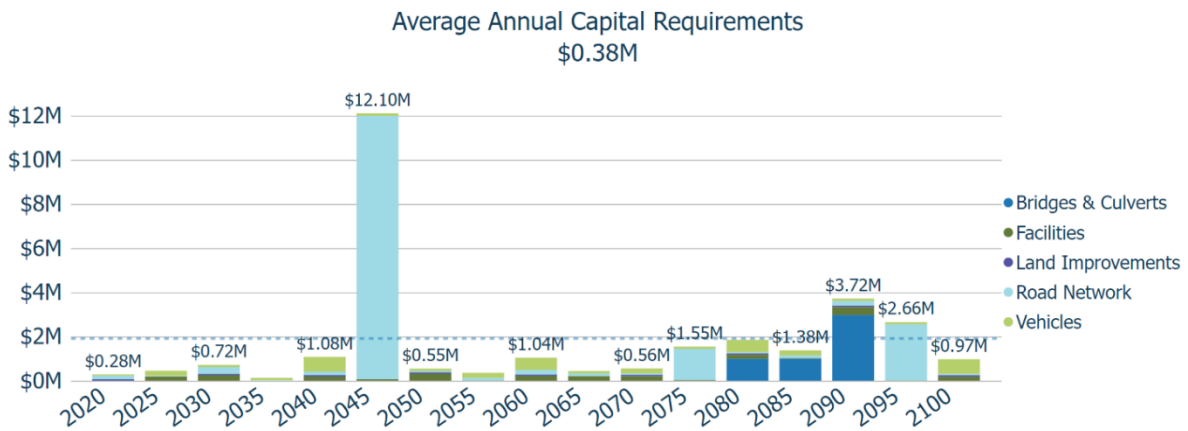
Average Annual Capital Requirements
\$0.38M



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 and the refinement of the asset inventory, the Township can produce an accurate short- and long-term capital forecast.

The following graph identifies the average annual capital requirements required over the next 90 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and are based on the Township’s asset inventory as of 2020 and do not include assets that may be required for growth. The trend line represents the average 5-year capital requirements.



The specific 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.

3.7 Risk & Criticality

Advanced risk models for core linear assets and high-level risk models for all other assets were developed as part of this asset management plan. The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the asset portfolio based on 2020 inventory data.

Municipal staff also identified and grouped assets based on service areas, including those that support the delivery of fire and emergency services, with a higher risk rating attribute to ensure that a prioritization process is in place.

Consequence	5	5 Assets 5.00 unit(s) \$4,973,084.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	4	1 Asset 4,870.00 m \$3,652,500.00	1 Asset 5,637.00 m \$3,474,850.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	3	1 Asset 1.00 unit(s) \$442,129.00	1 Asset 3,246.00 m \$2,434,500.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	2	1 Asset 927.00 m \$695,250.00	2 Assets 1,613.00 m, unit(s) \$1,254,662.00	1 Asset 1,593.00 m \$1,194,750.00	0 Assets - \$0.00	1 Asset 1,447.00 m \$1,085,250.00
	1	9 Assets 18.00 unit(s) \$104,227.00	9 Assets 1,440.00 unit(s), m \$1,211,369.00	4 Assets 793.00 unit(s), m \$797,892.12	2 Assets 2.00 unit(s) \$98,585.00	5 Assets 5.00 unit(s) \$392,894.00
		1	2	3	4	5
		Probability				

See Appendix C for the criteria used to determine the risk rating of each asset.

4 Analysis of Tax-funded Assets

Key Insights

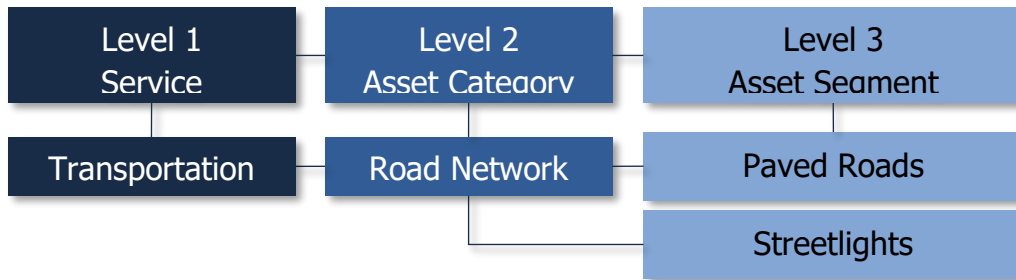
- Tax-funded assets are valued at \$21.76 million
- 84% of tax-funded assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for tax-funded assets is approximately \$383,000
- To reach sustainability, tax revenues need to be increased by 1% annually for the next 10 years to eliminate annual deficits

4.1 Road Network

The Township’s Road Network inventory is managed in CityWide™, and comprises of 21.4 kilometres of surface treated roads and roadway appurtenances such as streetlights.

4.1.1 Asset Hierarchy and Segmentation

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Most reports and analytics presented in this AMP are summarized at the Asset Segment and/or Asset Category Levels.



4.1.2 Asset Inventory & Replacement Cost

The table 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	Replacement Cost Method	Total Replacement Cost
Paved Roads	21437 Length (m)	User-Defined Cost	\$15,324,850
Streetlights	124	CPI Tables	\$150,018
			\$15,474,868

Total Replacement Cost
\$15.47M

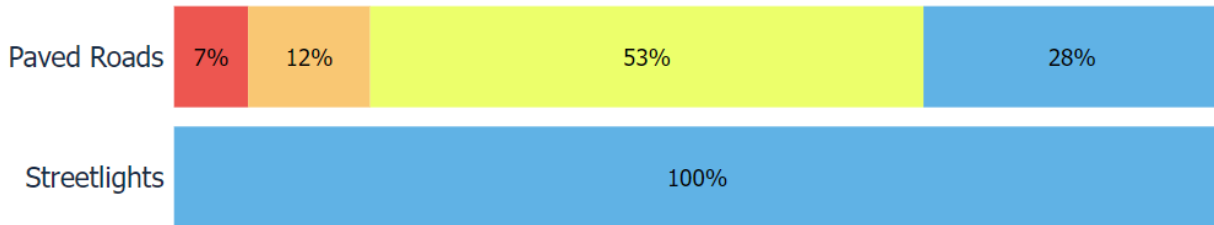


4.1.3 Asset Condition

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

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Paved Roads	57%	Fair	100% Assessed
Streetlights	71%	Good	Age-based
	58%	Fair	

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



Current Approach to Condition Assessment

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

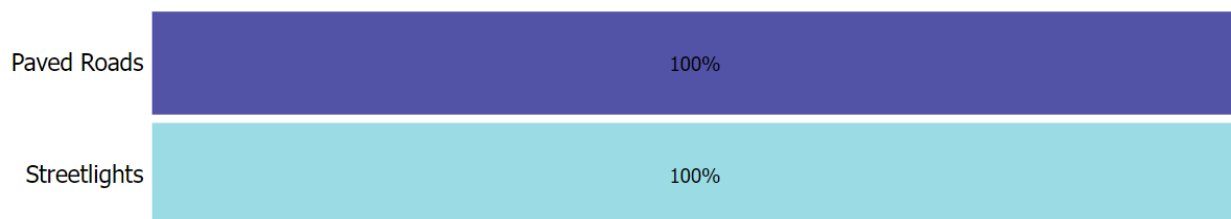
- Most assessments are completed internally, staff conduct a weekly drive on gravel roads to assess condition and identify maintenance needs
- The Township hired an engineering firm to complete a study on Prince Lake Road, the study resulted in getting 0.5 km of the road paved
- Currently, there are no plans to increase the frequency of assessments

4.1.4 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.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Paved Roads	75	43.1	6.3
Streetlights	15	3.7	11.3
		30.8	7.8

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



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

4.1.5 Lifecycle Management Strategy

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

The Township uses a proactive approach for renewal and rehabilitation projects based on engineering studies, when budget is available. Road assessments from road crews would use a reactive approach based on visual inspections.

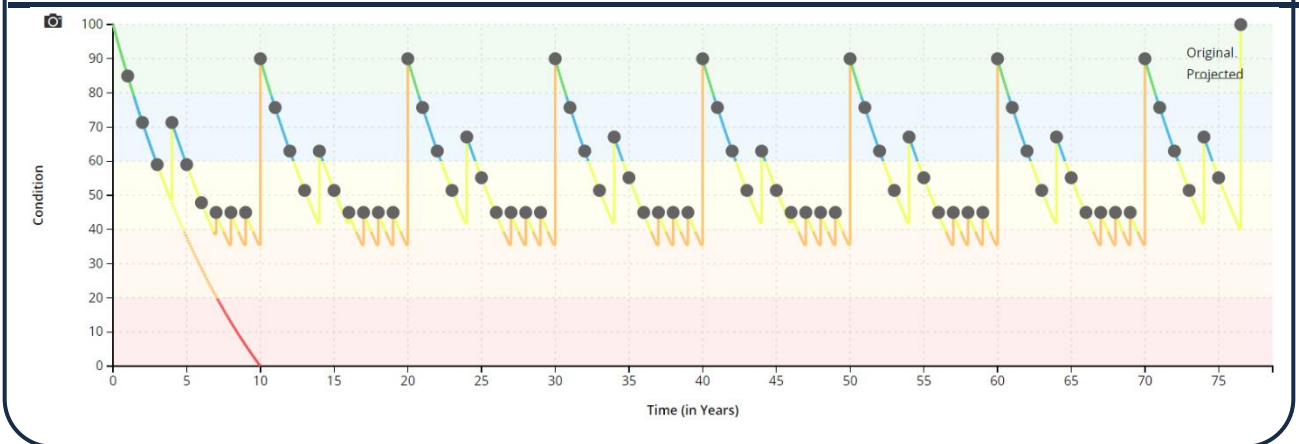
The following table outlines the Township’s current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Municipal roads crews apply patching on an as needed and severity basis after a road has been in-service for one year. The frequency of maintenance activities increases with time. Road crews respond to requests in areas of higher priority. The Type of patching (i.e., recycled asphalt, cold patch, hot asphalt) impacts the longevity and quality of the maintenance activity
	Gravel roads are usually graded on an as needed basis. Prince Lake road is usually graded every other week during the summer period. The road also receives a calcium treatment due to the amount of traffic it gets in the summer.
Rehabilitation	The Township follows the standards provided by Provincial Regulation Procedures. This will include single and double surface treatment procedures. Road conditions influence the prioritization of activities.
Replacement	Road reconstruction projects are identified based on road condition and when rehabilitation activities are no longer effective.

The following lifecycle strategies have been developed to formalize the current approach to manage the lifecycle of surface treated roads. Instead of allowing the roads to deteriorate until replacement is required, strategic rehabilitation is expected to extend the service life of roads at a lower total cost.

Surface Treated Roads

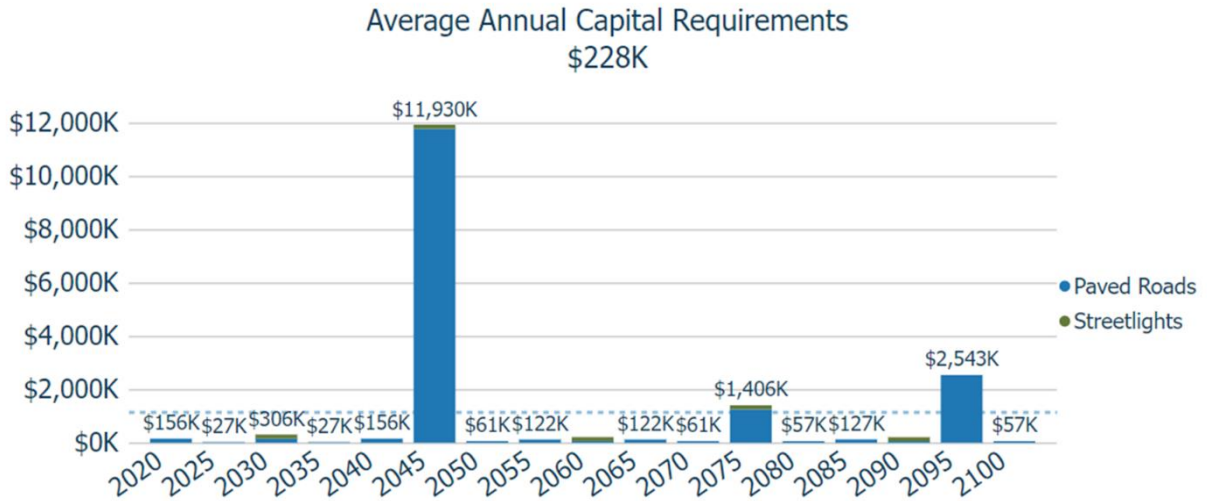
Event Name	Event Class	Event Trigger
Patching	Maintenance	Yearly
Single Surface Treatment 1	Rehabilitation	Year 4
Single Surface Treatment 2	Rehabilitation	Year 14
Single Surface Treatment 3	Rehabilitation	Year 24
Single Surface Treatment 4	Rehabilitation	Year 34
Single Surface Treatment 5	Rehabilitation	Year 44
Single Surface Treatment 6	Rehabilitation	Year 54
Single Surface Treatment 7	Rehabilitation	Year 64
Single Surface Treatment 8	Rehabilitation	Year 74
Double Surface Treatment	Rehabilitation	Repeat every 10 Years (seven cycles)
Full Reconstruction	Replacement	Condition: 40



Forecasted Capital Requirements

Based on the lifecycle strategies identified previously for surface treated roads, and assuming the end-of-life replacement of all other assets in this category

The following graph identifies the average annual capital requirements required over the next 80 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and are based on the Township's asset inventory as of 2020 and do not include assets that may be required for growth. The trend line represents the average 5-year capital requirements.



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

4.1.6 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2020 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.

	1	2	3	4	5
5	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00
4	2 Assets 10,507.00 m \$7,127,350.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00
3	0 Assets -\$0.00	0 Assets -\$0.00	1 Asset 3,246.00 m \$2,434,500.00	0 Assets -\$0.00	0 Assets -\$0.00
2	3 Assets 3,967.00 m \$2,975,250.00	1 Asset 96.00 unit(s) \$116,912.00	1 Asset 1,517.00 m \$1,137,750.00	0 Assets -\$0.00	0 Assets -\$0.00
1	4 Assets 2,200.00 m \$1,650,000.00	4 Assets 28.00 unit(s) \$33,106.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00
	1	2	3	4	5

Probability

Risks to Current Asset Management Strategies

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



Asset Data & Information

There is a good level of confidence in the data, however, this data has been sourced from multiple sources. There has not been any Road Needs Study to capture all roads related attributes in one document.



Infrastructure Design/Installation

Staff have noted that there are some issues with select roads such as log base roads.

Infrastructure Re-investment



The Township is always looking for acquiring grants/additional external funding for the road network capital projects. Some projects related to rehabilitation and renewal could be subject to funding opportunities.



Lifecycle Management Strategies

The Township relies on conditional-ratings from the Road Needs Study. The Township have invested in PSD CityWide™ and is working towards developing asset lifecycle strategies.



Climate Change & Extreme Weather Events

Staff noticed issues with excessive downpours. Roads between hills have been experiencing issues with washouts. The Township is trying to mitigate impacts of climate change with the use of new construction materials.



Other Risks

Staff noted that the overflow of heavy traffic because of the proximity to a major city is expediting the deterioration of some roads.

4.1.7 Levels of Service

The following tables 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.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2020)
Scope	Description, which may include maps, of the road network in the Township and its level of connectivity	See Appendix B
Quality	Description or images that illustrate the different levels of road class pavement condition	The Condition Rating is based on a visual assessment of the structural condition or integrity of the road (very poor, poor, fair, good, very good). The rating numbers were assigned on a scale of 1 to 100 with the lower numbers describing those roads with the most structural distress or poorest shaped road cross section. (1-50) Road surface exhibits moderate to significant deterioration and requires improvement. (60-100) Road surface is in generally good condition, with localized deficiencies.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2020)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km ²)	0 km/km ²
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km ²)	0 km/km ²
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km ²)	1.295 km/km ²
Quality	Average pavement condition index for paved roads in the Township	74
	Average surface condition for unpaved roads in the Township (e.g., excellent, good, fair, poor)	Good
Performance	Capital reinvestment rate	1.47%

4.1.8 Recommendations

Asset Inventory

- Review inventory to determine whether all municipal assets within all asset segments have been accounted for.
- Continue to consolidate critical asset information from other asset data sources into the Township's centralized asset inventory.
- Gather unit costs for assets that have relied primarily on historical inflation such as streetlights and review periodically to ensure a higher level of accuracy and within the context of current market condition.

Lifecycle Management Strategies

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

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.

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

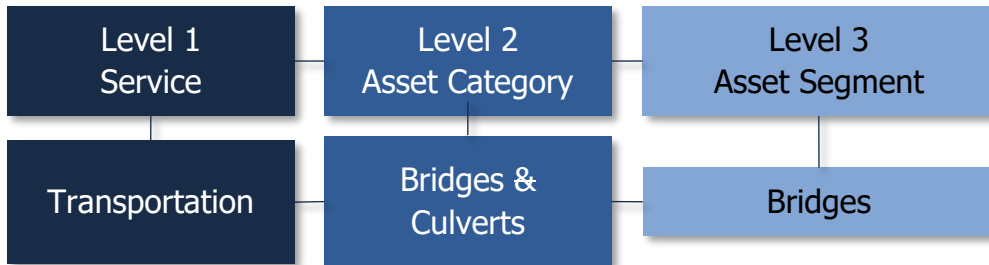
The Township’s Bridges and Culverts inventory is managed in CityWide™ and comprises of 5 structures that have a span of 3 meters or more and are therefore categorized as a bridge asset.

The Public Works department is responsible for the planning and managing of all bridges and structural culverts located across municipal roads with the goal of keeping structures in an adequate state of repair and minimizing service disruptions.

Based on the requirements outlined by the Ministry of Transportation, the most recent Bridge and Culvert inspection was conducted in 2020. The ownership of the bridges except for the Gagnon road bridge is shared between the Township and the City of Sault Ste. Marie.

4.2.1 Asset Hierarchy and Segmentation

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Most reports and analytics presented in this AMP are summarized at the Asset Segment and/or Asset Category Levels.



4.2.2 Asset Inventory & Replacement Cost

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

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Bridges	5	80% CPI Tables, 20% User-Defined Cost	\$4,973,084
			\$4,973,084

Total Replacement Cost
\$4.97M



4.2.3 Asset Condition

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

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Bridges	93%	Very Good	100% Assessed
		93%	Very Good

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

Bridges

100%



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

Current Approach to Condition Assessment

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

- Condition assessments of all bridges with a span greater than or equal to 3 meters are completed every 2 years in accordance with the Ontario Structure Inspection Manual (OSIM)

4.2.4 Estimated Useful Life & Average Age

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Bridges	75	25.4	69.9
		25.4	69.9

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



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

4.2.5 Lifecycle Management Strategy

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

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

Activity Type	Description of Current Strategy
Maintenance	Maintenance is performed by the the City of Sault Ste. Marie. Only Gagnon Road is the responsibility of the Township. No regular maintenance activities are performed on this bridge.
Rehabilitation / Replacement	A deck replacement was performed on Gagnon road bridge in 2017. The other four bridges were replaced due to their insufficient structural capacity (i.e., plough trucks not permitted to use them).
Inspection	The most recent inspection reports were completed in 2020. This usually falls under the City of Sault Ste. Marie.

Forecasted Capital Requirements

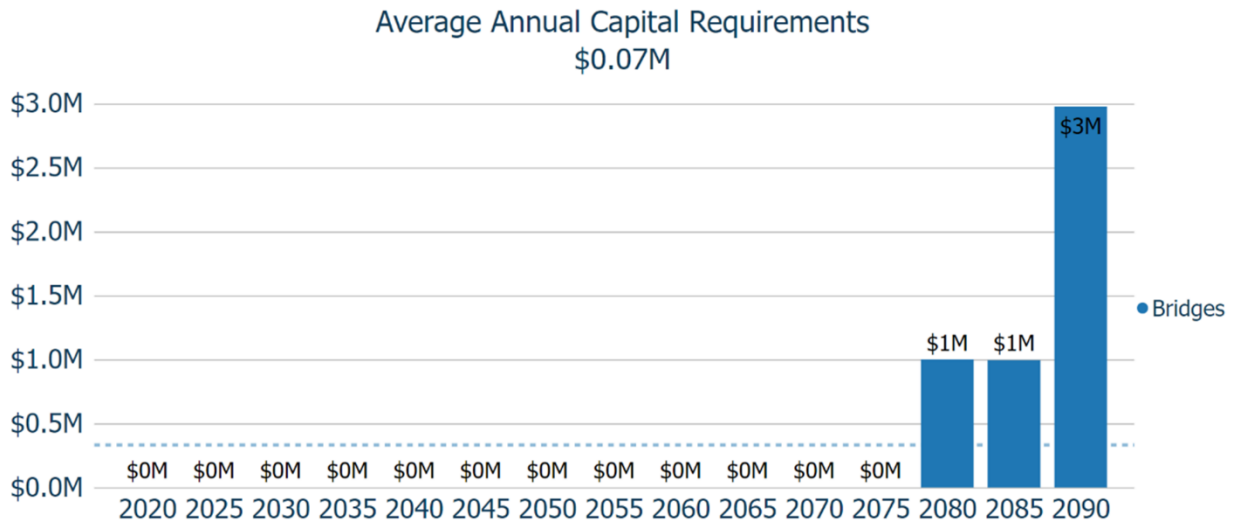
Based on the lifecycle activities identified in the 2020 inspection report, and assuming end-of-life replacement for all assets, the following graph forecasts short- and long-term capital requirements for the Bridges & Culverts category.

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

The specific 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.

The graph below provides a 70-year forecast. This projection is used as it ensures that every asset has gone through one full iteration of replacement and does not include assets that may be required for growth. The forecasted requirements are aggregated into 5-year bins and are based on the Township’s asset inventory as of 2020 and do not

include assets that may be required for growth. The trend line represents the average 5-year capital requirements.



4.2.6 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2020 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.

Consequence	5	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00
	4	5 Assets 5.00 unit(s) \$4,973,084.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00
	3	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00
	2	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00
	1	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00	0 Assets -\$0.00
		1	2	3	4	5
		Probability				

Risks to Current Asset Management Strategies

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



Asset Data & Information

A portion of the data is held by the city of Sault Ste. Marie. Therefore, the Township does not have any control over this data.



Lifecycle Management Strategies

Currently, no formal lifecycle strategies have been adopted for the bridges.

4.2.7 Levels of Service

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

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2020)
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	The majority of the bridges in the Township supports local residential traffic as well as traffic to the city of Sault Ste. Marie.
Quality	Description or images of the condition of bridges & culverts and how this would affect use of the bridges & culverts	Good (BCI 80-100): Generally considered to be in good-excellent condition, and repair or rehabilitation work is not usually required within the next 5 years. Routine maintenance, such as sweeping, cleaning, and washing are still recommended. Fair (BCI 50-80): Generally considered to be in good-fair condition. Repair or rehabilitation work recommended is ideally scheduled to be completed within the next 5 years. Poor (BCI Less than 50): Generally considered poor with lower numbers representing structures nearing the end of their service life. The repair or rehabilitation of these structures is ideally best scheduled to be completed within approximately 1 year. However, if it is determined that the replacement of the structure would be a more viable, the structure can be identified for continued monitoring and scheduled for replacement within the short-term.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2020)
Scope	% of bridges in the Township with loading or dimensional restrictions	25%
Quality	Average bridge condition index value for bridges in the Township	Very Good
Performance	Capital re-investment rate	1.33%

4.2.8 Recommendations

Data Review/Validation

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

Risk Management Strategies

- Coordinate with the city of Sault Ste. Marie to 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

- Incorporate the recommended maintenance, rehabilitative and renewal activities from the OSIM inspections as they become available.

Levels of Service

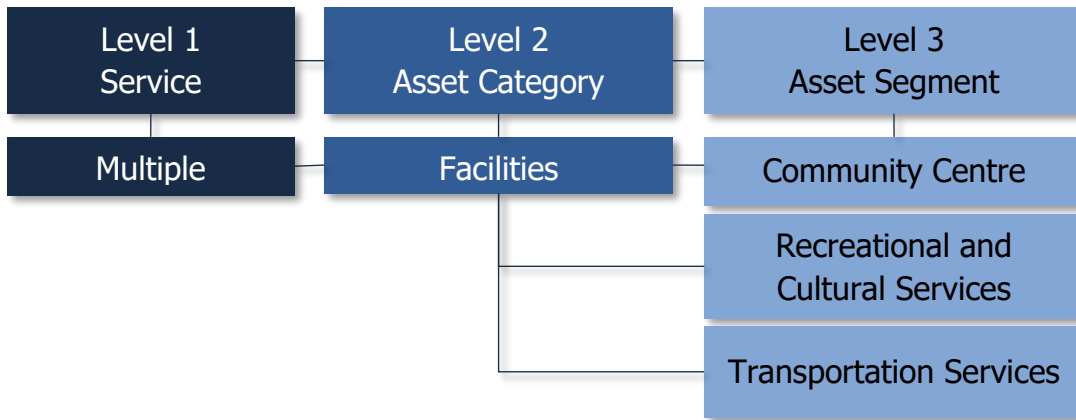
- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17 and those metrics that the Township believe to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

4.3 Facilities

The Township’s Facilities inventory is managed in CityWide™, and comprises of 14 individual assets. These are owned by the Township and maintained by various departments that provide key administrative, transportation, as well as recreational and cultural services to the community.

4.3.1 Asset Hierarchy and Segmentation

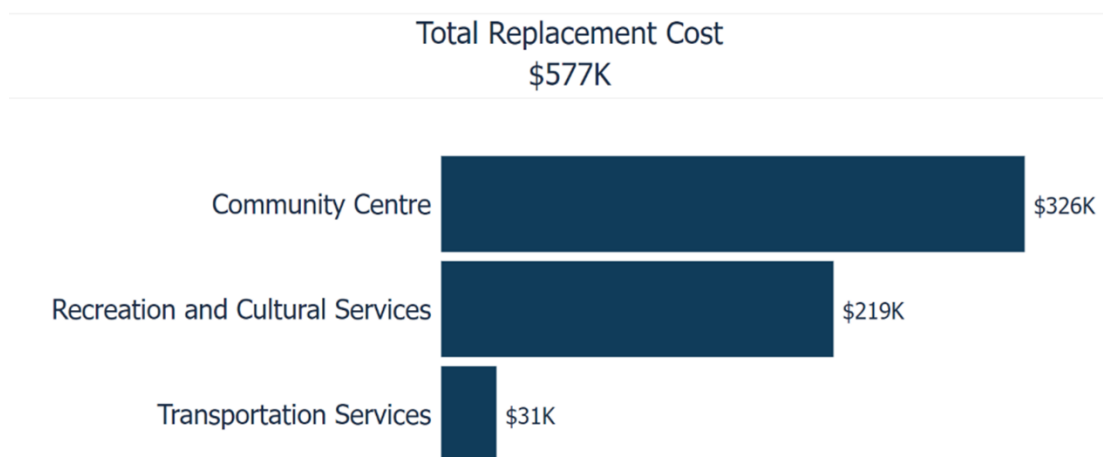
Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Most reports and analytics presented in this AMP are summarized at the Asset Segment and/or Asset Category Levels.



4.3.2 Asset Inventory & Replacement Cost

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

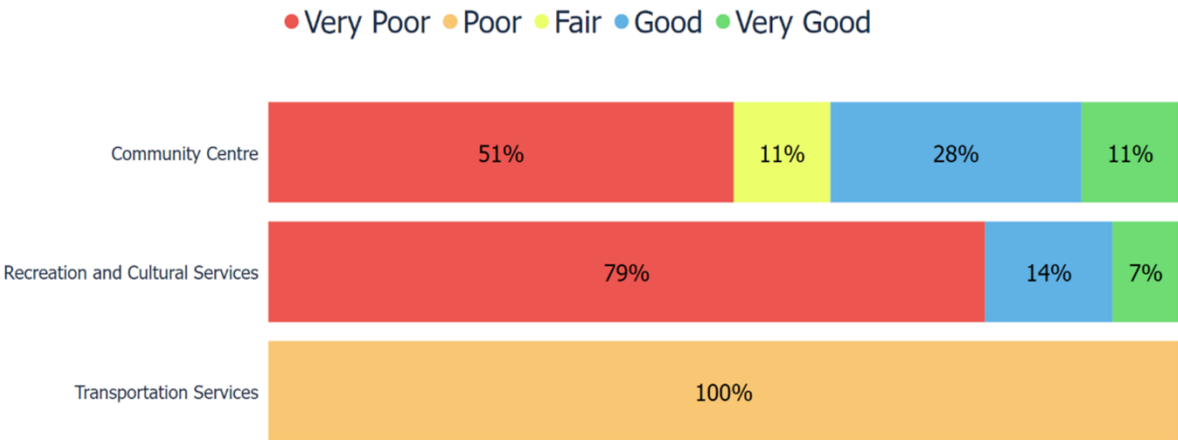
Asset Segment	Number of Facilities	Replacement Cost Method	Total Replacement Cost
Community Centre	10	CPI Tables	\$326,400
Recreation and Cultural Services	13	54% User-Defined Cost 46% CPI Tables	\$219,462
Transportation Services	1	CPI Tables	\$30,937
			\$576,799



4.3.3 Asset Condition

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

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Community Centre	43%	Fair	Age-based
Recreation and Cultural Services	16%	Very Poor	Age-based
Transportation Services	38%	Poor	Age-based
	33%	Poor	



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

Current Approach to Condition Assessment

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

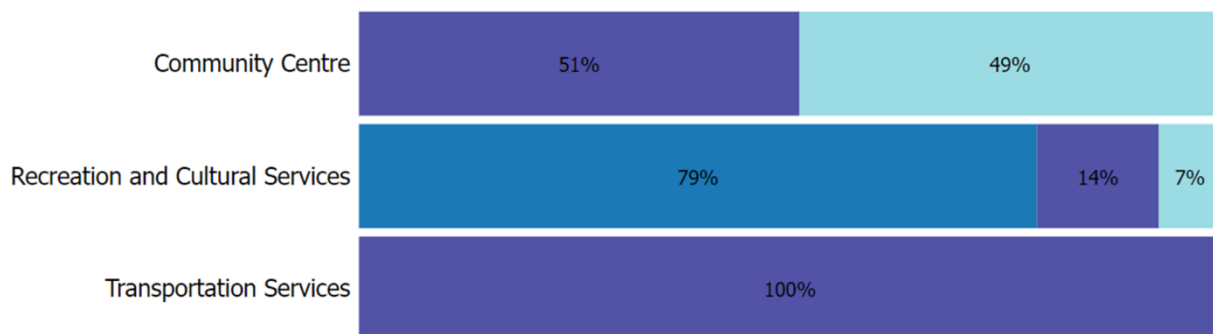
- High-level assessments by internal staff are performed annually to determine the condition of facilities.

4.3.4 Estimated Useful Life & Average Age

The Estimated Useful Life for Facilities 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.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Community Centre	20 - 40	9.3	22.1
Recreation and Cultural Services	10 - 25	9.9	3.6
Transportation Services	20	12.5	7.5
		9.8	12.5

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



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

4.3.5 Lifecycle Management Strategy

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

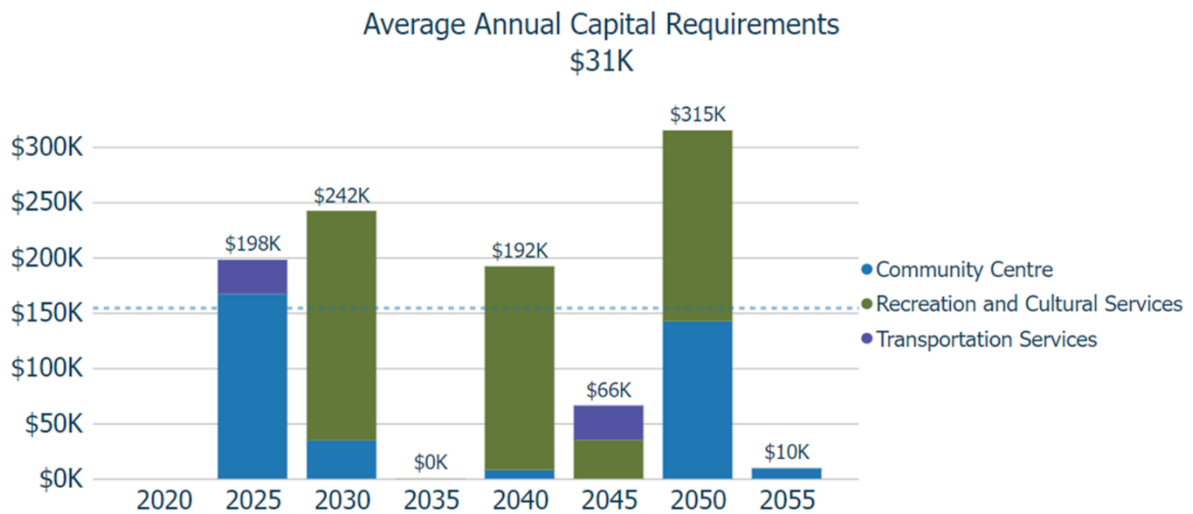
Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Municipal buildings are subject to regular inspections to identify health & safety requirements as well as structural deficiencies that require additional attention.
Replacement	Assessments are completed strategically as buildings approach their end-of-life to determine whether replacement or rehabilitation is appropriate.

Forecasted Capital Requirements

Based on the current buildings and facilities inventory and assuming end-of-life replacement for all assets, the AMP forecasts short- and long-term capital requirements for the Facilities category.

The specific 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.

The graph below provides a 35-year forecast. This projection is used as it ensures that every asset has gone through one full iteration of replacement and does not include assets that may be required for growth. The forecasted requirements are aggregated into 5-year bins and are based on the Township’s asset inventory as of 2020 and do not include assets that may be required for growth. The trend line represents the average 5-year capital requirements.



4.3.6 Risk & Criticality

The Facilities Category is considered a non-core asset category. As such, the Township has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the risk and criticality associated to assets within this category.

4.3.7 Levels of Service

The Facilities Category is considered a non-core asset category. As such, the Township has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the current level of service provided.

4.3.8 Recommendations

Asset Inventory

- The Township's asset inventory contains a single or a few assets for all facilities. Facilities consist of several separate capital components that have unique estimated useful lives and require asset-specific lifecycle strategies. Staff should work towards a component-based inventory of all facilities to allow for component-based lifecycle planning.

Replacement Costs

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

Condition Assessment Strategies

- A comprehensive structural assessment of all facilities is highly recommended to gain a better understanding of the overall health and condition of each facility to identify accurate short- and long-term capital requirements.

Risk Management Strategies

- Work towards developing risk models and adjust according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

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

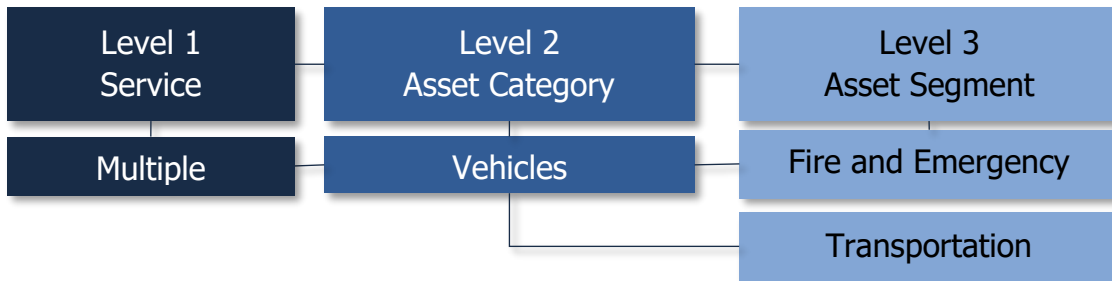
4.4 Vehicles

The Township’s Vehicles inventory is managed in CityWide™ and comprises of 5 assets. Vehicles allow staff to efficiently deliver municipal services and personnel. Municipal Vehicles assets are used to support several service areas, some of which are:

- Fire and Emergency Services
- Transportation

4.4.1 Asset Hierarchy and Segmentation

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Most reports and analytics presented in this AMP are summarized at the Asset Segment and/or Asset Category Levels.

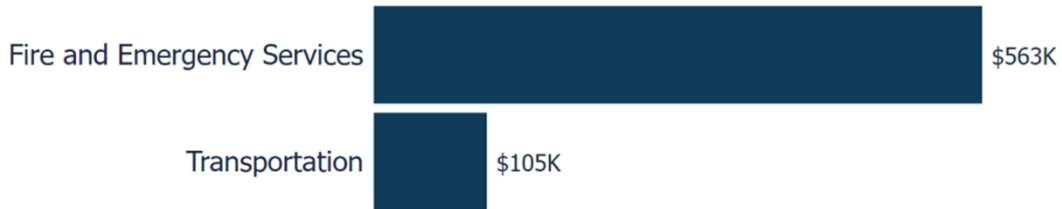


4.4.2 Asset Inventory & Replacement Cost

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

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Fire and Emergency Services	3	CPI Tables	\$562,769
Transportation	2	CPI Tables	\$104,597
			\$667,366

Total Replacement Cost
\$667K



4.4.3 Asset Condition

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

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Fire and Emergency Services	83%	Very Good	Age-based
Transportation	6%	Very Poor	Age-based
	71%	Good	

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



To ensure that the Township’s Vehicles assets continue to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy

to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Vehicles.

Current Approach to Condition Assessment

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

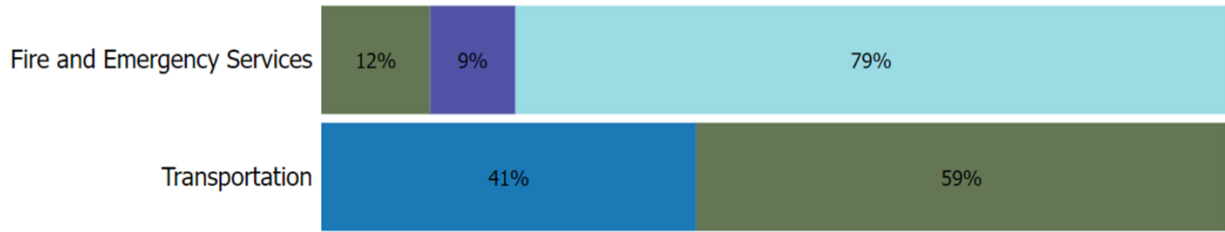
- Staff complete regular visual inspections of Vehicles assets to ensure they are in state of adequate repair prior to operation.

4.4.4 Estimated Useful Life & Average Age

The Estimated Useful Life for Vehicles 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.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Fire and Emergency Services	15 - 20	6.2	10.5
Transportation	5	8.0	-3.0
		6.9	5.1

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



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

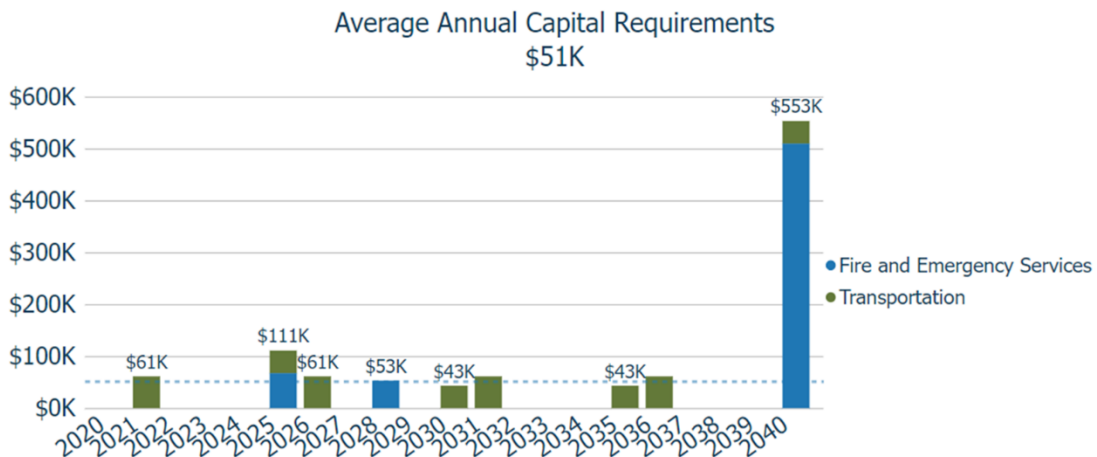
4.4.5 Lifecycle Management Strategy

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

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Visual inspections completed and documented daily; fluids inspected at every fuel stop; tires inspected monthly
	Annual preventative maintenance activities include system components check and additional detailed inspections
Replacement	Vehicle age, kilometres and annual repair costs are taken into consideration when determining appropriate treatment options

Forecasted Capital Requirements

Based on the current Vehicles inventory, and assuming end-of-life replacement for all assets, the graph below provides a 20-year forecast. This projection is used as it ensures that every asset has gone through one full iteration of replacement and does not include assets that may be required for growth. The forecasted requirements are aggregated into 1-year bins and are based on the Township’s asset inventory as of 2020 and do not include assets that may be required for growth. The trend line represents the average 1-year capital requirements.



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

4.4.6 Risk & Criticality

The Vehicles category is considered a non-core asset category. As such, the Township has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the risk and criticality associated to assets within this category.

4.4.7 Levels of Service

The Vehicles category is considered a non-core asset category. As such, the Township has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the current level of service provided.

4.4.8 Recommendations

Replacement Costs

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

Condition Assessment Strategies

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

Risk Management Strategies

- Work towards developing risk models and adjust these models according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

- Work towards identifying current and 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 Parks & Land Improvements

The Parks & Land Improvements inventory is managed in CityWide™ and comprises of 1 asset that assist the Township in providing community recreation services.

4.5.1 Asset Hierarchy and Segmentation

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Most reports and analytics presented in this AMP are summarized at the Asset Segment and/or Asset Category Levels.



4.5.2 Asset Inventory & Replacement Cost

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

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Parks	1	CPI Tables	\$66,599
			\$66,599

Total Replacement Cost
\$67K



4.5.3 Asset Condition

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

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Parks	5%	Very Poor	Age-based
	5%	Very Poor	

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

Parks

100%

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

Current Approach to Condition Assessment

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

- Staff complete regular visual inspections of parks and land improvements assets to ensure they are in state of adequate repair
- Staff conduct formal inspections of outdoor play space, fixed play structures and surfacing in accordance with CAN/CSA-Z614 and required as per O. Reg. 137/15
- There are no formal condition assessment programs in place for other parks and land improvements assets

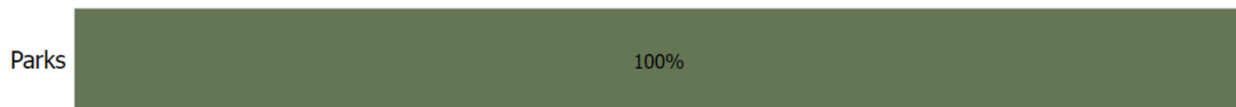
4.5.4 Estimated Useful Life & Average Age

The Estimated Useful Life for Land Improvements 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.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Parks	10	9.5	0.5
		9.5	0.5

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



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

4.5.5 Lifecycle Management Strategy

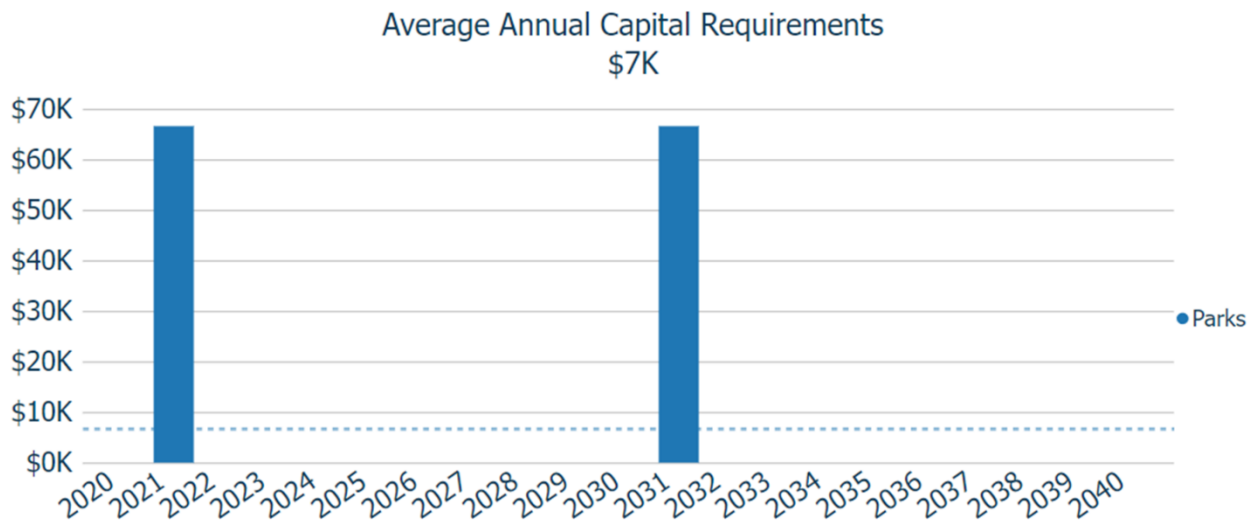
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation & Replacement	The Parks and Land Improvement assets are maintained and replaced as needed.

Forecasted Capital Requirements

Based on the current parks and land improvements inventory, and assuming end-of-life replacement for all assets, the graph below provides a 20-year forecast. This projection is used as it ensures that every asset has gone through two full iteration of replacement and does not include assets that may be required for growth. The forecasted requirements are aggregated into 1-year bins and are based on the Township's asset inventory as of 2020 and do not include assets that may be required for growth. The trend line represents the average 1-year capital requirements.



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

4.5.6 Risk & Criticality

The Parks & Land Improvements category is considered a non-core asset category. As such, the Township has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the risk and criticality associated to assets within this category.

4.5.7 Levels of Service

The Parks & Land Improvements category is considered a non-core asset category. As such, the Township has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the current level of service provided.

4.5.8 Recommendations

Asset Inventory

- The Township should conduct an inventory review, collect, and consolidate asset data to ensure all relevant assets are accounted for. Parks consist of several separate capital components that have unique estimated useful lives and require asset-specific lifecycle strategies. Staff should work towards a component-based inventory of all park infrastructure to allow for component-based lifecycle planning in the future.

Replacement Costs

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

Condition Assessment Strategies

- Identify condition assessment strategies for all assets.

Risk Management Strategies

- Work towards developing risk models and adjust these models according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

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

5

Impacts of Growth

Key Insights

- Understanding the key drivers of growth and demand will allow the Township to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure
- The costs of growth should be considered in long-term funding strategies that are designed to maintain the current level of service

5.1 Description of Growth Assumptions

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

5.1.1 Prince Township Official Plan (January 2012)

In 2021, the Township adopted the Official Plan to build upon and implement the development related goals of the Township’s Strategic Plan. This combined with the Provincial Policy Statement provide the basis for determining the Township’s policies for guiding future land-use decisions. This Official Plan will also review and project existing land-use trends, protect natural and cultural resources, and provide the Township with a framework to guide development to the year 2028.

The following table outlines the population and number of households forecasts allocated to Prince.

	2011	2016	2021	2026
Population Forecast – Prince	997	1,020	1,045	1,069
Number of Households Forecast – Prince	453	464	475	486

The Official Plan projects the population of Prince to increase at a slow rate. However, according to the 2021 Census the population has decreased from 1,010 in 2016 to 975 in 2021, which represents a 3.5% decline.

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.

Planning for forecasted population growth may require the expansion of existing infrastructure and services. As growth-related assets are constructed or acquired, they should be integrated into the Township’s 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.

6

Financial Strategy

Key Insights

6.1 Financial Strategy Overview

For an asset management plan to be effective and meaningful, it must be integrated with a long-term financial plan (LTFP). The development of a comprehensive financial plan will allow Township of Prince 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.

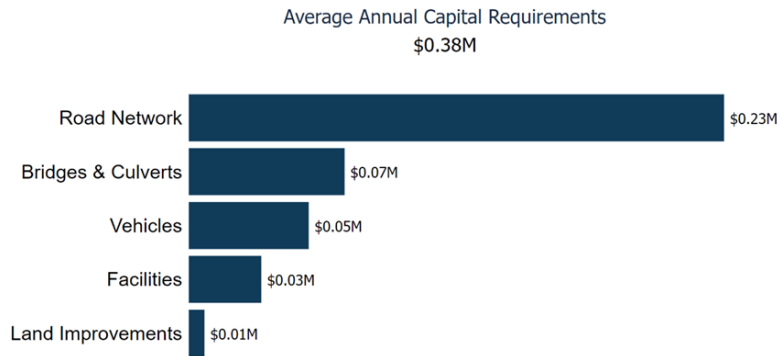
If the financial plan component results in a funding shortfall, the Province requires the inclusion of a specific plan as to how the impact of the shortfall will be managed. In determining the legitimacy of a funding shortfall, the Province may evaluate a Township's approach to the following:

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:
3. If a zero-debt policy is in place, is it warranted? If not the use of debt should be considered.
4. 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 \$383,000 annually to address capital requirements for the assets included in this AMP.



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

However, for the Road Network, lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal of the Township’s roads. The development of these strategies allows for a comparison of potential cost avoidance if the strategies were to be implemented. The following table compares two scenarios for the Road Network:

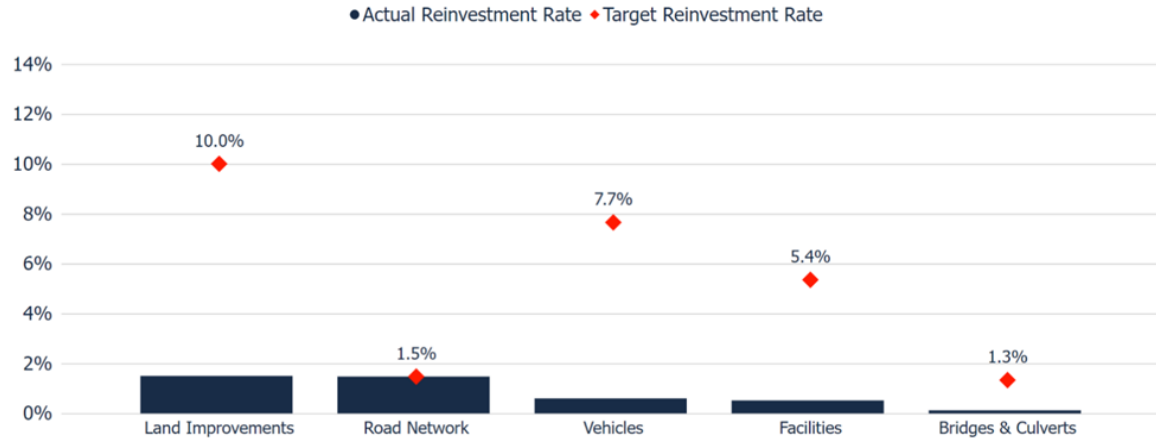
- **Replacement Only Scenario:** Based on the assumption that assets deteriorate and – without regularly scheduled maintenance and rehabilitation – are replaced at the end of their service life.
- **Lifecycle Strategy Scenario:** Based on the assumption that lifecycle activities are performed at strategic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

Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Road Network	\$1,542,000	\$228,000	\$1,314,000

The implementation of a proactive lifecycle strategy roads leads to an annual cost avoidance of \$1,314,000 for Road Network. This represents an overall decrease of the annual requirement of 85% for Road Network. As the lifecycle strategy scenario represents the lowest cost option available to the Township, we have used these annual requirements in the development of the financial strategy.

Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately \$242,000 towards capital projects per year. Given the annual capital requirement of \$383,000, there is currently a funding gap of \$141,000 annually.



6.2 Funding Objective

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

- **Tax Funded Assets:** Bridges & Culverts, Facilities, Land Improvements, Road Network, Vehicles

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

6.3 Financial Profile: Tax Funded Assets

6.3.1 Current Funding Position

The following tables show, by asset category, Prince’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			Total Available	Annual Deficit
		Taxes	Gas Tax	OCIF		
Bridges & Culverts	\$66,000	\$6,000	\$0	\$0	\$6,000	\$60,000
Facilities	\$31,000	\$3,000	\$0	\$0	\$3,000	\$28,000
Land Improvements	\$7,000	\$1,000	\$0	\$0	\$1,000	\$6,000
Road Network	\$228,000	\$19,000	\$115,000	\$94,000	\$228,000	\$0
Vehicles	\$51,000	\$4,000	\$0	\$0	\$4,000	\$47,000
	\$383,000	\$33,000	\$115,000	\$94,000	\$242,000	\$141,000

The average annual investment requirement for the above categories is approximately \$ 383,000. Annual revenue currently allocated to these assets for capital purposes is \$242,000 leaving an annual deficit of \$141,000. Put differently, these infrastructure categories are currently funded at 63% of their long-term requirements.

6.3.2 Full Funding Requirements

In 2020, Township of Prince has annual tax revenues of \$1.4 million. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding would require the following tax change over time:

Asset Category	Tax Change Required for Full Funding
Bridges & Culverts	4.3%
Facilities	2.0%
Land Improvements	0.4%
Road Network	0%
Vehicles	3.4%
Total	10.1%

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

- a) Prince’s formula based OCIF grant is scheduled to grow from \$50,000 in 2020 to \$100,000 in 2021.
- b) Prince’s debt payments for these asset categories will be decreasing by \$46,000 over the next 5 years and by \$21,000 over the next 10 years.
- c) Our recommendations include capturing the above changes and allocating them to the infrastructure deficit outlined above. The table below outlines this concept and presents several options:

	Without Capturing Changes				With Capturing Changes			
	5 Years	10 Years	15 Years	20 Years	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	\$141,000	\$141,000	\$141,000	\$141,000	\$141,000	\$141,000	\$141,000	\$141,000
Change in Debt Costs	N/A	N/A	N/A	N/A	\$21,000	\$(4000)	\$(25,000)	\$(25,000)
Change in OCIF Grants	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Resulting Infrastructure Deficit:	\$141,000	\$141,000	\$141,000	\$141,000	\$162,000	\$137,000	\$116,000	\$116,000
Tax Increase Required	10.1%	10.1%	10.1%	10.1%	11.6%	9.8%	8.3%	8.3%
Annually:	2.0%	1.0%	0.7%	0.5%	2.3%	1.0%	0.6%	0.4%

6.3.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 10-year option. This involves full CapEx funding being achieved over 10 years by:

- a) when realized, reallocating the debt cost reductions of \$4,000 to the infrastructure deficit as outlined above.
- b) increasing tax revenues by 1.0% each year for the next 10 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) should the scheduled OCIF grant increase, the Township should reduce the annual tax increase by an amount equal to the grant increase as it occurs.
- 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 commitment¹.
2. We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

Although this option achieves full CapEx funding on an annual basis in 10 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 \$173,000 Facilities and \$43,000 for Vehicles.

¹ 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.

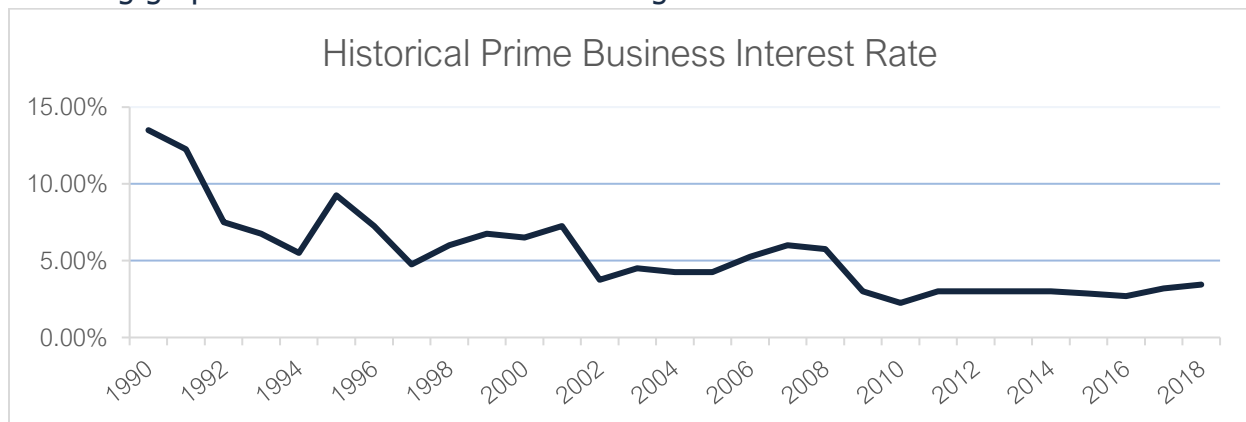
Prioritizing future projects will require the current data to be replaced by condition-based data. Although our recommendations include no further use of debt, the results of the condition-based analysis may require otherwise.

6.4 Use of Debt

For reference purposes, the following table outlines the premium paid on a project if financed by debt. For example, a \$1M project financed at 3.0%² 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%

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:



² Current municipal Infrastructure Ontario rates for 15-year money is 3.2%.

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

The following tables outline how Prince has historically used debt for investing in the asset categories as listed. \$399,000 of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of \$25,000, well within its provincially prescribed maximum of \$380,340.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2016	2017	2018	2019	2020
Bridges & Culverts	\$0	\$0	\$0	\$0	\$0	\$0
Facilities	\$0	\$0	\$0	\$0	\$0	\$0
Land Improvements	\$0	\$0	\$0	\$0	\$0	\$0
Road Network	\$0	\$0	\$0	\$0	\$0	\$0
Vehicles	\$399,000	\$0	\$0	\$0	\$0	\$420,000
Total Tax Funded:	\$399,000	\$0	\$0	\$0	\$0	\$420,000

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2020	2021	2022	2023	2024	2025	2030
Bridges & Culverts	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Facilities	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Land Improvements	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Road Network	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Vehicles	\$25,000	\$50,000	\$49,000	\$48,000	\$47,000	\$46,000	\$21,000
Total Tax Funded:	\$25,000	\$50,000	\$49,000	\$48,000	\$47,000	\$46,000	\$21,000

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

6.5 Use of Reserves

6.5.1 Available Reserves

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

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

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

Asset Category	Balance at December 31, 2020
Bridges & Culverts	\$0
Facilities	\$99,000
Land Improvements	\$383,000
Road Network	\$1,036,000
Vehicles	\$74,000
Total Tax Funded:	\$1,592,000

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

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

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

6.5.2 Recommendation

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

7

Appendices

Key Insights

- Appendix A identifies projected 10-year capital requirements for each asset category
- Appendix B includes several maps that have been used to visualize the current level of service
- Appendix C identifies the criteria used to calculate risk for each asset category
- Appendix D provides additional guidance on the development of a condition assessment program

Appendix A: 10-Year Capital Requirements

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

Road Network

Asset Segment	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Paved Roads	\$0	\$95,042	\$0	\$4,323	\$9,251	\$47,521	\$0	\$0	\$0	\$8,647	\$18,502
Streetlights	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	\$0	\$95,042	\$0	\$4,323	\$9,251	\$47,521	\$0	\$0	\$0	\$8,647	\$18,502

Bridges & Culverts

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

Facilities

Asset Segment	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Community Centre	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$166,775	\$0	\$0
Recreation and Cultural Services	\$172,690	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$296
Transportation Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$30,937	\$0
	\$172,690	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$166,775	\$30,937	\$296

Vehicles

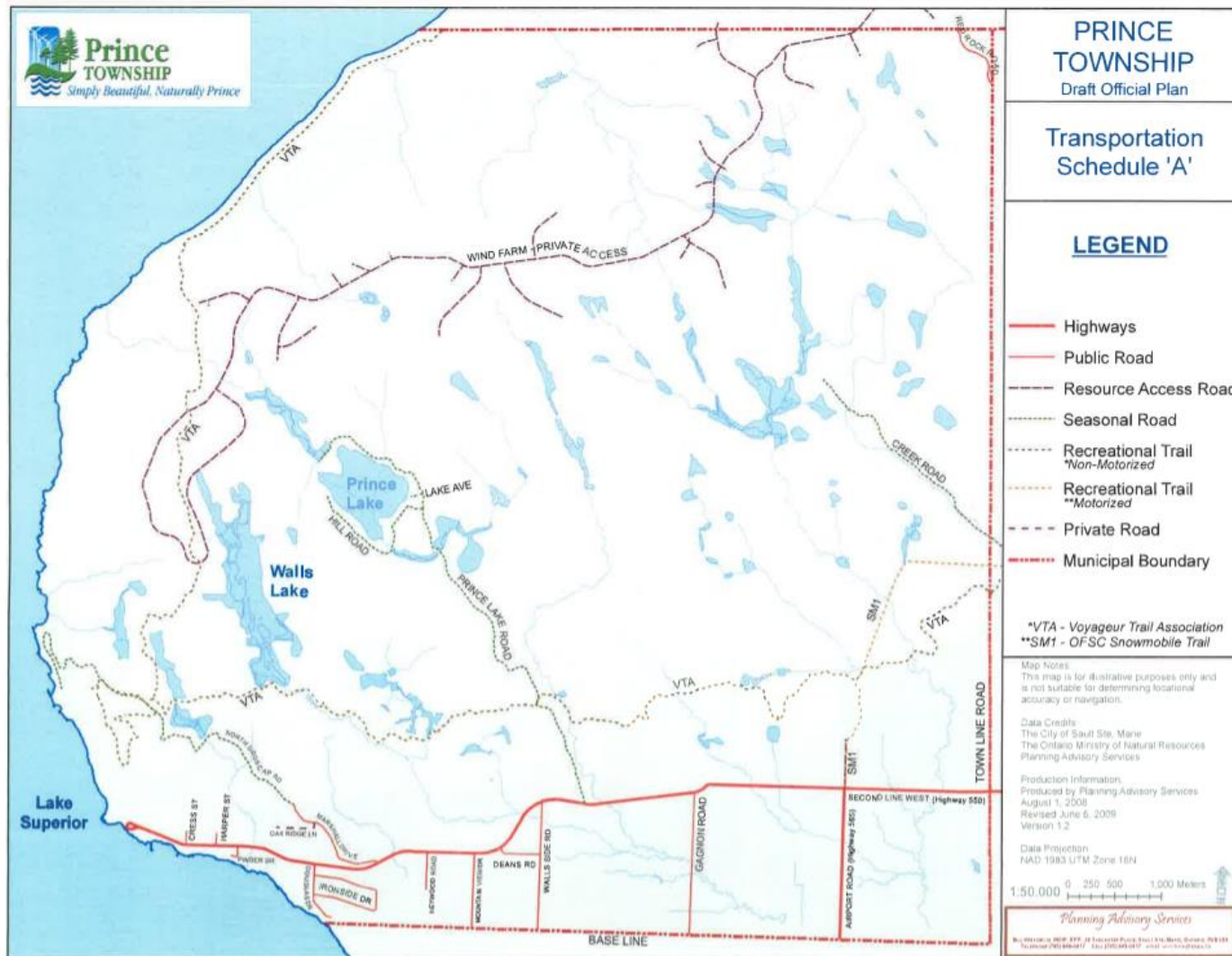
Asset Segment	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Fire and Emergency Services	\$0	\$0	\$0	\$0	\$0	\$0	\$67,648	\$0	\$0	\$52,992	\$0
Transportation	\$43,308	\$0	\$61,289	\$0	\$0	\$0	\$43,308	\$61,289	\$0	\$0	\$0
	\$43,308	\$0	\$61,289	\$0	\$0	\$0	\$110,956	\$61,289	\$0	\$52,992	\$0

Land Improvements

Asset Segment	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Parks	\$0	\$0	\$66,599	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	\$0	\$0	\$66,599	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Appendix B: Level of Service Maps/Images

Road Network Maps



Appendix C: Risk Rating Criteria

PROBABILITY OF FAILURE

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Road Network (Roads)	Condition	100%	80-100	1
			60-80	2
			40-60	3
			20-40	4
			0-20	5
Bridges & Structural Culverts	Condition	100%	80-100	1
			60-80	2
			40-60	3
			20-40	4
			0-20	5

Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Road Network (Roads)	Economic (80%)	Replacement Cost (100%)	\$0-\$200,000	1
			\$200,000-\$600,000	2
			\$600,000-\$1,500,000	3
			\$1,500,000-\$3,000,000	4
			\$3,000,000+	5
	Social (20%)	Road Design Class (100%)	Class 6	1
	Bridges & Culverts	Economic (80%)	Replacement Cost (100%)	\$0-\$50,000
\$50,000-\$250,000				2
\$250,000-\$400,000				3
\$400,000-\$450,000				4
\$450,000+				5
Social (20%)		Road Class (100%)	Local Road	2
		Collector Road	3	

Appendix D: Condition Assessment Guidelines

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

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

The role of asset condition data in decision-making

Guidelines for the collection of asset condition data

A schedule for how regularly asset condition data should be collected

Role of Asset Condition Data

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

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

Guidelines for Condition Assessment

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

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

Condition assessments must include a quantitative or qualitative assessment of the current condition of the asset, collected according to specified condition rating criteria, in a format that can be used for asset management decision-making. As a result, it is important that staff adequately define the condition rating criteria that should be used and the assets that require a discrete condition rating. When engaging with external consultants to complete condition assessments, it is critical that these details are communicated as part of the contractual terms of the project.

There are many options available to the Township to complete condition assessments. In some cases, external consultants may need to be engaged to complete detailed technical assessments of infrastructure. In other cases, internal staff may have sufficient expertise or training to complete condition assessments.

Developing a Condition Assessment Schedule

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

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