

# Asset Management Plan

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Township of Georgian Bay

2020

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This Asset Management Plan was prepared by:



# Key Statistics

Replacement cost of  
asset portfolio

**\$57 million**

Replacement cost of  
infrastructure per household\*

**\$10,969**

Percentage of assets in fair or  
better condition

**53.87%**

Percentage of assets with  
assessed condition data

**27.21%**

Annual capital  
infrastructure deficit

**\$1,169,000**

Recommended timeframe  
for eliminating annual  
infrastructure deficit

**10 Years**

Target reinvestment  
rate

**5.28%**

Actual reinvestment  
rate

**3.27%**

\* 5,200 is used as the household count based on the 2020 Municipal Property Assessment Corporation Household Count Report.

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# Executive Summary

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

## Scope

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

This AMP includes the following asset categories:

### Asset Categories

 Roads Network	 Parks and Natural Capital
 Storm Sewer System	 Equipment
 Facilities	 Road Appurtenances
 Fleet - Rolling Stock	

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

## Findings

The overall replacement cost of the asset categories included in this AMP totals \$57 million. 53.87% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 27.21% of assets. For the remaining 72.79% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (road network and storm sewer system) and replacement only strategies (all other assets) to determine the lowest cost option to maintain the current level of service. This AMP should be used in coordination with the Township's Official Plan when planning for new development so that efficient choices can be made for approving new infrastructure that optimize service delivery with construction, operation, maintenance and replacement costs.

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 \$ 3,014,000. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately \$1,847,000 towards capital projects or reserves per year. As a result, there is currently an annual funding gap of \$1,167,000.

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

Annual Capital Requirements per Household



## Recommendations

A financial strategy was developed to address the annual capital funding gap. The following graphics shows annual tax/rate change required to eliminate the Township’s infrastructure deficit based on a 5-year plan for tax-funded assets:



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

- Review data to update and maintain a complete and accurate dataset
- Develop a condition assessment strategy with a regularly scheduled update and review process

- The implementation of risk-based decision-making as part of asset management planning and budgeting
- The consideration of operating, maintenance and replacement costs when considering new development approvals
- The continuous review, development, and implementation of optimal lifecycle management strategies for all asset categories
- Develop and regularly review short- and long-term plans to meet capital requirements
- The coordination of strategic asset planning across all municipal service areas
- Measure current levels of service and identify sustainable proposed levels of service for all asset categories

# 1 Introduction & Context

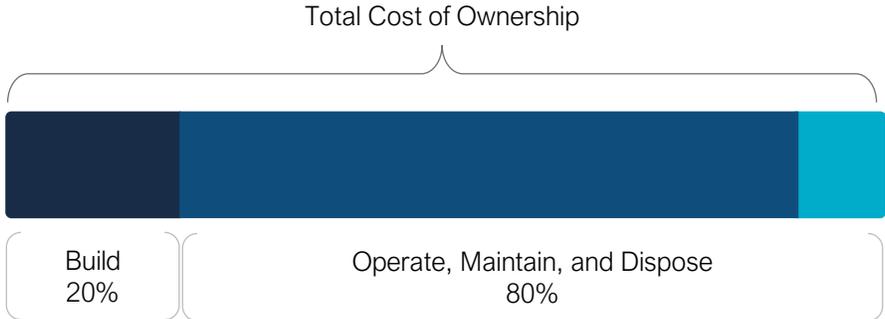
## Key Insights

- The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value taxpayers receive from the asset portfolio
- The Township's asset management policy provides clear direction to staff on their roles and responsibilities regarding asset management
- An asset management plan is a living document that should be updated regularly to inform long-term planning
- Ontario Regulation 588/17 outlines several key milestones and requirements for asset management plans in Ontario between July 1, 2022 and 2025

# 1.1 An Overview of Asset Management

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

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



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

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

The Township is taking a proactive approach to asset management by considering the capital, operational, maintenance and replacement costs of assets as part of the development review process.

### 1.1.1 Asset Management Policy

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

The Township adopted Policy No. FN-2019-01 “Strategic Asset Management Policy” in May, 2019 in accordance with Ontario Regulation 588/17.

The purpose of the policy is to provide a framework for implementing asset management to enable strategic approach at all levels of the organization. As outlined in the policy, the Township seeks to leverage the lowest total lifecycle cost of ownership with regard to the service levels that best meet the needs of the community while being cognizant of the risk of failure that is acceptable.

### 1.1.2 Asset Management Strategy

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

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

### 1.1.3 Asset Management Plan

The asset management plan (AMP) presents the outcomes of the municipality’s asset management program and identifies the resource requirements needed to achieve a defined level of service.

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

## 1.1.4 Local Climate Change Action Plan

The Local Climate Change Action Plan (LCCAP) includes the development of a community-wide GHG inventory, the setting of corporate and community GHG reduction targets, and the creation of an action plan to reduce GHG emissions in order to meet the identified GHG reduction targets. GHG reduction targets and climate change actions from the LCCAP into municipal documents such as asset management plans where possible.

The LCCAP includes 18 key recommendations that fall under the following pillars:

- Understanding our carbon footprint and greening our community
- Engaging externally to support long-term climate action
- Building capacity for local climate action
- Reducing GHG emissions

The Township of Georgian Bay has declared a state of emergency (Level 4) due to climate change. This state of emergency level is the highest of all Muskoka municipalities.

As additional climate change related data becomes available, it should be integrated into future iterations of the AMP. The 2024 O. Reg 588/17 requirements include identifying the current levels of service for non-core assets such as fleet and facilities. Furthermore, the 2025 O. Reg 588/17 requirements include identifying the proposed levels of service for 10 years into the future. Therefore, it is essential to continue building the inventory for assets that are main contributors to GHG emissions in order to have more accurate estimates on the emissions related to these assets. Moreover, having a more robust inventory of assets would also help in defining the action plan required to reach the proposed levels of service that will be defined by 2025.

# 1.2 Key Concepts in Asset Management

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

## 1.2.1 Lifecycle Management Strategies

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

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. There are several field intervention activities that are available to extend the life of an asset. These activities can generally fall within the categories of maintenance, rehabilitation, and replacement. The following table provides a description of each type of activity and the general difference in cost.

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

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

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

## 1.2.2 Risk Management Strategies

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

Additionally, the Township is factoring in life-cycle costs of assets as part of the development review process. Through the use of efficient development forms and patterns where municipal infrastructure services are provided, risk to the Township can be reduced before new or replacement infrastructure is created.

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.

Additionally, it is worth noting that the following risks are impacting the whole asset portfolio.



### **Aging Infrastructure**

The condition and performance of municipal infrastructure assets directly correlates to the quality of services a municipality can deliver to its residents. Aging and deteriorating assets increasingly remain in service past their estimated service lives due to a lack of fiscal capacity to replace or rehabilitate as needed. The Township is also faced with a significant backlog of needs for all asset with no funding to support the backlog.



### **Community Expectations**

Township staff remarked that there has been a noticeable increase in service expectations in recent years. These higher expectations often are seen partially as a result of the influx of seasonal residents from larger cities. Larger cities in an urbanized setting tend to have additional revenue available to provide additional services that small and mid-size rural communities may not be able to.

Furthermore, Township staff remarked that active transportation networks that support pedestrians, cyclists, ATV's, and motor vehicles is among one of the desires from the public for service enhancements.

### **Fiscal Capacity**

Maintaining municipal infrastructure and providing desired levels of service requires the allocation of adequate financial resources. Fiscal capacity and budget constraints are a constant concern for staff across all departments attempting to manage the maintenance and rehabilitation of municipal infrastructure. Capital funding is all too often negatively impacted by increasing operating costs.



Municipalities typically have few means at their disposal to raise adequate and sustainable funding to meet operational and capital requirements. As a result, they are heavily dependent on both provincial and federal grant programs to maintain and replace municipal infrastructure. Any fluctuations in annual grant funding secured can have a dramatic impact on provided services. The Township's goal moving forward is to continue to meet regulations such as provincial maintenance standards (MMS) while continuing to deliver the current level of service.

## Organizational Knowledge & Capacity



Managing municipal assets and delivering public services requires adequate organizational capacity. The availability of staff to facilitate these projects is a concern for many municipalities. Township noted that there have been no additional positions created to support expanding responsibilities and regulatory requirements. These responsibilities and regulations include an AMP, O.Reg 588/17 compliance, AODA standards, Bill 108, regional reviews, and Fire regulations that have been becoming more rigid. While there is a general sense that there is a low capacity to adapt to change at the corporate level, asset management has been one of the few areas to gain additional staff capacity recently. In addition to existing staff capacity, succession planning is one of the key challenges that an aging municipal workforce faces as senior staff progress towards possible retirement or relocation. The loss of knowledge and experience that accompanies staff departures can have a dramatic impact on the ability of an organization to continue operations and provide services to the level that has previously been expected. Currently, 20% of the Township's workforce is eligible for retirement over the next 5 years, and 10% are eligible to retire now but are choosing to stay in the short term. Georgian Bay Township has also experienced significant staff turnover.

Both short- and long-term planning requires the regular collection of infrastructure data to support asset management decision-making. Staff find it a continuous challenge to dedicate staff resource time towards data collection to ensure that road condition and asset attribute data is regularly reviewed and updated.

### 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 (Road Network, Bridges & Culverts, Storm Water Services, Water Services, Sanitary Sewer Services) the Province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP.

## Technical Levels of Service

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

For core asset categories (Road Network, Bridges & Culverts, Storm Water Services, Water Services, Sanitary Sewer Services) the Province, through O. Reg. 588/17, has provided technical metrics that are required to be included in this AMP.

## Current and Proposed Levels of Service

This AMP focuses on measuring the current level of service provided to the community. Once current levels of service have been measured, the 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

**2022**

Asset Management Plan for Core Assets with the following components:

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

**2025**

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

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

### 1.3.1 O. Reg. 588/17 Compliance Review

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

<b>Requirement</b>	<b>O. Reg. Section</b>	<b>AMP Section Reference</b>	<b>Status</b>
Summary of assets in each category	S.5(2), 3(i)	4.1.1 - 4.2.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1.1 - 4.2.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.1.3 - 4.2.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.1.2 - 4.2.2	Complete
Description of municipality’s approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.1.2 - 4.2.2	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	4.1.6 - 4.2.6	Complete
Current performance measures in each category	S.5(2), 2	4.1.6 - 4.2.6	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.1.4 - 4.2.4	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)	5.1-5.2	Complete

# 2 Scope and Methodology

## Key Insights

- This asset management plan includes 7 asset categories belonging to the tax-funded category
- 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 Georgian Bay is produced in compliance with Ontario Regulation 588/17. The July 2022 deadline under the regulation—the first of three AMP deadlines—requires analysis of only core assets (road network and storm sewer system).

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

Asset Category	Source of Funding
Roads Network	
Storm Sewer System	
Facilities	
Fleet – Rolling Stock	Tax Levy
Parks and Natural Capital	
Equipment	
Road Appurtenances	

# 2.2 Deriving Replacement Costs

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

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

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

## 2.3 Estimated Useful Life and Service Life Remaining

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

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

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

## 2.4 Reinvestment Rate

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

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

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

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

## 2.5 Deriving Asset Condition

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

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

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

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

# 3

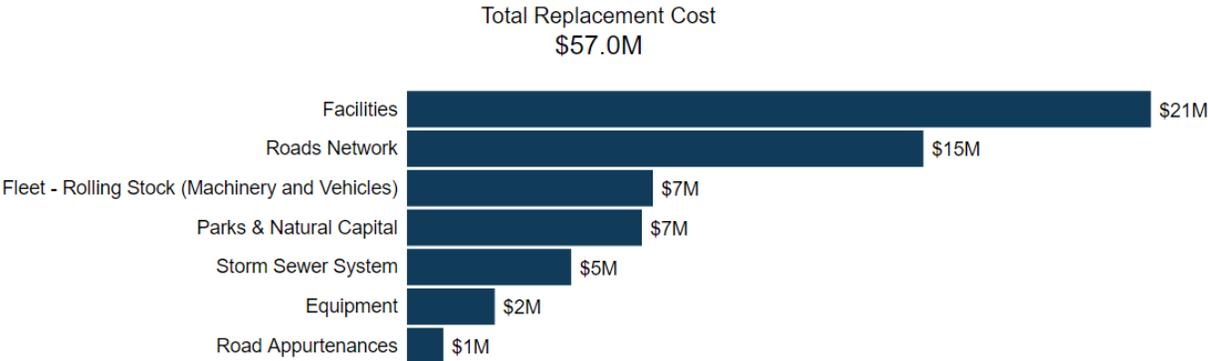
## Portfolio Overview

### Key Insights

- The total replacement cost of the Township's asset portfolio is \$57 million
- The Township's target re-investment rate is 5.28%, and the actual re-investment rate is 3.27%, contributing to an expanding infrastructure deficit
- 53.87% of all assets are in fair or better condition
- 61.36% of assets are projected to require replacement in the next 10 years
- Average annual capital requirements total \$3,014,000 per year across all assets

# 3.1 Total Replacement Cost of Asset Portfolio

The asset categories analysed in this AMP have a total replacement cost of \$57 million based on inventory data from 2020. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.

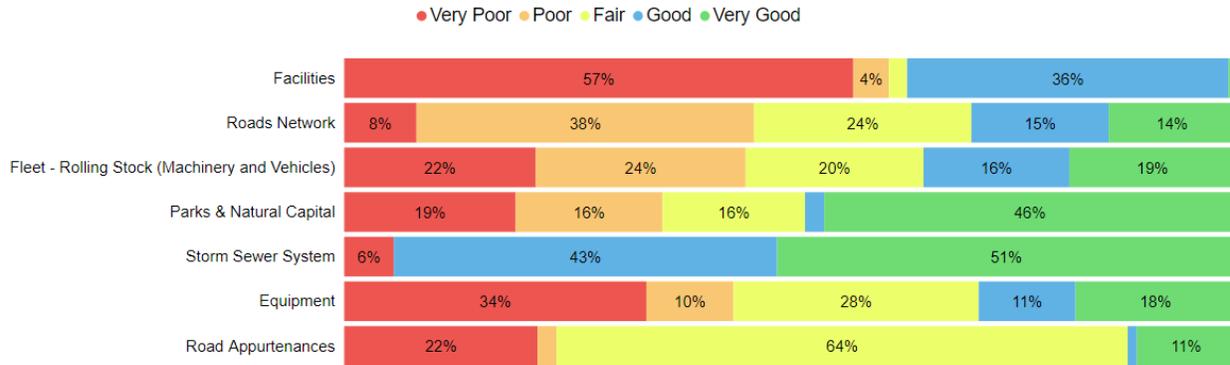


# 3.2 Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps or surpluses by comparing target vs actual reinvestment rate. To meet the long-term replacement needs, the Township should be allocating approximately \$3,014,000 annually, for a target reinvestment rate of 5.28%. Actual annual spending on infrastructure totals approximately \$1,847,000, for an actual reinvestment rate of 3.27%.

# 3.3 Condition of Asset Portfolio

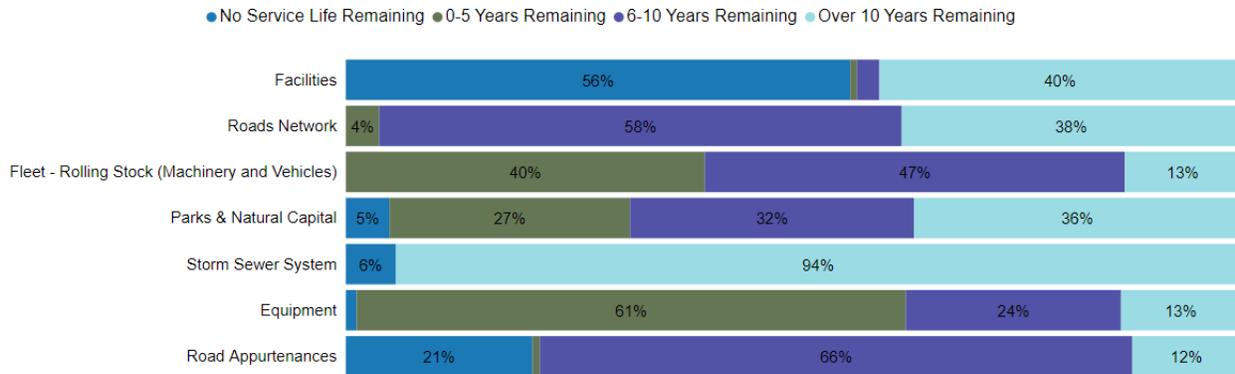
The current condition of the assets is central to all asset management planning. Collectively, 53.87% of assets in Georgian Bay are in fair or better condition. This estimate relies on both age-based and field condition data. It is worth noting that the facilities condition data is age-based. A facilities assessment is currently in the horizon.



This AMP relies on assessed condition data for 27.21% 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.

## 3.4 Service Life Remaining

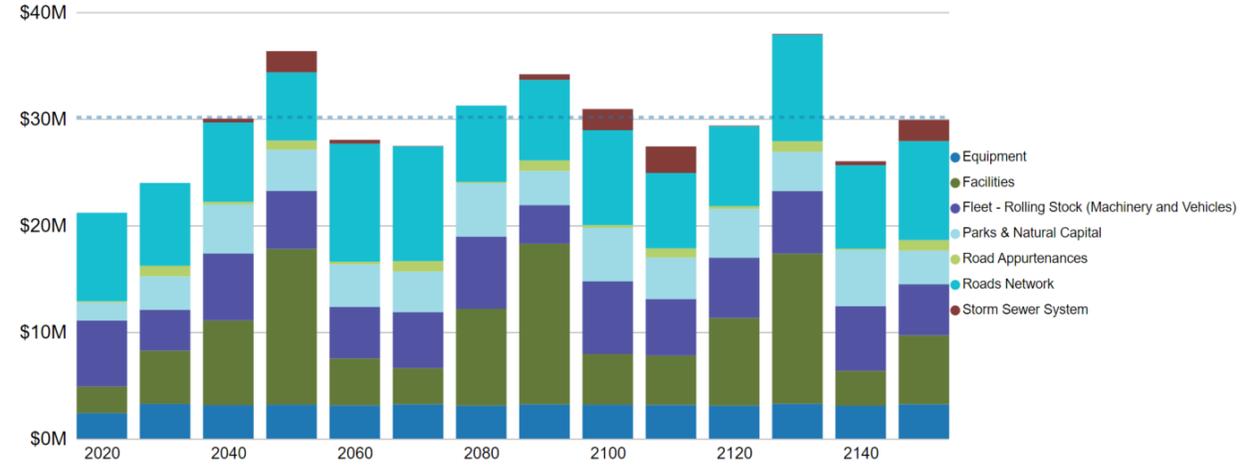
Based on asset age, available assessed condition data and estimated useful life, 61.36% of the Township’s assets will require replacement within the next 10 years. Capital requirements over the next 10 years are identified in Appendix A. It is worth noting that the facilities condition data is age-based. A facilities assessment is currently in the horizon.



## 3.5 Forecasted Capital Requirements

The development of a long-term capital forecast includes both asset rehabilitation and replacement requirements. With the development of asset-specific lifecycle strategies that include the timing and cost of future capital events, the Township can produce an accurate long-term capital forecast. The following graph identifies capital requirements over the next 135 years. A 135-year projection is used as this ensures that every asset has gone through one iteration of replacement. The forecasted requirements are aggregated into 10-year bins and the trend line represents the average 10-year capital requirements.

Average Annual Capital Requirements  
\$3,014,382



# 4 Analysis of Tax-funded Assets

## Key Insights

- Tax-funded assets are valued at \$57 million
- 53.87% 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 \$ three million
- Critical assets should be evaluated to determine appropriate risk mitigation activities and treatment options

## 4.1 Roads Network

The Township of Georgian Bay is responsible for approximately 100 kilometres of roads. Within the Township, there are roads maintained by the District of Muskoka and major highways. Highways 400 and 69 are maintained by the Ministry of Transportation. The Township's road network includes 20 km of gravel roads that were not included in this AMP since they are not planned for replacement. Furthermore, the funding for gravel roads comes from an operations budget rather than capital funding.

### 4.1.1 Asset Inventory & Replacement Cost

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

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Hot Mix	37	Cost/Unit - 100%	\$551,300
LCB	108	Cost/Unit - 1.30% CPI Tables - 98.70%	\$13,759,515
Sidewalks	6	Cost/Unit - 98.44% CPI Tables - 1.56%	\$203,886
			<b>\$14,514,701</b>

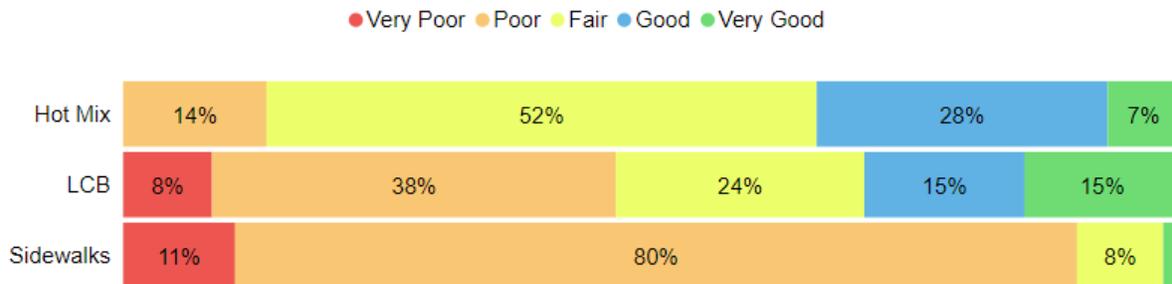
Total Replacement Cost  
\$14.5M



## 4.1.2 Asset Condition

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

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Hot Mix	67%	Fair	Assessed - 100%
LCB	55%	Fair	Assessed - 98.95%
Sidewalks	28%	Poor	Age-Based - 100%
	<b>55%</b>	<b>Fair</b>	



## Current Approach to Condition Assessment

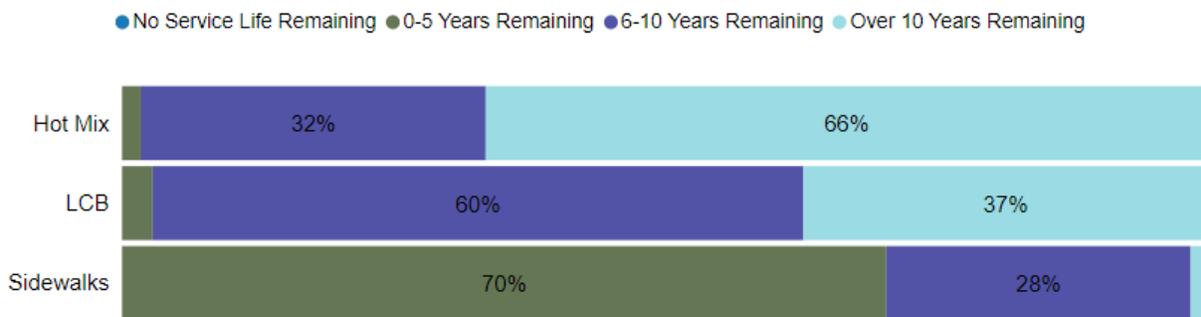
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality's current approach:

- The Township completed roads need assessments in 2016 and 2019
- Staff is working towards developing a formal maintenance and rehabilitation lifecycle framework for chip seal roads (LCB)

### 4.1.3 Estimated Useful Life & Average Age

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Hot Mix	20	16.2	10.5
LCB	10-20	16.7	8.3
Sidewalks	20	12.4	6.7
		<b>16.3</b>	<b>8.8</b>



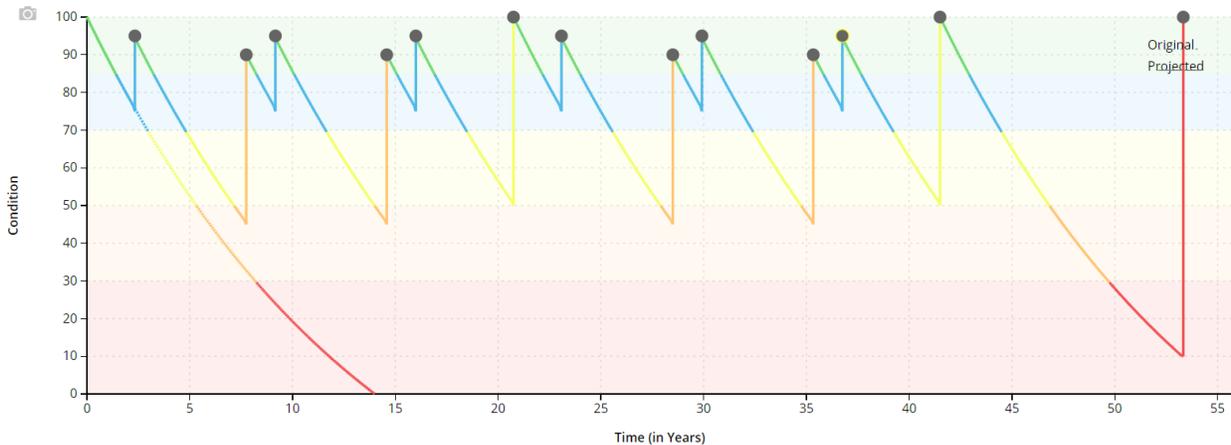
Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

## 4.1.4 Lifecycle Management Strategy

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

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

LCB Roads		
Event Name	Event Class	Event Trigger
Slurry Seal	Preventative Maintenance	Condition: 75-80
Double Surface Treatment	Rehabilitation	Condition: 50-60
Single Surface Treatment	Rehabilitation	Condition: 45
Full Road Reconstruction	Replacement	Condition: 10-20

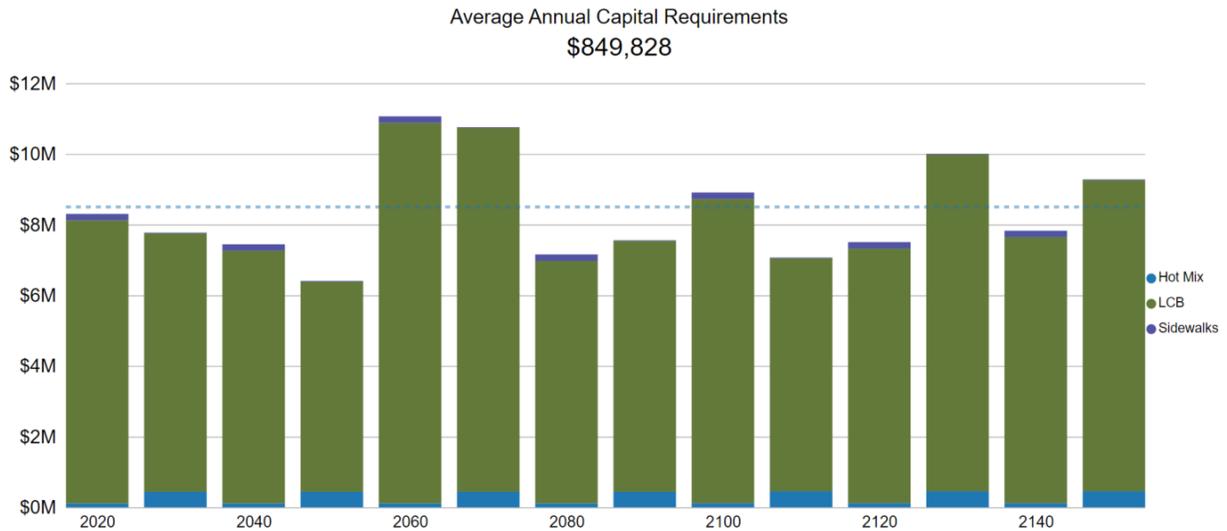


The following table further expands on the Township’s current approach to lifecycle management:

<b>Activity Type</b>	<b>Description of Current Strategy</b>
Maintenance	The Township performs usual preventative maintenance activities as according to the adopted lifecycle managemnet strategy seen in the previous graph. Crack sealing and cold patching is performed annually based on the road patrol findings
Rehabilitation	The Township performs rehabilitation activities as according to the adopted lifecycle managemnet strategy seen in the previous graph.
Replacement	The Township determined that paved roads are not needed. This decision is reflective of the economic, social, and geographic needs of the township. By the end of their service life, Paved roads will be converted to a chip seal surface type that is better suited to the Township’s needs. By implementing this lifecycle strategy, the municipality will be better positioned to provide a reliable road network to the community at the lowest possible cost of ownership while moving towards an increased level of service.

### Forecasted Capital Requirements

The following graph forecasts capital requirements for the Road Network. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs to meet future capital needs. The following graph identifies capital requirements over the next 135 years. A 135-year projection is used as this ensures that every asset has gone through one iteration of replacement. The forecasted requirements are aggregated into 10-year bins and the trend line represents the average 10-year capital requirements.



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

## 4.1.5 Risk & Criticality

### Risk Matrix

The following risk matrix provides a visual representation of the level of risk exposure for this asset category. It considers both the probability of failure and consequence of failure. The metrics that have been used to determine both can be found in Appendix C.

Consequence	5	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	4	0 Assets - \$0.00	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	26 Assets 701.00 m \$2,371,854.53	10 Assets 349.90 m \$1,984,632.80	0 Assets - \$0.00	0 Assets - \$0.00	248 Assets 2,663.00 m \$257,340.36
		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 in addition to the stated risks in section 1.2.2:



### Climate Change & Extreme Weather Events

In recent years staff have observed an increase to the intensity and frequency of heavy rainfall events that have led to more washouts and localized flooding. While this has led to minimal impacts on service delivery or critical infrastructure failure, there is a general concern about future impacts.

## 4.1.6 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.

<b>Service Attribute</b>	<b>Qualitative Description</b>	<b>Current LOS (2020)</b>
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	See Appendix B
Quality	Description or images that illustrate the different levels of road class pavement condition	The average condition for the paved township's roads is fair.

## Technical Levels of Service

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

<b>Service Attribute</b>	<b>Technical Metric</b>	<b>Current LOS (2020)</b>
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km <sup>2</sup> )	0
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km <sup>2</sup> )	0.001245565
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km <sup>2</sup> )	0.1643324
Quality	Average pavement condition for paved roads in the municipality	Fair
	Average surface condition for unpaved roads in the municipality (e.g. excellent, good, fair, poor)	Very Poor
Performance	Capital reinvestment rate	3.40%

## 4.1.7 Recommendations

### Asset Inventory

- Continue to review and refine the road network's asset inventory to ensure new assets and betterments are reflected and attributes are detailed.

### Condition Assessment Strategies

- Two previous Road Needs Assessments have been completed in 2011, 2016, and 2020 (completed in summer of 2021). The Township should plan to have regular network wide assessment intervals. Prioritize regular cursory inspections in between comprehensive assessments using consistent and standardized condition rating criterion.
- Develop and conduct condition assessment programs for all other transportation assets such as sidewalks

### Lifecycle Management Strategies

- Continue to implement the identified lifecycle management strategies for LCB roads to realize potential cost avoidance and maintain a high quality of road pavement condition.
- Evaluate the efficacy of the Township's lifecycle management strategies at regular intervals (recommended cycle is two years) to determine the impact cost, condition, and risk.
- Develop cursory life cycle management strategies for all other transportation assets such as sidewalks.
- Adopt ditching, clearing and cleaning activities, dust abatement applications, and reshaping crown and cross section strategies.

### 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 the availability of additional data and also an evolving understanding of the probability and consequences of asset failure. This would include collecting data on proximity to waterways and critical services.

## 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 and capturing metrics that are related to climate change.
- 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 Storm Sewer System

The Township is responsible for owning and maintaining a storm sewer system of storm sewer mains and other supporting infrastructure. Staff are working towards improving the accuracy and reliability of their Stormwater Services inventory to assist with long-term asset management planning.

### 4.2.1 Asset Inventory & Replacement Cost

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

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Catch Basin Lateral	5	Cost/Unit - 100%	\$9,375
Culverts (P)	252	Cost/Unit - 29.27% CPI Tables - 68.73% User-Defined Cost - 1.99%	\$363,840
Gravity Main	27	User-Defined Cost - 100%	\$4,240,612
			<b>\$4,613,827</b>

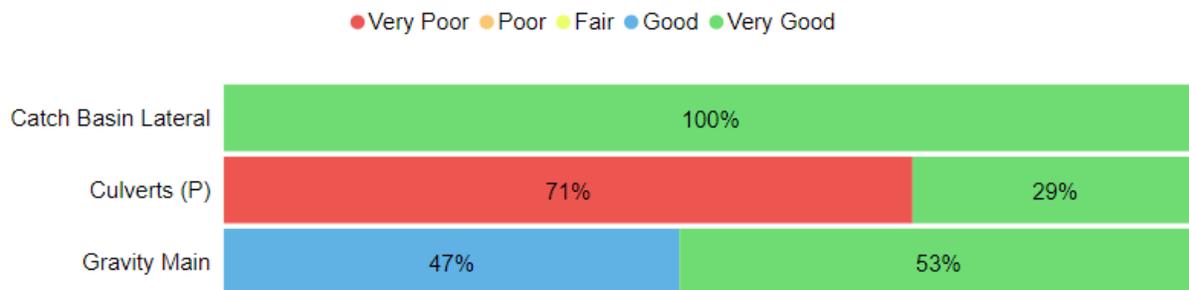
Total Replacement Cost  
**\$4.6M**



## 4.2.2 Asset Condition

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

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Catch Basin Lateral	95%	Very Good	Age-Based - 100%
Culverts (P)	25%	Poor	Assessed - 71%
Gravity Main	89%	Very Good	Age-Based - 100%
	<b>43%</b>	<b>Fair</b>	



To ensure that the Township’s storm sewer system 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 Stormwater Services.

### Current Approach to Condition Assessment

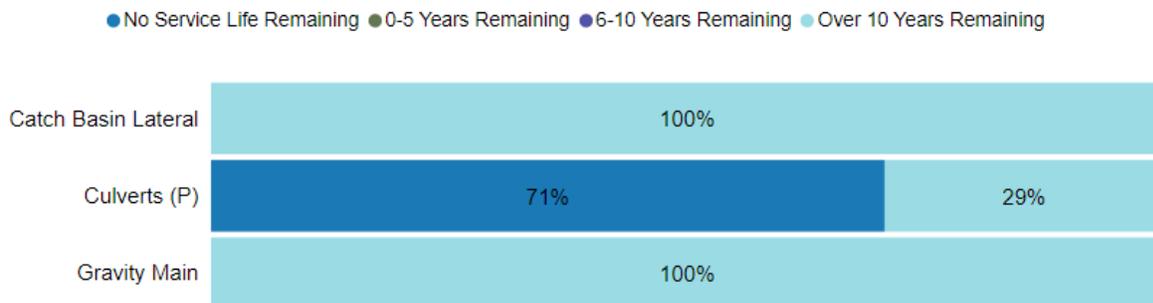
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality’s current approach:

- There is no condition assessment program in place for storm sewer infrastructure currently and CCTV inspections are not completed regularly
- Age-based estimates of condition are used to project current condition, although confidence in the accuracy of these estimates is low

### 4.2.3 Estimated Useful Life & Average Age

The Estimated Useful Life for the storm sewer system 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 Asset Age (Years)	Average Service Life Remaining (Years)
Catch Basin Lateral	50-80	25	24.9
Culverts (P)	25	27.4	18.6
Gravity Main	20-80	8.8	27.6
		<b>25.6</b>	<b>9.8</b>



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

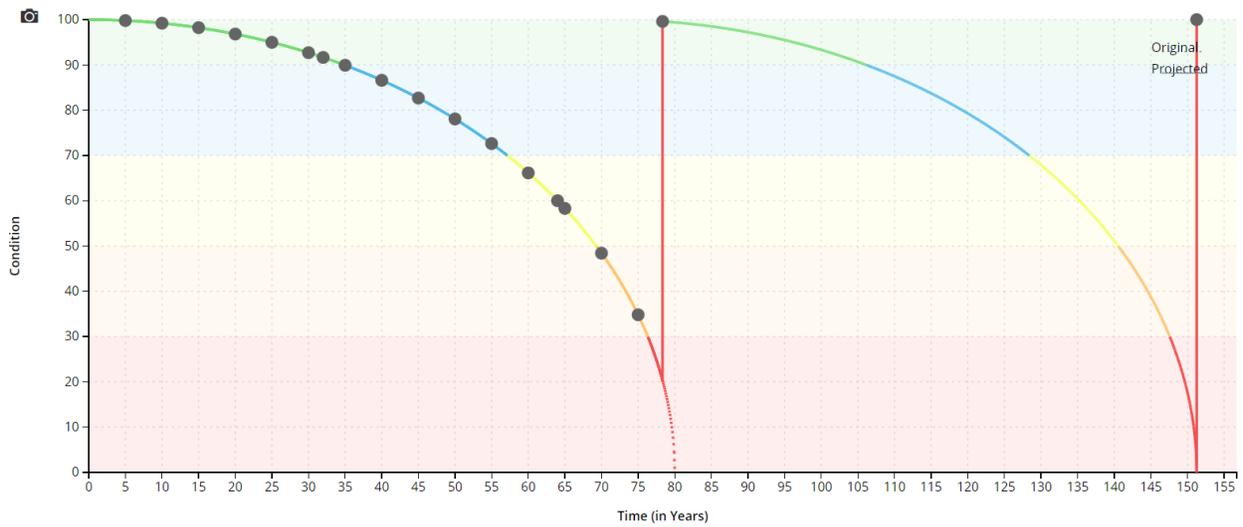
### 4.2.4 Lifecycle Management Strategy

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

The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle storm mains (300mm). Instead of allowing the storm mains to deteriorate until replacement is required, strategic rehabilitation is expected to extend the service life of mains at a lower total cost.

### Storm Mains (300mm)

Event Name	Event Class	Event Trigger
Flushing/Cleaning	Preventative Maintenance	Every 5 years
CCTV Inspection	Preventative Maintenance	Every 15 years
Boring/Rodding	Maintenance	Every 32 years
Trench-less lining	Rehabilitation	Condition: 20-30
Asset Replacement	Replacement	Condition: 0

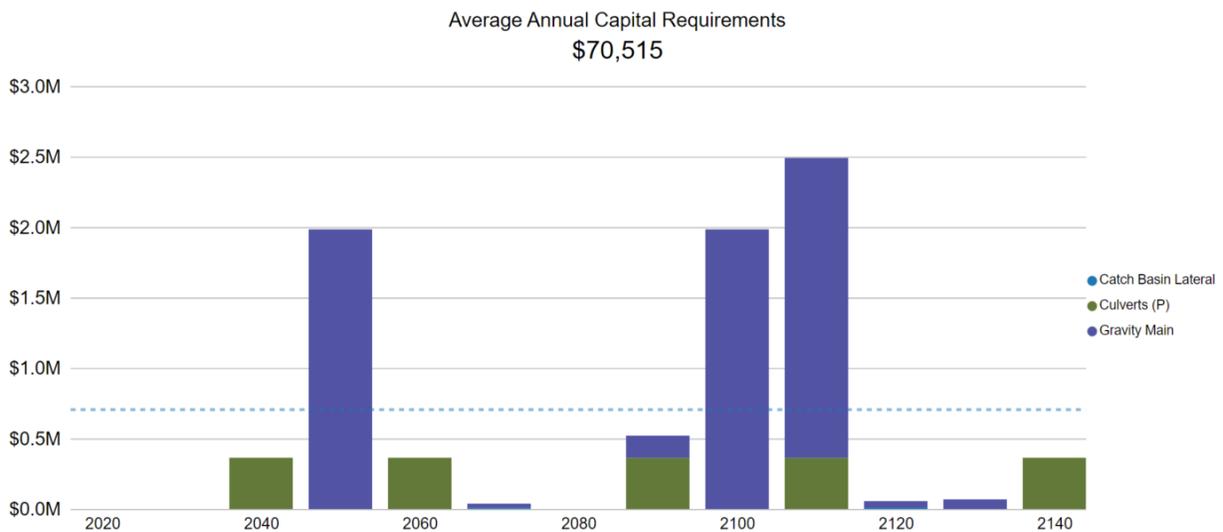


The following table further expands on the Township’s current approach to lifecycle management:

Activity Type	Description of Current Strategy
Maintenance	The Township performs unscheduled maintenance activities as needed.
Rehabilitation	The Township performs unscheduled rehabilitation as needed activities as needed.

### Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 120 years. A 120-year projection is used as this ensures that every asset has gone through one iteration of replacement. The forecasted requirements are aggregated into 10-year bins and the trend line represents the average 10-year capital requirements.



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

## 4.2.5 Risk & Criticality

### Risk Matrix

The following risk matrix provides a visual representation of the level of risk exposure for this asset category. It considers both the probability of failure and consequence of failure. The metrics that have been used to determine both can be found in Appendix C.



### Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Township is currently facing in addition to the stated risks in section 1.2.2:



#### Asset Data & Information

Staff plan to prioritize data refinement efforts to increase confidence in the accuracy and reliability of asset data and information. Once completed there will be greater alignment between available datasets, which would help in the development of data-driven strategies to address infrastructure needs.



### Climate Change & Extreme Weather Events

There is a concern about the impact of flooding events due to Georgian Bay’s local topography and the current capacity of stormwater infrastructure.

## 4.2.6 Levels of Service

The following tables identify the Township’s current level of service for Stormwater Services. 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 Stormwater Services.

Service Attribute	Qualitative Description	Current LOS (2020)
Scope	Description, which may include map, of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater system	The commercial area in Mactier is supported by approximately 1 km of storm sewer mains that was built in 2019.

### Technical Levels of Service

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

<b>Service Attribute</b>	<b>Technical Metric</b>	<b>Current LOS (2020)</b>
Scope	% of properties in municipality resilient to a 100-year storm	Not Applicable <sup>1</sup>
	% of the municipal stormwater management system resilient to a 5-year storm	Not Applicable <sup>1</sup>
Performance	Capital reinvestment rate	0.76%

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<sup>1</sup> The system is very limited in terms of properties covered. Therefore, this key performance metric is not representative as the scope of the system is minimal.

## 4.2.7 Recommendations

### Asset Inventory

- The Township's storm sewer system inventory remains at a basic level of maturity and staff do not have a high level of confidence in its accuracy or reliability. The alignment of separate databases of the storm sewer system should be priority.

### Condition Assessment Strategies

- The development of a comprehensive inventory should be accompanied by a system-wide assessment of the condition of all assets in the Stormwater Services through CCTV or zoom camera inspections.

### Lifecycle Management Strategies

- Document and review lifecycle management strategies for the storm sewer system on a regular basis (recommended cycle is 5 years) to achieve the lowest total cost of ownership while maintaining adequate service levels.
- Consider the development of preventative maintenance programs.

### 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 the availability of additional data and also 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 that the Township has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying and capturing metrics that are related to climate change.

- 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

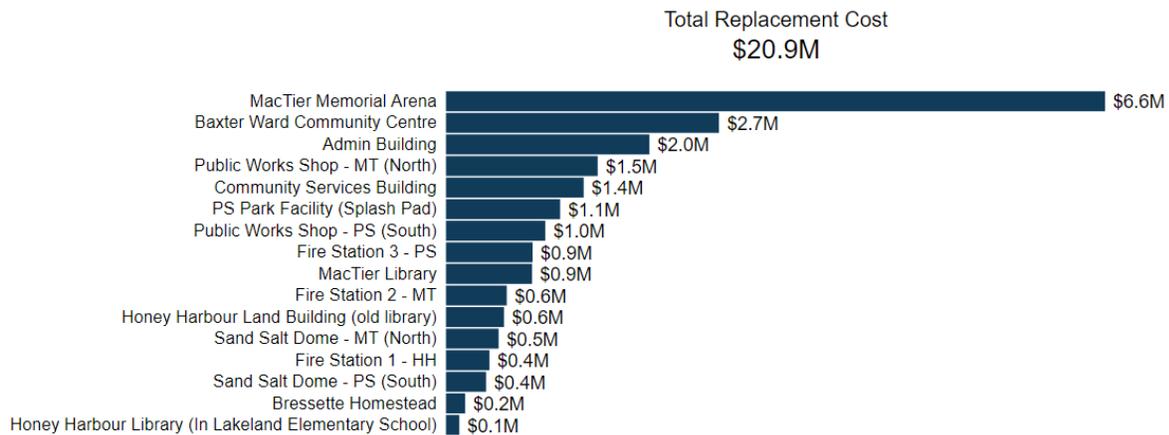
The Township of Georgian Bay maintains several facilities and sports fields around the community. The Township operates the MacTier Memorial Arena and Baxter Ward Community Centre. Many of Township's facilities are multi-purpose and offer space for a variety of services, programs, and other recreational opportunities.

### 4.3.1 Asset Inventory & Replacement Cost

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

<b>Asset Segment</b>	<b>Replacement Cost Method</b>	<b>Total Replacement Cost</b>
Admin Building	CPI Tables - 100%	\$2,025,459
Baxter Ward Community Centre	CPI Tables - 98.02% User-Defined Cost - 1.98%	\$2,717,001
Bressette Homestead	CPI Tables - 100%	\$193,271
Community Services Building	CPI Tables - 100%	\$1,371,981
Fire Station 1 - Honey Harbour	CPI Tables - 100%	\$434,807
Fire Station 2 - MacTier	CPI Tables - 100%	\$606,944
Fire Station 3 - Port Severn	CPI Tables - 100%	\$864,044
Honey Harbour Land Building (old library)	CPI Tables - 100%	\$579,353
Honey Harbour Library (In Lakeland Elementary School)	Flat-Rate Inflation - 100%	\$135,000
MacTier Library	CPI Tables - 100%	\$858,330

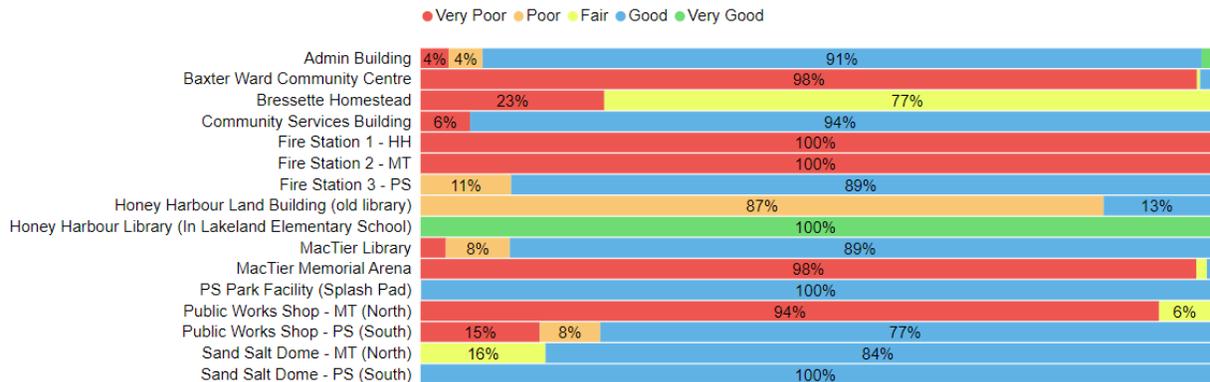
Asset Segment	Replacement Cost Method	Total Replacement Cost
MacTier Memorial Arena	CPI Tables - 98.24% User-Defined Cost - 1.76%	\$6,555,718
Port Severn Park Facility (Splash Pad)	CPI Tables - 99.93% User-Defined Cost - 0.07%	\$1,137,905
Public Works Shop - MacTier (North)	CPI Tables - 100%	\$1,511,099
Public Works Shop – Port Severn (South)	CPI Tables - 100%	\$990,285
Sand Salt Dome - MacTier (North)	CPI Tables - 100%	\$525,858
Sand Salt Dome – Port Severn (South)	CPI Tables - 100%	\$401,140
		<b>\$20,908,195</b>



## 4.3.2 Asset Condition

The table below identifies the current average condition and source of available condition data for each asset segment. The Average Condition (%) is a weighted value based on replacement cost. Currently, all facilities are using an age-based approach to estimate their current conditions. As the age-based approach may be misrepresentative of the condition of facilities, it is important to develop and adopt condition assessment practices in order to generate more precise condition data.

<b>Asset Segment</b>	<b>Average Condition (%)</b>	<b>Average Condition Rating</b>	<b>Condition Source</b>
Admin Building	60%	Good	Age-Based - 100%
Baxter Ward Community Centre	1%	Very Poor	Age-Based - 100%
Bressette Homestead	34%	Poor	Age-Based - 100%
Community Services Building	69%	Good	Age-Based - 100%
Fire Station 1 - Honey Harbour	0%	Very Poor	Age-Based - 100%
Fire Station 2 - MacTier	0%	Very Poor	Age-Based - 100%
Fire Station 3 – Port Severn	60%	Good	Age-Based - 100%
Honey Harbour Land Building (old library)	34%	Poor	Age-Based - 100%
Honey Harbour Library (In Lakeland Elementary School)	96%	Very Good	Age-Based - 100%
MacTier Library	65%	Good	Age-Based - 100%
MacTier Memorial Arena	1%	Very Poor	Age-Based - 100%
Port Severn Park Facility (Splash Pad)	74%	Good	Age-Based - 100%
Public Works Shop - MacTier (North)	3%	Very Poor	Age-Based - 100%
Public Works Shop – Port Severn (South)	52%	Fair	Age-Based - 100%
Sand Salt Dome - MacTier (North)	66%	Good	Age-Based - 100%
Sand Salt Dome – Port Severn (South)	72%	Good	Age-Based - 100%
	<b>28%</b>	<b>Poor</b>	



## Current Approach to Condition Assessment

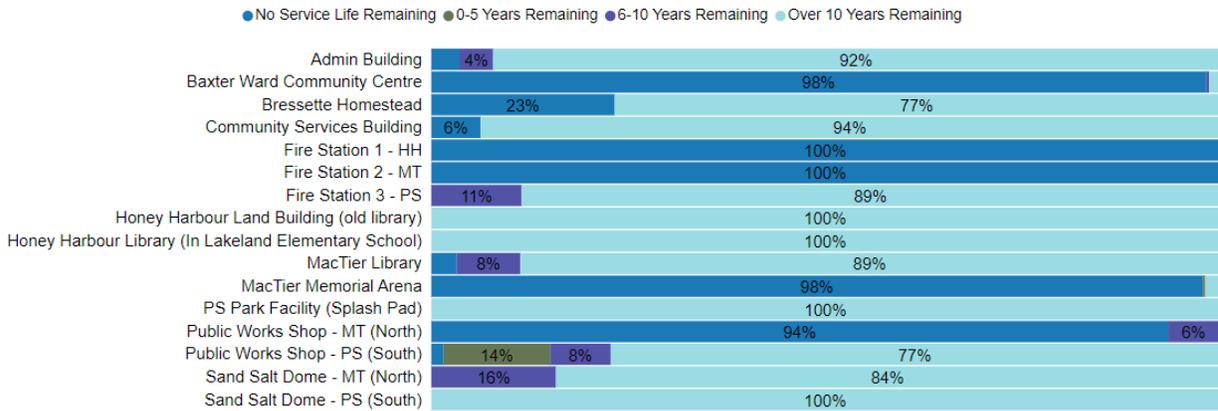
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality’s current approach:

- Health & safety inspections occur regularly but are not specific to condition assessments or lifecycle planning.
- No formal condition assessment program has been adopted yet for facilities.

### 4.3.3 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.

<b>Asset Segment</b>	<b>Estimated Useful Life (Years)</b>	<b>Average Age (Years)</b>	<b>Average Service Life Remaining (Years)</b>
Admin Building	10-40	12.7	12.3
Baxter Ward Community Centre	6-40	25.3	0.2
Bressette Homestead	15-40	22.3	5.2
Community Services Building	10-40	10.5	19.5
Fire Station 1 - Honey Harbour	40	50.0	10
Fire Station 2 - MacTier	40	50.0	8.9
Fire Station 3 - Port Severn	20-40	14.3	18.7
Honey Harbour Land Building (old library)	36-40	18.4	19.6
Honey Harbour Library (In Lakeland Elementary School)	15	0.6	14.4
MacTier Library	10-40	12.1	11.2
MacTier Memorial Arena	7-40	17.4	6.3
Port Severn Park Facility (Splash Pad)	10-40	10.6	9.8
Public Works Shop - MacTier (North)	20-40	31.6	11.7
Public Works Shop – Port Severn (South)	10-40	14.3	6.9
Sand Salt Dome - MacTier (North)	40	11.6	15.1
Sand Salt Dome – Port Severn (South)	20	11.2	28.8
		<b>16.4</b>	<b>9.0</b>



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

### 4.3.4 Lifecycle Management Strategy

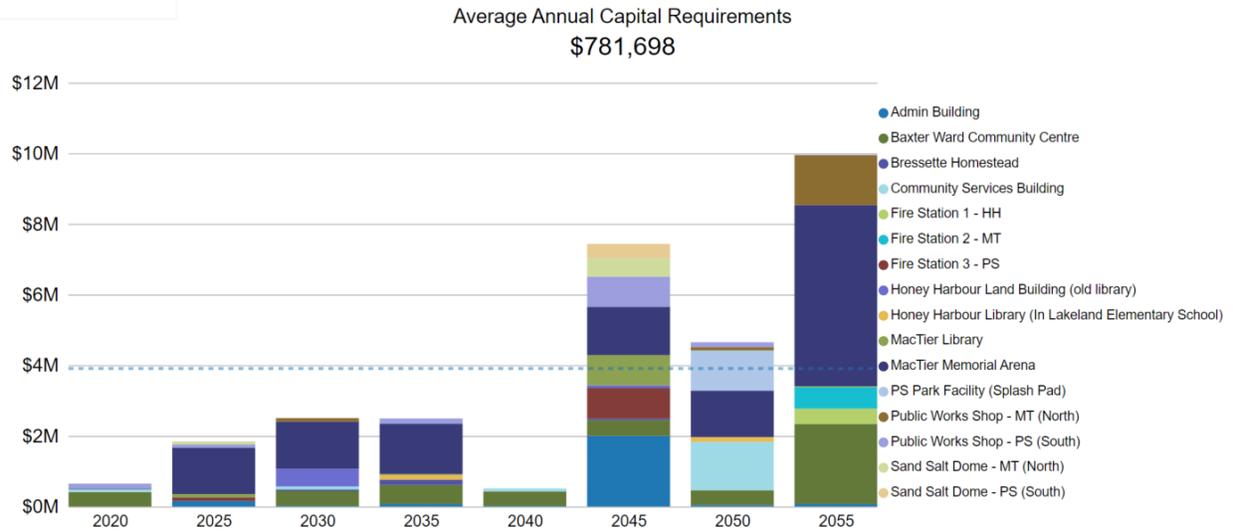
The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset’s characteristics, location, utilization, maintenance history and environment.

The following table further expands on the Township’s current approach to lifecycle management:

Activity Type	Description of Current Strategy
Maintenance	Health & safety inspections occur regularly but are not specific to condition assessments or lifecycle planning.

### Forecasted Capital Requirements

The following graph forecasts capital requirements for the facilities. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs to meet future capital needs. The following graph identifies capital requirements over the next 35 years. A 35-year projection is used as this ensures that every asset has gone through one iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.



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

### 4.3.5 Risk & Criticality

#### Risk Matrix

The following risk matrix provides a visual representation of the level of risk exposure for this asset category. It considers both the probability of failure and consequence of failure. The metrics that have been used to determine both can be found in Appendix C.

Consequence	5	0 Assets - \$0.00	1 Asset 6,888.00 sq ft \$1,844,079.00	0 Assets - \$0.00	0 Assets - \$0.00	1 Asset 27,648.00 sq ft \$5,105,290.00
	4	0 Assets - \$0.00	5 Assets 9,100.00 sq ft \$4,690,966.00	0 Assets - \$0.00	0 Assets - \$0.00	1 Asset - sq ft \$1,048,067.00
	3	0 Assets - \$0.00	2 Assets - sq ft \$843,752.00	0 Assets - \$0.00	0 Assets - \$0.00	2 Assets 7,639.00 sq ft \$2,539,619.00
	2	1 Asset 1.00 unit(s) \$135,000.00	0 Assets - \$0.00	0 Assets - \$0.00	2 Assets 12,187.00 sq ft \$1,914,639.00	1 Asset - sq ft \$225,951.00
	1	1 Asset 1.00 unit(s) \$22,228.00	4 Assets 601.00 sq ft, unit(s) \$163,819.00	16 Assets 17,494.17 sq ft, unit(s), m2 \$427,928.59	5 Assets 8,942.00 m2, sq ft \$331,608.00	12 Assets 14,196.00 sq ft, m2, unit(s) \$1,615,248.00
		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 in addition to the stated risks in section 1.2.2:



### Aging Infrastructure

There are a number of aging facilities and firehalls that are in need of major component replacements such as HVAC units and roofing systems which indicates that significant investment may be required to meet regulatory standards of facilities in the near future.



### Lifecycle Management Strategies

The current lifecycle management strategy for facilities is limited to health & safety inspections that occur regularly but are not specific to condition assessments or lifecycle planning. Moving forward, the Township should begin to assess facility components on a regular schedule.

## 4.3.6 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.

## 4.3.7 Recommendations

### Asset Inventory

- Continue to review and refine the facilities' asset inventory to ensure new assets and betterments are reflected and attributes are detailed. Refining the asset inventory would include developing a more robust asset hierarchy using the UNIFORMAT II structure.

### Condition Assessment Strategies

- Develop and conduct condition assessment programs for all facilities.
- Perform comprehensive assessments on all facilities every 2 years.

### Lifecycle Management Strategies

- Implement lifecycle activities for facilities components as required. Such strategies may include:
  - Installing frost protection to the sub-structure components at 25 – 30 years of the asset's estimated useful life.
  - Installing drainage, and/or waterproofing to the sub-structure components between 25 and 50 years of the assets estimated useful depending on treatment type.
  - Rehabilitating or replacing roofs every 15 – 50 years based on material type and estimated useful life.
  - Rehabilitating or replacing exterior cladding every 40 – 50 years based on material type and estimated useful life.

### 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 the availability of additional data and also 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 by July 1st, 2025, while focusing on metrics that are climate change related.

## 4.4 Fleet – Rolling Stock

The township owns and operates a significant portfolio of fleet.

### 4.4.1 Asset Inventory & Replacement Cost

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

<b>Asset Segment</b>	<b>Quantity</b>	<b>Replacement Cost Method</b>	<b>Total Replacement Cost</b>
Admin	2	User-Defined Cost - 100%	\$50,000
Building Department	6	Flat-Rate Inflation - 16.32% User-Defined Cost - 83.68%	\$247,515
Fire and Emergency Services	17	CPI Tables - 4.77% Flat-Rate Inflation - 12.44% User-Defined Cost - 82.79%	\$3,405,490
Parks and Recreation	6	User-Defined Cost - 100%	\$270,542
Public Works	18	CPI Tables - 2.82% Flat-Rate Inflation - 1.39% User-Defined Cost - 95.79%	\$2,938,155
			<b>\$6,911,703</b>

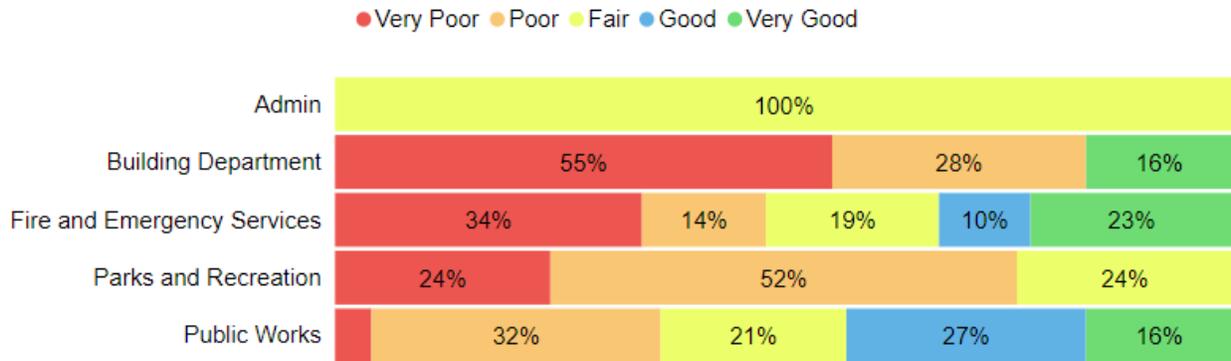
Total Replacement Cost  
\$6.9M



### 4.4.2 Asset Condition

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

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Admin	59%	Fair	Assessed - 100%
Building Department	29%	Poor	Assessed - 45%
Fire and Emergency Services	45%	Fair	Age-Based - 100%
Parks and Recreation	31%	Poor	Assessed - 28%
Public Works	55%	Fair	Assessed - 63%
Admin	59%	Fair	Assessed - 100%
	<b>48%</b>	<b>Fair</b>	



### Current Approach to Condition Assessment

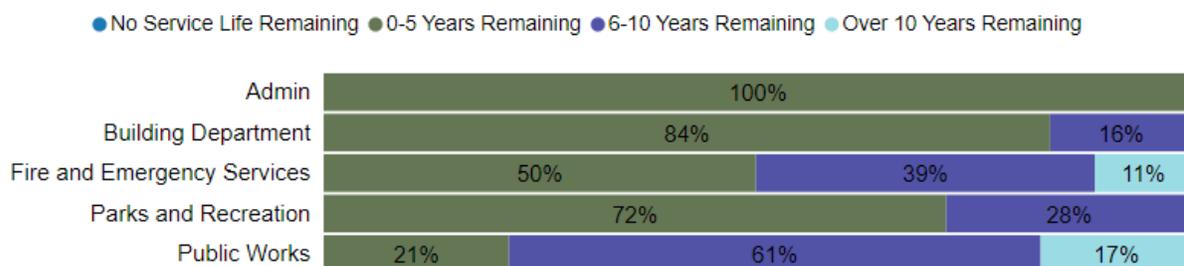
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality’s current approach:

- The Township currently does not perform any condition assessments on its fleet assets. However, there are some strategies in place, such as regular oil changes and general maintenance. Otherwise, the Municipality lacks additional systematic lifecycle planning.

### 4.4.3 Estimated Useful Life & Average Age

The Estimated Useful Life for fleet and rolling stock 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)
Admin	7	8.6	1
Building Department	7-15	7.4	2.7
Fire and Emergency Services	7-20	7.6	6.5
Parks and Recreation	5-15	8.5	2
Public Works	7-20	6.6	5
		<b>7.3</b>	<b>4.8</b>



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

## 4.4.4 Lifecycle Management Strategy

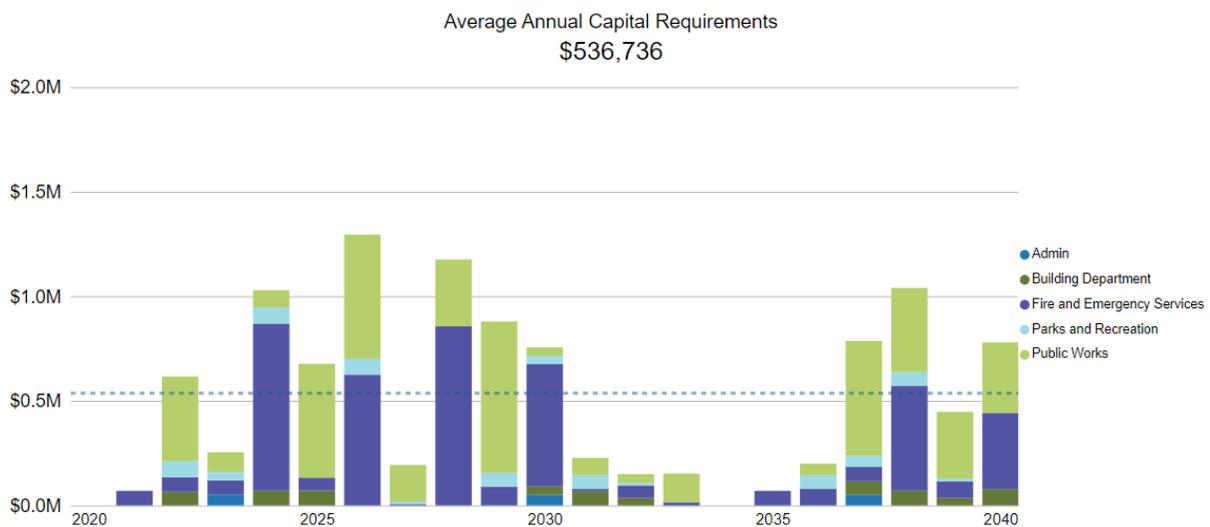
The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset’s characteristics, location, utilization, maintenance history and environment.

The following table further expands on the Township’s current approach to lifecycle management:

Activity Type	Description of Current Strategy
Maintenance	The Township’s current approach for maintenance is limited to some strategies, such as regular oil changes and general maintenance.

### Forecasted Capital Requirements

The following graph forecasts capital requirements for the fleet and rolling stock assets. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs to meet future capital needs. The following graph identifies capital requirements over the next 20 years. A 20-year projection is used as this ensures that every asset has gone through one iteration of replacement. The forecasted requirements are aggregated into 1-year bins and the trend line represents the average yearly capital requirements.



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

## 4.4.5 Risk & Criticality

### Risk Matrix

The following risk matrix provides a visual representation of the level of risk exposure for this asset category. It considers both the probability of failure and consequence of failure. The metrics that have been used to determine both can be found in Appendix C.



### Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Township is currently facing in addition to the stated risks in section 1.2.2:



#### Climate Change & Extreme Weather Events

According to staff, there is an increase to wildfire potential within Georgian Bay Township and this raise concerns that current aging fleet may not be able to meet future demands.



### **Lifecycle Management Strategies**

The current lifecycle management strategy for fleet and rolling stock is limited to some strategies, such as regular oil changes, general maintenance, and regular tire changes. For heavier fleet, a mid-life engine replacement is performed. Condition assessments are performed on an annual basis either internally or with the assistance of a third party.

## **4.4.6 Levels of Service**

The fleet and rolling stock 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.

## 4.4.7 Recommendations

### Asset Inventory

- Continue to review and refine the fleet and rolling stock's asset inventory to ensure new assets and betterments are reflected and attributes are detailed.

### Condition Assessment Strategies

- Develop and conduct condition assessment programs for vehicle components of all fleet and rolling stock assets.

### Lifecycle Management Strategies

- Implement lifecycle activities for fleet and rolling stock asset components as required. Such strategies may include:
  - Performing engine rebuilds and mechanical refurbishments as required or prescribed by the manufacturer.
  - Recycling attachments of vehicles or heavy machinery (ex. Plow blades have a longer lifecycle than the corresponding vehicle).
  - Developing targeted lifecycle strategies to specific heavy machinery and vehicles for further optimization of the Township's asset management program.

### 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 the availability of additional data and also 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 by July 1st, 2025, while focusing on metrics that are climate change related.

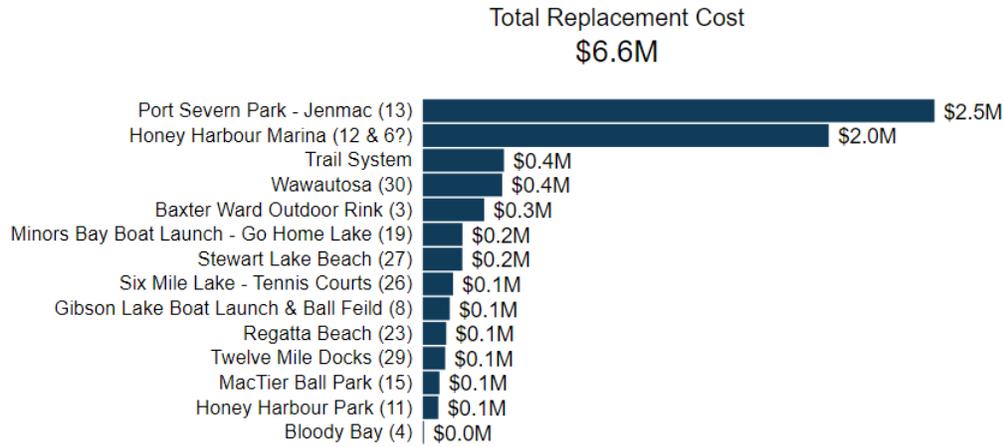
## 4.5 Parks and Natural Capital

The Township of Georgian Bay is home to many green spaces and public parks. The Township is the home to Muskoka's only national park.

### 4.5.1 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 parks and natural capital inventory.

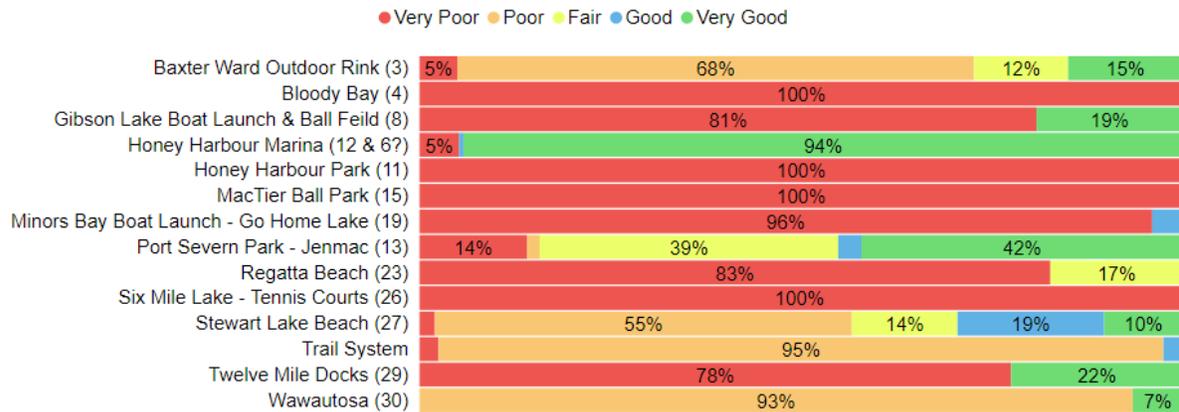
<b>Asset Segment</b>	<b>Replacement Cost Method</b>	<b>Total Replacement Cost</b>
Baxter Ward Outdoor Rink	CPI Tables - 62.63% User-Defined Cost - 37.37%	\$299,740
Bloody Bay	User-Defined Cost - 100%	\$7,000
Gibson Lake Boat Launch & Ball Field	CPI Tables - 92.55% User-Defined Cost - 7.45%	\$132,553
Honey Harbour Marina	CPI Tables - 97.72% User-Defined Cost - 2.28%	\$1,972,534
Honey Harbour Park	CPI Tables - 12.55% User-Defined Cost - 87.45%	\$76,874
MacTier Ball Park	CPI Tables - 37.19% User-Defined Cost - 62.81%	\$82,561
Minors Bay Boat Launch - Go Home Lake	CPI Tables - 74.26% User-Defined Cost - 25.74%	\$194,226
Port Severn Park – Jenmac	CPI Tables - 86.39% User-Defined Cost - 13.61%	\$2,485,978
Regatta Beach	CPI Tables - 82.65% User-Defined Cost - 17.35%	\$115,306
Six Mile Lake - Tennis Courts	Cost/Unit - 1.35% CPI Tables - 64.55% User-Defined Cost - 34.10%	\$148,380
Stewart Lake Beach	Cost/Unit - 2.05% CPI Tables - 92.26% User-Defined Cost - 5.69 %	\$193,390
Trail System	Cost/Unit - 2.05% CPI Tables - 92.26% User-Defined Cost - 5.69%	\$395,667
Twelve Mile Docks	CPI Tables - 94.94% User-Defined Cost - 5.06%	\$110,450
Wawautosa	CPI Tables - 99.59% User-Defined Cost - 0.41%	\$387,225
		<b>\$6,601,883</b>



## 4.5.2 Asset Condition

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

<b>Asset Segment</b>	<b>Average Condition (%)</b>	<b>Average Condition Rating</b>	<b>Condition Source</b>
Baxter Ward Outdoor Rink	41%	Fair	Assessed - 17%
Bloody Bay	0%	Very Poor	Age-Based - 100%
Gibson Lake Boat Launch & Ball Field	17%	Very Poor	Age-Based - 100%
Honey Harbour Marina	94%	Very Good	Age-Based - 100%
Honey Harbour Park	4%	Poor	Assessed - 26%
MacTier Ball Park	0%	Very Poor	Assessed - 6%
Minors Bay Boat Launch - Go Home Lake	3%	Very Poor	Age-Based - 100%
Port Severn Park – Jenmac	61%	Very Poor	Assessed - 28%
Regatta Beach	10%	Good	Assessed - 17%
Six Mile Lake - Tennis Courts	0%	Very Poor	Age-based - 99%
Stewart Lake Beach	52%	Very Poor	Assessed - 6%
Trail System	33%	Fair	Age-Based - 100%
Twelve Mile Docks	20%	Poor	Age-Based - 100%
Wawautosa	34%	Poor	Age-Based - 100%
	<b>59%</b>	<b>Fair</b>	



## Current Approach to Condition Assessment

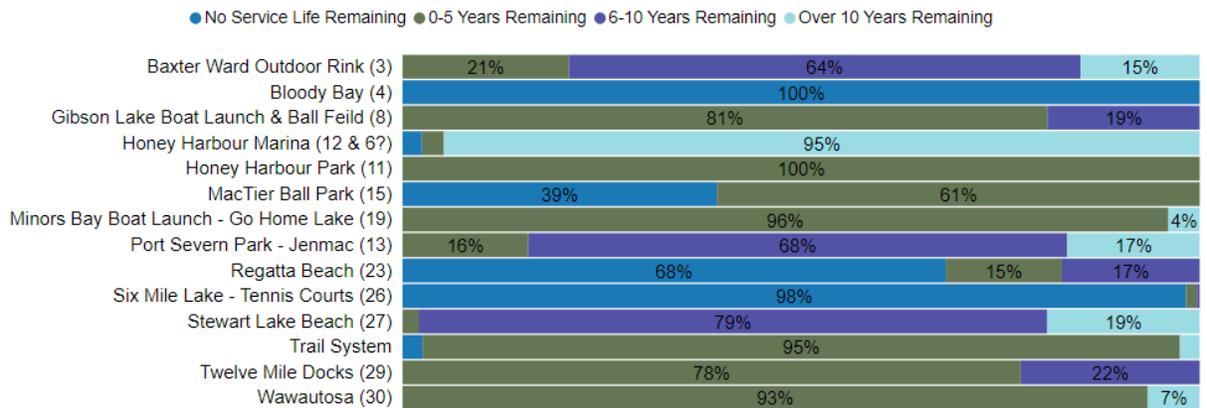
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality’s current approach:

- Health & safety inspections occur regularly but are not specific to condition assessments or lifecycle planning.
- Dock inspections are performed multiple times every week in the summer season.
- Park inspections are carried out regularly.

### 4.5.3 Estimated Useful Life & Average Age

The Estimated Useful Life for parks and natural capital 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.

<b>Asset Segment</b>	<b>Estimated Useful Life (Years)</b>	<b>Average Age (Years)</b>	<b>Average Service Life Remaining (Years)</b>
Baxter Ward Outdoor Rink	10-20	49.4	6.8
Bloody Bay	15	121.0	-106.0
Gibson Lake Boat Launch & Ball Field	10-20	61.3	1.3
Honey Harbour Marina	5-20	31.3	5.7
Honey Harbour Park	10-20	19.3	0.8
MacTier Ball Park	20	28.6	-2.5
Minors Bay Boat Launch - Go Home Lake	15-25	51.8	3.8
Port Severn Park – Jenmac	15	9.5	13.3
Regatta Beach	10-75	79.5	3.5
Six Mile Lake - Tennis Courts	10-20	81.8	-40.1
Stewart Lake Beach	10-20	37.3	8.9
Trail System	10-20	22.3	-7.3
Twelve Mile Docks	15-20	14.9	3.8
Wawautosa	10-15	7.3	10.9
		<b>41.6</b>	<b>-0.3</b>



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.

#### 4.5.4 Lifecycle Management Strategy

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

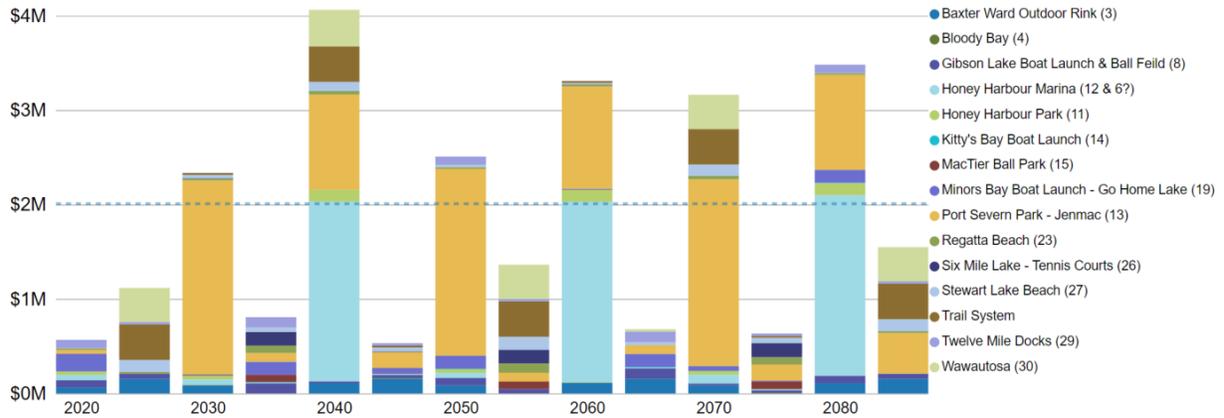
The following table further expands on the Township’s current approach to lifecycle management:

Activity Type	Description of Current Strategy
Maintenance	The Township’s current approach for maintenance health & safety inspections that occur regularly but are not specific to condition assessments or lifecycle planning.

#### Forecasted Capital Requirements

The following graph forecasts capital requirements for the parks and natural capital assets. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs to meet future capital needs. The following graph identifies capital requirements over the next 65 years. A 65-year projection is used as this ensures that every asset has gone through one iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements.

Average Annual Capital Requirements  
\$401,610



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

## 4.5.5 Risk & Criticality

### Risk Matrix

The following risk matrix provides a visual representation of the level of risk exposure for this asset category. It considers both the probability of failure and consequence of failure. The metrics that have been used to determine both can be found in Appendix C.

	1	2	3	4	5
5	1 Asset 1.00 unit(s) \$1,857,775.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
4	1 Asset 1.00 unit(s) \$707,681.00	0 Assets - \$0.00	1 Asset 6,227.00 m2 \$811,260.00	0 Assets - \$0.00	0 Assets - \$0.00
3	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	1 Asset 1.00 unit(s) \$333,951.00	0 Assets - \$0.00
2	0 Assets - \$0.00	0 Assets - \$0.00	1 Asset - sq ft \$160,612.00	3 Assets 20,936.20 sq ft, unit(s) \$530,737.00	1 Asset 1.00 unit(s) \$257,548.00
1	7 Assets 1.00 sq ft, unit(s) \$479,424.17	7 Assets 322.00 unit(s), sq ft \$142,553.00	5 Assets 3.00 sq ft, unit(s) \$83,736.00	7 Assets 205.00 unit(s), m \$271,257.00	28 Assets 15,394.00 sq ft, m2, unit(s) \$965,349.76
	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 in addition to the stated risks in section 1.2.2:



### **Climate Change & Extreme Weather Events**

According to staff, there is an increase to wildfire potential within Georgian Bay Township, which may have a significant impact on parks and natural capital assets owned by the Township.



### **Lifecycle Management Strategies**

The inspection activities that are typically carried out are not in alignment with the lifecycle management strategies.

## 4.5.6 Levels of Service

The parks and natural capital 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.

## 4.5.7 Recommendations

### Asset Inventory

- Continue to review and refine the parks and natural asset's inventory to ensure new assets and betterments are reflected and attributes are detailed.

### Condition Assessment Strategies

- Develop and conduct condition assessment programs for parks and natural capital assets.
- Begin to assess the condition of each park's critical components

## Lifecycle Management Strategies

- Implement lifecycle activities for fleet and rolling stock asset components as required. Such strategies may include:
  - Rehabilitating or replacing playground equipment every 15 – 20 years depending on structure composition, type, condition, or estimated useful life.
  - Applying surface treatment for tennis courts every 4 – 8 years depending on condition and full replacement at 25 – 30 years .
  - Adding a new top layer to aggregate trails perpetually every 10 – 15 years and resurfacing asphalt trails every 25 – 30 years depending on condition or estimated useful life of the asset.

## 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 the availability of additional data and also 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 by July 1st, 2025, while focusing on metrics that are climate change related.

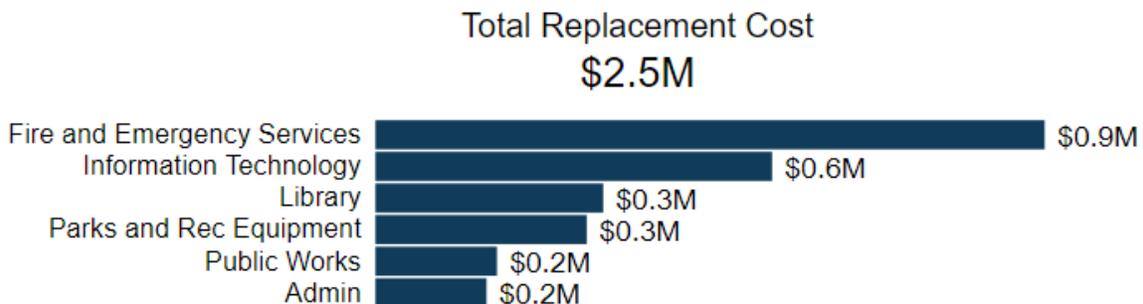
## 4.6 Equipment

The Township owns and maintains several equipment sets that provide key services to the community.

### 4.6.1 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 equipment inventory.

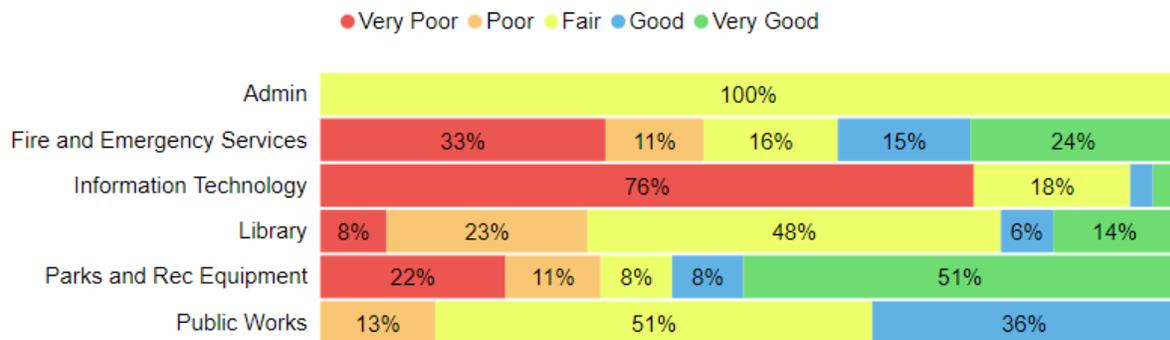
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Admin	1	CPI Tables - 100%	\$157,883
Fire and Emergency Services	49	CPI Tables - 1.27% Flat-Rate Inflation - 17.11% User-Defined Cost - 81.61%	\$949,876
Information Technology	13	CPI Tables - 17.24% User-Defined Cost - 82.76%	\$563,115
Library	11	CPI Tables - 92.76% User-Defined Cost - 7.24%	\$323,505
Parks and Recreation Equipment	20	CPI Tables - 49.13% Flat-Rate Inflation - 9.22% User-Defined Cost - 41.65%	\$300,131
Public Works	12	CPI Tables - 65.25% User-Defined Cost - 34.75%	\$172,673
			<b>\$2,467,183</b>



## 4.6.2 Asset Condition

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

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Admin	48%	Fair	Age Based - 100%
Fire and Emergency Services	48%	Fair	Assessed - 15%
Information Technology	16%	Very Poor	Assessed - 20%
Library	51%	Fair	Age Based - 100%
Parks and Rec Equipment	59%	Fair	Assessed - 21%
Public Works	61%	Good	Assessed - 52%
	<b>43%</b>	<b>Fair</b>	



### Current Approach to Condition Assessment

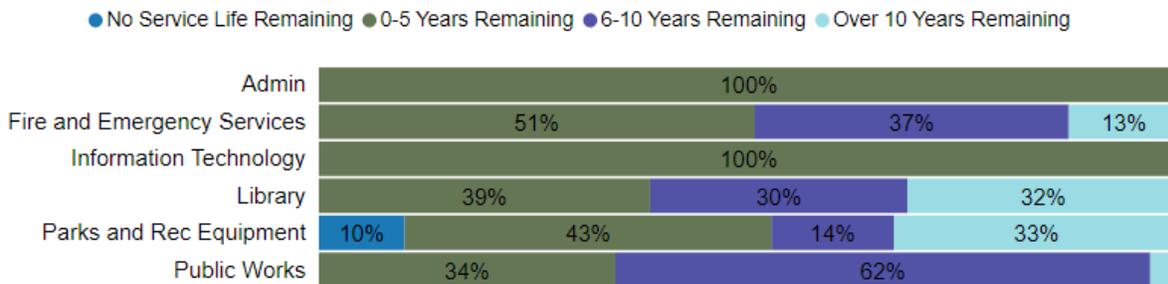
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the municipality's current approach:

- The Township is currently limited to only performing inspections for its fire and emergency services, which is tracked as part of an independent system.

### 4.6.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Equipment assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. 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)
Admin	5	16.0	1.4
Fire and Emergency Services	5-20	6.8	4.7
Information Technology	4-6	13.3	2.4
Library	7-25	6.1	5.5
Parks and Rec Equipment	5-20	7.8	1.7
Public Works	2-20	26.7	5.1
		9.9	4.0



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

## 4.6.4 Lifecycle Management Strategy

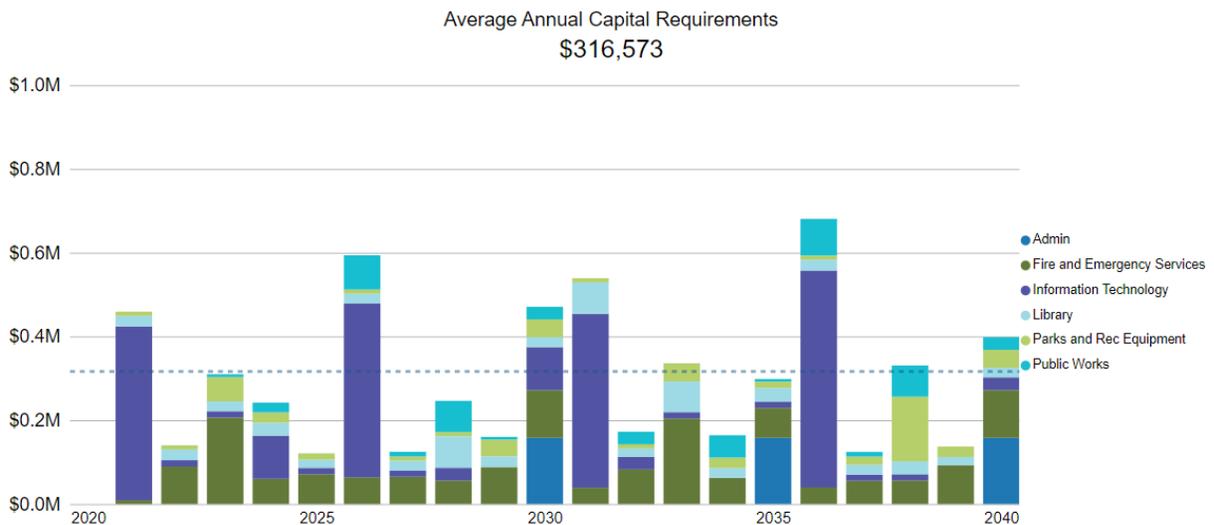
The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset’s characteristics, location, utilization, maintenance history and environment.

The following table further expands on the Township’s current approach to lifecycle management:

Activity Type	Description of Current Strategy
Maintenance	Staff do perform some preventative maintenance strategies including equipment functionality testing, but again, lack additional lifecycle strategies.

### Forecasted Capital Requirements

The following graph forecasts capital requirements for the Equipment. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs to meet future capital needs. The following graph identifies capital requirements over the next 20 years. A 20-year projection is used as this ensures that every asset has gone through one iteration of replacement. The forecasted requirements are aggregated into 1-year bins and the trend line represents the average yearly capital requirements.



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

## 4.6.5 Risk & Criticality

### Risk Matrix

The following risk matrix provides a visual representation of the level of risk exposure for this asset category. It considers both the probability of failure and consequence of failure. The metrics that have been used to determine both can be found in Appendix C.



### Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Township is currently facing in addition to the stated risks in section 1.2.2:



#### Climate Change & Extreme Weather Events

According to staff, there is an increase to wildfire potential within Georgian Bay Township and this raise concerns that current aging equipment may not be able to meet future demands.



### **Lifecycle Management Strategies**

The current lifecycle management strategy for equipment is limited to some preventative maintenance strategies, including equipment functionality testing. However, there is a need to adopt a wider range of lifecycle activities once condition protocols are developed and the corresponding information is collected.

## 4.6.6 Levels of Service

The equipment 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.

## 4.6.7 Recommendations

### Asset Inventory

- Continue to review and refine the equipment asset inventory to ensure new assets and betterments are reflected and attributes are detailed.

### Condition Assessment Strategies

- Develop condition assessment protocols for all equipment assets
- Develop and conduct condition assessment programs for all equipment assets

### Lifecycle Management Strategies

- Develop lifecycle management strategies. Such strategies may include:
  - Adopting replacement cycles based on assessed condition or manufacturer recommendations for specialized equipment.
  - Exploring the ability to repurpose equipment to different departments or lower risk applications. E.g. (repurpose critical backup generators to noncritical applications when being replaced).
  - Rebuilding arena compressors on a cyclical basis.
  - Rebuilding mechanical pumps instead of replacing them.
  - Scheduling strategies for fire equipment as per the National Fire Protection Association (NFPA) requirements within the Township's asset management software lifecycle framework.

- Expanding lifecycle frameworks to specific assets in time to further improve optimization of equipment assets.

## 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 the availability of additional data and also 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 by July 1st, 2025, while focusing on metrics that are climate change related.

## 4.7 Road Appurtenances

The Township of Georgian Bay owns and operates road appurtenances such as guiderails, signage, and streetlights, These appurtenances are required to enhance the safety of the road network.

### 4.7.1 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 appurtenances inventory.

<b>Asset Segment</b>	<b>Replacement Cost Method</b>	<b>Total Replacement Cost</b>
Guiderails	Cost/Unit - 100%	\$213,642
Signage	CPI Tables - 97.28% User-Defined Cost - 2.72%	\$47,708
Streetlights	CPI Tables - 100%	\$762,018
		<b>\$1,023,368</b>

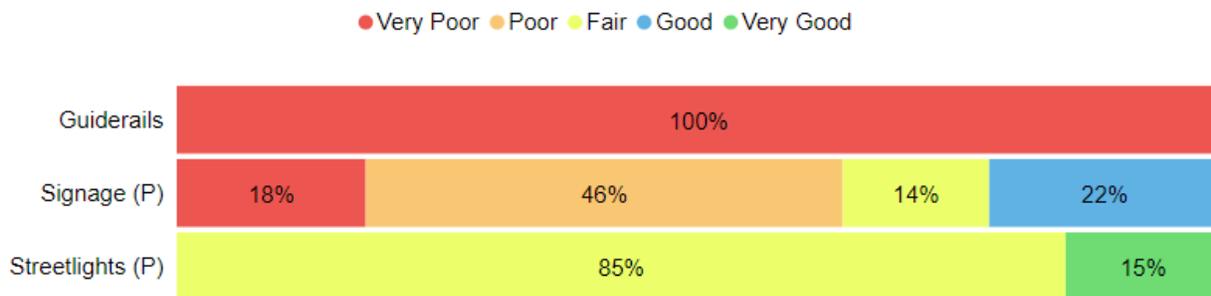
Total Replacement Cost  
\$1.0M



## 4.7.2 Asset Condition

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

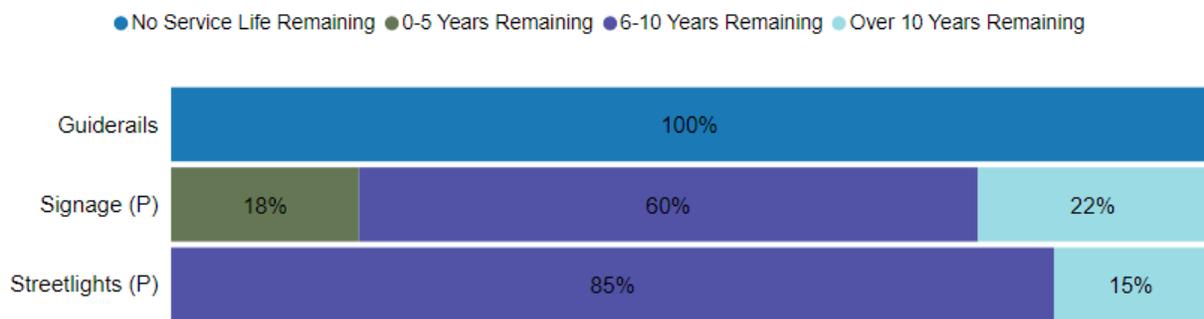
Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Guiderails	0%	Very Poor	Age-Based - 100%
Signage	38%	Poor	Age-Based - 100%
Streetlights	54%	Fair	Age-Based - 100%
	<b>42%</b>	<b>Fair</b>	



## 4.7.3 Estimated Useful Life & Average Age

The Estimated Useful Life for road appurtenances 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)
Guiderails	10-15	17.3	-6.3
Signage	20	13.2	5.8
Streetlights	20	6.3	12.7
		<b>13.9</b>	<b>3.0</b>



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.

#### 4.7.4 Lifecycle Management Strategy

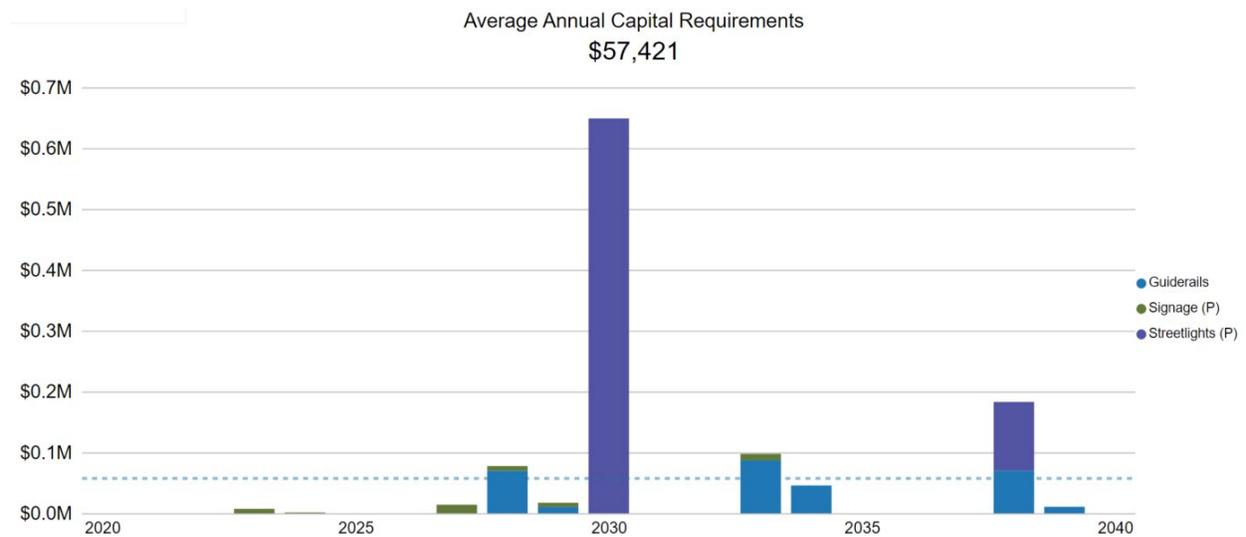
The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset’s characteristics, location, utilization, maintenance history and environment.

The following table further expands on the Township’s current approach to lifecycle management:

Activity Type	Description of Current Strategy
Maintenance	The Township performs unscheduled maintenance activities as needed.
Rehabilitation	The Township performs unscheduled rehabilitation as needed activities as needed.

## Forecasted Capital Requirements

The following graph forecasts capital requirements for the road appurtenances assets. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs to meet future capital needs. The following graph identifies capital requirements over the next 20 years. A 20-year projection is used as this ensures that every asset has gone through one iteration of replacement. The forecasted requirements are aggregated into 1-year bins and the trend line represents the average yearly capital requirements.



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

## 4.7.5 Risk & Criticality

### Risk Matrix

The following risk matrix provides a visual representation of the level of risk exposure for this asset category. It considers both the probability of failure and consequence of failure. The metrics that have been used to determine both can be found in Appendix C.

Consequence	5	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00	0 Assets - \$0.00
	4	0 Assets - \$0.00	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	1 Asset - unit(s) \$113,024.00	1 Asset 1.00 unit(s) \$10,569.00	24 Assets 283.00 unit(s) \$677,491.00	2 Assets 114.00 unit(s) \$8,642.00	10 Assets 2,494.00 m \$213,642.50
		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 in addition to the stated risks in section 1.2.2:



### Lifecycle Management Strategies

The current lifecycle management strategy for road appurtenances is reactive rather than proactive.

## 4.7.6 Levels of Service

The road appurtenances 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.

## 4.7.7 Recommendations

### Asset Inventory

- Continue to review and refine the road appurtenances assets inventory to ensure new assets and betterments are reflected and attributes are detailed.

### Condition Assessment Strategies

- Develop and conduct condition assessment programs for road appurtenances assets.
- Conduct a reflexivity assessment for signage

### Lifecycle Management Strategies

- Develop cursory life cycle management strategies for all road appurtenances assets.

### 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 the availability of additional data and also 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 by July 1st, 2025, while focusing on metrics that are climate change related.

# 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
- Compact development form in population centres contributes to reduced infrastructure costs
- Low-density development in population centres contributes to increased infrastructure costs
- The costs of growth should be considered in long-term funding strategies that are designed to maintain the current level of service

## 5.1 Description of Growth Assumptions

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

### 5.1.1 Township of Georgian Bay Official Plan (March 2014)

In 2014, the Township of Georgian Bay adopted the Official Plan to serve as the blueprint for sustainable growth in the Township. The document was most recently consolidated in March of 2021. The plan recognizes and builds upon the various patterns of land use in the Township by accommodating compatible land uses in the Settlement Areas, Waterfront Designation, Waterfront Communities, and Rural Designation, and sustainable, compact growth within the Urban Centres. The plan encourages the majority of permanent growth within the serviced Urban Centres of Port Severn and MacTier.

According to the plan, the Township of Georgian Bay is projected to have a permanent population of 3,900 people by 2031. The seasonal population is projected to be 16,900 for a total projected population of 20,800 people by 2031. A total employment of 1,800 jobs is planned for 2031 as well.

Employment and the majority of permanent population growth will be directed to Port Severn and MacTier. To a lesser extent employment growth will also be directed to the Community of Honey Harbour. Sufficient opportunities for growth are not available through intensification, redevelopment, and designated growth areas to accommodate the projected needs over the identified planning horizon as identified in a growth management study.

Commercial and industrial growth, which does not require municipal services and is geared primarily to the resource sector of the economy, will continue to be located in the Rural Designation where site specific characteristics are justified and where the uses are or can be made compatible with existing development in the area.

### 5.1.2 District of Muskoka Official Plan

The purpose of the Muskoka Official Plan is to provide direction and a policy framework for managing growth and land use decisions over the planning period to 2038. The Muskoka Official Plan establishes a framework for the continued growth and development of a number of existing Urban Centres and several smaller Community Areas along with appropriate development in Rural and Waterfront Areas. The Latest version of the plan was adopted in June of 2019.

The plan included the following historical values and estimates for population, dwellings and employment for the Township of Georgian Bay. The values were sourced from the *2013 District of Muskoka Growth Strategy Phase 2* report.

<b>Population Type (Historical and Forecast)</b>	<b>2016</b>	<b>2021</b>	<b>2026</b>	<b>2031</b>	<b>2036</b>
Population (Year-Round)	2,700	3,000	3,400	3,800	4,100
Population (Seasonal)	16,100	16,600	16,900	17,200	17,400

<b>Dwelling Type (Historical and Forecast)</b>	<b>2016</b>	<b>2038</b>
Single/Semi	1,140	1,510
Multiple	20	170
Apartment	30	120
<b>Total</b>	<b>1,190</b>	<b>1,800</b>

<b>Employment (Historical and Forecast)</b>	<b>2016</b>	<b>2021</b>	<b>2026</b>	<b>2031</b>	<b>2036</b>
Employment	990	1,150	1,300	1,440	1,530

## 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

### 6.1 Financial Strategy Overview

For an AMP 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 Georgian Bay to identify the financial resources required for sustainable asset management based on existing asset inventories, desired levels of service, and projected growth requirements.

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

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

- b. Partnerships
- c. Procurement methods
- 4. Use of Senior Government Funds:
  - a. Gas tax
  - b. Annual grants

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

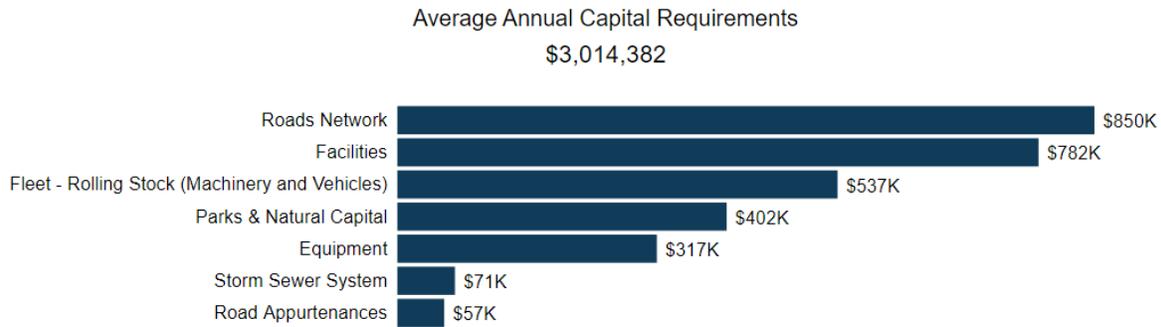
If the financial plan component results in a funding shortfall, the Province requires the inclusion of a specific plan as to how the impact of the shortfall will be managed. In determining the legitimacy of a funding shortfall, the Province may evaluate a Township's approach to the following:

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

## 6.1.1 Annual Requirements & Capital Funding

### Annual Requirements

The annual requirements represent the amount the Township should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs and achieve long-term sustainability. In total, the Township must allocate approximately \$3,014,000 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 roads network and storm sewer system, lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal of the Township’s roads and storm sewer mains respectively. 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 roads network and storm sewer system:

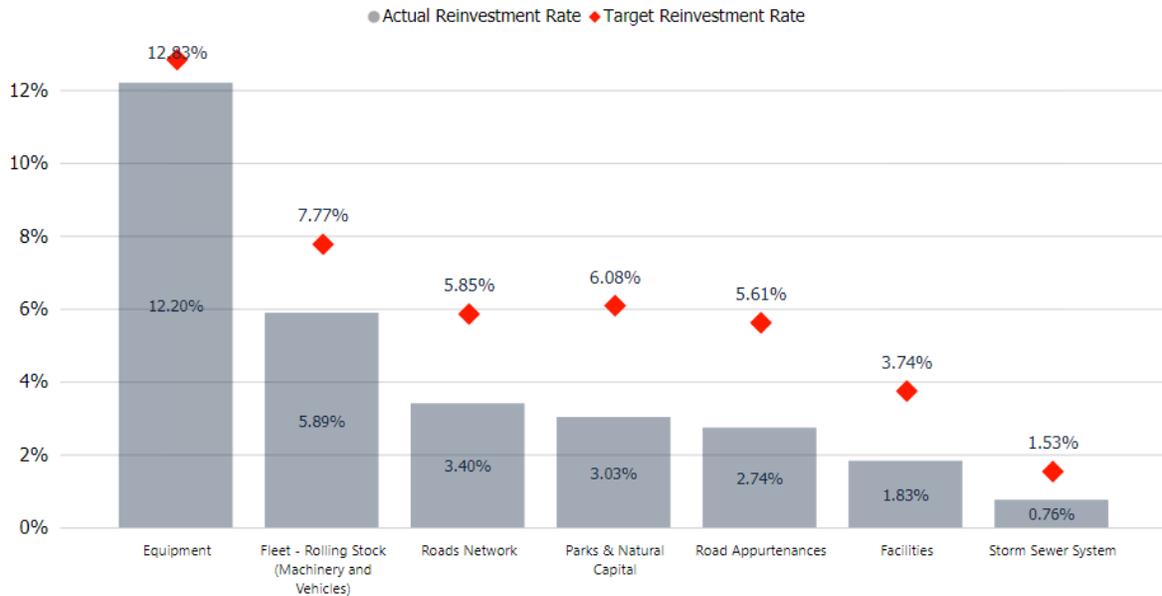
1. **Replacement Only Scenario:** Based on the assumption that assets deteriorate and – without regularly scheduled maintenance and rehabilitation – are replaced at the end of their service life.
2. **Lifecycle Strategy Scenario:** Based on the assumption that lifecycle activities are performed at strategic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

Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Road Network	\$1,020,000	\$850,000	\$170,000
Storm Sewer System	\$83,000	\$71,000	\$12,000

The implementation of a proactive lifecycle strategy for roads leads to a potential annual cost avoidance of \$170,000 for the roads network and \$12,000 for the storm sewer system. This represents an overall reduction of the annual requirements for each category by 16.7% and 14.5 % respectively. 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 \$1,847,000 towards capital projects per year. Given the annual capital requirement of \$3,014,000, there is currently a funding gap of \$1,167,000 annually.



## 6.2 Funding Objective

A scenario was developed to enable Georgian Bay to achieve full funding within 1 to 20 years for the following assets:

1. **Tax Funded Assets:** roads network, storm sewer system, facilities, fleet – rolling stock, parks & natural capital, equipment, and road appurtenances

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

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

## 6.3 Financial Profile: Tax Funded Assets

### 6.3.1 Current Funding Position

The following tables show, by asset category, Georgian Bay's average annual capital expenditure (CapEx) requirements, current funding positions, and funding increases required to achieve full funding on assets funded by taxes.

Asset Category	Avg. Annual Requirement	Annual Funding Available			Annual Deficit	
		Taxes	Gas Tax	Taxes to Reserves		Total Available
Equipment	\$317,000	\$16,000		\$285,000	\$301,000	\$16,000
Facilities	\$782,000	\$382,000			\$382,000	\$400,000
Fleet – Rolling Stock (Machinery & Vehicles)	\$537,000	\$122,000		\$285,000	\$407,000	\$130,000
Parks & Natural Capital	\$402,000	\$200,000			\$200,000	\$202,000
Road Appurtenances	\$57,000	\$28,000			\$28,000	\$29,000
Road Network	\$850,000	\$339,000	\$155,000		\$494,000	\$356,000
Storm Sewer System	\$71,000	\$35,000			\$35,000	\$36,000
	<b>\$3,014,000</b>	<b>\$1,122,000</b>	<b>\$155,000</b>	<b>\$570,000</b>	<b>\$1,847,000</b>	<b>\$1,167,000</b>

The average annual CapEx requirement for the above categories is \$3,014,000. Annual revenue currently allocated to these assets for capital purposes is \$1,847,000 leaving an annual deficit of \$1,167,000. Put differently, these infrastructure categories are currently funded at 61% of their long-term requirements.

### 6.3.2 Full Funding Requirements

In 2021, the Township of Georgian Bay has budgeted annual tax revenues of \$6,200,000. Furthermore, in 2020, the contributions from tax levy summed up to \$1,574,000. 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:

<sup>2</sup> The Totals may be slightly different than the sum of lines due to rounding.

<b>Asset Category</b>	<b>Tax Change Required for Full Funding</b>
Equipment	0.3%
Facilities	6.5%
Fleet – Rolling Stock (Machinery & Vehicles)	2.1%
Parks & Natural Capital	3.3%
Road Appurtenances	0.5%
Road Network	5.8%
Storm Sewer System	0.6%
	<b>19.1%</b>

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

- a) Georgian Bay’s debt payments for these asset categories will be decreasing by \$238,000 over the next 10 years. Although not shown in the table, debt payment decreases will be \$344,000 over the next 20 years.

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

	<b>Without Capturing Changes</b>				<b>With Capturing Changes</b>			
	<b>5 Years</b>	<b>10 Years</b>	<b>15 Years</b>	<b>20 Years</b>	<b>5 Years</b>	<b>10 Years</b>	<b>15 Years</b>	<b>20 Years</b>
Infrastructure Deficit	\$1,167,000	\$1,167,000	\$1,167,000	\$1,167,000	\$1,167,000	\$1,167,000	\$1,167,000	\$1,167,000
Change in Debt Costs	N/A	N/A	N/A	N/A	0	-\$238,000	-\$238,000	-\$344,000
Total Tax Increase Required	19.1%	19.1%	19.1%	19.1%	19.1%	15.1%	15.1%	13.4%
<b>Tax Increase Required Annually<sup>3</sup>:</b>	<b>3.8%</b>	<b>1.9%</b>	<b>1.3%</b>	<b>1.0%</b>	<b>3.8%</b>	<b>1.5%</b>	<b>1.0%</b>	<b>0.7%</b>

<sup>3</sup> The tax increase required annually is calculated as a constant portion of the taxes budgeted for 2021

### 6.3.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 5-year option. This involves full CapEx funding being achieved over 5 years by:

- a) when realized, reallocating the debt cost reductions to the infrastructure deficit as outlined above.
- b) increasing tax revenue by 3.8 % each year for the next 5 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
- c) allocating the current gas tax and OCIF revenue as outlined previously.
- d) allocating the scheduled OCIF grant increases to the infrastructure deficit as they occur.
- e) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
- f) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

#### Notes:

1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. By Provincial AMP rules, this periodic funding cannot be incorporated into an AMP unless there are firm commitments in place. We have included any applicable OCIF formula-based funding since this funding is a multi-year commitment<sup>4</sup>.
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.
3. We realize that the above recommendations are sufficient to achieve full funding levels. However, in order to close the accumulated deficit, the Township could maintain the tax-increase for an elongated period of time to eventually reach a break-even point as seen in the table below. Although the full funding level is reached in year 5, it would take 9 years to fully close the accumulated infrastructure gap.

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<sup>4</sup> The Township should take advantage of all available grant funding programs and transfers from other levels of government. While OCIF has historically been considered a sustainable source of funding, the program is currently undergoing review by the provincial government. This review may impact its availability.

<b>Year</b>	<b>Yearly Deficit</b>	<b>Yearly Tax increase (% of Total Taxes)</b>	<b>Yearly Tax increase (% of Capital Contribution from Tax Levy)</b>	<b>Yearly Tax Increase</b>	<b>Accumulated Tax Increase</b>	<b>Remaining Yearly Deficit</b>	<b>Accumulated Deficit</b>
1	\$1,169,000	3.8%	14.87%	\$234,042	\$234,042.00	\$934,958.00	\$934,958.00
2	\$1,169,000	3.8%	14.87%	\$234,042	\$468,084.00	\$700,916.00	\$1,635,874.00
3	\$1,169,000	3.8%	14.87%	\$234,042	\$702,126.00	\$466,874.00	\$2,102,748.00
4	\$1,169,000	3.8%	14.87%	\$234,042	\$936,168.00	\$232,832.00	\$2,335,580.00
5	\$1,169,000	3.8%	14.87%	\$234,042	\$1,170,210.00	\$(1,210.00)	\$2,334,370.00
6	\$1,169,000	3.8%	14.87%	\$234,042	\$1,404,252.00	\$(235,252.00)	\$2,099,118.00
7	\$1,169,000	3.8%	14.87%	\$234,042	\$1,638,294.00	\$(469,294.00)	\$1,629,824.00
8	\$1,169,000	3.8%	14.87%	\$234,042	\$1,872,336.00	\$(703,336.00)	\$926,488.00
9	\$1,169,000	3.8%	14.87%	\$234,042	\$2,106,378.00	\$(937,378.00)	\$(10,890.00)

Although this option achieves full CapEx funding on an annual basis in 5 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 \$30,000 for Equipment, \$11,700,000 for Facilities, \$322,000 for Parks & Natural Capital, \$214,000 for Road Appurtenances, and \$257,000 for Storm Sewer System.

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 \$1,000,000 project financed at 3.0%<sup>5</sup> 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.

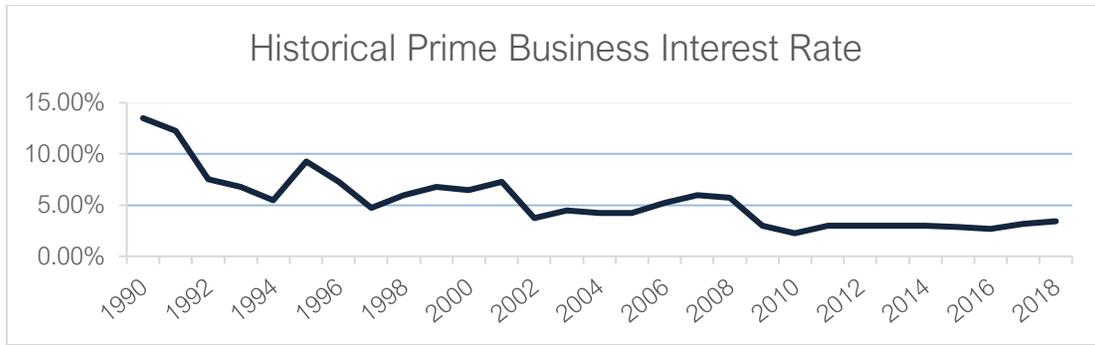
Interest Rate	Number of Years Financed					
	5	10	15	20	25	30
<b>7.0%</b>	22%	42%	65%	89%	115%	142%
<b>6.5%</b>	20%	39%	60%	82%	105%	130%
<b>6.0%</b>	19%	36%	54%	74%	96%	118%
<b>5.5%</b>	17%	33%	49%	67%	86%	106%
<b>5.0%</b>	15%	30%	45%	60%	77%	95%
<b>4.5%</b>	14%	26%	40%	54%	69%	84%
<b>4.0%</b>	12%	23%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

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. 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 graph shows where historical lending rates have been:

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<sup>5</sup> Current municipal Infrastructure Ontario rates for 15-year money is 3.2%.



The following tables outline how Georgian Bay has historically used debt for investing in the asset categories as listed. There is currently \$2,693,000 of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of \$344,000, well within its provincially prescribed maximum of \$1,626,000.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2016	2017	2018	2019	2020
Equipment	\$0	\$0	\$0	\$0	\$0	\$0
Facilities	\$1,151,000	\$0	\$0	\$0	\$0	\$0
Fleet – Rolling Stock (Machinery & Vehicles)	\$0	\$0	\$0	\$0	\$0	\$0
Parks & Natural Capital	\$0	\$0	\$0	\$0	\$0	\$0
Road Appurtenances	\$0	\$0	\$0	\$0	\$0	\$0
Road Network	\$148,000	\$0	\$0	\$0	\$0	\$0
Storm Sewer System	\$1,394,000	\$0	\$0	\$0	\$1,500,000	\$0
<b>Total Tax Funded:</b>	<b>\$2,693,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,500,000</b>	<b>\$0</b>

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2021	2022	2023	2024	2025	2026	2031
Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Facilities	\$213,000	\$213,000	\$213,000	\$213,000	\$213,000	\$213,000	\$0
Fleet – Rolling Stock (Machinery & Vehicles)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Parks & Natural Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Road Appurtenances	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Road Network	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$0
Storm Sewer System	\$106,000	\$106,000	\$106,000	\$106,000	\$106,000	\$106,000	\$106,000
<b>Total Tax Funded:</b>	<b>\$344,000</b>	<b>\$344,000</b>	<b>\$344,000</b>	<b>\$344,000</b>	<b>\$344,000</b>	<b>\$344,000</b>	<b>\$106,000</b>

The revenue options outlined in this plan allow Georgian Bay 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 Georgian Bay.

<b>Asset Category</b>	<b>Balance at December 31, 2020</b>
Equipment	\$1,584,000
Facilities	\$8,000
Fleet – Rolling Stock (Machinery & Vehicles)	\$1,535,000
Parks & Natural Capital	\$8,000
Road Appurtenances	\$8,000
Road Network	\$8,000
Storm Sewer System	\$8,000
<b>Total Tax Funded:</b>	<b>\$3,159,000</b>

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

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

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

## 6.5.2 Recommendation

In 2024, Ontario Regulation 588/17 will require Georgian Bay 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											
Segment	Backlog	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Hot Mix	\$0	\$0	\$0	\$0	\$0	\$0	\$9,700	\$15,150	\$27,600	\$46,500	\$12,800
LCB	\$0	\$95,850	\$313,546	\$419,520	\$773,997	\$1,347,481	\$3,260,982	\$1,265,270	\$483,250	\$672,130	\$390,530
Sidewalks	\$0	\$0	\$0	\$0	\$21,600	\$0	\$53,100	\$68,850	\$40,500	\$0	\$0
<b>Total:</b>	<b>\$0</b>	<b>\$220,371</b>	<b>\$322,534</b>	<b>\$284,669</b>	<b>\$156,175</b>	<b>\$466,916</b>	<b>\$368,265</b>	<b>\$530,004</b>	<b>\$1,449,525</b>	<b>\$582,309</b>	<b>\$145,914</b>

<b>Storm Sewer System</b>											
<b>Segment</b>	<b>Backlog</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>
Catch Basin Lateral	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Culverts (P)	\$257,340	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Gravity Main	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$291,891</b>	<b>\$0</b>									

**Facilities**

<b>Segment</b>	<b>Backlog</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>
Admin Building	\$72,239	\$0	\$0	\$0	\$0	\$0	\$0	\$86,913	\$0	\$0	\$0
Baxter Ward Community Centre	\$2,671,758	\$0	\$0	\$0	\$0	\$0	\$0	\$406,687	\$0	\$0	\$0
Bressette Homestead	\$44,991	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Community Services Building	\$0	\$85,982	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fire Station 1 - Honey Harbour	\$434,807	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fire Station 2 - MacTier	\$606,944	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fire Station 3 - Port Severn	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$99,148	\$0	\$0	\$0
MacTier Library	\$27,498	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$69,544	\$0
MacTier Memorial Arena	\$6,418,273	\$0	\$22,157	\$0	\$0	\$0	\$0	\$0	\$1,312,983	\$0	\$0
Port Severn Park Facility (Splash Pad)	\$0	\$80	\$0	\$0	\$0	\$0	\$60	\$0	\$0	\$0	\$0
Public Works Shop - MacTier (North)	\$1,413,490	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Public Works Shop - Port Severn (South)	\$14,874	\$0	\$134,572	\$0	\$0	\$0	\$0	\$75,943	\$0	\$0	\$0
Sand Salt Dome - MacTier (North)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$83,246
<b>Total:</b>	<b>\$11,704,874</b>	<b>\$86,062</b>	<b>\$156,729</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$60</b>	<b>\$668,691</b>	<b>\$1,312,983</b>	<b>\$69,544</b>	<b>\$83,246</b>

**Fleet – Rolling Stock**

<b>Segment</b>	<b>Backlog</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>
Admin	\$0	\$0	\$0	\$0	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0
Building Department	\$0	\$0	\$0	\$65,000	\$0	\$70,000	\$72,117	\$0	\$0	\$0	\$0
Fire and Emergency Services	\$0	\$0	\$70,000	\$70,000	\$70,000	\$800,000	\$60,774	\$625,000	\$6,552	\$856,649	\$90,033
Parks and Recreation	\$0	\$0	\$0	\$77,000	\$40,000	\$77,000	\$0	\$76,542	\$12,000	\$0	\$65,000
Public Works	\$0	\$0	\$0	\$405,000	\$95,000	\$82,672	\$545,000	\$593,543	\$175,000	\$320,000	\$725,000
<b>Total:</b>	<b>\$0</b>	<b>\$0</b>	<b>\$70,000</b>	<b>\$617,000</b>	<b>\$255,000</b>	<b>\$1,029,672</b>	<b>\$677,891</b>	<b>\$1,295,085</b>	<b>\$193,552</b>	<b>\$1,176,649</b>	<b>\$880,033</b>

<b>Parks and Natural Capital</b>											
<b>Segment</b>	<b>Backlog</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>
Baxter Ward Outdoor Rink	\$0	\$0	\$0	\$15,000	\$47,670	\$0	\$0	\$0	\$155,070	\$0	\$0
Bloody Bay	\$7,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Gibson Lake Boat Launch & Ball Field	\$0	\$0	\$0	\$0	\$0	\$79,067	\$0	\$28,109	\$0	\$0	\$25,377
Honey Harbour Marina	\$48,598	\$0	\$0	\$0	\$9,348	\$45,000	\$0	\$0	\$0	\$0	\$0
Honey Harbour Park	\$0	\$0	\$0	\$36,874	\$0	\$0	\$0	\$0	\$0	\$0	\$0
MacTier Ball Park	\$32,561	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Minors Bay Boat Launch - Go Home Lake	\$0	\$0	\$0	\$136,421	\$50,000	\$0	\$0	\$0	\$0	\$0	\$0
Port Severn Park – Jenmac	\$0	\$0	\$0	\$0	\$41,413	\$0	\$0	\$0	\$0	\$0	\$0
Regatta Beach	\$78,526	\$0	\$16,780	\$0	\$0	\$0	\$0	\$0	\$0	\$20,000	\$0
Six Mile Lake - Tennis Courts	\$145,780	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$600
Stewart Lake Beach	\$0	\$0	\$0	\$0	\$3,960	\$0	\$0	\$92,596	\$0	\$13,047	\$19,913
Trail System	\$10,000	\$0	\$0	\$0	\$0	\$0	\$375,667	\$0	\$0	\$0	\$0
Twelve Mile Docks	\$0	\$0	\$0	\$80,034	\$5,586	\$0	\$0	\$0	\$0	\$0	\$24,830
Wawautosa	\$0	\$0	\$0	\$0	\$0	\$0	\$361,884	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$44,991</b>	<b>\$0</b>									

<b>Equipment</b>											
<b>Segment</b>	<b>Backlog</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>
Fire and Emergency Services	\$0	\$0	\$9,056	\$89,519	\$206,606	\$60,040	\$71,255	\$63,929	\$65,090	\$56,090	\$88,266
Information Technology	\$0	\$0	\$415,000	\$15,000	\$15,000	\$103,115	\$15,000	\$415,000	\$15,000	\$30,400	\$0
Library	\$0	\$0	\$25,172	\$25,654	\$23,467	\$30,622	\$19,705	\$23,178	\$23,434	\$75,314	\$25,654
Parks and Rec Equipment	\$30,000	\$0	\$10,000	\$10,000	\$58,379	\$25,000	\$15,027	\$10,000	\$10,000	\$10,000	\$40,000
Public Works	\$0	\$0	\$0	\$0	\$6,316	\$23,240	\$0	\$81,808	\$11,105	\$74,447	\$6,316
<b>Total:</b>	<b>\$30,000</b>	<b>\$0</b>	<b>\$459,228</b>	<b>\$140,173</b>	<b>\$309,768</b>	<b>\$242,017</b>	<b>\$120,987</b>	<b>\$593,915</b>	<b>\$124,629</b>	<b>\$246,251</b>	<b>\$160,236</b>

<b>Road Appurtenances</b>											
<b>Segment</b>	<b>Backlog</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>	<b>2029</b>
Guiderrails	\$213,643	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Signage (P)	\$0	\$0	\$0	\$0	\$7,346	\$1,296	\$0	\$0	\$14,170	\$7,630	\$6,697
Streetlights (P)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total:</b>	<b>\$213,643</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$7,346</b>	<b>\$1,296</b>	<b>\$0</b>	<b>\$0</b>	<b>\$14,170</b>	<b>\$7,630</b>	<b>\$6,697</b>

# Appendix B: Level of Service Maps

-  District of Muskoka
-  Townships
-  First Nations Communities

**Muskoka Road Network**

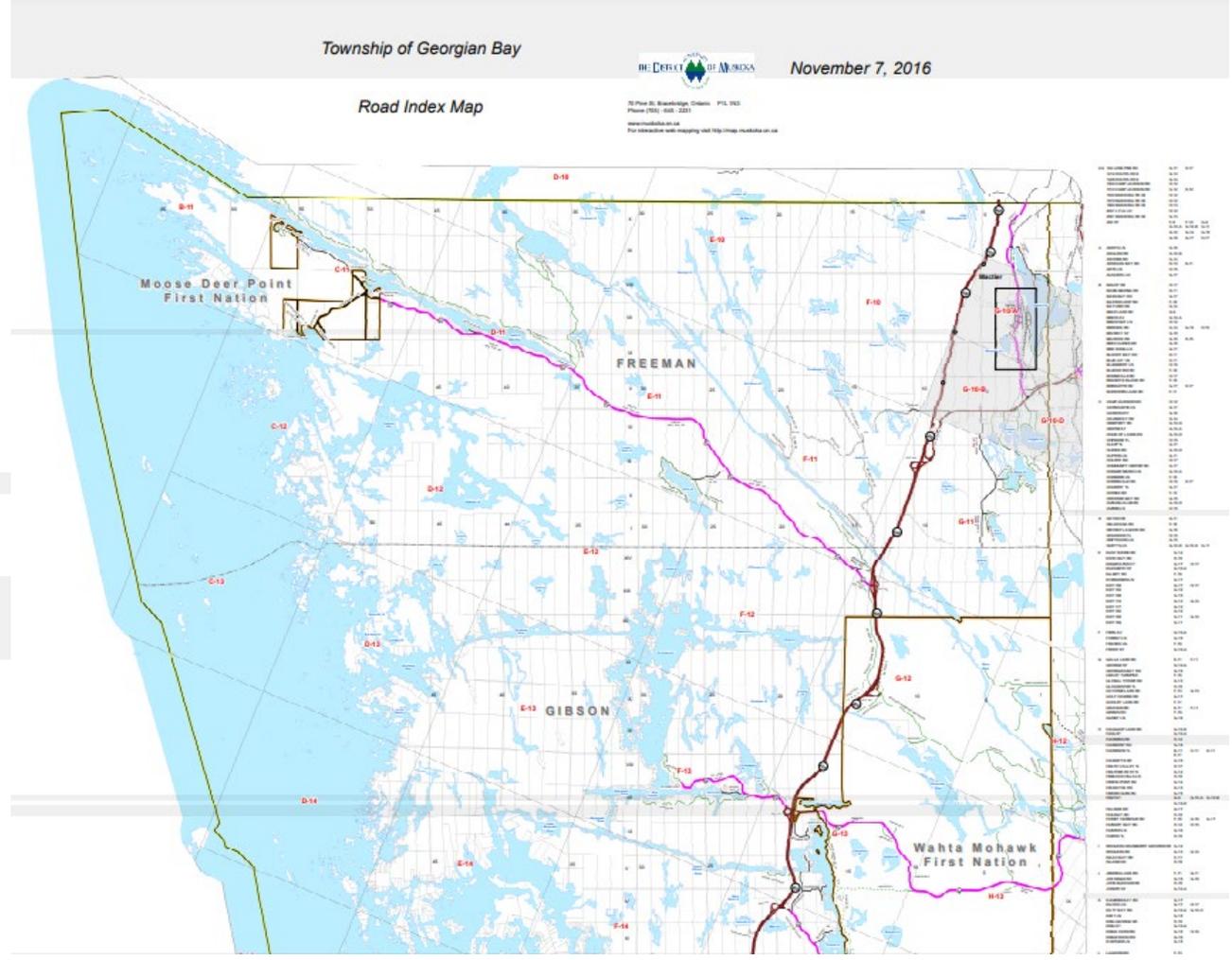
-  Provincial Roads
-  Muskoka District Roads
-  Township Roads
-  Private Roads
-  Proposed
-  Seasonal Maintenance Trail
-  Trail
-  Railways

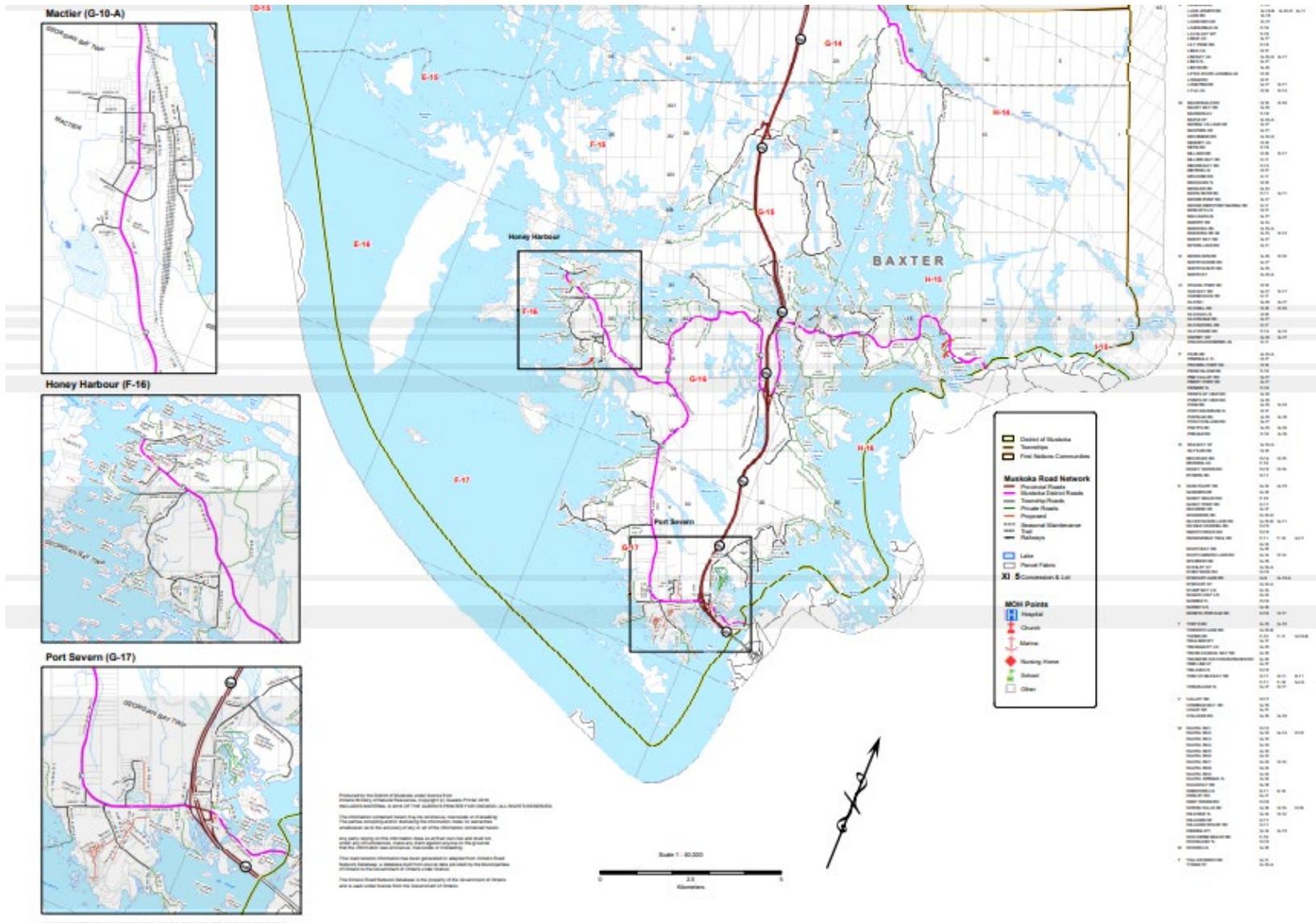
-  Lake
-  Parcel Fabric

**XI 5 Concession & Lot**

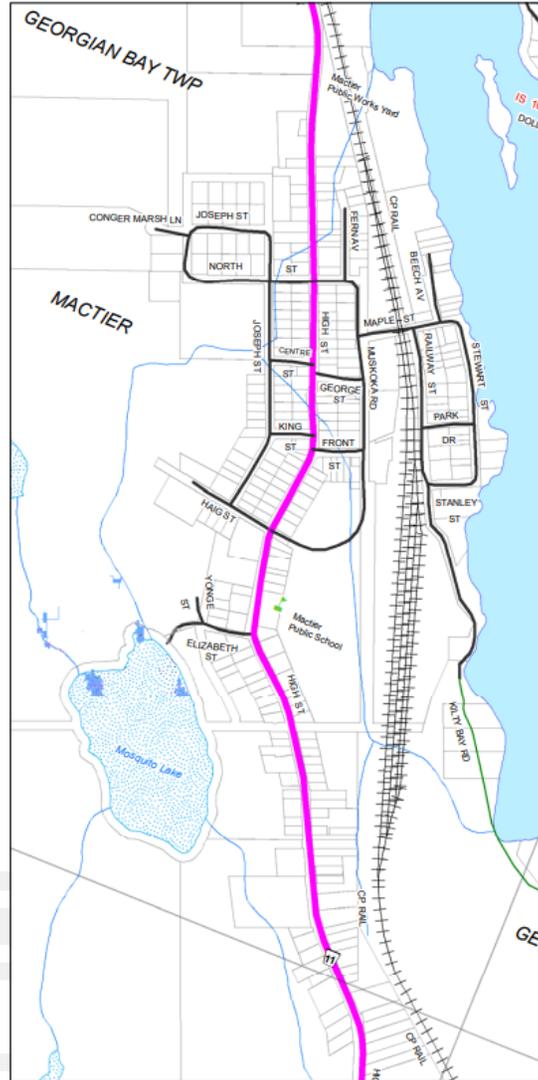
**MOH Points**

-  Hospital
-  Church
-  Marina
-  Nursing Home
-  School
-  Other

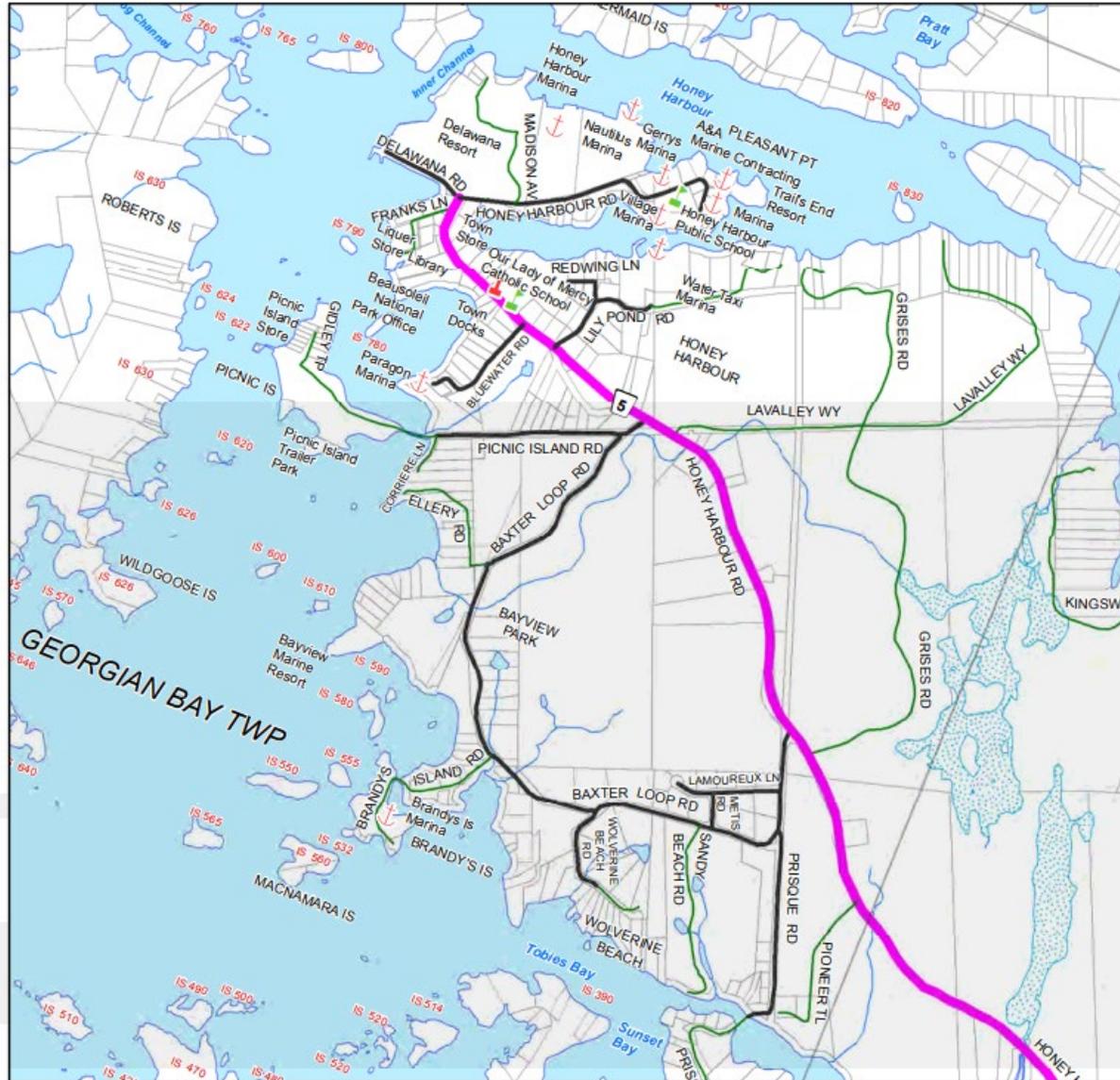




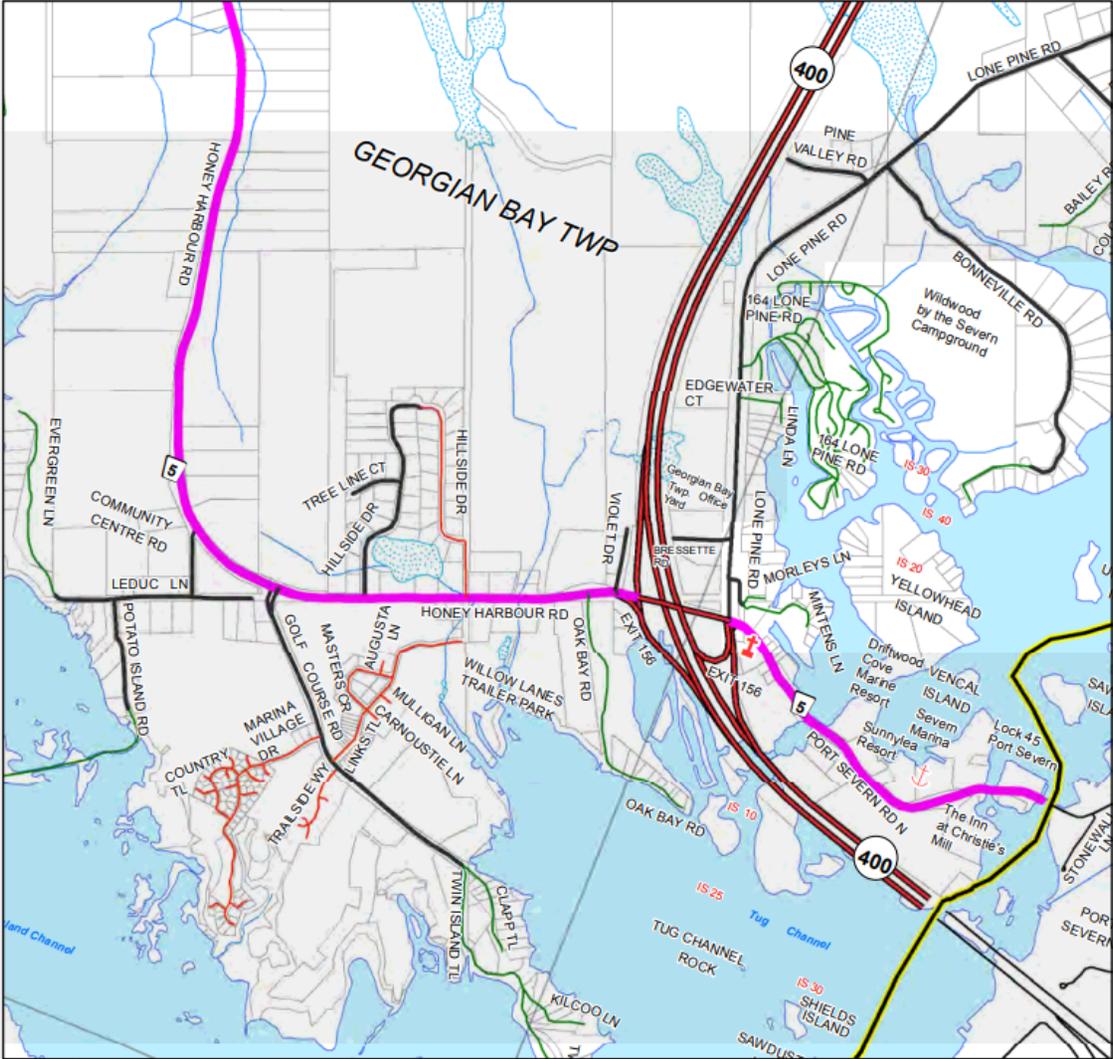
### Mactier (G-10-A)



# Honey Harbour (F-16)



# Port Severn (G-17)



# Appendix C: Risk Rating Criteria

## Probability of Failure

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Equipment	Condition	100%	80-100	1
			60-84	2
			40-59	3
			20-39	4
			0-19	5
Facilities	Condition	100%	80-100	1
			60-84	2
			40-59	3
			20-39	4
			0-19	5
Fleet – Rolling Stock	Condition	100%	80-100	1
			60-84	2
			40-59	3
			20-39	4
			0-19	5
Parks and Natural Capital	Condition	100%	80-100	1
			60-84	2
			40-59	3
			20-39	4
			0-19	5

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Road Network	Condition	60%	85-100	1
			70-84	2
			50-69	3
			30-49	4
			0-29	5
	Service Life Remaining (years)	40%	20+	1
			10-19	1
			5-9	3
			2-4	4
			0-1	5
Storm Sewer System (Culverts)	Condition	100%	80-100	1
			60-84	2
			40-59	3
			20-39	4
			0-19	5
Storm Sewer System (Storm Main 300 mm)	Condition	100%	90-100	1
			70-89	2
			50-69	3
			30-49	4
			0-29	5

## Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Equipment	Economic (100%)	Historical Cost (100%)	\$0-\$100,000	1
			\$100,001-\$250,000	2
			\$250,001-\$500,000	3
			\$500,001-\$1,000,000	4
			\$1,000,001+	5
Facilities	Economic (100%)	Historical Cost (100%)	\$0-\$100,000	1
			\$100,001-\$250,000	2
			\$250,001-\$500,000	3
			\$500,001-\$1,000,000	4
			\$1,000,001+	5
Fleet – Rolling Stock	Economic (100%)	Historical Cost (100%)	\$0-\$100,000	1
			\$100,001-\$250,000	2
			\$250,001-\$500,000	3
			\$500,001-\$1,000,000	4
			\$1,000,001+	5
Parks and Natural Capital	Economic (100%)	Historical Cost (100%)	\$0-\$100,000	1
			\$100,001-\$250,000	2
			\$250,001-\$500,000	3
			\$500,001-\$1,000,000	4
			\$1,000,001+	5
Road Network	Economic (70%)	Replacement Cost (100%)	\$0-\$14	1
			\$15-\$29	2
			\$30-\$49	3
			\$50-\$99	4
			\$100+	5

<b>Asset Category</b>	<b>Risk Classification</b>	<b>Risk Criteria</b>	<b>Value/Range</b>	<b>Consequence of Failure Score</b>
Storm Sewer System (Culverts)	Economic (100%)	Replacement Cost (100%)	\$0-\$100,000	1
			\$100,001-\$250,000	2
			\$250,001-\$500,000	3
			\$500,001-\$1,000,000	4
			\$1,000,001+	5
Storm Sewer System (Storm Main 300 mm)	Economic (100%)	Replacement Cost (100%)	\$0-\$25,000	1
			\$25,001-\$50,000	2
			\$50,001-\$75,000	3
			\$75,001-\$150,000	4
			\$150,001+	5

# 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