ASSET MANAGEMENT PLAN

2025

This Asset Management Plan was prepared by:

Empowering your organization through advanced
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Executive Summary

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

The overall replacement cost of the asset categories owned by Penetanguishene total $542 million. 81% of all assets analysed are in fair or better condition. Assessed condition data was available for all road assets, some facilities as well as machinery and equipment and some stormwater and sanitary sewer network assets, for the remaining assets, assessed condition data was unavailable, and asset age was used to approximate condition. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. Using a combination of proactive lifecycle strategies (roads) and replacement only strategies (all other assets) to determine the lowest cost option to maintain the current level of service, a sustainable financial plan was developed.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent future infrastructure backlogs, and achieve long-term sustainability, the Town's proposed level of service is to target scenario 1 – Lifecycle activities which estimates an average annual capital requirement of $10.6 million.

Addressing annual infrastructure funding shortfalls is a difficult and long-term endeavour for municipalities. It will require many years to reach full funding for current assets. Short phase-in periods to meet these funding targets may place too high a burden on taxpayers too quickly, whereas a phase-in period beyond 20 years may see a continued deterioration of infrastructure, leading to larger backlogs.

In addition to annual needs, there is also an infrastructure backlog of $27 million, comprising assets that remain in service beyond their estimated useful life. It is highly unlikely that all such assets are in a state of disrepair, requiring immediate replacements or full reconstruction. This makes targeted and consistent condition assessments integral to refining long-term replacement and backlog estimates.

Risk frameworks and levels of service targets can then be used to prioritize projects and help select the right lifecycle intervention for the right asset at the right time—including replacement or full reconstruction. The Town has developed preliminary risk models which are integrated with its asset register. These models can produce risk breakdowns that classify assets based on their risk profiles.

The Town has taken important steps in building its asset management program, including developing a more complete and accurate asset register—a substantial initiative. Continuous improvement to this inventory will be essential in maintaining momentum, supporting long-term financial planning, and delivering affordable service levels to the community.

1 About this Document

The Penetanguishene Asset Management Plan was developed in accordance with Ontario Regulation 588/17 (O. Reg 588/17). It contains a comprehensive analysis of Penetanguishene's infrastructure portfolio. This is a living document that will be updated regularly as additional asset and financial data becomes available.

1.1 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. The regulation is a key mandated driver of asset management planning and reporting aimed at creating better performing organizations, and more livable and sustainable communities. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them.

Table 1 Ontario Regulation 588/17 Requirements and Reporting Deadlines

Requirement	2019	2022	2024	2025
1. Strategic Asset Management Policy	✓		✓	
2. Asset Management Plans		✓	✓	✓
State of infrastructure for core assets		✓	✓	✓
State of infrastructure for all assets			✓	✓
Current levels of service for core assets		✓	✓	✓
Current levels of service for all assets			✓	✓
Proposed levels of service for all assets				✓
Lifecycle costs associated with current levels of service		✓	✓	✓
Lifecycle costs associated with proposed levels of service				✓
Growth impacts		✓	✓	✓
Financial strategy				✓

1.2 Scope

The scope of this document is to identify the current practices and strategies that are in place to manage infrastructure owned by the Town of Penetanguishene and to make recommendations where continuous improvement opportunities exist. Through the implementation of sound asset management strategies, the Town can ensure that public infrastructure is managed to support the sustainable delivery of services.

1.3 Limitations and Constraints

The asset management program development required substantial effort by staff. It was developed based on best-available data, and is subject to the following broad limitations, constraints, and assumptions:

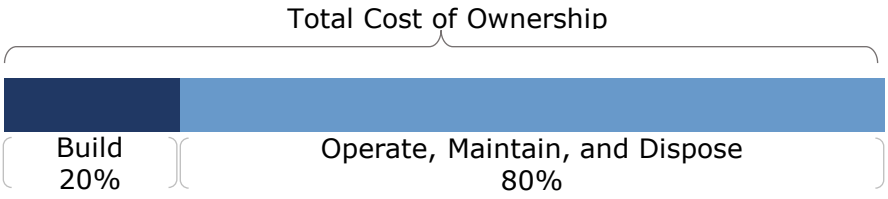
- The analysis is highly sensitive to several critical data fields, including an asset's estimated useful life, replacement cost, quantity, and in-service date. Inaccuracies or imprecisions in any of these fields can have substantial and cascading impacts on all reporting and analytics.
- User-defined and unit cost estimates, based typically on staff judgment, recent projects, or established through completion of technical studies, offer the most precise approximations of current replacement costs. When this isn't possible, historical costs incurred at the time of asset acquisition or construction can be inflated to present day. This approach, while sometimes necessary, can produce inaccurate estimates.
- In the absence of condition assessment data, age was used to estimate asset condition ratings. This approach can result in an over- or understatement of asset needs. As a result, financial requirements generated through this approach can differ from those produced by in-field assessments.
- The risk models are designed to support objective project prioritization and selection. However, in addition to the inherent limitations that all models face, they also require availability of important asset attribute data to ensure that asset risk ratings are valid, and assets are properly stratified within the risk matrix. Missing attribute data can misclassify assets.

These limitations have a direct impact on most of the analysis presented, including condition summaries, age profiles, and replacement and rehabilitation forecasts, that are generated from Citywide, the Town's primary asset management system.

These challenges are quite common and require long-term commitment and sustained effort by staff. As the Town's asset management program evolves and advances, the quality of future AMPs and other core documents that support asset management will continue to improve.

2 An Overview of Asset Management

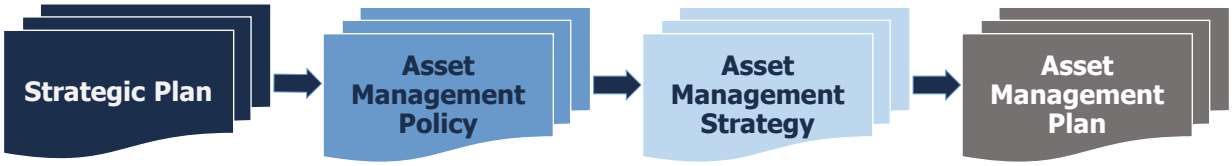
The acquisition of capital assets accounts for only 10-20% of their total cost of ownership. The remaining 80-90% derives from operations and maintenance. This AMP focuses its analysis on the capital costs to maintain, rehabilitate and replace existing municipal infrastructure assets.



These costs can span decades, requiring planning and foresight to ensure financial responsibility is spread equitably across generations. An asset management plan is

critical to this planning, and an essential element of broader asset management program.

The diagram below depicts an industry standard approach and sequence for developing an effective asset management program. Beginning with a Strategic Plan, followed by an Asset Management Policy and an Asset Management Strategy, concluding with an Asset Management Plan.



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

2.1 Foundational Documents

In the municipal sector, 'asset management strategy' and 'asset management plan' are often used interchangeably. Other concepts such as 'asset management framework', 'asset management system', and 'strategic asset management plan' further add to the confusion. Inconsistent use in the industry of the purpose and definition of these elements adds to the lack of clarity. The following sections provide a detailed description and clear distinction between the policy, strategy, and plan.

2.1.1 Strategic Plan

The strategic plan has a direct, and cascading impact on asset management planning and reporting, making it a foundational element. At the beginning of each term of Council, Council holds strategic planning exercises and discussions to identify major initiatives and administrative improvements it wishes to achieve during its tenure. Staff then identify the scope, resources, timing & other logistical matters associated with proposed initiatives.

2.1.2 Asset Management Policy

An asset management policy represents a statement of the principles guiding the Town'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 Town of Penetanguishene's "Strategic Asset Management Policy" was approved by Council as Policy No. 012-2019 on June 26th, 2019 in accordance with Ontario Regulation 588/17. It was revised in 2024 and revision 2024-04-05 was approved by Council on June 12, 2024.

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

- The policy's statements dictate the use of asset management practices to ensure all assets meet the agreed levels of service in the most efficient and effective manner;
- The policy commits to, where appropriate, incorporating asset management in the Town's other plans;
- Roles and responsibilities are defined for internal staff and stakeholders;
- The guiding principles include the use of a long-term view and effective prioritization in the management of infrastructure; and
- The policy statements are well defined.

As per Ontario Regulation 588/17, the Town reviewed its Strategic Asset Management Policy in 2024.

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

While not a static document, the strategy should not evolve and change frequently—unlike the asset management plan. The strategy provides a long-term outlook on the overall asset management program development and strengthening key elements of its framework.

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

2.1.4 Asset Management Plan (AMP)

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

The Town's last iteration of the AMP was completed in 2024. Since then, the asset inventory has been consolidated with critical asset data updates. This AMP uses the updated asset inventory and has been prepared in accordance with O. Reg. 588/17.

2.2 Key Technical Concepts

Effective asset management integrates several key components, including data management, lifecycle management, risk management, and levels of service.

2.2.1 Asset Hierarchy and Data Classification

Asset hierarchy illustrates the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Key category details are summarized at the asset segment level.

2.2.2 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. The two methodologies are:

- 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 Town incurred. As assets age, and new products and technologies become available, cost inflation becomes a less reliable method.

2.2.3 Estimated Useful Life and Service Life Remaining

The estimated useful life (EUL) of an asset is the period over which the Town expects the asset to be available for use and remain in service before requiring replacement or disposal. The EUL for each asset 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 date and its EUL, the Town can determine the service life remaining (SLR) for each asset. Using condition data and the asset's SLR, the Town can more accurately forecast when it will require replacement. The SLR is calculated as follows:

Figure 1: Service Life Remaining Calculation

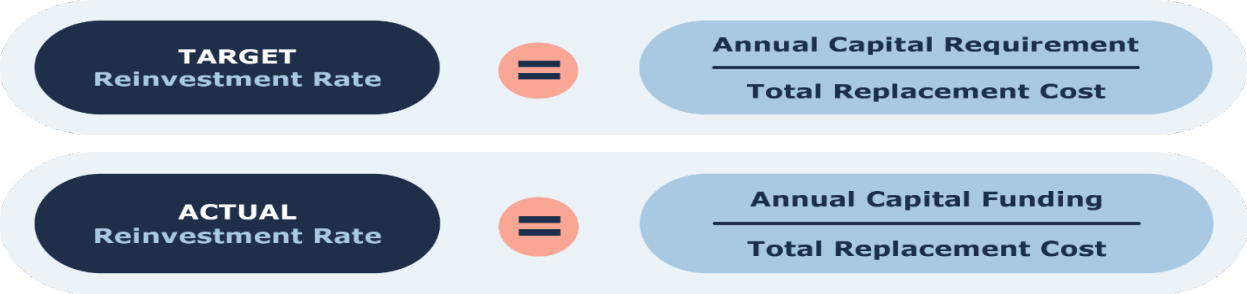
2.2.4 Annual Capital Requirements

The annual requirements represent the amount the Town should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs, and achieve long-term sustainability. This is calculated using each assets replacement cost and estimated useful life.

2.2.5 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 Town can determine the extent of any existing funding gap.

Figure 2: Target and Actual Reinvestment Calculations



2.2.6 Asset Condition

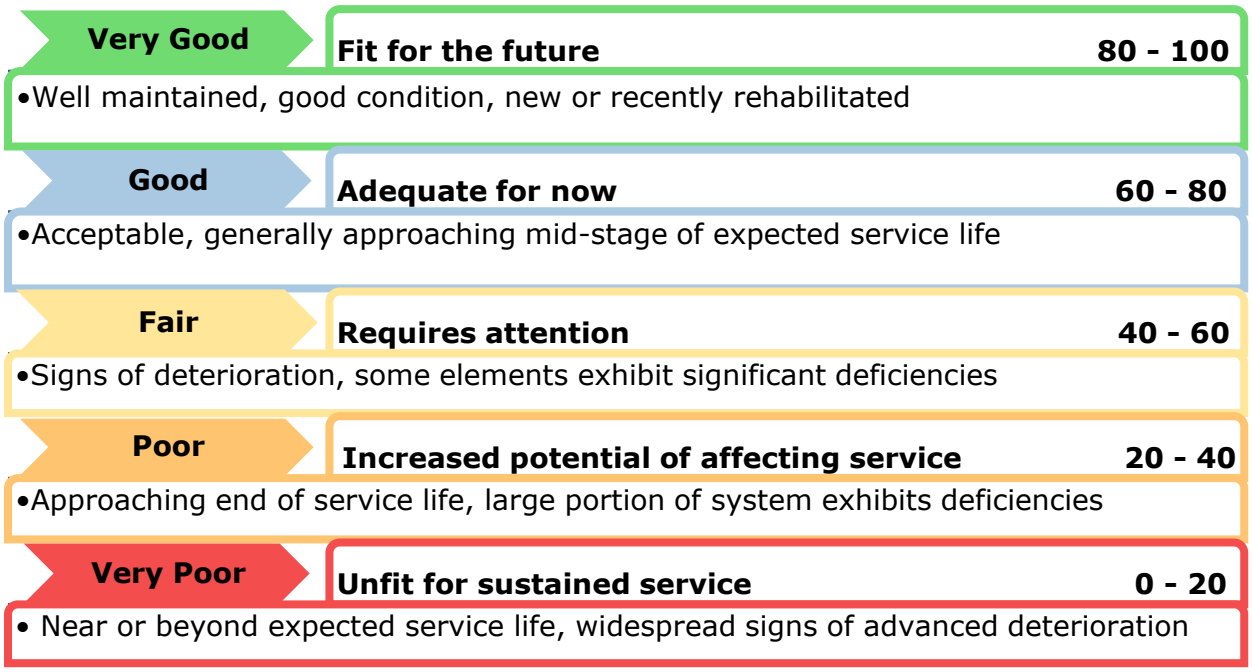
An incomplete or limited understanding of asset condition can mislead long-term planning and decision-making. Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value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

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the Town's asset portfolio. The figures below outline the condition rating system used to determine asset condition for road assets and for all other assets in Penetanguishene.

Figure 3: Road Condition Rating

Very Good	**Fit for the future**	**85 - 100**
•No major distresses. Possibly some crack seal in place.		
Good	**Adequate for now**	**70 - 85**
•Recent crack seal starting to fail, longitudinal + transverse cracks, some recent and clean patches.		
Fair	**Requires attention**	**55 - 70**
•Moderate to severe block cracking, alligator cracking, potholes, and aging patches.		
Poor	**Increased potential of affecting service**	**40 - 55**
•Increased quantity of alligator cracking, block cracking, potholes, and patches.		
Very Poor	**Unfit for sustained service**	**0 - 40**
•Severe alligator cracking. Failed patches, large quantity of deep and/or wide potholes. • Ride quality is severely affected by deep and dense potholes, failed patches, and alligator cracking.		

Figure 4: Standard Condition Rating Scale



The analysis 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.

2.2.7 Lifecycle Management

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

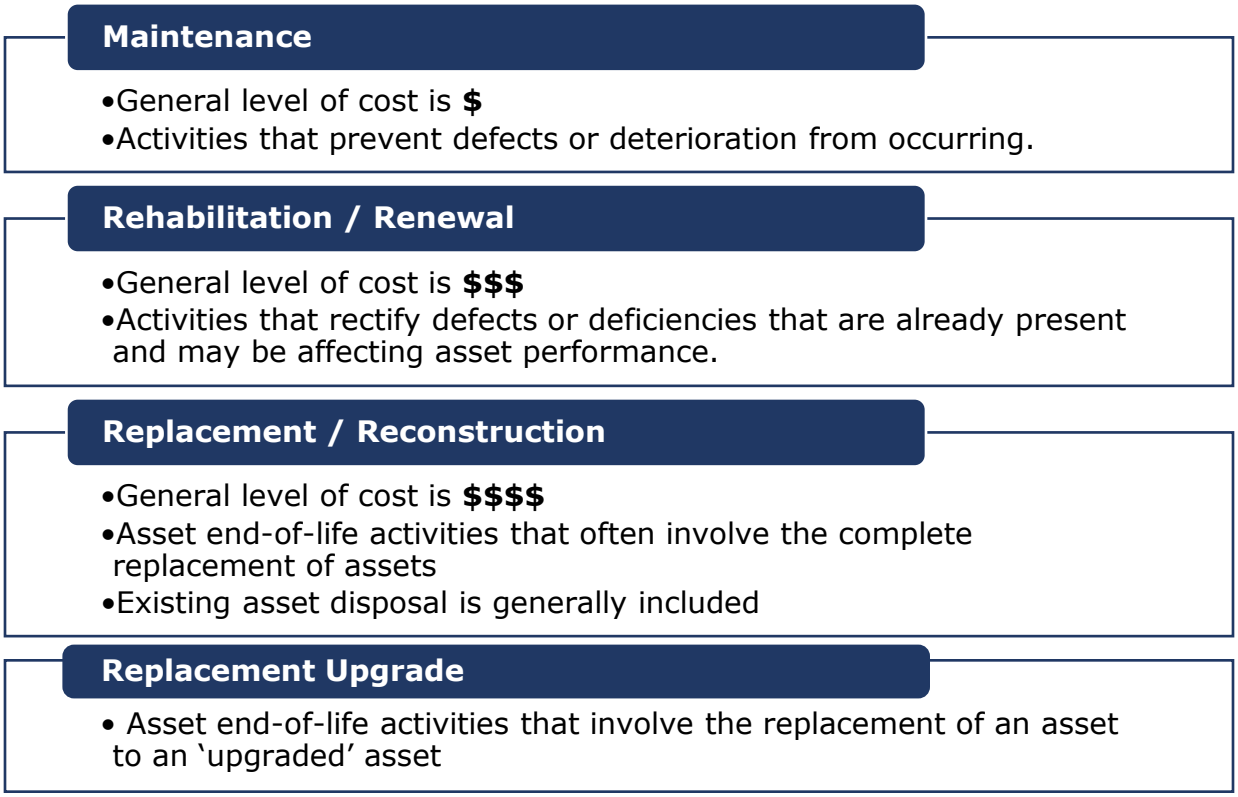
To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

There are several field intervention activities that are available to extend the life of an asset. These activities can be generally placed into one of three categories: maintenance, rehabilitation, and replacement. The Figure 5 provides a description of each type of activity and the general difference in cost.

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

The Town's approach to lifecycle management is described within each asset category. 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.

Figure 5: Lifecyle Management Typical Interventions



2.2.8 Risk Management

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. 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.

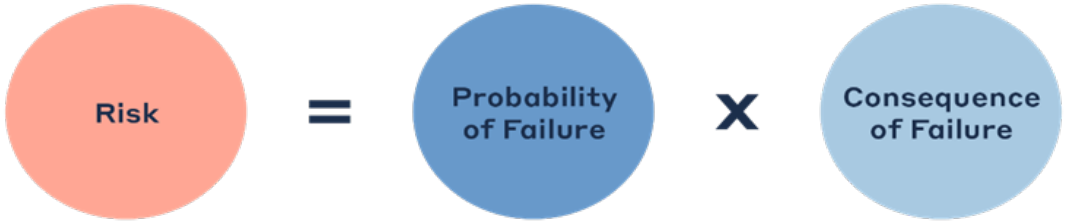
By identifying the various impacts of asset failure and the likelihood that it will fail, risk management strategies can identify critical assets, and determine where maintenance efforts, and spending, should be focused.

A high-level evaluation of asset risk and criticality was performed. 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.

Risk is a product of two variables: the probability that an asset will fail, and the resulting consequences of that failure event. It can be a qualitative measurement, (low, medium, high) or quantitative measurement (1-5), that can be used to rank assets and projects, identify appropriate lifecycle strategies, optimize short- and

long-term budgets, minimize service disruptions, and maintain public health and safety.

Figure 6: Risk Equation



2.2.8.1 Probability of Failure

Several factors can help decision-makers estimate the probability or likelihood of an asset's failure, including its condition, age, previous performance history, and exposure to extreme weather events, such as flooding and ice jams—both a growing concern for municipalities in Canada.

2.2.8.2 Consequence of Failure

Estimating criticality also requires identifying the types of consequences that the organization and community may face from an asset's failure, and the magnitude of those consequences. Consequences of asset failure will vary across the infrastructure portfolio; the failure of some assets may result primarily in high direct financial cost but may pose limited risk to the community. Other assets may have a relatively minor financial value, but any downtime may pose significant health and safety hazards to residents. See the Appendix for definitions and the developed risk models within each asset category.

2.2.9 Climate Change

Climate change can cause severe impacts on human and natural systems around the world. The effects of climate change include increasing temperatures, higher levels of precipitation, droughts, and extreme weather events. In 2019, Canada's Changing Climate Report (CCCR 2019) was released by Environment and Climate Change Canada (ECCC).

The report revealed that between 1948 and 2016, the average temperature increase across Canada was 1.7°C; moreover, during this time period, Northern Canada experienced a 2.3°C increase. The temperature increase in Canada has doubled that of the global average. If emissions are not significantly reduced, the temperature could increase by 6.3°C in Canada by the year 2100 compared to 2005 levels. Observed precipitation changes in Canada include an increase of approximately 20% between 1948 and 2012.

By the late 21st century, the projected increase could reach an additional 24%. During the summer months, some regions in Southern Canada are expected to experience periods of drought at a higher rate. Extreme weather events and climate conditions are more common across Canada. Recorded events include droughts,

flooding, cold extremes, warm extremes, wildfires, and record minimum arctic sea ice extent.

The changing climate poses a significant risk to the Canadian economy, society, environment, and infrastructure. The impacts on infrastructure are often a result of climate-related extremes such as droughts, floods, higher frequency of freeze-thaw cycles, extended periods of high temperatures, high winds, and wildfires. Physical infrastructure is vulnerable to damage and increased wear when exposed to these extreme events and climate variabilities. Canadian Municipalities are faced with the responsibility to protect their local economy, citizens, environment, and physical assets.

2.2.9.1 Integration Climate Change and Asset Management

Asset management practices aim to deliver sustainable service delivery - the delivery of services to residents today without compromising the services and well-being of future residents. Climate change threatens sustainable service delivery by reducing the useful life of an asset and increasing the risk of asset failure. Desired levels of service can be more difficult to achieve as a result of climate change impacts such as flooding, high heat, drought, and more frequent and intense storms.

To achieve the sustainable delivery of services, climate change considerations should be incorporated into asset management practices. The integration of asset management and climate change adaptation observes industry best practices and enables the development of a holistic approach to risk management.

Since 2018, the Town has been involved with the development of a Local Climate Change Action Plan (LCCAP) through the Sustainable Severn Sound (SSS) regional sustainability program, which is supported by seven municipalities within the County of Simcoe and the District Municipality of Muskoka.

In February 2018, Council approved a model resolution to join the Federation of Canadian Municipalities (FCM) Partners for Climate Protection (PCP) program. The PCP program provides a comprehensive framework to take action on climate change by reducing emissions within the community.

In June 2018, the SSS released the first LLCAP which outlined the following:

- A corporate and community inventory of Greenhouse Gas (GHG) emissions for each municipal partner
- Regional GHG reduction targets to be achieved by 2028
- 18 high-level actions to reduce municipal and community contributions to climate change

In July 2018, the Town successfully achieved milestone 1 of the PCP program and through the adoption of the GHG reduction targets outlined in the LLCAP, will achieve milestones 2 and 3.

2.2.10 Impacts of Growth

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 Town 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.

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

2.2.11 Levels of Service

A level of service (LOS) is a measure of the services that Penetanguishene is providing to the community and the nature and quality of that service. Within each asset category, 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 Town. The Town measures the level of service provided at two levels: Community Levels of Service and Technical Levels of Service.

2.2.11.1 Community Levels of Service

Community LOS are a simple, plain language description or measure of the service that the community receives. For core asset categories, the Province through O. Reg. 588/17, has provided qualitative descriptions that are required. For non-core asset categories, the Town determined the qualitative descriptions that will be used. The community LOS can be found in the Levels of Service subsection within each asset category section.

2.2.11.2 Technical Levels of Service

Technical LOS 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 Town's asset management strategies on the physical condition of assets or the quality/capacity of the services they provide.

For core asset categories, the Province through O. Reg. 588/17, has provided technical metrics that are required. For non-core asset categories, the Town determined the technical metrics that will be used.

All the metrics can be found in the LOS subsection within each asset category.

2.2.11.3 Current and Proposed Levels of Service

Current LOS were developed, measured and recorded in the 2024 iteration of the AMP, and further refined in this 2025 version. Core asset LOS were provided in O. Reg. 588/17 while non-core assets were determined by the Town.

After careful review of the regulation requirements, the ability to set targets and measurable goals, and the fluid nature of asset condition data, the Town has identified the 10-year capital plan as the proposed LOS. Utilizing the existing and

annually updated 10-year capital plan allows the Town to respond to changing information and priorities while providing a financially sustainable plan for the next decade. Some modifications will be required in the plan to fully meet the requirements of O.Reg. 588/17 and these will be developed for the 2026 budget year.

2.2.11.4 Annual Review

The annual review will address the Town's progress in implementing its asset management plan, any factors impeding the Town's ability to implement its asset management plan as well as a strategy to address any of the identified factors. The first annual review will be completed by July 1, 2026.

3 Community Profile

The Town of Penetanguishene (meaning "the place of the rolling white sands" in Abinaki) is located on the southeasterly tip of Georgian Bay, within Simcoe County in Central Ontario. It has a unique urban form oriented towards the water with rolling hills, woodlands and wetlands. Incorporated in 1882, the Town takes pride in its 400 years of history and the influence of four founding cultures.

There is a significant concentration of Franco-Ontarians within the Town which makes it one of only three municipalities in Central and Southwestern Ontario where the francophone population exceeds the provincial average. The Town is also home to a sizeable population of the Metis community that exceeds the provincial average.

Based on the 2021 Census, the Town's thriving community has grown to approximately 10,077 residents, indicating a 12% increase over the 2016 population and closer to the 11,000 population projection in 2031 that has been forecasted in previous official documents.

The Town is located just 90 minutes north of Toronto and benefits from the region's proximity to major urban markets. The Town's economy is primarily composed of tourism and service-based businesses.

Staff and Council intend to support continuous growth within the Town by investing in critical infrastructure and advancing their asset management program.

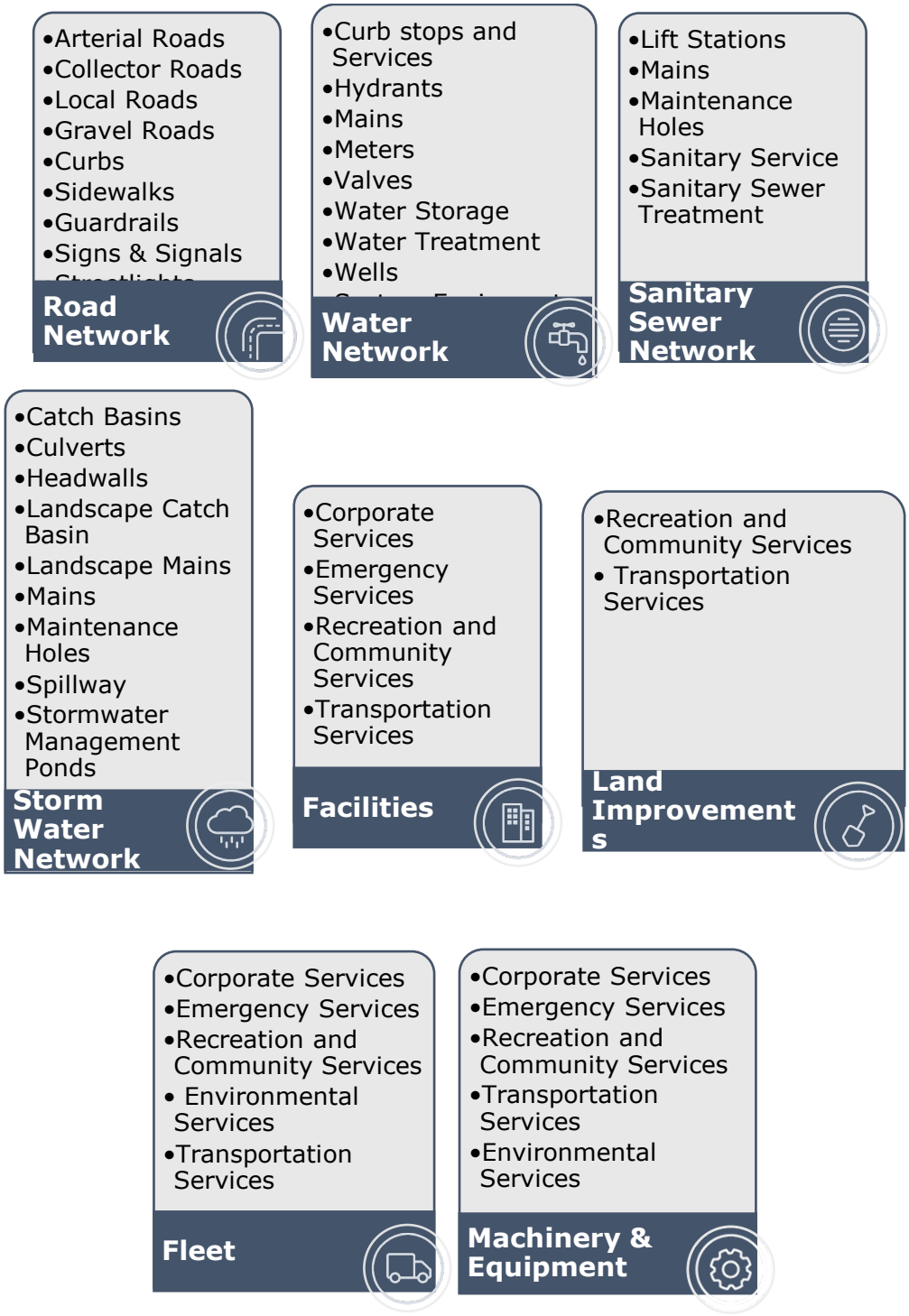
Table 2 Penetanguishene & Ontario Census Information

Census Characteristic	Penetanguishene	Ontario
Population 2021	10,077	14,223,942
Population Change 2016-2021	12.4%	5.8%
Total Private Dwellings	4,357	5,929,250
Population Density	396.4/km2	15.9/km^2
Land Area	25.42 km2	892,411.76 km^2

4 Inventory & Valuation

The Town's inventory has an asset hierarchy of asset categories and segments as outlined below where the dark blue headings are the categories and the listings in grey are the segments.

Table 3 Asset Hierarchy

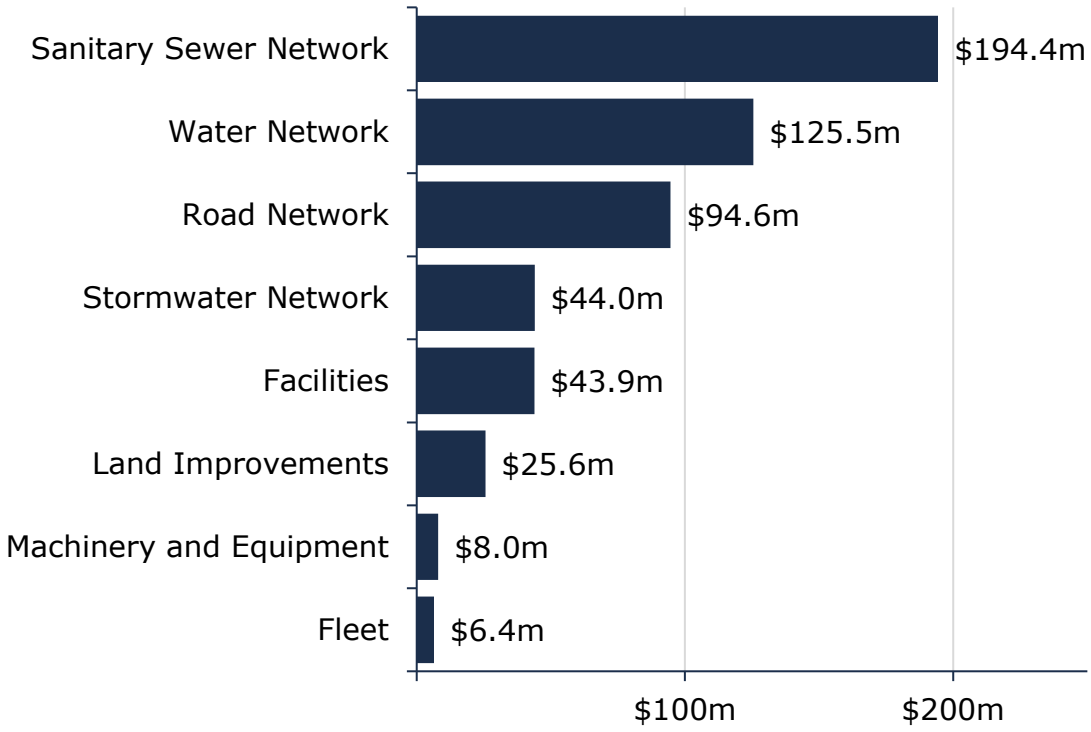


4.1 Replacement Cost

All Penetanguishene's asset categories have a total replacement cost of $542.4 million based on available inventory data. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects the replacement of historical assets with similar, not necessarily identical, assets available for procurement today.

The replacement cost for each asset should be reviewed periodically to determine whether adjustments are needed for greater accuracy.

Figure 7: Portfolio Replacement Value



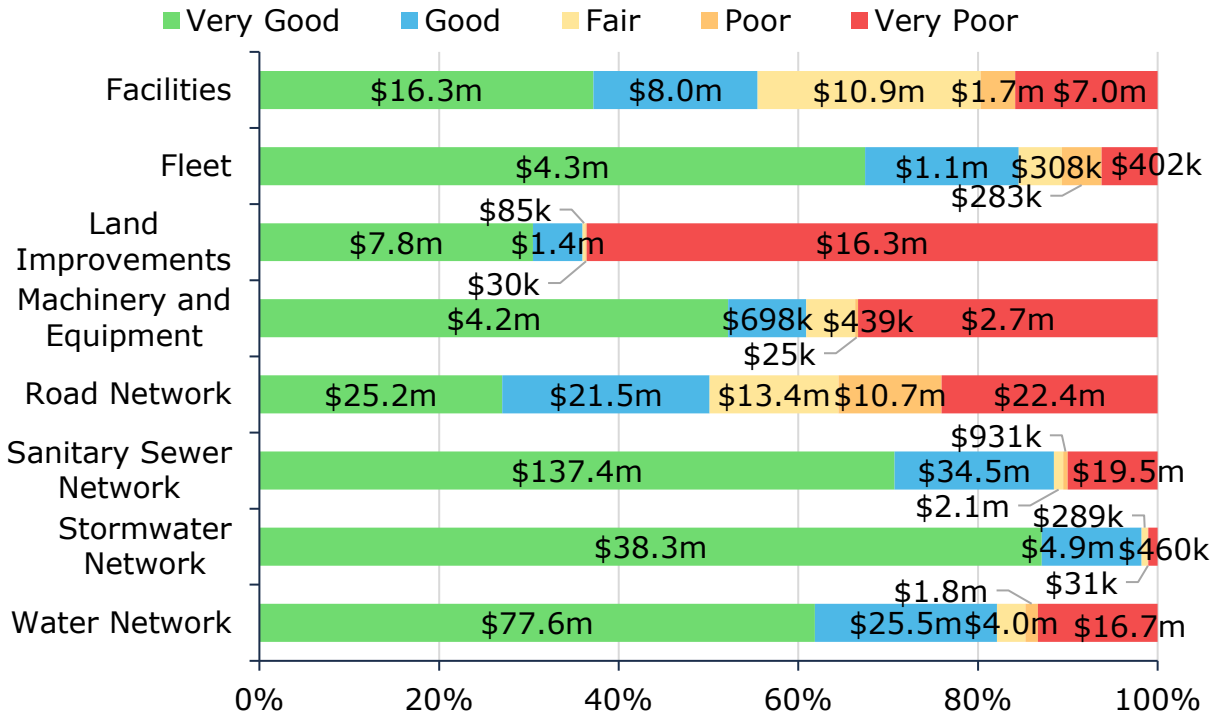
5 Condition & Service Life

5.1 Condition of the Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 81% of assets in Penetanguishene are in fair or better condition. This estimate relies on both age-based and field condition data.

Assessed condition data is available for the road network, facilities as well as some machinery and equipment; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The chart below shows the breakdown of the overall asset portfolio's average condition.

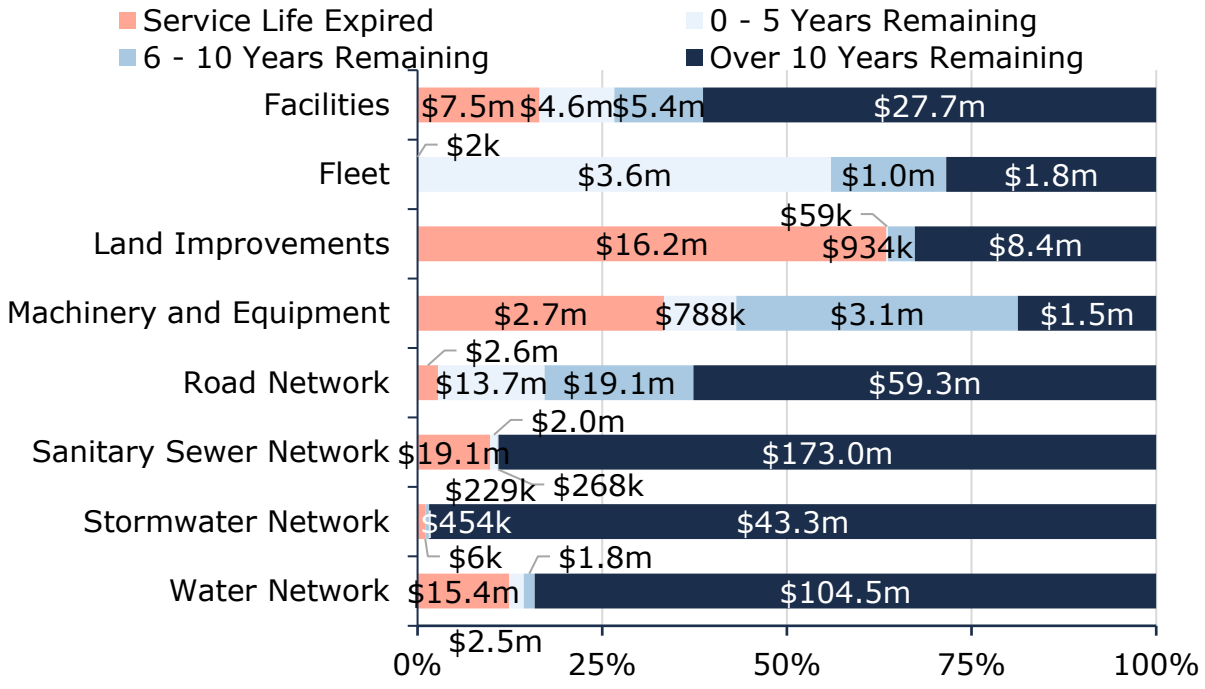
Figure 8: Condition Breakdown



5.2 Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 17% of the Town's assets will require rehabilitation / replacement within the next 10 years. The figure below portrays the breakdown for each asset category.

Figure 9: Service Life Remaining by Asset Category



6 Risk & Criticality

6.1 Qualitative Risk

Penetanguishene have noted key trends, challenges, and risks to service delivery that they are currently facing:

Asset Data and Information
Maintaining accurate and up-to-date data records, including the creation of precise financial documentation for capital reinvestment expenditures across various account types (e.g., operating budgets, grants, and other funding sources).
Conducting regular and accurate condition assessments of assets to refine and optimize the estimation of their expected useful lifespans.

6.2 Quantitative Risk

The overall asset risk breakdown for Penetanguishene's asset inventory is portrayed in the figure below.

Figure 10: Overall Asset Risk Breakdown

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$260,760,662	$143,531,415	$33,796,990	$50,045,304	$54,299,709
48%	26%	6%	9%	10%

Reviewing the list of very high-risk assets to evaluate how best to mitigate the level of risk the Town is experiencing will help advance Penetanguishene's asset management program.

7 Climate & Growth

7.1 Penetanguishene Climate Profile

The Town of Penetanguishene is expected to experience notable effects of climate change which include higher average annual temperatures, an increase in total annual precipitation, and an increase in the frequency and severity of extreme events. According to Climatedata.ca – a collaboration supported by Environment and Climate Change Canada (ECCC) – the Town of Penetanguishene will likely experience the following trends:

Higher Average Annual Temperature:

- Between the years 1981 to 2010 the annual average temperature was 6.9 ºC
- Under a high emissions scenario, the annual average temperatures are projected to be 8.8 ºC by the year 2050 and around 12.2 ºC by the end of the century.

Increase in Average Annual Precipitation:

- Under a high emissions scenario, Penetanguishene is projected to experience a 7% increase in precipitation by 2050 and a 15% increase by the end of the century.

Increase in Frequency of Extreme Weather Events:

- It is expected that the frequency and severity of extreme weather events will change.
- In some areas, extreme weather events will occur with greater frequency and severity than others.

7.2 Impacts of Growth

Understanding the key drivers of growth and demand will allow the Town 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.

7.2.1 Penetanguishene Official Plan (August 2020)

The Town of Penetanguishene adopted an Official Plan to provide a legislative basis to direct future growth, development and change within the Town and to create a more sustainable community. The policies included in the Plan are consistent with the Provincial Policy Statement and conform with the County of Simcoe Official Plan, and the Growth Plan for the Greater Golden Horseshoe. Such policies are intended to provide the direction for managing long term development to achieve social, economic, and environmental objectives of the Town's vision.

The Town's new Official Plan came into effect on January 9th, 2020.

The Town of Penetanguishene is noted for its small-town character and diverse natural landscape. The Official Plan considers the desire to preserve the natural environment of the Town, while encouraging balanced and diversified growth.

All lands within Penetanguishene's municipal limits are considered "Settlement Area" as identified in the Growth Plan and County OP mapping. Most of the growth is directed to the Town's urban serviced area where municipal water and sewer services are available. Developed urban areas are the target for 40% of all new residential development.

New development of existing designated greenfield areas is also a primary focus of growth in the Town. These are settlement areas outside of the developed urban areas, which have been designated for development and are required to accommodate forecasted growth to the year 2031. In accordance with Town Policy, the Town will aim to achieve a minimum density target of 50 people and jobs combined per hectare across Designated Greenfield Areas.

7.2.2 Development Charges Background Study (2019)

In 2019, the Town of Penetanguishene retained Hemson Consulting Ltd. to undertake the D.C. study process and prepare a Development Charges Background Study, pursuant to Section 10 of the Development Charges Act, 1007 (DCA).

The following tables summarize the historical and forecasted population and employment figures allocated to the Town in the study:

Total Population Forecast from 2011 to 2031			
	2011	**2021**	**2031**
Town of Penetanguishene	9,111	9,598[1]	10,850
Total Employment Forecast from 2016 to 2031			
	2016	**2021**	**2031**
Town of Penetanguishene	4,704	5,141	6,000

As a requirement of the Development Charges Act under subsection 10(2)(c), an analysis must be undertaken to assess the long-term capital and operating cost impacts for the capital infrastructure projects identified within the Development Charges.

The background study must also include an asset management plan that deals with all assets proposed to be funded, in whole or in part, by D.C.s. The asset management plan must show that the assets are financially sustainable over their full lifecycle.

7.2.3 Official Plan of the County of Simcoe (2023)

The Official Plan of the County of Simcoe serves as the upper tier Official Plan for the County, used to guide policy planning and physical planning of local municipalities. The Growth Management section is intended to help guide new development across the County based on Growth Projections for population and employment until 2031.

The population of the County is forecasted to increase from 272,200 in 2006, to 416,000 in 2031 in accordance with the Growth Plan for the Greater Golden Horseshoe, 2006 as amended. The Town of Penetanguishene is allocated 2.6% of this forecasted growth.

8 Levels of Service

Levels of service are a measure of the quality and scope of the services that municipal infrastructure provides to the community. Both quantitative and qualitative metrics are used to measure the current level of service.

8.1 Strategic Plan Line of Sight

The strategic plan has a direct, and cascading impact on asset management planning and reporting, making it a foundational element. To accomplish its goals, a 20 Year Community-Based Strategic Plan has been developed by the Town which is intended to help drive community success, growth, and investment.

[1] The 2021 Census states the actual total population to be at 10,077.

The purpose of this Community-Based Strategic Plan is to guide decision making and community engagement and encourage sustainable growth. The 2023 strategic plan is designed to be in effect for 20 years and to provide accountability and transparency to the Town's residents.

Town of Penetanguishene's mission is: The Town provides its residents and businesses with high quality services and sustainable infrastructure in a financially responsible manner, fostering an engaged community and a diversified economy, while preserving our distinct heritage and natural environment.

The Town's vision is: Our waterfront community is a destination and a starting point, respectful of its history and natural environment, offering a rich culture, active lifestyle, well-planned growth, employment opportunities and a wonderful opportunity to live one's dream.

The strategic planning sessions developed 6 themes that all the objectives in the plan were build with them in mind and they are:

8.2 Stakeholder Engagement

In October 2024, the Town of Penetanguishene conducted a community budget survey to gather public input on service priorities, satisfaction levels, and suggestions for improvement. A total of 80 residents responded, representing a sample of the town's 10,077 residents. The feedback collected offers valuable insight into community values and areas of focus moving forward.

8.2.1 Resident Priorities

Residents emphasized the importance of maintaining and investing in essential municipal services. The following were identified as top priorities:

- Environmental Services (Water and Sanitary sewer)
- Fire Services
- Police Services, while valued, showed a wider range of opinions.

- Road Network and Sidewalks & Roadside Services were also seen as important but ranked below core emergency and utility services.

8.2.2 Satisfaction with Town Services

Overall satisfaction levels varied across services:

- Highly Satisfied: Fire Services and Library Services received consistently positive feedback.
- Generally Satisfied: Police Services received moderate praise but with some variation.
- Mixed Satisfaction: Road Network and Sidewalks & Roadside services had both positive and negative feedback, indicating uneven experiences.
- Low Satisfaction: Winter Control and Transit Services were identified as areas needing significant improvement.

8.2.3 Suggestions for Improvement

Resident suggestions fell into three main categories:

A. Infrastructure & Maintenance

- Better road and sidewalk maintenance, especially for accessibility.
- Improved snow removal and leaf pickup. (Note: Leaf pickup falls under the jurisdiction of the County of Simcoe)
- Address neglected areas such as overgrown curbs and empty lots to enhance the town's appearance.

B. Safety & Policing

- Increase police presence, especially downtown and in traffic enforcement.
- Strengthen bylaw enforcement on issues like noise, property standards, and illegal dwellings.
- Explore opportunities for increased community policing and engagement.

C. Economic Development & Downtown Revitalization

- Attract new businesses, such as grocery stores, to support local needs and economic growth.
- Improve the aesthetic appeal of the downtown core.
- Promote tourism and community events to stimulate the local economy and help reduce the tax burden.

The insights from this survey will guide future budget planning and service enhancements. The Town of Penetanguishene remains committed to aligning municipal services with community needs and will continue to engage residents in meaningful ways.

8.3 Current Levels of Service

The table below outlines the current state of each asset category.

Table 4 Penetanguishene State of the Infrastructure

Asset Category	Replacement Cost	Asset Condition
Road Network	$94.6 million	Good (68%)
Stormwater Network	$44.0 million	Very Good (90%)
Facilities	$43.9 million	Good (64%)
Land Improvements	$25.6 million	Good (62%)
Fleet	$6.4 million	Very Good (80%)
Machinery and Equipment	$8.0 million	Fair (59%)
Water Network	$125.5 million	Good (75%)
Sanitary Sewer Network	$194.4 million	Very Good (87%)
Overall	**$542.4 million**	**Good (78%)**

Penetanguishene has prioritized data improvements to ensure all assets are accurately accounted for. As a result, the average condition ratings by asset category have been significantly affected by these enhancements. Going forward, comparisons will be more accurate and reflective of actual service trends.

The Town of Penetanguishene has defined their current levels of service for each infrastructure category by focusing on three service attributes: scope, quality / reliability and sustainability. Each of these attributes are defined as follows:

Scope – Is a description of the services being provided and the assets that are utilized to provide the services.

Quality / Reliability – Is a description of how condition is measured as well as the current average condition of the assets utilized to provide the services. Also, for each asset category there are additional reliability measures included.

Sustainability – Is a description of how the Town will ensure long-term sustainability and is measured utilizing risk and financial parameters.

Based on an analysis of each asset category the current level of service is provided in each asset section.

8.4 Proposed Levels of Service

Proposed levels of service should be realistic and achievable within the timeframe outlined by the Town. They were determined with consideration of a variety of community expectations, fiscal capacity, regulatory requirements, corporate goals, and long-term sustainability.

The following three scenarios have been considered for establishing target levels of service for all asset categories included in this Asset Management Plan. This methodology provides a consistent, structured approach.

8.4.1 Scenarios

The scenarios that were used to analyze Penetanguishene's inventory were run for 100-years to ensure all the lifecycles were included at least once. The results are based on the data available in the asset management system including estimated

useful life, condition, and replacement costs. Citywide software was used to run the scenarios.

Scenario 1: Current Lifecycle Activities - This scenario utilizes the current lifecycle activities outlined as current practice within each asset category, including end-of-life replacement. The risk, condition and annual investment was then determined.

Scenario 2: Current Capital Reinvestment Rate - This scenario utilizes the current capital reinvestment within each asset category. The current annual investment was held, and the risk and condition were determined.

Scenario 3: Target Condition Good - This scenario utilizes a target average condition of the infrastructure of good (at 60%). The condition value was held, and the risk and annual investment was then determined.

Each scenario was then evaluated based on its financial impact on the Town, the resulting overall asset condition, and any anticipated risks associated with the outcomes.

8.4.2 Results

8.4.2.1 Scenario 1: Current Lifecycle Activities

In this scenario, the existing lifecycle management activities are maintained across all asset categories, including end of life replacement. The asset inventory remains in overall good condition, with an average condition rating of 77%, reflecting effective maintenance and renewal practices. Assets are replaced at end of useful life, determined by a combination of age and assessed asset condition. This approach results in low-risk exposure and minimal service disruptions, thanks to the well-preserved state of the infrastructure.

To sustain this level of asset health, an annual capital investment of approximately $10.6 million is required. While this represents a significant funding commitment, it ensures sustainability through the continued performance, reliability, and longevity of the assets.

8.4.2.2 Scenario 2: Current Capital Reinvestment

In Scenario 2, the Town maintains its existing capital investment level of $4.54 million per year. This funding supports the asset inventory at an overall average condition of Fair, with an average condition rating of approximately 46%. As these are average ratings, a significant number of assets will fall to levels of Poor or Very Poor and assets will be kept beyond their useful lifespan.

While this level of investment allows for short-term continuity, it is insufficient to prevent long-term deterioration of assets. Projections indicate that most asset categories will decline to a Poor condition within 30 years, resulting in:

- Increased asset failure risk
- Higher corrective maintenance costs
- Reduced service levels
- More frequent service disruptions

This underfunded approach is not sustainable and, over time, will compromise the Town's ability to deliver reliable and efficient services to the community. Continued reliance on this strategy will accelerate infrastructure decline and pose significant operational and financial challenges in the future.

8.4.2.3 Scenario 3: Target Condition Good

Scenario 3 aims to maintain the Town's asset inventory at an average condition rating of approximately 60%, classified as Good. This approach represents a strategy to maintain the infrastructure in a state of good repair while reducing financial burden. However, while there are short-term cost reductions, the financial burden is not removed but rather deferred, until assets deteriorate to the set average condition rating. At that time the required annual capital investment costs will equal full lifecycle replacement (Scenario 1). In addition, while the average asset condition is maintained as Good, a significant number of assets will be less than Good and some assets will be kept beyond their useful lifespan.

To achieve this service level, the Town would require an estimated annual capital investment of $7.07 million. The resulting average condition is lower than the 73% rating of current average condition. Due to the current funding gap and phased-in approach to reducing the gap, it is likely that the condition of assets will drop below this target percentage rating before this approach is fully funded. At that time full lifecycle costing will apply.

A final issue with this approach is the ability to maintain a set average condition rating. As the average is based on replacement cost value, to determine which assets require replacement, rather than look at the greatest need in terms of asset condition, staff would be required to calculate which assets contain the values needed in terms of replacement cost to bring the overall average back in line.

8.4.2.4 Conclusion

The Town of Penetanguishene recognizes that the current capital reinvestment rate is not sufficient to provide residents with sustainable infrastructure. Asset failure is almost certain and therefore scenario 2 is not a viable solution in terms of cost-efficiency or risk.

While scenario 3 appears at first to be a compromise solution between risk and cost savings, closer analysis reveals that the financial benefits are short-term, and the risks are varied based on the distribution of asset values within categories. The Town has further recognized that sustaining a target condition value is impractical and leads to decisions based on maintaining an average rather than individual asset requirements.

In selecting scenario 1, the Town of Penetanguishene is taking a strategic approach to ensure the long-term sustainability of its municipal services.

By using the lifecycle plan and the condition of infrastructure assets to drive re-investment, the Town is working to strike a thoughtful balance between service quality and cost-efficiency. This approach avoids both over-investment and the risks associated with premature asset failure. Significant strides have been made in enhancing the accuracy and reliability of the Town's asset management system

which is a critical foundation for evidence-based decision-making related to capital planning and long-term financial sustainability.

The lifecycle activities identified for managing the Town's assets represent the strategies deemed most effective for maintaining consistent service levels over time. Aligning funding with these activities is essential.

Using the framework established in scenario 1, the Town has identified proposed levels of service through the 10-year capital plan (the Plan). The Plan includes projects, costs and justifications to ensure the Town continues to prioritize investment consistent with the Asset Management Plan and other Town objectives. Updated annually, the Plan provides an element of flexibility to allow for changing circumstances while consistently maintaining a 10-year forecast.

9 Financial Strategy

9.1 Financial Strategy Overview

Each year, the Town of Penetanguishene makes important investments in its infrastructure's maintenance, renewal, rehabilitation, and replacement to ensure assets remain in a state of good repair. However, spending needs typically exceed fiscal capacity. In fact, most municipalities continue to struggle with annual infrastructure deficits. Achieving full-funding for infrastructure programs will take many years and should be phased-in gradually to reduce the burden on the community.

This financial strategy is designed for the Town's existing asset portfolio and is premised on two key inputs: the average annual capital requirements and the average annual funding typically available for capital purposes. The annual requirements are based on the replacement cost of assets and their serviceable life and, where available, lifecycle modeling. This figure is calculated for each individual asset and aggregated to develop category-level values.

O. Reg 588/17 requires that all proposed LOS are demonstrated to be appropriate based upon an assessment of:

- Proposed LOS options (increase, decrease, or maintain current LOS) and the associated risks (e.g., asset reliability, safety, affordability) in relation to long-term sustainability
- How the proposed LOS differs from the current LOS
- The achievability of the proposed LOS
- The municipality's financial capacity to afford the proposed LOS

In the proposed level of service analysis, the Town used infrastructure condition as a key factor in determining the appropriate level of service for residents, while ensuring the integrity of both services and infrastructure. The analysis established a recommended infrastructure target for ensuring lifecycle activities defined by scenario 1.

Only reliable and predictable sources of funding are used to benchmark funds that may be available on any given year. The funding sources include:

- Revenue from taxation allocated to reserves for capital purposes
- User fee rates for Water and Wastewater services
- The Canada Community Building Fund (CCBF)
- The Ontario Community Infrastructure Fund (OCIF)

Although provincial and federal infrastructure programs can change with evolving policy, CCBF and OCIF are considered as permanent and predictable.

9.2 Annual Capital Requirements

The annual requirements represent the amount the Town should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs, and achieve long-term sustainability. Note: the cost of new additional assets are not included. For example, if a gravel road is paved with asphalt that is considered a new asset and not included in the annual capital requirements. When that road is re-paved, those costs are included.

Table 5 outlines the total average annual capital requirements for existing assets in each asset category. Based on a replacement cost of $542 million, annual capital requirements total approximately $10.6 million for all the asset categories analysed.

Table 5 Lifecycle Activities Average Annual Capital Requirements

Asset Category	Replacement Cost	Annual Capital Requirements
Road Network	$94,623,175	$2,036,289
Facilities	$43,874,647	$1,041,241
Land Improvements	$25,595,091	$574,596
Machinery and Equipment	$8,034,325	$685,016
Fleet	$6,430,701	$586,537
Water Network	$125,476,497	$1,934,622
Sanitary Sewer Network	$194,376,919	$3,182,199
Stormwater Network	$44,022,725	$558,867
Total	**$542,434,081**	**$10,599,367**

9.3 Closing the Gap

Eliminating annual infrastructure funding shortfalls is a difficult and long-term endeavor for municipalities. Considering the Town's current funding position, it will require many years to reach full funding for current assets.

Table 6 Current Funding Position vs Lifecycle Funding

Asset Category	Annual Capital Requirements	Annual Funding Available	Annual Funding Deficit
Road Network	$2,036,289	$1,605,224	$430,648
Facilities	$1,041,241	$690,833	$350,408
Land Improvements	$574,596	$154,441	$420,155
Machinery and Equipment	$685,016	$186,983	$498,033
Fleet	$586,537	$113,643	$472,894
Stormwater Network	$558,867	$0	$558,867
Tax Total	**$5,482,128**	**$2,751,124**	**$2,731,004**
Water Network	$1,934,622	$932,905	$1,001,717
Sanitary Sewer Network	$3,182,199	$856,022	$2,326,177
Rate Total	**$5,116,821**	**$1,788,927**	**$3,327,894**
Overall Total	**$10,599,367**	**$4,540,051**	**$6,058,898**

Note: Stormwater annual funding is shown as $0 because the latest investments in storm infrastructure are for new infrastructure rather than support for existing infrastructure.

At the existing levels, the Town is funding 43% of its annual capital requirements to maintain its assets over the full lifecycle. This creates a total annual funding deficit of $6.1 million. Eliminating the funding deficit would require a tax-levy increase of 19.6% in addition to a water and sanitary sewer rate increase of 52.5% and 72.1% respectively. The above analysis assumes all assets will be maintained in accordance with the lifecycles outlined in each asset section of Appendix A through H.

To achieve this increase, several scenarios have been developed using phase-in periods ranging from five to twenty years. Shorter phase-in periods may place too high a burden on taxpayers, whereas a phase-in period beyond 20 years may see a continued deterioration of infrastructure, leading to larger backlogs.

Table 7 Phasing in Annual Tax Increases for Capital Funding Use

Total % Increase Needed in Annual Property Taxation Revenues	Phase-in Period			
	5 Years	10 Years	15 Years	20 Years
19.6%	3.6%	1.8%	1.2%	1.0%

Funding 100% of annual capital requirements ensures that major capital events, including replacements, are completed as required. Under this scenario, projects are unlikely to be deferred to future years. This delivers the chosen proposed level of service for the community.

To close the annual funding deficit, without consideration of any other sources of revenue or cost containment strategies, a dedicated tax levy increase of 1.0% annually, over a twenty-year period provides the optimum balance between reducing tax-payer burden and infrastructure backlogs. This contribution would be

required beyond commitments made by the Town in the past to asset management funding.

The Town of Penetanguishene Water and Wastewater Financial Plan 2024 was created with input from asset management data. The funding shortfalls were identified and following comprehensive analysis, the water / wastewater rates were adjusted to address the funding gap. In the future, the Water Wastewater Financial Plan working in consultation with the Town's asset management program, will continue to set rates that include funding for sustainable infrastructure.

9.4 Ten-Year Financial Plan

The Town is working with a clear long-term financial strategy aimed at reaching sustainable funding levels for its infrastructure services by 2043. The 10-Year Capital Plan (the Plan) that identifies proposed levels of service through capital projects is included in the annual Budget Book available on the Town's website. The total funding requirement for the latest 10-year Capital Plan is $59.3 million and funding sources are summarized in the table below. The Plan is updated annually providing an opportunity to consider and adjust funding sources and asset priorities as more sustainable funding is achieved over time.

Table 8 Ten-Year Financial Plan

Funding Category	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Carry Forward TAX only	$378k	-	-	-	-	-	-	-	-	-
Debt	$1.3m	-	$2.2m	-	-	$2.6m	-	-	$9.6m	-
Development Charges	$328k	$321k	$842k	$451k	$115k	$3.3m	$75k	-	$2.7m	$490k
Reserve	$2.1m	$673k	$2.1m	$485k	$590k	$900k	$850k	$450k	$167k	$600k
Subsidy	$938k	$1.0m	$1.6m	$110k	-	-	-	-	-	$211k
Taxation	$1.3m	$1.4m	$1.4m	$1.5m	$1.3m	$1.4m	$1.4m	$1.6m	$1.4m	$1.3m
Water Rates	$699k	$471k	$604k	$347k	$125k	$120k	$5k	$75k	$425k	$845k
Sanitary Sewer Rates	$483k	$857k	$361k	$372k	$320k	$108k	$180k	$255k	$105k	$857k
Donations	$77k	$80k	-	-	-	-	-	-	-	-
Total	$7.5m	$4.8m	$9.2m	$3.3m	$2.5m	$8.4m	$2.5m	$2.4m	$14.4m	$4.3m

Note: Road resurfacing and sidewalk replacement is not currently included in the 10-year capital plan unless incorporated into a larger reconstruction project. Annual costs are currently expensed in the operating budget.

10 Recommendations and Key Considerations

10.1 Asset Inventory

- Continue to refine and consolidate asset infrastructure data into the Town's centralized asset inventory to ensure all critical assets are accounted for and support accurate capital forecasting.
- Review and revise replacement costs and critical attribute data on a specified cycle.

10.2 Condition Assessment Strategies

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

10.3 Risk Management Strategies

- Continue to use risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.
- Continue to utilize risk frameworks and staff judgement to prioritize projects, particularly to aid in elimination of existing infrastructure backlogs

10.4 Levels of Service

- Continue to measure current levels of service in accordance with the metrics that the Town has established. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- Complete an annual review that addresses the Town's progress in implementing its asset management plan, any factors impeding the Town's ability to implement its asset management plan as well as a strategy to address any of the identified factors.

10.5 Financial

Transition to a full-funding scenario that achieves 100% of average annual requirements for the asset categories analyzed. This involves:

- implementing a 1.0% annual tax increase over an 18-year phase-in period and allocating the full increase in revenue towards capital funding
- segregating infrastructure replacement costs in financial reporting to allow accurate tracking and assessment
- continuing to allocate OCIF and CCBF funding as previously outlined
- providing input into the Water / Wastewater Financial Plan to ensure infrastructure needs are adequately identified and funded
- continuing to utilize condition assessment data for assets to refine estimates of useful life

11 Appendix A: Road Network

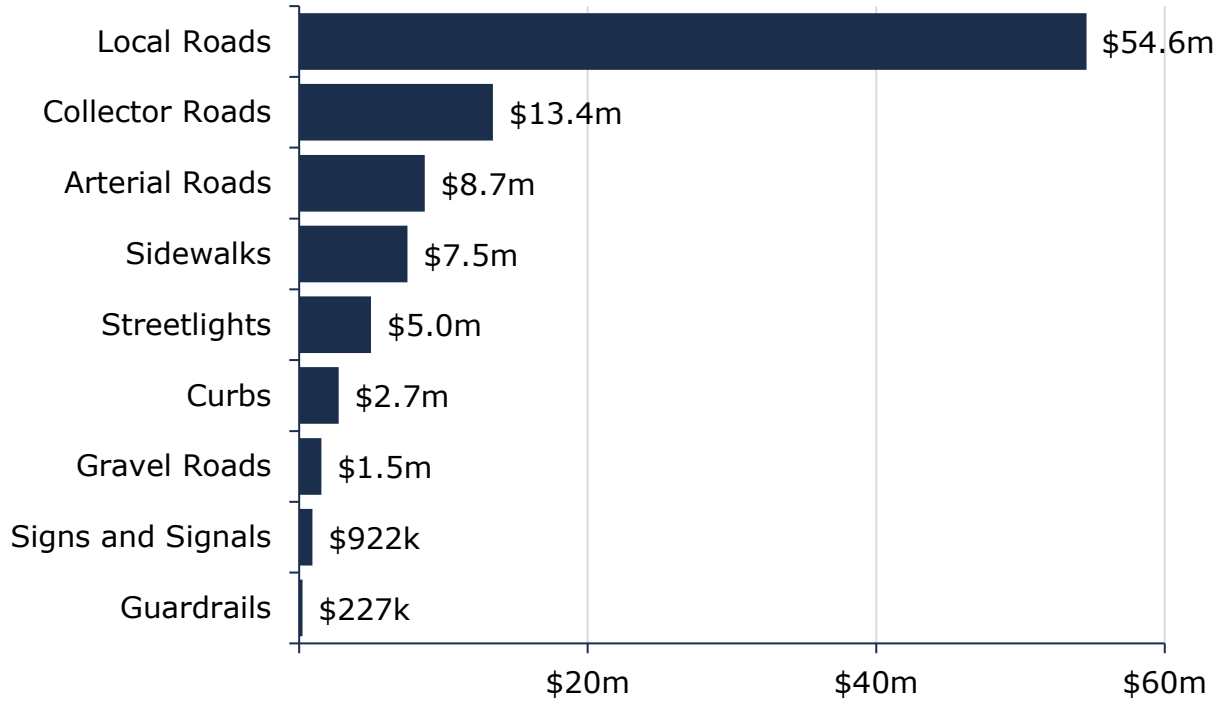
Penetanguishene's road network comprises the third largest share of its infrastructure portfolio, with a current replacement cost of $94.6 million, distributed primarily between asphalt, surface treated and gravel roads.

The Town also owns and manages other supporting infrastructure and capital assets, including guardrails, sidewalks, signs, signals and streetlights.

11.1 Inventory & Valuation

The figure below displays the replacement cost of each asset segment in the Town's road inventory.

Figure 11: Road Network Replacement Value

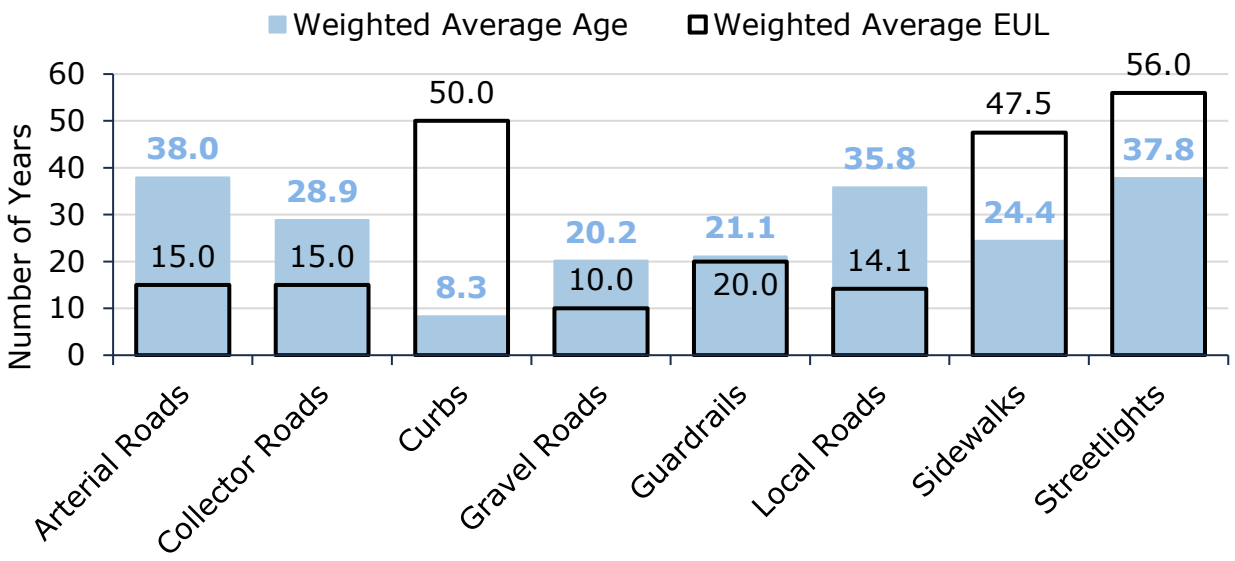


Note: Replacement costs for Gravel Roads are for reference only. If Gravel roads are maintained properly, theoretically they never require full replacement.

11.2 Asset Condition & Age

The graph below identifies the average age, and the estimated useful life for each asset segment. It is all weighted by replacement cost.

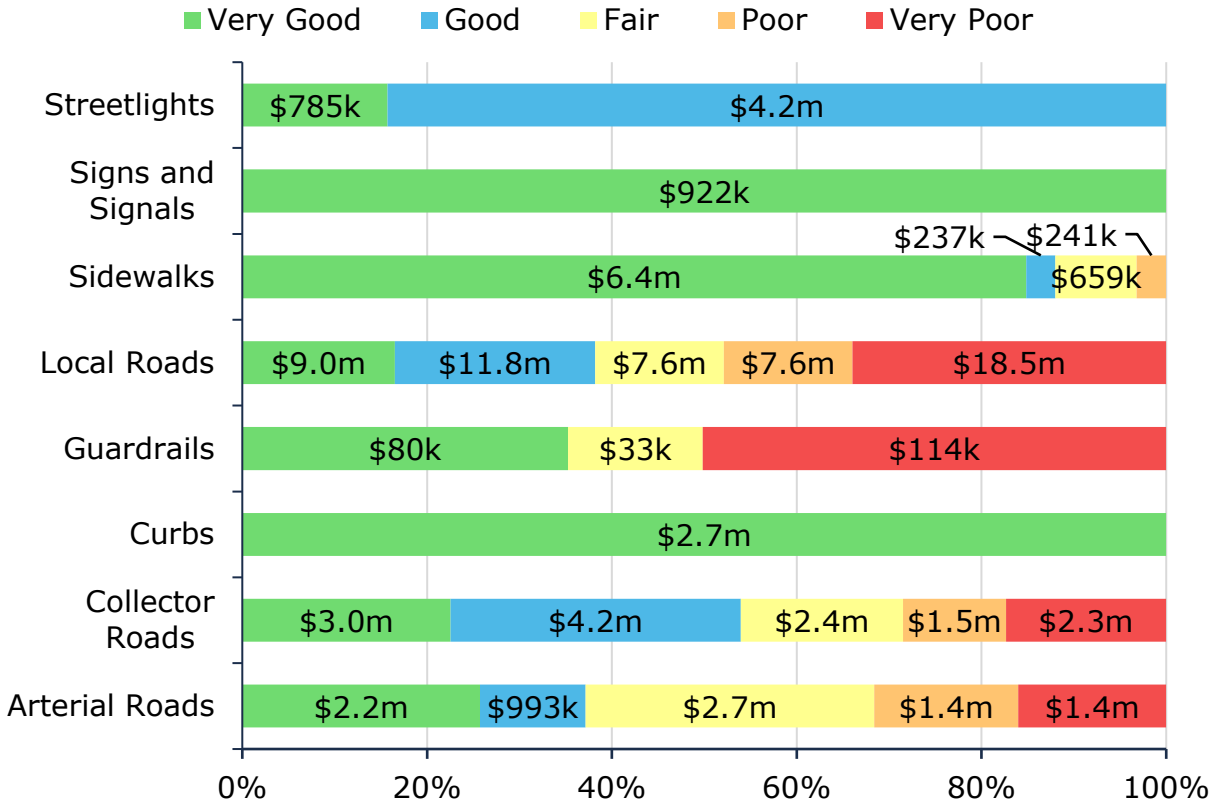
Figure 12: Road Network Average Age vs Average EUL



The analysis shows that, based on in-service dates, roads continue to remain in operation beyond their expected useful life. This is due to the life cycle management strategies currently being utilized.

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

Figure 13: Road Network Condition Breakdown



To ensure that the Town's roads and roadside assets continue to provide an acceptable level of service, the Town 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, replacement activities, and funding is required to increase the overall condition of the roads.

11.2.1 Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. At present, the following describes the Town's current approach:

- A road needs study, through an external consultant, is conducted every 5 years. The most recent road needs study was prepared by Streetscan in 2023. Staff intend to reduce the assessment interval from 5 to 3 years by ensuring that internal staff assessments are conducted on a regular basis
- Routine road patrols are undertaken weekly, in compliance with the Minimum Maintenance Standards (MMS)
- Granular roads are visually inspected during grading activities and throughout the year
- Other roads and roadside assets are inspected as per O. Reg. 239/02

11.3 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history and environment. The following lifecycle strategies shown in Figure 14 have been developed as a proactive approach to managing the lifecycle of municipally owned 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.

PCI scores, staff judgment, traffic loads, and opportunity to bundle projects help inform the optimal lifecycle intervention, ranging from pothole repairs to overlays and potential replacements. Lifecycle models used to estimate the savings to annual capital requirement are shown below in Figure 15 for Surface Treated (LCB) roads and Figure 16 for Asphalt (HCB) Roads.

Figure 14: Road Network Current Lifecycle Strategy

Preventative / General Maintenance

- Pothole patching occurs regularly and is based on deficiencies identified through regular road patrols, feedback from the public and as identified in the 2022-2026 Preventative Road Maintenance Plan.
- Summer maintenance activities include sidewalk repairs, grading, re-gravelling, applying dust suppressant, ditching, roadside mowing, tree trimming, brush cleanup, road sign installation/maintenance, and line painting.
- Winter maintenance activities include snow plowing, salting, and snow removal.
- A crack seal and microsurfacing program is in place for roads as identified in the 2022-2026 Preventative Road Maintenance Plan.

Rehabilitation

- Rehabilitative activites include microsurfacing, hot mix asphalt treatments, asphalt rejuvenation, and pulverize and pave.
- Road replacement prioritization is determined by consideration of growth, risk, condition, health and safety, and social impact.

Replacement

- Road reconstruction projects (base and surface) are identified based on road condition, risk, and sub-surface asset requirements (stormwater, sanitary sewer and water infrastructure).

Figure 15: Surface Treated Roads (LCB) Road Lifecycle Model

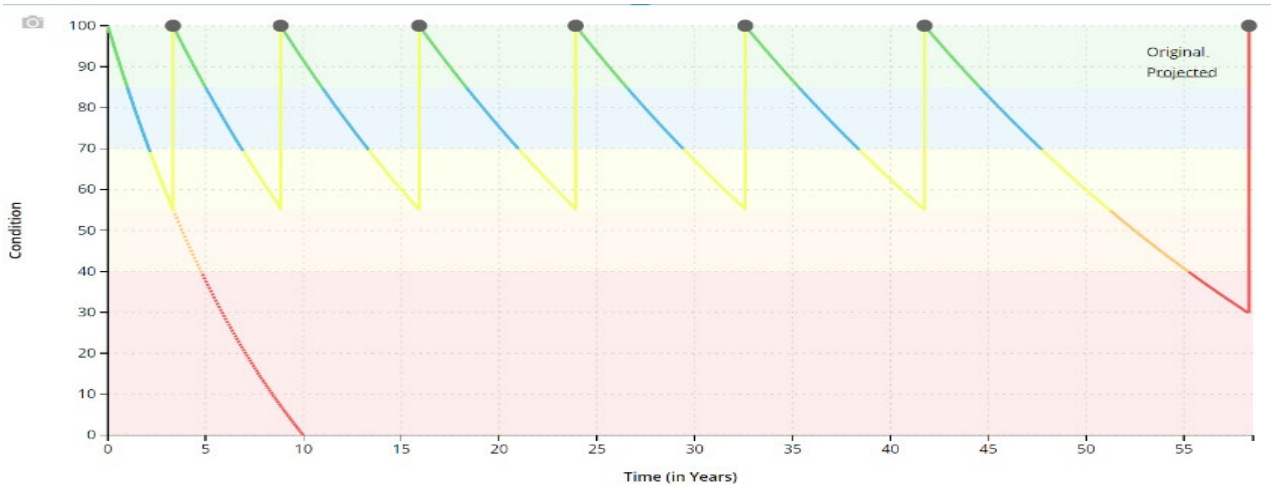
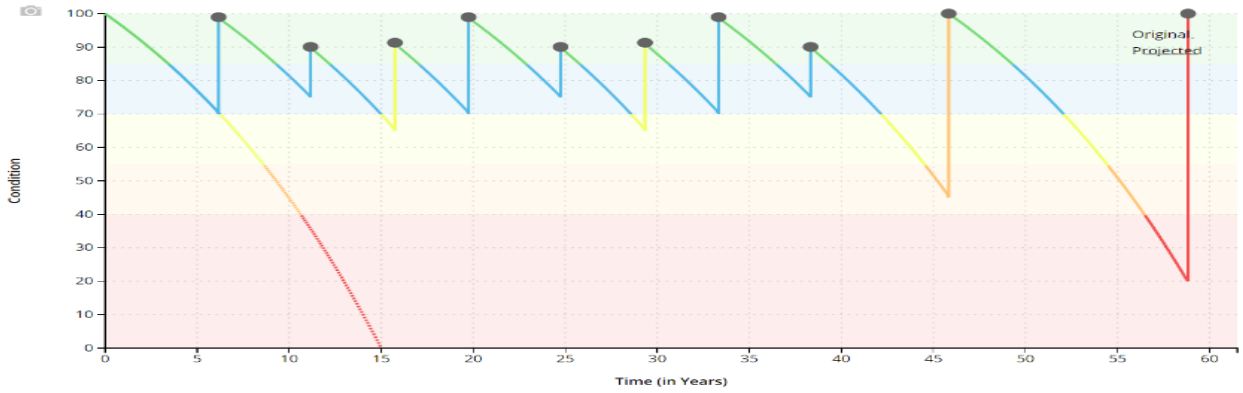


Figure 16: Asphalt Roads (HCB) Road Lifecycle Model



11.4 Risk & Criticality

The following risk breakdown provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on available inventory data.

Figure 17: Road Network Risk Breakdown

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$44,001,933	$20,166,932	$16,474,499	$11,589,900	$2,389,911
47%	21%	17%	12%	3%

This is a high-level model developed by municipal staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that municipal staff utilize to define and prioritize the criticality of the road network are documented below:

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 80%)	Functional Class (80% Financial)
Service Life Remaining (Operational 20%)	AADT (Operational 50%)
	Speed Limit (km/h) (Operational 50%)

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

11.5 Levels of Service

The framework created by the Town for levels of service is a valuable tool for assessing and managing the performance of their assets and/or services provided by their assets.

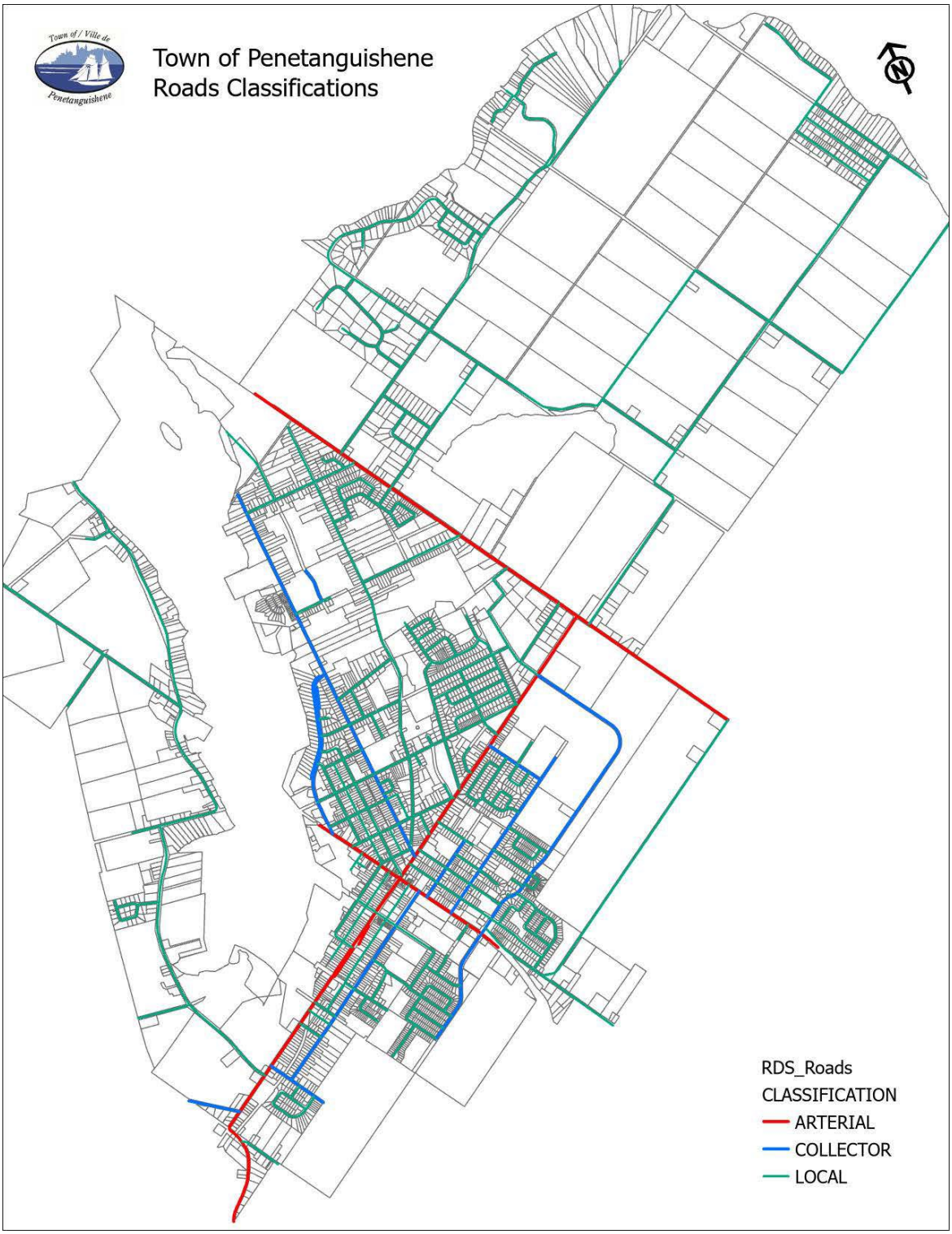
11.5.1 Current Levels of Service

The following tables identify the Town'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 Town has selected.

Table 9 Road Network Current Levels of Service

Community LOS		Service Attribute	Current Technical LOS	
Description, which may include maps of the road network in the municipality and its level of connectivity	The Town's road network spans a total of 96 km primarily within a rural setting, with areas of urban development.	Scope	Quantity (km of roads)	96
			Quantity (number of streetlights)	936
			Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km2)	0.84 km/km2
			Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km2)	1.19 km/km2
			Lane-km of local roads (MMS classes 5 and 6) per land area (km/km2)	5.44 km/km2
Description or images that illustrate the different levels of road class pavement condition	See Figure 3: Road Condition Rating for the description of road condition	Quality / Reliability	Average pavement condition index for paved roads in the municipality	PCI 70
			Average condition	Good 68%
			Average surface condition for unpaved roads in the municipality (e.g., excellent, good, fair, poor)	Fair
General	Services will be provided to ensure sustainability	Sustainability	Replacement Cost	$94,623,175
			% Risk that is High and Very High	15%
			Average Asset Risk	Low
			Annual Investment	$1,605,224
			Capital re-investment rate	1.70%

Figure 18: Map of Roads



11.5.2 Proposed Levels of Service

See Section 9.4 Ten-Year Financial Plan for the details of the Town's targets.

12 Appendix B: Stormwater Network

The Town is responsible for owning and maintaining a stormwater infrastructure of around 24 km of storm mains, 563 catch basins, 281 maintenance holes, approximately 41,025 m^2 of land designated as Stormwater Management Ponds (SWMPs) and supporting assets like headwalls and non-structural culverts.

The Town's Public Works department is responsible for planning and managing stormwater infrastructure.

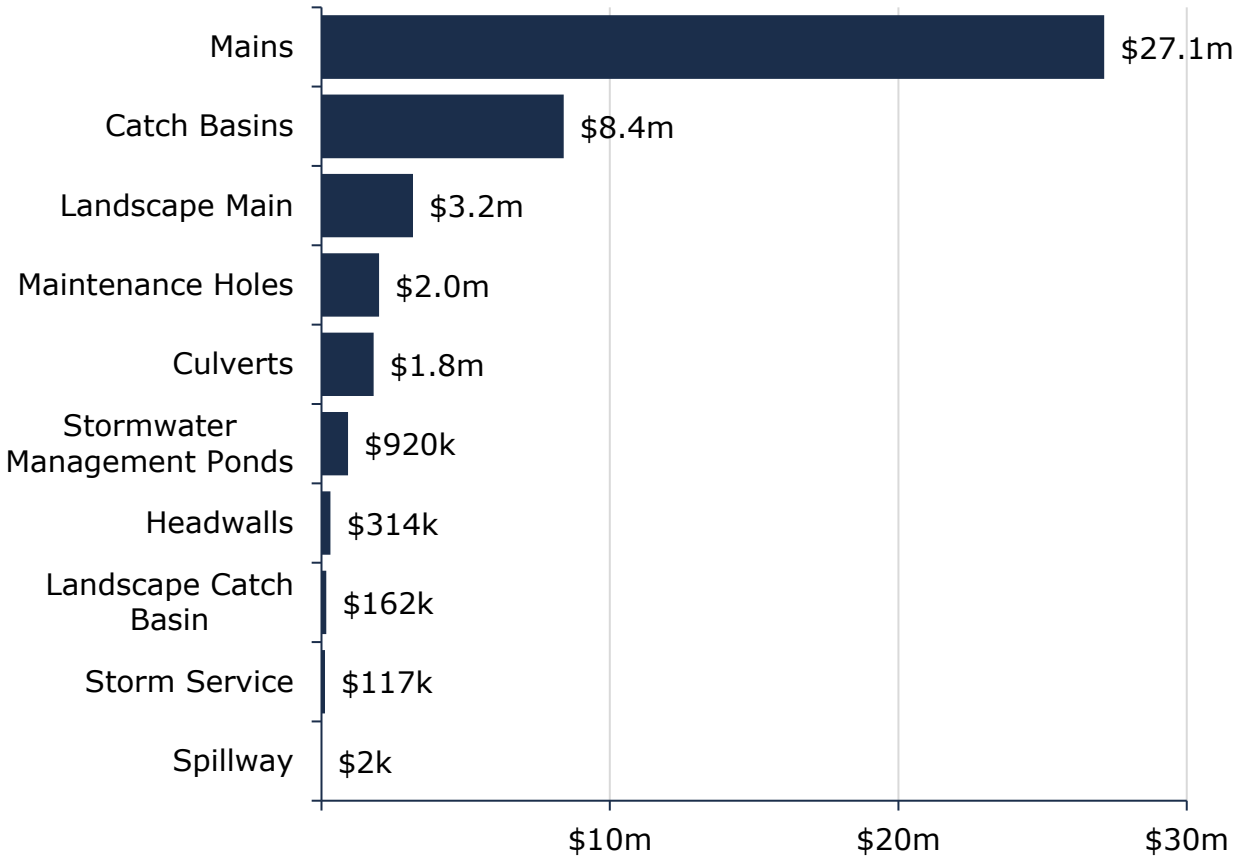
Stormwater infrastructure generally poses the greatest uncertainty for municipalities, including Penetanguishene. Staff have expressed a lack of confidence in the current inventory but are working towards improving the accuracy and reliability to assist with long-term asset management planning.

It is important to recognize that the current stormwater inventory is still being updated.

12.1 Inventory & Valuation

Figure 19 below displays the replacement cost of each asset segment in the Town's stormwater network inventory.

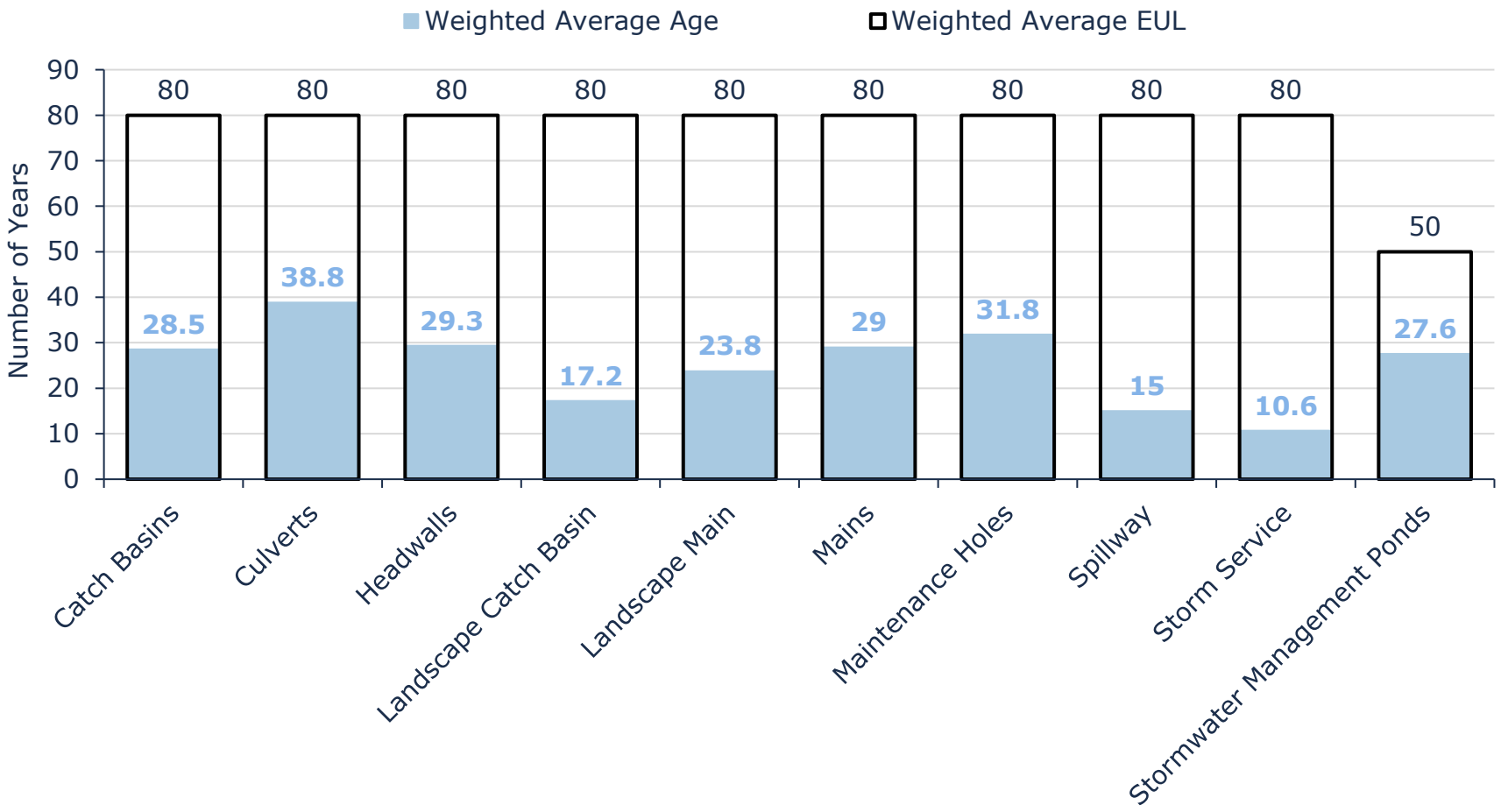
Figure 19 Stormwater Network Replacement Cost



12.2 Asset Condition & Age

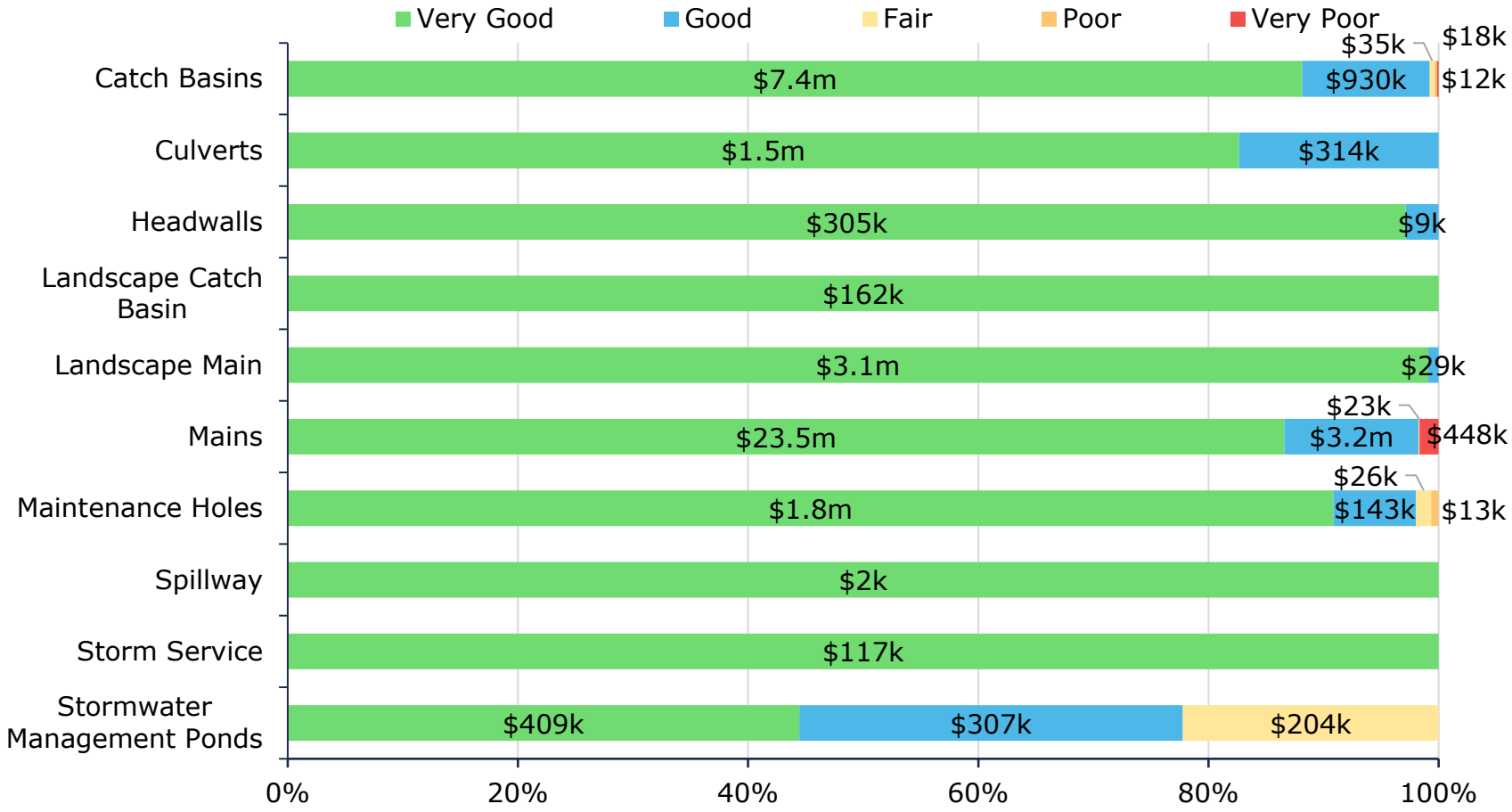
The graph below identifies the average age and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 20: Stormwater Network Average Age vs Average EUL



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

Figure 21: Stormwater Network Condition Breakdown



To ensure that the Town's stormwater network continue to provide an acceptable level of service, the staff should monitor the average condition of all assets. Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

12.2.1 Current Approach to Condition Assessment

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

- There are no formal condition assessment programs in place for stormwater infrastructure although catch basins, maintenance holes and SWMPs are visually inspected during maintenance activities
- CCTV inspections are reactive in nature and based on complaints by residents or as identified by staff
- Current approach to determining asset condition includes considering the age of the asset, pipe material and asset location
- As the Town continues to refine the available asset inventory for stormwater infrastructure, an industry best practice assessment cycle should be established

12.3 Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Figure 22 outlines Penetanguishene's current lifecycle management strategy.

Figure 22: Stormwater Network Current Lifecycle Strategy

Maintenance

- Catch basin cleaning is conducted annually on a rotating basis, covering the entire catch basin network on a 4-year cycle
- Maintenance holes are cleaned annually, SWMPs are inspected and undergo general maintenance on a rotating basis and oil grit seperators are cleaned occasionally
- All other maintenance activities are completed on a reactive basis when operational issues are identified (e.g., blockages, backups). Staff are aware of limitations to the infrastructure and sensitive areas.
- Staff are currently refining the stormwater inventory to ensure the data maturity and reliability before developing maintenance strategies

Rehabilitation

- Storm sewer rehabilitation (e.g., trenchless re-lining) is not common and most capital projects are end-of-life replacement.

Replacement

- Without the availability of up-to-date condition assessment information replacement activities are purely reactive in nature
- Stormwater replacement is generally aligned with road reconstruction priorities, but also takes into account the asset location, age, pipe material and diameter when determining and prioritizing capital works

12.4 Risk & Criticality

The risk breakdown provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on available inventory data.

Figure 23: Stormwater Network Risk Breakdown

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$41,761,064	$1,414,515	$459,912	$302,864	$84,370
95%	3%	1%	<1%	<1%

This is a high-level model developed by municipal staff and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that municipal staff utilize to define and prioritize the criticality of stormwater mains are documented below:

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 60%)	Pipe Diameter (Financial 100%)
Service Life Remaining % (Operational 40%)	

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 60%)	Replacement Cost (80% Financial)
Service Life Remaining % (Operational 40%)	AMP Segment (20% Operational)

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

12.5 Levels of Service

The framework created by the Town for levels of service is a valuable tool for assessing and managing the performance of their assets and/or services provided by their assets.

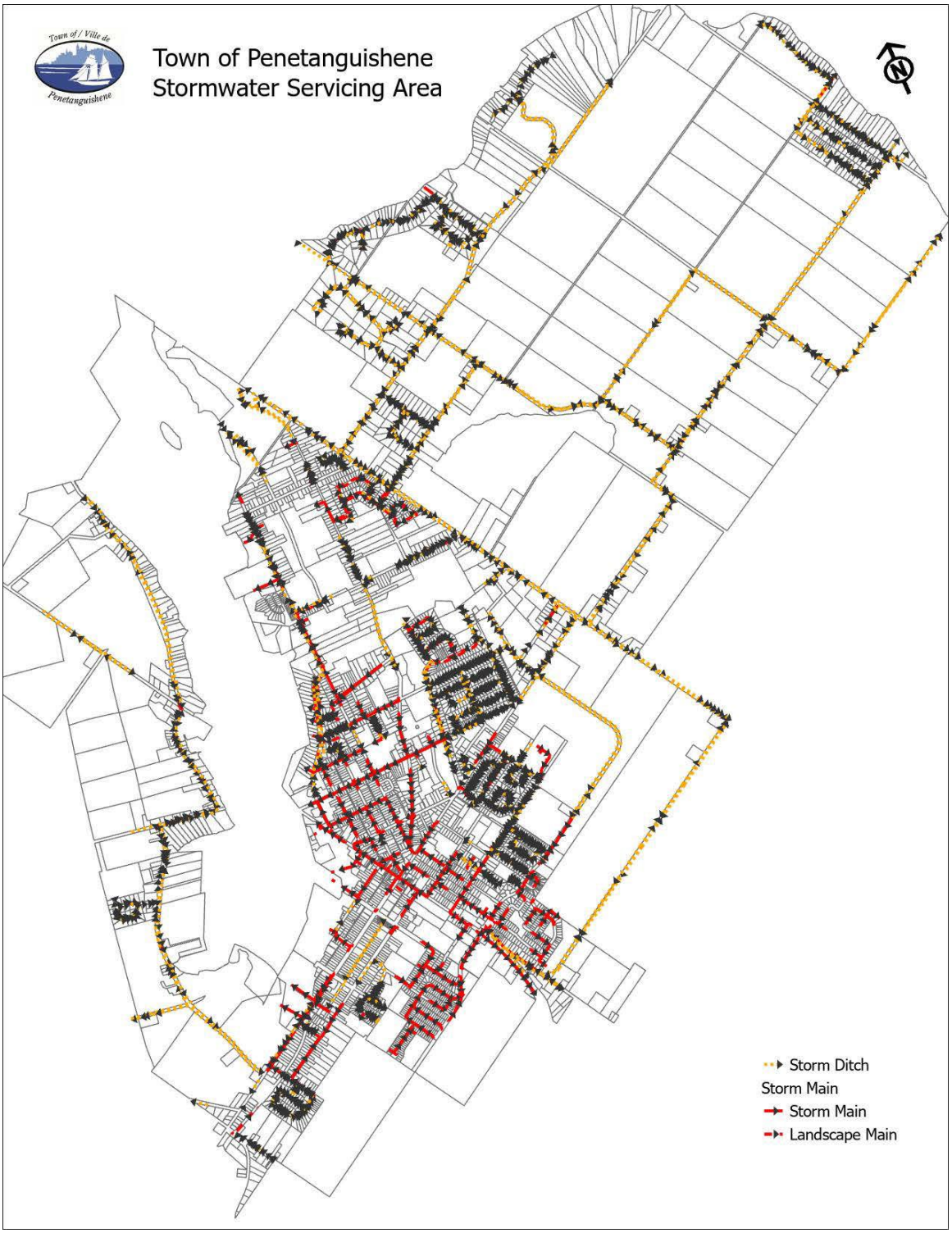
12.5.1 Current Levels of Service

The following tables identify the Town's current level of service for the stormwater 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 Town has selected.

Table 10 Stormwater Network Current Levels of Service

Community LOS		Service Attribute	Current Technical LOS	
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	See Figure 24: Stormwater Flood Map for a map that identifies the areas of the Town that are protected from flooding.	Scope	Length of Main (km of main)	29
			% of properties in municipality resilient to a 100-year storm	13%
			% of the municipal stormwater management system resilient to a 5-year storm	90%
Description or images of the condition of the stormwater network	Condition Description • Very Good - Fit for the future • Good - Adequate for now • Fair - Requires attention • Poor - Increased potential of affecting service • Very Poor - Unfit for sustained service	Quality / Reliability	Average condition	Very Good (90%)
General	Services will be provided to ensure sustainability	Sustainability	Replacement Cost	$44,022,725
			% Risk that is High and Very High	1%
			Average Asset Risk	Very Low
			Annual Investment	$0
			Capital re-investment rate	0%

Figure 24: Stormwater Flood Map



12.5.2 Proposed Levels of Service

See Section 9.4 Ten-Year Financial Plan for the details of the Town's targets.

13 Appendix C: Water Network

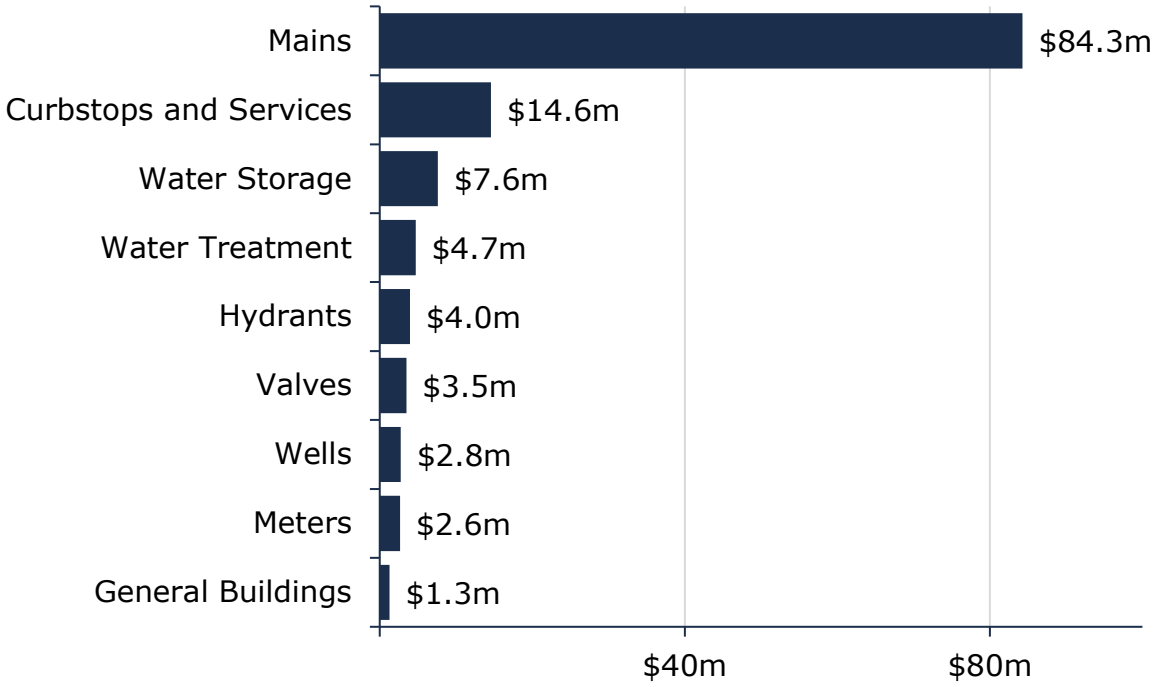
The Town is responsible for providing water services to residents through the collection, storage, and distribution of water.

Water infrastructure is managed by the Water Division and comprises 2 groundwater-based water systems. Staff continue to consolidate critical asset attribute data into the Town's primary central asset inventory, which is managed in Citywide.

13.1 Inventory & Valuation

The graph below displays the total replacement cost of each asset segment in Penetanguishene's water network inventory.

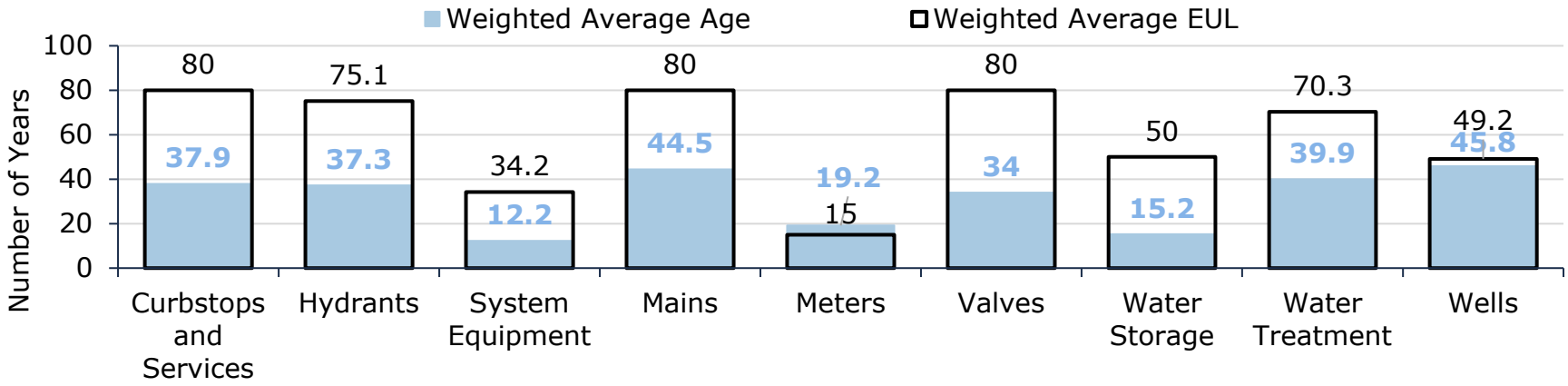
Figure 25: Water Network Replacement Cost



13.2 Asset Condition & Age

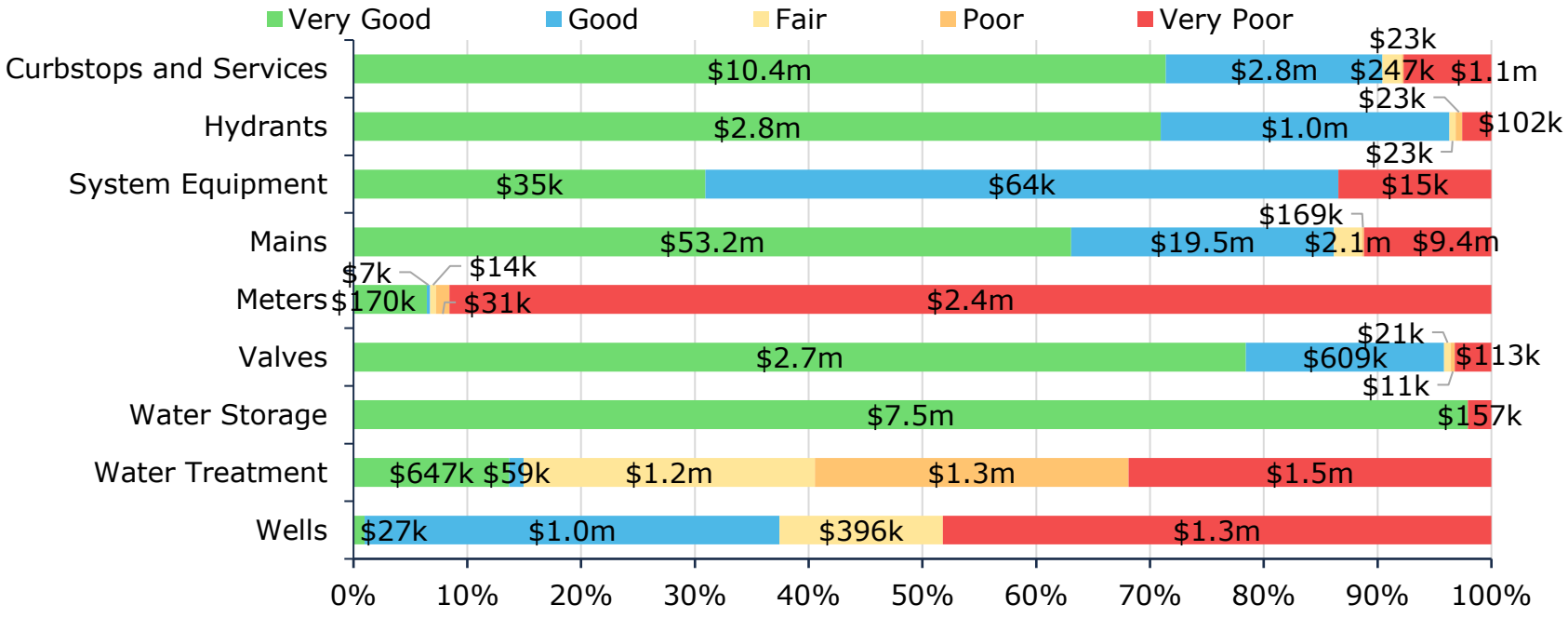
The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 26: Water Network Average Age vs Average EUL



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

Figure 27: Water Network Condition Breakdown



To ensure that the municipal water network continues to provide an acceptable level of service, the Town 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 water network.

Each asset's estimated useful life should also be reviewed to determine whether adjustments need to be made to better align with the observed service life.

13.2.1 Current Approach to Condition Assessment

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

- Inspections as required under O. Reg. 170/3: Drinking Water Systems are conducted.
- Staff rely on a variety of metrics including age, pipe material and diameter, location.

13.3 Lifecycle Management Strategy

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. The following table outlines the Town's current lifecycle management strategy.

Figure 28: Water Network Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Hydrants and valves undergo annual maintenance
- Pumphouses are inspected and undergo maintenance under a formal schedule
- Main flushing of the entire network is conducted twice a year
- Periodic pressure testing occurs in order to identify deficiencies and potential leaks

Rehabilitation / Replacement

- In the absence of mid-lifecycle rehabilitative activities, most mains are simply maintained with the goal of full replacement once service life is exceeded
- Water main replacement is prioritized based on an analysis of the main break rate, asset functionality and design capacity as well as any issues identified during maintenance activities
- Similar to other sub-surface infrastructure, Staff coordinate water replacement projects with road reconstruction projects in order to produce cost efficiencies

13.4 Risk & Criticality

The risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on available inventory data.

Figure 29: Water Network Risk Breakdown

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$54,624,933	$34,170,145	$10,042,935	$13,355,660	$13,282,824
44%	27%	8%	11%	11%

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 60%)	Pipe Material (Financial 50%)
Service Life Remaining % (Operational 40%)	Pipe Diameter (50% Operational)

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 60%)	Replacement Cost (80% Financial)
Service Life Remaining % (Operational 40%)	AMP Segment (20% Operational)

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

13.5 Levels of Service

The framework created by the Town for levels of service is a valuable tool for assessing and managing the performance of their assets and/or services provided by their assets.

13.5.1 Current Levels of Service

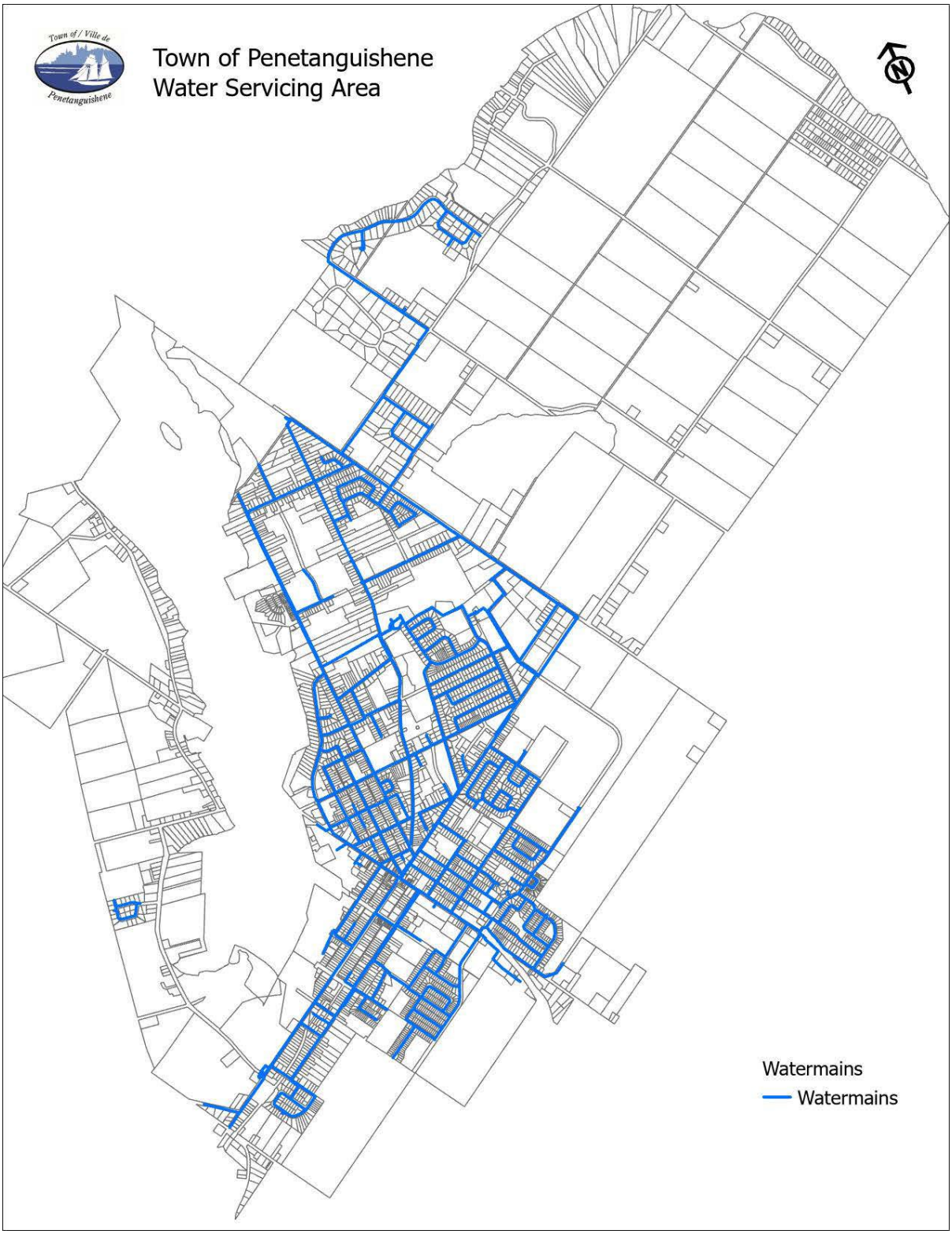
The following tables identify the Town's current level of service for the water network. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the Town has selected.

Table 11 Water Network Current Levels of Service

Community LOS		Service Attribute	Current Technical LOS	
Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system	See Figure 30 for a map that identifies the areas of the Town that are connected to the municipal water system.	Scope	Quantity (Meters of main)	67,524
			% of properties connected to the municipal water system	77%
Description, which may include maps, of the user groups or areas of the municipality that have fire flow	Two sections of the Town have municipal water service but do not have fire flows. These areas are Lepage Drive and the lower section of Gilwood Park Drive. Areas not connected to the water system do not have fire flows.		% of properties where fire flow is available	74%
			Average Condition	Good (75%)
Description of boil water advisories and service interruptions	There were 2 main breaks and 3 service connection breaks in 2024.	Quality / Reliability	# of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system	0
			# of connection-days per year where water is not available to water main breaks compared to the total number of properties	0

Community LOS		Service Attribute	Current Technical LOS	
			connected to the municipal water system	
General	Services will be provided to ensure sustainability	Sustainability	Replacement Cost	$125,476,497
			% Risk that is High and Very High	21%
			Average Asset Risk	Low
			Annual Investment	$932,905
			Capital re-investment rate	0.74%

Figure 30: Water Network Map



13.5.2 Proposed Levels of Service

See Section 9.4 Ten-Year Financial Plan for the details of the Town's targets.

14 Appendix D: Sanitary Sewer Network

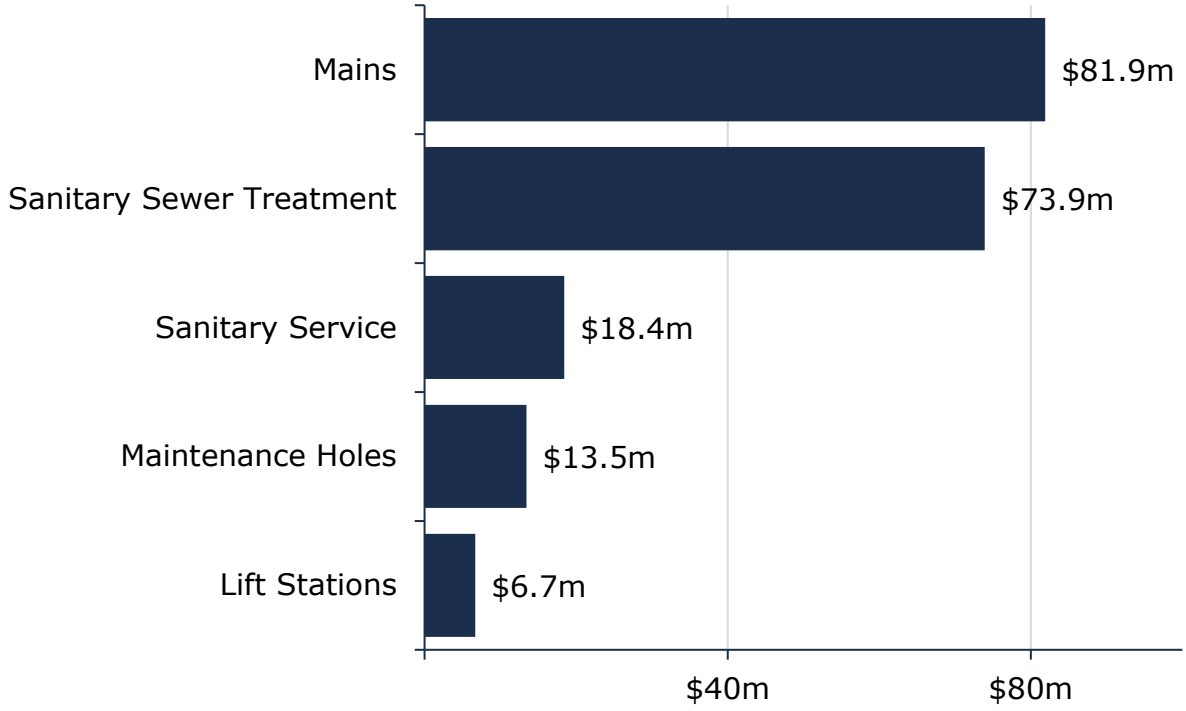
The Town is responsible for providing sanitary sewer services to residents through the collection, storage, and treatment of sanitary sewage. Sanitary sewer infrastructure is managed by the Public Works Department.

Staff continue to consolidate critical asset attribute data into the Town's primary central asset inventory, which is managed in Citywide.

14.1 Inventory & Valuation

The graph below displays the total replacement cost of each asset segment in Penetanguishene's sanitary sewer network inventory.

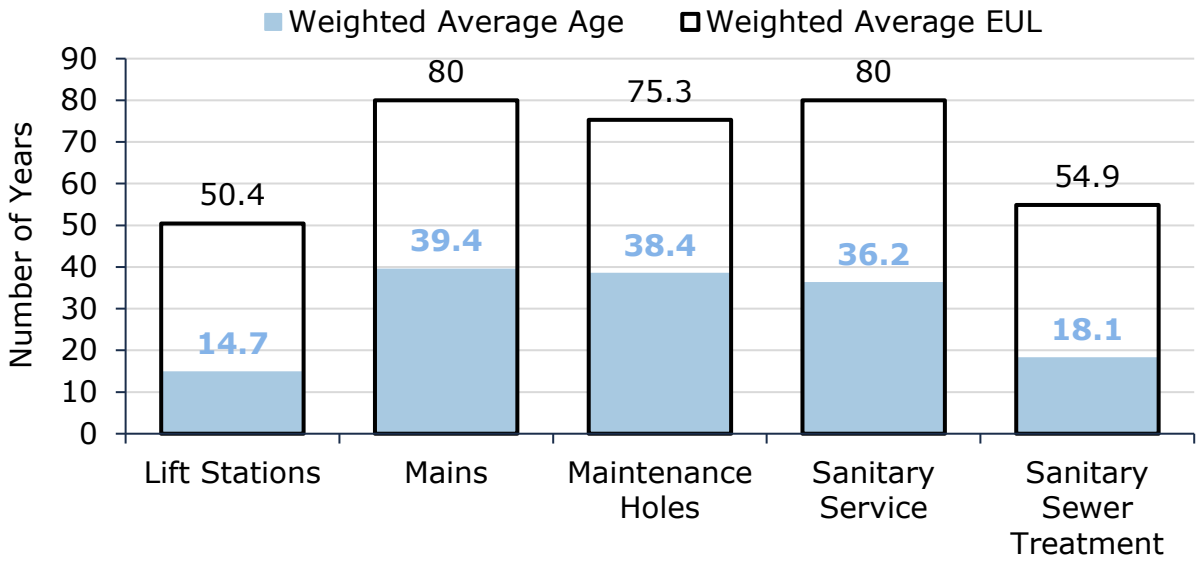
Figure 31: Sanitary sewer Network Replacement Cost



14.2 Asset Condition & Age

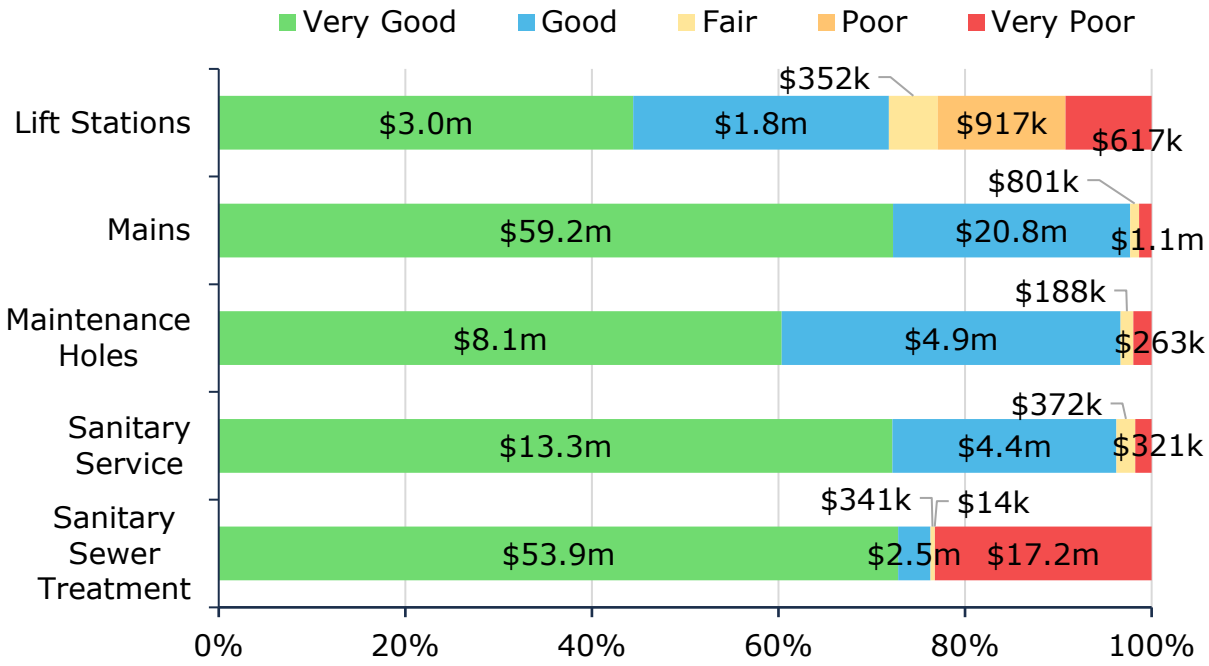
The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 32: Sanitary Sewer Network Average Age vs Average EUL



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

Figure 33: Sanitary Sewer Network Condition Breakdown



To ensure that the municipal sanitary sewer network continues to provide an acceptable level of service, the Town 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 sanitary sewer network.

Each asset's estimated useful life should also be reviewed to determine whether adjustments need to be made to better align with the observed service life.

14.2.1 Current Approach to Condition Assessment

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

- CCTV inspections are conducted on an as-needed basis, during main flushing and in coordination with construction projects.
- Sanitary facilities are inspected under an established schedule.
- Staff rely on a variety of metrics including age, pipe material and diameter, location, and available CCTV assessments to determine the projected condition of linear assets.

14.3 Lifecycle Management Strategy

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. The following table outlines the Town's current lifecycle management strategy.

Figure 34: Sanitary Sewer Network Current Lifecycle Strategy

Inspection / Maintenance

- Maintenance activities like main flushing on the linear network are performed as required
- Inspection and maintenance of treatment plants and lift stations are determined through the SCADA system

Rehabilitation

- There is a relining program in place as a rehabilitative strategy on high risk sanitary mains in order to mitigate critical asset failure.

Replacement

- Sanitary sewer replacement is generally aligned with road and/or subsurface reconstruction priorities
- Location, age, pipe material and diameter are taken into account when determining and prioritizing capital works

14.4 Risk & Criticality

The risk breakdown provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on available inventory data.

Figure 35: Sanitary Sewer Network Risk Breakdown

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	Low	Moderate	High	Very High
$92,407,589	$67,848,536	$2,685,077	$28,821,385	$2,614,333
48%	35%	1%	15%	1%

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 60%)	Pipe Material (Financial 50%)
Service Life Remaining % (Operational 40%)	Pipe Diameter (50% Operational)

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 60%)	Replacement Cost (80% Financial)
Service Life Remaining % (Operational 40%)	AMP Segment (20% Operational)

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

14.5 Levels of Service

The framework created by the Town for levels of service is a valuable tool for assessing and managing the performance of their assets and/or services provided by their assets.

14.5.1 Current Levels of Service

The following table identifies the Town's current level of service for the sanitary sewer 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 Town has selected.

Table 12 Sanitary Sewer Network Current Levels of Service

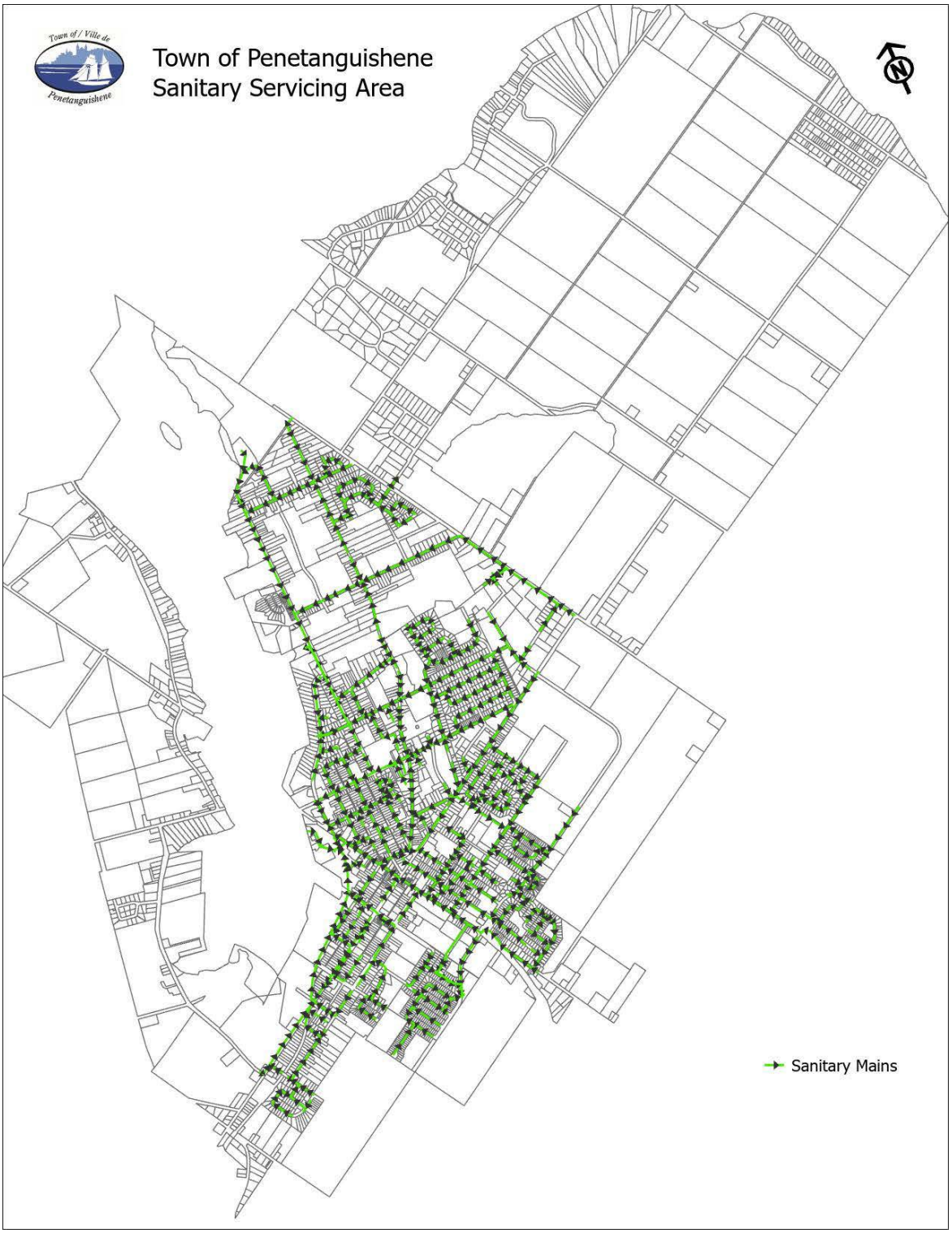
Community LOS		Service Attribute	Current Technical LOS	
Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system	See Figure 36 Sanitary Sewer Network Map that identifies the areas of the Town that are connected to the municipal wastewater system.	Scope	Quantity (Meters of main)	54,086
			% of properties connected to the municipal wastewater system	71%
Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes	There are two sanitary treatment facilities in the Town of Penetanguishene. The Philip H. Jones PCP (Main Street STP) that treats about 75% of collected waste and the Fox Street PCP that treats about 25%. - There are a limited number of combined sewers within the collection system. The removal of these storm sewer cross connections is a priority within the Capital Plan. The Equalization storage tanks at the Main Street STP provide on-site storage of the extraneous flows (inflow and infiltration) that are received at the STP during storm or melt events. This on-site storage helps prevent treatment units within the plant from being overwhelmed resulting in by-pass events (Primary, Secondary and Tertiary). There is no on-site equalization storage at the Fox Street STP.	Quality / Reliability	Average Condition	Very Good (87%)

Community LOS		Service Attribute	Current Technical LOS	
Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches	There is a limited number of combined sewers within the collection systems. The collection systems discharge into our Pollution Control Plants where the wastewater is treated in accordance with our Environmental Compliance Approvals, issued by the MECP. There has been one bypass event at the Fox Street PCP in 2021, no bypass events at the Main Street STP.		# of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system	0
Description of how stormwater can get into wastewater mains in the municipal wastewater system, causing sewage to overflow into streets or backup into homes	Stormwater can enter sanitary sewers due to damaged sanitary mains or through indirect connections (e.g., weeping tiles). In the case of heavy rainfall events, sanitary sewers may experience a volume of water and sewage that exceeds its designed capacity. In some cases, this can cause water and/or sewage to backup into homes. The disconnection of weeping tiles from sanitary mains and the use of sump pumps and pits directing storm water to the storm drain system can help to reduce the chance of this occurring.			
Description of how wastewater mains in the municipal wastewater system are designed to be resilient to	The Town follows a series of design standards that integrate servicing requirements and land use considerations when constructing or replacing sanitary sewers. These standards have been determined	Quality / Reliability	# of connection-days per year having wastewater backups compared to the	0.0017

Community LOS		Service Attribute	Current Technical LOS	
stormwater infiltration	with consideration of the minimization of sewage overflows and backups. Staff have also indicated that there is a possibility that some of the sump pumps connected to the sanitary network could lead to overflow. As part of the Town's relining program, Staff will be addressing this vulnerability.		total number of properties connected to the municipal wastewater system	
Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to stormwater infiltration	The Public Works Capital Program has put a priority on the elimination of inflow/infiltration within the sanitary sewer system through the physical separation of the sanitary and storm sewers within the Town's Reconstruction Program. The design and construction of sanitary and storm sewers is in accordance with the latest design standards issued by the MECP to eliminate or minimize inflow and infiltration within the sanitary sewer system.	Quality / Reliability		
Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system	Effluent refers to water pollution that is discharged from a wastewater treatment plant, and may include suspended solids, total phosphorous and biological oxygen demand. The Environmental Compliance Approval (ECA) identifies the effluent criteria for municipal wastewater treatment plants.		# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal	0

Community LOS		Service Attribute	Current Technical LOS	
			wastewater system	
General	Services will be provided to ensure sustainability	Sustainability	Replacement Cost	$194,376,919
			% Risk that is High and Very High	17%
			Average Asset Risk	Low
			Annual Investment	$856,022
			Capital re-investment rate	0.44%

Figure 36 Sanitary Sewer Network Map



14.5.2 Proposed Levels of Service

See Section 9.4 Ten-Year Financial Plan for the details of the Town's targets.

15 Appendix E: Facilities

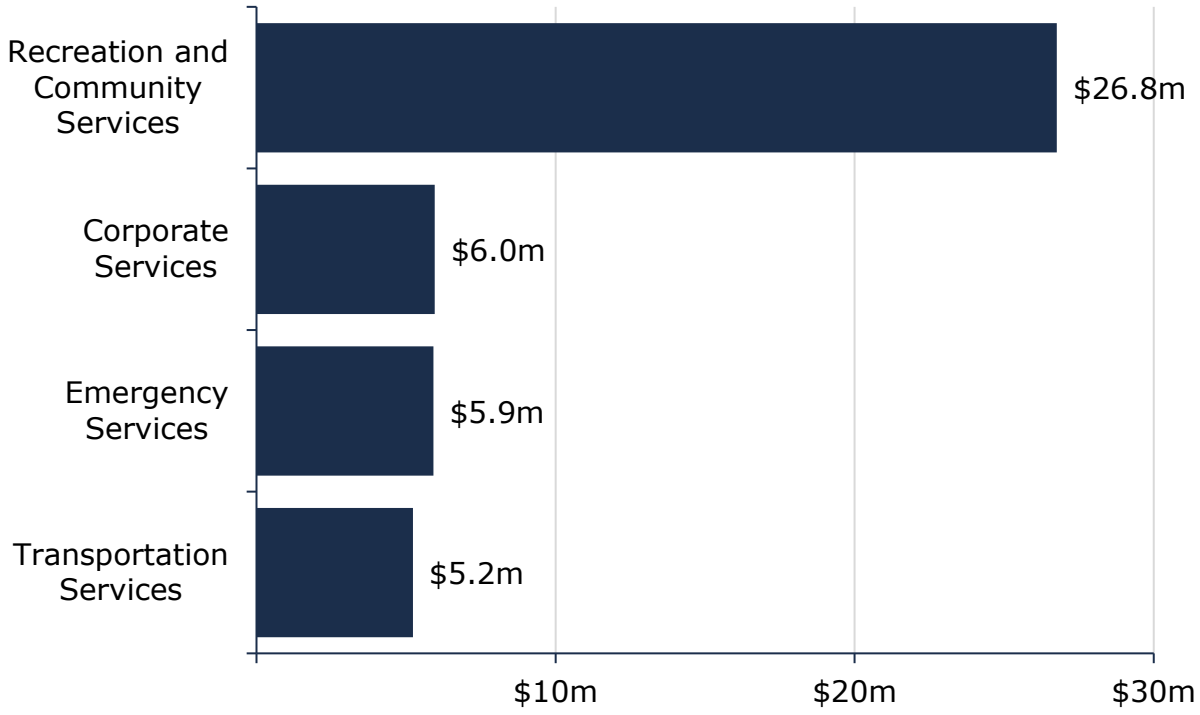
Penetanguishene owns and maintains several facilities that provide key services to the community. These include:

- administrative offices
- library, museum, and community centre
- fire halls and associated offices and facilities
- public works garages and storage sheds

15.1 Inventory & Valuation

The graph below displays the total replacement cost of each asset segment in Penetanguishene's facilities inventory.

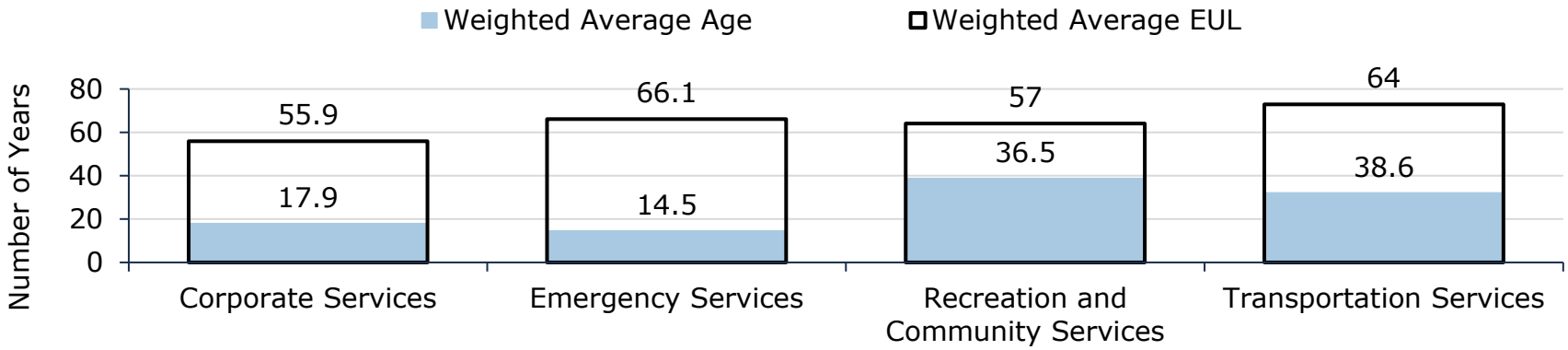
Figure 37: Facilities Replacement Cost



15.2 Asset Condition & Age

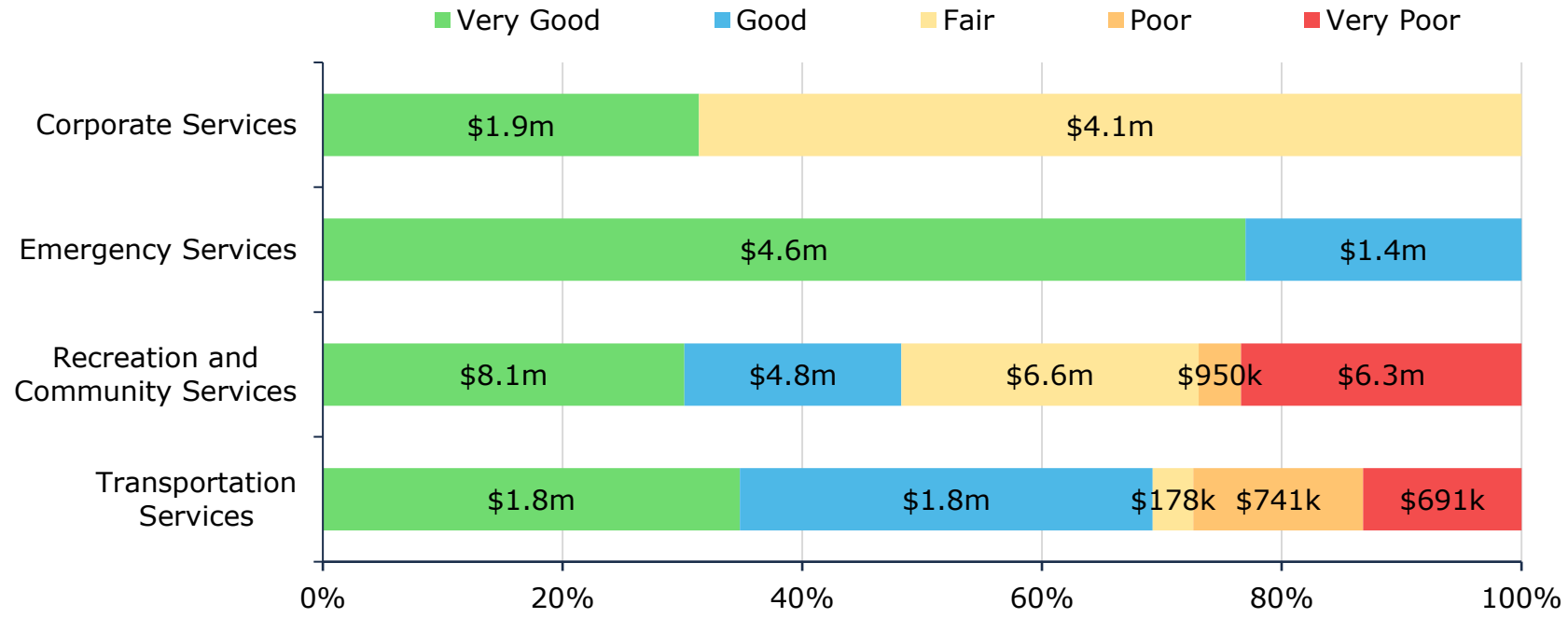
The graph below identifies the average age, and the estimated useful life for each asset segment. The values are weighted based on replacement cost. Each asset's estimated useful life should be reviewed to determine whether adjustments need to be made to better align with the observed service life.

Figure 38: Facilities Average Age vs Average EUL



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

Figure 39: Facilities Condition Breakdown



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

15.2.1 Current Approach to Condition Assessment

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

- Building Condition Assessments (BCAs) were conducted in 2019 by GHD on 18 of the Town's facilities
- Formal workplace inspections are conducted every year through the Town's health and safety program.
- High-level assessments by internal staff are performed annually to determine the condition of facilities and identify deficiencies.

15.3 Lifecycle Management Strategy

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. The following table outlines the Town's current lifecycle management strategy.

Figure 40: Facilities Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Staff identify building maintenance needs in reaction to breakdowns
- The building condition assessment is used to budget based on the 20-year projection created

15.4 Risk & Criticality

The risk breakdown provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on available inventory data.

Figure 41: Facilities Risk Breakdown

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$21,402,706	$10,402,955	$2,411,926	$6,735,991	$2,921,069
49%	24%	5%	15%	7%

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 60%)	Replacement Cost (80% Financial)
Service Life Remaining % (Operational 40%)	AMP Segment (20% Operational)

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

15.5 Levels of Service

The framework created by the Town for levels of service is a valuable tool for assessing and managing the performance of their assets and/or services provided by their assets.

15.5.1 Current Levels of Service

The following table identifies the Town's current level of service for the sanitary sewer 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 Town has selected.

Table 13 Facilities Current Levels of Service

Community LOS		**Service Attribute**	**Current Technical LOS**	
Description of the services provided by municipal buildings.	Services provided by municipal facilities are based on the types of facilities outlined below: • administrative offices • library, museum, and community centre • fire halls and associated offices and facilities • public works garages and storage sheds	Scope	Total # of facilities	30
			Administration - Town Hall	1
			Fire Hall	1
			Museum and Outbuildings	6
			Library	1
			Curling Rink	1
			Arena and Sports Hall of Fame	1
			Tourist Information Office	1
			Parks Washrooms, Picnic Shelters and Utility buildings	12
			Roads Garage and Storage	4
			Water Administration and storage	2
Description of the condition of municipal buildings	Condition Description • Very Good - Fit for the future • Good - Adequate for now • Fair - Requires attention • Poor - Increased potential of affecting service • Very Poor - Unfit for sustained service	Quality / Reliability	Average Condition	Good (64%)
General	Services will be provided to ensure sustainability	Sustainability	Replacement Cost	$43,874,647
			% Risk that is High and Very High	22%
			Average Asset Risk	Low
			Annual Investment	$690,833
			Capital re-investment rate	1.57%

15.5.2 Proposed Levels of Service

See Section 9.4 Ten-Year Financial Plan for the details of the Town's targets.

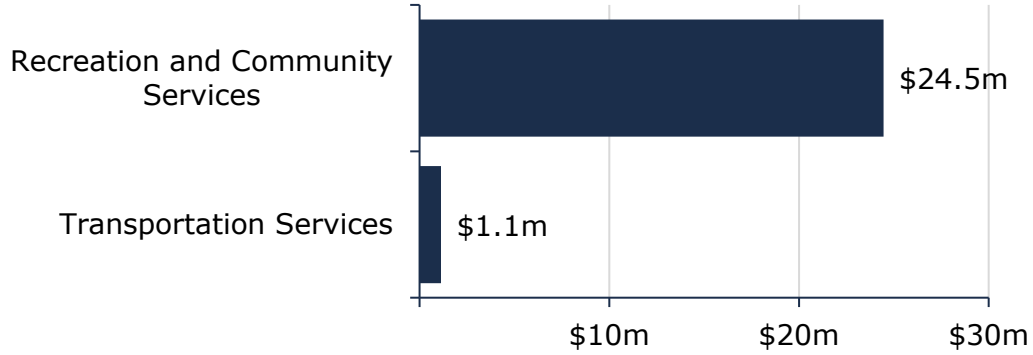
16 Appendix F: Land Improvements

The Town of Penetanguishene owns several assets that are grouped under the parks and land improvements category and assist in providing the Town with community recreation, marina and natural outdoor space. The Town's land improvements inventory is managed in Citywide.

16.1 Asset Inventory & Valuation

The graph below displays the replacement cost of each asset segment in the Town's land improvement inventory.

Figure 42: Land Improvements Replacement Cost

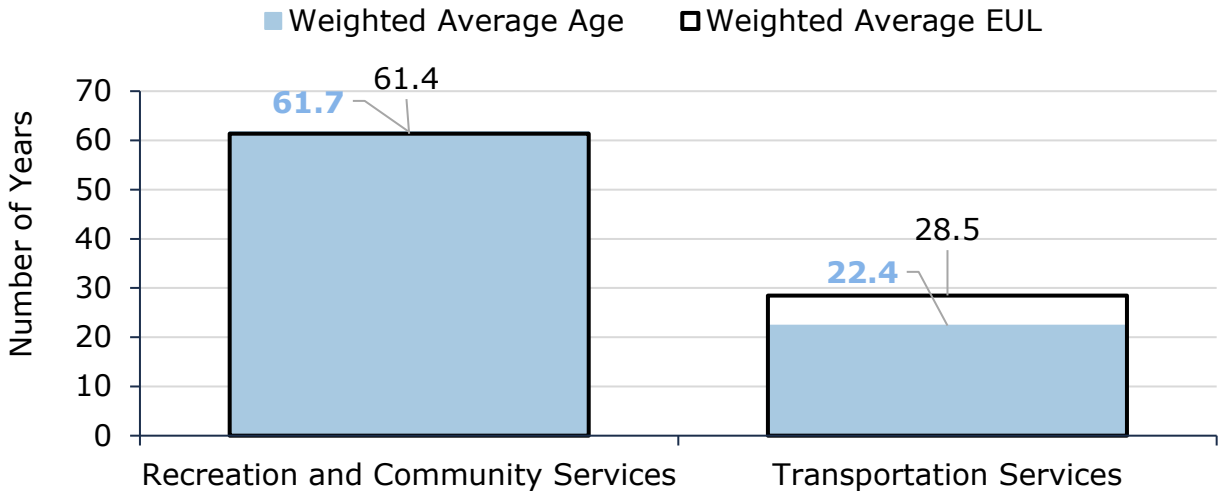


16.2 Asset Condition & Age

The graph below identifies the average age, and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

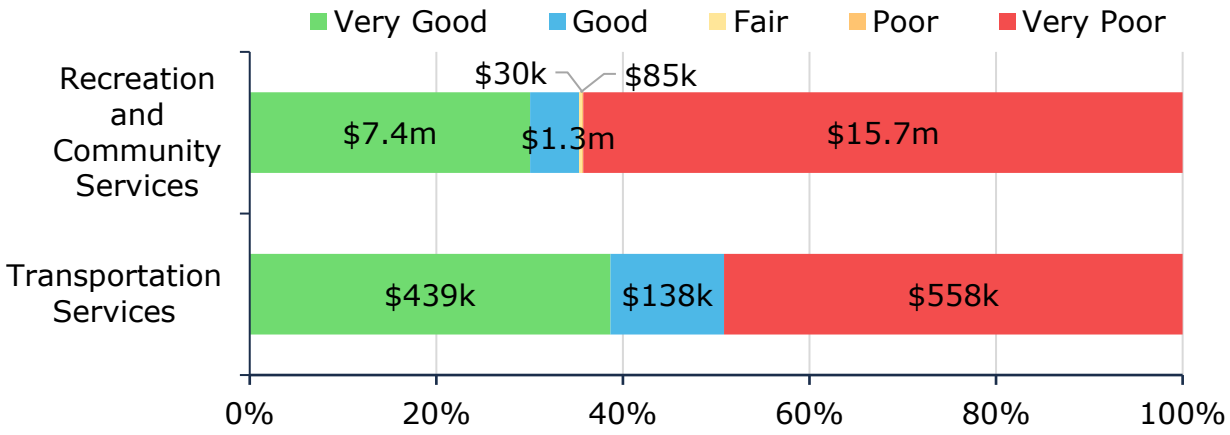
Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

Figure 43: Land Improvements Average Age vs Average EUL



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

Figure 44: Land Improvement Condition Breakdown



To ensure that the Town's land improvements continue to provide an acceptable level of service, the Town 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 activities is required to increase the overall condition of the land improvements.

16.2.1 Current Approach to Condition Assessment

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

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

16.3 Lifecycle Management Strategy

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. The following figures outline Penetanguishene's current lifecycle management strategy.

Figure 45: Land Improvements Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Staff regularly review outdoor play space otherwise it is through reactive complaint or asset failure.

16.4 Risk & Criticality

The risk breakdown provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on available inventory data.

Figure 46: Land Improvements Risk Breakdown

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$8,898,751	$717,244	$114,930	$15,676,178	$187,988
35%	3%	0%	61%	1%

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 60%)	Replacement Cost (80% Financial)
Service Life Remaining % (Operational 40%)	AMP Segment (20% Operational)

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

16.5 Levels of Service

The framework created by the Town for levels of service is a valuable tool for assessing and managing the performance of their assets and/or services provided by their assets.

16.5.1 Current Levels of Service

The following table identifies the Town's current level of service for the sanitary sewer 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 Town has selected.

Table 14 Land Improvements Current Levels of Service

Community LOS		Service Attribute	Current Technical LOS	
Description of the services provided by land improvements	Service provided by municipal land improvements are based on the types of land improvements outlined below: • Art Fixtures add to the cultural richness and experience of the Town • Concrete pads, fencing, landscaping, and retaining walls all work to support and maintain infrastructure • Docks, lighting, trails, sports and play elements such as baseball diamonds and structures such as boardwalks and pedestrian bridges all support the enhanced experience of residents in outdoor spaces.	Scope	Quantity	388
			Running Tracks	1 1:10,075
			Skate Parks	1 1:1,545
			Soccer Fields	1 1:1,545
			Tennis Courts	3 1:3,358
			Playgrounds	8 0.175694
			Ball Diamonds	3 1:3,358
			Basketball Courts	2 0.578472
			Pickleball Courts	4 1:2,519
			Splash Pad	1 1:1,545
			Pump Track	1 1:1,545
Description of the condition of land improvements	Condition Description • Very Good - Fit for the future • Good - Adequate for now • Fair - Requires attention • Poor - Increased potential of affecting service • Very Poor - Unfit for sustained service	Quality / Reliability	Average Condition	Good (62%)
General	Services will be provided to ensure sustainability	Performance	Replacement Cost	$25,595,091
			% Risk that is High and Very High	62%
			Average Asset Risk	High
			Annual Investment	$154,441
			Capital re-investment rate	0.60%

16.5.2 Proposed Levels of Service

See Section 9.4 Ten-Year Financial Plan for the details of the Town's targets.

17 Appendix G: Machinery & Equipment

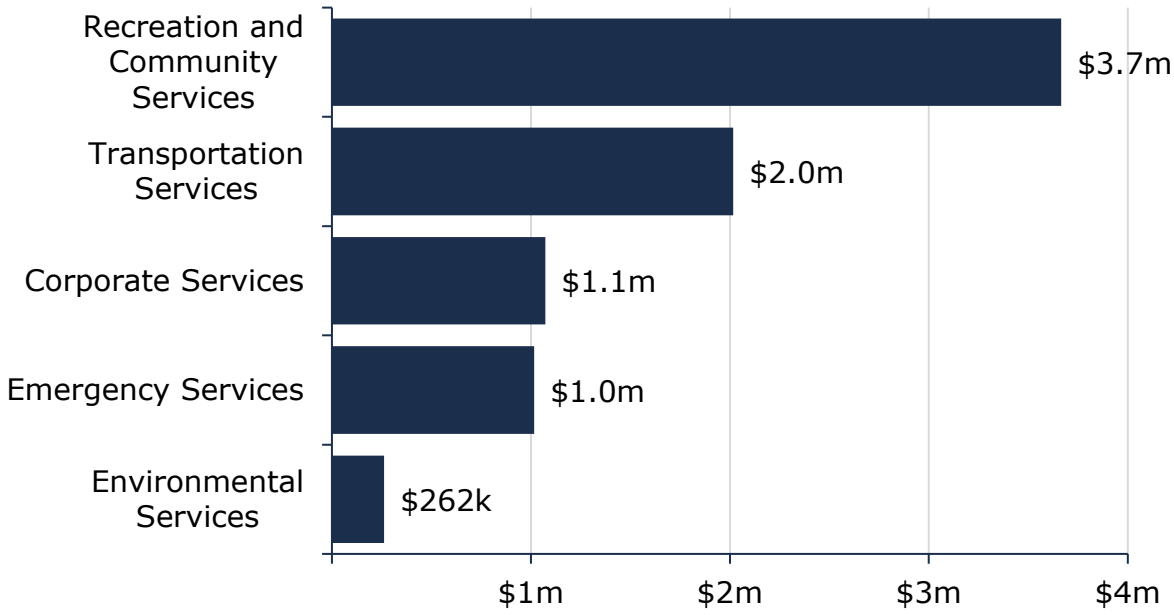
To maintain the quality stewardship of Penetanguishene's infrastructure and support the delivery of services, municipal staff own and employ various types of equipment. This includes:

- Machinery and equipment to maintain parks and recreational facilities
- Specialized machinery and equipment to support the public works department
- Emergency services equipment to support first responders and emergency services
- IT equipment for communication and data management to support corporate and administrative services

17.1 Inventory & Valuation

The graph below displays the total replacement cost of each asset segment in the Penetanguishene's machinery and equipment inventory.

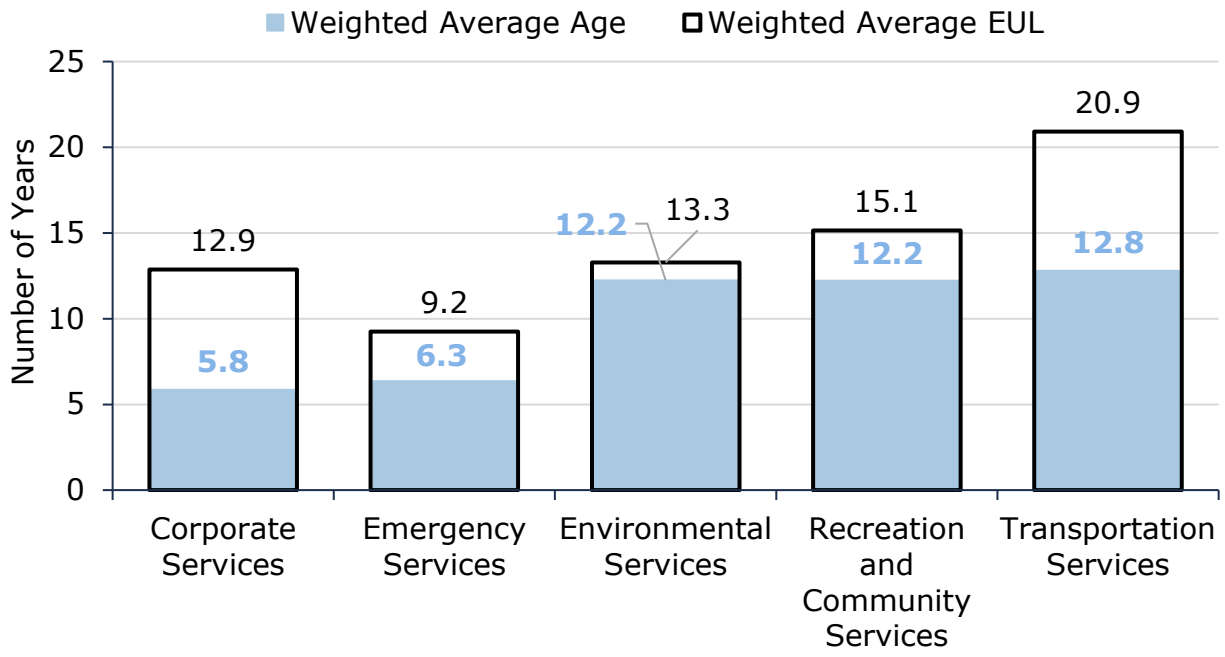
Figure 47: Machinery & Equipment Replacement Costs



17.2 Asset Condition & Age

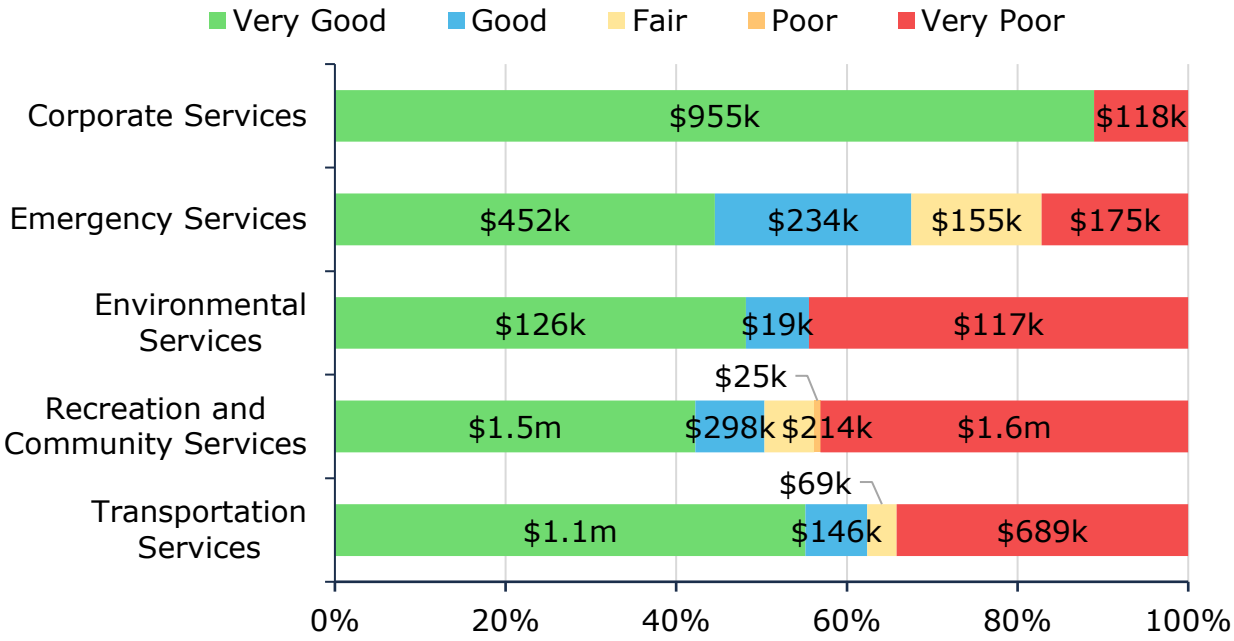
The graph below identifies the average age and the estimated useful life for each asset segment. The values are weighted based on replacement cost. Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

Figure 48: Machinery & Equipment Average Age vs Average EUL



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

Figure 49: Machinery & Equipment Condition Breakdown



To ensure that the Town's equipment continues to provide an acceptable level of service, Penetanguishene should continue to monitor the average condition. 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.

Current Approach to Condition Assessment

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

- Staff complete regular visual inspections of machinery and equipment assets to ensure they are structurally and functionally sound. Assets typically stay true to their estimated useful life and are replaced at end of life.
- Condition assessments are conducted on fire and emergency assets in accordance with regulations for health and safety regulations including National Fire Protection Association (NFPA) codes and standards for fire service-related machinery and equipment assets.

17.3 Lifecycle Management Strategy

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

Figure 50: Machinery & Equipment Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Lifecycle activities are tailored to the specific characteristics, needs and priorities of each equipment type and department.

17.4 Risk & Criticality

The risk breakdown provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on available inventory data.

Figure 51: Machinery and Equipment Risk Breakdown

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$4,646,713	$1,705,542	$193,605	$1,380,836	$107,629
58%	21%	2%	17%	1%

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 60%)	Replacement Cost (80% Financial)

Service Life Remaining % (Operational 40%)	AMP Segment (20% Operational)

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

17.5 Levels of Service

The framework created by the Town for levels of service is a valuable tool for assessing and managing the performance of their assets and/or services provided by their assets.

17.5.1 Current Levels of Service

The following table identifies the Town's current level of service for the sanitary sewer 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 Town has selected.

Table 15 Machinery & Equipment Current Levels of Service

Community LOS		Service Attribute	Current Technical LOS	
Description of the services provided by machinery and equipment	Services provided by municipal machinery & equipment are based on the types of equipment outlined below: • Attachments and Heavy Equipment including loaders, excavators, and the ice resurfacing machine to support asset maintenance and public services • Electrical equipment including generators to provide backup emergency power • Furniture and IT Equipment to support administration and automated processes in water and wastewater • Library Materials include the annual circulation materials to support public services • Maintenance, Monitoring and Process equipment include lawn mowers, chlorine analyzers and treatment system valves to maintain assets, monitor performance and support water and wastewater treatment processes. • Outdoor fixtures, furniture and playground equipment support community engagement in outdoor spaces. • Safety equipment such as fall-arrest harnesses and SCBA systems protect workers from potential workplace hazards.	Scope	Total Quantity # Attachments Electrical Equipment Furniture Heavy Equipment IT Equipment Library Materials Maintenance Equipment Monitoring Equipment Outdoor fixtures and furniture Playground Equipment Portable Structures Process Equipment Safety Equipment	258 3 5 3 10 54 10 28 26 5 20 1 84 9

Community LOS		Service Attribute	Current Technical LOS	
Description of the condition of machinery and equipment	Condition Description • Very Good - Fit for the future • Good - Adequate for now • Fair - Requires attention • Poor - Increased potential of affecting service • Very Poor - Unfit for sustained service	Quality / Reliability	Average Condition	Fair (59%)
General	Services will be provided to ensure sustainability	Sustainability	Replacement Cost	$8,034,325
			% Risk that is High and Very High	19%
			Average Asset Risk	Low
			Annual Investment	$186,983
			Capital re-investment rate	2.33%

17.5.2 Proposed Levels of Service

See Section 9.4 Ten-Year Financial Plan for the details of the Town's targets.

18 Appendix H: Fleet

Fleet assets allow staff to efficiently deliver municipal services and personnel. Municipal fleet is used to support several service areas, including:

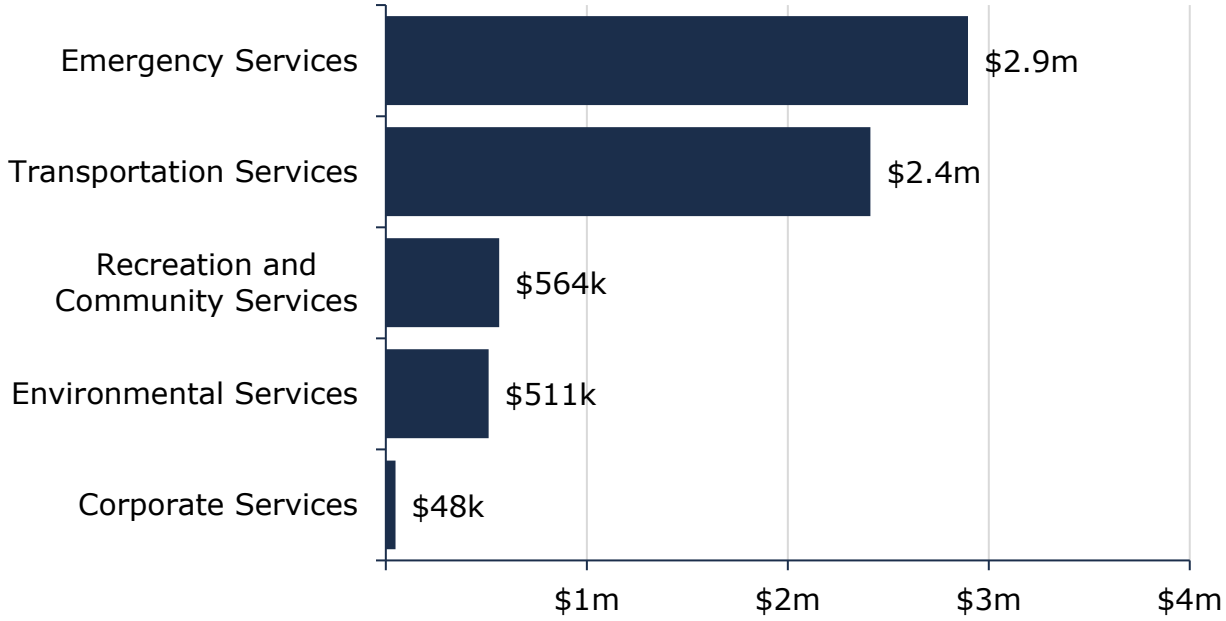
- Light-duty and heavy-duty vehicles to support the maintenance of municipal infrastructure and address service requests
- Emergency service vehicles and equipment to support first responders
- Vehicles dedicated to supporting recreational and cultural services

The Town's fleet inventory is managed in Citywide. The Town are replacing light vehicles (except emergency services) with leased vehicles which are not included in the capital inventory.

18.1 Inventory & Valuation

The graph below displays the total replacement cost of each asset segment in the fleet inventory.

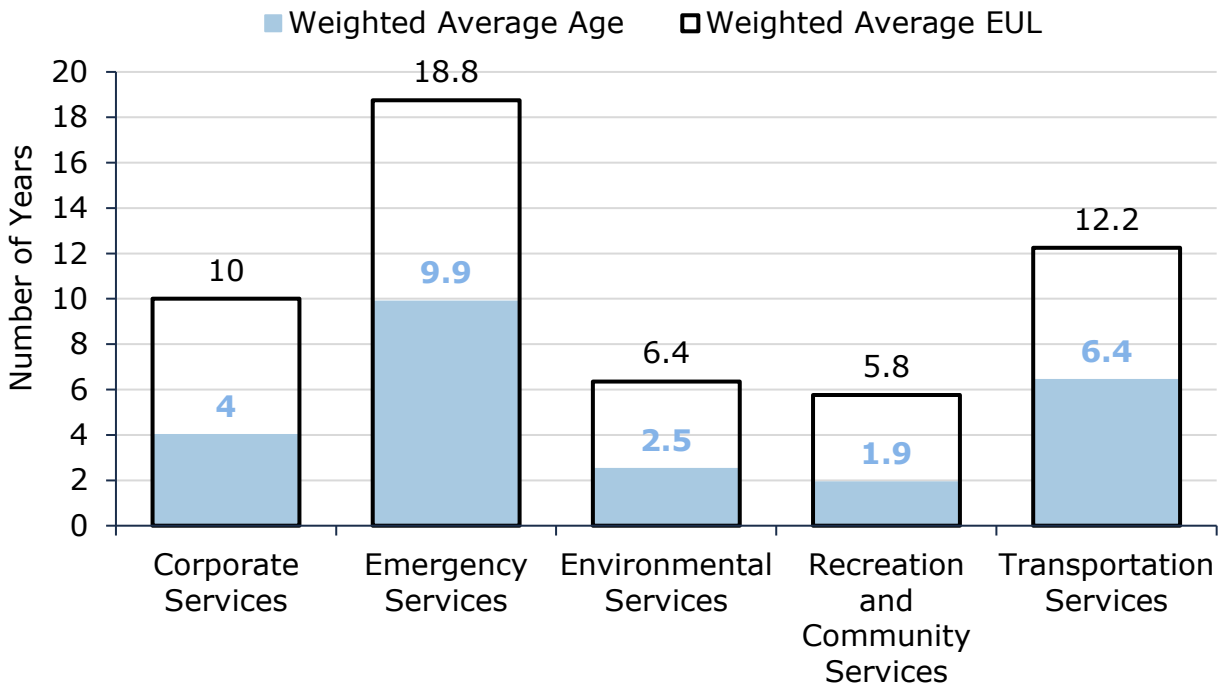
Figure 52: Fleet Replacement Costs



18.2 Asset Condition & Age

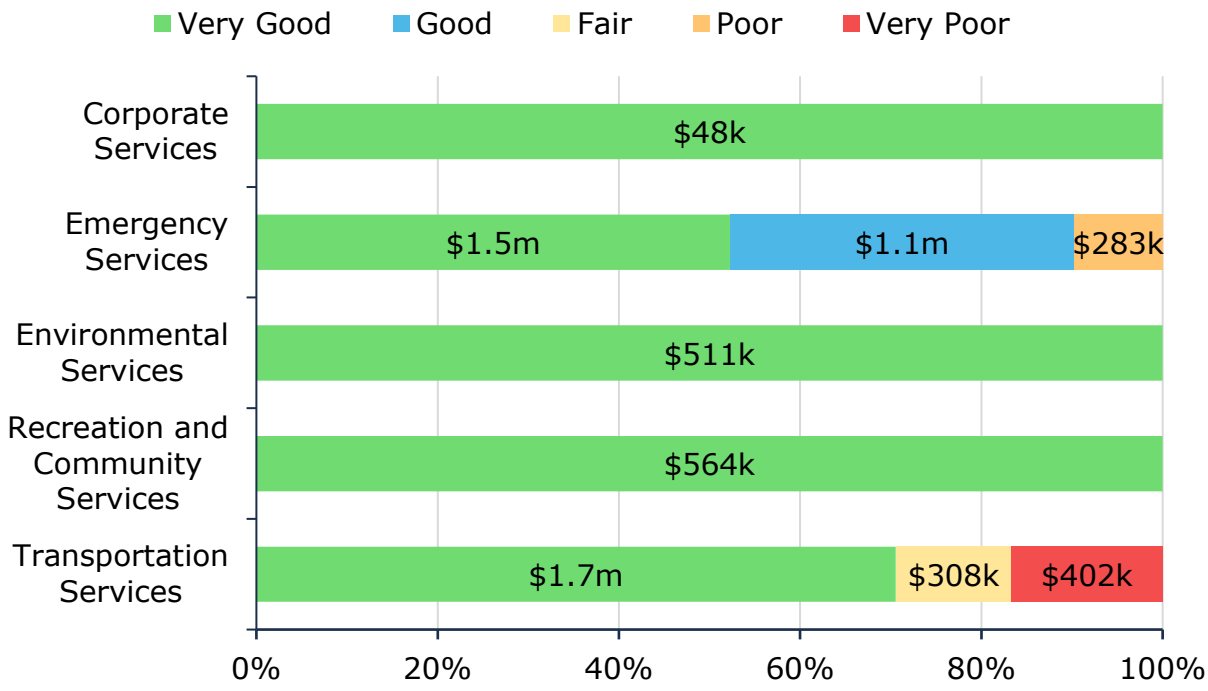
The graph below identifies the average age and the estimated useful life for each asset segment. The values are weighted based on replacement cost. Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

Figure 53: Fleet Average Age vs Average EUL



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

Figure 54: Fleet Condition Breakdown



To ensure that the Town's fleet continue to provide an acceptable level of service, the Town 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 fleet.

18.2.1 Current Approach to Condition Assessment

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

- Staff complete regular visual inspections of fleet assets to ensure they are in state of adequate repair prior to operation
- The mileage of vehicles is used as a proxy to determine remaining useful life and relative vehicle condition
- Condition assessments are conducted on fire and emergency fleet assets in accordance with regulations for health and safety regulations including National Fire Protection Association (NFPA) codes and standards for fire service-related fleet assets

18.3 Lifecycle Management Strategy

The condition or performance of assets will deteriorate over time. To ensure fleet are performing as expected, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

Figure 55: Fleet Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- operations and maintenance is completed by internal staff
- replacements are completed based on useful life estimates

18.4 Risk & Criticality

The risk breakdown provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on available inventory data.

Figure 56: Fleet Risk Breakdown

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$4,337,596	$2,426	$0	$1,407,645	$683,034
67%	<1%	0%	22%	11%

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition (Performance 60%)	Replacement Cost (80% Financial)
Service Life Remaining % (Operational 40%)	AMP Segment (20% Operational)

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

18.5 Levels of Service

The framework created by the Town for levels of service is a valuable tool for assessing and managing the performance of their assets and/or services provided by their assets.

18.5.1 Current Levels of Service

The following table identifies the Town's current level of service for the sanitary sewer 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 Town has selected.

Table 16 Fleet Current Levels of Service

Community LOS		Service Attribute	Current Technical LOS		
Description of the services provided by the municipal fleet	Service provided by municipal fleet are based on the service usage outlined below: • Light-duty and heavy-duty vehicles to support the maintenance of municipal infrastructure and address service requests • Emergency service vehicles and equipment to support first responders • Vehicles dedicated to supporting recreational and cultural services	Scope	**Total # of owned vehicles**		**22**
			By-Law	Light Vehicle - Class 1-2	1
			Fire	Light Vehicle - Class 1-2	1
			Fire	Medium Vehicle - Class 3-5	1
			Fire	Specialized Heavy Vehicle	4
			Transit	Bus	1
			R & CS	Light Vehicle - Class 1-2	2
			Roads	Medium Vehicle – Class 3-5	1
			Roads	Snowplows / Dump Truck	5
			Water	Light Vehicle - Class 1-2	3
			Shared (HAC) 28.5%		1
			Total # of Leased vehicles		**15**
			R & CS	Medium Vehicle - Class 3-5	6
			Roads	Light Vehicle - Class 1-2	1
			Roads	Medium Vehicle - Class 3-5	3
			Roads	Utility Vehicle (bucket truck)	1
			Wastewater	Light Vehicle - Class 1-2	1
			Wastewater	Medium Vehicle - Class 3-5	1
			Water	Medium Vehicle - Class 3-5	1
			Water	Utility Vehicle (crane truck)	1
			Quantity		**37**
Description of the condition of the municipal fleet	Condition Description • Very Good - Fit for the future • Good - Adequate for now • Fair - Requires attention • Poor - Increased potential of affecting service	Quality / Reliability	Average Condition		Very Good (80%)

Community LOS		Service Attribute	Current Technical LOS	
	• Very Poor - Unfit for sustained service			
General	Services will be provided to ensure sustainability	Sustainability	Replacement Cost	$6,430,701
			% Risk that is High and Very High	33%
			Average Asset Risk	Low
			Annual Investment	$113,643
			Capital re-investment rate	1.77%

18.5.2 Proposed Levels of Service

See Section 9.4 Ten-Year Financial Plan for the details of the Town's targets.