2025
Asset Management Plan

This Asset Management Plam was prepared by:

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

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Executive Summary

Municipal infrastructure is the foundation of a community's economic, social, and environmental well-being, as it enables the delivery of essential public services. The goal of asset management is to ensure that these services are delivered in a cost-effective, sustainable, and resilient manner. Achieving this requires the development and implementation of targeted asset management strategies and long-term financial planning.

The Town of Carleton Place owns infrastructure assets with a total replacement value of approximately $562 million. An analysis of current conditions shows that 65% of assets are in Fair condition or better. Assessed condition data is available for 35% of assets. For the remaining categories, where direct assessments were not available, asset age was used as a proxy, a common approach, though one that often misrepresents true asset conditions. This data gap underscores the importance of ongoing condition assessments, which remain a recurring recommendation across municipalities.

A sustainable financial strategy must be based on the analysis of whole lifecycle costs. The Town applied a combination of proactive lifecycle strategies (for roads) and replacement-only strategies (for other asset types) to identify the most cost-effective methods of maintaining existing service levels.

Addressing this infrastructure funding shortfall is a long-term challenge that most municipalities across Ontario—and Canada—are facing. The Town recognizes that reaching full funding will require many years. Short phase-in periods may place excessive financial pressure on taxpayers, while overly long timeframes (e.g., beyond 20 years) risk continued deterioration of infrastructure and the buildup of even larger capital backlogs.

Proposed Levels of Service

The Town is committed to setting proposed levels of service that are both realistic and achievable within the defined planning horizon. These levels have been developed with careful consideration of community expectations, fiscal capacity, regulatory requirements, corporate objectives, and the overarching goal of long-term sustainability.

Over the past several years, the Town has made the development of its asset management program a strategic priority. While significant progress has been made, it became clear during this process that additional work is needed to fully align existing asset data—originally compiled with a financial lens—with day-to-day operational practices and service delivery objectives.

To address this gap and build a strong foundation for service level planning, the Town adopted a two-pronged approach:

Comparative Analysis - A detailed comparison was made between Carleton Place's 10-year projection from the asset management system and the 10-year

capital budget forecast. This analysis helped identify gaps between projected infrastructure needs and planned investments across all asset categories.

Operational Alignment through Staff Workshops - A series of staff workshops were held to identify priority initiatives and planned activities that align asset management goals with operational realities. These sessions ensured that the proposed levels of service reflect not only technical data but also the strategic and operational priorities of Town departments.

This dual approach ensures that the Town's proposed levels of service are both data-informed and operationally grounded. It provides a pragmatic framework to guide future decision-making and supports continued advancement in asset management planning

Risk-Based Prioritization and Lifecycle Management

To guide decision-making, the Town has begun integrating risk frameworks and increasing the alignment with operations. These tools will support project prioritization and enable the selection of the right intervention—at the right time—for the right asset. Preliminary risk models have been developed and integrated with the Town's asset register, producing risk scores that categorize assets based on their likelihood and consequence of failure.

The Town has made meaningful progress in advancing its asset management program, including the creation of a more complete and accurate asset register—a foundational achievement.

About this Document

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

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

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				✓

Scope

The scope of this document is to identify the current practices and strategies that are in place to manage the public infrastructure and to make recommendations where they can be further refined. Through the implementation of sound asset management strategies, the Town can ensure that public infrastructure is managed to support the sustainable delivery of services.

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 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 is not possible, historical costs incurred at the time of asset acquisition or construction can be inflated to the 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 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, long-term replacement and rehabilitation forecasts, and shorter term, 10-year 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 increase.

An Overview of Asset Management

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

Lifecycle 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 the broader asset management program. The industry-standard approach and sequence to developing a practical asset management program begins with a Strategic Plan, followed by an Asset Management Policy and an Asset Management Strategy, concluding with an Asset Management Plan (AMP).

This industry standard, defined by the Institute of Asset Management (IAM), emphasizes the alignment between the corporate strategic plan and various asset management documents.

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; lack of consistency in the industry on the purpose and definition of these elements offers little clarity. To make a clear distinction between the policy, strategy, and the plan see the following sections for detailed descriptions of the document types.

Strategic Plan

The strategic plan has a direct, and cascading impact on asset management planning and reporting, making it a foundational element. Developing alignment with corporate goals and objectives through service delivery and lifecycle management ensures the Town has line of sight to achieve their strategic objectives.

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 adopted a Strategic Asset Management Policy in 2019 in accordance with Ontario Regulation 588/17. The policy outlines the Town's mission to implement a municipal-wide asset management program with a primary goal to achieve the lowest total cost of ownership while meeting desired levels of service.

The policy aligns with the Town of Carleton Place's Strategic Plan: Balancing Growth which integrates the concepts of comprehensive communication, managed growth, corporate health and community, and economic development.

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.

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.

Key Technical Concepts

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

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.

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.

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 assets' SLR, the Town can more accurately forecast when it will require replacement. The SLR is calculated as follows:

Figure 1: Service Life Remaining Calculation

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. The reinvestment rate is calculated as follows:

Figure 2: Target and Actual Reinvestment Calculations

By comparing the actual vs. target reinvestment rate the Town can determine the extent of any existing funding gap.

Asset Condition

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 figure below outlines the condition rating system used to determine asset conditions for all Carleton Place owned assets.

Table 3 Standard Condition Rating Scale

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

The analysis is based on assessed condition data (only as available). In the absence of assessed condition data, asset age is used as a proxy to determine asset condition. Appendix I: Condition Assessment Guidelines include additional information on the role of asset condition data and provides basic guidelines for the development of a condition assessment program.

Lifecycle Management Strategies

The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including 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. Figure 4 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 the useful life at the lowest total cost of ownership.

Figure 4 Lifecyle Management Typical Interventions

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

Risk Management Strategies

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

By identifying the various impacts of asset failure and the likelihood that it will fail, risk management strategies can identify critical assets, and determine where maintenance efforts, and spending, should be focused. This AMP includes a high-level evaluation of asset risk and criticality through qualitative and quantitative methodologies.

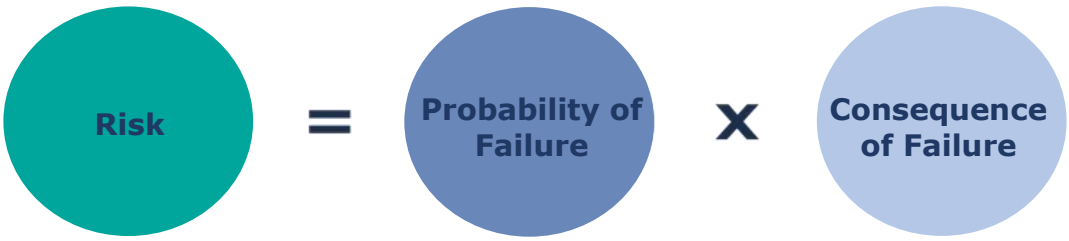
Qualitative Approach to Risk

The qualitative risk assessment involves the documentation of risks to the delivery of services that the Town faces given the current state of the infrastructure and asset management strategies. These risks can be understood as corporate level risks.

Quantitative Approach to Risk

Asset risk is defined using the following formula:

Figure 5 Risk Equation



The probability of failure relates to the likelihood that an asset will fail at a given time. The probability of failure focuses on two highly imperative impacts for risk

assessment – structural and functional impacts. Structural impacts are related to the structural aspects of an asset such as load carrying capacity, condition, or breaks; whereas the functional impacts can include parameters, slope, traffic count, and other impacts that can affect the performance of an asset.

The consequence of failure describes the overall effect that an asset failure will have on an organization's asset management goals. The consequences of failure can range from non-eventful to impactful.

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.

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 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. 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. To achieve the sustainable delivery of services, climate change considerations should be incorporated into asset management practices.

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 growth-related assets are constructed or acquired, they should be integrated into Carleton Place's asset management program. While the addition of residential

units will add to the existing assessment base and offset some of the costs associated with growth, the Town will need to review the lifecycle costs of growth-related infrastructure, and these costs should be considered in long-term funding strategies.

Levels of Service

A level of service (LOS) is a measure of the services that Carleton Place provides 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.

Community Levels of Service

Community LOS is 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 has 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 in the appendix.

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.

Current and Proposed Levels of Service

In developing an effective asset management plan, it is imperative to establish clear levels of service across key service areas to ensure the efficient and sustainable delivery of municipal services. The Town established current levels of service as well as proposed levels of service, in accordance with O. Reg. 588/17.

Proposed levels of service are 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 Town will identify a lifecycle management and financial strategy which will allow these targets to be achieved.

Annual Review

The annual review must 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.

Community Profile

Carleton Place is a town in Eastern Ontario Canada in Lanark County, approximately a 45-minute drive to Downtown Ottawa and 4.5 hours to Toronto. Carleton Place is located directly on Highway 7 on the Trans-Canada Highway.

A small-town jewel perched on the stunning Mississippi waterway where river meets lake, Carleton Place was founded for its abundant water access. The stories of river, lake and town became irrevocably intertwined nearly 200 years ago when settlers first laid eyes on Morphy's Falls. Since then, the Mississippi River has played an important role in the arts, heritage and very culture of the town.

Carleton Place is a deeply satisfying collage of serenity and vitality, texture, and energy. The Mississippi River that wends its way past picturesque shops and restaurants in old downtown becomes a thrilling waterway just outside, a challenging canoe route. It is the home of Canada's oldest canoe club, and many of country's most respected athletes have honed their skills here. The Mississippi River also welcomes hikers, bikers, and nature seekers to explore its abundant parks and trails, and to fish from its verdant banks.

The river adds a generous splash of culture to our area, too, as it is the backdrop of our splendid Town Hall, with its grand and historic auditorium, the site of a 1911 campaign speech by Sir Wilfred Laurier. Many important events, concerts and theatrical productions have taken place in this great hall through the years. The mighty Mississippi is the thread that binds this rich history together with our vivid natural surroundings, reminding people that Carleton Place, like the river, is fresh, creative, beautiful, and ever-changing.

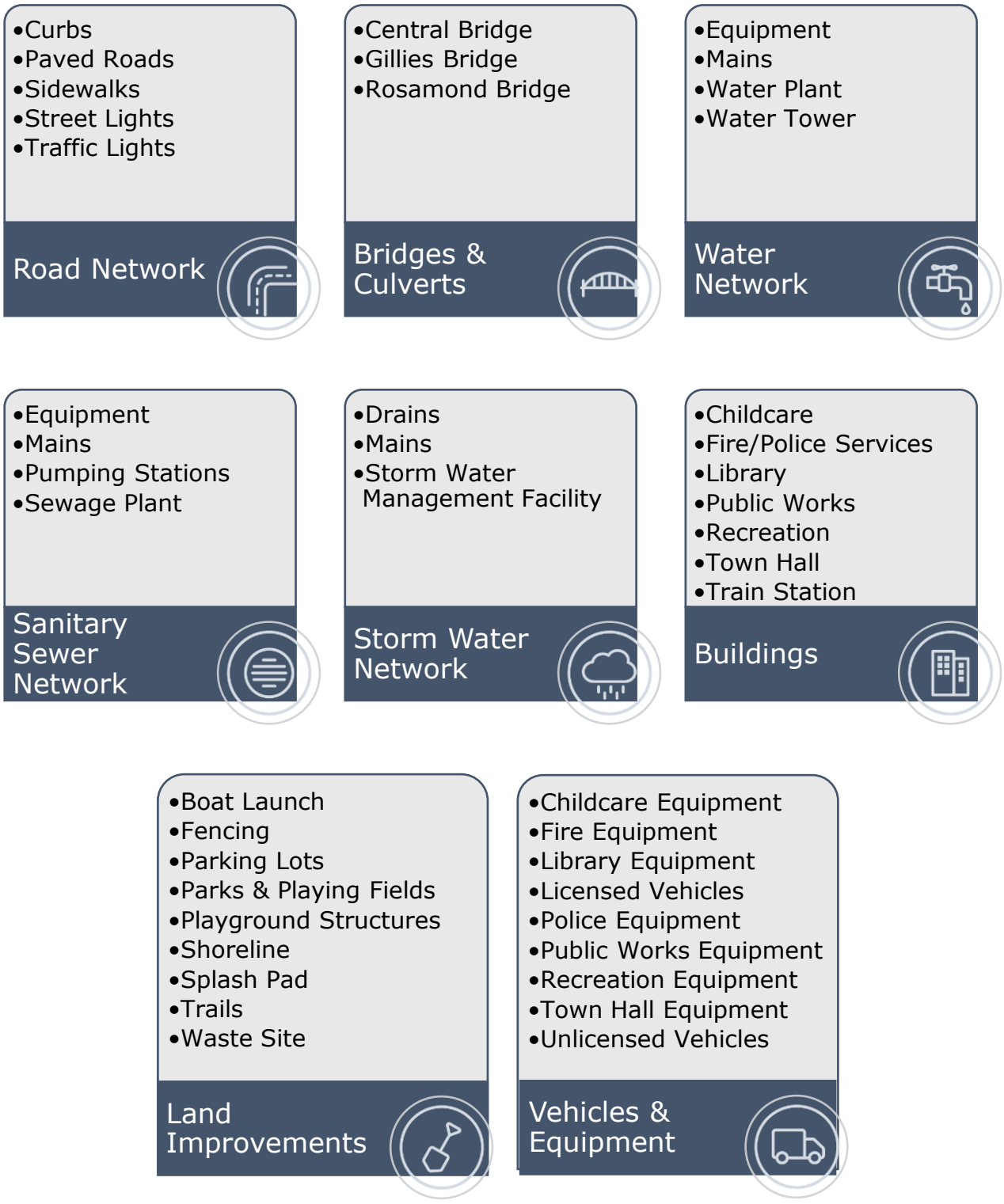
Table 2 Carleton Place & Ontario Census Information

Census Characteristic	Carleton Place	Ontario
Population 2021	12,517	14,223,942
Population Change 2016-2021	17.6%	5.8%
Total Private Dwellings	5,341	5,929,250
Population Density	1259.4/km^2	15.9/km^2
Land Area	9.94 km^2	892,411.76 km^2

Inventory & Valuation

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

Figure 6 Asset Hierarchy



State of the Infrastructure

The table below shows the replacement cost, average condition and service trend shown by arrows (up, down and steady).

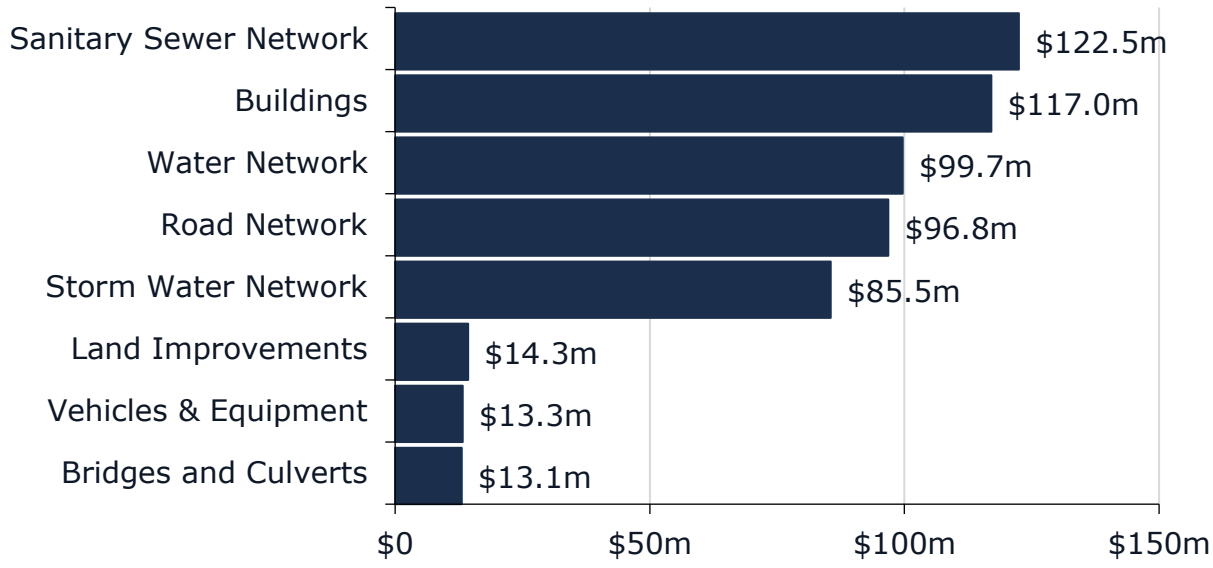
Table 3 Summary of the State of the Infrastructure and Services

Asset Category	Replacement Cost	Asset Condition	Service Trend
Road Network	$96,844,411	Fair (51%)	↑
Bridges & Culverts	$13,086,870	Very Good (84%)	↓
Buildings	$117,036,136	Fair (48%)	↓
Land Improvements	$14,321,799	Good (66%)	→
Vehicles & Equipment	$13,289,189	Fair (57%)	↓
Sanitary Sewer Network	$122,455,096	Fair (52%)	↓
Storm Water Network	$85,529,583	Fair (52%)	↓
Water Network	$99,679,238	Fair (49%)	↓
Overall	**$525,659,240**	**Fair (52%)**	↓

Replacement Cost

All Carleton Place's asset categories have a total replacement cost of $526 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.

Figure 7 Portfolio Replacement Value



Condition & Age

Condition of the Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 66% of assets in Carleton Place are in fair or better condition. This estimate relies on both age-based and field condition data.

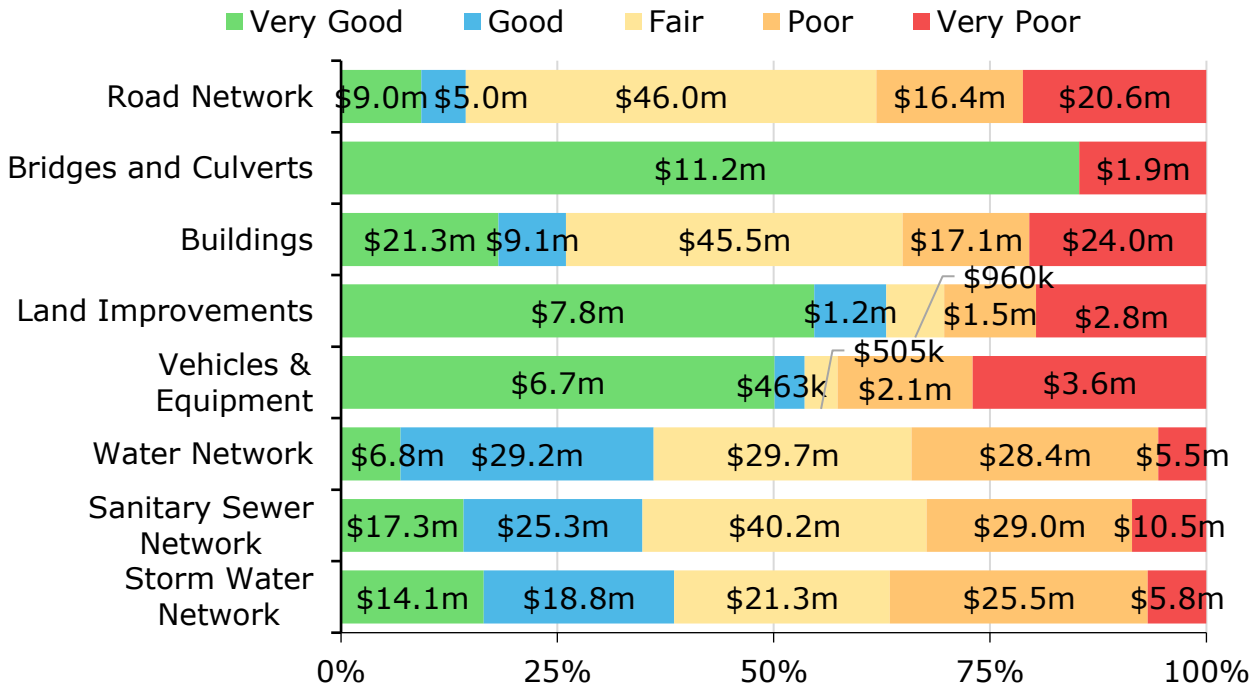
Assessed condition data is available for 53% of the assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data.

Table 4 Assessed Condition Data Sources

Asset Category	% of Assets with Assessed Condition	Source of Condition Data
Road Network	90%	Staff Assessments
Bridges & Culverts	100%	2024 OSIM Report
Buildings	50%	Staff Assessments
Land Improvements	10%	Staff Assessments
Vehicles & Equipment	25%	Staff Assessments
Water Network	0%	N/A
Sanitary Sewer Network	32%	Staff Assessments
Storm Water Network	0%	N/A

The breakdown of the condition of each asset category is shown in the figure below.

Figure 8 Overall Condition Breakdown by Asset Category



Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 8% of the Town's assets are beyond their estimated service life.

Risk & Criticality

Qualitative Risk

The Town has noted key trends, challenges, and risks to service delivery that they are currently facing:

Lifecycle Management Strategies

The current lifecycle management strategies are considered more reactive than proactive. It is a challenge to find the right balance between maintenance, capital rehabilitation, and reconstruction. In the absence of mid-lifecycle rehabilitative events, most assets are simply maintained with the goal of full replacement once they reach end-of-life. Staff hope to develop better defined strategies that will extend lifecycle and a lower total cost. These strategies will require sustainable annual funding to minimize the deferral of capital works.

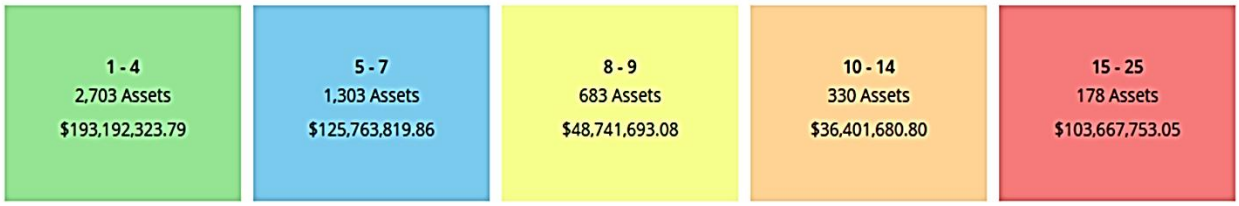
Asset Data & Information

There is a lack of confidence in the available inventory data and condition data. Staff have been prioritizing data refinement efforts to increase the accuracy and reliability of asset data and information. Staff find it a continuous challenge to dedicate resources and time to data collection and condition assessments to ensure that condition and asset attribute data is regularly reviewed and updated.

Quantitative Risk

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

Figure 9 Overall Asset Risk Breakdown



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 Carleton Place's asset management program.

Climate & Growth

Carleton Place Climate Profile

The Town of Carleton Place 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 Carleton Place will likely experience the following trends:

Higher Average Annual Temperature:

- Between the years 1971 and 2020 the annual average temperature was 6.0ºC
- Under a high emissions scenario, the annual average temperatures are projected to increase to 8.7ºC by the year 2050 and to 12.5ºC by the end of the century.

Increase in Average Annual Precipitation:

- Under a high emissions scenario, Carleton Place is projected to experience a 13% increase in precipitation for the period of 2051 - 2080 and a 17% 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.

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 because 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’s best practices and enables the development of a holistic approach to risk management.

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. Three (3) times the provincial average population and employment growth is expected. The costs of growth should be considered in long-term funding strategies that are designed to maintain the current level of service.

Description of Growth Assumptions

The demand for infrastructure and services will change over time based on a combination of internal and external factors. Understanding the key drivers of growth and demand will allow the 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.

Carleton Place Official Plan (2023)

The Town adopted the most recent version of the Official Plan in Fall 2023, with modification from April 2014. The County adopted it in May 2024. The vision of the Official Plan is to maintain and celebrate the Town's heritage through balanced and sustainable growth to support a superior quality of life for the Town's citizens.

The Town of Carleton Place Official Plan is essential for the management of future growth, development, and change in the Town. The Town has experienced significant growth over the past couple of decades. The Town has experienced growth in its employment areas as well as a slight decline related to vacant or underutilized non-residential buildings in the Town's core area.

The Official Plan is designed to encourage and manage continued growth which is expected to result in a forecasted population of approximately 20,964 by 2038. In 2021, the population of the Town was recorded at 12,517 and total private dwellings occupied by usual residents was recorded at 5,341.

Lanark County (June 2012)

The County is responsible for the allocation of growth to the local municipalities. Lanark County adopted the first Sustainable Communities Official Plan in June 2014. The County's vision is to strengthen and diversify the economy, effectively management growth, protect the environment, preserve heritage, and maintain the unique character for future generations.

Lanark County is expecting moderate population growth between the years 2011 and 2031. According to projections, the 2011 population of 56,589 may reach 70,434 by 2031. The Town of Carleton Place will likely make up 20.5% of the County's growth.

Development Charges Background Study (2024)

The Town of Carleton Place recently completed a Development Charges Background Study in 2024. The following table provides the most up to date population projections determined by the Town based on data collection between November 2021 and March 2024.

Period	Population	Housing Units	Employment
Mid 2024	13,871	5,899	4,702
Mid 2034	17,691	7,566	5,429
Mid 2044	20,964	9,138	5,840
Urban Buildout	23,641	10,402	6,905

Impact of Growth on Lifecycle Activities

Planning for forecasted population growth may require the expansion of existing infrastructure and services. As growth-related assets are constructed or acquired, they will be integrated into the Town's asset management program. While the addition of residential units will add to the existing assessment base and offset some of the costs associated with growth, the Town will review the lifecycle costs of growth-related infrastructure.

Levels of Service

The strategic plan has a direct, and cascading impact on asset management planning and reporting, making it a foundational element. As mentioned in the 2023-2026 Strategic Plan, Carleton Place's Strategic Priorities are as follows:

Service Delivery & Communications - enhance service and improve efficiency.

Facilities & Infrastructure - ensure long-term viability of our assets and Town's financial sustainability.

Tourism & Events - to meet the demographics and cultural diversity of our growing community, attract visitors and establish an identity.

Economic Development & Managed Commercial Growth - create a diversified tax base and job growth.

Transit Systems & Options – implement transportation master plan to better move people and goods in Town and beyond in a sustainable way.

Stakeholder Engagement

It is considered best practice for municipalities across Canada to conduct regular resident satisfaction surveys to guide service delivery and strategic planning. The Town is committed to fostering accessible and inclusive opportunities for all residents to engage meaningfully in municipal decision-making. This includes participation in key initiatives such as master plans, the Strategic Plan, and other collaborative processes.

Feedback and insights gathered through these engagement efforts are integral to the Town's continuous improvement approach and will continue to inform planning, operations, and investment decisions moving forward.

Staff Input

Across all categories, the general sentiment is that while satisfaction is high, there are significant concerns regarding the sufficiency of resources (both staffing and funding) to properly maintain the systems. Respondents across asset categories identified that service levels should align with the targets set to ensure the long-term sustainability of the infrastructure.

A common concern is that underspending now will lead to service deterioration in the future. Therefore, there is a collective call to increase investments in these infrastructure networks to prevent potential challenges and maintain high-quality services for the community. The insights and recommendations have been summarized for each asset category in Appendix K: Staff Survey Summary.

Current Levels of Service

The Town has defined their current levels of service for each infrastructure category by breaking it down into service attributes such as scope, reliability, quality, accessibility, utilization, safety and performance. 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 – the standard of which services are maintained. Is a description of how the condition is measured as well as the current average condition of the assets utilized to provide the services

Reliability – Services are provided with minimal service disruption and are available to customers in line with needs and expectations.

Accessibility – The ease of access residents have to services

Utilization – Services are well supported and utilized by the community.

Safety – Services are safe for residents to use

Performance – Is a description of how the Town will ensure long-term financial 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. All the community and technical levels of service will be directly linked to the service attributes for each asset category.

Proposed Levels of Service

Proposed levels of service must be realistic and achievable within the timeframe defined by the Town. These levels were developed with careful consideration of community expectations, fiscal capacity, regulatory requirements, corporate goals, and the overarching goal of long-term sustainability.

The Town has prioritized the development of its asset management program in recent years, and staff have made significant progress. While the intention was to fully leverage available data to define proposed levels of service, it became evident that further work is required to align existing asset data—originally developed with a financial focus—with operational plans and work practices.

To address this, the Town has adopted a two-pronged approach to establishing proposed levels of service:

1. **Comparative Analysis** - A comparison was made between Carleton Place's 10-year projection from the asset management system and the 10-year capital budget forecast. This analysis helped identify any gaps between forecasted needs and budgeted investments across asset categories.
2. **Operational Alignment through Staff Workshops** - Staff workshops were conducted to identify key initiatives and planned activities that align the asset management program with operational and strategic priorities. These discussions ensured that operational goals are consistent with the proposed levels of service and are integrated into ongoing asset management efforts.

This dual approach ensures that proposed levels of service are both data-informed and operationally grounded, laying a strong foundation for continued progress in asset management planning.

Results

The Town's asset management program, developed using Citywide (CW), outlines the current lifecycle activities undertaken for each asset category. The system-generated annual capital requirements will continue to serve as the foundation for establishing the Town's long-term funding goals.

Comparative Analysis

To evaluate alignment between forecasted needs and planned investment, a comparison was conducted between the 10-year CW asset management forecast and the 10-year capital budget forecast.

Table 5 Summary by Asset Category of Forecasts Comparison

Asset Category	Summary	Target Completion
Road Network	The short-term CW forecast does not align with the budget forecast and will require coordination with operations to develop full alignment with operations.	2027 Budget
Bridges & Culverts	Bridge work is done as per the recommendations of the OSIM bi-annual inspections. The recommendations are not incorporated into Citywide.	2026 Budget
Storm Water Network	The short-term CW forecast does not align with the budget forecast. More detail is needed on the infrastructure to create the alignment	2028 Budget
Buildings	The 10-year budget and CW have been a focus for operations; however, they do not align. Citywide will be updated to align with the budget projection.	2026 Budget
Land Improvements	The 10-year forecasts are not aligned, and the varied asset types will be updated and aligned in phases with initiatives identified in the next section.	2030 Budget
Vehicles & Equipment	The 2 forecasts do not align however there are significant fleet management changes underway for vehicles, and a detailed review of equipment is underway.	2029 Budget
Water Network	Major development driven upgrades at the Treatment Plant will assist in the alignment of facility data within Citywide and OCWA once the upgrades are complete.	Completed in 2029
Sanitary Sewer Network	Major development driven upgrades at the Treatment Plant will assist in the alignment of facility data within Citywide and OCWA once the upgrades are complete.	Completed in 2029

These asset-driven updates and alignments will help establish a strong foundation for Carleton Place's asset management program, enhancing communication and coordination between finance and operations.

Operational Alignment through Staff Workshops

Through a series of staff workshops, four key program areas were identified to enhance the connectivity and effectiveness of the Town's asset management program, and they were data development, internal work process documentation, condition assessments and computerized maintenance management system (CMMS).

1. **Data development** is a continuous process critical to maintaining a robust asset inventory. Staff are focusing on increasing the level of asset componentization to better align with operational work practices.
    - Parks: Staff are currently defining the level of componentization for park infrastructure. Full integration into Citywide (CW) is targeted for completion by the end of 2026.
    - Buildings: Componentization has already been completed. Work is ongoing to ensure that all building assets are properly incorporated into the inventory.
2. **Internal Work Process Documentation** includes refining internal work processes which supports better coordination across departments and enhances operational efficiency. Two short-term focus areas are:
    - Operations Staff Updates in CW: Staff are aligning day-to-day work practices with assets in CW. Workflows are under development to clarify responsibilities for updating the system, ensuring consistency, and optimizing reporting.
    - Change Management: As asset management practices become more embedded, managing the transition in policies and procedures is essential. Staff are committed to thoroughly reviewing and updating internal processes to support this evolution.
3. **Condition Assessments** are vital to effective infrastructure management, informing lifecycle activities and ensuring assets are maintained to deliver reliable service.
    - Roads and Sidewalks: Internal staff conduct annual condition assessments. These are being integrated into CW.
    - Facilities: Structural assessments of two major facilities—the arena and the pool—are planned for 2026.
    - Parks: Annual assessments are ongoing. Once componentization is completed, results will be incorporated into CW.

4. **Computerized Maintenance Management System (CMMS)** development is underway, focusing on aligning lifecycle activities and scheduled maintenance with asset data. Implementation is being phased:
    - Facilities: The first phase links lifecycle work orders with individual component assets.
    - Parks: Integration of inspection routines and lifecycle activities is planned for 2026.
    - Public Works: Multiple systems are currently in use. A long-term strategy is being developed to integrate these systems with the broader asset management framework.

Program Outlook

The Town's asset management program is being developed to fully operationalize asset data and practices. This effort will improve alignment between finance and operations, assist in forecasting asset needs, and strengthen evidence-based decision-making.

A comprehensive review of the program is planned in conjunction with the 2030 Asset Management Plan update. This review aims to validate the integrity of the data and operational processes, setting the stage for a more detailed assessment of service levels and delivery.

Conclusion

The Town of Carleton Place is taking a strategic, data-driven approach to ensure the long-term sustainability of its municipal services. By focusing on the operationalization of asset data and practices, the Town is working to balance service quality with financial responsibility, avoiding both over-investment and the risk of premature asset failure.

Significant progress has been outlined to enhance the accuracy, reliability, and usefulness of the Town's asset management system. This foundational work is essential to support effective capital planning, long-term financial sustainability, and ongoing service delivery for the community.

Financial Management

The proposed levels of service for the Town aims to operationalize data within the asset management system to support more informed decision-making. As this data-driven approach continues to evolve, the current average annual investment requirement of $13.5 million is expected to be refined. Accordingly, the funding projections included in the 2025 Budget will serve as a baseline and will be updated in alignment with the ongoing data work outlined in the proposed levels of service section. This iterative process ensures that financial planning remains responsive, and evidence based as service level targets are further defined.

Financial Strategy Overview

Each year, the Town 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.

The annual funding typically available is determined by reviewing historical capital expenditures on infrastructure, inclusive of any budgeted allocations to reserves for capital purposes. For Carleton Place, the proposed budgeted allocations to capital for 2025 were used to project available funding.

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

- Revenue from taxation or utility rates allocated for capital purposes
- 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.

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.

Eliminating annual infrastructure funding shortfalls is a difficult and long-term endeavor for municipalities and through the implementation of the proposed levels of service the Town will continue to evaluate its funding levels.

Ten-Year Financial Plan

The Town is implementing a clear strategy to integrate operational plans and programs with its asset management efforts. This approach is focused on continuously improving data quality and alignment to ensure that financial planning remains both responsive and evidence based. As the asset management program is further operationalized, this integration will support more informed decision-making and long-term sustainability of infrastructure and services.

Table 6 Ten-Year Financial Plan

Asset Category	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Road Network	$1.9m	$1.8m	$1.9m	$1.9m	$1.9m	$1.8m	$1.8m	$1.9m	$1.9m	$1.9m
Bridges & Culverts	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Buildings	$2.5m	$1.4m	$2.8m	$43k	$128k	$238k	$2.7m	$33k	$483k	$0
Vehicles & Equipment	$202k	$578k	$424k	$317k	$535k	$3.0m	$696k	$599k	$640k	$0
Land Improvements	$0	$1.0m	$210k	$0	$297k	$0	$0	$0	$75k	$0
Storm Water Network	$600k	$0	$0	$1.2m	$0	$0	$0	$0	$0	$0
Tax Total	**$5.2m**	**$4.9m**	**$5.3m**	**$3.4m**	**$2.8m**	**$5.0m**	**$5.2m**	**$2.6m**	**$3.1m**	**$1.9m**
Proposed Tax Funding	$2.3m	$2.4m	$2.6m	$2.8m	$3.0m	$3.2m	$3.5m	$3.7m	$4.0m	$4.2m
Water & Sanitary Sewer Networks Total	**$3.7m**	**$720k**	**$1.4m**	**$932k**	**$460k**	**$460k**	**$460k**	**$460k**	**$460k**	**$460k**
Proposed Utility Rate Funding	$2.5m	$3.1m	$3.3m	$3.5m	$3.7m	$4.0m	$4.3m	$4.6m	$4.9m	$5.3m

The current 10-year program has a tax funding requirement of $39.5 million over the ten years, while the proposed tax funding for capital is $45.1 million. This indicates that the Town's 10-year capital program is fully funded through the proposed increase in the tax levy. Additionally, planned contributions to reserve fund balances will help support long-term financial sustainability, ensuring that future capital needs can be met without compromising service levels or requiring reactive funding measures.

The asset management program will need to incorporate several major growth-related upgrades to the water and sanitary sewer networks. Additionally, much of the existing infrastructure is still in the early stages of its lifecycle, which currently results in lower annual spending requirements. However, the proposed contributions to reserve funds exceed current spending levels, reflecting a proactive approach to financial sustainability. These contributions are intended to prepare for future capital needs as the infrastructure ages and as growth-driven demands increase

Appendix A: Road Network

The Road Network is a critical component of the provision of safe and efficient transportation services and represents the highest value asset category in the Town's asset portfolio. It includes all municipally owned and maintained roadways in addition to supporting roadside infrastructure including sidewalks, curbs, and appurtenances.

Inventory & Valuation

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

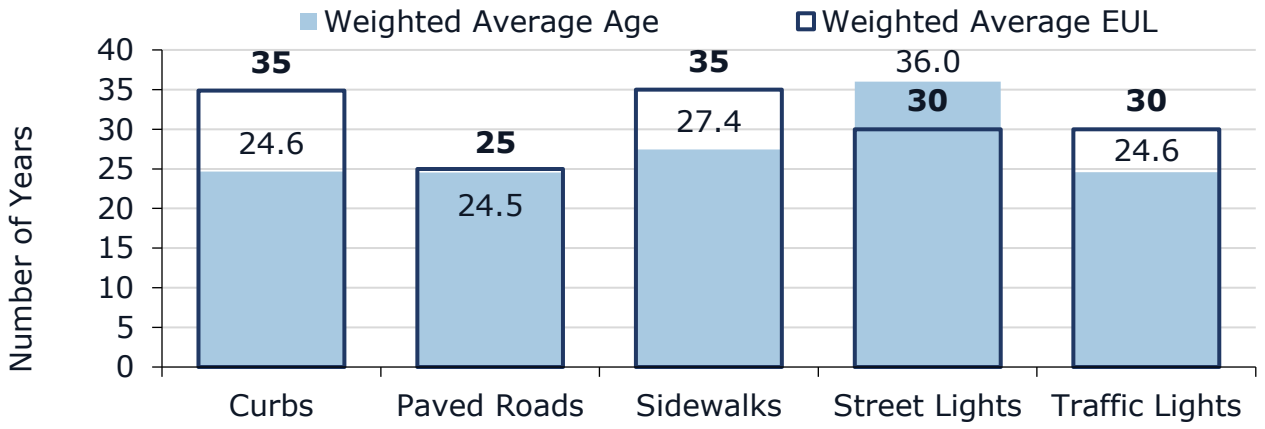
Figure 10 Road Network Replacement Value

Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurately represent realistic capital requirements.

Asset Condition & Age

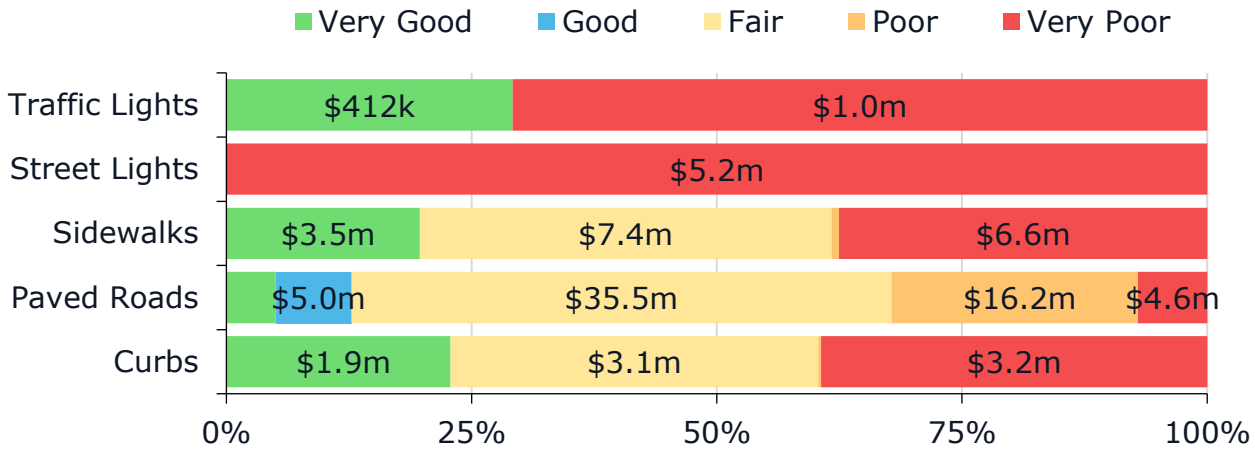
The graph below identifies the average age, and the estimated useful life for each asset segment. It is all weighted by replacement cost.

Figure 11 Road Network Average Age vs Average EUL



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

Figure 12 Road Network Condition Breakdown



To ensure that Carleton Place's roads 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 roads.

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.

Current Approach to Condition Assessment

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

- The road network is assessed by staff on an annual basis to identify defects and update condition ratings.
- Sidewalks are assessed based on provincial Minimum Maintenance Standards (MMS) and risk considerations.
- Project prioritization is based on a multitude of factors including assessed condition of roads, minimum maintenance standards, and the age and condition of underground and nearby infrastructure.

The condition scale for roads utilized is from 0 to 100 from Very Poor to Very Good.

Lifecycle Management Strategy

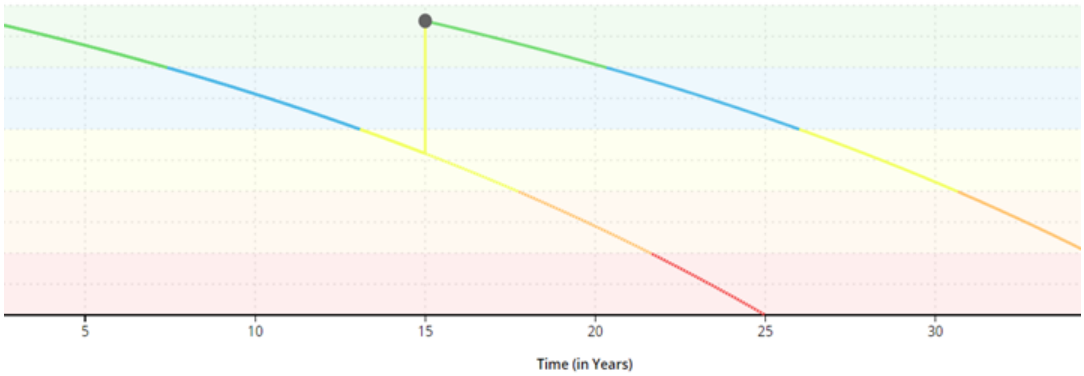
The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history and environment.

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

Table 7 Paved Roads Lifecycle Events

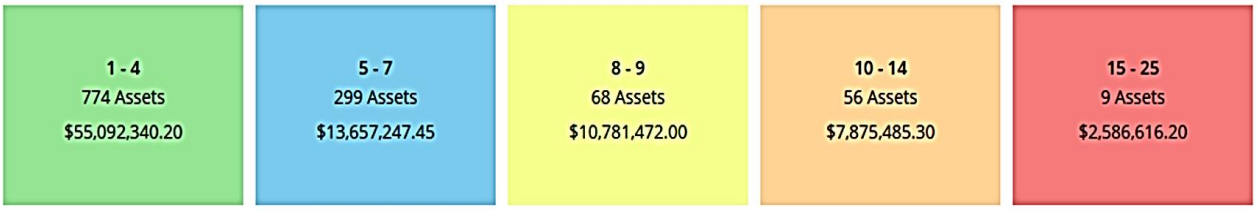
Asphalt Roads		
Event Name	**Event Class**	**Event Trigger**
Single Lift Grind and Pave	Rehabilitation	15 Years
Full Reconstruction	Replacement	0% Condition



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. See Appendix J: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 13 Road Network Risk Breakdown



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 identification of critical assets allows the Town to determine appropriate risk mitigation strategies and treatment options.

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. Proposed levels of service for the Town have been developed through engagement with Town staff.

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 8 Road Network Current Level of Service

Community Levels of Service		Service Attributes	Technical Levels of Service	
Description, which may include maps, of the road network in the Town and its level of connectivity	See Figure 14 Map of Roads – Part 1 and Figure 15 Map of Roads – Part 2	Scope	Replacement Cost	$96,844,411
			Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km2)	0.575
			Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km^2)	2.61
			Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)	9.8
Description or images that illustrate the different levels of road class pavement condition	The Town recently conducted a condition assessment (2023) for all road sections. The assessment considers surface distresses and ride conditions, resulting in a rating between 1 and 4. Higher ratings reflect better road conditions. A road in Very Good condition (rating of 4) is considered well maintained, exhibits few pavement distresses with a low severity and provides a smooth and pleasant ride for drivers. A road in Poor condition (rating of 1) exhibits several pavement distresses of increasing severity and is very rough and bumpy for drivers.	Quality	Average pavement condition index for paved roads in the Town	55%
			Average surface condition for unpaved roads in the Town (e.g. excellent, good, fair, poor)	Fair
			% Condition > Fair	62
			% Condition poor and very poor	38
General	Services will be provided to ensure financial sustainability	Performance	% Risk high and very high	12%
			Capital reinvestment rate	2.70%

Figure 14 Map of Roads – Part 1

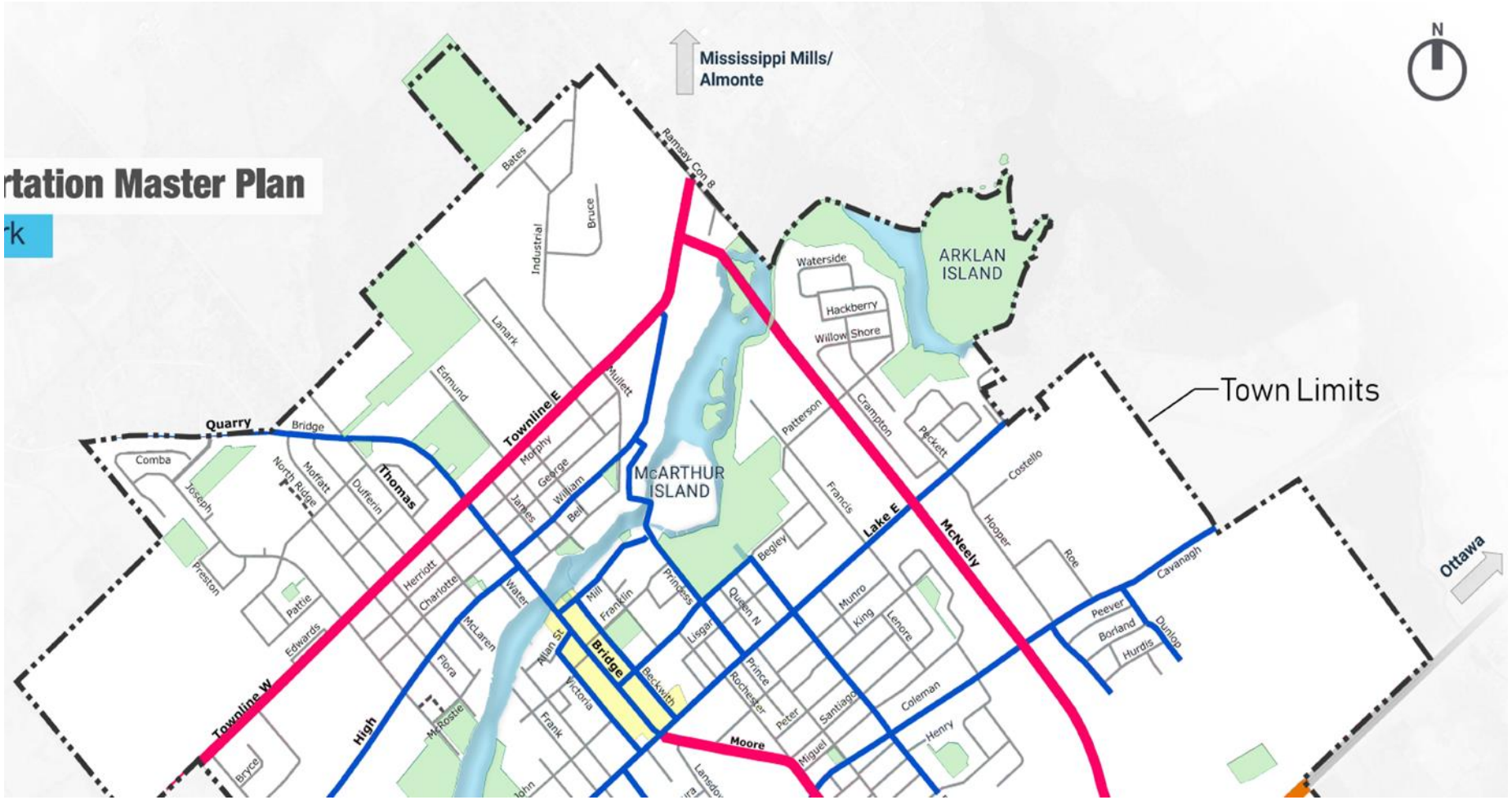
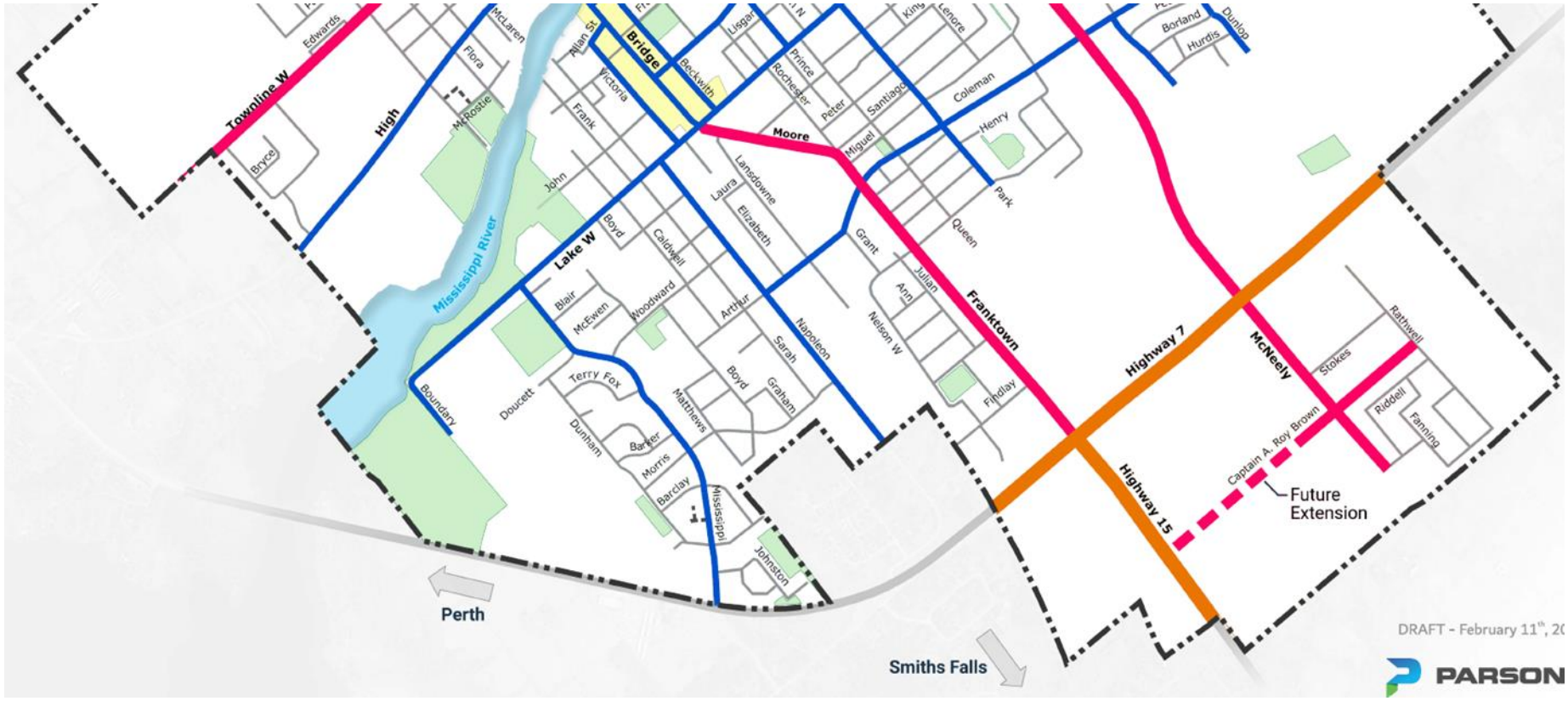


Figure 15 Map of Roads – Part 2



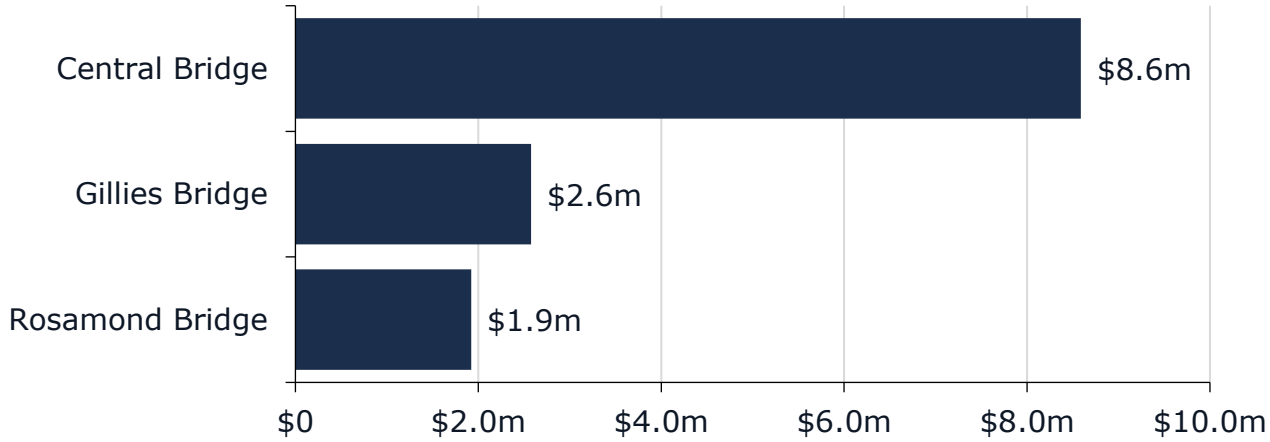
Appendix B: Bridges & Culverts

Bridges represent a critical portion of the transportation services provided to the community. The Public Works Department is responsible for the maintenance of all bridges located across municipal roads with the goal of keeping structures in an adequate state of repair and minimizing service disruptions.

Inventory & Valuation

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

Figure 16 Bridges & Culverts Replacement Cost

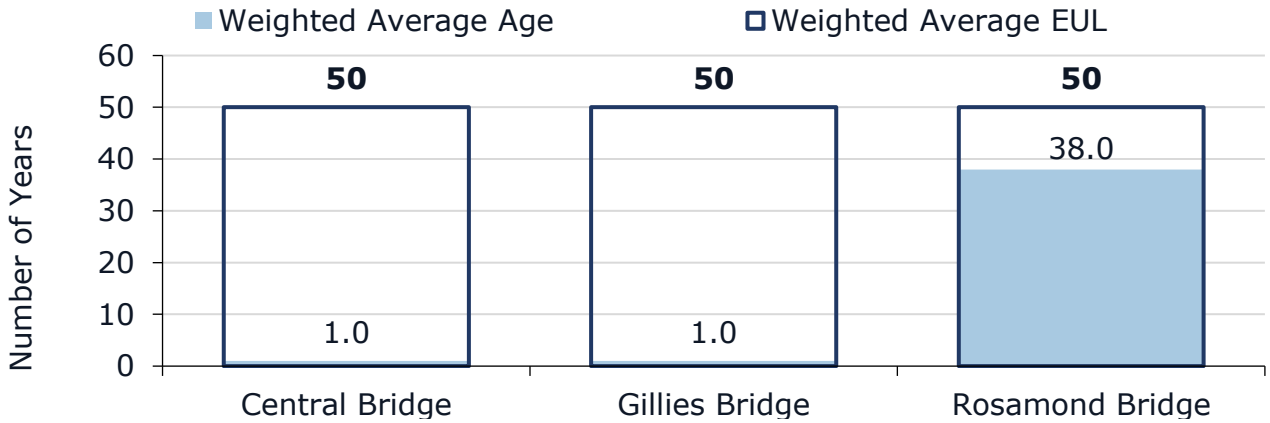


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed.

Asset Condition & Age

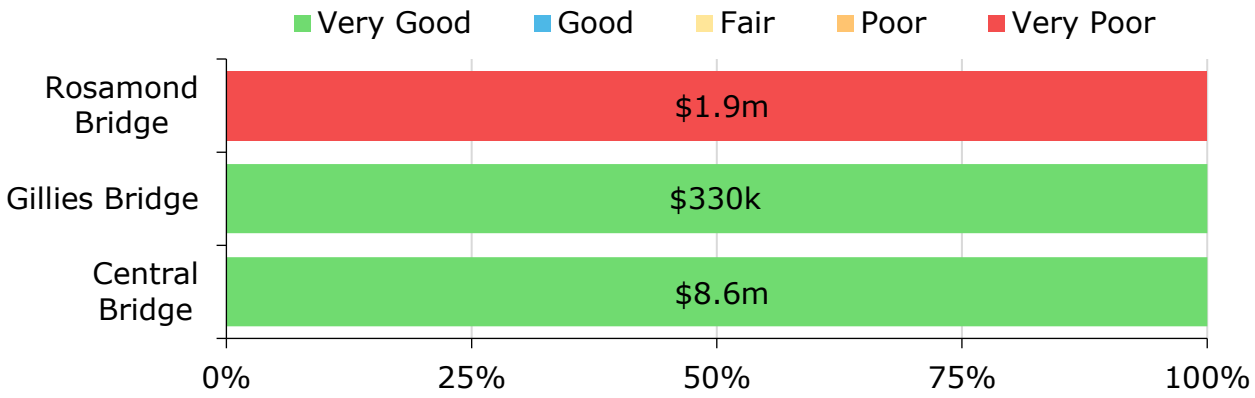
The graph below identifies the average age and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 17 Bridges & Culverts Average Age vs Average EUL



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

Figure 18 Bridges & Culverts Condition Breakdown



To ensure that the Town's bridges and culverts 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.

Current Approach to Condition Assessment

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

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

In this AMP and as per the OSIM reports, the bridge condition index (BCI) rating criteria is used to determine the current condition of assets and forecast future capital requirements:

Condition	BCI Rating
Very Good	90-100
Good	70-89
Fair	50-69
Poor	40-49
Very Poor	0-40

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 19 outlines Carleton Place's current lifecycle management strategy.

Figure 19 Bridges & Culverts Current Lifecycle Strategy

Maintenance, Rehabilitation and Replacement

- All lifecycle activities are driven by the results of mandated structural inspections competed according to the Ontario Structure Inspection Manual (OSIM)

Inspection

- The most recent inspection report was completed in 2023 by Burgess Engineering Inc.

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. See Appendix J: Risk Rating Criteria for the criteria used to determine the risk rating of each asset. 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.

Figure 20 Bridges & Culverts Risk Breakdown

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. Proposed levels of service for the Town have been developed through engagement with Town staff.

Current Levels of Service

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

Table 9 Bridges & Culverts Current Levels of Service

Community Levels of Service		Service Attributes	Technical Levels of Service	
Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	The Town owns 3 bridges that represent a critical component of the transportation network.	Scope	Replacement Cost	$13,086,870
			% of bridges in the Town with loading or dimensional restrictions	0%
Description or images of the condition of Bridges and Culverts and how this would affect use of the Bridges and Culverts	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	Average bridge condition index value for bridges in the Town	87
			Average bridge condition index value for structural culverts in the Town	N/A
General	Services will be provided to ensure financial sustainability	Performance	% Risk high and very high	15%
			Capital re-investment rate	0.70%

Appendix C: Storm Water Network

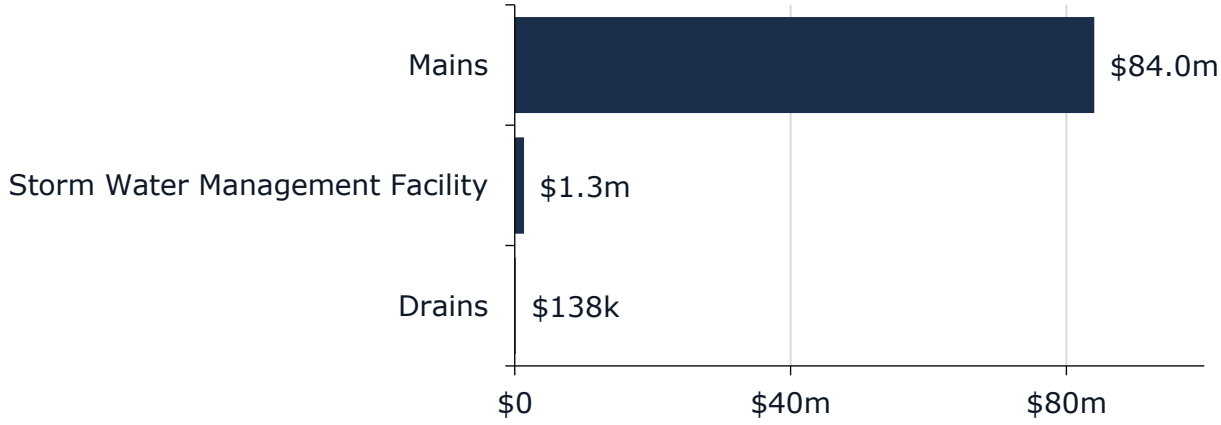
The Town is responsible for owning and maintaining a storm water network consisting of storm water management facilities and storm sewer mains and other supporting infrastructure.

Staff are working towards improving the accuracy and reliability of their Storm Water Network inventory to assist with long-term asset management planning.

Inventory & Valuation

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

Figure 21 Storm Water Network Replacement Cost

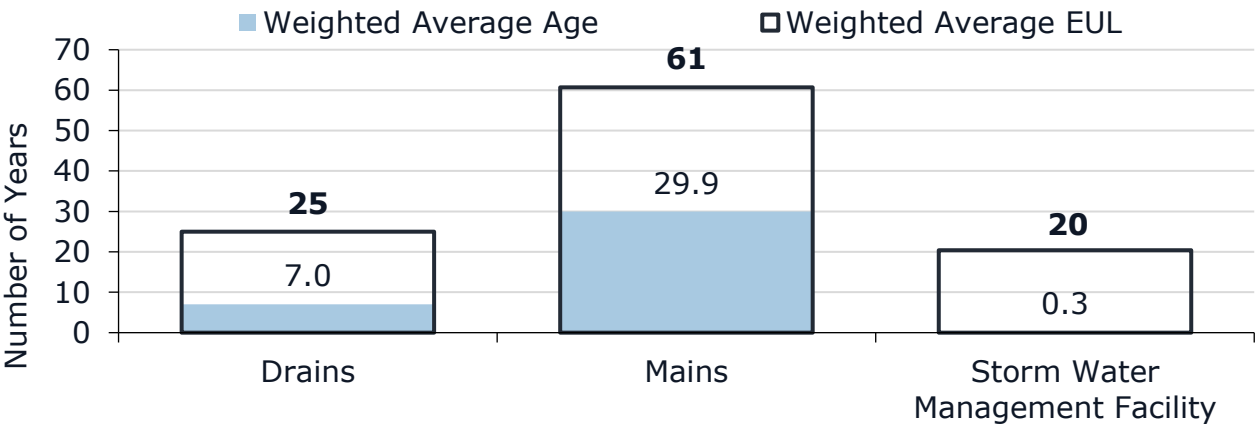


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

Asset Condition & Age

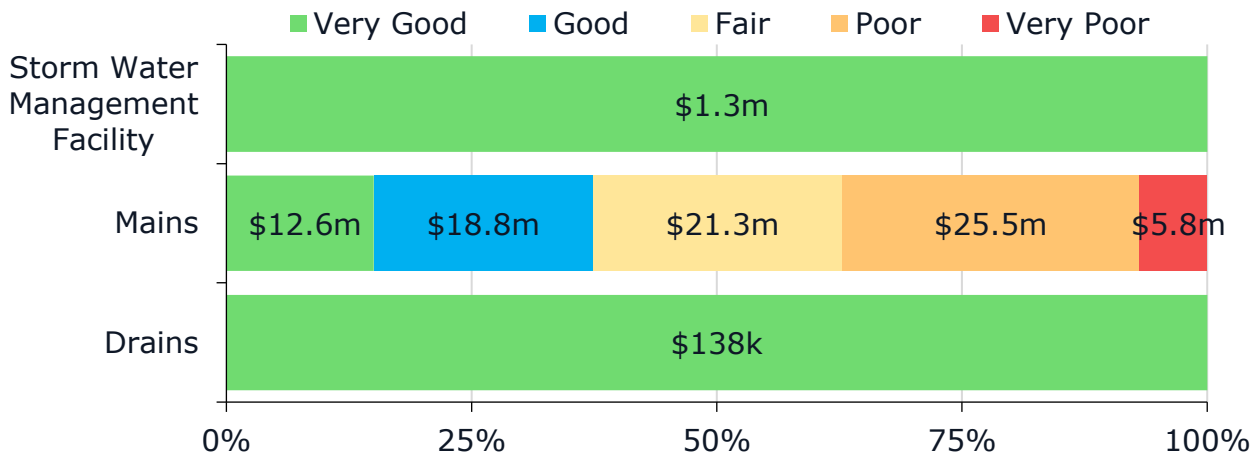
The graph below identifies the average age, and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 22 Storm Water Network 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 23 Storm Water Network Condition Breakdown



To ensure that the municipal storm water network 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 assets.

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.

Current Approach to Condition Assessment

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

- There are no formal condition assessment programs in place for the storm water network, however, storm water ponds are assessed on an annual basis. Resident complaints drive most maintenance, rehabilitation, and replacement activities. CCTV inspections take place when above ground assets such as roads are replaced.
- The Town is prioritizing data refinement to ensure the accuracy of the asset register and attributes.
- As the Town refines the available asset inventory for the storm water network a regular assessment cycle should be established.

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 24 Storm Water Network Current Lifecycle Strategy

Maintenance

- Maintenance activities are completed to a lesser degree compared to other underground linear infrastructure.
- Primary activities include catch basin cleaning every 2 years and annual landscaping and cleaning of ponds. Flushing of storm network only takes place as needed.

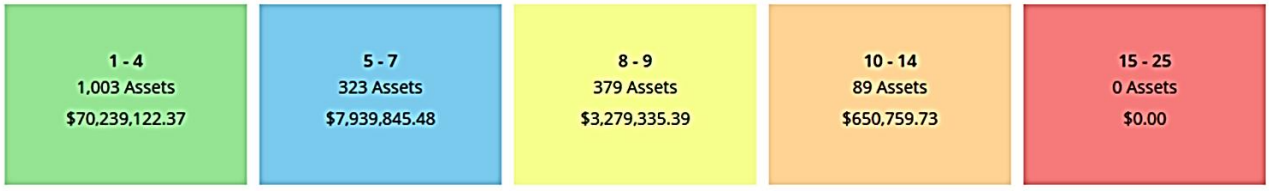
Rehabilitation / Replacement

- Currently, there are no renewal or rehabilitation strategies in place for the storm system and ponds. Trenchless re-lining has the potential to reduce total lifecycle costs but would require a formal condition assessment program to determine viability.
- Without the availability of up-to-date condition assessment information replacement activities are purely reactive in nature. The Town has developed a 10-year capital plan to improve funding strategies.

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. See Appendix J: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 25 Storm Water Network Risk Breakdown



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 identification of critical assets allows the Town to determine risk mitigation strategies and treatment options.

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. Proposed levels of service for the Town have been developed through engagement with Town staff.

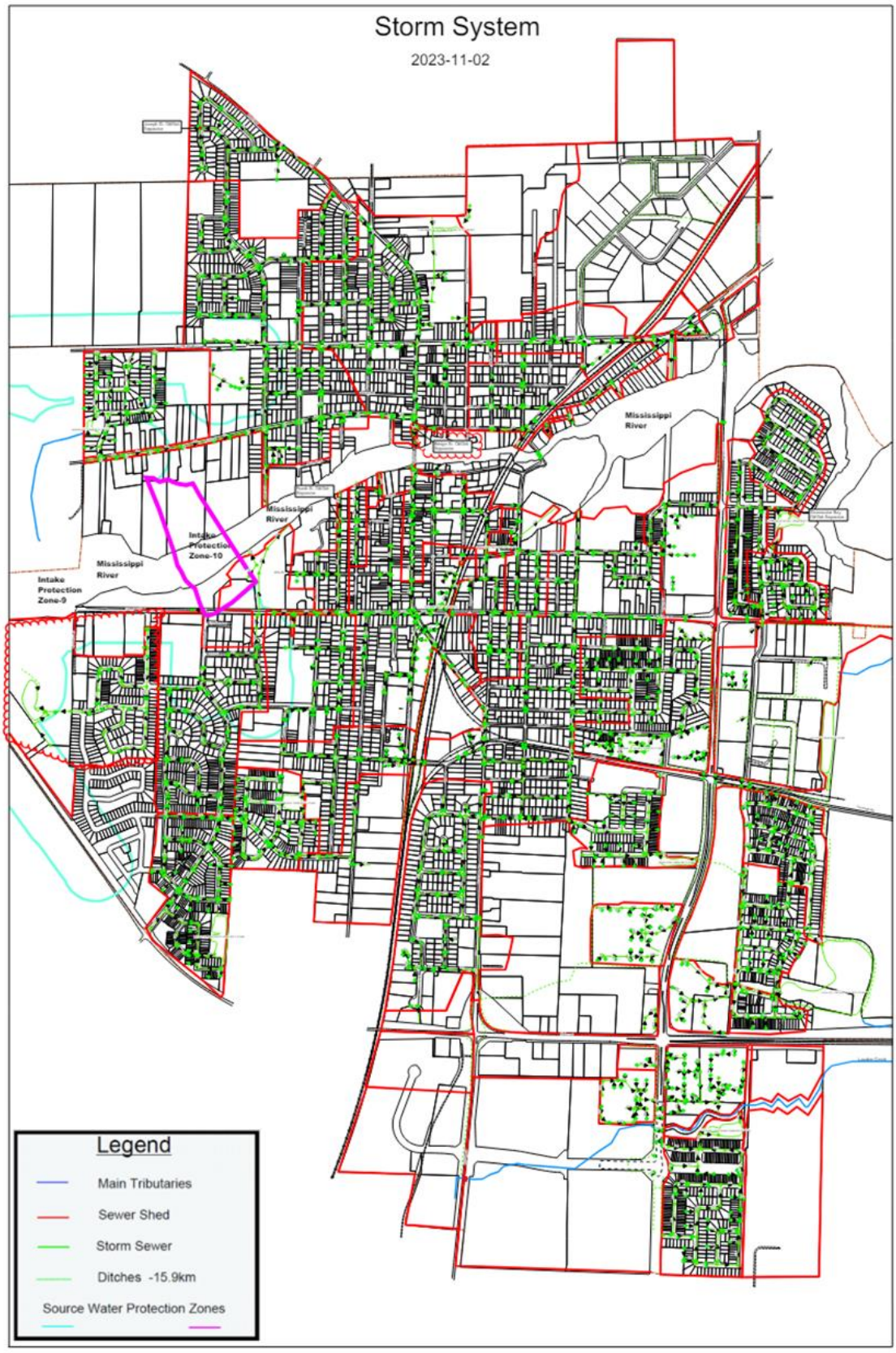
Current Levels of Service

The following tables identify the Town's current level of service for the storm 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 10 Storm Water Network Current Levels of Service

Community Levels of Service		Service Attributes	Technical Levels of Service	
Description, which may include map, of the user groups or areas of the Town that are protected from flooding, including the extent of protection provided by the municipal storm water system	The Town's storm system is designed to withstand a 5-year event. There is a small neighborhood that does occasionally report flooding due to poor grading of the surrounding area. The Town has put in place corrective measures such as proper flooding protection and commercial grade sump pumps. See Figure 26 Map of Storm Water Network	Scope	Replacement Cost	$85,529,583
			% of properties in Town resilient to a 100-year storm	99.20%
			% of the municipal storm water management system resilient to a 5-year storm	100%
The standard of which our storm water network is maintained	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	Average condition	Fair
			% Condition > Fair	63%
			% Condition poor and very poor	37%
General	Services will be provided to ensure financial sustainability	Performance	% Risk high and very high	0.76%
			Capital re-investment rate	0.40%

Figure 26 Map of Storm Water Network



Appendix D: Buildings

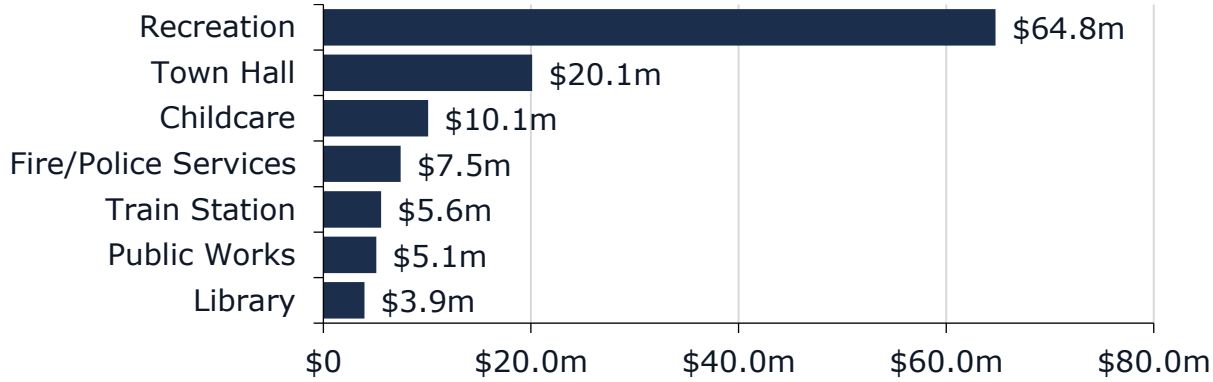
The Town of Carleton Place owns and maintains several facilities and recreation centres that provide key services to the community. These include:

- administrative office
- public library
- fire/police station and a train station
- public works garages and storage sheds
- recreation and community centres
- childcare centres

Inventory & Valuation

The graph below displays the total replacement cost of each asset segment in Carleton Place's buildings inventory.

Figure 27 Buildings Replacement Cost

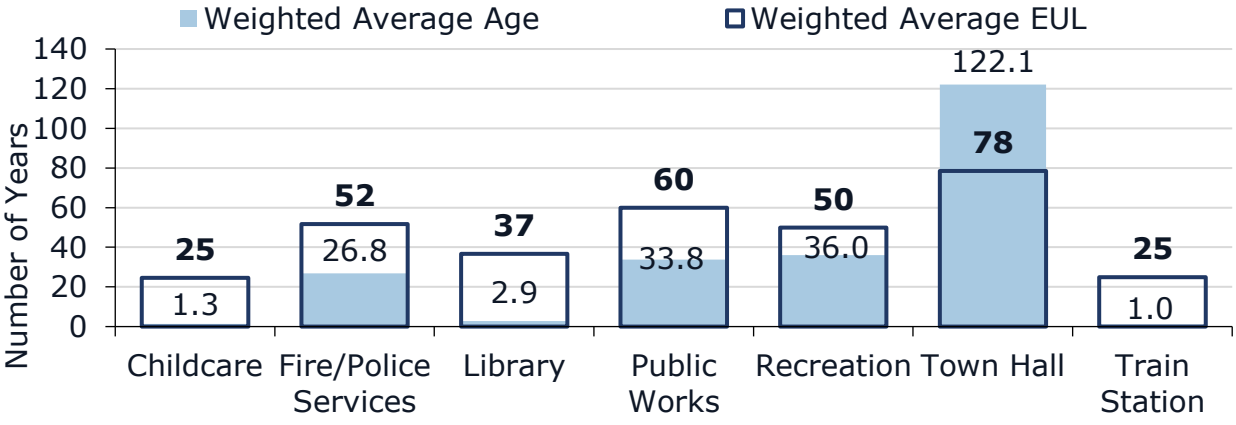


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

Asset Condition & Age

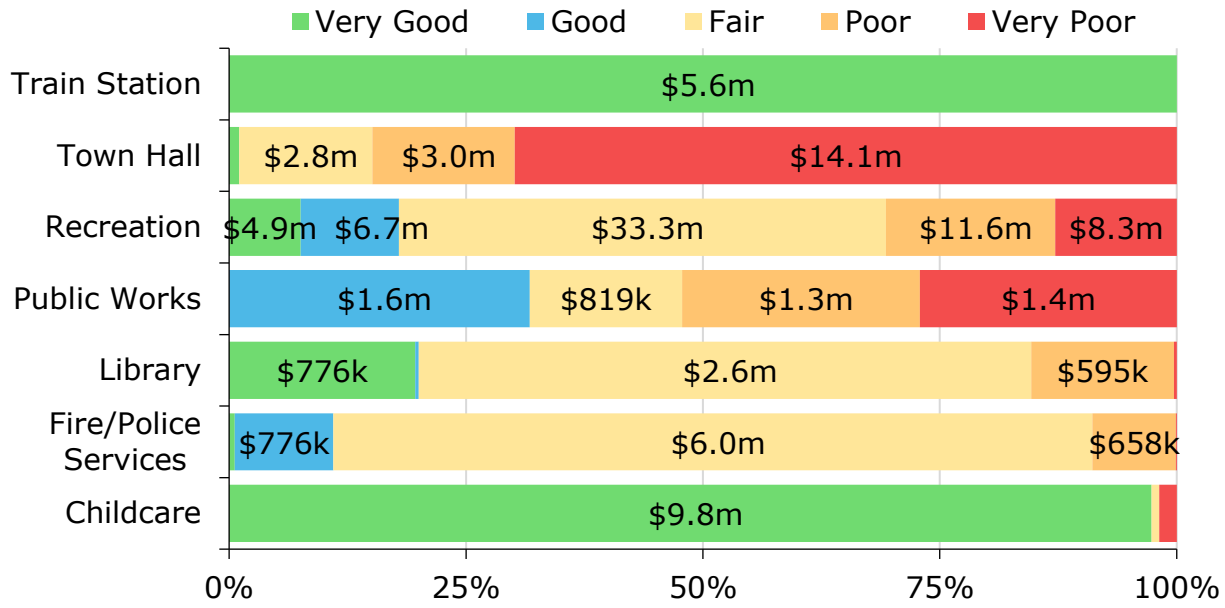
The graph below identifies the average age, and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 28 Buildings 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 29 Buildings Condition Breakdown



To ensure that the municipal buildings 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 buildings.

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.

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 30 Buildings Current Lifecycle Strategy

Maintenance/Rehabilitation

- Contractor Inspections, Staff inspections and HVAC Repairs semi-annually.
- Roof and HVAC replacements based on inspection results

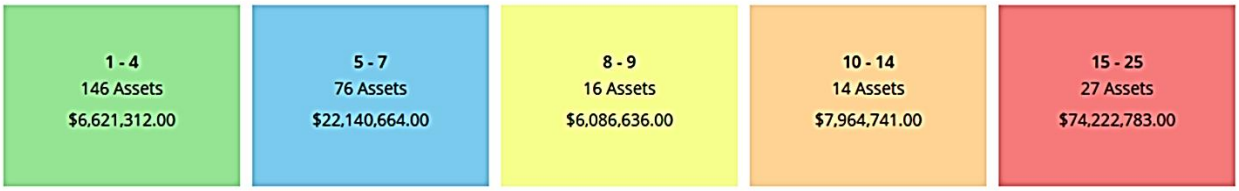
Replacement

- Assets (building components) with an expected service life nearing their end or those incurring frequently, and costly repairs are prioritized for replacement

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. See Appendix J: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 31 Buildings Risk Breakdown



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 identification of critical assets allows the Town to determine 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.

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. Proposed levels of service for the Town have been developed through engagement with Town staff.

Current Levels of Service

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

Table 11 Buildings Current Levels of Service

Community Levels of Service		Service Attributes	Technical Levels of Service	
Description of the municipal services supported by buildings	The Town owns 17 buildings supporting transportation services, recreation & culture, fire/police services, childcare and administration	Scope	Replacement Cost	$105,875,571
			Square meters of indoor recreation facilities per 1,000 households	1.96
The standard of which our facilities are maintained	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	% Completed work orders	98.60%
			Average Condition	Fair (48%)
			% Condition > Fair	65%
			% Condition poor and very poor	35%
The ease of access our residents have to municipal facilities		Accessibility	% of facilities meeting AODA standards	Overall – 90% Breakdown: Canoe Club – 85% Pool – 95% Carambeck CC – 95% Police/Fire – 95% Town Hall – 95% Museum – 50% Train Station – 95% Arena – 80% Library – 100%
The ability to reduce service disruptions to residents and provide reliability within our facilities		Reliability	# of outages per year	0
Facilities are well supported and utilized by the community		Utilization	% occupied / times allotted	Arena Halls – 38% Canoe Club – 20% Town Hall – 35% Carambeck Gym – 70% Ice Surface – 54.8%
General	Services will be provided to ensure financial sustainability	Performance	% Risk high and very high	67%
			Capital re-investment rate	0.90%

Appendix E: Vehicles & Equipment

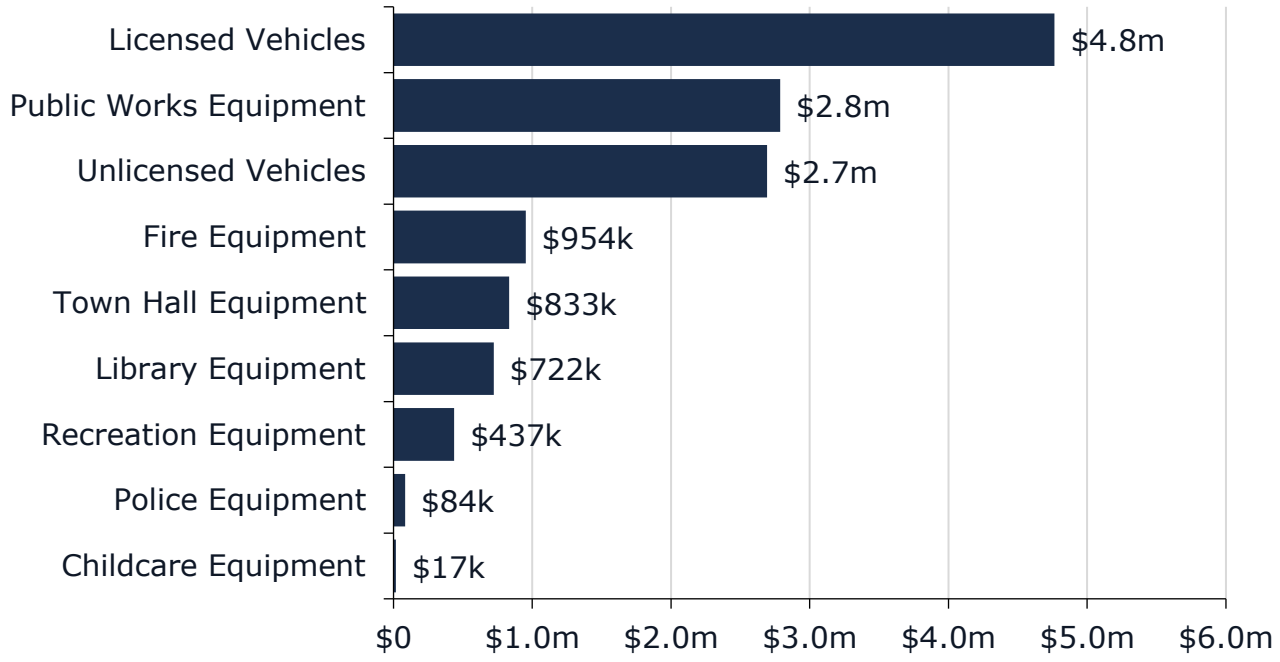
Vehicles allow staff to efficiently deliver municipal services and personnel. Municipal vehicles are used to support several service areas, including:

- fire rescue vehicles to provide emergency services
- pick-up trucks and machines to support the maintenance of the transportation network and address service requests for public works, facility maintenance and parks and recreation
- light duty vehicles to support operations of building and by-law services
- machines and trucks for winter control activities

Inventory & Valuation

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

Figure 32 Vehicles & Equipment Replacement Costs

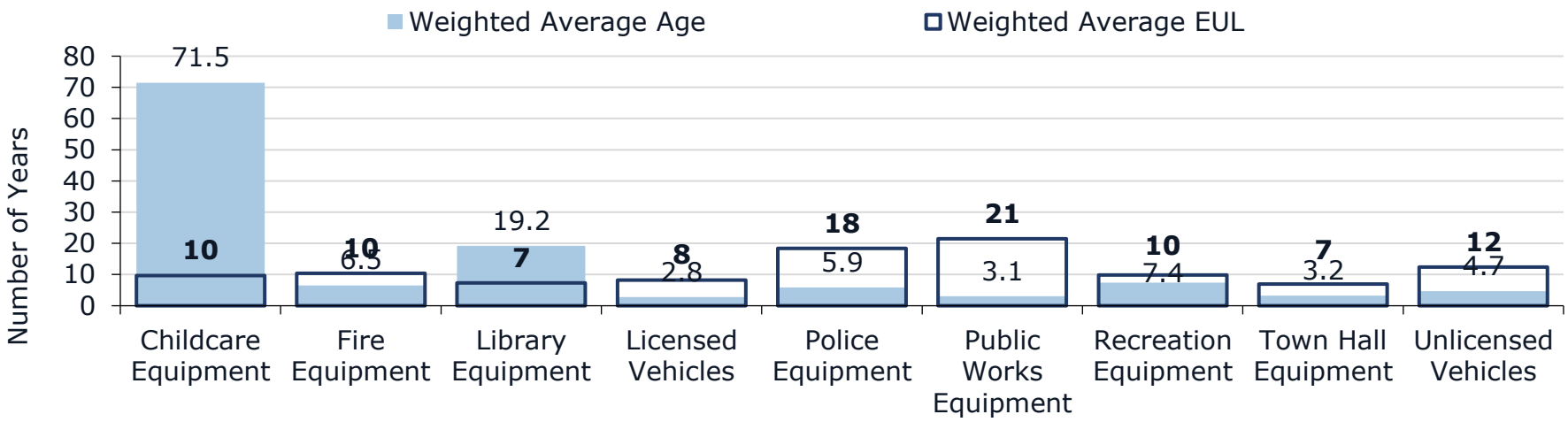


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

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.

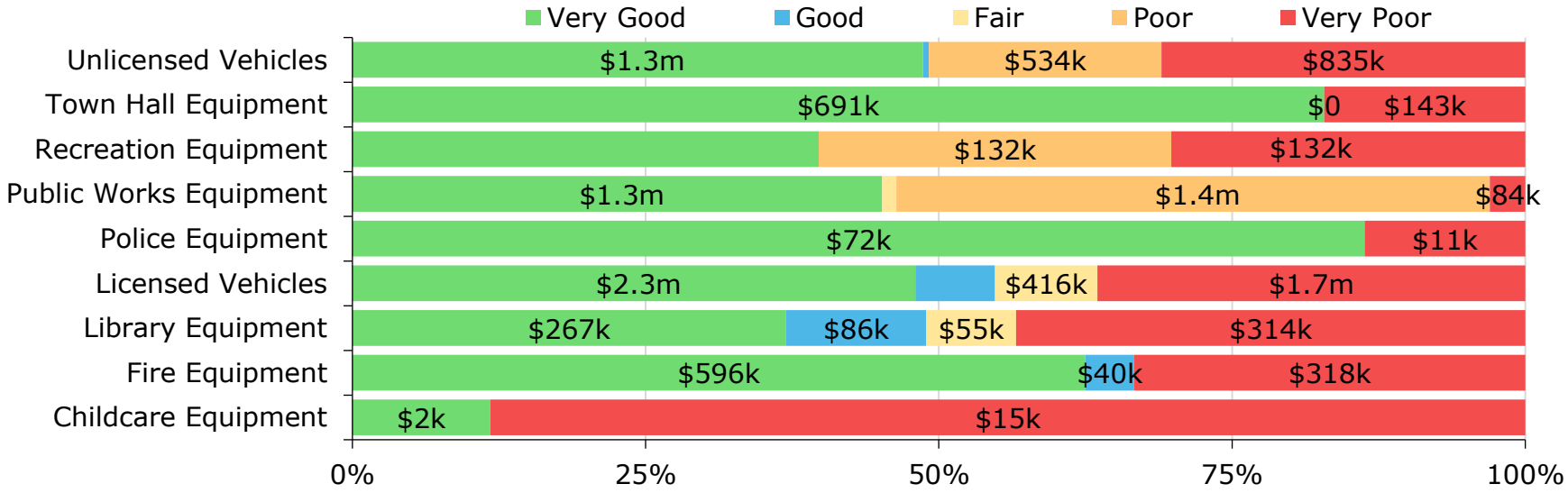
Figure 33 Vehicles & Equipment Average Age vs Average EUL



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.

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

Figure 34 Vehicles & Equipment Condition Breakdown



To ensure that the Town's vehicles 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 vehicles.

Lifecycle Management Strategy

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

Figure 35 Vehicles & Equipment Current Lifecycle Strategy

Maintenance / Rehabilitation

- Vehicles are maintained by an internal mechanic based on mileage.

Replacement

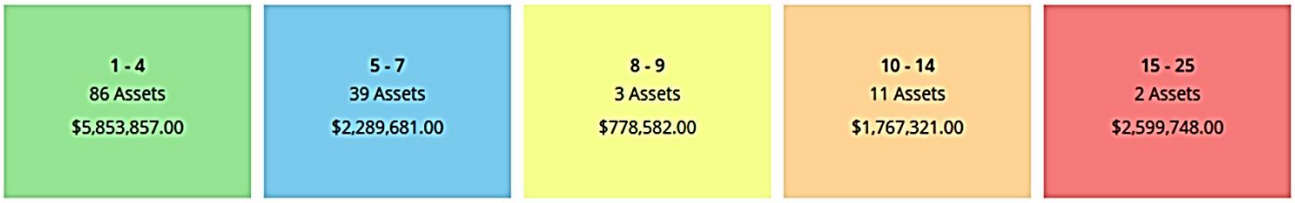
- Based on life expectancy, maintenance cost and condition.

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. See Appendix J: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

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.

Figure 36 Vehicles & Equipment Risk Breakdown



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.

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. Proposed levels of service for the Town have been developed through engagement with Town staff.

Current Levels of Service

The following tables identify the Town's current level of service for the town owned Vehicles & Equipment assets. 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 Vehicles & Equipment Current Levels of Service

Community Levels of Service		Service Attributes	Technical Levels of Service	
Description of the municipal services supported by vehicles and equipment	The Town has licensed and unlicensed vehicles as well as equipment that supports administration, fire/police services, recreation and culture, childcare and water and wastewater services	Scope	Replacement Cost	$13,289,189
			Quantity of Vehicles	68
			Quantity of Equipment	56
The standard of which our vehicles and equipment are maintained	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	Average condition of vehicles	Good
			Average condition of all	Fair
			% Condition > Fair	57
			% Condition poor and very poor	43
General	Services will be provided to ensure financial sustainability	Performance	% Risk high and very high	33%
			Capital re-investment rate	3.0%

Appendix F: Land Improvements

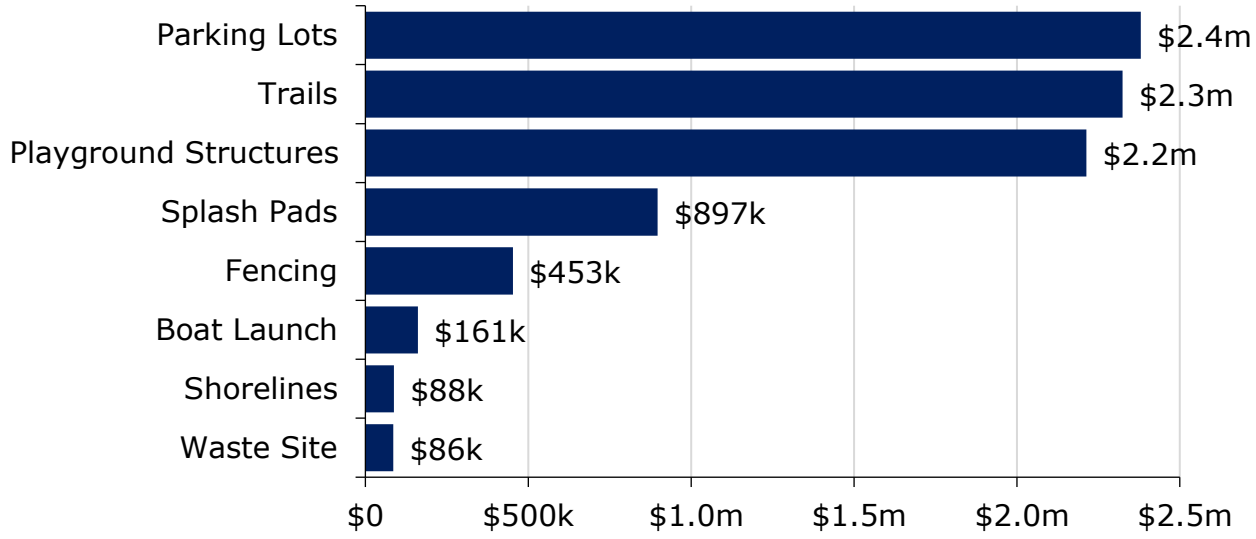
The Town of Carleton Place owns a small number of assets that are considered Land Improvements. This category includes:

- Parks, playing fields, and related structures
- Miscellaneous landscaping, trails, and other assets
- Parking lots

Asset Inventory & Valuation

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

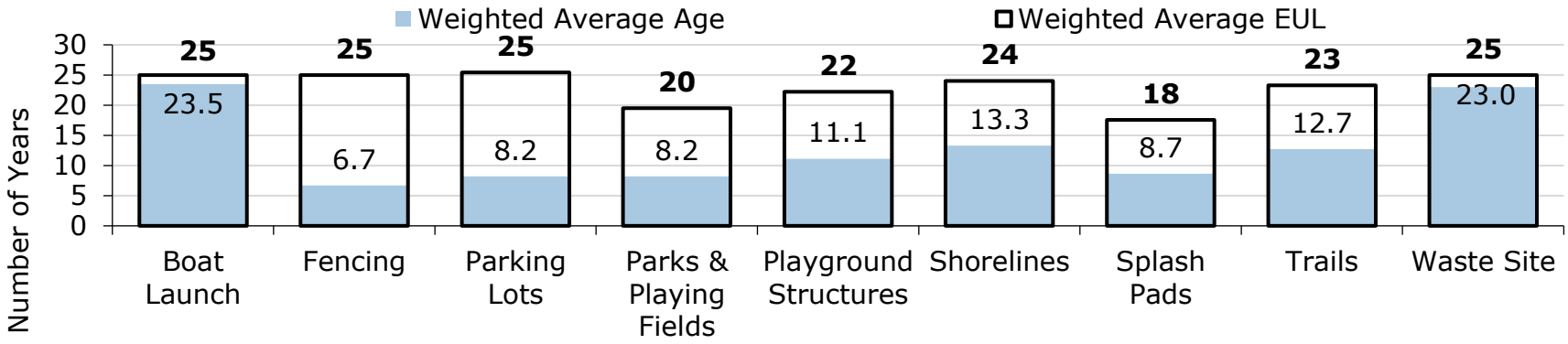
Figure 37 Land Improvements Replacement Cost



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.

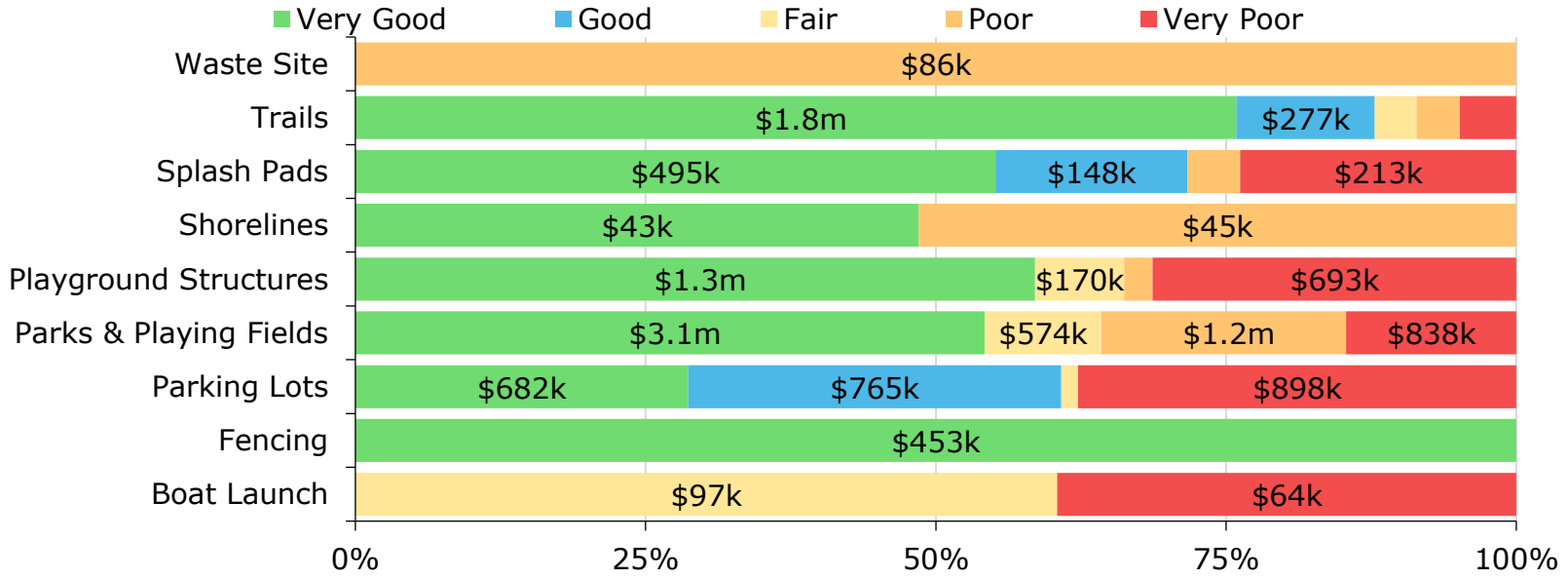
Figure 38 Land Improvements Average Age vs Average EUL



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.

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

Figure 39 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.

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 Carleton Place's current lifecycle management strategy.

Figure 40 Land Improvements Current Lifecycle Strategy

Maintenance

- Playground Structures Inspections
- Trails and Sports fields
- Parking Lots Winter Maintenance by Public Works

Replacement

- Based on inspection results and based on lifecycle and staff recommendations

Risk & Criticality

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

Figure 41 Land Improvement Risk Breakdown

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 identification of critical assets allows the Town to determine appropriate risk mitigation strategies and treatment options.

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. Proposed levels of service for the Town have been developed through engagement with Town staff.

Current Levels of Service

The following tables identify the Town's current level of service for the municipal owned land improvement assets. 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 Land Improvements Current Levels of Service

Community Levels of Service		Service Attributes	Technical Levels of Service	
Description of the municipal services supported by land improvements	The Town owns boat launches, parking lots, parks & playing fields, playground structures, splash pads, fencing, trails and a waste diversion site.	Scope	Replacement Cost	$14,321,799
			Distance between a park and the closest residence	0.5 km
			Park hectares per 1000 residents	3.39 hectares
The standard of which our parks are maintained	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	Average park condition index value for parks in the municipality	Very Good (83%)
			% Condition > Fair	70%
			% Condition poor and very poor	30%
The ease of access our residents have to our parks	The ease of access our residents have to our parks	Accessibility	% of parks meeting AODA standards	68%
	To strengthen trails and pathways connectivity between existing parks, open spaces and other major destinations.		% Recreational Trail width within 2.4 - 3m to total trail length	100%
	Parks are safe for residents to use	Safety	# of reported incidents per year in parks	0
	The ability to reduce service disruptions to residents and provide reliability within our parks	Reliability	# of outages per year	0
General	Services will be provided to ensure financial sustainability	Performance	% of assets due for replacement within 5 years	40%
			% Risk high and very high	11%
			Capital re-investment rate	1.80%

Appendix G: Water Network

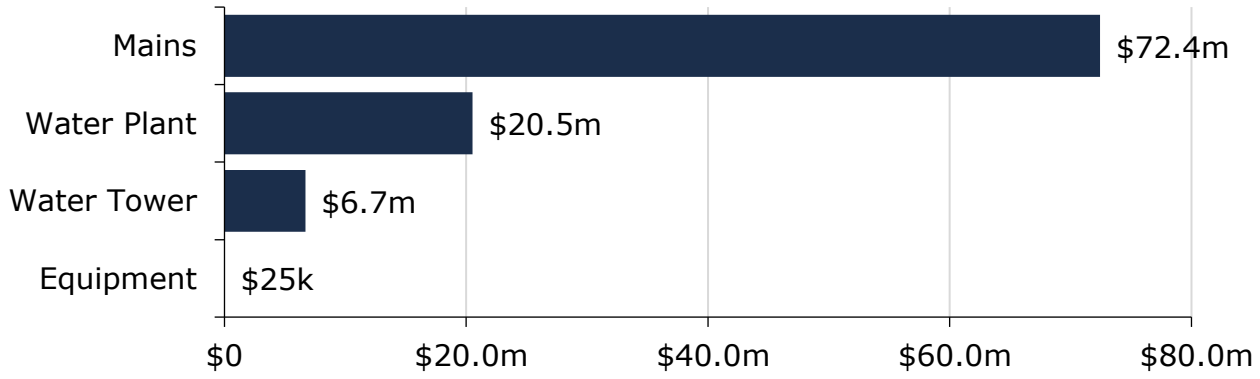
The water services provided by the Town are overseen by the Public Works Department and the Ontario Clean Water Association (OCWA). They are responsible for the following:

- Water Filtration Plant
- Water Tower
- Water mains
- Vehicles and equipment utilized for maintenance of the water network

Inventory & Valuation

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

Figure 42 Water Network Replacement Cost

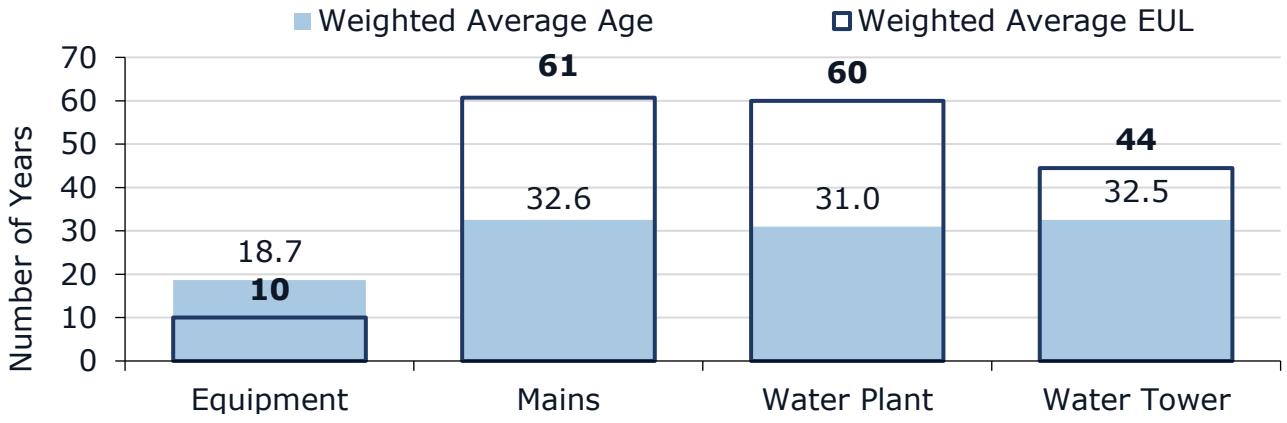


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

Asset Condition & Age

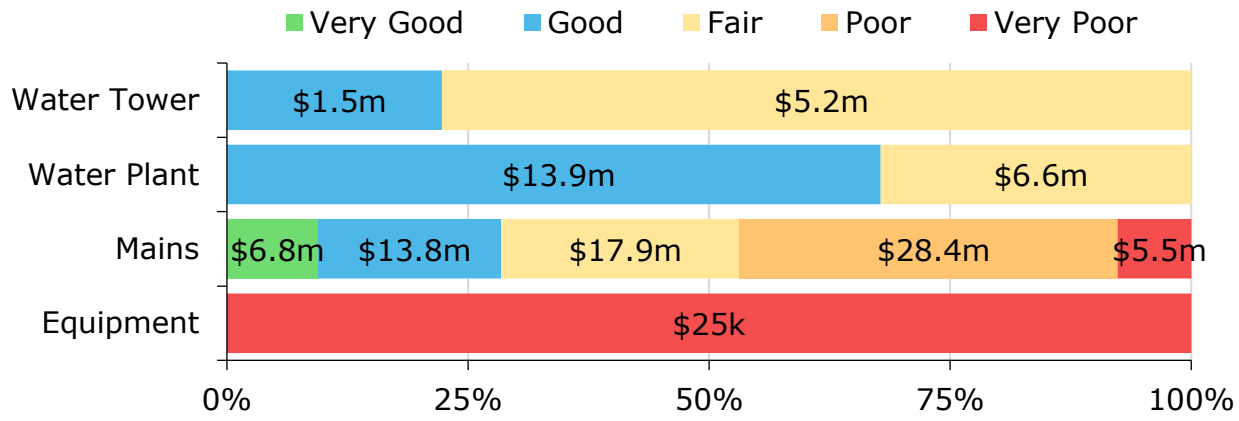
The graph below identifies the average age, and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 43 Water Network 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 44 Water Network Condition Breakdown



To ensure that the Town's 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 the lifecycle management strategy to determine what combination of 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.

Current Approach to Condition Assessment

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

- The treatment plant is managed and maintained by OCWA.
- There are no formal condition assessment programs in place for the Water Network.
- Staff primarily rely on the age, material, and main break history of water mains to determine the projected condition of water mains.
- Hydrants are inspected annually and there is an ongoing valve exercising program.
- Condition data helps inform both capital and operating strategies. Various reports support decision-making as it relates to maintenance, rehabilitation, and replacement.
- The Town will be developing a Water and Wastewater Master Plan to support asset management decision-making and project prioritization.

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 45 Water Network Current Lifecycle Strategy

Maintenance

- Hydrant flushing takes place on an annual basis. Main flushing is completed for water quality maintenance purposes.
- Hydrants and valves are exercised annually.
- Vehicles are maintened by an internal mechanic based on mileage.

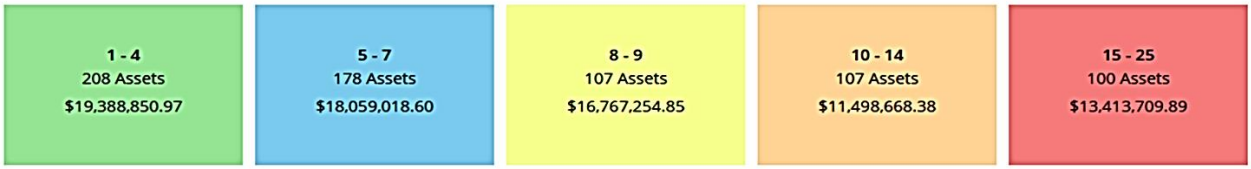
Rehabilitation / Replacement

- Trenchless re-lining of water mains presents significant challenges and is not always a viable option.
- In the absence of mid-lifecycle rehabilitative events, most mains are simply maintained with the goal of full replacement once it reaches its end-of-life. Replacement of watermains is coordinated with road replacement based on age, material, and main break data.
- Vehicles and mains have a 10-year capital plan.

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. See Appendix J: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 46 Water Network Risk Breakdown



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 identification of critical assets allows the Town to determine 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.

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. Proposed levels of service for the Town have been developed through engagement with Town staff.

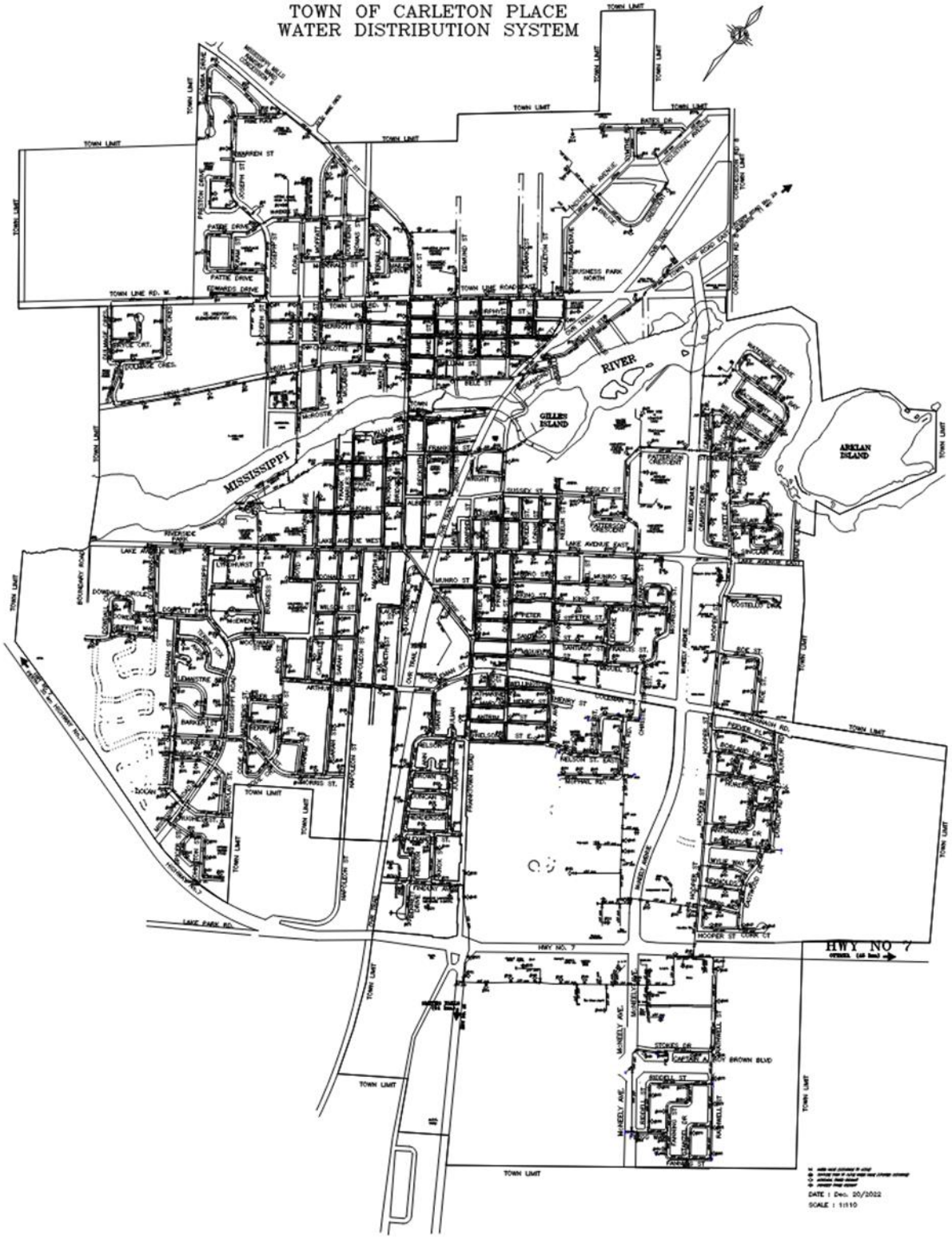
Current Levels of Service

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 14 Water Network Current Levels of Service

Community Levels of Service		Service Attributes	Technical Levels of Service	
Description, which may include maps, of the user groups or areas of the Town that are connected to the municipal water system	Hydraulic model maps from JLR can be seen in AMP appendix B. The Town estimates that less than 2% of households are on private services.	Scope	Replacement Cost	$99,679,238
			% of properties connected to the municipal water system	97%
Description, which may include maps of the user groups or areas of the Town that have fire flow	See Figure 47 Map of Water Network		% of properties where fire flow is available	97%
Description of boil water advisories and service interruptions	Experience an average of 1 break per year, with small impacts.	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 due to water main breaks compared to the total number of properties connected to the municipal water system	0
The standard of which our water network is maintained	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	Average condition	Fair
			% Condition > Fair	66%
			% Condition poor and very poor	34%
General	Services will be provided to ensure financial sustainability	Performance	% Risk high and very high	26%
			Capital re-investment rate	1.10%

Figure 47 Map of Water Network



Appendix H: Sanitary Sewer Network

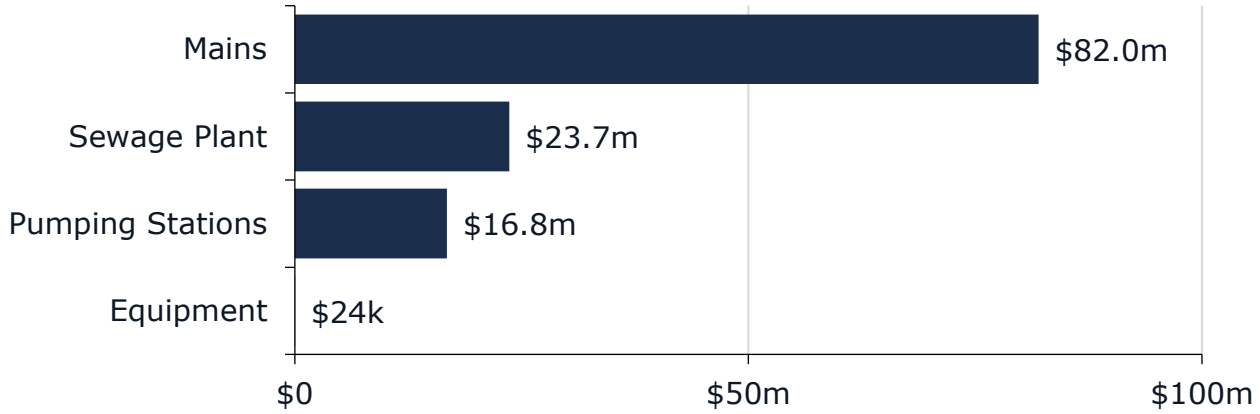
The Sanitary Sewer services provided by the Town are overseen by the Public Works Department and Ontario Clean Water Association (OCWA). They are responsible for the following:

- Pumping Stations
- Sewage Plant
- Mains

Inventory & Valuation

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

Figure 48 Sanitary Sewer Network Replacement Cost

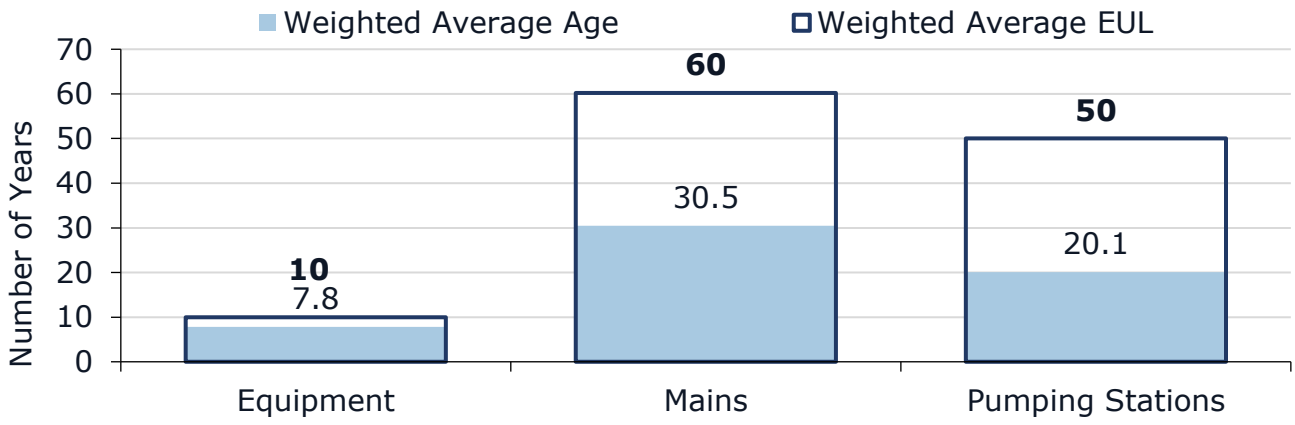


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

Asset Condition & Age

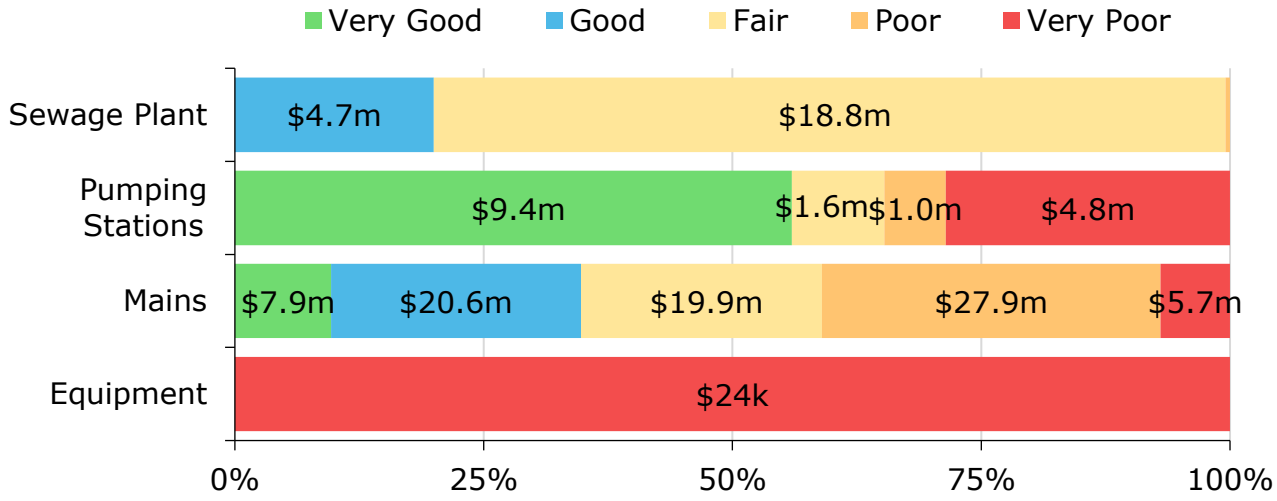
The graph below identifies the average age, and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 49 Sanitary Sewer Network 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 50 Sanitary Sewer Network Condition Breakdown



To ensure that the Town's 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 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.

Current Approach to Condition Assessment

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

- There are no formal condition assessment programs in place for the sanitary mains. Resident complaints drive most maintenance, rehabilitation, and replacement activities. CCTV inspections take place when above ground assets such as roads are replaced.
- OCWA manages the pumping stations and treatment plant. A condition assessment was completed for the pumping station in the past; the Town is considering adopting a 5- to 10-year program to renew condition assessments.
- The Town will be developing a Water and Wastewater Master Plan to support asset management decision-making and project prioritization.

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 51 Sanitary Sewer Network Current Lifecycle Strategy

Maintenance

- Sewer main flushing/cleaning is completed every 4 years. Staff work with contractors to complete manhole inspections annually.
- OCWA maintains the pumping stations and treatment plant.

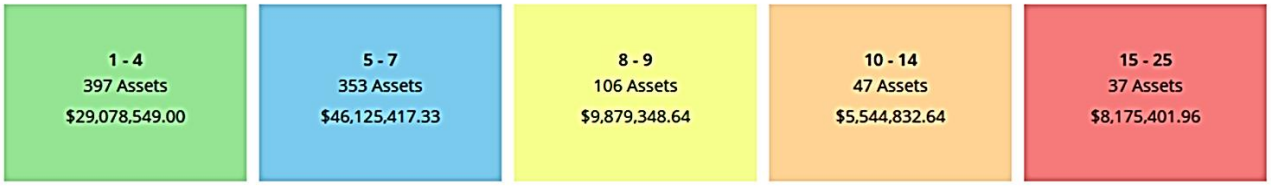
Rehabilitation / Replacement

- There are very few rehabilitation activities required for saintary mains, apart from minor spot repairs. Some relining takes place but no ongoing program is in place.
- OCWA conducts internal assessments to determine pump replacements and replacement of other major items. Annual reports are prepared by OCWA and provided to the Town.
- The Town develops a 10-year capital plan. OCWA develops a 5-year capital plan that is found to be more reliable than the 10-year capital plan.

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

Figure 52 Sanitary Sewer Network Risk Breakdown



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 identification of critical assets allows the Town to determine 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.

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. Proposed levels of service for the Town have been developed through engagement with Town staff.

Current Levels of Service

The following tables identify 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.

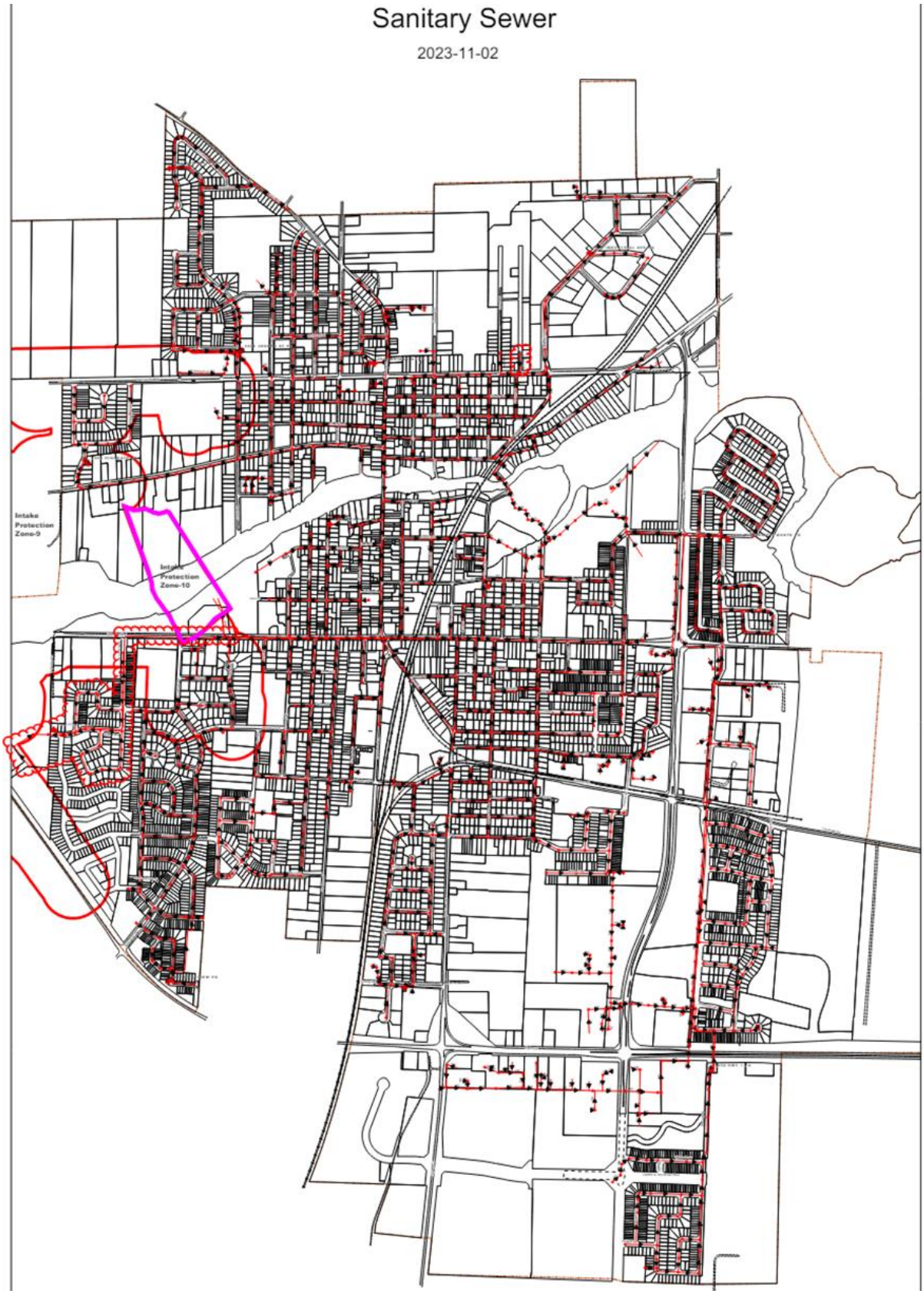
Table 15 Sanitary Sewer Network Current Levels of Service

Community Levels of Service		Service Attributes	Technical Levels of Service	
Description, which may include maps, of the user groups or areas of the Town that are connected to the municipal sanitary sewer system	See Figure 53 Map of Sanitary Sewer Network	Scope	Replacement Cost	$122,455,096
			% of properties connected to the municipal wastewater system	97%
Description of how combined sewers in the municipal sanitary sewer system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes	The Town does not own any combined sewers	Reliability	# 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 sanitary sewer system	N/A
Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches	The Town does not own any combined sewers		# of connection-days per year having sanitary sewer backups compared to the total number of properties connected to the municipal sanitary sewer system	0
Description of how storm water can get into sanitary sewers in the municipal wastewater system, causing	The Town's sanitary sewer system is susceptible to extreme rain events. The system experiences a significant amount of inflow		# of effluent violations per year due to wastewater discharge compared to the total number of properties	0

Community Levels of Service		Service Attributes	Technical Levels of Service
sewage to overflow into streets or backup into homes	and infiltration which will occasionally overwhelm the sanitary treatment plant. Unfiltered water may sometimes reach the river. The Town has implemented UV disinfection as a final resort to treat any unfiltered water reaching the river.		connected to the municipal sanitary sewer system
Description of how sanitary sewers in the municipal sanitary sewer system are designed to be resilient to storm water infiltration	The Town tracks customer complaints related to sewer backups. The Town has conducted a study to identify infiltration and added lining to sewers where infiltration was an issue.		
Description of the effluent that is discharged from sewage treatment plants in the municipal sanitary sewer system	Effluent refers to water pollution that is discharged from a sanitary treatment plant, and may include suspended solids, total phosphorous and biological oxygen demand. The Wastewater Systems Effluent Regulation, as established under the Fisheries Act, identifies mandatory minimum effluent quality standards. The Town via OCWA, follows all requirements for monitoring, record-keeping and toxicity testing as specified and have		

Community Levels of Service		Service Attributes	Technical Levels of Service	
	not experienced any effluent violations.			
The standard of which our water network is maintained	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	Average condition	Fair
			% Condition > Fair	0.69
			% Condition poor and very poor	0.31
General	Services will be provided to ensure financial sustainability	Performance	% Risk high and very high	11%
			Capital re-investment rate	1.20%

Figure 53 Map of Sanitary Sewer Network



Appendix I: Condition Assessment Guidelines

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

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

- The role of asset condition data in decision-making
- Guidelines for the collection of asset condition data
- A schedule for how regularly asset condition data should be collected

Role of Asset Condition Data

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

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

Guidelines for Condition Assessment

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

Condition assessments must include a quantitative or qualitative assessment of the current condition of the asset, collected according to specified condition rating criteria, in a format that can be used for asset management decision-making. As a result, it is important that staff adequately define the condition rating criteria that

should be used and the assets that require a discrete condition rating. When engaging with external consultants to complete condition assessments, it is critical that these details are communicated as part of the contractual terms of the project.

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

Developing a Condition Assessment Schedule

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

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

Appendix J: Risk Rating Criteria

General Risk Definitions

Risk	Integrating a risk management framework into your asset management program requires the translation of risk potential into a quantifiable format. This will allow you to compare and analyze individual assets across your entire asset portfolio. Asset risk is typically defined using the following formula: Risk = Probability of Failure (POF) x Consequence of Failure (COF)

Probability of Failure (POF)	The probability of failure relates to the likelihood that an asset will fail at a given time. The current physical condition and service life remaining are two commonly used risk parameters in determining this likelihood.
POF - Structural	The likelihood of asset failure due to aspects of an asset such as load carrying capacity, condition or breaks
POF - Functional	The likelihood of asset failure due to its performance
POF - Range	1 - Rare 2 - Unlikely 3 - Possible 4 - Likely 5 - Almost Certain

Consequences of Failure (COF)	The consequence of failure describes the overall effect that an asset's failure will have on an organization's asset management goals. Consequences of failure can range from non-eventful to impactful: a small diameter water main break in a subdivision may cause several rate payers to be without water service for a short time. However, a larger trunk water main may break outside a hospital, leading to significantly higher consequences.
COF - Economic	The monetary consequences of asset failure for the organization and its customers
COF - Social	The consequences of asset failure on the social dimensions of the community
COF - Environmental	The consequence of asset failure on an asset's surrounding environment
COF - Operational	The consequence of asset failure on the Town's day-to-day operations
COF - Health & safety	The consequence of asset failure on the health and well-being of the community
COF - Strategic	The consequence of asset failure on strategic planning
COF - Range	1 - Insignificant 2 - Minor 3 - Moderate 4 - Major 5 - Severe

Probability of Failure

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Road Network, Sidewalks, Curbs, Bridges, Storm Water Network, Storm Water Management Ponds, Pumping Stations	Condition	100%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
Sanitary Sewer Network (Mains)	Condition	70%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Pipe Material	30%	Ductile Iron	5
			CSP	4
			Clay	3
			Concrete, Cement, Transite	2
			PVC	1
Water Network (Mains)	Condition	70%	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Pipe Material	30%	Cast Iron, Ductile Iron	5
			Copper, Copper Type k	4
			Stainless Steel	3
			PVC, Blue Brute	1

Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Road Network (Roads)	Economic (100%)	Road Class	Local	1
			Commercial Local	2
			Collector	3
			Arterial	4
Bridges	Economic (100%)	Replacement Cost ($)	< 100,000	1
			100,000-400,000	2
			400,000-600,000	3
			600,000-1,000,000	4
			1,000,000<	5
Storm Water Mains	Economic (100%)	Pipe Diameter (mm)	0-100,000	1
			100,000-250,000	2
			250,000-500,000	3
			500,000-1,000,000	4
			1,000,000+	5
Sidewalks, Curbs, Stormwater Management Ponds, Pumping Stations	Economic (100%)	Replacement Cost ($)	< 100,000	1
			100,000-250,000	2
			250,000-500,000	3
			500,000-1,000,000	4
			1,000,000+	5
Water Mains	Economic (100%)	Pipe Diameter (mm)	<100	1
			100-150	2
			150-200	3
			200-450	4
			450 <	5
Sanitary Sewer Mains	Economic (100%)	Pipe Diameter (mm)	<100	1
			100-250	2
			250-450	3
			450-750	4
			750<	5

Appendix K: Staff Survey Summary

Cross-Cutting Themes (Internal Staff Feedback)

Across all asset categories, staff expressed:

- High satisfaction with current service levels and responsiveness.
- Widespread concerns about insufficient resources—both staffing and funding—for long-term maintenance and service delivery.
- A shared belief that service levels should align with asset management (AM) program targets to prevent future deterioration.
- Risks of underspending were emphasized across all asset categories, with warnings of future service degradation.

Asset-Specific Insights

Road Network

- Satisfaction: Moderate to high.
- Concerns: Resource insufficiency; long-term impact of deferred maintenance.
- Key Issue: Some divergence in views on condition and reliability.
- Recommendation: Increase investment to meet AM program targets.

Bridges & Culverts

- Satisfaction: High—especially with safety and repair timeliness.
- Concerns: Long-term sustainability if underfunded.
- Recommendation: Continue effective practices (e.g., OSIM inspections); increase investment as per AM program.

Storm Water Network

- Satisfaction: Very high with performance during rainfall events.
- Concerns: GIS data accuracy and future re-investment needs.
- Recommendation: Improve data collection and increase re-investment to AM program levels.

Water Network

- Satisfaction: Very high with responsiveness and current service levels.
- Concerns: Need for sustained/increased investment.
- Recommendation: Align investment with AM program to sustain service reliability.

Wastewater Network

- Satisfaction: Generally high; mixed feedback on odor control.
- Concerns: Potential deterioration without reinvestment.
- Recommendation: Maintain current levels and invest according to AM program.

Buildings

- Satisfaction: Mixed; concerns about availability, staffing, and inclusivity.
- Issues: Access inequality, aging infrastructure, and inconsistent data confidence.

- Recommendation: Reassess lifecycle approaches, increase funding, and focus on accessibility and inclusivity.

Land Improvements

- Satisfaction: Satisfactory but cautious.
- Issues: Reliance on age-based condition assessments; lack of staff/funding.
- Recommendation: Shift toward professional condition assessments; invest in lifecycle management.

Vehicles & Equipment

- Satisfaction: High on availability, lower on condition and cleanliness.
- Concerns: Slow maintenance due to overwhelmed staff.
- Recommendation: Continue current maintenance practices but enhance data and condition assessment methods.