2024

Carleton PLACE

Asset Management Plan

This Asset Management Program was prepared by:

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

Key Statistics

Replacement cost of asset portfolio

$502.3 million

Replacement cost of infrastructure per household

$94,037

Percentage of assets in fair or better condition

73%

Percentage of assets with assessed condition data

39%

Annual capital infrastructure deficit

$5.1 million

Recommended timeframe for eliminating annual infrastructure deficit in Utilities

10 Years

Target reinvestment rate

2.37%

Actual reinvestment rate

1.34%

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Executive Summary

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

Scope

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

This AMP includes the following asset categories:

Asset Category


Road Network


Bridges & Culverts


Storm Network


Buildings


Water Network


Vehicles & Equipment


Sanitary Network


Land Improvements

With the development of this AMP the Town has achieved compliance with O. Reg. 588/17 to the extent of the requirements that must be completed by July 1, 2024. There are additional requirements that must be met by July 1, 2025.

Findings

The overall replacement cost of the asset categories included in this AMP totals $502.3 million. 73% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 39% of assets. For the remaining 64% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities.

Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP.

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

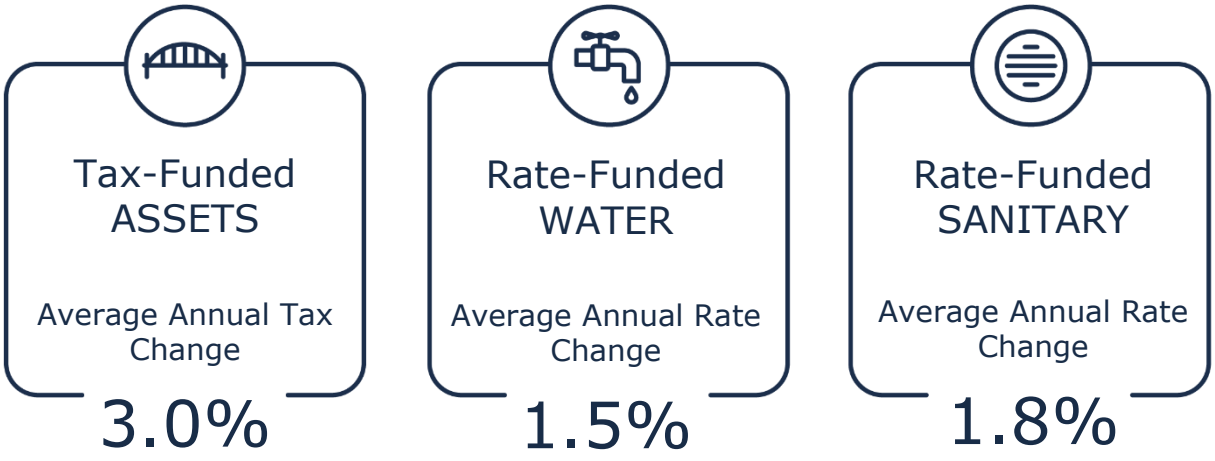
To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Town's average annual capital requirement totals $11.9 million. Based on a historical analysis of sustainable capital funding sources, the Town is committing approximately $6.75 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $5.14 million.

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

Annual Requirements per Household

Recommendations

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



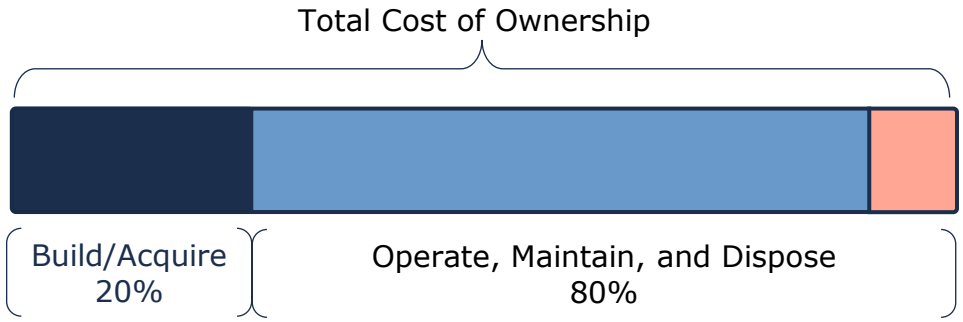
Recommendations to guide continuous refinement of the Town's asset management program. These include:

- Review data to update and maintain a complete and accurate dataset
- Develop a condition assessment strategy with a regular schedule
- Review and update lifecycle management strategies
- Develop and regularly review short- and long-term plans to meet capital requirements
- Measure current levels of service and identify sustainable proposed levels of service

Overview of Asset Management

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

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



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

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

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 to 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.

Asset Management Plan

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

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

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

Key Concepts in Asset Management

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

Lifecycle Management Strategies

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

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

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

Lifecycle Activity	Description	Example (Roads)	Cost
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	$$
Replacement/ Reconstruction	Asset end-of-life activities that often involve the complete replacement of assets	Full Reconstruction	$$$

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 outlined in this AMP. Developing and implementing a proactive lifecycle strategy will help staff to determine which activities to perform on an asset and when they should be performed to maximize useful life at the lowest total cost of ownership.

Risk Management Strategies

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

$$Risk = Probability\ of\ Failure \times Consequence\ of\ Failure$$

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's failure will have on an organization's asset management goals. 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.

Levels of Service

A level of service (LOS) is a measure of what the Town is providing to the community and the nature and quality of that service. Within each asset category in this AMP, technical metrics and qualitative descriptions that measure both technical and community levels of service have been established and measured as data is available.

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

High-Level Service Indicators

While community and technical levels of service provide a description of the service provided or performance metrics, these do not always provide a clear, succinct illustration of how the service is balanced.

Measuring and evaluating levels of service is a matter of finding a balance between three key indicators: cost, performance, and risk. This balance will inform the high-level decisions of the Town to key decisions, such as whether it is acceptable to take on more costs to achieve better performance.

Ultimately, these key indicators will be supplemented by the community and technical levels of service for further context of service provisions. The criteria for the high-level service indicators are described in the following table.

Indicator	Metric	Measurement
Cost	Annual Average Capital Invested	Annual funding available for each asset category derived from sustainable sources
	Average Annual Capital Required	Annual funding required to sustain and renew the current asset portfolio
Performance	Overall Condition	% of assets in very good, good, fair, poor, and very poor condition
Risk	Overall Risk Distribution	% of assets in very low, low, moderate, high, and very high state of risk

Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories (Roads, Bridges, Water, Wastewater, Stormwater) the Province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP. For non-core asset categories, the Town has determined the qualitative descriptions that will be used to determine the community level of service provided. These

descriptions can be found in the Levels of Service subsection within each asset category.

Technical Levels of Service

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

For core asset categories (Roads, Bridges, Water, Wastewater, Stormwater) the Province, through O. Reg. 588/17, has provided technical metrics that are required to be included in this AMP. For non-core asset categories, the Town will determine technical metrics that measure the current levels of service.

Current and Proposed Levels of Service

This AMP focuses on measuring the current level of service provided to the community, as well as proposed levels of service over a 10-year period, in accordance with O. Reg. 588/17.

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

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 the Town's infrastructure portfolio. This is a living document that should be updated regularly as additional asset and financial data becomes 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.

Requirement	2019	2022	2024	2025
Asset Management Policy	●		●	
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 and Methodology

The scope of this document is to identify the current practices and strategies that are in place to manage 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 municipal services.

Asset Categories

This asset management plan for the Town of Carleton Place is produced in compliance with Ontario Regulation 588/17. The July 2024 deadline under the regulation—the second of three AMPs—requires analysis of all municipal assets.

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

Asset Category	Source of Funding
Road Network	Tax Levy
Bridges & Culverts	
Buildings	
Land Improvements	
Vehicles & Equipment	
Storm Water Network	
Water Network	User Rates
Sanitary Sewer Network	

Deriving Replacement Costs

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

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

User-defined costs based on reliable sources are a reasonably accurate and reliable way to determine asset replacement costs. Cost inflation is typically used in the absence of reliable replacement cost data. It is a reliable method for recently purchased and/or constructed assets where the total cost is reflective of the actual costs that the 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 in this AMP was assigned according to the knowledge and expertise of municipal staff and supplemented by existing industry standards when necessary.

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

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

Reinvestment Rate

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

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

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

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

Deriving Asset Condition

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

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the Town's asset portfolio.

The table below outlines the condition rating system used in this AMP to determine asset condition. This rating system is aligned with the Canadian Core Public Infrastructure Survey which is used to develop the Canadian Infrastructure Report Card. When assessed condition data is not available, service life remaining is used to approximate asset condition.

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

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

Portfolio Overview

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.

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

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

Climate Profile

The Town 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) – Carleton Place may experience the following trends:

1. 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.
2. Increase in Total 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.
3. 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 best practices and enables the development of a holistic approach to risk management.

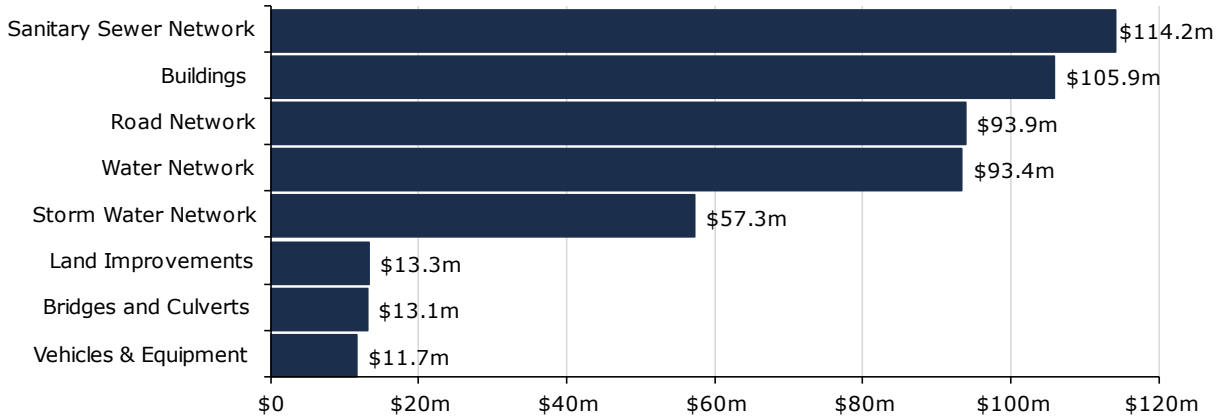
State of the Infrastructure

Asset Category	Replacement Cost	Asset Condition	Financial Capacity	
Road Network	$93,862,593	Fair (46%)	Annual Requirement:	$3,058,465
			Funding Available:	$2,523,797
			Annual Deficit:	$534,668
Bridges and Culverts	$13,086,870	Very Good (87%)	Annual Requirement:	$261,737
			Funding Available:	$88,278
			Annual Deficit:	$173,450
Storm Water Network	$57,296,173	Very Good (91%)	Annual Requirement:	$720,003
			Funding Available:	$242,839
			Annual Deficit:	$477,164
Buildings	$105,875,571	Fair (58%)	Annual Requirement:	$2,732,198
			Funding Available:	$921,503
			Annual Deficit:	$1,810,695
Land Improvements	$13,340,407	Good (66%)	Annual Requirement:	$728,044
			Funding Available:	$245,551
			Annual Deficit:	$482,493
Vehicles & Equipment	$11,155,936	Good (61%)	Annual Requirement:	$981,192
			Funding Available:	$339,715
			Annual Deficit:	$641,477
Water Network	$93,425,537	Fair (52%)	Annual Requirement:	$1,517,107
			Funding Available:	$1,061,911
			Annual Deficit:	$455,196
Sanitary Sewer Network	$114,161,059	Fair (55%)	Annual Requirement:	$1,894,217
			Funding Available:	$1,326,377
			Annual Deficit:	$567,840
Overall	$502,253,800	Fair (58%)	Annual Requirement:	$11,892,964
			Funding Available:	$6,749,971
			Annual Deficit:	$5,142,984

Total Replacement Cost of Asset Portfolio

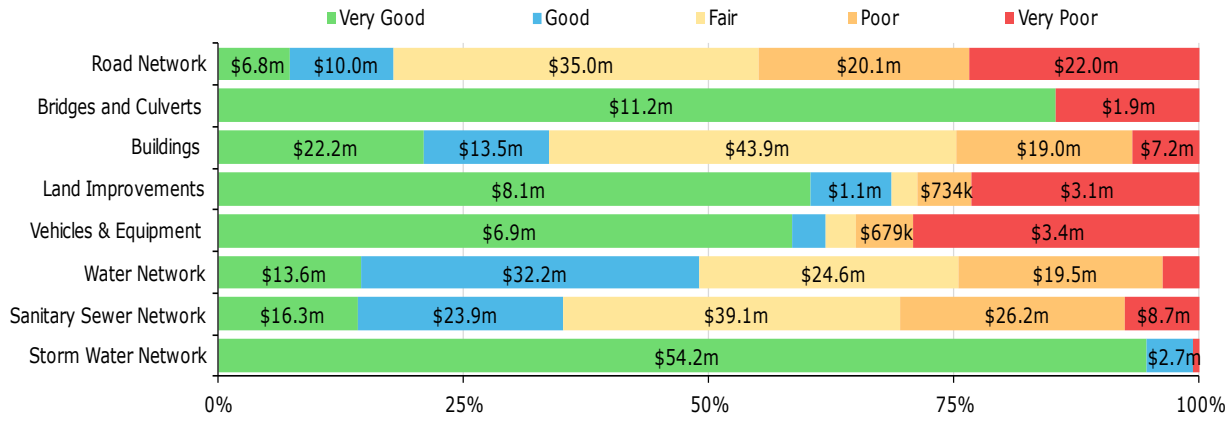
The asset categories analysed in this AMP have a total replacement cost of $502.8 million based on inventory data from 2024. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.

Target vs. Actual Reinvestment Rate



Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 73% of assets in Carleton Place, based on replacement value, are in fair or better condition. This estimate relies on both age-based and field condition data.



This AMP relies on assessed condition data for 39% of assets; for the remaining portfolio, age is used as an approximation of condition.

Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

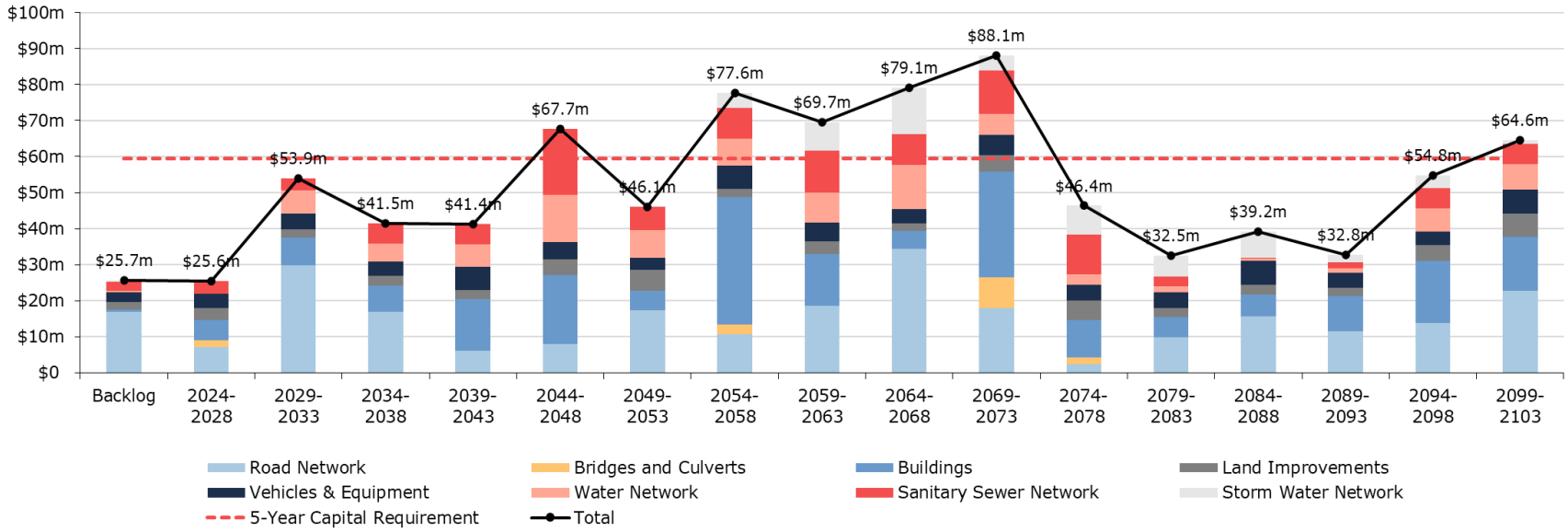
Asset Category	Asset Segment	% of Assets with Assessed Condition	Source of Condition Data
Road Network	All	96%	Staff Assessements
Bridges & Culverts	All	34%	2022 OSIM Report
Buildings	All	57%	Staff Assessements
Land Improvements	All	11%	Staff Assessements
Vehicles & Equipment	All	31%	Staff Assessements
Water Network	All	0%	N/A
Sanitary Sewer Network	All	33%	Staff Assessments
Storm Water Network	All	0%	N/A

Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 21% of the Town's assets will require replacement within the next 10 years. Capital requirements over the next 10 years are identified in Appendix B.

Forecasted Capital Requirements

The development of a long-term capital forecast should include both asset rehabilitation and replacement requirements. With the development of asset-specific lifecycle strategies that include the timing and cost of future capital events, the Town can produce an accurate long-term capital forecast. The following graph identifies capital requirements over the next 80 years.



Risk & Criticality

Qualitative Risk

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

Lifecycle Management Strategies

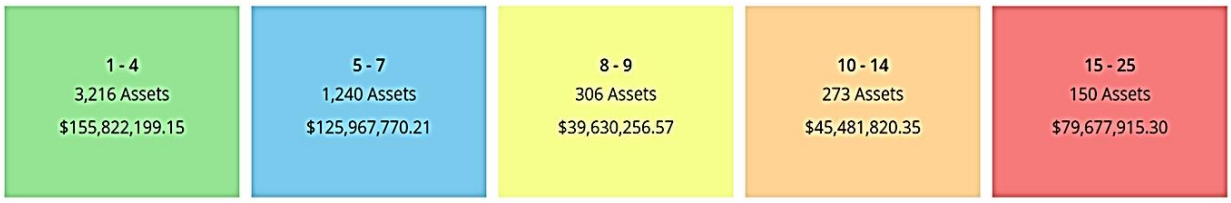
The current lifecycle management strategies are considered more reactive than proactive. It is a challenge to find the right balance between maintenance, capital rehabilitation, and reconstruction. In the absence of mid-lifecycle rehabilitative events, most assets are simply maintained with the goal 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 for asset management purposes. Staff are in the process of evaluating the resources and activities required to build and/or improve the existing asset inventory including consolidating data sources. Staff plan to prioritize data refinement efforts to increase confidence in the accuracy and reliability of asset data and information.

Quantitative Risk

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



This is a high-level model developed for the purposes of this AMP and municipal staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Analysis of Tax-funded Assets

Tax-funded assets are valued at $295 million with 75% of assets in fair or better condition. The average annual capital requirement to sustain the current level of service for tax-funded assets is approximately $8.5 million.

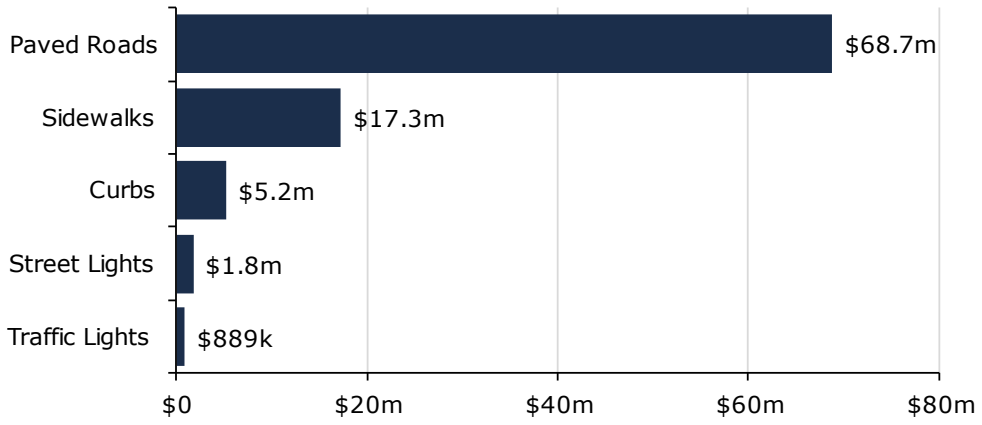
Road Network

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.

Asset Inventory & Replacement Cost

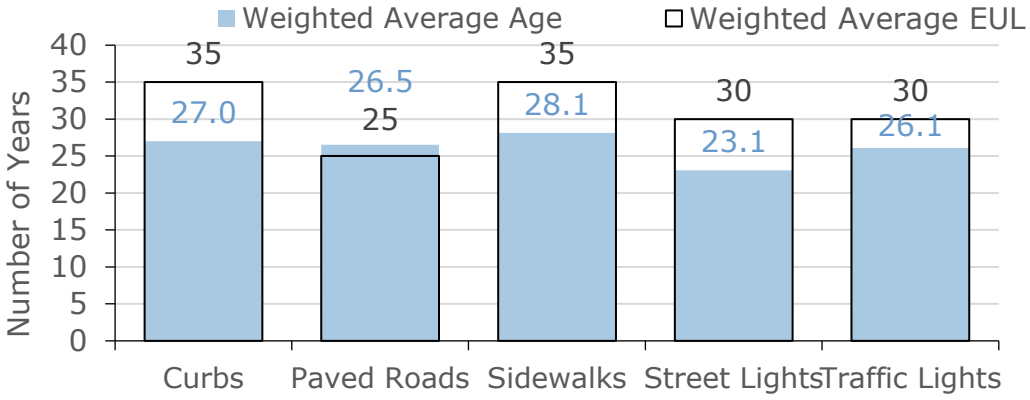
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Road Network inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Curbs	57,876 m	Cost/Unit	$5,204,022
Paved Roads	65,127 m	Cost/Unit	$68,742,450
Sidewalks	46,564 m	Cost/Unit	$17,256,000
Street Lights	839	CPI	$1,771,329
Traffic Lights	5	CPI	$888,792
			$93,862,593

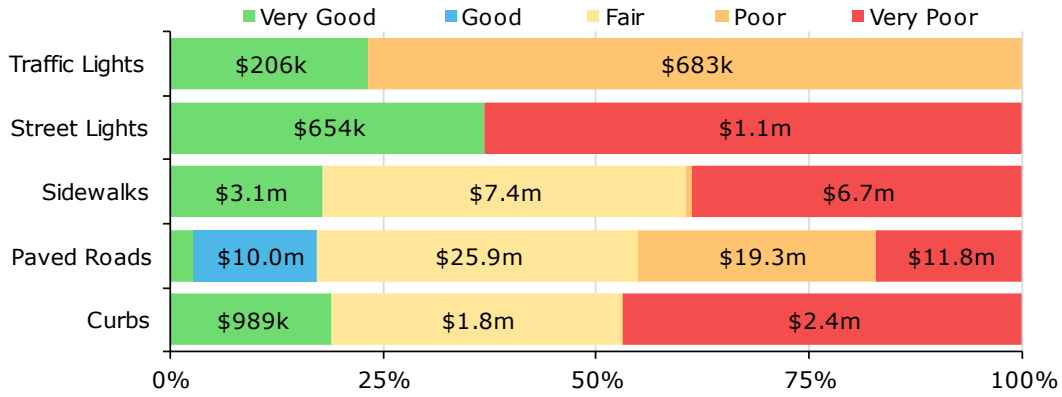


Asset Condition & Age

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



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



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.

Estimated Useful Life & Service Life

The Estimated Useful Life for Road Network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating.

Asset Segment	Estimated Useful Life (Years)	Weighted Average Age (Years)	Average Service Life Remaining (Years)
Curbs	35 Years	27	8
Paved Roads	25 Years	27	0
Sidewalks	35 Years	28	7
Street Lights	30 Years	23	7
Traffic Lights	30 Years	26	4
		26	**5**

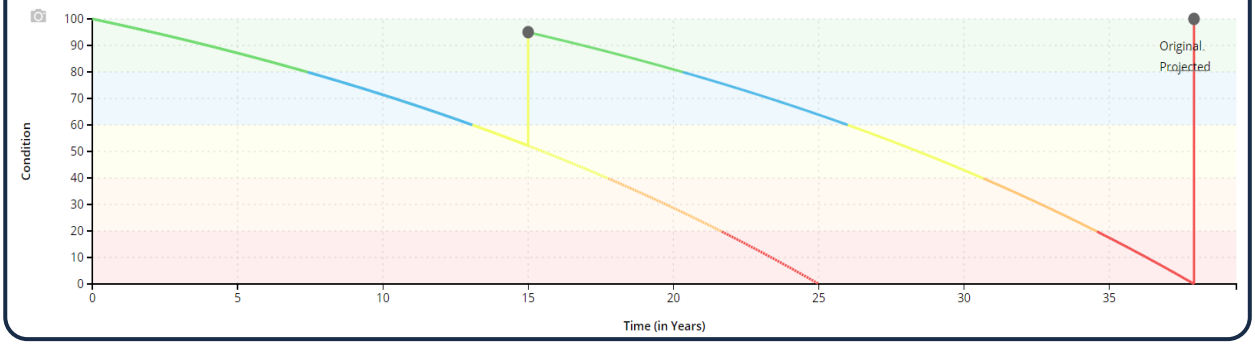
Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

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 paved 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.

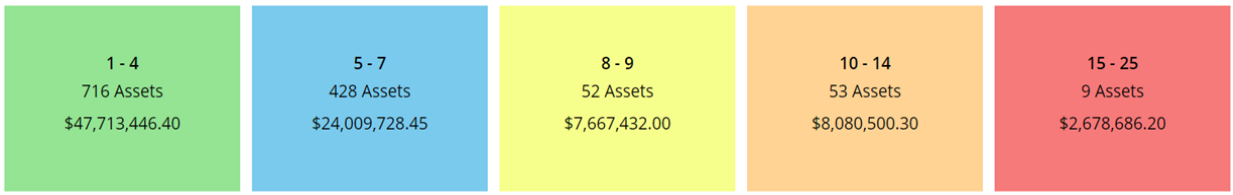
Paved Roads

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



Risk & Criticality

The following figure 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 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.

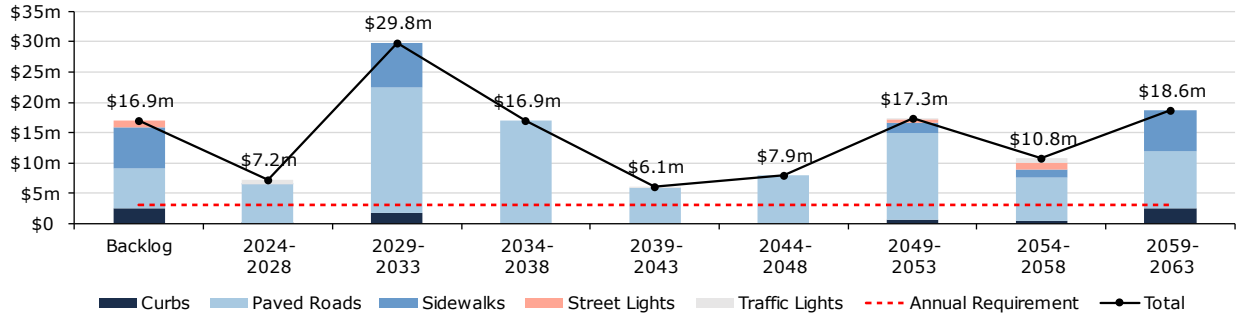


This is a high-level model developed for the purposes of this AMP and municipal staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Forecasted Capital Requirements

Based on the lifecycle strategies identified previously for Paved Roads, and assuming the end-of-life replacement of all other assets in this category, the following graph forecasts capital requirements for the Road Network.

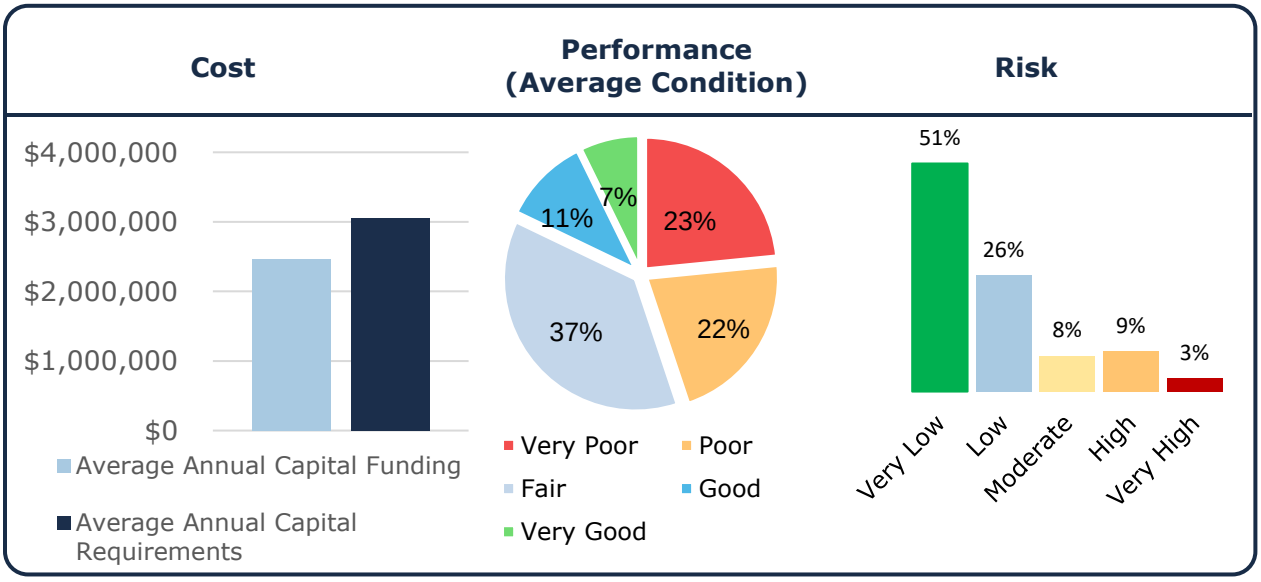
The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs to meet future capital needs.



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

Levels of Service

The following table outlines the high-level service indicators for Road Network assets: Cost, performance (condition), and risk.



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 for this AMP.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	Description, which may include maps, of the road network in the Town and its level of connectivity	See Appendix B
Quality	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.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km^2)	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
Quality	Average pavement condition index for paved roads in the Town	56%
	Average surface condition for unpaved roads in the Town (e.g. excellent, good, fair, poor)	Fair
Performance	Capital reinvestment rate	2.7%

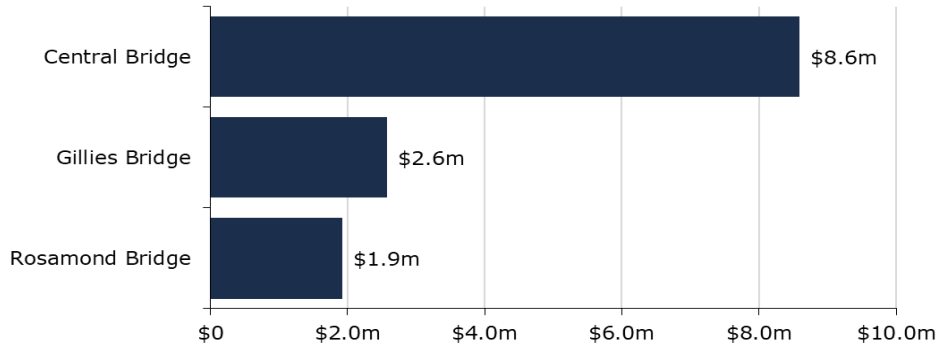
Bridges & Culverts

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.

Asset Inventory & Replacement Cost

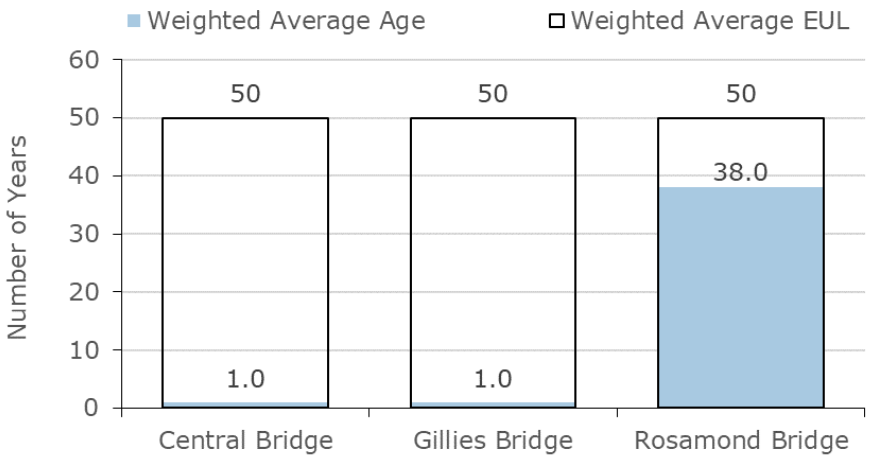
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Bridges inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Central Bridge	1	CPI Tables	$8,588,003
Gillies Bridge	1	CPI Tables	$2,577,519
Rosamond Bridge	1	CPI Tables	$1,921,348
			$13,086,870

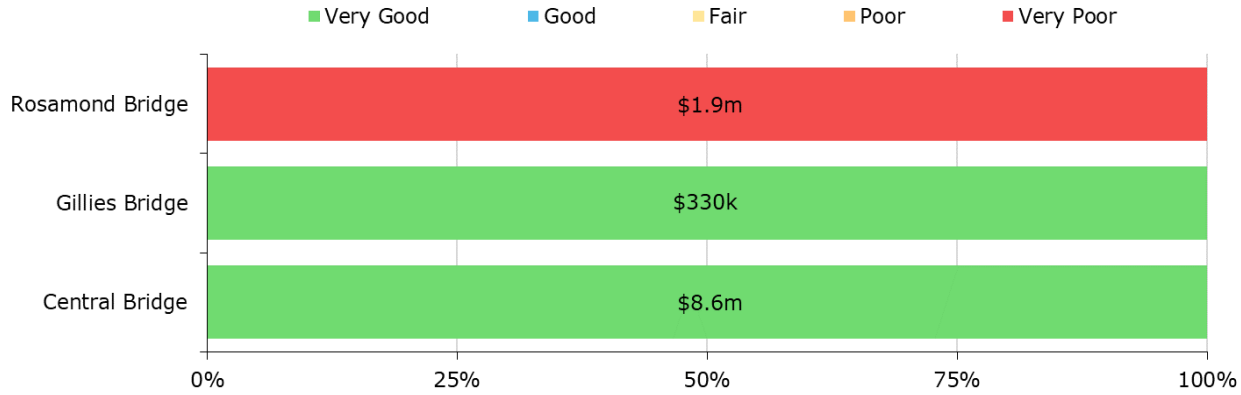


Asset Condition & Age

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



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



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).

Estimated Useful Life & Service Life

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Central Bridge	50 Years	1.0	49
Gillies Bridge	50 Years	1.0	49
Rosamond Bridge	50 Years	38.0	12
		26.7	**23.3**

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

Lifecycle Management Strategy

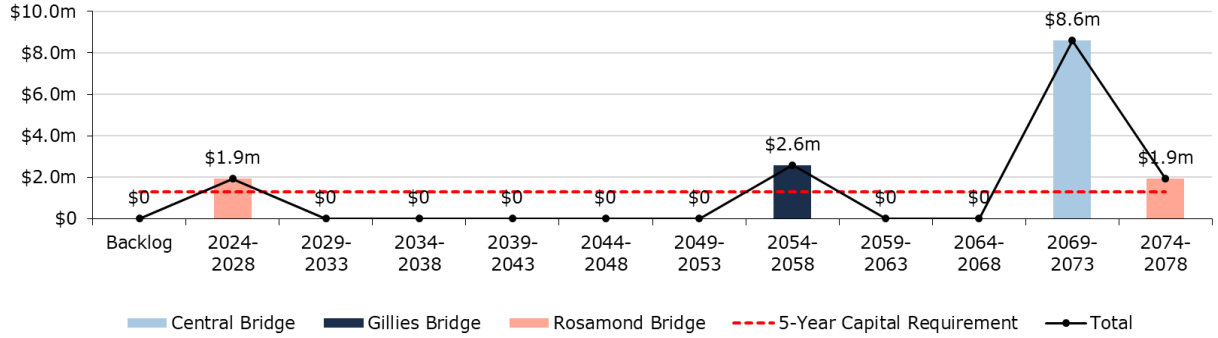
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the Town's current lifecycle management strategy.

Activity Type	Description of Current 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 2022 by HP Engineering

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



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

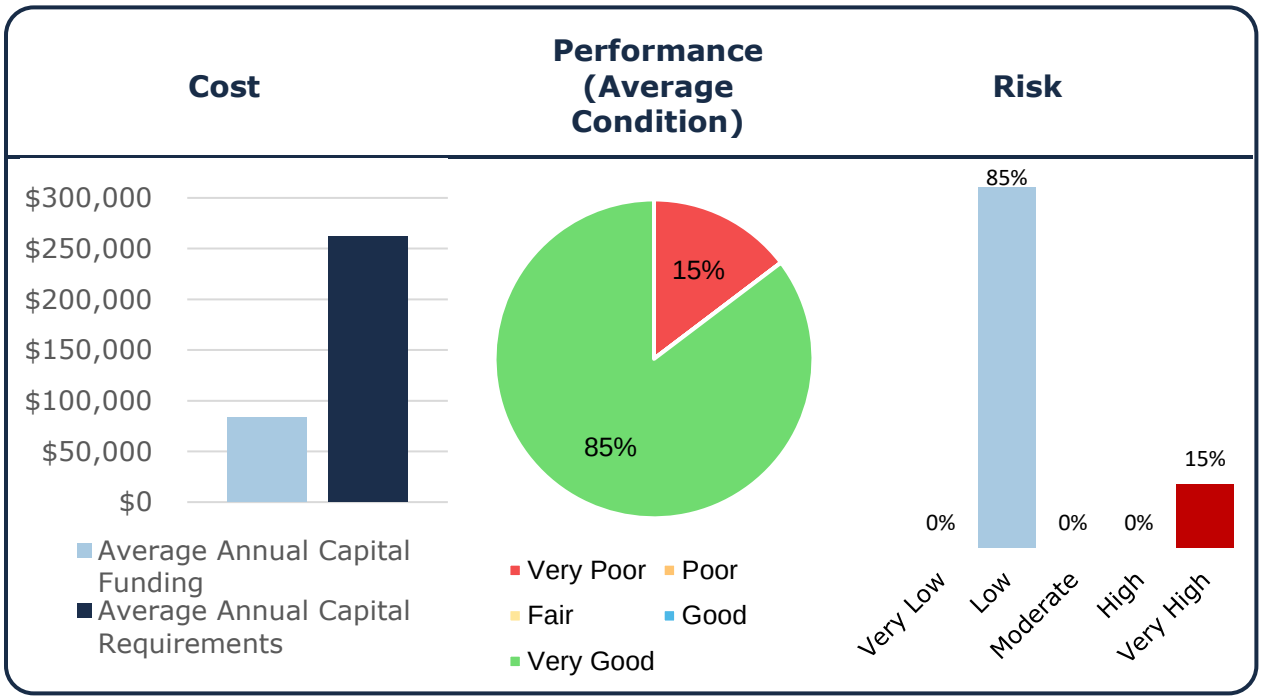
Risk & Criticality

The following figure 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 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.

This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following table outlines the high-level service indicators for Bridge assets: cost, performance (condition), and risk.



The following tables identify the Town's current level of service for Bridges. 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 for this AMP.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	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.
Quality	Description or images of the condition of Bridges and Culverts and how this would affect use of the Bridges and Culverts	See Appendix B

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	% of bridges in the Town with loading or dimensional restrictions	0%
Quality	Average bridge condition index value for bridges in the Town	80
	Average bridge condition index value for structural culverts in the Town	N/A
Performance	Capital re-investment rate	0.13%

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

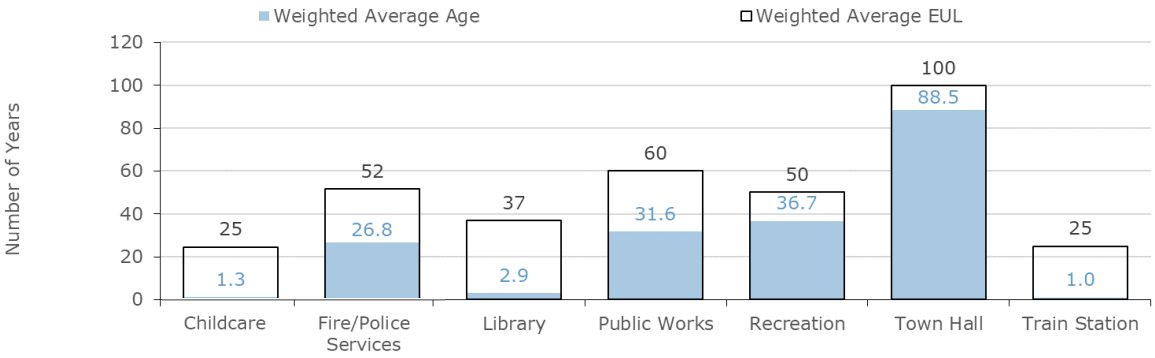
Asset Inventory & Replacement Cost

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

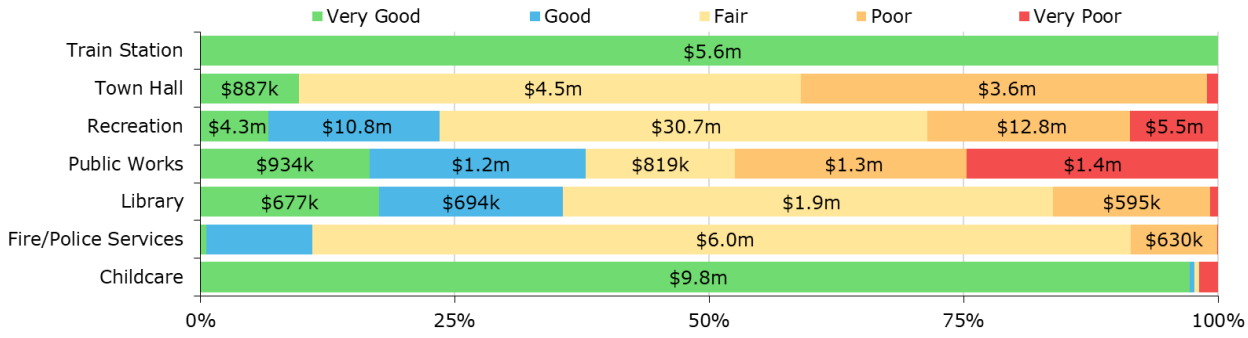
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Childcare	1	User-Defined	$10,106,437
Fire/Police Services	1	User-Defined	$7,450,478
Library	1	User-Defined	$3,852,000
Public Works	3	User-Defined	$5,601,599
Recreation	9	User-Defined	$64,184,903
Town Hall	1	User-Defined	$9,120,796
Train Station	1	User-Defined	$5,559,358
			$105,875,571

Asset Condition & Age

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



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



To ensure that the Town's 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.

Estimated Useful Life & Service Life

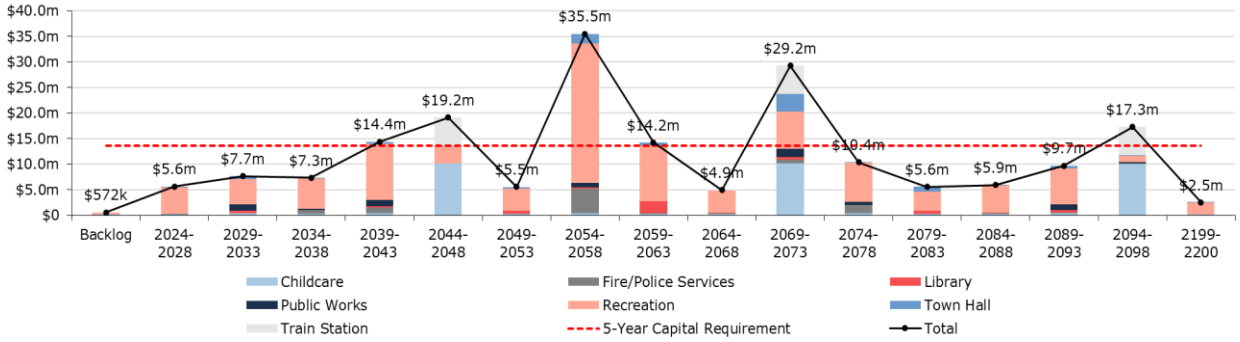
The Estimated Useful Life for Building assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Childcare	60 Years	1.3	58.7
Fire/Police Services	60 Years	26.8	33.2
Library	60 Years	2.9	57.1
Public Works	60 Years	31.6	31.6
Recreation	50 Years	36.7	13.3
Town Hall	100 Years	88.5	11.5
Train Station	60 Years	1.0	59
		27	**37.8**

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

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



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

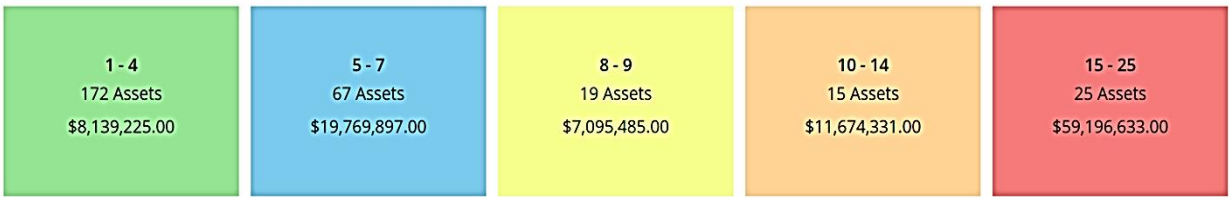
Lifecycle Management Strategies

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

Activity Type	Description of Current Strategy
Maintenance	Contractor Inspections, Staff inspections and HVAC Repairs semi-annually.
Rehabilitation	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

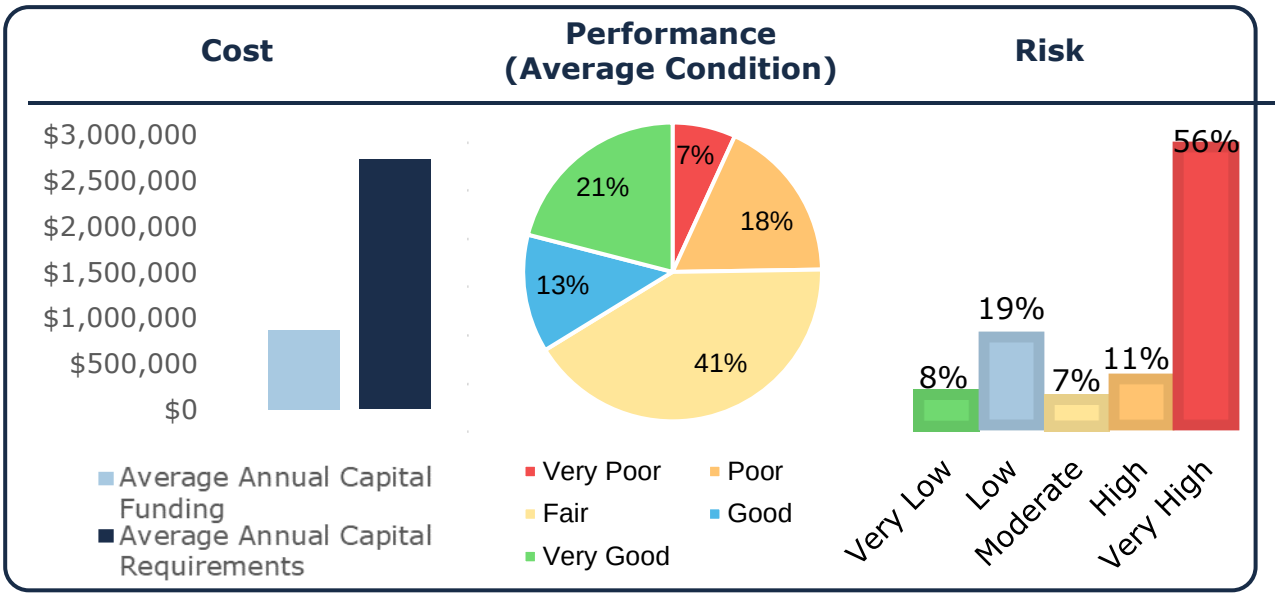
The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following table outlines the high-level service indicators for Building assets: cost, performance (condition), and risk.



The following tables identify the Town's current level of service for 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 for this AMP.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	Description of the municipal services supported by buildings	The Town owns 17 buildings supporting transportation services, recreation & culture, fire/police services, childcare and administration

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	Square metres of indoor recreation facilities per 1,000 households	1.96
Quality	% Completed work orders	98.6%
Accessibility	% of facilities meeting AODA standards	TBD
Reliability	# of outages per year	0
Utilization	% occupied / times allotted	TBD

Land Improvements

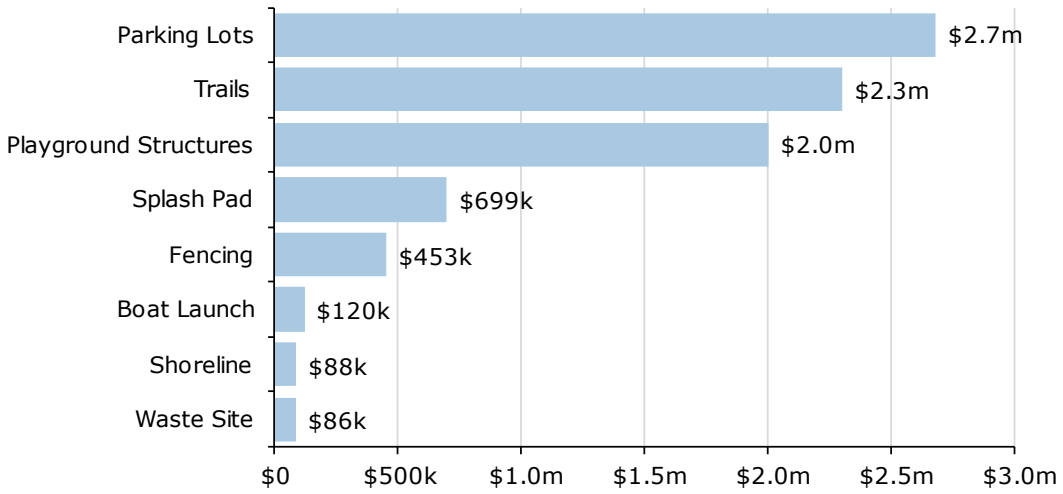
The Town of Carleton Place owns a small number of assets that are considered Land Improvements. This category includes:

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

Asset Inventory & Replacement Cost

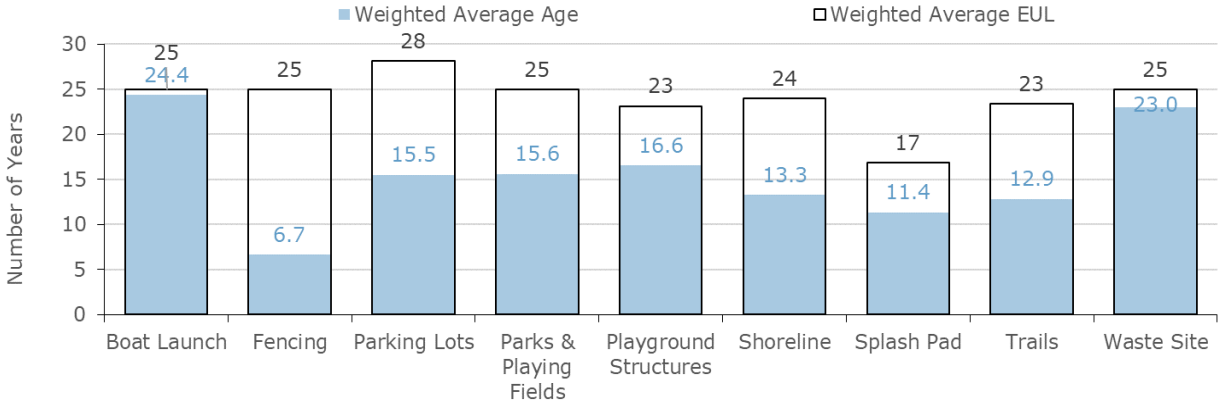
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Land Improvements inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Boat Launch	3	CPI	$119,866
Fencing	2	CPI	$452,695
Parking Lots	12	CPI	$2,680,930
Parks & Playing Fields	74 acres	CPI	$4,910,103
Playground Structures	22	User-Defined	$2,002,740
Shoreline	2	CPI	$87,829
Splash Pad	5	CPI	$699,127
Trails	917 metres	CPI	$2,301,306
Waste Site	1	CPI	$85,811
			$13,340,407

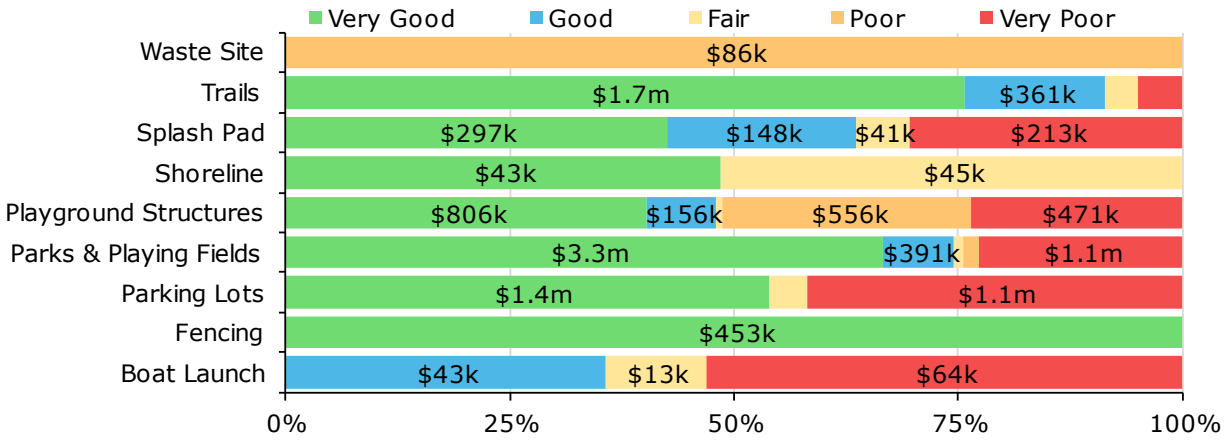


Asset Condition & Age

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



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



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 of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Land Improvements.

Estimated Useful Life & Service Life

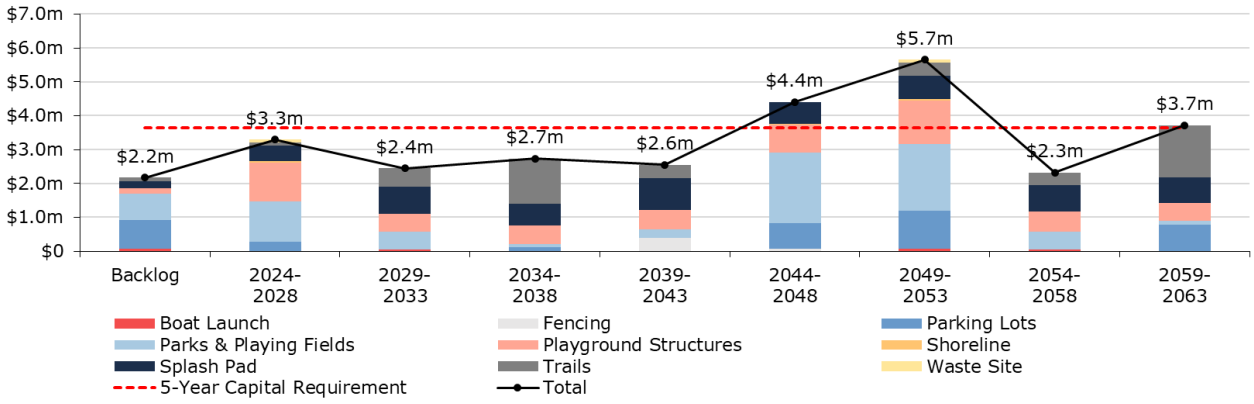
The Estimated Useful Life for Land Improvements assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Boat Launch	25 Years	24.4	0.6
Fencing	25 Years	6.7	18.3
Parking Lots	25 Years	15.5	9.5
Parks & Playing Fields	25 Years	15.6	9.4
Playground Structures	25 Years	16.6	8.4
Shoreline	25 Years	13.3	11.7
Splash Pad	25 Years	11.4	13.6
Trails	25 Years	12.9	12.1
Waste Site	25 Years	23	2
		15.5	**9.5**

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

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



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

Lifecycle Management Strategies

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

Activity Type	Description of Current 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

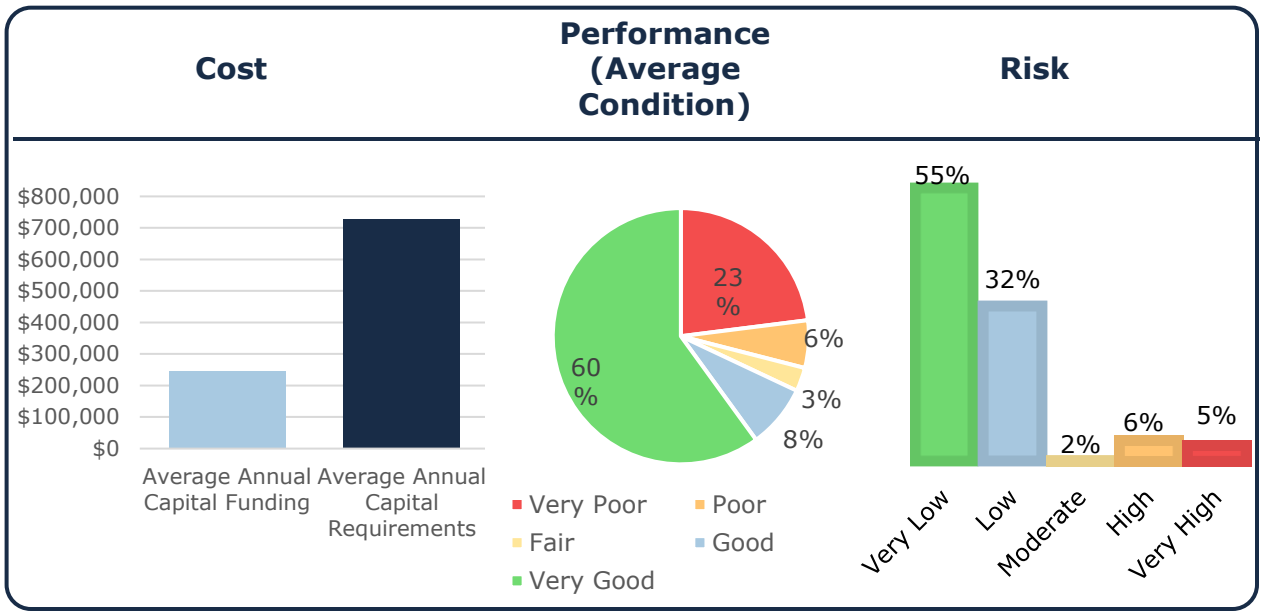
Risk & Criticality

The following figure 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 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.

This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following table outlines the high-level service indicators for land improvements assets: cost, performance (condition), and risk.



The following tables identify the Town's current level of service for land improvements. 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 for this AMP.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	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 site.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	Distance between a park and the closest residence	0.5 km
Quality	Average park condition index value for parks in the municipality	83%
Accessibility	% of parks meeting AODA standards	68%
Safety	# of reported incidents per year	N/A
Reliability	# of outages per year	N/A

Vehicles & Equipment

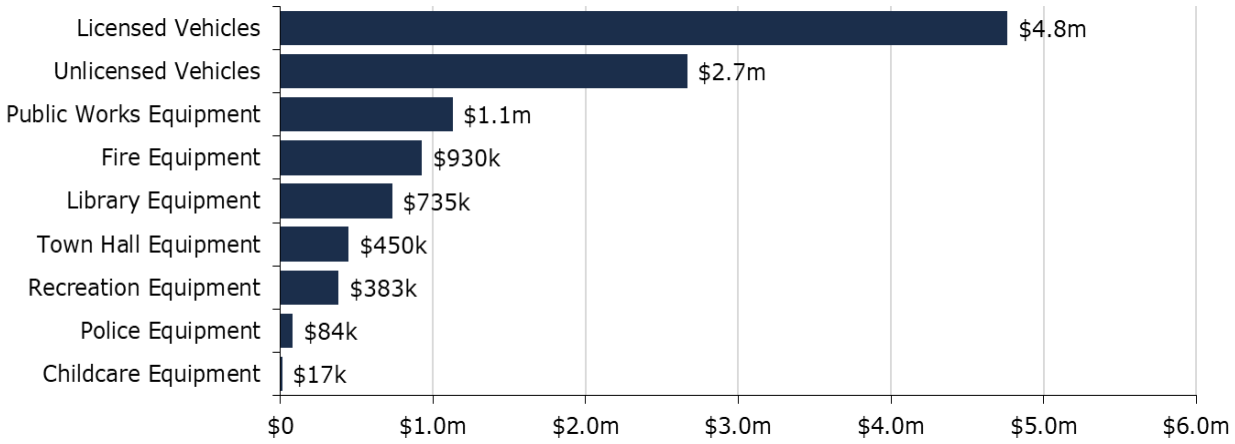
Vehicles allow staff to efficiently deliver municipal services and personnel. Municipal vehicles are used to support several service areas, including:

- 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

Asset Inventory & Replacement Cost

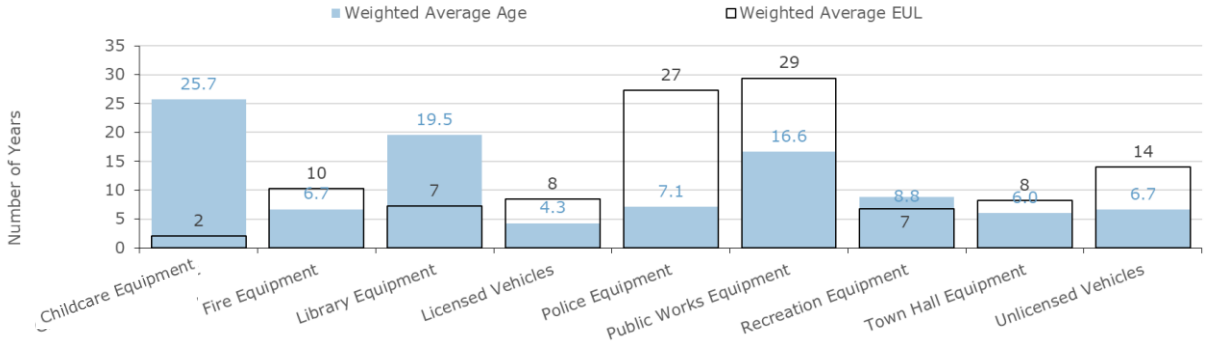
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's vehicles and equipment.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Childcare Equipment	2	User-Defined	$17,000
Fire Equipment	17	CPI	$929,889
Library Equipment	6	CPI	$734,605
Licensed Vehicles	50	CPI	$4,762,522
Police Equipment	3	CPI	$83,779
Public Works Equipment	16	CPI	$1,128,932
Recreation Equipment	3	CPI	$383,014
Town Hall Equipment	9	CPI	$449,896
Unlicensed Vehicles	18	CPI	$2,666,299
			$11,155,936

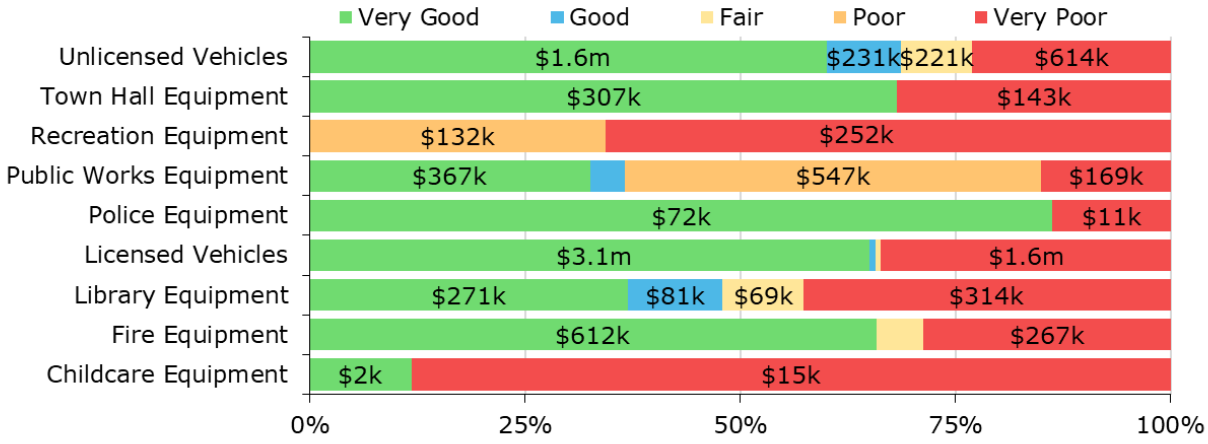


Asset Condition & Age

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



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



To ensure that the Town's vehicles and equipment continue to provide an acceptable level of service, the Town should monitor the average condition of all assets.

Estimated Useful Life & Service Life

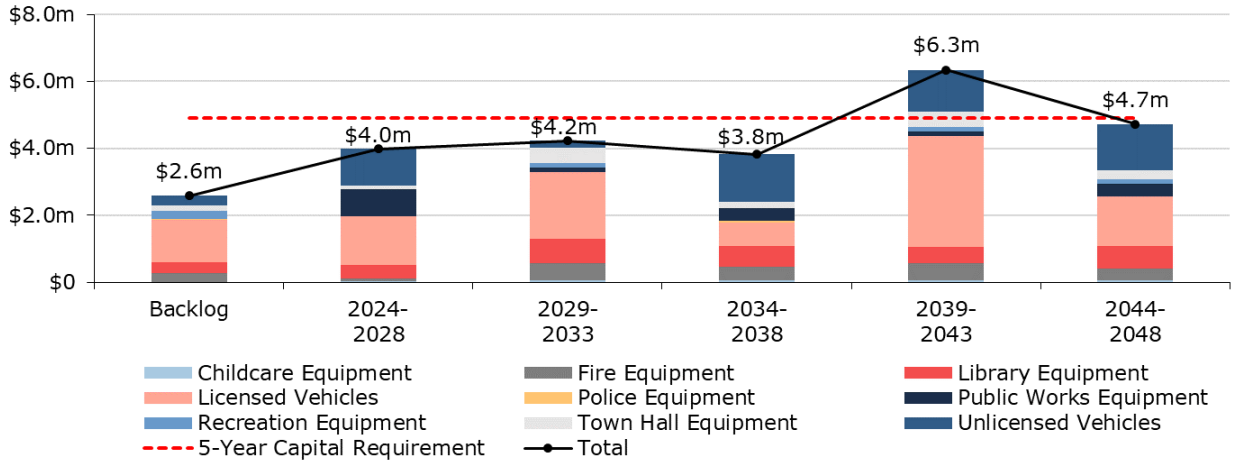
The Estimated Useful Life for Vehicles assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Childcare Equipment	2	25.7	0
Fire Equipment	10	6.7	3.3
Library Equipment	7	19.5	0
Licensed Vehicles	8	4.3	3.7
Police Equipment	27	7.1	19.9
Public Works Equipment	29	16.6	12.4
Recreation Equipment	7	8.8	0
Town Hall Equipment	8	6	2
Unlicensed Vehicles	14	6.7	7.3
		10.6	**6.8**

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

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



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

Lifecycle Management Strategies

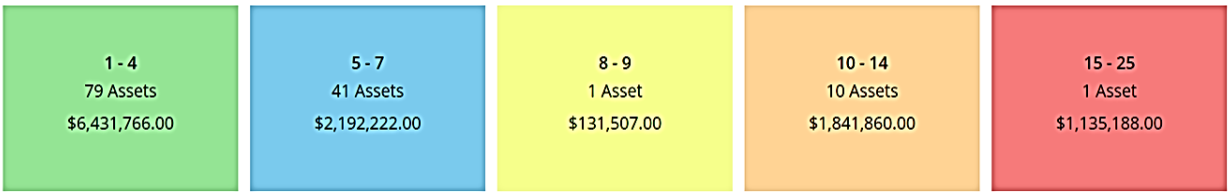
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to

proactively manage asset deterioration. The following table outlines the Town's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Vehicles are maintained by an internal mechanic based on mileage.
Replacement	Based on life expectancy, maintenance cost and condition.

Risk & Criticality

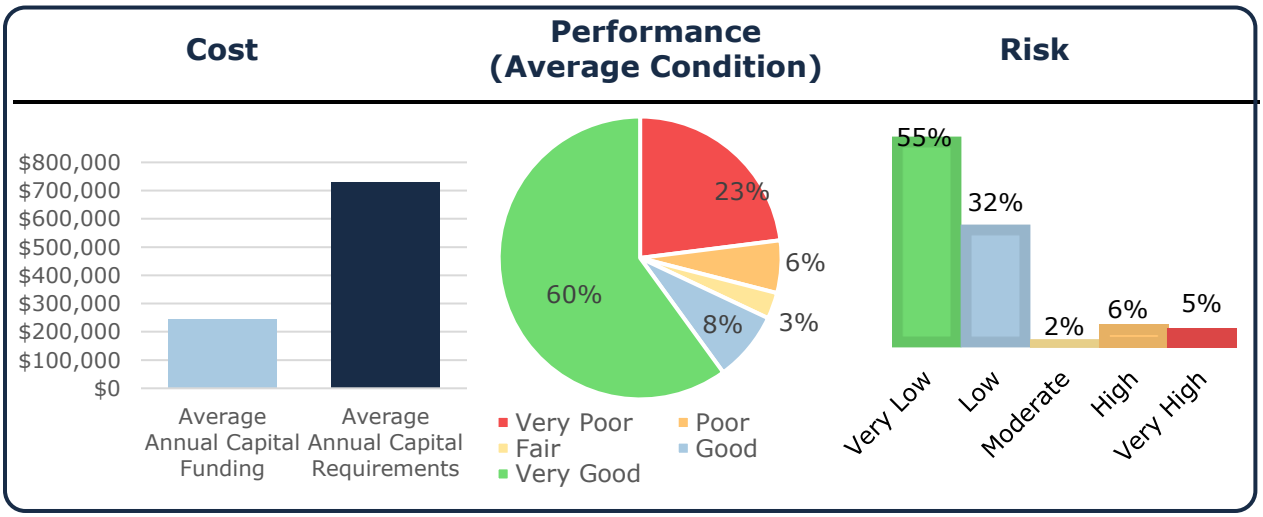
The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following table outlines the high-level service indicators for vehicles and equipment assets: cost, performance (condition), and risk.



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

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by vehicles and equipment.

Service Attribute	Qualitative Description	Current LOS
Scope	Description of the municipal services supported by vehicles and equipment	The Town has licenced and unlicenced vehicles as well as equipment that supports health services, administration, fire/police services, recreation and culture, childcare and water and wastewater services

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by vehicles and equipment.

Service Attribute	Technical Metric	Current LOS
Quality	Average condition of vehicles	Good

It is important to note that all light duty vehicles are now in a lease program.

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.

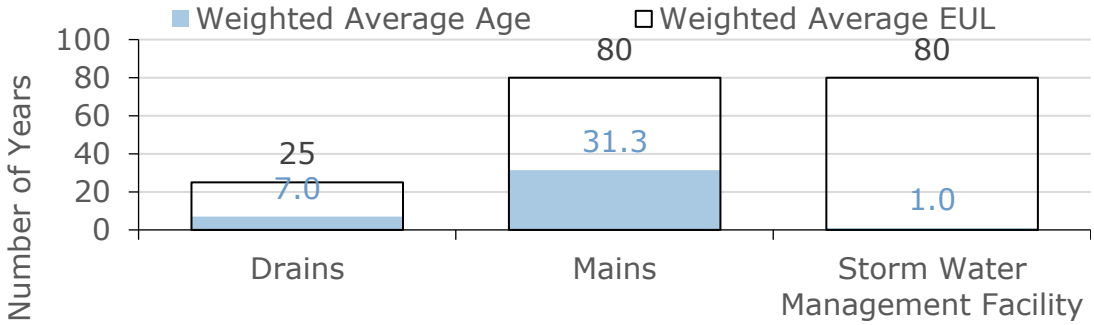
Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Storm Water Network inventory.

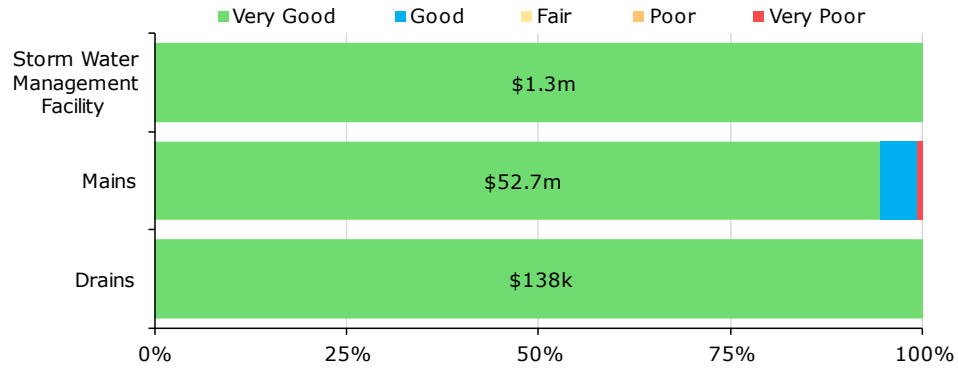
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Drains	1	CPI	$138,222
Mains	53,156 m	Cost/Unit	$55,813,310
Storm Water Management Facility	10	CPI	$1,344,641
			$57,296,173

Asset Condition & Age

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



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



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

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.

Estimated Useful Life & Service Life

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Drains	25	7	18
Mains	80	31.3	48.7
Storm Water Management Facility	80	1	79
		13.1	**48.6**

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

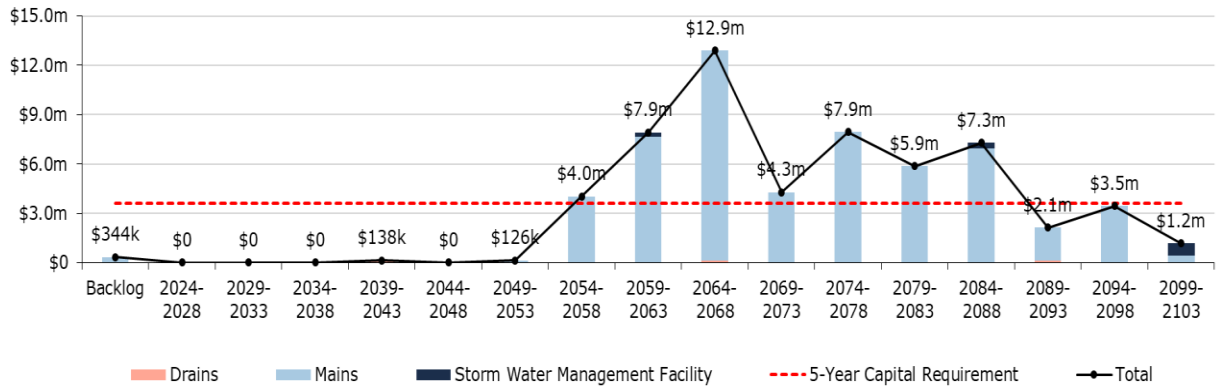
Lifecycle Management Strategy

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

Activity Type	Description of Current 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	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.
Replacement	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.

Forecasted Capital Requirements

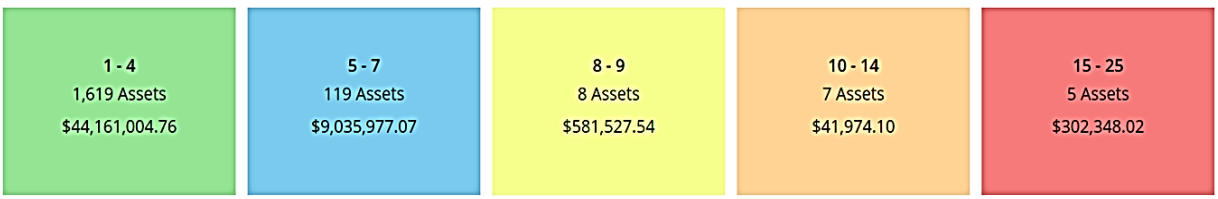
The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



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

Risk & Criticality

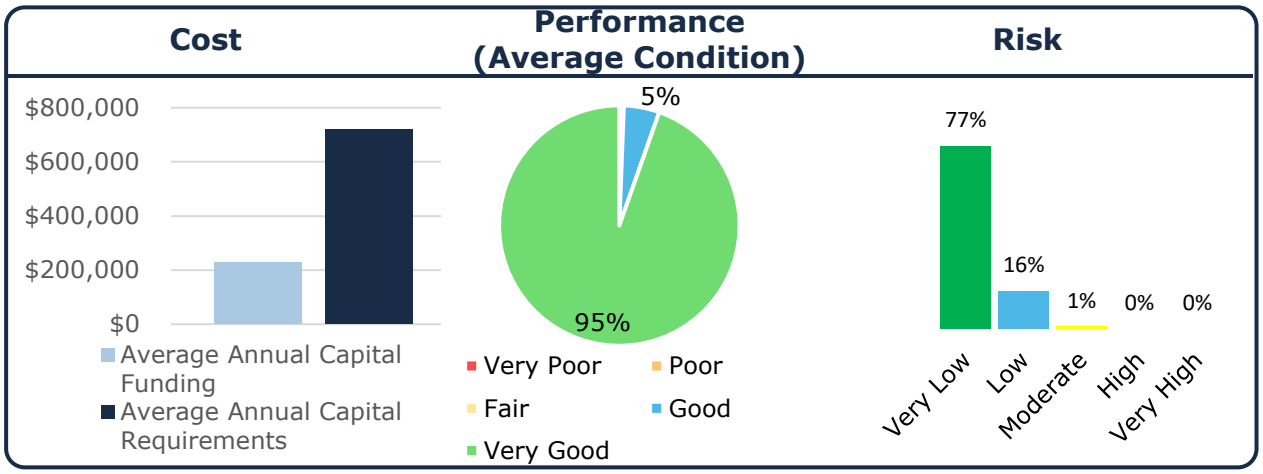
The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following table outlines the high-level service indicators for Storm Water assets: cost, performance (condition), and risk.



The following tables identify the Town's current level of service for 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 for this AMP.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	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 stormwater system	The Town's storm system is designed to withstand a 5-year event. Almost all areas of the Town are resilient to a 5-year storm 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.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	% of properties in Town resilient to a 100-year storm	99.2%
	% of the municipal stormwater management system resilient to a 5-year storm	100%
Performance	Capital reinvestment rate	0.0%

Analysis of Rate-funded Assets

Rate-funded assets are valued at $207.5 million with 72% of assets that are in fair or better condition. The average annual capital requirement to sustain the current level of service for rate-funded assets is approximately $3.4 million.

Water Network

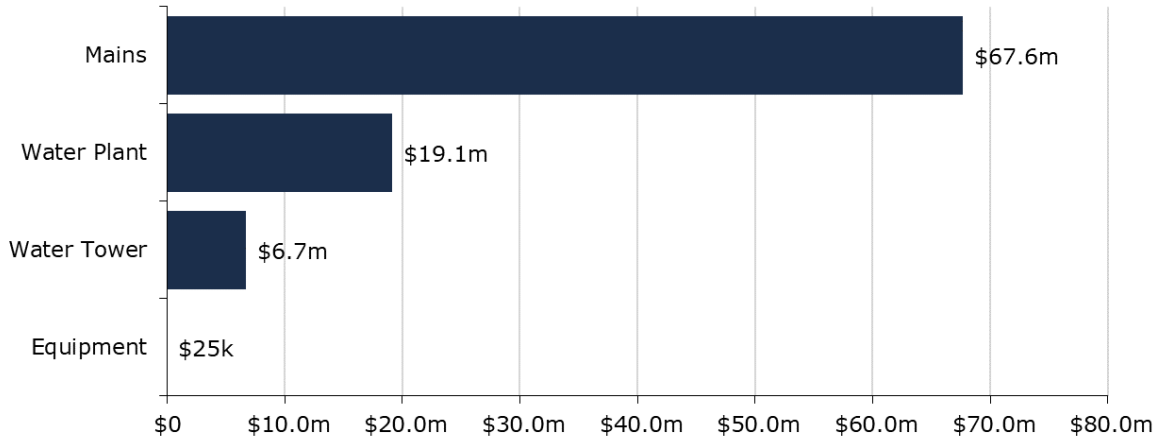
The water services provided by the Town are overseen by the Public Works Department and the Ontario Clean Water Association (OCWA). They are responsible for the following:

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

Asset Inventory & Replacement Cost

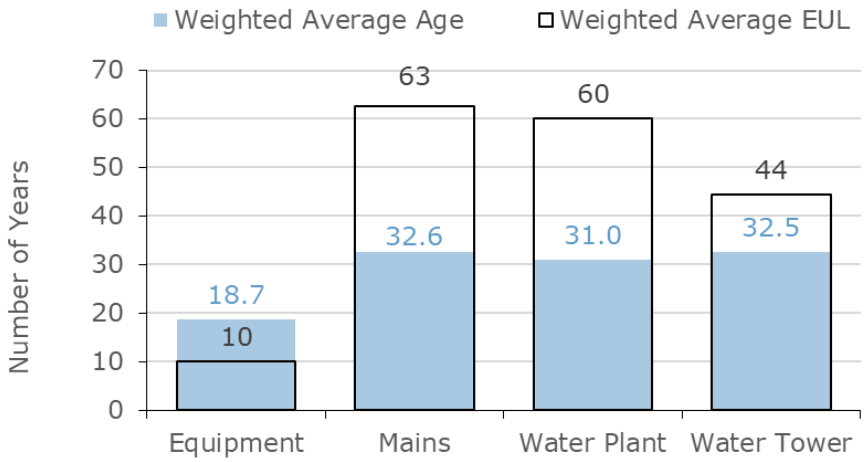
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Water Network inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Mains	64,529 m	Cost/Unit	$67,629,167
Water Plant	1	User-Defined	$19,105,350
Water Tower	1	User-Defined	$6,691,020
Equipment	2	User-Defined	$25,294
			$93,450,831

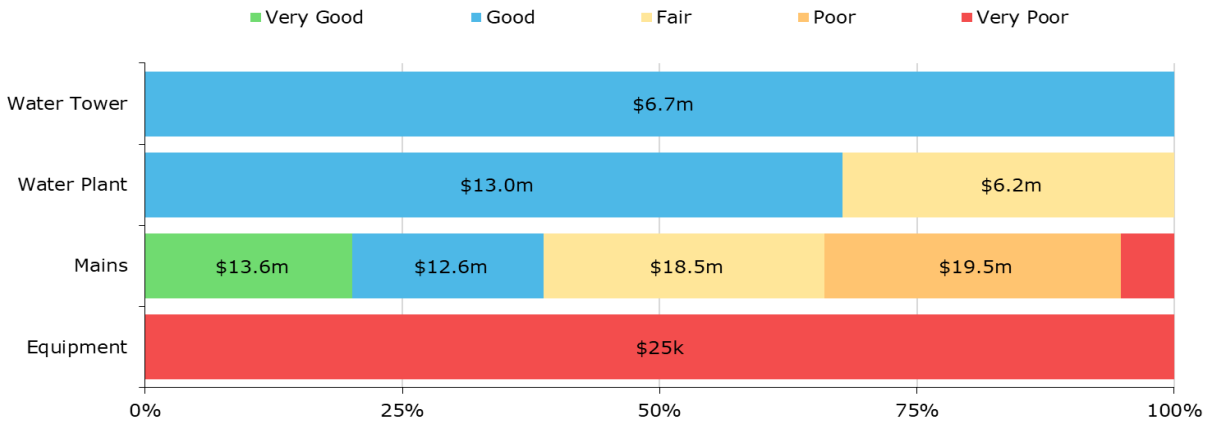


Asset Condition & Age

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



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



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 their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Water Network.

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.

Estimated Useful Life & Service Life

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Mains	80 Years	32.6	47
Water Plant	60 Years	31	29
Water Tower	40 - 60 Years	32.5	0.2
Equipment	10 years	18.7	-8.7

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

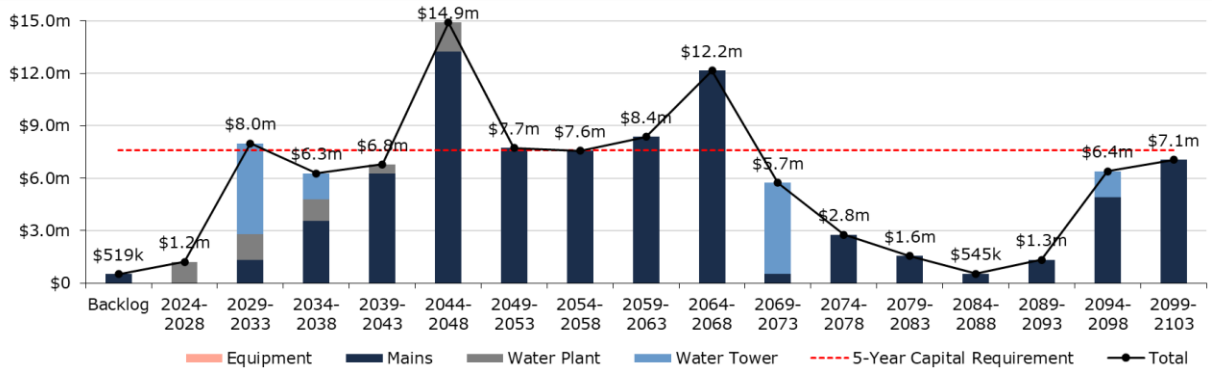
Lifecycle Management Strategy

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

Activity Type	Description of Current 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	Trenchless re-lining of water mains presents significant challenges and is not always a viable option.
Replacement	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.

Forecasted Capital Requirements

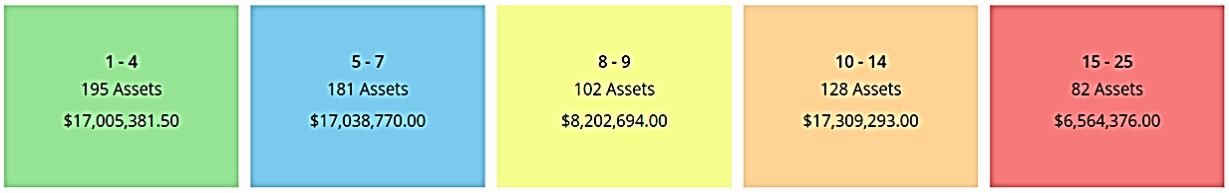
The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



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

Risk & Criticality

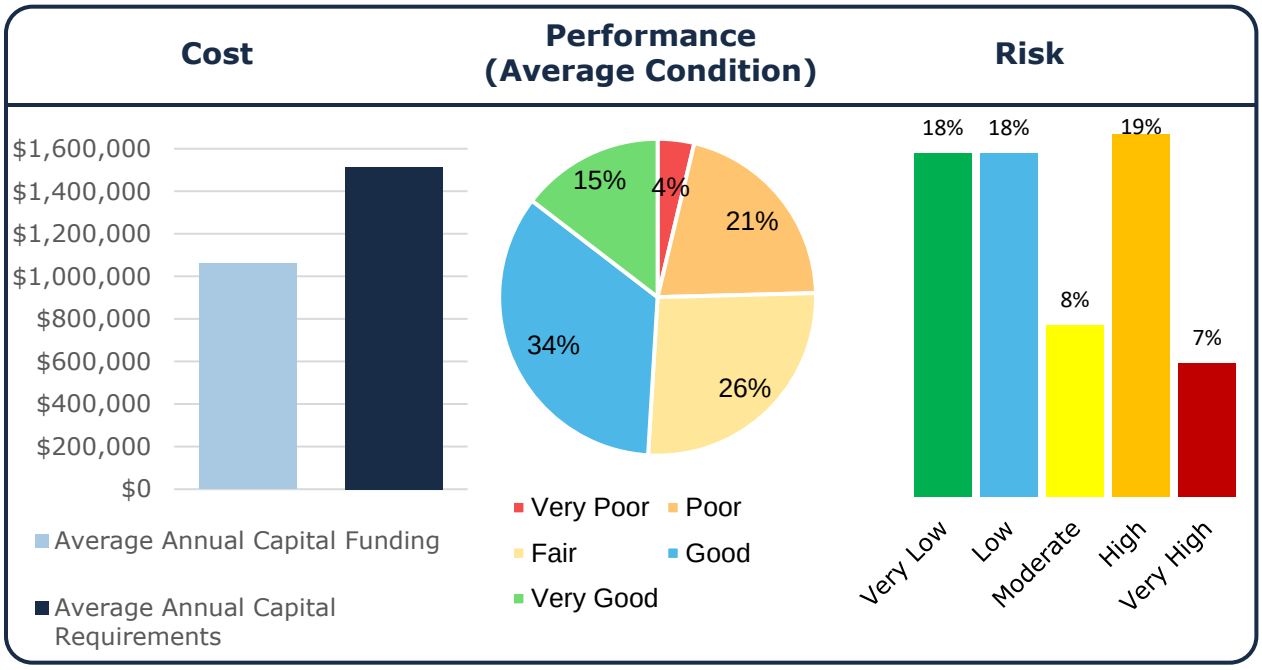
The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following table outlines the high-level service indicators for Water assets: cost, performance (condition), and risk.



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 for this AMP.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	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.
	Description, which may include maps, of the user groups or areas of the Town that have fire flow	See Appendix B
Reliability	Description of boil water advisories and service interruptions	Experience an average of 1 break per year, with small impacts.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2018)
Scope	% of properties connected to the municipal water system	97%
	% of properties where fire flow is available	97%
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
Performance	Capital re-investment rate	1.1%

Sanitary Sewer Network

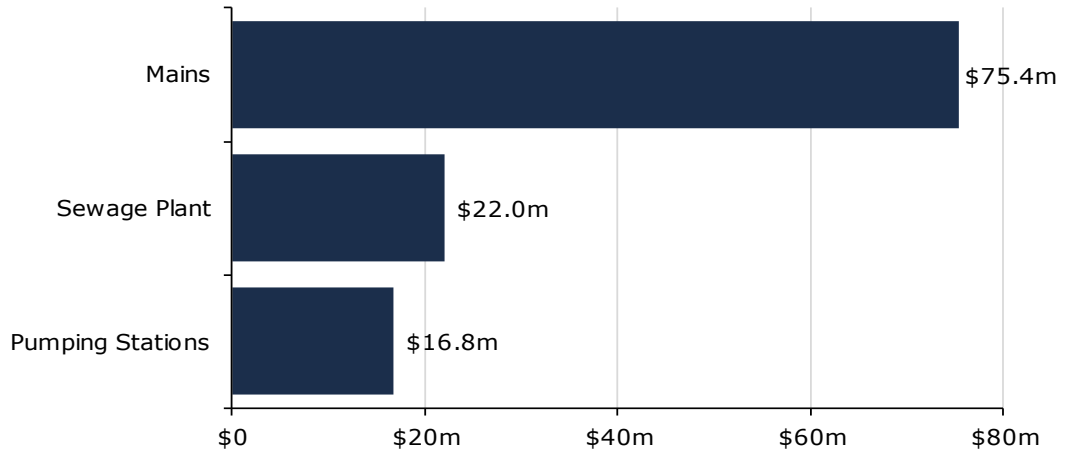
The Sanitary Sewer services provided by the Town are overseen by the Public Works Department and Ontario Clean Water Association (OCWA). They are responsible for the following:

- Pumping Stations
- Sewage Plant
- Mains

Asset Inventory & Replacement Cost

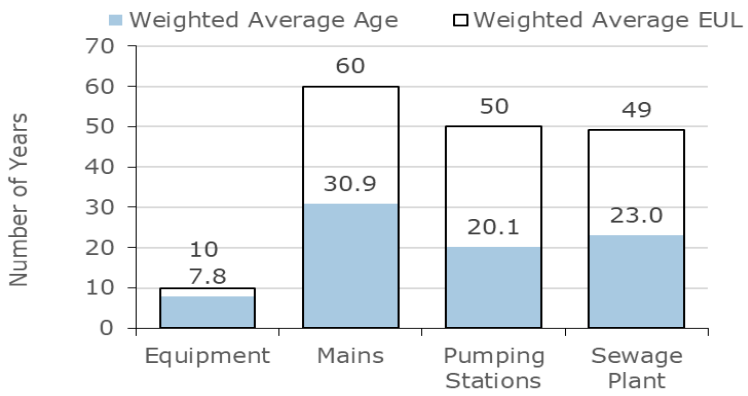
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Town's Sanitary Sewer Network inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Mains	62,798 m	Cost/Unit	$75,374,409
Pumping Stations	11	CPI	$16,777,022
Sewage Plant	1	User-Defined	$22,009,628
			$114,185,419

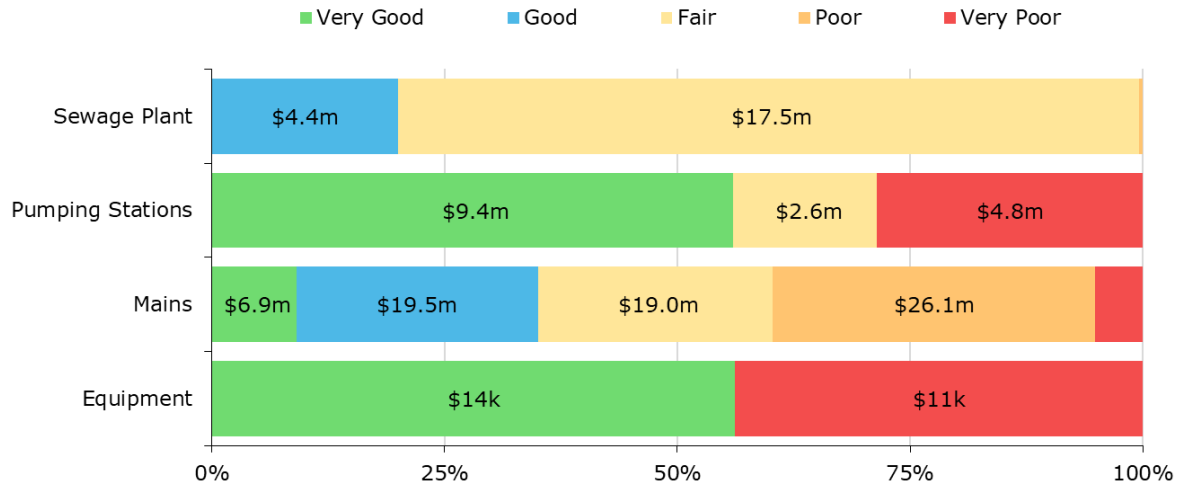


Asset Condition & Age

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



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



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 of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the Sanitary Sewer Network.

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.

Estimated Useful Life & Average Age

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Mains	80 Years	30.9	49.1
Pumping Stations	50 Years	20.1	29.9
Sewage Plant	60 Years	23	27

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

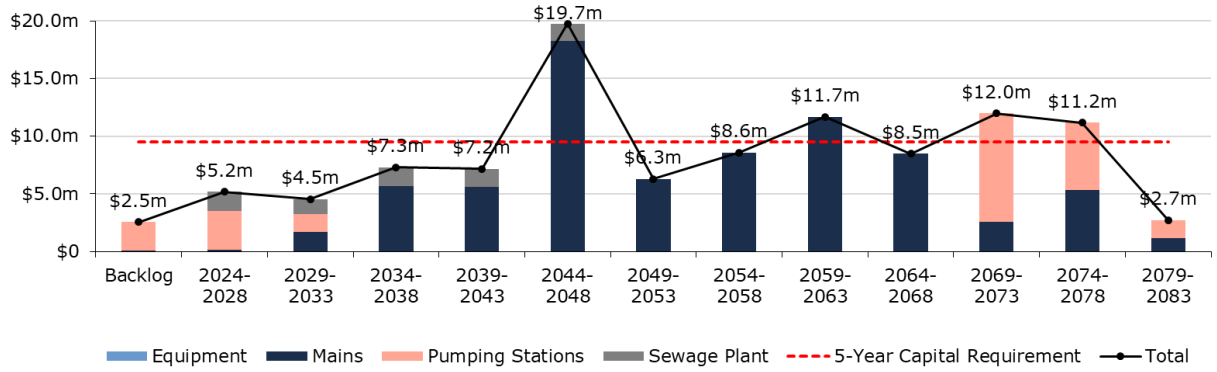
Lifecycle Management Strategy

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. 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.

Activity Type	Description of Current 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.

Forecasted Capital Requirements

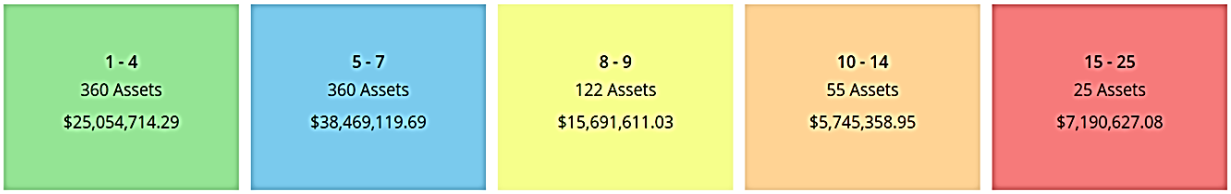
The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Town should allocate towards funding rehabilitation and replacement needs.



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

Risk & Criticality

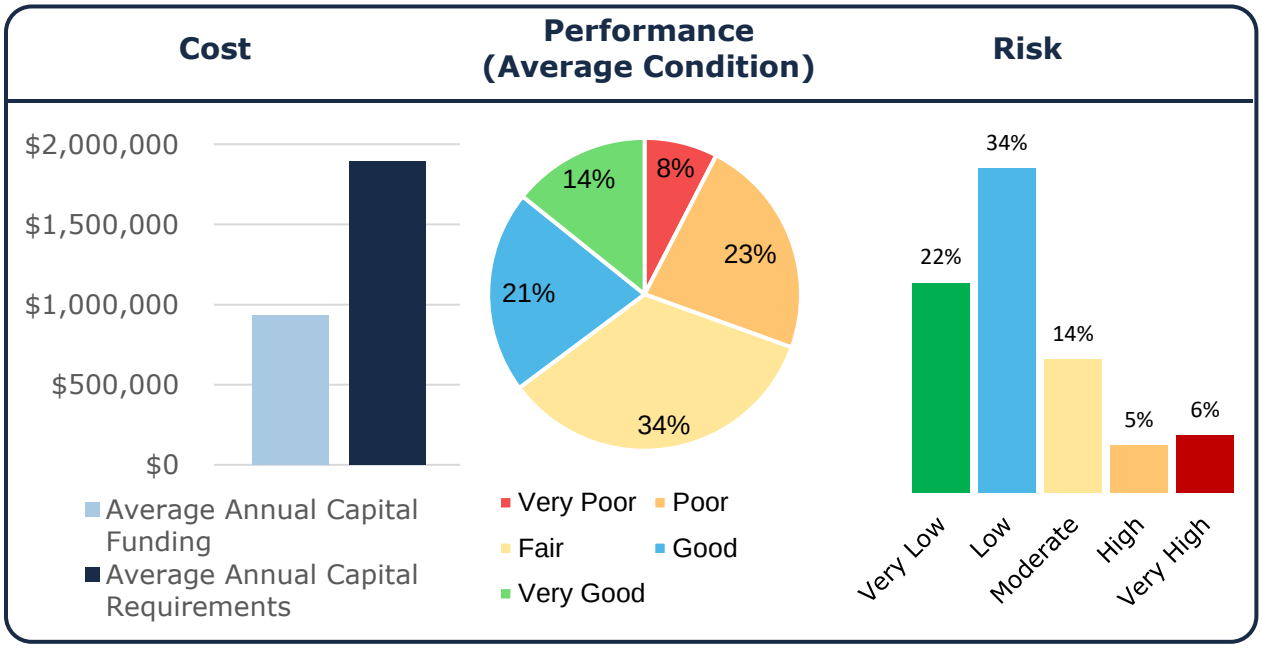
The following figure provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2024 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.



This is a high-level model developed for the purposes of this AMP and Town staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure.

Levels of Service

The following table outlines the high-level service indicators for Sanitary Sewer assets: cost, performance (condition), and risk.



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 for this AMP.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS
Scope	Description, which may include maps, of the user groups or areas of the Town that are connected to the municipal sanitary sewer system	See Appendix B
Reliability	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
	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
	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes	The Town's sanitary sewer system is susceptible to extreme rain events. The system experiences a significant amount of inflow 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.
	Description of how sanitary sewers in the municipal sanitary sewer system are designed to be resilient to stormwater infiltration	The Town tracks custumer 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 not experienced any effluent violations.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS
Scope	% of properties connected to the municipal wastewater system	97%
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
	# of connection-days per year having sanitary sewer backups compared to the total number of properties connected to the municipal sanitary sewer system	0
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal sanitary sewer system	0
Performance	Capital re-investment rate	0.8%

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. 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 2024The 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 their 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 their unique character for future generations.

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

Development Charges Background Study (2020)

The Town of Carleton Place recently completed a Development Charges Background Study in 2020. The following table provides the most up to date population projections determined by the Town based on data collection between November 2019 and March 2020.

Period	Population	Housing Units	Employment
Early 2020	12,088	5,274	4,122
Early 2030	17,625	8,110	5,627
Early 2038	20,964	9,849	6,411
Urban Buildout	23,641	1,340	6,961

Impact of Growth on Lifecycle Activities

By July 1, 2025, the Town's asset management plan must include a discussion of how the assumptions regarding future changes in population and economic activity informed the preparation of the lifecycle management and financial strategy.

Planning for forecasted population growth may require the expansion of existing infrastructure and services. As growth-related assets are constructed or acquired, they should be integrated into the Town's AMP. While the addition of residential units will add to the existing assessment base and offset some of the costs associated with growth, the Town will need to review the lifecycle costs of growth-related infrastructure. These costs should be considered in long-term funding strategies that are designed to, at a minimum, maintain the current levels of service.

Financial Strategy

The Town is committing approximately $6.75 million towards capital projects per year from sustainable revenue sources. Given the annual capital requirement of $11.9 million, there is currently a funding gap of $5.16 million annually.

For tax-funded assets, the Town has a 3% increase to capital funding for 10 years, to achieve a sustainable level of funding in that time frame.

For the Sanitary Sewer Network, we recommend increasing rate revenues by 1.8% annually for the next 10 years to achieve a sustainable level of funding. For the Water Network, we recommend increasing rate revenues by 1.5% annually for the next 10 years to achieve a sustainable level of funding.

Financial Strategy Overview

For an asset management plan (AMP) to be effective and meaningful, it must be integrated with a long-term financial plan (LTFP). The development of a comprehensive LTFP will allow the Town of Carleton Place to identify the financial resources required for sustainable asset management based on existing asset inventories, desired levels of service, and projected growth requirements.

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

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

Note: Periodic grants are normally not included due to Provincial requirements for firm commitments. However, if moving a specific project forward is wholly

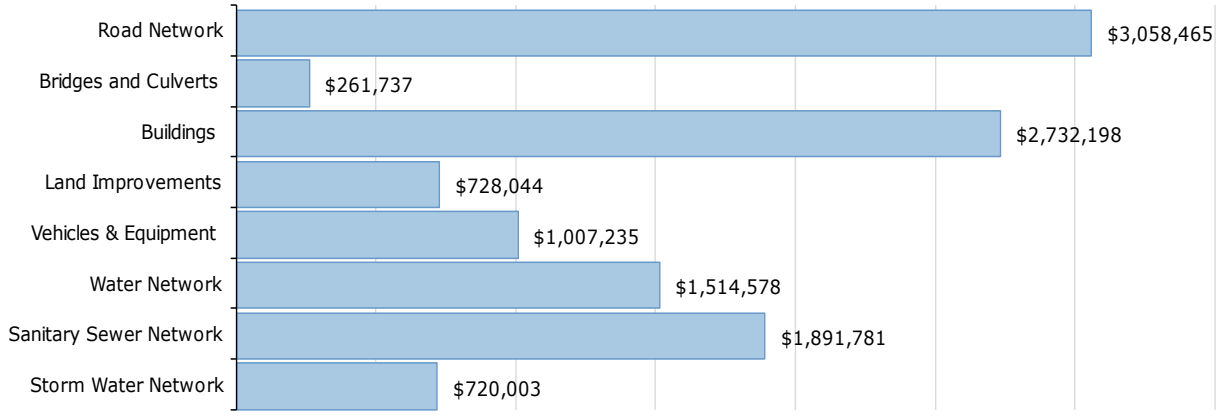
dependent on receiving a one-time grant, the replacement cost included in the financial strategy is the net of such grant being received.

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

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

Annual Requirements & Capital Funding

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. In total, the Town must allocate approximately $11.9 million annually to address capital expenditures (Capital expenditure) for the assets included in this AMP.



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

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

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

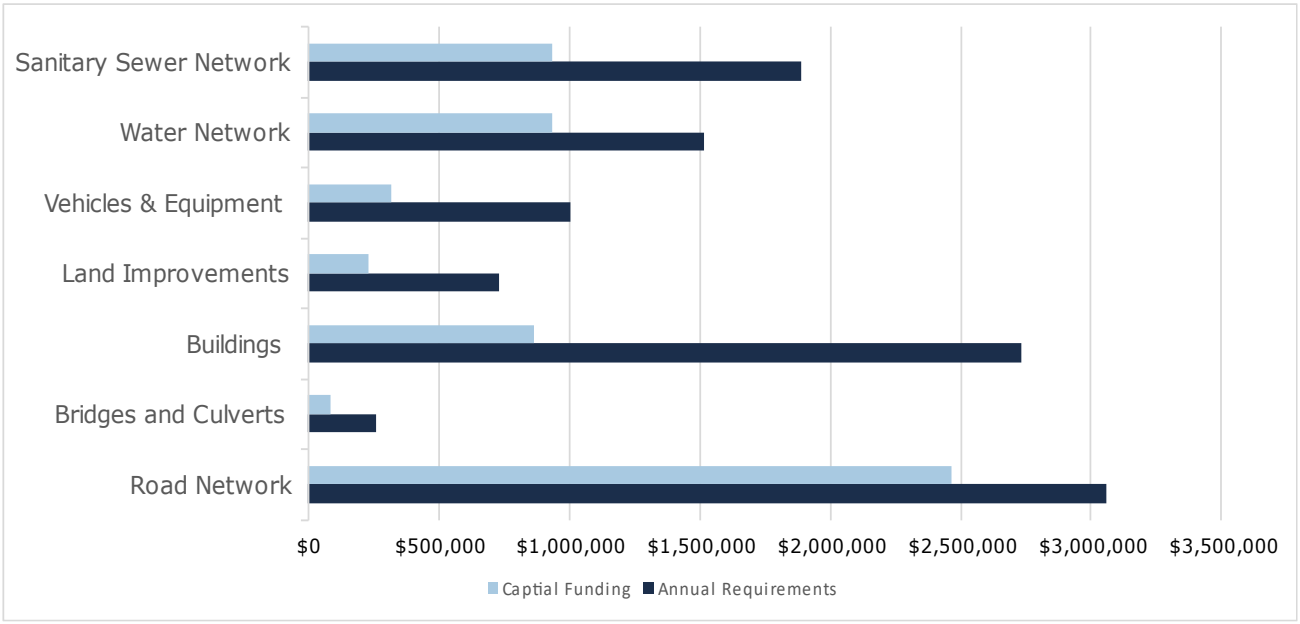
Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Road Network	$3,480,084	$3,058,465	$421,619

The implementation of a proactive lifecycle strategy for roads leads to a potential annual cost avoidance of $421,619 for the Road Network. This represents an overall reduction of the annual requirements for roads by 12.0%. As the lifecycle strategy scenario represents the lowest cost option available to the Town, we have used these annual requirements in the development of the financial strategy.

Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Town is committing approximately $6,749,971 towards capital projects per year. Given the annual capital requirement of $11,914,042, there is currently a funding gap of $5,164,071 annually.

Annual Reqs vs Capital Funding Graph



Funding Objective

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

a) **Tax Funded Assets:** Road Network, Bridges & Culverts, Buildings, Land Improvements, Vehicles & Equipment, Storm Water Network
b) Rate-Funded Assets: Water Network, Sanitary Sewer Network

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

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

Financial Profile: Tax Funded Assets

Current Funding Position

The following tables show, by asset category, Carleton Place's average Capital expenditure requirements, current funding positions, and funding increases required to achieve full funding on assets funded by taxes.

Asset Category	Avg. Annual Requirement	Annual Funding Available				
		Taxes	Gas Tax	OCIF	Total Available	Annual Deficit
Road Network	$3,058,465	$1,031,544	$352,253	$1,140,000	$2,523,797	$534,668
Bridges and Culverts	$261,737	$88,278			$88,278	$173,460
Buildings	$2,732,198	$921,503			$921,503	$1,810,696
Land Improvements	$728,044	$245,551			$245,551	$482,493
Vehicles & Equipment	$981,192	$339,715			$339,715	$641,477
Storm Water Network	$720,003	$242,839			$242,839	$477,164
	$8,481,640	**$2,869,430**	**$352,253**	**$1,140,000**	**$4,361,683**	**$4,119,948**

The average annual Capital expenditure requirement for the above categories is $8.5 million. Annual revenue currently allocated to these assets for capital purposes is $4.36 million leaving an annual deficit of $4.12 million. Put differently, these infrastructure categories are currently funded at 51.4% of their long-term requirements.

Financial Profile: Rate Funded Assets

Current Funding Position

The following tables show, by asset category, Carleton Place's average annual Capital expenditure requirements, current funding positions, and funding increases required to achieve full funding on assets funded by rates.

Asset Category	Avg. Annual Requirement	Annual Funding Available			
		Rates	OCIF	Total Available	Annual Deficit
Water Network	1,517,107	$1,061,911	0	$1,061,911	$452,667
Sanitary Sewer Network	1,894,217	$1,326,377	0	$1,326,377	$565,403
	3,411,342	**$2,388,288**	**0**	**$2,388,288**	**1,023,036**

The average annual Capital expenditure requirement for the above categories is $3.4 million. Annual revenue currently allocated to these assets for capital purposes is $2.39 million leaving an annual deficit of $1 million. Put differently, these infrastructure categories are currently funded at 70% of their long-term requirements.

Use of Debt

For reference purposes, the following table outlines the premium paid on a project if financed by debt. For example, a $1M project financed at 3.0% over 15 years would result in a 26% premium or $260,000 of increased costs due to interest payments. For simplicity, the table does not consider the time value of money or the effect of inflation on delayed projects.

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

There is currently debt outstanding for sanitary assets covered by this AMP with annual principal and interest payments of $330,000 until 2025. The revenue options outlined in this plan allow the Town to fully fund its long-term infrastructure requirements without further use of debt.

Recommendations

Financial Strategies

1. Review feasibility of adopting a full-funding scenario that achieve 100% of average annual requirements for the asset categories analyzed. This involves:
   - For tax-funded assets, the Town has a 3% increase to capital funding for 10 years.
   - For the Sanitary Sewer Network, we recommend increasing rate revenues by 1.8% annually for the next 10 years to achieve a sustainable level of funding.
   - For the Water Network, we recommend increasing rate revenues by 1.5% annually for the next 10 years to achieve a sustainable level of funding.
2. Continued allocation of OCIF and CCBF funding as previously outlined
3. Using risk frameworks and staff judgement to prioritize projects, particularly to aid in elimination of existing infrastructure backlogs

Although difficult to capture, inflation costs, supply chain issues, and fluctuations in commodity prices will also influence capital expenditures.

Asset Data

1. Continuously review, refine, and calibrate lifecycle and risk profiles to better reflect actual practices and improve capital projections. In particular:
   - the timing of various lifecycle events, the triggers for treatment, anticipated impacts of each treatment, and costs
   - the various attributes used to estimate the likelihood and consequence of asset failures, and their respective weightings
2. Asset management planning is highly sensitive to replacement costs. Periodically update replacement costs based on recent projects, invoices, or estimates, as well as condition assessments, or any other technical reports and studies. Material and labour costs can fluctuate due to local, regional, and broader market trends, and substantially so during major world events. Accurately estimating the replacement cost of like-for-like assets can be challenging. Ideally, several recent projects over multiple years should be used. Staff judgement and historical data can help attenuate extreme and temporary fluctuations in cost estimates and keep them realistic.
3. Like replacement costs, an asset's established serviceable life can have dramatic impacts on all projections and analyses, including condition, long-range forecasting, and financial recommendations. Periodically reviewing and updating these values to better reflect in-field performance and staff judgement is recommended.

Risk and Levels of Service

1. Risk models and matrices can play an important role in identifying high-value assets, and developing an action plan which may include repair, rehabilitation, replacement, or further evaluation through condition assessments. As a result, project selection and the development of multi-year capital plans can become more strategic and objective. Initial models have been built into Citywide for all asset groups. These models reflect current data, which was limited. As the data evolves and new attribute information is obtained, these models should also be refined and updated.
2. Available, data on current performance should be centralized and tracked to support any calibration of service levels ahead of O. Reg. 588's 2025 requirements on proposed levels of service.
3. Staff should monitor evolving local, regional, and environmental trends to identify factors that may shape the demand and delivery of infrastructure programs. These can include population growth, and the nature of population growth; climate change and extreme weather events; and economic conditions and the local tax base. This data can also be used to revise service level targets.

Appendix A – 10-year Capital Requirements

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

Road Network											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Curbs	$2.4m	$0	$0	$14k	$0	$0	$0	$1.8m	$0	$0	$0
Paved Roads	$6.7m	$62k	$322k	$4.6m	$973k	$428k	$521k	$18.4m	$413k	$578k	$697k
Sidewalks	$6.7m	$0	$0	$135k	$0	$0	$0	$7.4m	$0	$0	$0
Street Lights	$1.1m	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Traffic Lights	$0	$0	$683k	$0	$0	$0	$0	$0	$0	$0	$0
	$16.9m	$62k	$1.0m	$4.7m	$973k	$428k	$521k	$27.6m	$413k	$578k	$697k

Bridges & Culverts											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Central Bridge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Gillies Bridge	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Rosamond Bridge	$0	$1.9m	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$0	$1.9m	$0	$0	$0	$0	$0	$0	$0	$0	$0

Storm Water Network											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Drain	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Mains	$344k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Storm Water Management Facility	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$344k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

Buildings											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Childcare	$114k	$0	$50k	$50k	$122k	$0	$114k	$102k	$50k	$50k	$41k
Fire/Police Services	$0	$0	$0	$0	$7k	$0	$0	$28k	$0	$0	$29k
Library	$0	$0	$0	$26k	$3k	$0	$0	$0	$489k	$0	$2k
Public Works	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1.2m
Recreation	$458k	$2.8m	$1.8m	$20k	$615k	$0	$1.4m	$392k	$529k	$512k	$2.1m
Town Hall	$0	$40k	$0	$0	$113k	$0	$117k	$271k	$187k	$800	$93k
Train Station	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$572k	$2.8m	$1.8m	$96k	$860k	$0	$1.7m	$793k	$1.3m	$563k	$3.4m

Vehicles & Equipment											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Childcare Equipment	$15k	$0	$15k	$0	$15k	$0	$15k	$15k	$0	$15k	$2k
Fire Equipment	$267k	$0	$51k	$0	$0	$40k	$20k	$0	$0	$85k	$419k
Library Equipment	$314k	$69k	$55k	$60k	$137k	$59k	$62k	$156k	$281k	$55k	$162k
Licensed Vehicles	$1.3m	$502k	$141k	$37k	$416k	$382k	$255k	$94k	$70k	$923k	$659k
Police Equipment	$11k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Public Works Equipment	$10k	$256k	$0	$529k	$0	$0	$25k	$0	$12k	$45k	$48k
Recreation Equipment	$252k	$0	$0	$0	$0	$0	$132k	$0	$0	$0	$0
Town Hall Equipment	$143k	$0	$0	$0	$84k	$47k	$123k	$192k	$0	$28k	$131k
Unlicensed Vehicles	$301k	$534k	$534k	$0	$0	$14k	$16k	$151k	$0	$20k	$15k
Water/Wastewater Equipment	$0	$50k	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$2.6m	$1.4m	$796k	$626k	$652k	$541k	$648k	$608k	$364k	$1.2m	$1.4m

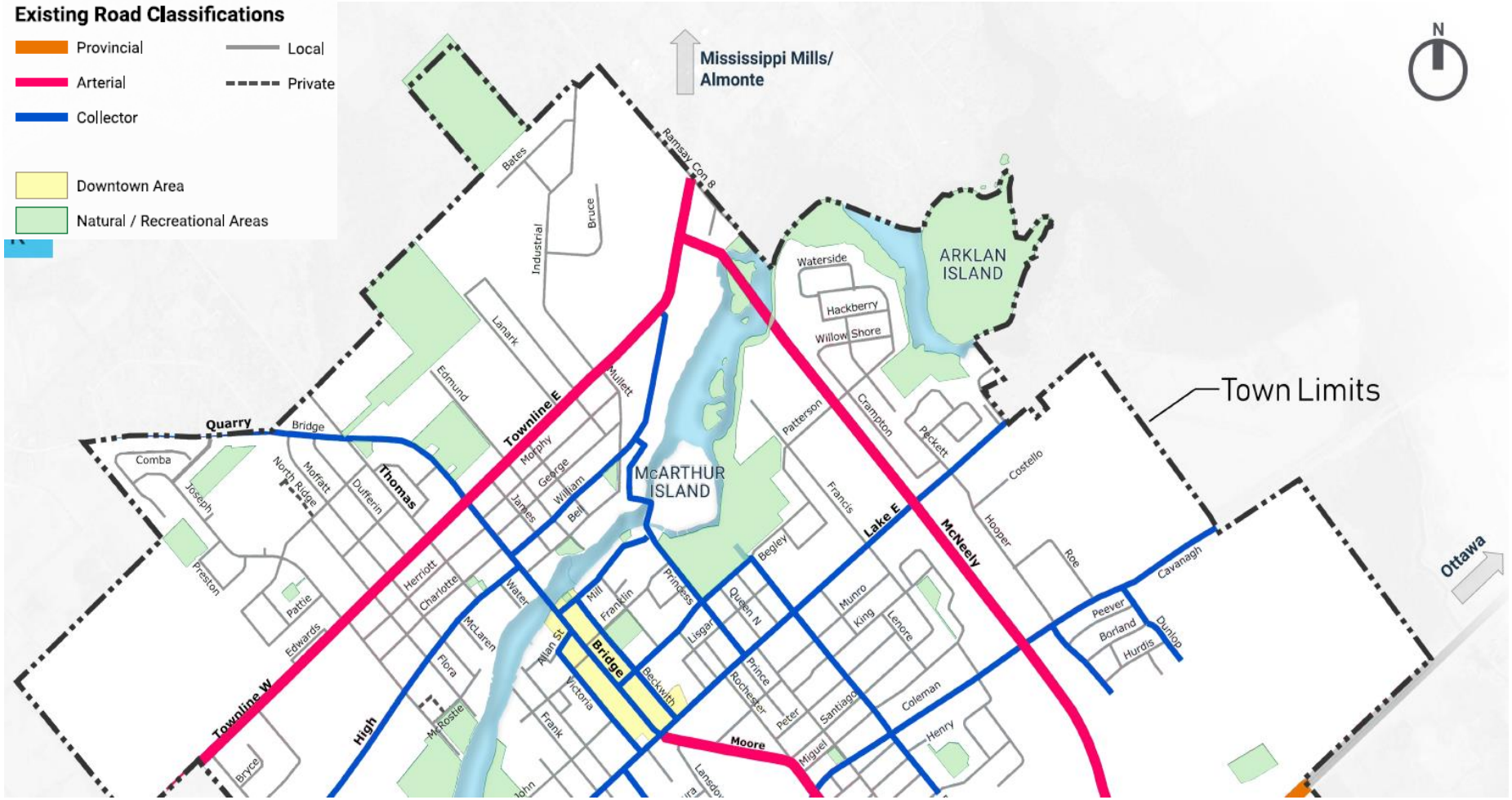
Land Improvements											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Boat Launch	$64k	$0	$0	$0	$0	$13k	$43k	$0	$0	$0	$0
Fencing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Parking Lots	$857k	$0	$167k	$8k	$90k	$0	$0	$0	$0	$0	$0
Parks & Playing Fields	$772k	$0	$66k	$1.1m	$48k	$0	$526k	$0	$0	$0	$0
Playground Structures	$155k	$127k	$683k	$188k	$140k	$0	$283k	$127k	$0	$127k	$0
Shoreline	$0	$0	$0	$45k	$0	$0	$0	$0	$0	$0	$0
Splash Pad	$213k	$0	$213k	$41k	$213k	$0	$213k	$213k	$0	$362k	$0
Trails	$113k	$0	$0	$87k	$0	$0	$84k	$55k	$14k	$0	$399k
Waste Site	$0	$0	$0	$86k	$0	$0	$0	$0	$0	$0	$0
	$2.2m	$127k	$1.1m	$1.5m	$492k	$13k	$1.1m	$395k	$14k	$488k	$399k

Water Network											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Mains	$519k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$1.3m
Water Plant	$0	$51k	$330k	$184k	$285k	$339k	$449k	$138k	$363k	$250k	$250k
Water Tower	$0	$0	$0	$0	$0	$0	$0	$0	$0	$5.2m	$0
	$519K	$51k	$330k	$184k	$285k	$339k	$449k	$138k	$363k	$5.45m	$1.55m

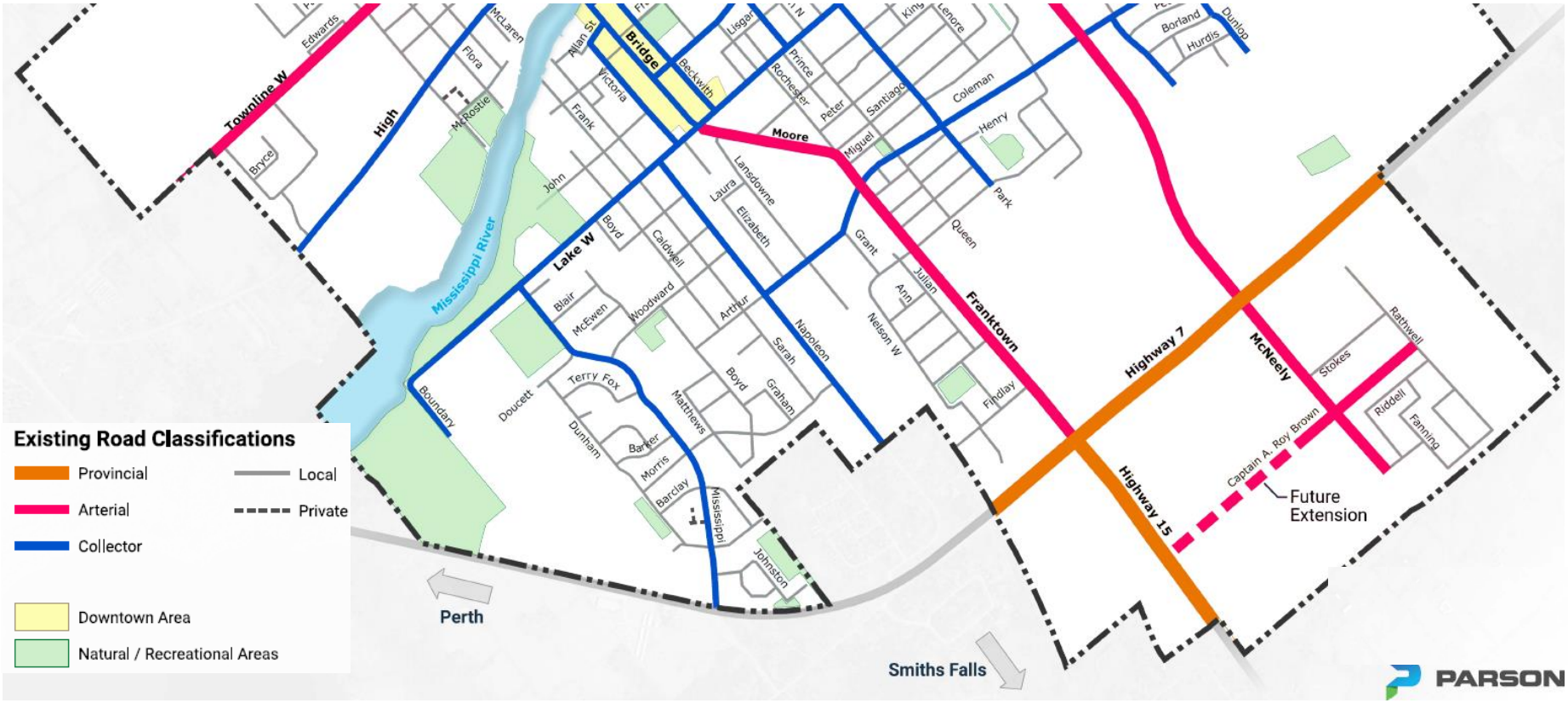
Sanitary Sewer Network											
Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Mains	$97k	$0	$0	$0	$0	$120k	$166k	$0	$0	$0	$1.5m
Pumping Stations	$2.4m	$0	$2.3m	$0	$0	$1.0m	$0	$780k	$0	$780k	$0
Sewage Plant	$0	$487k	$300k	$300k	$233k	$330k	$130k	$366k	$307k	$299k	$215k
	$2.5m	$487k	$2.6m	$300k	$233k	$1.45m	$196k	$1.15m	$307k0	$1.1m	$1.7m

Appendix B: Level of Service Maps

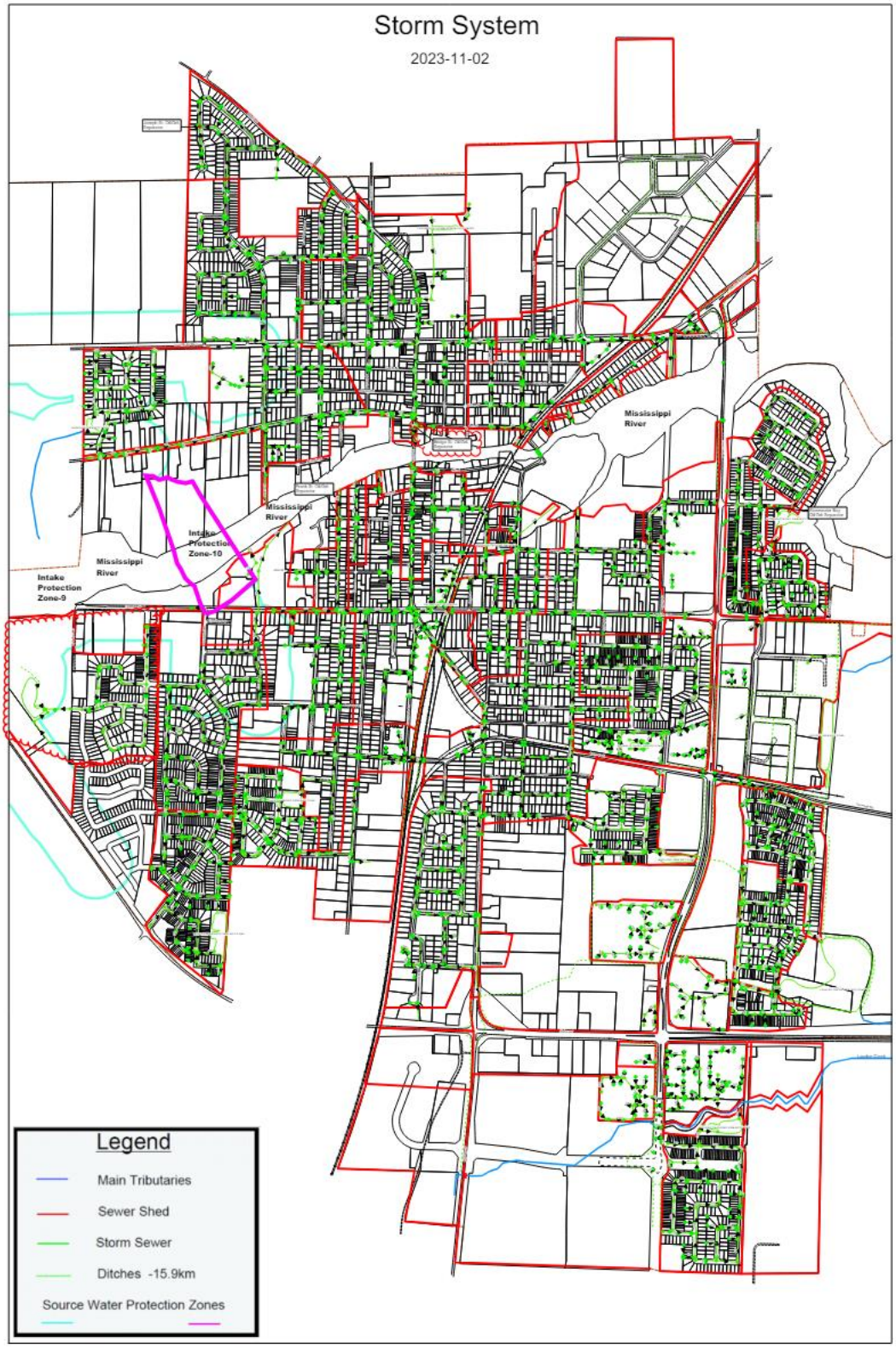
Road Network Map – Part 1



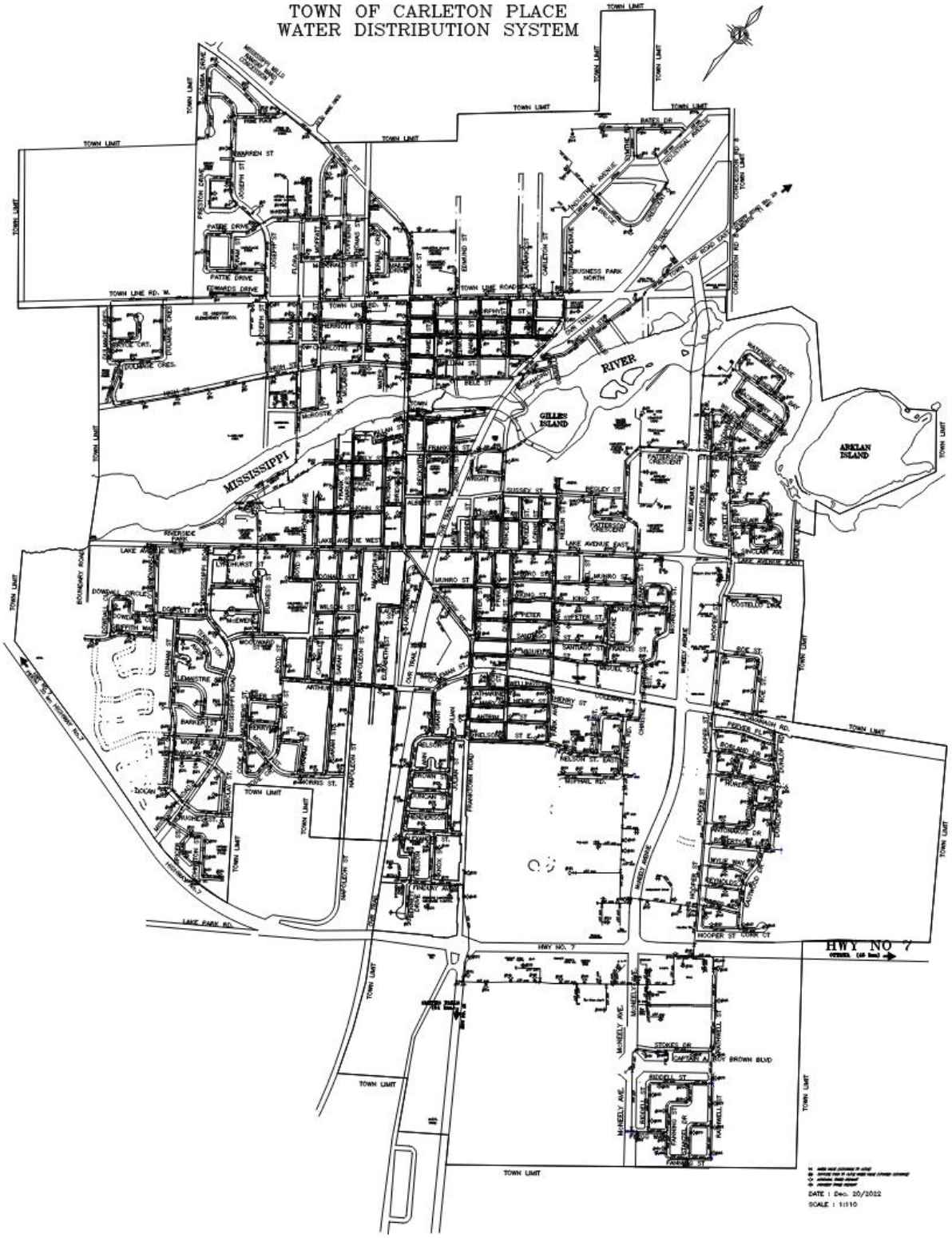
Road Network Map – Part 2



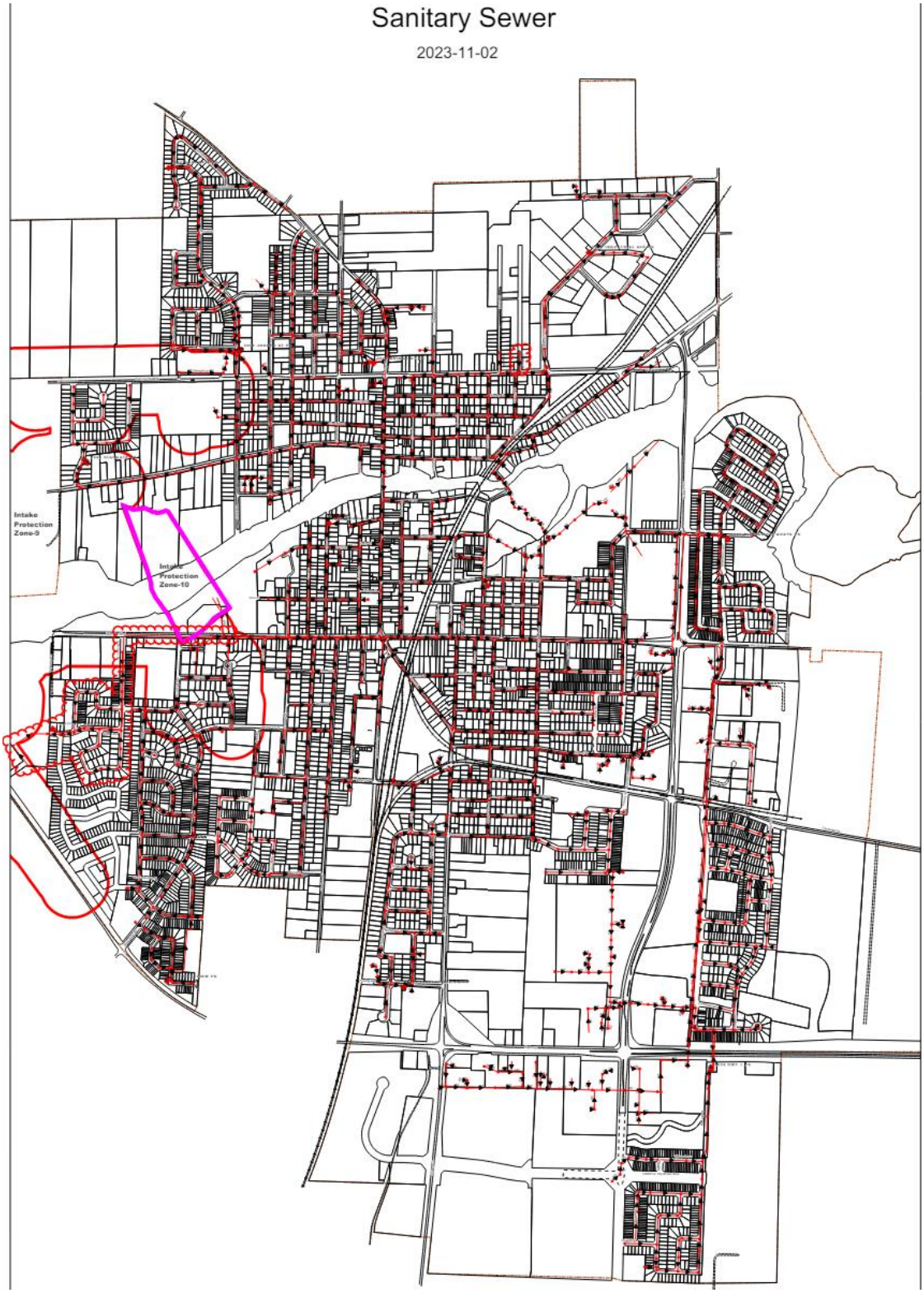
Storm Water Network Map



Water Network Map



Sanitary Sewer Network Map



Appendix C: Risk Rating Criteria

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 D: Condition Assessment Guidelines

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

Condition data is vital to the development of data-driven asset management strategies. Without accurate and reliable asset data, there may be little confidence in asset management decision-making which can lead to premature asset failure, service disruption and suboptimal investment strategies. To prevent these outcomes, the 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:

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