



The Asset Management Plan for the Municipality of Thames Centre



2024

Key Statistics

Replacement cost of
asset portfolio

\$426.9 million

Replacement cost of
infrastructure per capita

\$30,540

(2021 Census)

Target average annual
infrastructure reinvestment rate

2.1%

Actual average annual
infrastructure reinvestment rate

TBD

Percentage of assets in fair
or better condition

76%

Percentage of annual
infrastructure funding needs
currently being met

TBD

Portion of total infrastructure
funding that comes from the
Gas Tax

TBD

Annual cost savings for
roads through proactive
lifecycle management

\$352,297

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Executive Summary

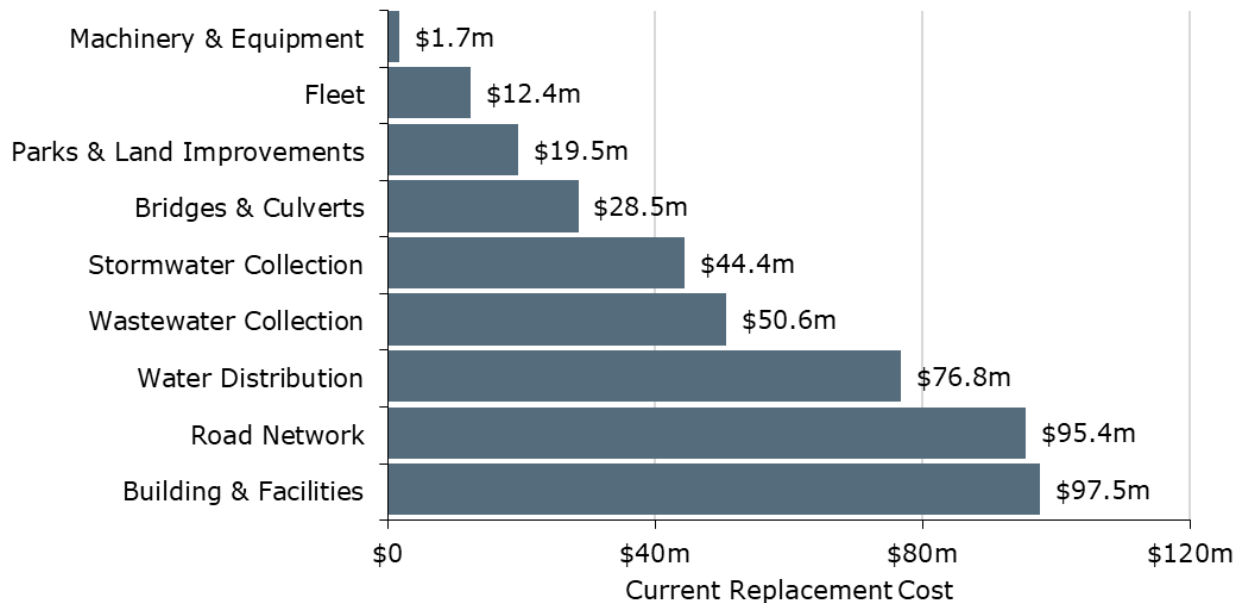
Municipal infrastructure provides the foundation for the economic, social and environmental health and growth of a community through the delivery of critical services. The goal of asset management is to deliver an adequate level of service in the most cost-effective manner. This involves the development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

All municipalities in Ontario are required to complete an asset management plan (AMP) in accordance with Ontario Regulation 588/17 (O. Reg. 588/17). This AMP outlines the current state of asset management planning in the Municipality of Thames Centre. It 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, Thames Centre can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP includes the following asset categories:

Asset Category	Source of Funding
Road Network	
Bridges & Culverts	
Buildings & Facilities	
Machinery & Equipment	Tax Levy
Fleet	
Parks & Land Improvements	
Water Distribution	
Wastewater Collection	User Rates
Stormwater Collection	

Total Current Replacement Cost: \$426,949,225



The overall replacement cost of the asset categories included in this AMP totals \$426.9 million. 76% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 16% of assets. For the remaining 84% 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 has used a combination of proactive lifecycle strategies (roads, water mains, wastewater mains and stormwater mains) 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 Municipality’s average annual capital requirement totals \$9.0 million.

With the development of this AMP, Thames Centre 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 concerning proposed levels of service and growth that must be met by July 1, 2025.

This AMP represents a snapshot in time and is based on the best available processes, data, and information at the Municipality. Strategic asset management planning is an ongoing and dynamic process that requires continuous improvement

and dedicated resources. In preparing for future iterations of the Asset Management Plan, Thames Centre aims to enhance data quality and reliability through strategic improvements. These include developing a Data Governance Policy and Data Management Procedures to standardize methodologies and ensure consistency across all asset types. Additionally, the municipality plans to integrate real-time condition assessments for water and wastewater mains, as well as conduct audits and consolidate road network data to maintain accurate asset records. These initiatives will ensure that the Municipality is providing optimal value through its management of infrastructure and delivery of services.

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Introduction and Context

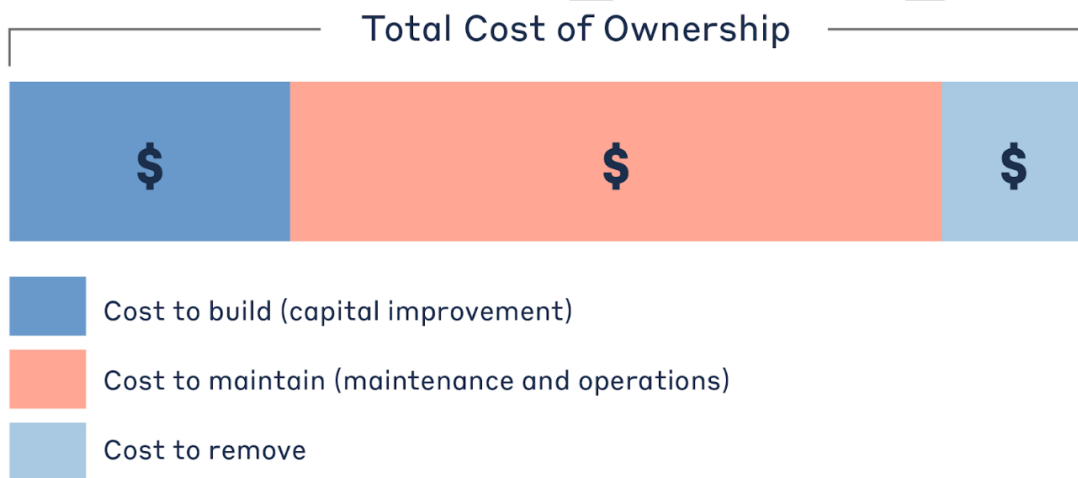
Key Insights

- The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value ratepayers receive from the asset portfolio.
- A municipal asset management program is a combination of several disciplines or business functions, including management, financial and economic analyses, engineering and operations and maintenance.
- The Municipality's strategic asset management policy provides clear direction to staff on their roles and responsibilities regarding asset management.
- An asset management plan is a living document that should be updated regularly to inform long-term planning.
- Ontario Regulation 588/17 outlines several key milestone and requirements for asset management plans in Ontario between July 1, 2022 and 2025.

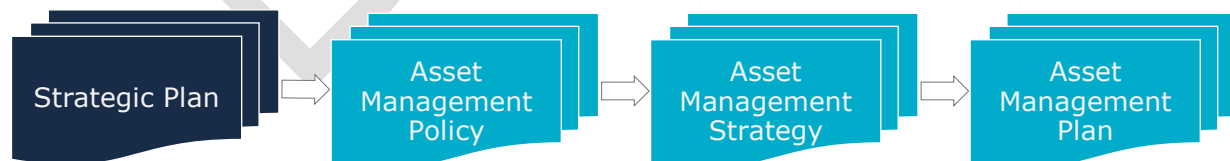
An Overview of Asset Management

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

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



These costs can span decades, requiring planning and foresight to ensure financial responsibility is spread equitably across generations. An asset management plan is critical to this planning, and an essential element of broader asset management program. The diagram below depicts an industry-standard approach and sequence to developing a practical asset management program.



The diagram, adopted from the Institute of Asset Management (IAM), illustrates the concept of 'line of sight', or 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.

Asset Management Policy

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

Thames Centre approved policy CP-1-1.3 "Strategic Asset Management Policy for Municipal Infrastructure" on June 24th, 2019, in accordance with Ontario Regulation 588/17. Municipal Council also opted to incorporate the policy into the Corporate Section of the Thames Centre Policy Manual.

The stated goals of the policy are:

- To provide a framework for implementing asset management to enable a consistent approach at all department levels with the Municipality.
- Provide guidance to staff responsible for asset management.
- Communicate asset management principles endorsed by the Municipality.
- Provide transparency, accountability and demonstrate the decision-making process which combines municipal plans and policies, budget, service levels and risk.

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

- The policy's objectives dictate the use of asset management and data management practices to ensure all assets meet the expected levels and provide the desired levels of service in the most efficient and effective manner;
- The policy commits to, where appropriate, incorporating asset management in the Municipality's other plans;
- There are formally defined roles and responsibilities of internal staff;
- The key principles include the use of a cost/benefit analysis in the management of risk; and
- The policy statements are well defined.

Asset Management Strategy

An asset management strategy outlines the business processes, organizational practices, and key initiatives with associated timelines and resources designed to create and sustain an asset management program. It is intended to convert the asset management policy from a set of formal, institutionalized, but philosophical commitments into specific actions.

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

The Municipality'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 Municipality'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 focus of the AMP is not simply about identifying the money or resources that are required to meet lifecycle needs of infrastructure and maintain an adequate level of service. It should also identify the processes and strategies that are and can be implemented to improve decision-making outcomes.

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

The Municipality's last iteration of the AMP was completed in 2021. Since then, the asset inventory has undergone revisions for the purposes of asset data consolidation. This document is an AMP that uses the recently consolidated asset inventory and has been prepared in accordance with O. Reg. 588/17.

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 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.

Maintenance

- General level of cost is \$
- All actions necessary for retaining an asset as near as practicable to its original condition, but excluding rehabilitation or renewal. Maintenance does not increase the service potential of the asset
- It slows down deterioration and delays when rehabilitation or replacement is necessary.

Rehabilitation / Renewal

- General level of cost is \$\$\$
- Works to rebuild or replace parts or components of an asset, to restore it to a required functional condition and extend its life, which may incorporate some modification.
- Generally involves repairing the asset to deliver its original level of service (i.e. milling and paving of roads) without resorting to significant upgrading or replacement, using available techniques and standards.

Replacement

- General level of cost is \$\$\$\$\$
- The complete replacement of an asset that has reached the end of its life, so as to provide a similar, or agreed alternative, level of service.
- Existing asset disposal is generally included.

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 Municipality'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 rural road. These high-value assets should receive funding before others.

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

This AMP includes a high-level evaluation of asset risk and criticality. Each asset has been assigned a probability of failure score and consequence of failure score based on available asset data. A risk matrix and a list of the five critical assets in each category are included in this AMP. 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 a municipality 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 Thames Centre as worth measuring and evaluating. The Municipality measures the level of service provided at two levels: Community Levels of Service, and Technical Levels of Service.

Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories (Roads, Bridges & Culverts, Water, 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 (Buildings & Facilities, Parks), Thames Centre 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 Municipality's asset management strategies on the physical condition of assets or the quality/capacity of the services they provide.

For core asset categories (Roads, Bridges & Culverts, Water, Wastewater, Stormwater) the Province, through O. Reg. 588/17, has provided technical metrics that are required to be included in this AMP. For non-core asset categories (Buildings & Facilities, Parks), Thames Centre has determined the technical metrics that will be used to determine the technical level of service provided. These metrics can be found in the Levels of Service subsection within each asset category.

Current and Proposed Levels of Service

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

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

Climate Change

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

The report revealed that between 1948 and 2016, the average temperature increase across Canada was 1.7°C; moreover, during this time period, Northern Canada experienced a 2.3°C increase. The temperature increase in Canada has doubled that of the global average. If emissions are not significantly reduced, the temperature could increase by 6.3°C in Canada by the year 2100 compared to 2005 levels. Observed precipitation changes in Canada include an increase of approximately 20% between 1948 and 2012. By the late 21st century, the projected increase could reach an additional 24%. During the summer months, some regions in Southern Canada are expected to experience periods of drought at a higher rate. Extreme weather events and climate conditions are more common across Canada. Recorded events include droughts, flooding, cold extremes, warm extremes, wildfires, and record minimum arctic sea ice extent.

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

Thames Centre Climate Profile

The Municipality of Thames Centre is located in southwestern Ontario within Middlesex County. The Municipality is expected to experience notable effects of climate change which include higher average annual temperatures, an increase in total annual precipitation, and an increase in the frequency and severity of extreme events. According to Climatedata.ca – a collaboration supported by Environment and Climate Change Canada (ECCC) – the Municipality of Thames Centre may experience the following trends:

Higher Average Annual Temperature:

- Between the years 1971 and 2000 the annual average temperature was 7.7 °C

- Under a high emissions scenario, the annual average temperatures are projected to increase by 4.6 °C by the year 2050 and over 6.4 °C by the end of the century.

Increase in Total Annual Precipitation:

- Under a high emissions scenario, Thames Centre is projected to experience an 11% increase in precipitation by the year 2051 and a 16% increase by the end of the century.

Increase in Frequency of Extreme Weather Events:

- It is expected that the frequency and severity of extreme weather events will change.

In some areas, extreme weather events will occur with greater frequency and severity than others especially those impacted by Great Lake winds.

Integration Climate change and Asset Management

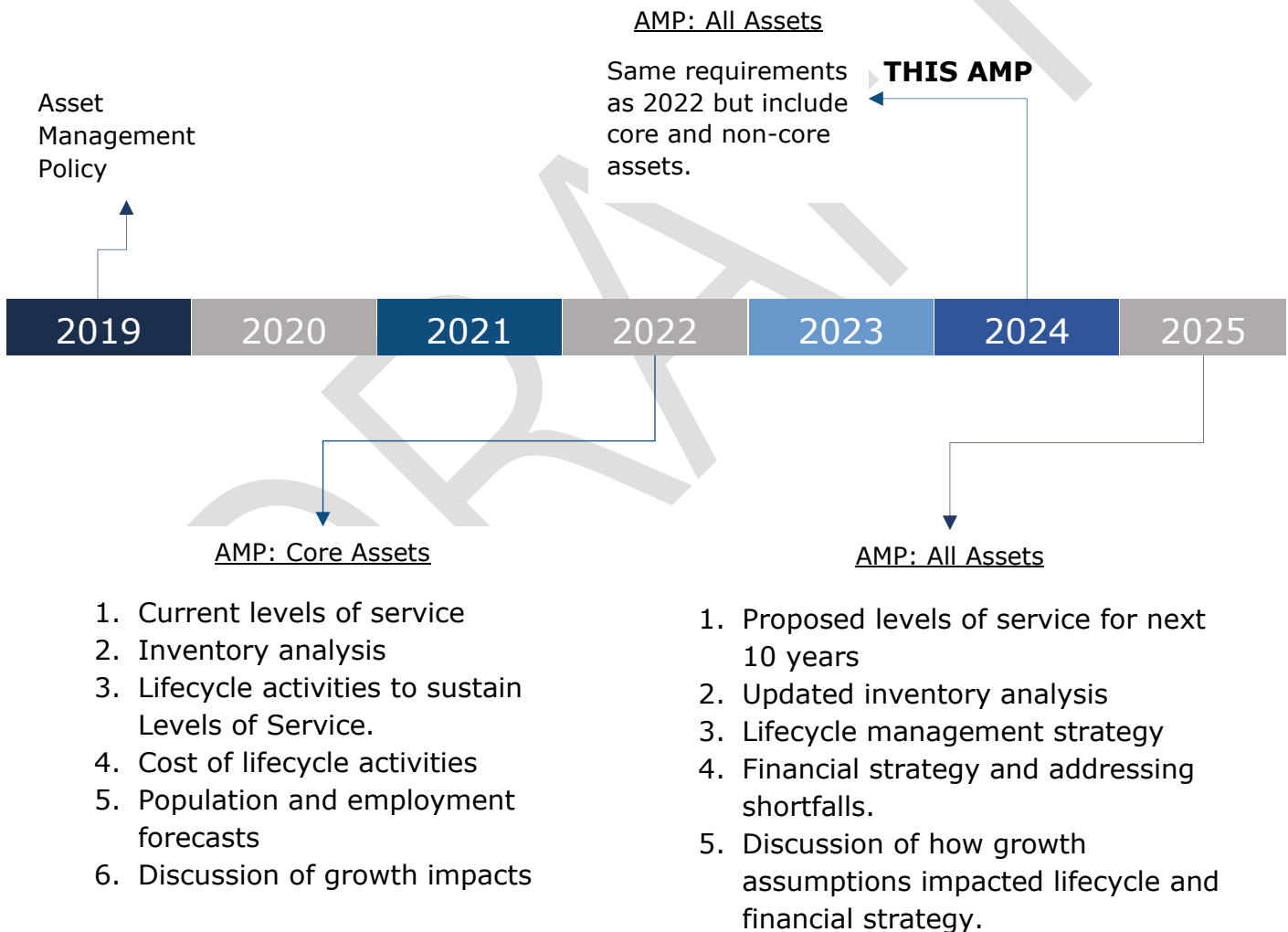
Asset management practices aim to deliver sustainable service delivery - the delivery of services to residents today without compromising the services and well-being of future residents. Climate change threatens sustainable service delivery by reducing the useful life of an asset and increasing the risk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

In order 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.

Ontario Regulation 588/17

As part of the *Infrastructure for Jobs and Prosperity Act, 2015*, the Ontario government introduced Regulation 588/17 - Asset Management Planning for Municipal Infrastructure (O. Reg 588/17). Along with creating better performing organizations, more liveable and sustainable communities, the regulation is a key, mandated driver of asset management planning and reporting. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them.

The diagram below outlines key reporting requirements under O. Reg 588/17 and the associated timelines.



O. Reg. 588/17 Compliance Review

The following table identifies the requirements outlined in Ontario Regulation 588/17 for municipalities to meet by July 1, 2024. Next to each requirement a page or section reference is included in addition to any necessary commentary.

Requirement	O. Reg. Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	4.1.1 - 5.2.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1.1 - 5.2.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.1.3 - 5.2.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.1.2 - 5.2.2	Complete
Description of Municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.1.2 - 5.2.2	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	4.1.6 - 5.2.6	Complete
Current performance measures in each category	S.5(2), 2	4.1.6 - 5.2.6	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.1.4 - 5.2.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	Appendix A	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	6.1-6.2	Complete

Scope and Methodology

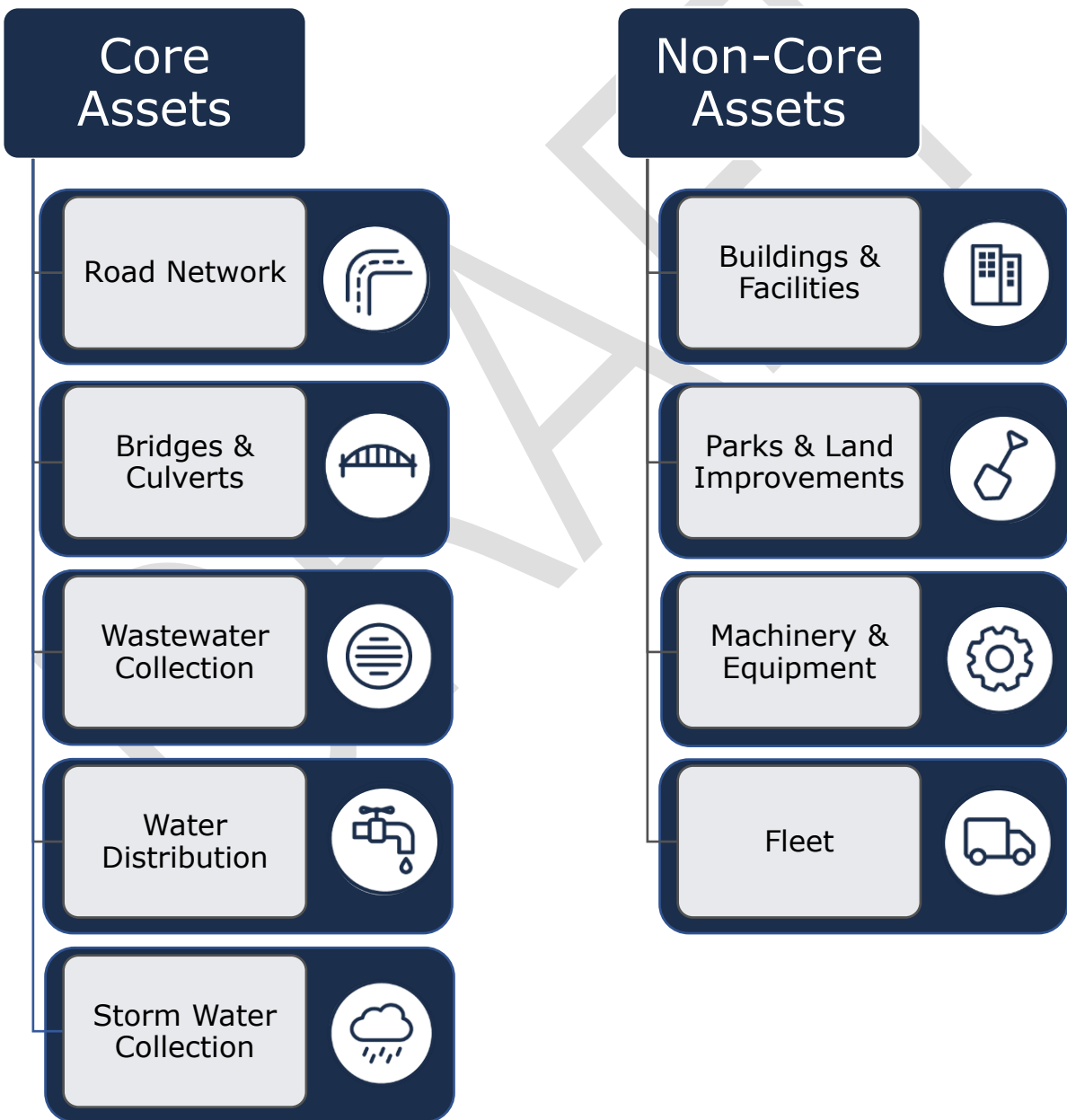
Key Insights

- This asset management plan includes 9 asset categories and is divided between tax-funded and rate-funded categories.
- The source and recency of replacement costs impacts the accuracy and reliability of asset portfolio valuation.
- Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life.
- The Municipality's primary tangible capital asset inventory was restated in 2023 and consolidated with asset data from various sources.

Asset categories included in this AMP

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

The following asset categories are addressed in further detail in the Appendix.



Limitations and Constraints

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

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

These limitations have a direct impact on most of the analysis presented, including condition summaries, age profiles, long-term replacement and rehabilitation forecasts, and shorter term, 10-year forecasts that were generated.

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

Improvements for Future AMP Iterations

To address these limitations and enhance the overall quality and reliability of future iterations of the AMP, Municipality Staff have identified the following improvements and initiatives:

Policies and Procedures

- Developing a Data Governance Policy and Data Management Procedures to standardize data collection methodologies, improve data integrity, and ensure consistency across all asset types.

Data Integration

- Integrating ongoing condition assessments for water and wastewater mains to ensure asset management decisions are informed by real-time data on asset conditions. Implementing systematic updates and regular maintenance of road network data to reflect current conditions and support effective asset management strategies.

Data Consolidation

- Conducting audits of road network assets and consolidating data with existing road databases to ensure comprehensive and accurate asset records.

While the current AMP acknowledges its limitations in data quality, the proposed improvements aim to strengthen the foundation for future planning cycles. These proactive measures underscore Thames Centre's commitment to improving data quality and reliability within the Asset Management Plan. By developing robust Data Governance Policies, enhancing data collection protocols, and integrating ongoing assessments, the Municipality aims to provide stakeholders with accurate, actionable insights that support informed decision-making.

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 per 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.
- **Historical Cost Inflation:** Inflation of the asset cost recorded at the time it was initially acquired to today’s value using an index (e.g., CPI or NRBCPI)

User-defined and Unit 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 Municipality 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 Municipality 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 Municipality can determine the service life remaining (SLR) for each asset. Using condition data and the asset’s SLR, The Municipality can more accurately forecast when it will require replacement. The SLR is calculated as follows:



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 Municipality’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.

Very Good	Fit for the future	90 - 100
• Well maintained, good condition, new or recently rehabilitated		
Good	Adequate for now	70 - 90
• Acceptable, generally approaching mid-stage of expected service life		
Fair	Requires attention	40 - 70
• Signs of deterioration, some elements exhibit significant deficiencies		
Poor	Increased potential of affecting service	10 - 40
• Approaching end of service life, large portion of system exhibits deficiencies		
Very Poor	Unfit for sustained service	0 - 10
• Near or beyond expected service life, widespread signs of advanced deterioration		

The analysis in this AMP is based on assessed condition data only as available. In the absence of assessed condition data, asset age is used as a proxy to determine asset condition.

Appendix D includes additional information on the role of asset condition data and provides basic guidelines for the development of a condition assessment program.

Data Sources

Asset Information Sources	Asset Category	Description of Asset Data
GIS Data	Road Network Bridges and Culverts Water Distribution Wastewater Collection Stormwater Collection	Spatial and attribute GIS data of asset segments; originating from Thames Centre's geodatabase
StreetScan Database	Road Network	Web-based GIS application for managing road assets
Sanitary and Storm Sewer Condition Assessment	Wastewater Collection Stormwater Collection	2019 Sanitary and Storm Sewer Condition Assessment report by Dillon Consulting
OSIM Report	Bridge and Culverts	2022 Bridge and Culvert Inspections report by Spriet Associates
2023 Insurance Program	Buildings and Facilities Machinery & Equipment	Insurance and valuation by ORR Insurance; 2024 replacement valuation
CityWide AM Inventory	All	The primary tangible asset inventory for the Municipality; stored in CityWide™

Portfolio Overview

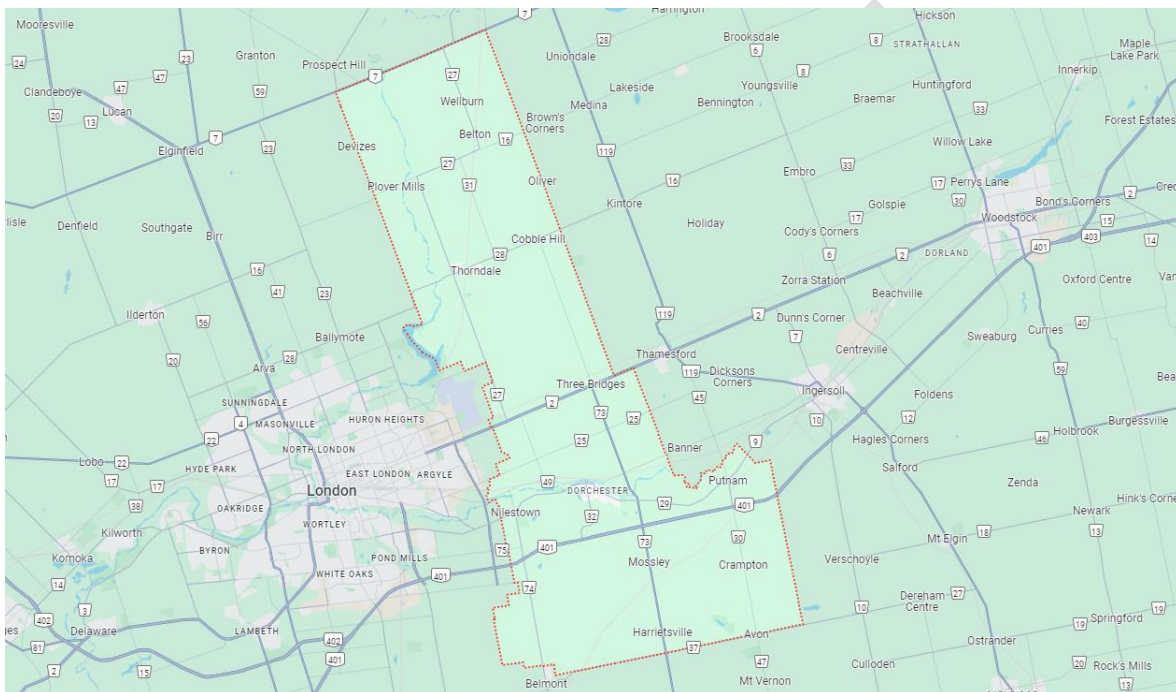
Key Insights

- The total replacement cost of the Municipality's asset portfolio is \$426.9 million.
- 76% of all assets are in fair or better condition.
- 16% of assets are projected to require replacement in the next 10 years.
- Average annual capital requirements total \$9.0 million per year across all asset categories.

State of the Infrastructure

Community Profile

The Municipality of Thames Centre is a lower-tier municipality and part of Middlesex County within southwestern Ontario. Thames Centre is located directly east of the City of London.



The Municipality of Thames Centre was formed in 2001 through the amalgamation of the former Municipality of West Nissouri and the former Municipality of North Dorchester. The area that is now Thames Centre has a rich history, with its settlement by European immigrants primarily in the 19th century. Its history is deeply rooted in agriculture and has the typical lifestyle of Ontario's small towns.

Thames Centre is appreciated for its rural atmosphere, offering a peaceful and scenic countryside environment. The area is recognized for its strong agricultural roots, with farming being a significant part of the local economy and culture. The Municipality encompasses small communities and are known for their close-knit, community-focused way of life.

Demand in Thames Centre is driven by its close proximity to London, Ontario, offering a mix of rural appeal and urban access. The region's cost-effective housing options draw in individuals looking for affordable living, and its strong agricultural heritage is attractive to those interested in farming. Additionally, the appeal of a quiet, rural lifestyle in small, community-focused towns attracts those looking for a cohesive environment. The area's natural beauty and recreational options, including

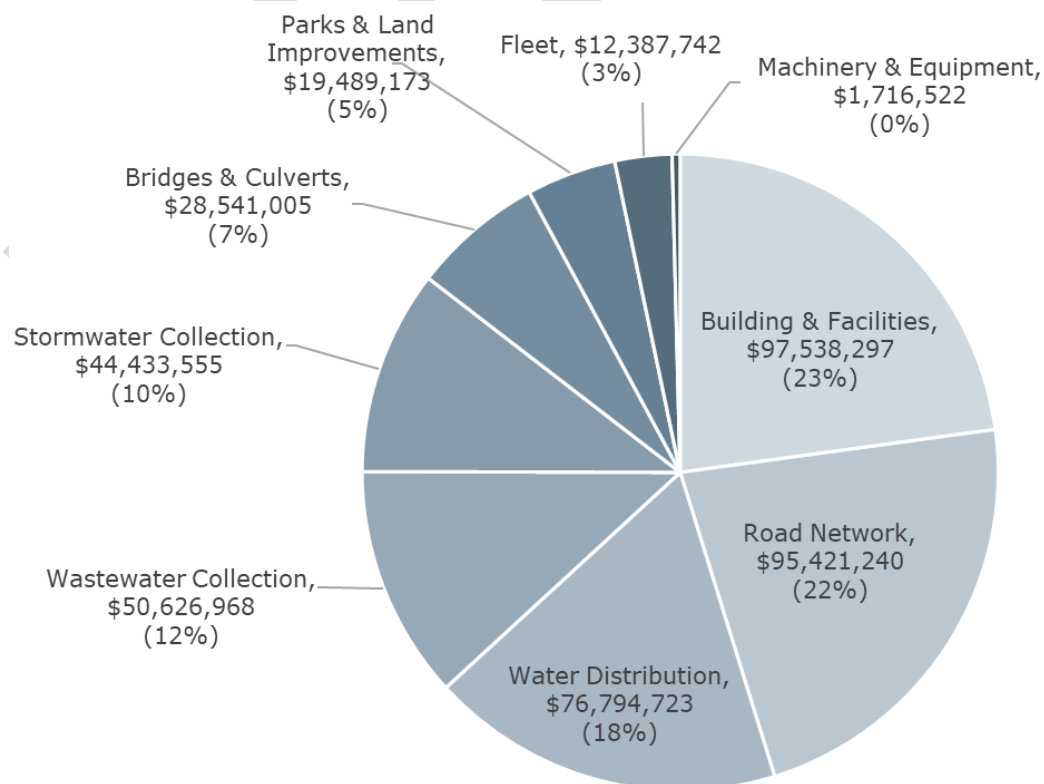
activities along the Thames River and in local parks, further increases Thames Centre's attractiveness as a place to live and work.

The Municipality's infrastructure priorities focus on directing growth within designated Urban Settlement Areas to optimize public services and infrastructure use, while minimizing expansion into natural resource and heritage areas.

Census Characteristic	Municipality of Thames Centre	Ontario
Population 2021	13,980	14,223,942
Population Change 2016-2021	6.0%	5.8%
Total Private Dwellings	5,316	5,929,250
Population Density	32.2/km ²	15.9/km ²
Land Area	433.99km ²	892,411.76 km ²

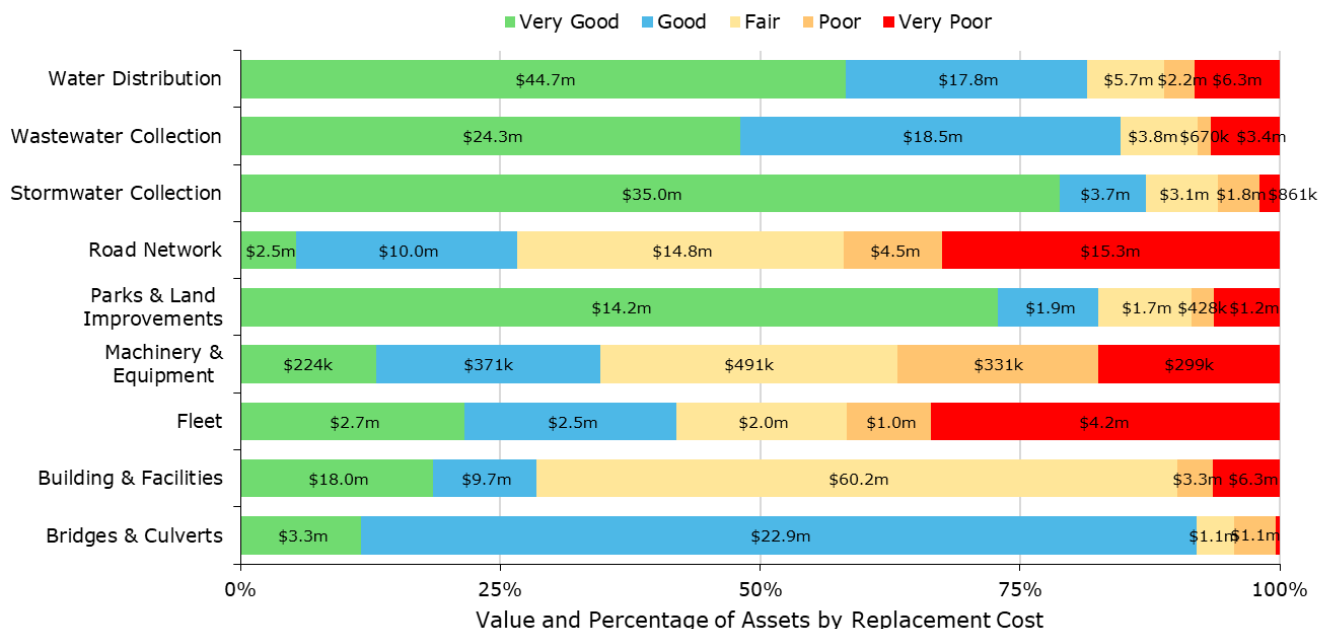
Total Replacement Cost of Asset Portfolio

All asset categories have a total replacement cost of \$426.9 million based on available inventory data. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.



Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. The following graph illustrates the projected condition of the asset categories.



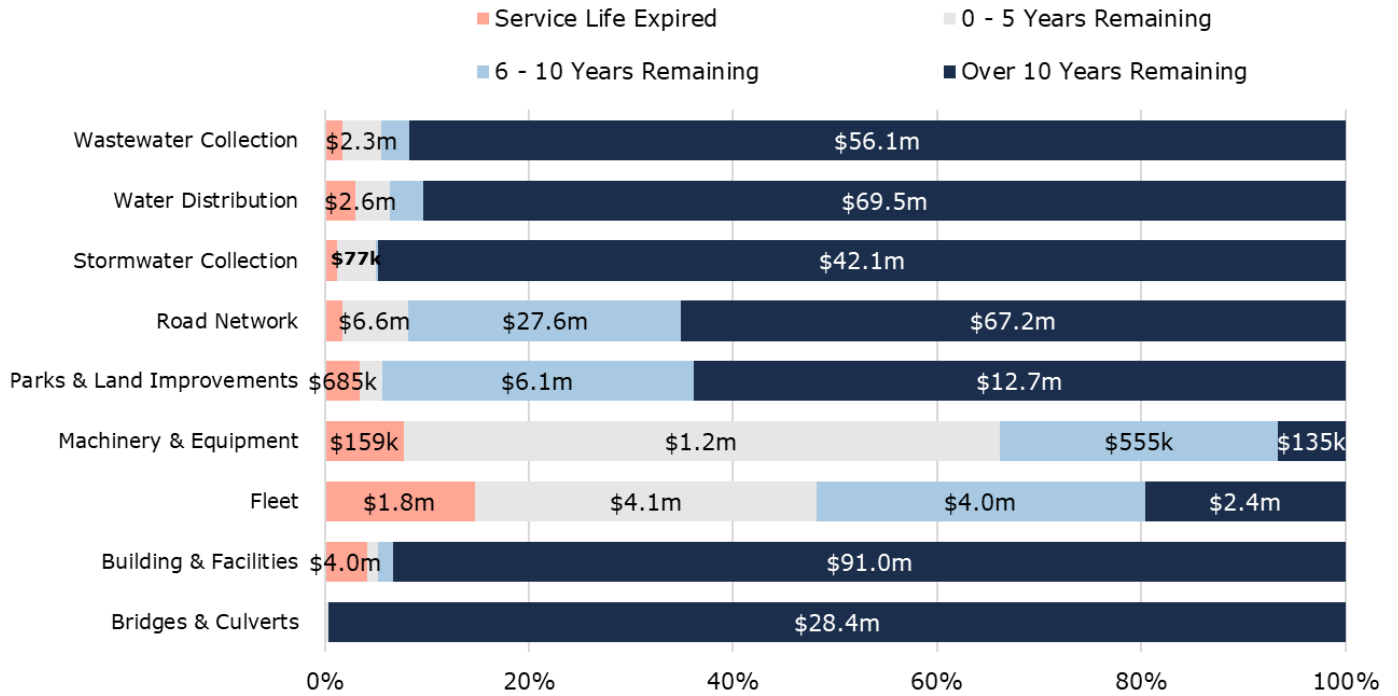
Collectively, 76% of the assets in Thames Centre are in fair or better condition. The calculation of this percentage is replacement cost weighted and uses a combination of age-based and field condition data.

This AMP relies on assessed condition data for 16% 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	% of Assets with Assessed Condition	Source of Condition Data
Bridges & Culverts	91%	2022 OSIM Report
Parks & Land Improvement	1%	Staff Inspections
Water Distribution	3%	
Stormwater Collection	7%	2022 CCTV Inspection
Wastewater Collection	1%	
Road Network	89%	2020 Assessment

Service Life Remaining

The graph below illustrates the service life remaining for each of the asset categories. The calculation of service life remaining is based on asset age, available assessed condition data and estimated useful life. Much like the calculation of asset condition, this value is replacement cost weighted.

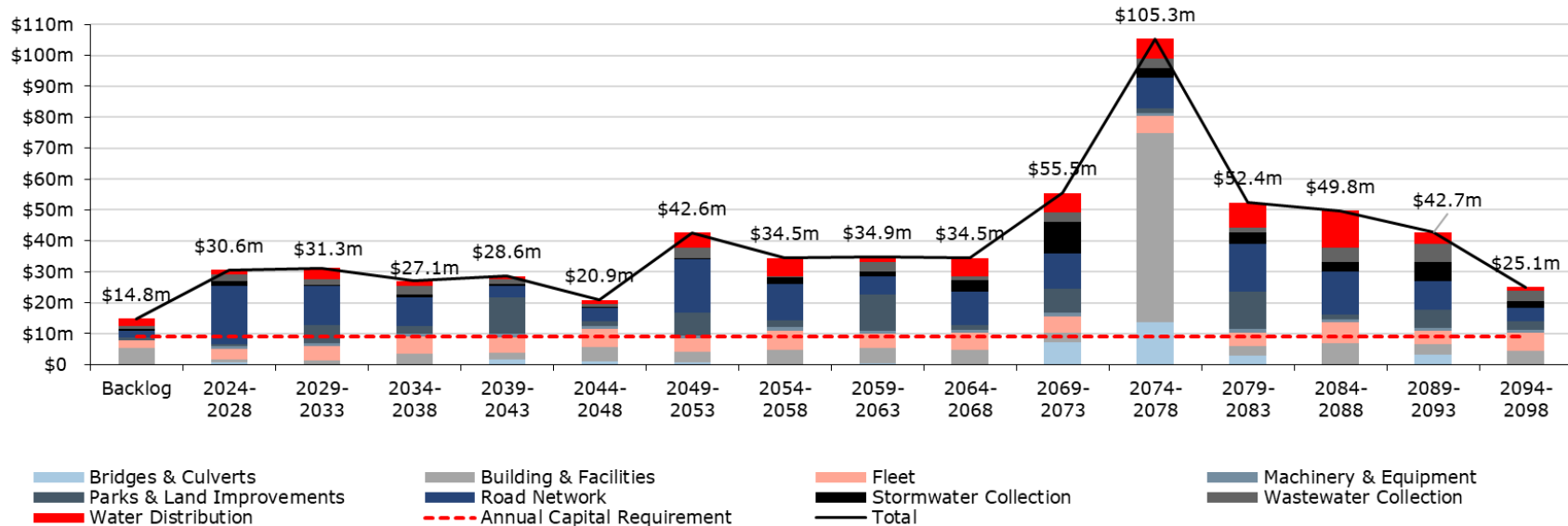


Based on the aforementioned variables, around 16% of the Municipality's assets will require replacement within the next 10 years. Capital requirement costs over the next 10 years are identified in Appendix A.

Forecasted Capital Requirements

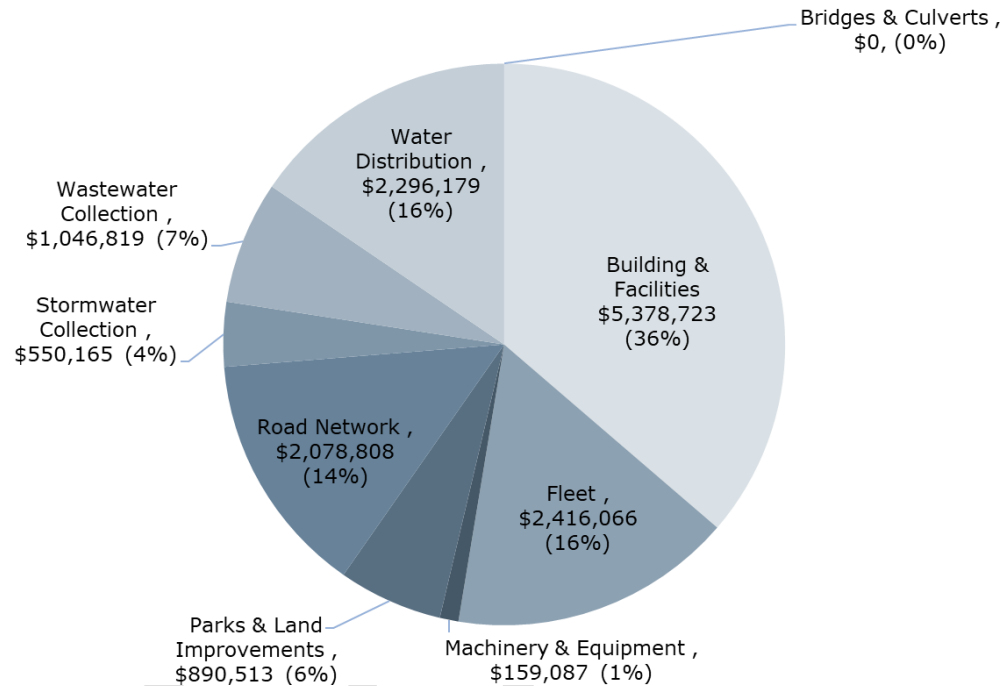
Aging assets require maintenance, rehabilitation, and replacement. The figure below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for all asset categories analysed. On average, \$9.0 million is required each year to remain current with capital replacement needs for Thames Centre’s asset portfolio (red dotted line).

Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise. This figure relies on age and available condition data.



The chart also illustrates a backlog of \$14.8 million, comprising assets that remain in service beyond their estimated useful life. It is unlikely that all such assets are in a state of disrepair, requiring immediate replacements or major renewals.

Infrastructure Backlog



The backlog across infrastructure categories encompasses assets with diverse conditions, including many whose current state is unknown or uncertain. This variability highlights the complexity of managing infrastructure needs comprehensively. For example, while buildings and facilities exhibit a significant 36% backlog, not all structures within this category necessarily require immediate replacement or major renewal. Similarly, assets like the road network, water distribution systems, and wastewater collection encompass a mix of infrastructure elements, each with its unique maintenance requirements.

The challenge lies in accurately assessing the condition of these assets. Without regular and targeted condition assessments, assumptions about the state of infrastructure can lead to either overestimating or underestimating the urgency of needed repairs or replacements. Therefore, implementing systematic condition assessments becomes crucial. Risk frameworks, proactive lifecycle strategies, and levels of service targets can then be used to prioritize projects, continuously refine estimates for backlogs and ongoing capital needs and help select the right treatment for each asset.

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. The overall asset risk breakdown for Thames Centre’s asset inventory is portrayed in the figure below.



The identification of these critical assets by using the risk framework allows Thames Centre to determine appropriate risk mitigation strategies and treatment options. These may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data. Critical assets do not necessarily require immediate renewal or replacement.

Refer to Appendix C for the criteria applied in determining the risk rating of each asset category. For asset categories not specified, Asset Condition was utilized to assess the Probability of Failure, while Replacement Cost was utilized to evaluate the Consequence of Failure.

Analysis of Tax-Funded Assets

Key Insights

- Tax-funded assets are valued at \$299.5 million.
- 74% of tax-funded assets are in fair or better condition.
- The average annual capital requirement to sustain the current level of service for tax-funded assets is approximately \$7 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 Municipality’s asset portfolio. It includes all municipally owned and maintained roadways in addition to supporting roadside infrastructure such as sidewalks and streetlights.

Thames Centre’s road network is maintained by the Roads Division in the Public Works department. The division is also responsible for patching and filling holes, cutting grass along roadside ditches, performing roadside tree maintenance, rebuilding roadways and winter maintenance.

Asset Inventory & Replacement Cost

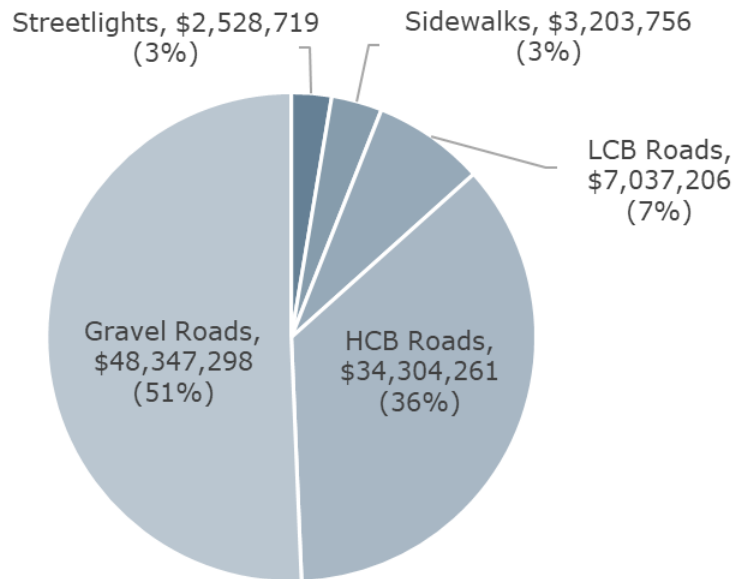
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the road network inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Gravel Roads	176 km	Not Planned for Replacement ¹	\$48,347,298 ²
HCB Roads	81 km	Cost per Unit	\$34,304,261
LCB Roads	124 km	Cost per Unit	\$7,037,206
Sidewalks	26 km	Cost per Unit	\$3,203,756
Streetlights	574	CPI Inflation (Historical Cost)	\$2,528,719
Total:			\$95,421,000

¹ Gravel roads do not undergo asset replacement and are either in a state of perpetual maintenance or upgraded to an asset with a different composition as they approach end of life. As such, gravel roads have been excluded from the calculation of the total replacement cost and annual requirements of the Road Network.

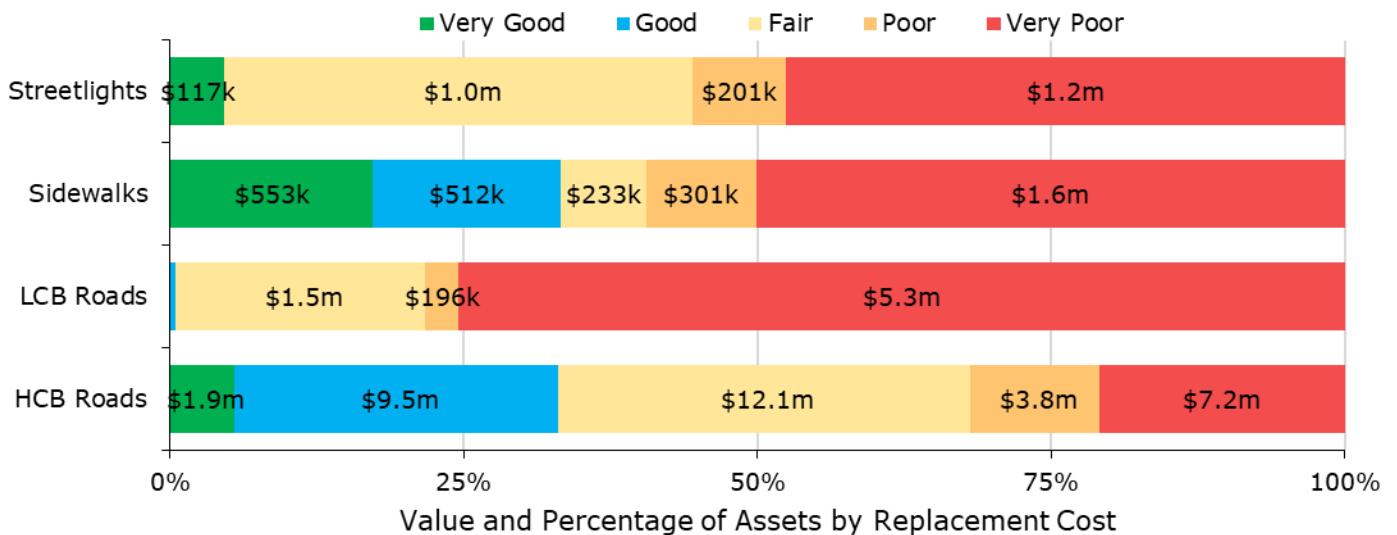
² An estimated replacement cost, based on historical cost inflation, was determined and assigned to each gravel road segment. This estimate represents the operational investment required to maintain the gravel roads.

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



Asset Condition

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



This data set was sourced from Citywide and primarily reflects the age of the road assets. While it provides a valuable overview, it does not yet incorporate the latest inspection data, which will more accurately reflect the true physical condition. The 2025 Asset Management Plan will include these ongoing inspections, offering a more comprehensive and favorable representation of the asset category.

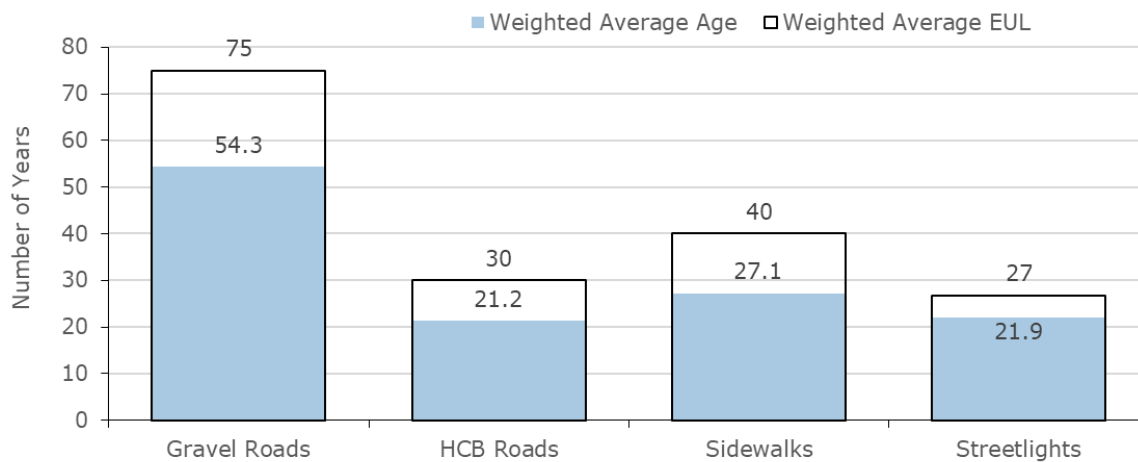
Current Approach to Condition Assessment

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

- The assessments of road assets are conducted yearly by staff. External assessments occur approximately every 5-10 years.
- The last assessment was conducted in 2020 by Streetscan that included a detailed assessment of the condition of each road segment.
- The Road Needs Study is reviewed every year and additional roads are assessed as needed.
- Road network assets are inspected as per O. Reg. 239/02: Minimum Maintenance Standards for Municipal Highways.

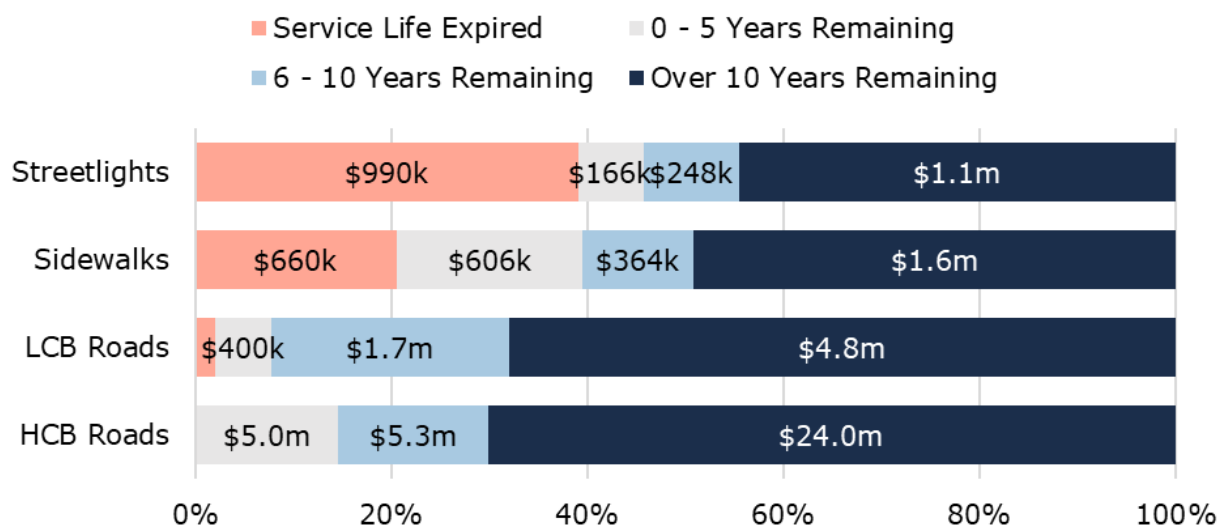
Asset Age & Service Life Remaining

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



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

The 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.



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 table below outlines the Municipality’s current lifecycle management strategy for Gravel roads.

Activity Type	Description of Current Strategy
Preventative Maintenance	Gravel roads are considered to be in a state of perpetual maintenance
	Lifecycle activities are funded through Thames Centre’s operating budget
	Maintenance events are applied on an identified, and in some cases, on a reactive need
Replacement	Gravel roads do not require conventional asset replacement events
	Roads are reviewed periodically as potential candidates for a surface composition upgrade

The table below outlines the Municipality’s current lifecycle management strategy for HCB and LCB roads.

Activity Type	Description of Current Strategy
Maintenance	Crack Sealing, patching, shoulder maintenance, line paint reapplication Deficiency repairs as required from patrols for minimum maintenance standards such as patching, shoulder grading, etc.
Rehabilitation	Pavement Resurfacing – Single Lift Treatments
Replacement	Replacement is based on asset condition; risk-based decision making is exercised to the best of staff’s ability Roads are fully reconstructed and are not part of a formal lifecycle process

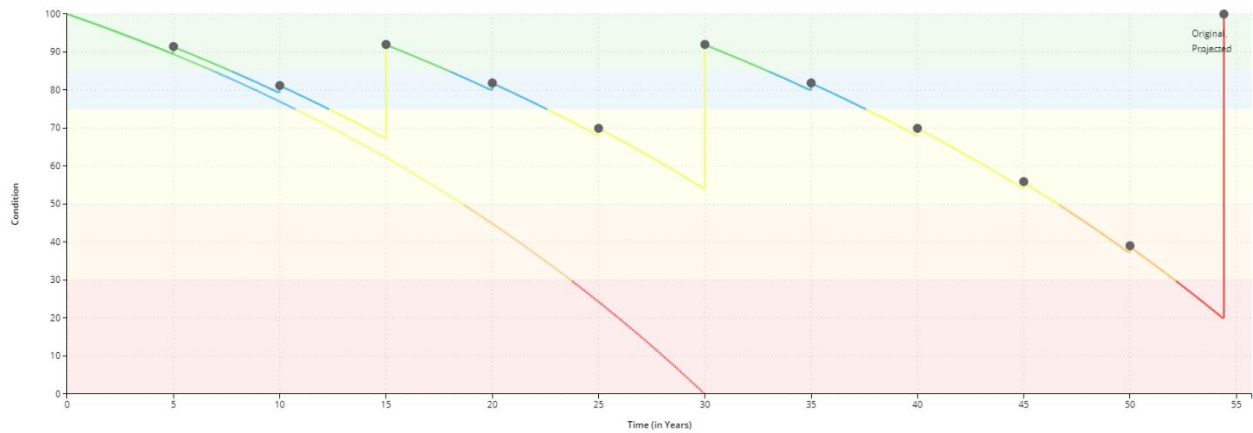
The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of HCB and LCB roads. These strategies have been developed with input from municipal staff and following industry best practices.

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.



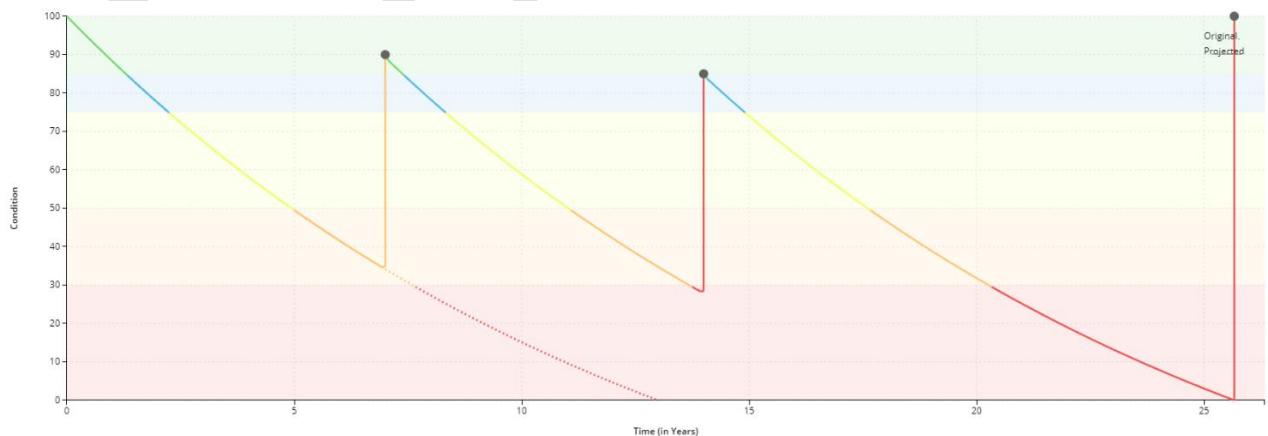
HCB Roads

Event Name	Event Class	Event Trigger
Crack Sealing	Maintenance	Every 5 Years
Basic Resurfacing – Single Lift 40 mm	Rehabilitation	15 Years
Basic Resurfacing – Double Lift 90 mm	Rehabilitation	30 Years
Full Reconstruction	Replacement	Condition at 20 - 30%



LCB Roads

Event Name	Event Class	Event Trigger
Surface Treatment – Single Lift	Rehabilitation	7 Years
Surface Treatment – Single Lift	Rehabilitation	14 Years
Full Reconstruction	Replacement	Condition at 0 - 30%

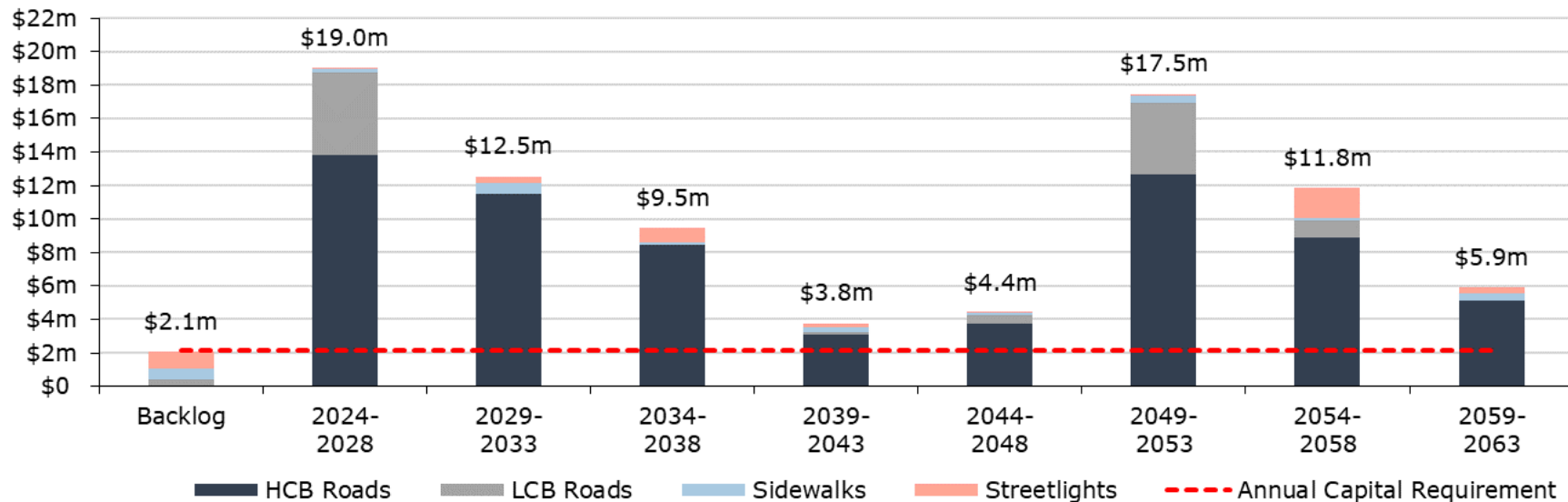


Forecasted Capital Requirements

illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Municipality’s road network. Based on the lifecycle strategies identified previously for HCB and LCB 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. This analysis was run until 2063 to capture at least one iteration of replacement for the longest-lived asset in the asset register.

Thames Centre’s average annual requirements (red dotted line) total \$2.2 million for all assets in the road network. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise. The chart illustrates capital needs through the forecast period in 5-year intervals.

The projections are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades. They are based on asset replacement costs, age analysis, and condition data when available, as well as lifecycle modeling (roads only identified above).



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A. These projections are generated in Citywide and rely on the data available in the asset register.

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data.



The identification of these critical assets by using the risk framework allows Thames Centre to determine appropriate risk mitigation strategies and treatment options. These may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data. Critical assets do not necessarily require immediate renewal or replacement.

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

Levels of Service

The following tables identify Thames Centre’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 Municipality 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 (2023)
Scope	Description, which may include maps, of the road network in the Municipality and its level of connectivity	The Municipality’s transportation network comprises of 381 km of road, of which 176 km are gravel roads and 205 km are paved roads. The transport network also includes 26 km of sidewalks and 574 streetlight assets. See Appendix B for maps.
Quality	Description or images that illustrate the different levels of road class pavement condition	The Municipality completed a Road Assessment in 2020 in coordination with StreetScan. The rating numbers were assigned on a scale of 1 to 100 with the lower numbers describing those roads with the most structural distress or poorest shaped road cross section. (1-50) Road surface exhibits moderate to significant deterioration and requires improvement. (50-100) Road surface is in generally good condition, with localized deficiencies.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2023)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km ²)	0 km/km ²
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km ²)	0.68 km/km ²
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km ²)	0.11 km/km ²
Quality	Average pavement condition index for paved roads in the municipality	HCB: 55% LCB: 27%
	Average surface condition for unpaved roads in the municipality (e.g., excellent, good, fair, poor)	35% (Poor)
Performance	Capital reinvestment rate	TBD

Recommendations

Asset Inventory

- To address the issue of misalignment between databases, it is recommended to conduct a comprehensive review and reconciliation of the asset inventories. This process should include standardizing data formats, aligning data entry protocols, and ensuring consistency across both databases. Implementing a centralized database or an integrated system may also help maintain alignment and accuracy in the future.
- Refine the streetlight asset inventory to disaggregate pooled assets and ensure alignment of asset records with GIS data and/or other data sources.

Lifecycle Management Strategies

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

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

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

Bridges & Culverts

Bridges & Culverts represent a critical portion of the transportation network, facilitating a roadway and/or walkway over a physical obstacle. Thames Centre has 65 structures that have a span of 3 meters or more and are therefore categorized as a bridge or a culvert asset.

The Transportation Services team in the Public Works Department is responsible for the maintenance of all bridges and culverts located across municipal roads, with the goal of keeping structures in an adequate state of repair and minimizing service disruptions.

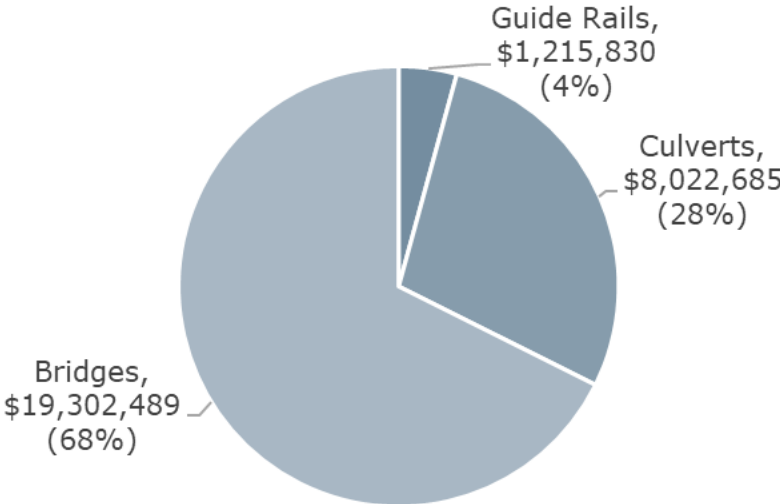
Based on the requirements outlined by the Ministry of Transportation, the most recent Bridge and Culvert inspection report was prepared by Spriet Associates and completed in 2022. The next inspection is scheduled to be completed in 2024.

Asset Inventory & Replacement Cost

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

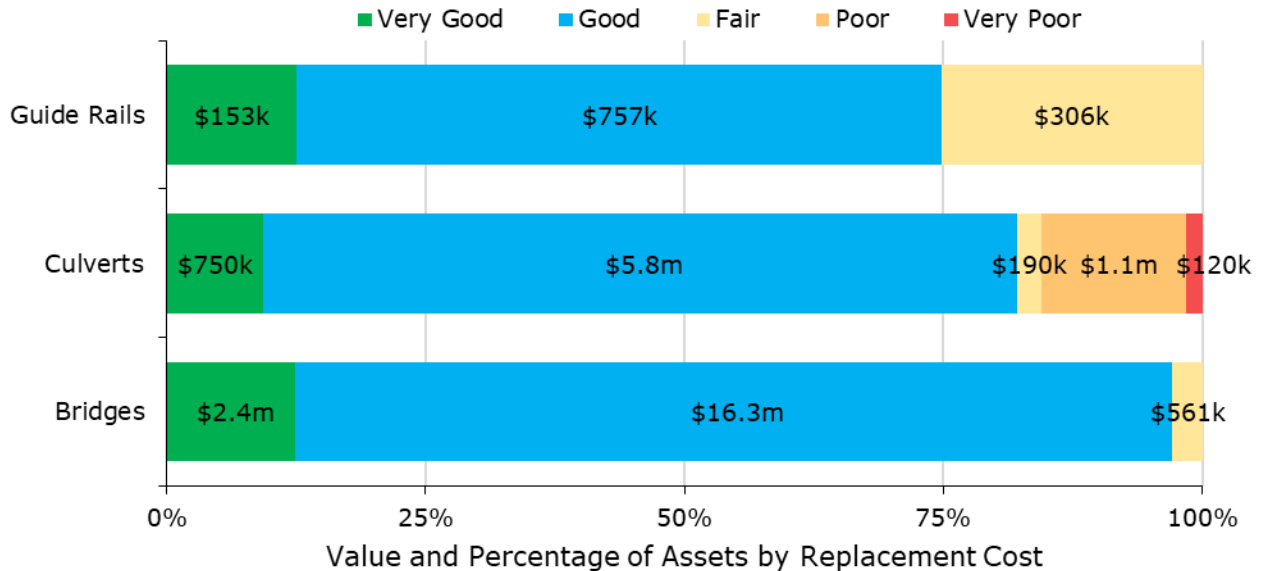
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Bridges	30	User-defined	\$19,302,489
Culverts	36	User-defined	\$8,022,685
Guiderails	12	User-defined	\$1,215,839
			\$28,541,004

The figure below displays the replacement cost of each asset segment in the Municipality’s Road inventory:



Asset Condition

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



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

Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets.

The following describes the municipality's current approach:

- 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). The most recent assessment was completed in 2022 by Spriet Associates.
- The condition scale for bridges and culverts utilized is from 0 to 100 from Very Poor to Very Good. See the following images as examples of a bridge and structural culvert in Good condition, as well as a bridge in Good condition and a structural culvert in Fair condition.
- Drive-by inspections are conducted as part of the weekly MSS route patrol inspection detail.

Figure 1: B&C Condition Images

Doan Road Bridge (BCI = 95 Very Good)



Avon Drive Bridge (BCI = 75 Good)



Cherry Hill Road Culvert - No. 134 (BCI = 71 Good)

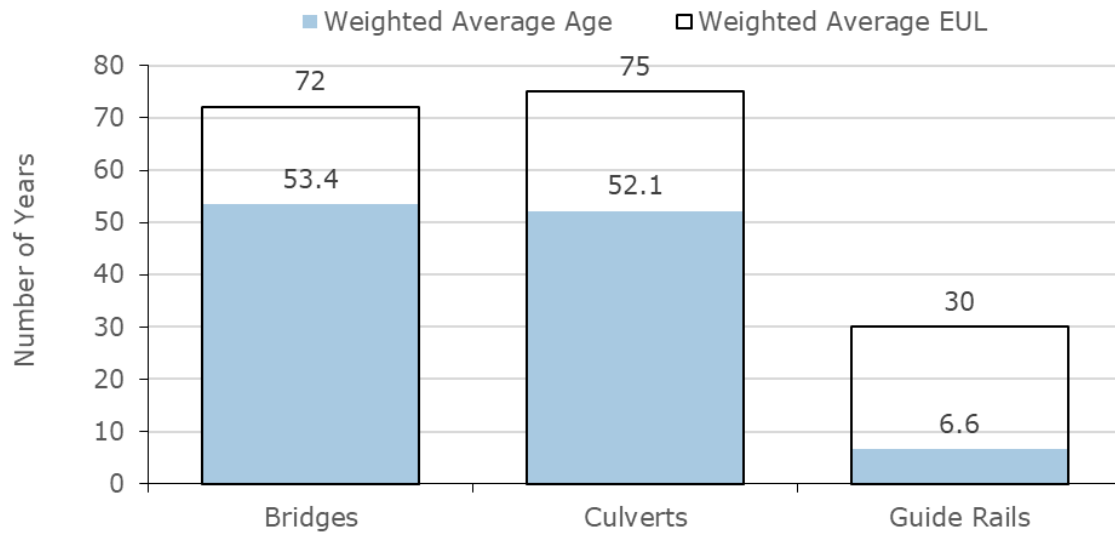


Dingman Drive Culvert (BCI = 44 Fair)

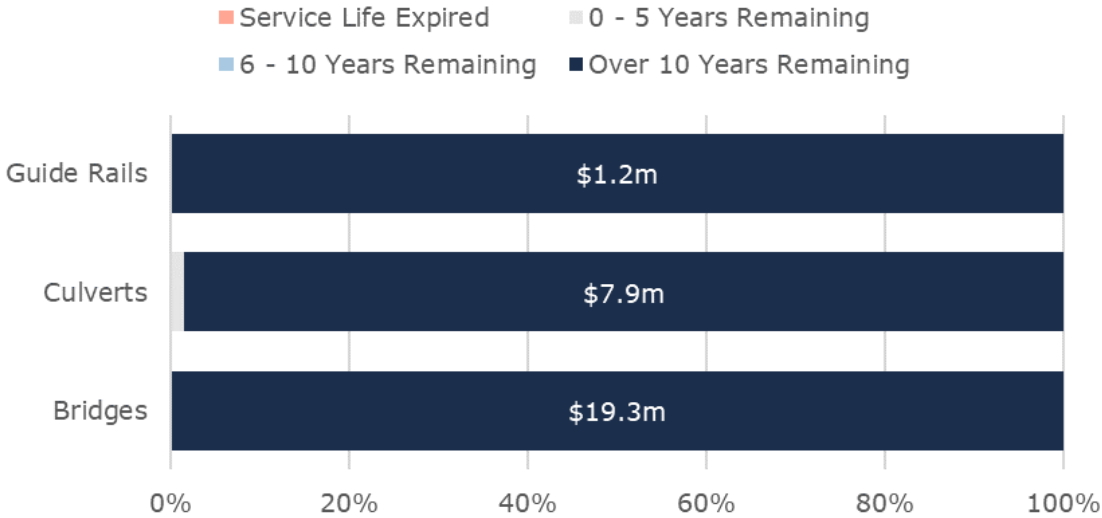


Asset Age & Service Life Remaining

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



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.



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.

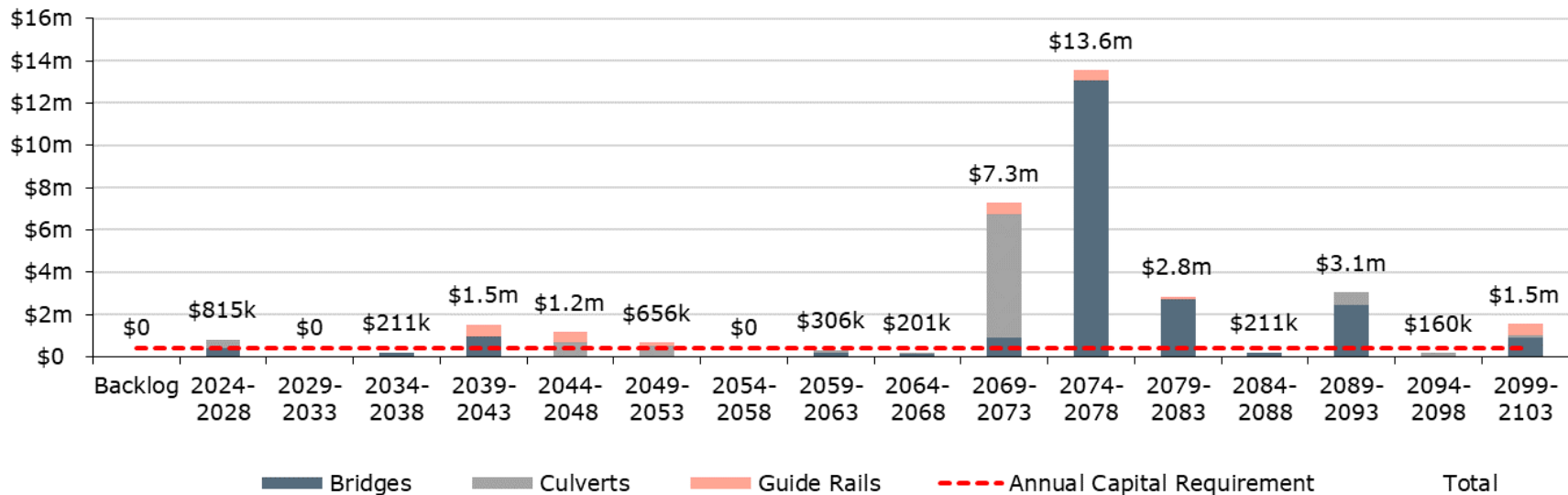
The following table outlines the Municipality’s current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	All lifecycle activities are driven by the results of mandated structural inspections completed according to the Ontario Structure Inspection Manual (OSIM). Routine Maintenance Activities include inspections, cleaning, minor repairs, and vegetation management completed as required.
Rehabilitation / Renewal / Replacement	Rehabilitation activities are contingent upon the condition rating determined through the bi-annual condition survey. Replacement occurs upon OSIM inspection recommendation and is subject to the availability of funding.

Forecasted Capital Requirements

The following graph illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Municipality’s bridges and culverts. These projections are based on asset replacement costs, age analysis, and condition data. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

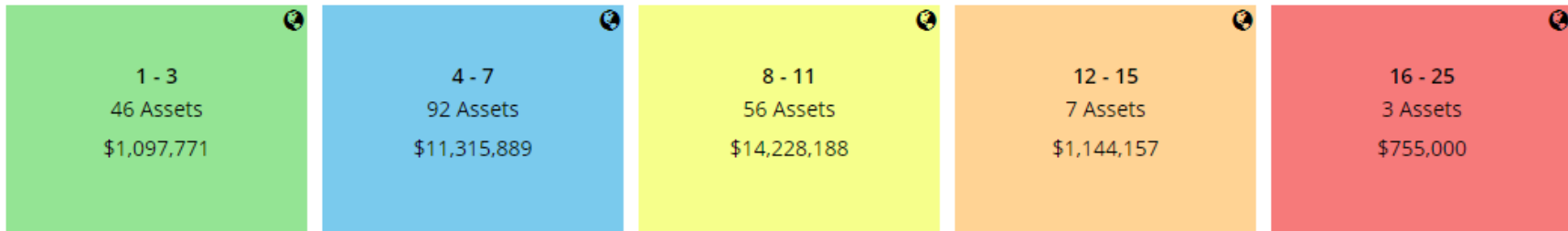
The following analysis was run until 2103 and the resulting graph identifies capital requirements over the next 80 years. Thames Centre’s average annual requirements (red dotted line) for bridges and culverts total \$432 thousand. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.



OSIM condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including rehabilitation and replacement activities.

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data.



The identification of these critical assets by using the risk framework allows Thames Centre to determine appropriate risk mitigation strategies and treatment options. These may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data. Critical assets do not necessarily require immediate renewal or replacement.

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

Levels of Service

The following tables identify the Municipality’s current level of service for Bridges & Culverts. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	All Bridges and Culverts are designed to carry all levels of vehicles. However, not all bridges contain sidewalks so pedestrian walking is not encouraged. There is one pedestrian bridge within the Municipality that does not support motor or heavy transport vehicles.
Quality	Description or images of the condition of bridges & culverts and how this would affect use of the bridges & culverts	See Figure 2: B&C Condition Images

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of bridges in the Municipality with loading or dimensional restrictions	3.33% ³
Quality	Average bridge condition index value for bridges in the Municipality	74%
	Average bridge condition index value for structural culverts in the Municipality	61%
Performance	Capital re-investment rate	TBD

³ 30 bridge structures that include one pedestrian bridge with a loading restriction.

Recommendations

Asset Inventory/Data Refinement

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

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Lifecycle Management Strategies

- This AMP includes capital costs associated with the reconstruction of bridges and culverts, as well as projected rehabilitation and renewal costs from the 2022 OSIM report. Thames Centre should continue to work towards identifying projected capital rehabilitation and renewal costs for bridges and culverts and integrating these costs into long-term planning.

Levels of Service

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

Buildings & Facilities

The Municipality of Thames Centre owns and maintains several facilities and recreation centres that provide key services to the community. These facilities include:

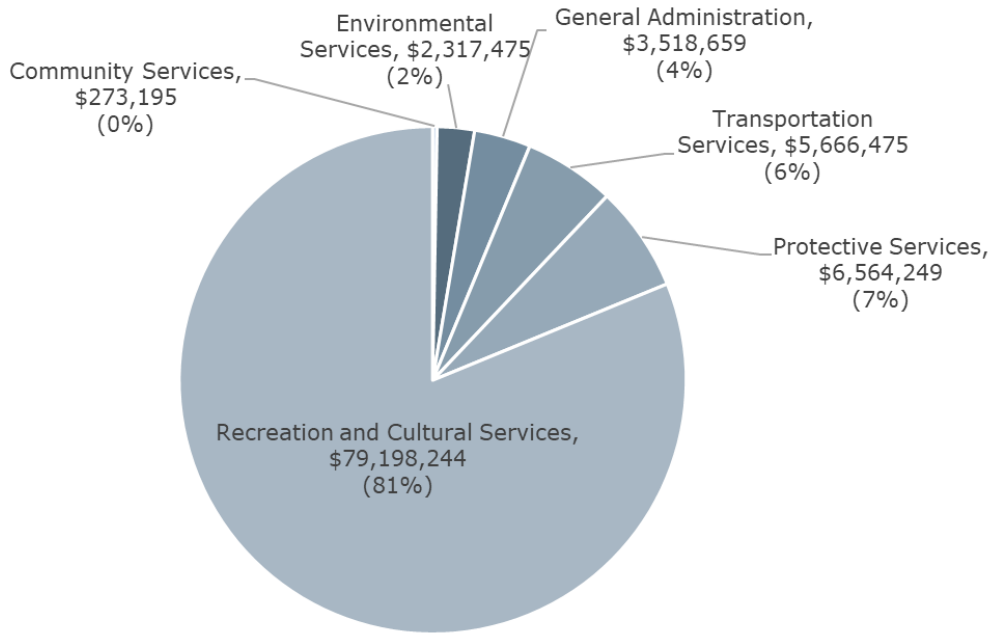
- municipal offices
- operations centre
- public libraries
- cemeteries
- fire halls and associated offices and facilities
- public works garages, equipment depot and storage sheds
- fieldhouses, arenas and community centres

Asset Inventory & Replacement Cost

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

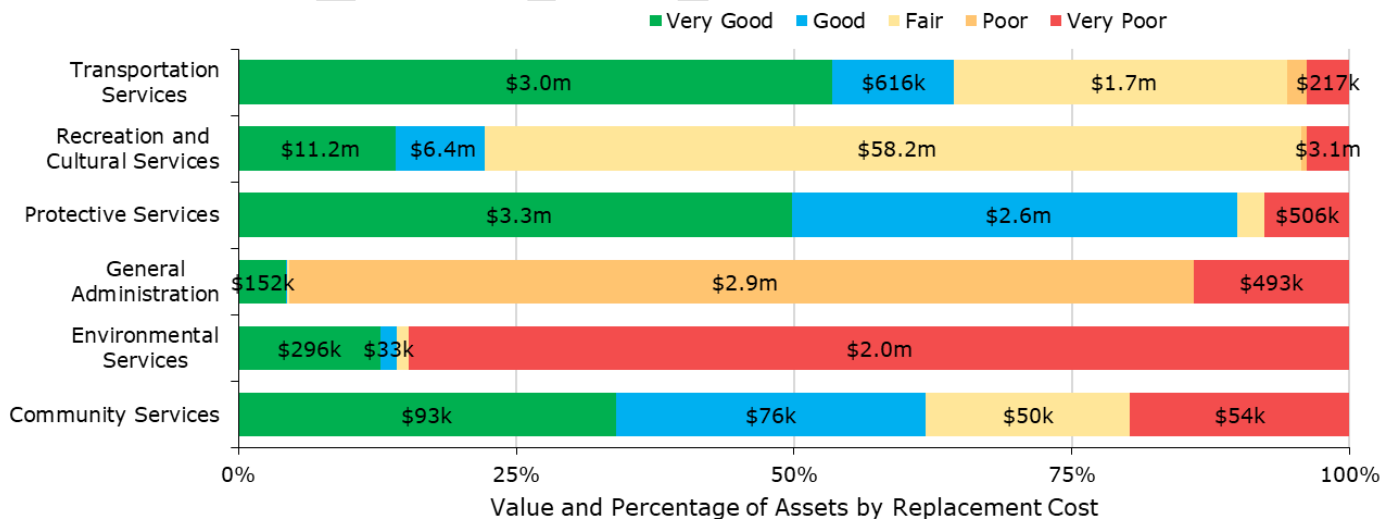
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Community Services	8	CPI Inflation	\$273,195
Environmental Services	25	CPI Inflation	\$2,317,475
General Administration	14	CPI Inflation	\$3,518,659
Protective Services	18	CPI Inflation	\$6,564,249
Recreation and Cultural Services	28	CPI Inflation	\$79,198,243
Transportation Services	22	CPI Inflation	\$5,666,474
			\$97,538,295

The graph below displays the total replacement cost of each asset segment in the Municipality's Buildings & Facilities inventory:



Asset Condition

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



To ensure that the Municipality's Buildings & Facilities continue to provide an acceptable level of service, Thames Centre 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 & Facilities.

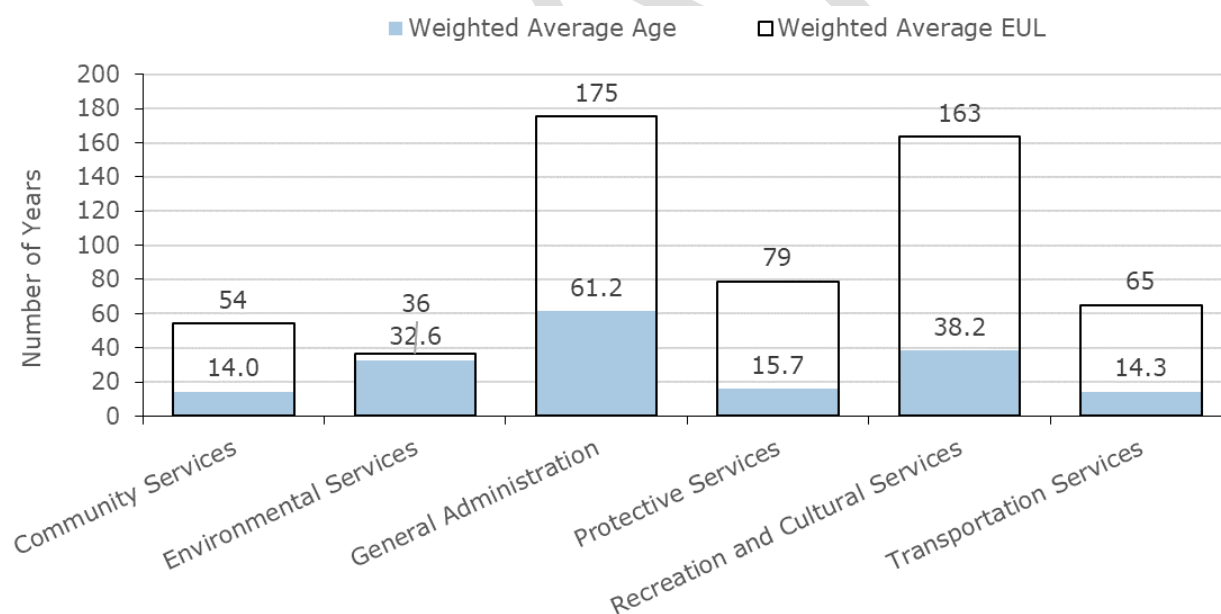
Current Approach to Condition Assessment

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

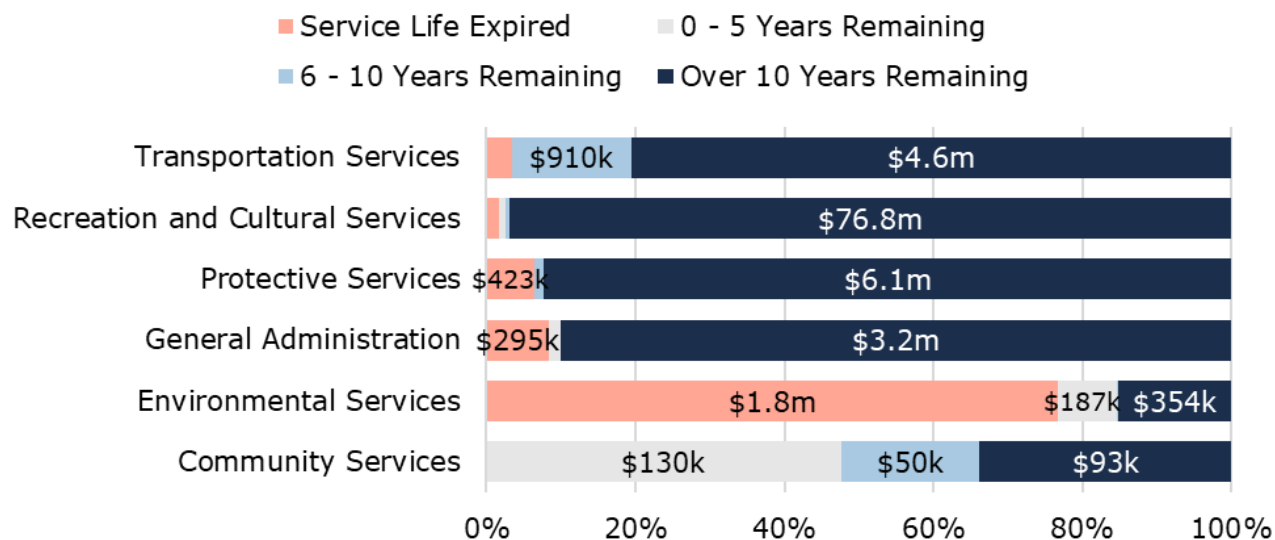
- Formal workplace inspections conducted every year through the Municipality’s health and safety program.
- Monthly health and safety inspections conducted by staff
- High-level assessments by internal staff are performed annually to determine the condition of facilities.
- Beginning in 2023, the municipality is initiating prioritized building assessments based on recommendations from its insurance broker, with the municipal office being the first to undergo assessment.

Asset Age & Service Life Remaining

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



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.



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

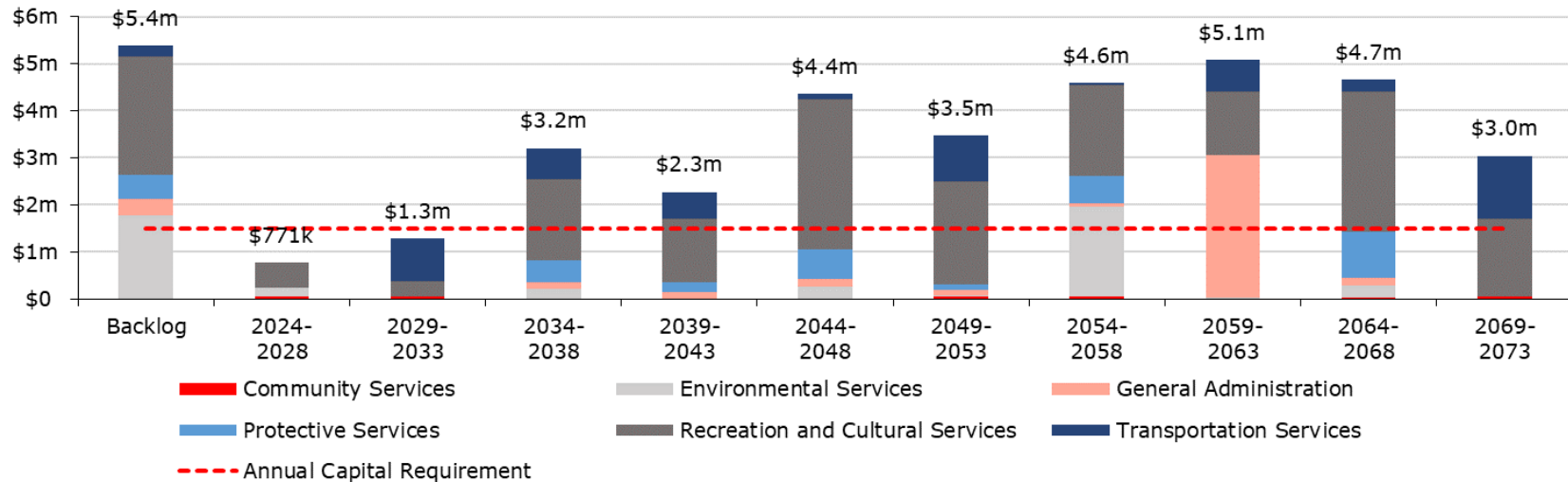
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Buildings are repaired as needed, addressing deficiencies identified by experts, staff, or residents. Immediate attention is given to urgent issues, ensuring quick resolution based on the level of urgency.
	Heating systems and other component systems undergo annual inspections to maintain efficiency and safety standards, promoting occupant comfort and energy efficiency.
Replacement	Assessments are completed strategically as buildings approach their end-of-life to determine whether replacement or rehabilitation is appropriate
	Renewal and replacement activities are guided by lifecycle analysis and align with the asset management plan's recommendations.

Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Thames Centre should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 50 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirements at \$1.5 million.



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

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data.



The identification of these critical assets by using the risk framework allows Thames Centre to determine appropriate risk mitigation strategies and treatment options. These may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data. Critical assets do not necessarily require immediate renewal or replacement.

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

Levels of Service

By comparing the cost, performance (average condition) and risk year-over-year, Thames Centre will be able to evaluate how their services/assets are trending. The Municipality will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by Thames Centre’s Buildings & Facilities.

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	List of facilities, locational map, an explanation of uses and the service areas supported by these assets.	Thames Centre owns and operates a variety of buildings and facilities primarily located in the communities of Dorchester and Thorndale. These include municipal offices, an operations centre, and public libraries, which serve as essential administrative and educational hubs. The municipality also manages cemeteries for community use and fire halls equipped with associated offices and facilities for emergency services. Additionally, public works garages, equipment depots, and storage sheds support maintenance and infrastructure needs throughout the municipality. Arenas and community centres provide spaces for recreational activities and community gatherings, fostering engagement and social interaction among residents.

Technical Levels of Service

The following table include quantitative metrics that determine the technical level of service provided by Buildings & Facilities.

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of facilities where annual internal inspections have been completed	86%
Quality	% of facilities that meet AODA standards	69%
	% of facility assets that are in good or very good condition	28%
	% of facility assets that are in poor or very poor condition	10%
Performance	Capital reinvestment rate	TBD

DRAFT

Recommendations

Asset Inventory

- Staff should continue to refine and develop a component-based inventory for all buildings & facilities to allow for component-based lifecycle planning.
- Continue the consolidation of asset attribute data and updating replacement costs. In particular, the review of datasets such as insurance appraisals, external facility assessments, etc. that provide valuable asset data.

Condition Assessment Strategies

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

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

- Continue measuring current levels of service in accordance with the metrics that Thames Centre has established in this AMP.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

Machinery & Equipment

In order to maintain the high quality of public infrastructure and support the delivery of core services, Municipal staff own and operate various types of machinery and equipment. This includes:

- custodial equipment to maintain facilities,
- emergency services equipment to support first responders,
- furniture & fixtures for facilities, offices, and buildings,
- kitchens and concession stand equipment for community centres,
- IT equipment for communication, entertainment, and data management,
- recreation equipment for parks and sports facilities, and
- tools, shop & garage machinery equipment to ensure proper maintenance of vehicles and machinery.

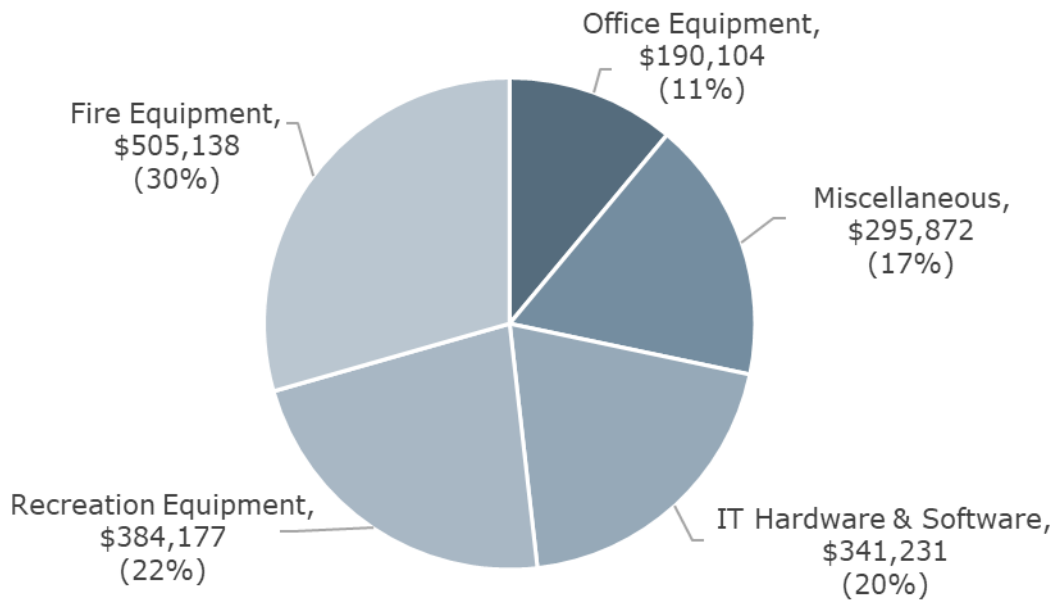
Keeping machinery & equipment assets in an adequate state of repair is important to maintain a high level of service.

Asset Inventory & Replacement Cost

The following table includes the quantity, replacement cost method and total replacement cost of each asset segment in the machinery and equipment inventory.

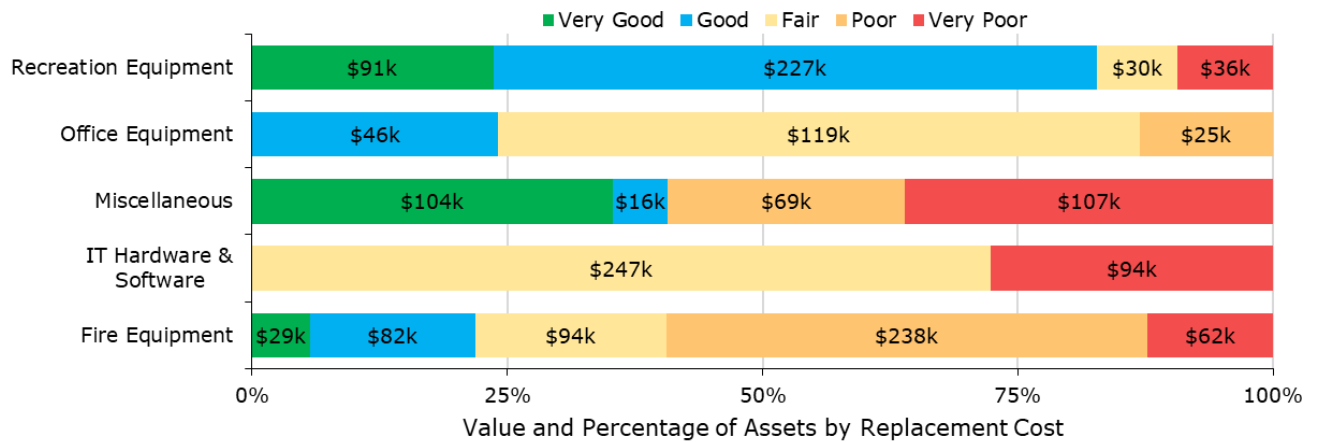
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Fire Equipment	38	CPI Inflation (Historical Cost)	\$505,138
IT Hardware & Software	8	CPI Inflation (Historical Cost)	\$341,231
Miscellaneous	12	CPI Inflation (Historical Cost)	\$295,871
Office Equipment	4	CPI Inflation (Historical Cost)	\$190,104
Recreation Equipment	16	CPI Inflation (Historical Cost)	\$384,177
			\$1,716,521

The graph below displays the replacement cost of each asset segment in the Municipality's machinery & equipment inventory:



Asset Condition

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



To ensure that Machinery & Equipment assets continue to provide an acceptable level of service, the Municipality 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 Machinery & Equipment assets.

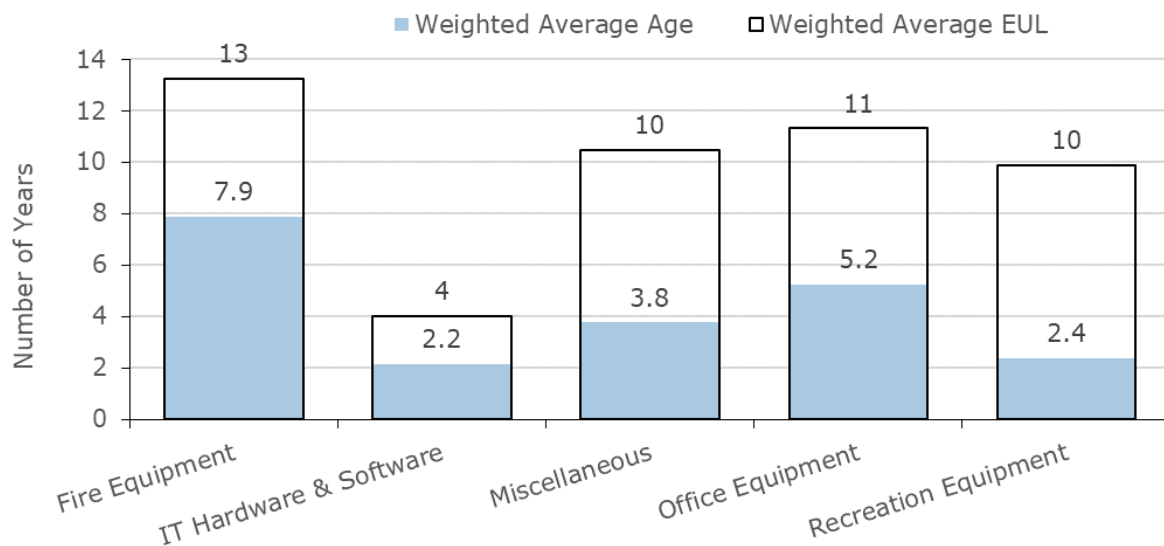
Current Approach to Condition Assessment

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

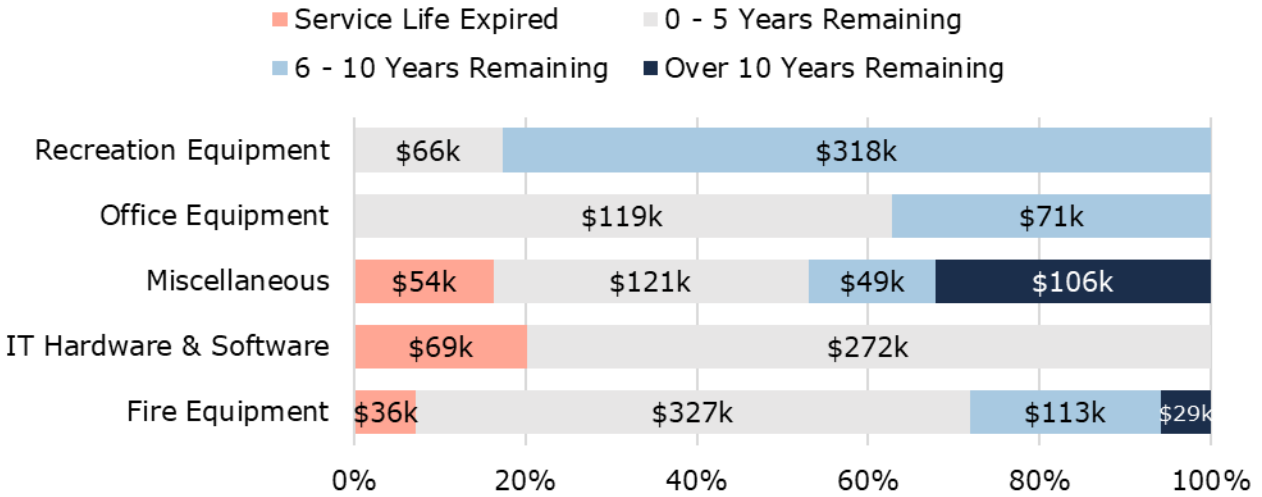
- Staff complete regular visual inspections of machinery & equipment to ensure they are in state of adequate repair.
- Aside from a structured reporting and tracking program in place for Fire Equipment assets, there are no formal condition assessment programs in place for the remaining Machinery & Equipment assets

Asset Age & Service Life Remaining

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



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.



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

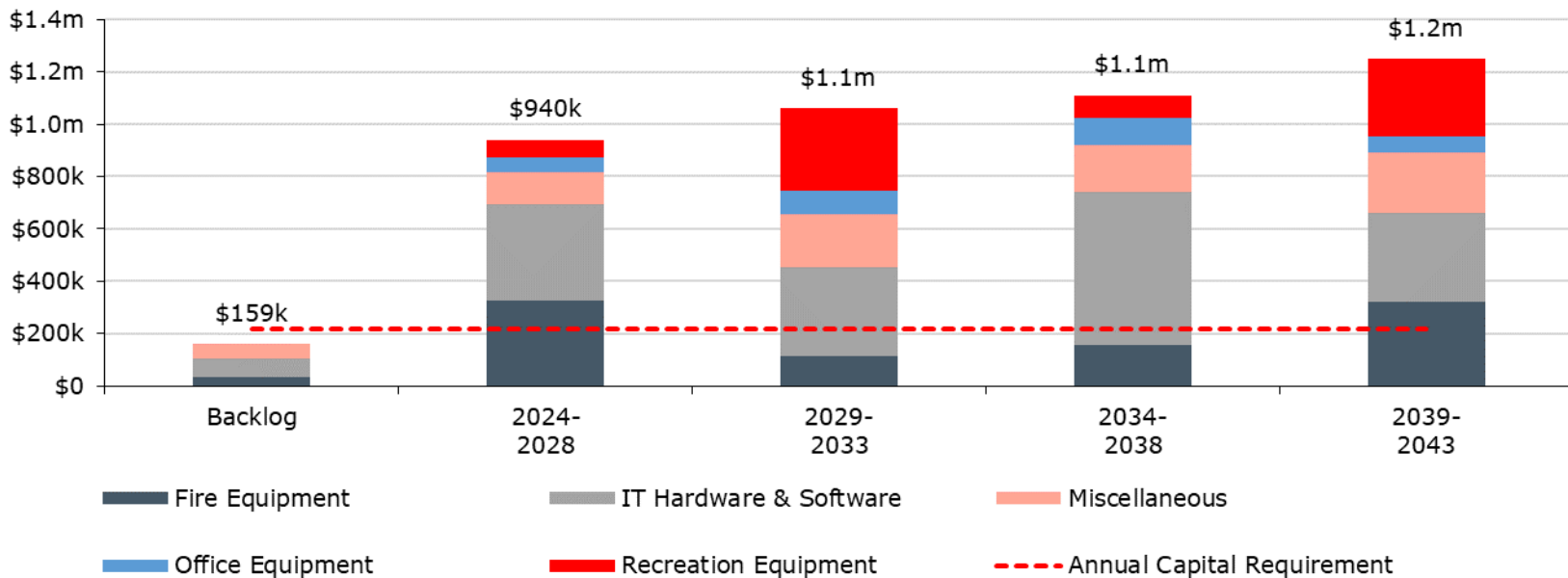
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Maintenance program varies by department
Replacement	Fire Protection Services equipment is subject to a much more rigorous inspection and maintenance program compared to most other departments
	Machinery & equipment is maintained according to manufacturer recommended actions and supplemented by the expertise of municipal staff
	The replacement of machinery & equipment depends on deficiencies identified by operators that may impact their ability to complete required tasks

Forecasted Capital Requirements

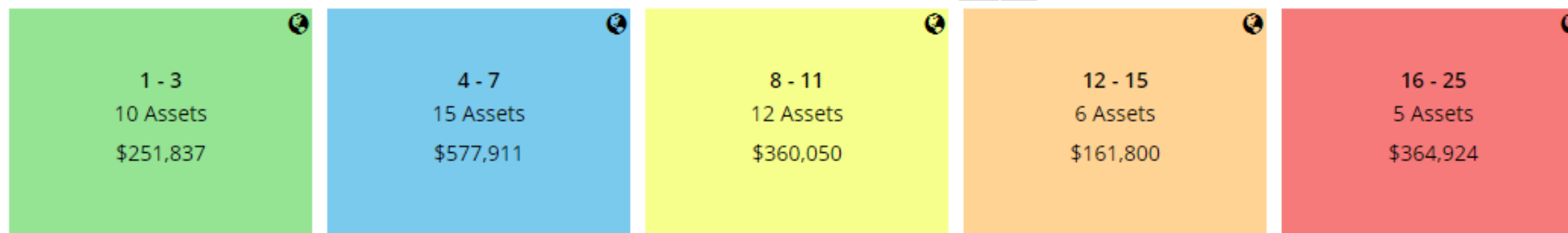
The annual capital requirement represents the average amount per year that Thames Centre should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 50 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirements at \$220 thousand.



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

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data.



The identification of these critical assets by using the risk framework allows Thames Centre to determine appropriate risk mitigation strategies and treatment options. These may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data. Critical assets do not necessarily require immediate renewal or replacement.

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

Levels of Service

By comparing the cost, performance (average condition) and risk year-over-year, the Municipality will be able to evaluate how their services/assets are trending. The Municipality will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by Thames Centre’s Machinery & Equipment.

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	List of machinery & equipment owned by the municipality, an explanation of uses and the service areas supported by these assets.	Thames Centre maintains a comprehensive inventory of machinery and equipment essential for municipal operations. This includes custodial equipment for facility maintenance, emergency services gear supporting first responders, and furniture and fixtures across offices and buildings for functional environments. IT equipment aids in communication, entertainment, and data management, while recreation equipment enhances community engagement in parks and sports facilities. Tools, shop, and garage machinery ensure vehicles and equipment are well-maintained, supporting efficient service delivery and asset longevity. These resources collectively enable Thames Centre to effectively manage facilities, provide essential services, and enhance community amenities.

Technical Levels of Service

The following table include quantitative metrics that determine the technical level of service provided by Machinery & Equipment.

Service Attribute	Technical Metric	Current LOS (2023)
Reliability	% of machinery & equipment assets in poor or very poor condition	37%
	% of machinery & equipment assets in good or very good condition	35%
Performance	Capital reinvestment rate	TBD

DRAFT

Recommendations

Replacement Costs

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

Condition Assessment Strategies

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

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

- Continue measuring current levels of service in accordance with the metrics that Thames Centre has established in this AMP.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

Fleet

The fleet service is responsible for maintaining and replacing municipally owned vehicles and equipment under the municipal replacement strategy. Municipal vehicles are used to support several service areas, including:

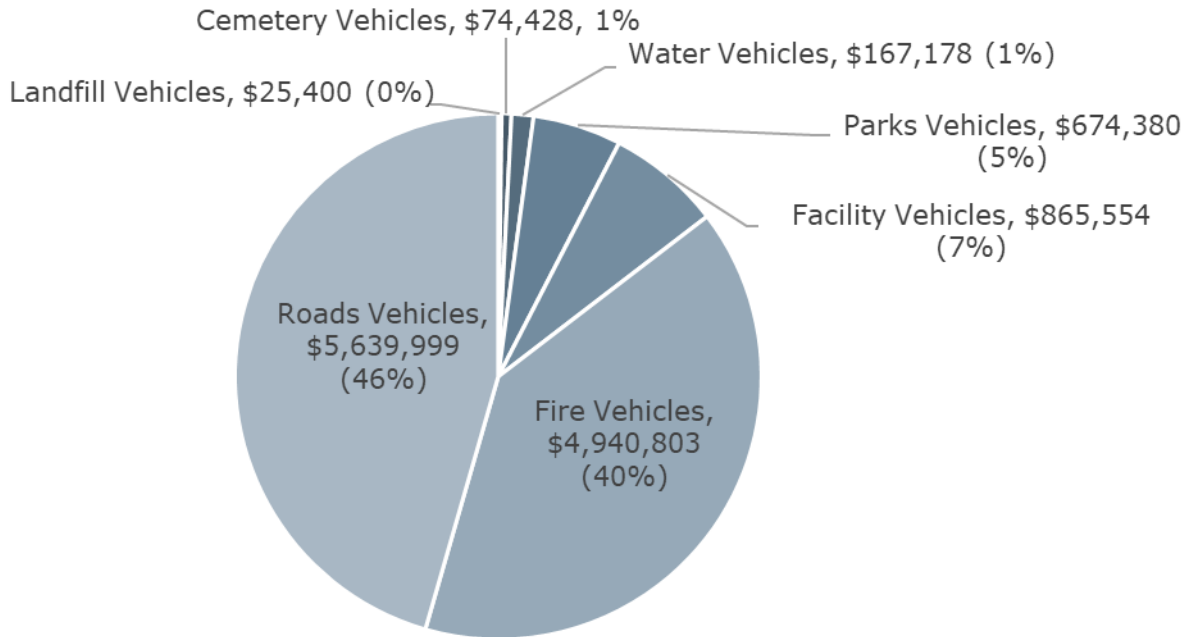
- fire rescue vehicles that support emergency services,
- light-duty, medium-duty, & heavy-duty vehicles to support the maintenance of municipal infrastructure and address service requests,
- heavy-duty machinery to support the construction and rehabilitation of vital infrastructure, the removal of critical infrastructure, and
- attachments to support the operational needs of critical use vehicles and heavy-duty machinery.

Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Municipality's Fleet Portfolio.

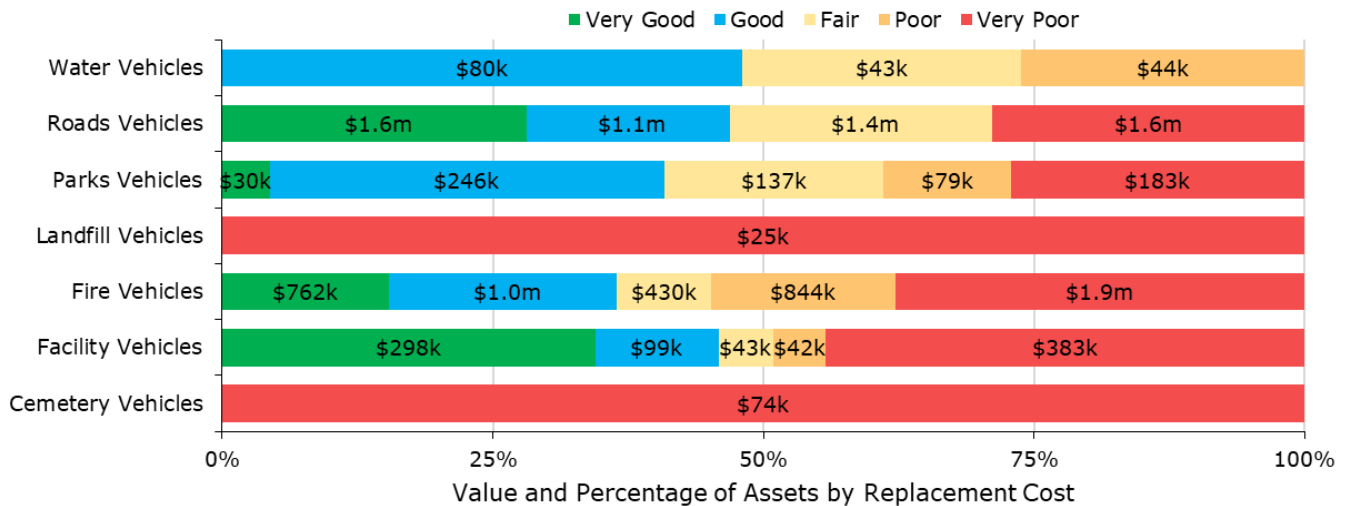
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Cemetery Vehicles	1	CPI Inflation (Historical Cost)	\$74,428
Facility Vehicles	6	CPI Inflation (Historical Cost)	\$865,554
Fire Vehicles	10	CPI Inflation (Historical Cost)	\$4,940,803
Landfill Vehicles	1	CPI Inflation (Historical Cost)	\$25,400
Parks Vehicles	28	CPI Inflation (Historical Cost)	\$674,380
Roads Vehicles	24	CPI Inflation (Historical Cost)	\$5,639,999
Water Vehicles	4	CPI Inflation (Historical Cost)	\$167,178
			\$12,387,742

The graph below displays the replacement cost of each asset segment in the Municipality's fleet inventory:



Asset Condition

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



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

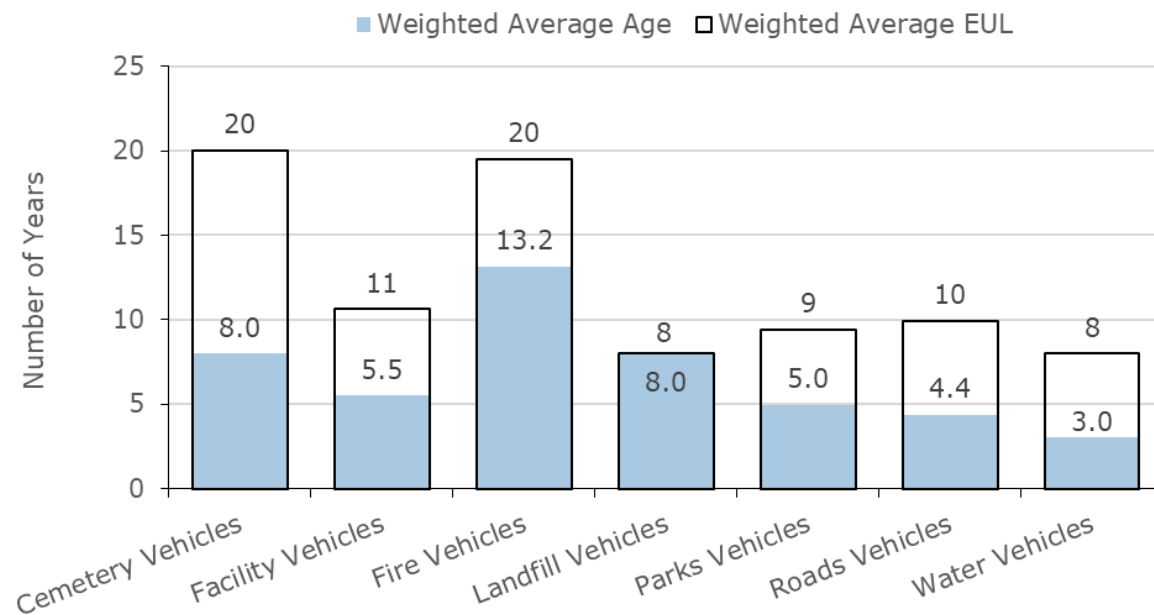
Current Approach to Condition Assessment

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

- Staff complete regular visual inspections of vehicles to ensure they are in a state of adequate repair prior to operation.
- The mileage of vehicles is used as a proxy to determine remaining useful life and relative vehicle condition except for the Fire Department.

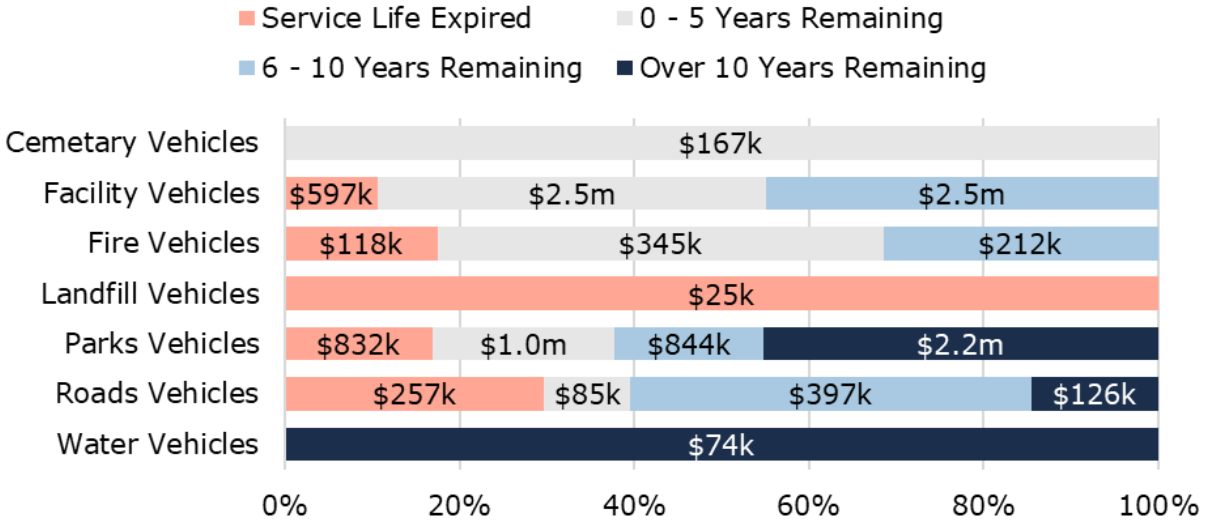
Asset Age & Service Life Remaining

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



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

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.



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

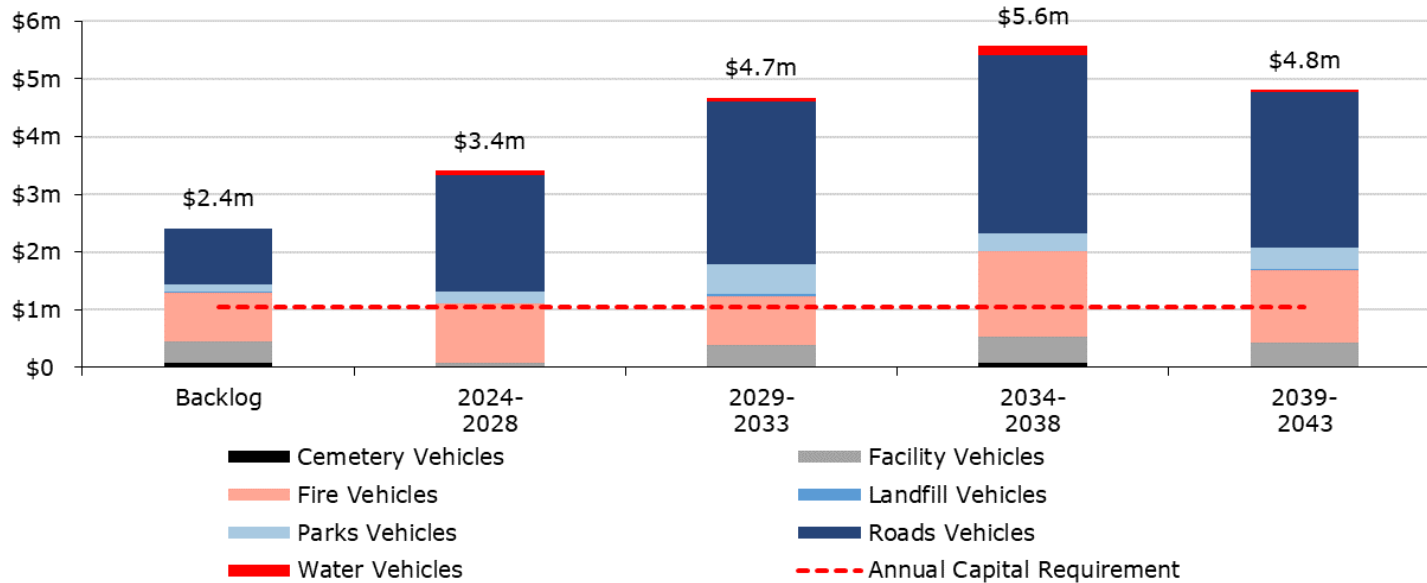
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines Thames Centre's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Visual inspections completed and documented daily; fluids inspected at every fuel stop; tires inspected monthly
	Every 4-7000km includes a detailed inspection; tires are rotated and oil changed
	Annual preventative maintenance activities include system components check and additional detailed inspections
Replacement	Fleet replacements are based on the Municipality's Tangible Capital Asset Policy. Policy Number: CP-1-1.2
	Vehicle age, kilometres and annual repair costs are taken into consideration when determining appropriate treatment options

Forecasted Capital Requirements

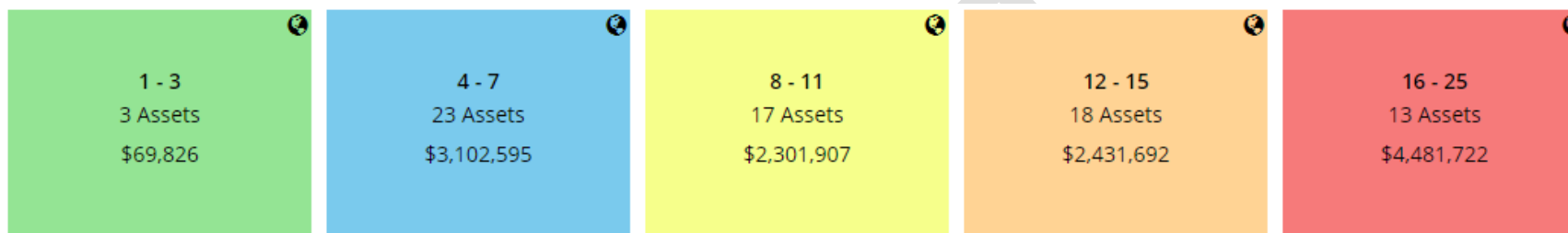
The annual capital requirement represents the average amount per year that Thames Centre should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 20 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirements at \$1.0 million.



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

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data.



The identification of these critical assets by using the risk framework allows Thames Centre to determine appropriate risk mitigation strategies and treatment options. These may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data. Critical assets do not necessarily require immediate renewal or replacement.

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

Levels of Service

By comparing the cost, performance (average condition) and risk year-over-year, the Municipality will be able to evaluate how their services/assets are trending. The Municipality will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by Thames Centre’s Fleet.

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	List of vehicles, an explanation of uses and the service areas supported by these assets.	Thames Centre maintains a fleet of vehicles crucial for diverse municipal operations. This includes fire rescue vehicles supporting emergency services, ensuring rapid response capabilities. Light-duty, medium-duty, and heavy-duty vehicles are utilized for maintaining municipal infrastructure and addressing service requests efficiently. Heavy-duty machinery supports construction and rehabilitation projects, crucial for infrastructure development and removal tasks. Attachments are used to enhance operational capabilities for both vehicles and heavy-duty machinery, ensuring they meet the municipality's operational needs effectively. This comprehensive fleet enables Thames Centre to manage infrastructure, respond to emergencies, and support community needs efficiently.

Technical Levels of Service

The following table include quantitative metrics that determine the technical level of service provided by municipal Fleet.

Service Attribute	Technical Metric	Current LOS (2023)
Reliability	% of municipal fleet in poor or very poor condition	42%
	% of municipal fleet in good or very good condition	42%
Performance	Capital reinvestment rate	TBD

Recommendations

Replacement Costs

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

Condition Assessment Strategies

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

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

- Continue measuring current levels of service in accordance with the metrics that Thames Centre has established in this AMP.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

Parks & Land Improvements

Thames Centre owns and operates a number of assets that are categorized under the Parks & Land Improvements category and assist in providing the Municipality with community recreation and natural outdoor space. This category includes:

- Fields, courts, and rinks
- Skateboard parks
- Parking lots for municipal facilities and parks
- Parklands and Trails
- Fencing and signage
- Playgrounds
- Miscellaneous landscaping, irrigation and other purposed assets

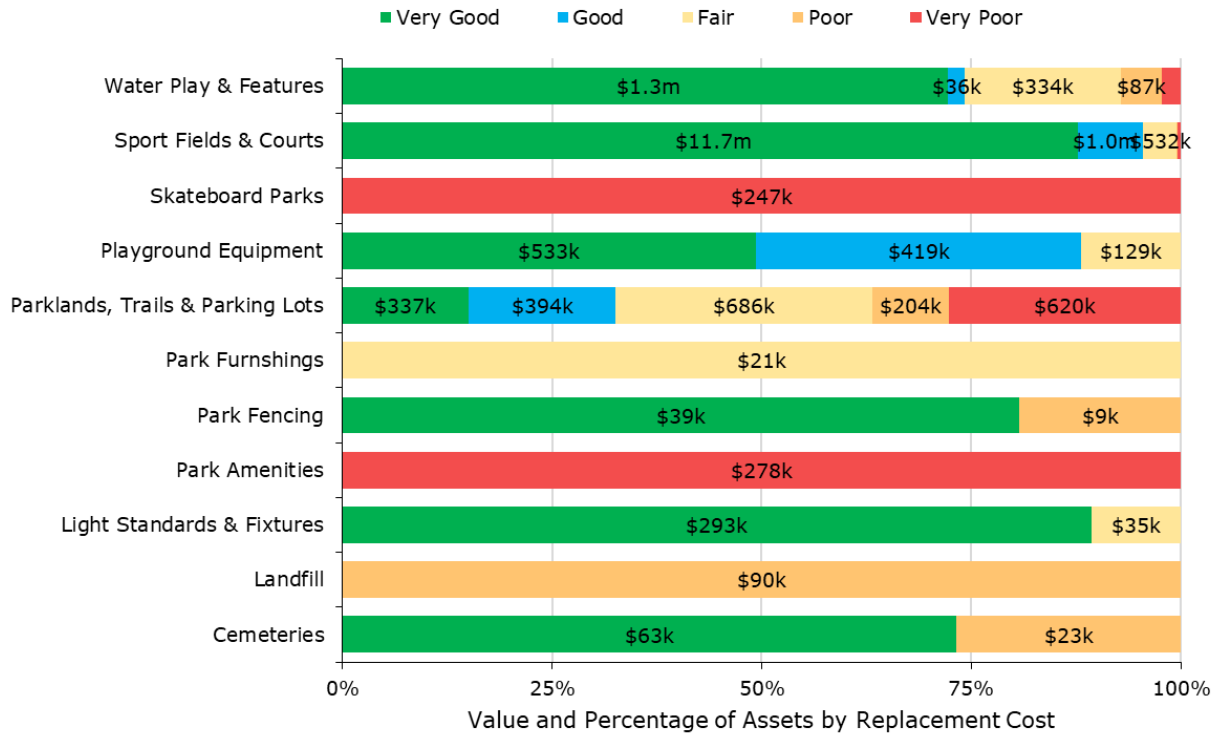
Asset Inventory & Replacement Cost

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

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Cemeteries	3	CPI Inflation	\$86,059
Landfill	1	CPI Inflation	\$89,534
Light Standards & Fixtures	5	CPI Inflation	\$327,912
Park Amenities	2	CPI Inflation	\$277,987
Park Fencing	2	CPI Inflation	\$48,222
Park Furnshings	2	CPI Inflation	\$20,762
Parklands, Trails & Parking Lots	36	CPI Inflation	\$2,240,748
Playground Equipment	14	CPI Inflation	\$1,080,139
Skateboard Parks	4	CPI Inflation	\$246,989
Sport Fields & Courts	42	CPI Inflation	\$13,282,595
Water Play & Features	12	CPI Inflation	\$1,788,224
			\$19,489,171

Asset Condition

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



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

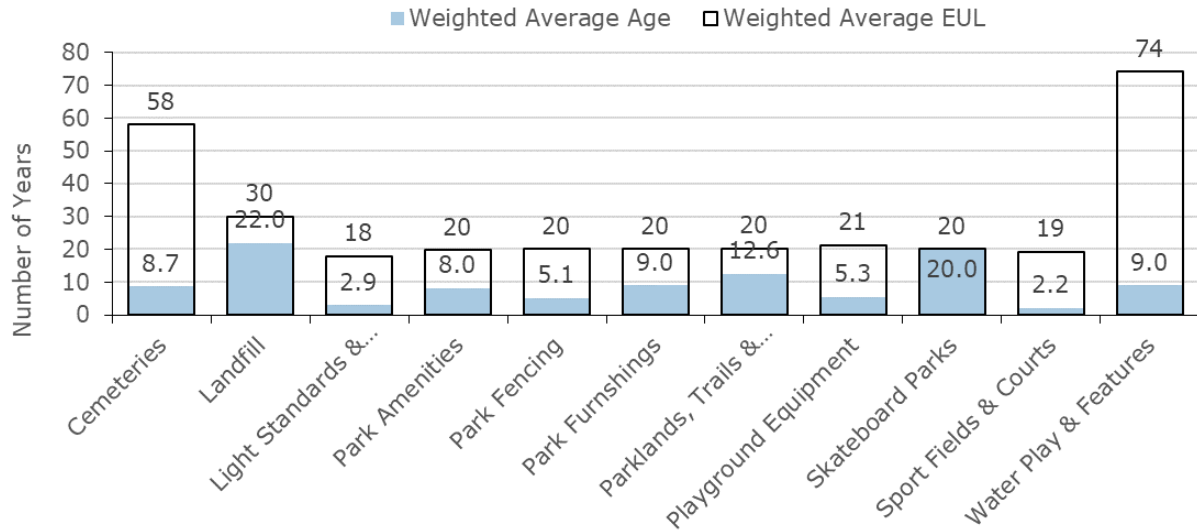
Current Approach to Condition Assessment

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

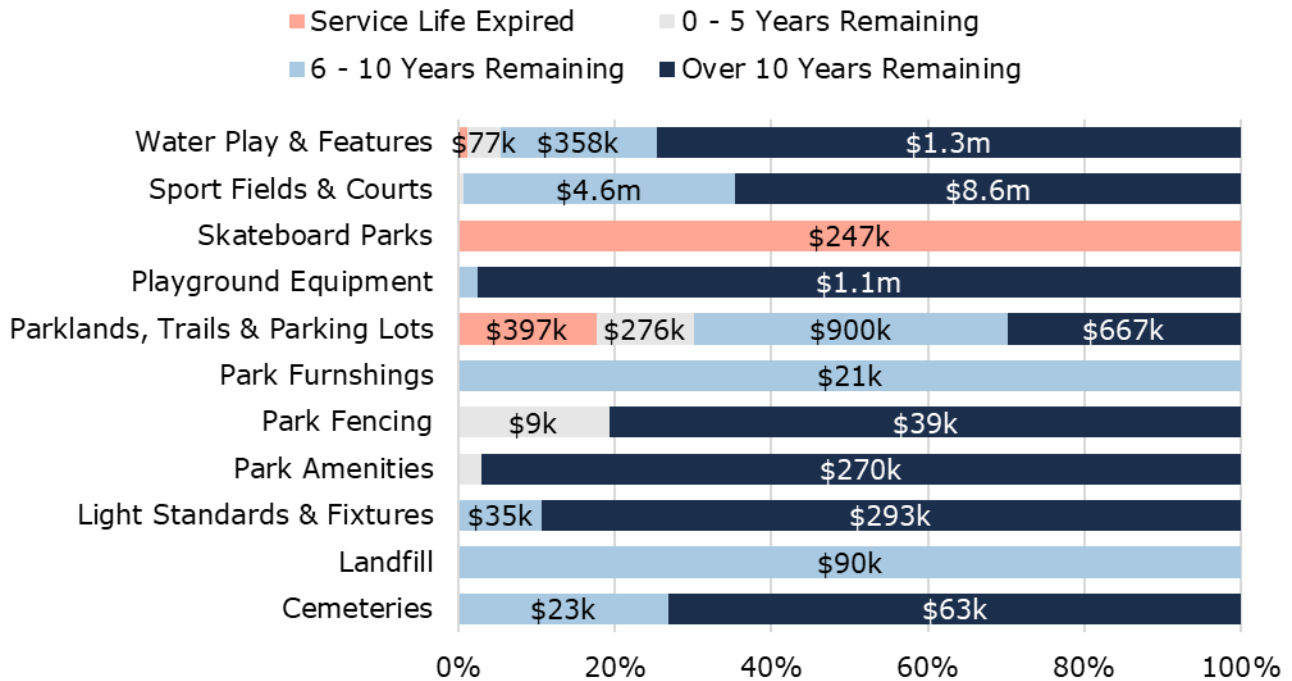
- Staff complete regular visual inspections of parks and land improvements assets to ensure they are in a state of adequate repair.
- Outdoor play spaces, fixed play structures and surfacing is inspected by an external third party in accordance with CAN/CSA-Z614-14 and required as per O. Reg. 137/15.
- There are no formal condition assessment programs in place for the other parks & land improvement assets.

Asset Age & Service Life Remaining

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



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.



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

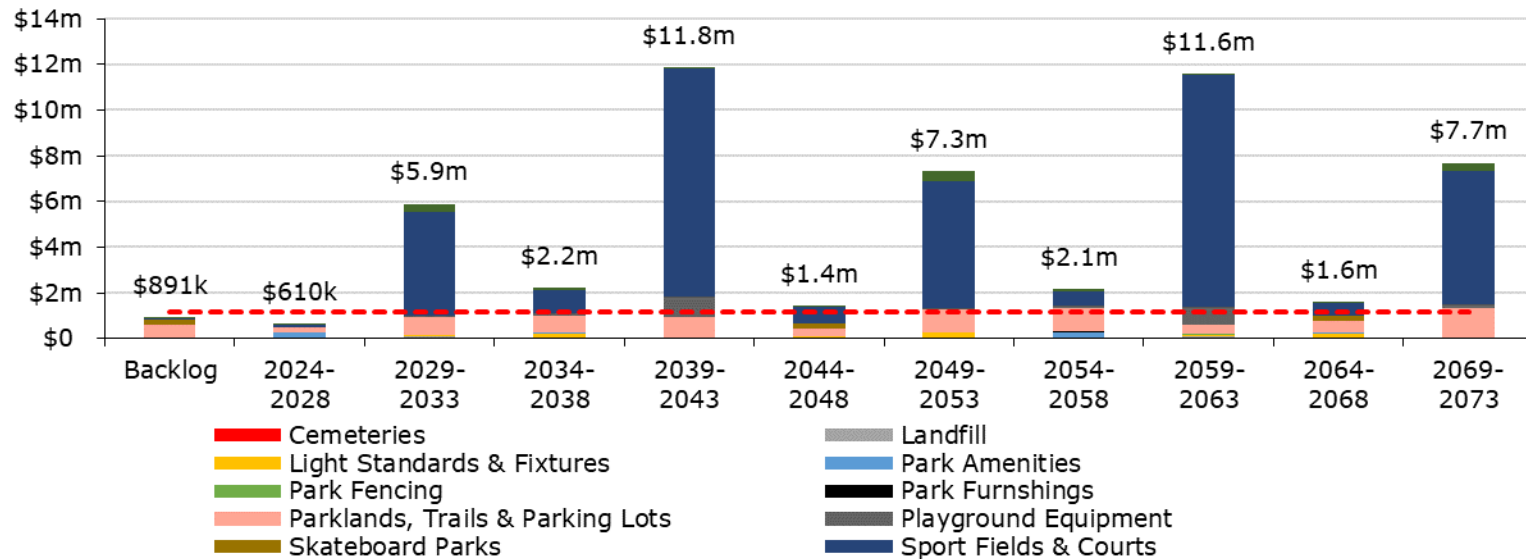
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation & Replacement	The Parks & Land Improvements asset category includes several unique asset types and lifecycle requirements are dealt with on a case-by-case basis
	Seasonal maintenance for parks & land improvement assets includes aerating, rolling, seeding, irrigation and replenishing of engineered wood fibre for playgrounds, as well as clay for baseball infields.
	Maintenance and repairs for playground assets are conducted in accordance with the annual external mandated inspection requirements, as well as the results obtained from monthly deficiency inspections performed by internal staff.

Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Thames Centre should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 50 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirements at \$1.1 million.



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

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data.



The identification of these critical assets by using the risk framework allows Thames Centre to determine appropriate risk mitigation strategies and treatment options. These may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data. Critical assets do not necessarily require immediate renewal or replacement.

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

Levels of Service

The following tables identify Thames Centre’s metrics to identify the current level of service for the land improvement assets. By comparing the cost, performance (average condition) and risk year-over-year the Municipality will be able to evaluate how their services/assets are trending. The Municipality will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

Community Levels of Service

The following table outlines the qualitative descriptions that determine the community levels of service provided by the Parks & Land Improvements category.

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of parks and recreational areas and their proximity to the surrounding community	See Appendix B

Technical Levels of Service

The following table include quantitative metrics that determine the technical level of service provided by the Parks & Land Improvements category.

Service Attribute	Technical Metric	Current LOS (2023)
Scope	Square metres of outdoor recreation facility space	682,782.84 m ²
Quality	# of maintenance inspections / # of playgrounds (as per CSS)	12/12
	% of parks and recreation areas that are in good or very good condition	83%
	% of parks and recreation areas that are in poor or very poor condition	9%
Performance	Capital reinvestment rate	TBD

Recommendations

Replacement Costs

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

Condition Assessment Strategies

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

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

- Continue measuring current levels of service in accordance with the metrics that Thames Centre has established in this AMP.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

Analysis of Rate-funded Assets

Key Insights

- Rate-funded assets are valued at \$127.4 million.
- 90% of rate-funded assets are in fair or better condition.
- The average annual capital requirement to sustain the current level of service for rate-funded assets is approximately \$1.9 million.
- Council approved the new rates recommended in the Water and Wastewater Rate Study in 2020.

Water Distribution

The Municipality operates two municipal drinking water systems located in Dorchester and Thorndale, both supplied by groundwater wells. Water distribution and transmission services are overseen by the Public Works department. Thames Centre is responsible for:

- Water Supply
- Storage Facilities
- Distribution System

A Water and Wastewater Master Plan was approved in 2008, further expanded upon in 2019. The Master Plan provided a review and development of water servicing strategies for servicing the Municipality. Anticipated growth of the urban areas based on population and employment growth forecasts was factored in. Thames Centre also conducted a water and wastewater rate study in 2020 to determine the appropriate rate structure and rate increases, and forecasts over a 10-year period.

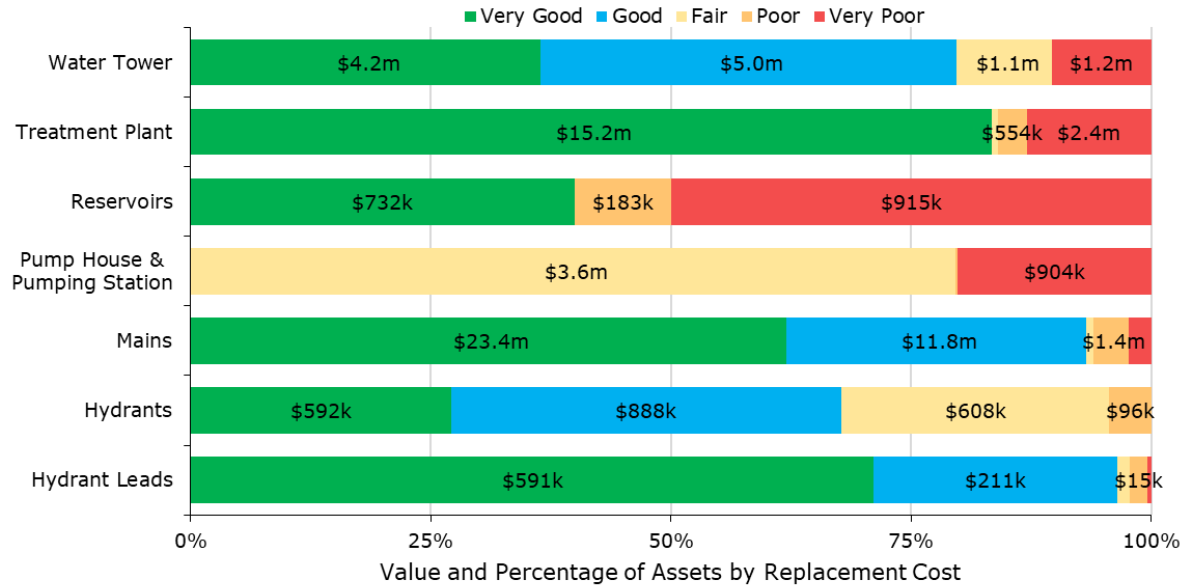
Asset Inventory & Replacement Cost

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

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Hydrant Leads	1 km	Cost per Unit	\$831,569
Hydrants	273	Cost per Unit	\$2,184,000
Mains	56 km	Cost per Unit	\$37,747,193
Pump House & Pumping Station	21	User-Defined	\$4,472,518
Reservoirs	2	CPI Inflation	\$1,829,789
Treatment Plant	2	User-Defined	\$18,258,967
Water Tower	2	User-Defined	\$11,470,685
			\$76,794,721

Asset Condition

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



This data set was sourced from Citywide and primarily reflects the age of the water collection assets. While it provides a valuable overview, it does not yet incorporate the latest inspection data, which will more accurately reflect the true physical condition. The 2025 Asset Management Plan will include these ongoing inspections, offering a more comprehensive and favorable representation of the asset category.

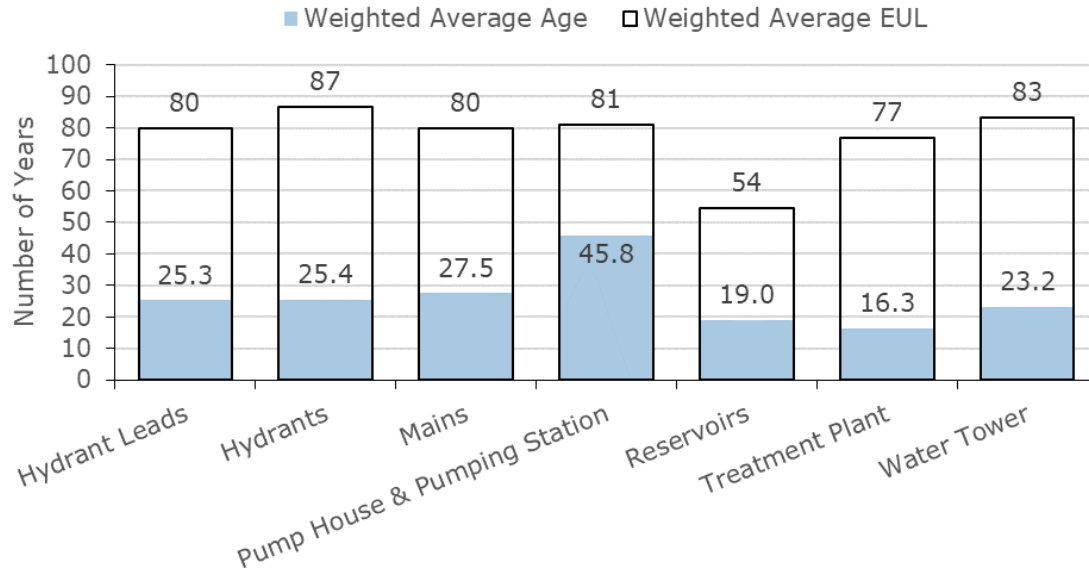
Current Approach to Condition Assessment

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

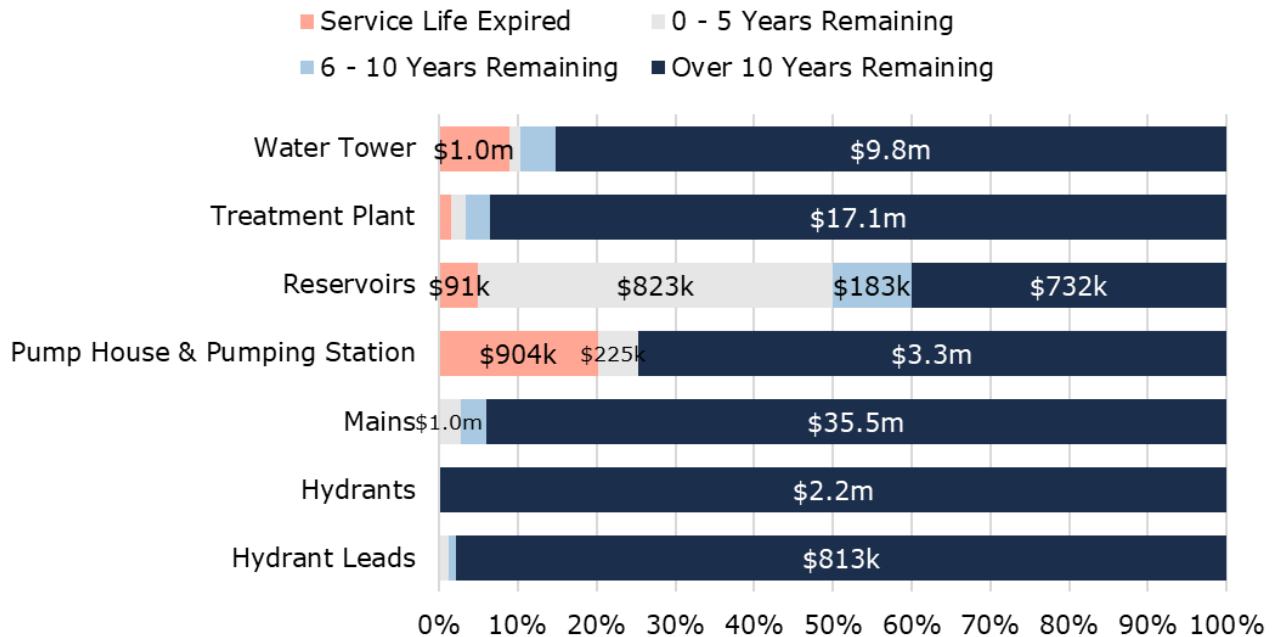
- Staff primarily rely on the age and material of water assets to determine the projected condition of water mains.
- In 2018, Dillon Consulting was conducted a Condition Assessment, evaluating various factors including wall thickness, C-factors, pipe material, pipe age, and historical failure data.
- Aside from the inspections required under O. Reg. 170/3, there are no formal condition assessment programs in place for the Water Distribution System.
- Reservoirs are inspected by their manufacturer on a 5-year cycle.

Asset Age & Service Life Remaining

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



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.



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

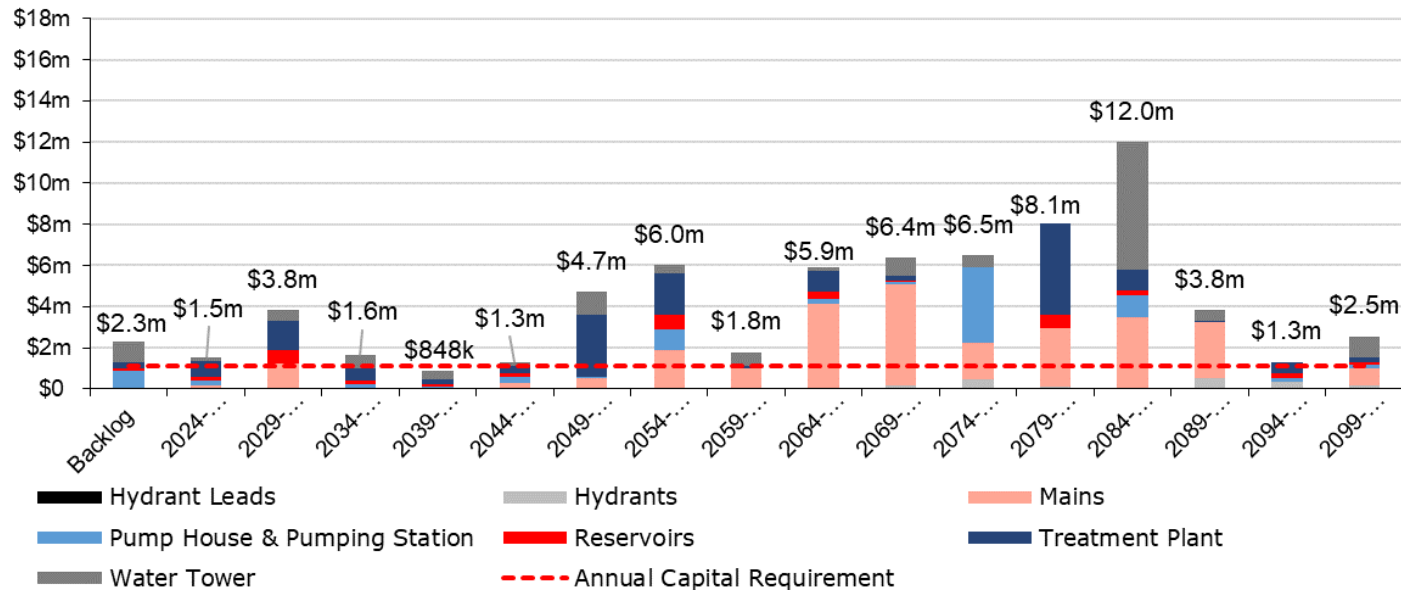
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance	<p>Periodic pressure testing to identify deficiencies and potential leaks</p> <p>Main valves are exercised annually and Hydrants are flushed, pressure checked and lubricated annually by internal staff</p>
Rehabilitation	<p>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</p>
Replacement	<p>Watermain replacement activities are identified based on an analysis of material, service life remaining, main break-rate as well as any issues identified during regular maintenance activities</p>

Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Thames Centre should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 80 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirement of \$1.1 million.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A. These projections are generated in Citywide and rely on the data available in the asset register. Assessed condition data and replacement costs were used to assist in forecasting replacement needs for Water Distribution assets.

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data.



The identification of these critical assets by using the risk framework allows Thames Centre to determine appropriate risk mitigation strategies and treatment options. These may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data. Critical assets do not necessarily require immediate renewal or replacement.

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

Levels of Service

The following tables identify Thames Centre’s current level of service for the Water System. These metrics comprise of the community and technical levels of service metrics that are required as part of O. Reg. 588/17.

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system	In the Municipality of Thames Centre, the Urban Settlement Areas of Dorchester and Thorndale are integrated into the municipal water system, encompassing approximately 46% of the population. See Appendix B.
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow	See Appendix B.
Reliability	Description of boil water advisories and service interruptions	In 2023, the municipality experienced zero boil water advisories and service interruptions.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of properties connected to the municipal water system	46%
	% of properties where fire flow is available	47%
Reliability	# of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system	1
	# 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
Performance	Capital re-investment rate	TBD

Recommendations

Asset Inventory

- Continue to refine the asset inventory to ensure all relevant asset types are included.
- Review and revise replacement costs and critical asset attribute data on a regular basis.

Condition Assessment Strategies

- Continue with the ongoing assessment program for the water distribution asset category. Additionally, it is crucial to ensure that the condition results are systematically recorded into the database for accurate tracking and analysis.

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics that Thames Centre has established in this AMP.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

Wastewater Collection

The Municipality owns two wastewater systems, in Dorchester and Thorndale. The Wastewater Services team in the Public Works department is responsible for providing collection and treatment services such as:

- Wastewater Treatment
- Pumping Stations
- Sewer Collection System

The Dorchester Wastewater Treatment Plant is currently being upgraded, which includes the installation of Pump Station #3. Thames Centre also conducted a water and wastewater rate study in 2020 to determine the appropriate rate structure and rate increases, and capital spending forecasts over a 10-year period.

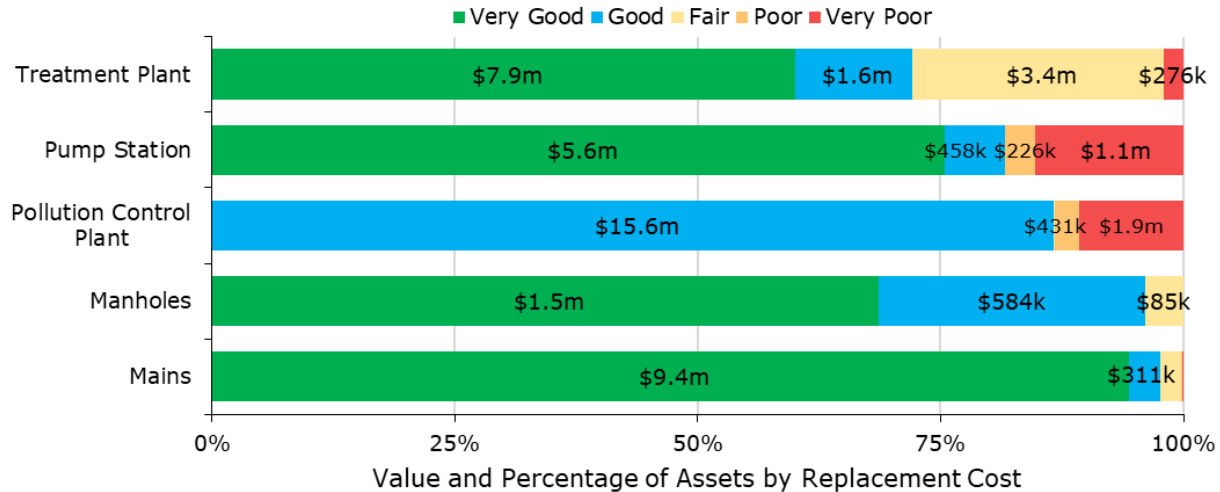
Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Wastewater inventory.

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Mains	21 km	Cost per Unit	\$9,918,244
Manholes	298	Cost per Unit	\$2,132,000
Pollution Control Plant	1	User-Defined	\$17,966,375
Pump Station	2	User-Defined	\$7,390,272
Treatment Plant	2	User-Defined	\$13,220,077
			\$50,626,968

Asset Condition

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



This data set was sourced from Citywide and primarily reflects the age of the wastewater assets. While it provides a valuable overview, it does not yet incorporate the latest inspection data, which will more accurately reflect the true physical condition. The 2025 Asset Management Plan will include these ongoing inspections, offering a more comprehensive and favorable representation of the asset category.

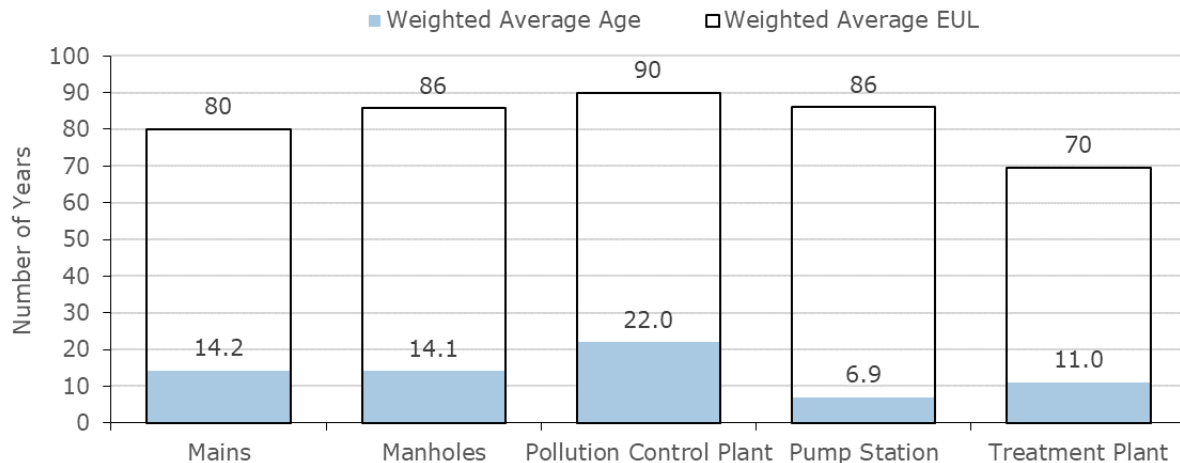
Current Approach to Condition Assessment

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

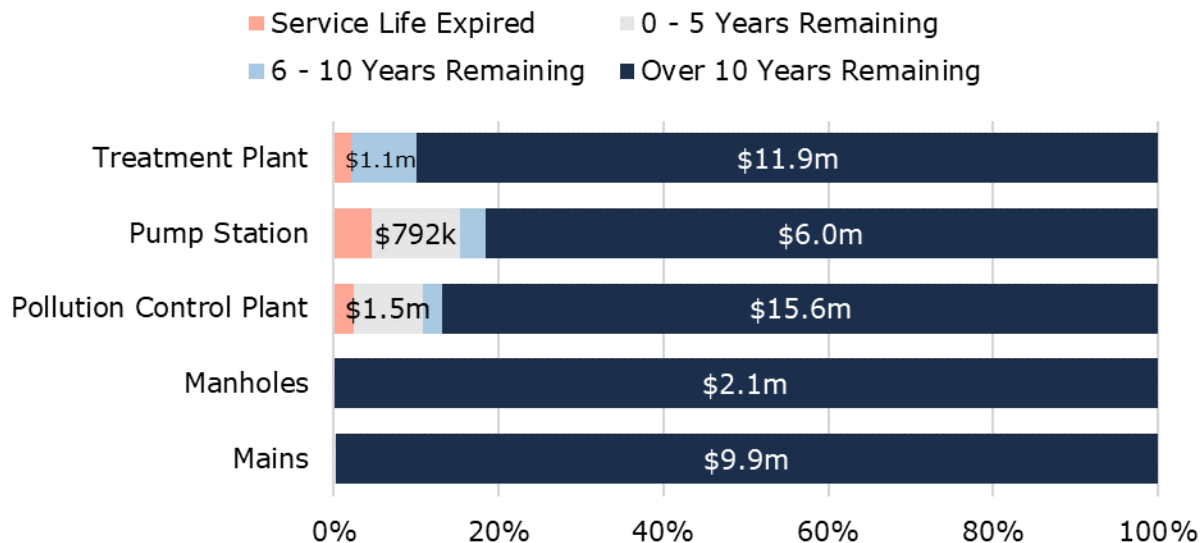
- Each year, 20% of the wastewater mains undergo assessment, with the last assessment conducted in 2023. The municipality employs the NAASCO Grading System to evaluate wastewater assets.
- Pump stations undergo biannual inspection and cleaning.
- The municipality is currently exploring an inspection and cleaning program for manholes.

Asset Age & Service Life Remaining

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



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.



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.

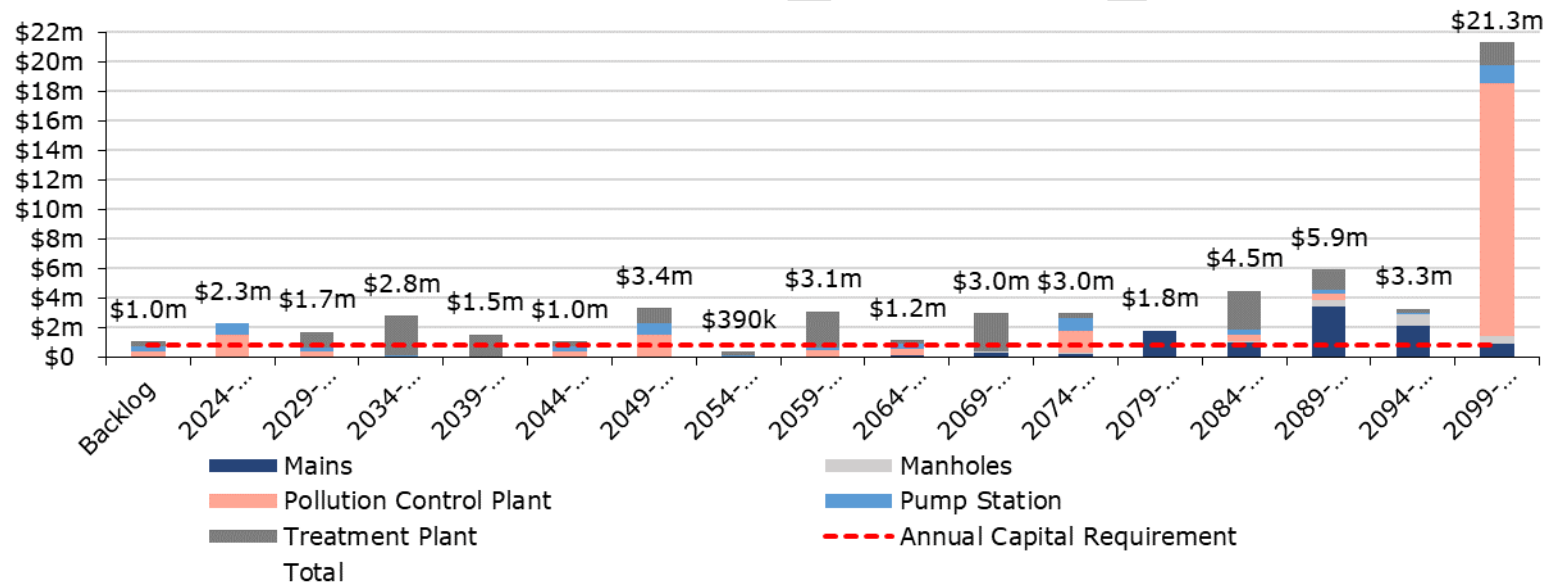
The following table outlines the Municipality’s current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Routine maintenance tasks include inspections, cleaning, minor repairs, CCTV inspections, and flushing, which are conducted by both internal staff and external contractors. Wastewater mains undergo flushing and CCTV inspections on a 5-year cycle, while pump stations are cleaned and inspected 2-3 times per year.
Rehabilitation	Rehabilitation activities, which vary based on the area and burial depth, encompass either open cut replacement or relining techniques.
Replacement	Replacement is prioritized for assets whose condition has significantly deteriorated, and rehabilitation is no longer cost-effective. Assets nearing the end of their expected service life or requiring frequent and costly repairs, such as grinder pumps, are given priority for replacement.

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Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Thames Centre should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 80 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirements at \$831 thousand.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A. These projections are generated in Citywide and rely on the data available in the asset register. Assessed condition data and replacement costs were used to assist in forecasting replacement needs for Wastewater assets.

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data.



The identification of these critical assets by using the risk framework allows Thames Centre to determine appropriate risk mitigation strategies and treatment options. These may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data. Critical assets do not necessarily require immediate renewal or replacement.

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

Levels of Service

The following tables identify Thames Centre’s current levels of service for the Wastewater System. 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 Municipality 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 Wastewater System.

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system	See Appendix B
Reliability	Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes	The Municipality 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	
	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes	No overflow from wastewater to storm occurs.
	Description of how sewers in the municipal wastewater system are designed to be resilient to stormwater infiltration	The municipality follows a series of design standards that integrate servicing requirements and land use considerations when constructing or replacing sanitary sewers. These standards have been

Service Attribute	Qualitative Description	Current LOS (2023)
		determined with consideration of the minimization of sewage overflows and backups.
	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system	Effluent refers to water pollution that is discharged from a wastewater treatment plant, and may include suspended solids, total phosphorous and biological oxygen demand. The Environmental Compliance Approval (ECA) identifies the effluent criteria for municipal wastewater treatment plants.

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Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of properties connected to the municipal wastewater system	21%
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 wastewater system	Not Applicable
	# of connection-days per year due to sanitary main backups compared to the total number of properties connected to the municipal wastewater system	0
	# of connection-days per year due to sanitary service backups compared to the total number of properties connected to the municipal wastewater system	0
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	0
Performance	Capital re-investment rate	TBD

Recommendations

Asset Inventory

- Continue to refine the asset inventory to ensure all relevant asset types are included.
- Review and revise replacement costs and critical attribute data on a regular basis.

Condition Assessment Strategies

- Continue with the ongoing assessment program for the wastewater collection asset category. Additionally, it is crucial to ensure that the condition results are systematically recorded into the database for accurate tracking and analysis.

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Lifecycle Management Strategies

- Consider a trenchless re-lining strategy for wastewater mains; it is expected to extend the service life of wastewater mains at a lower total cost of ownership and should be implemented to extend the life of infrastructure at the lowest total cost of ownership.
- Evaluate the efficacy of the Municipality's lifecycle management strategies at regular intervals to determine the impact cost, condition and risk.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics that the Municipality has established in this AMP.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

Stormwater Collection

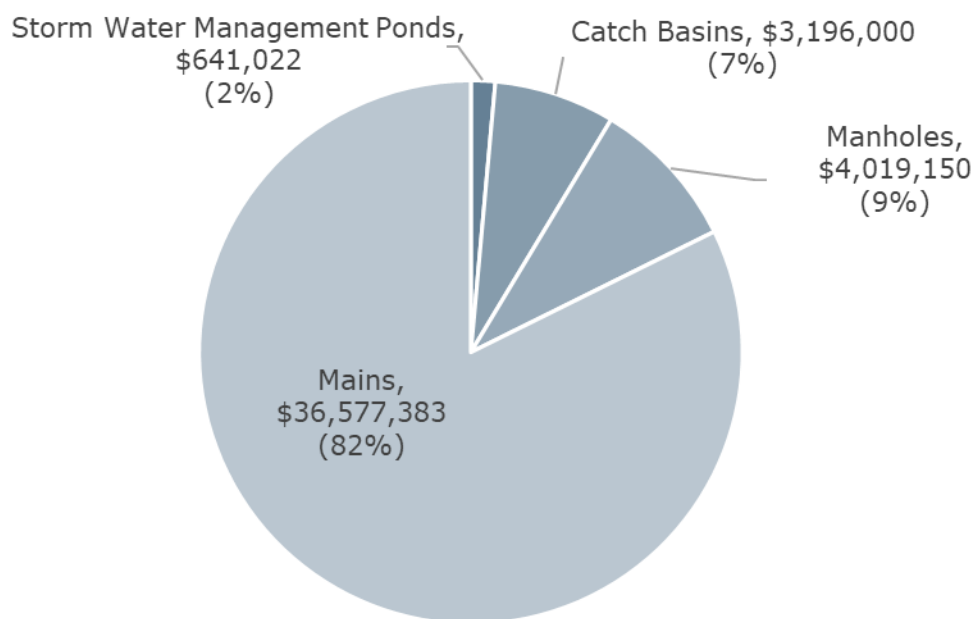
The Stormwater system is designed to manage the flow of stormwater. In recent years, this asset category has become increasingly relevant due to the increasing intensity and frequency of extreme weather events. The Stormwater and Drainage team in the Public Works department oversee the stormwater system which includes infrastructure such as stormwater ponds, storm sewer mains, catch basins, and maintenance holes.

Asset Inventory & Replacement Cost

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

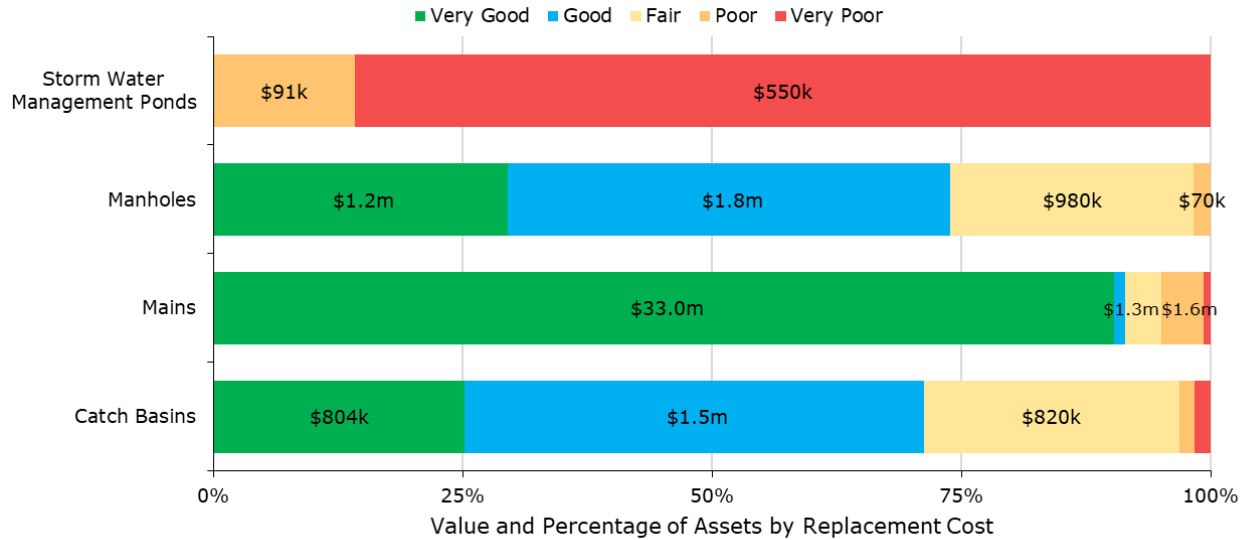
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Catch Basins	799	Cost per Unit	\$3,196,000
Mains	46 km	Cost per Unit	\$36,577,383
Manholes	551	Cost per Unit	\$4,019,150
SWM Ponds	4	User-Defined	\$641,022
			\$44,433,555

The following graph displays the replacement cost of each asset segment:



Asset Condition

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



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

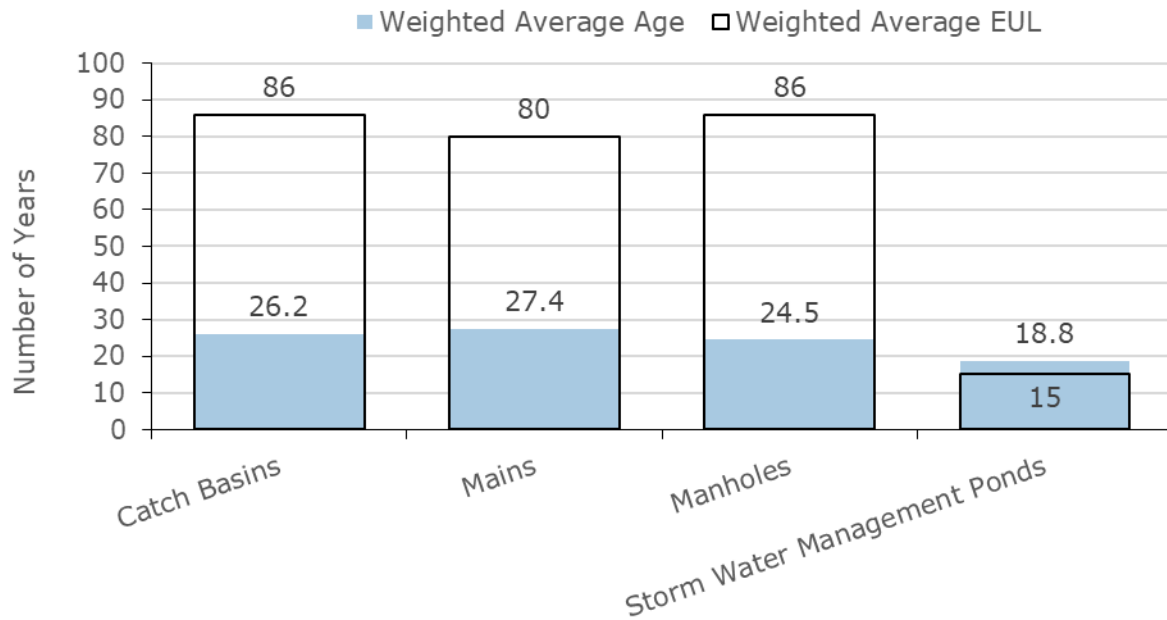
Current Approach to Condition Assessment

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

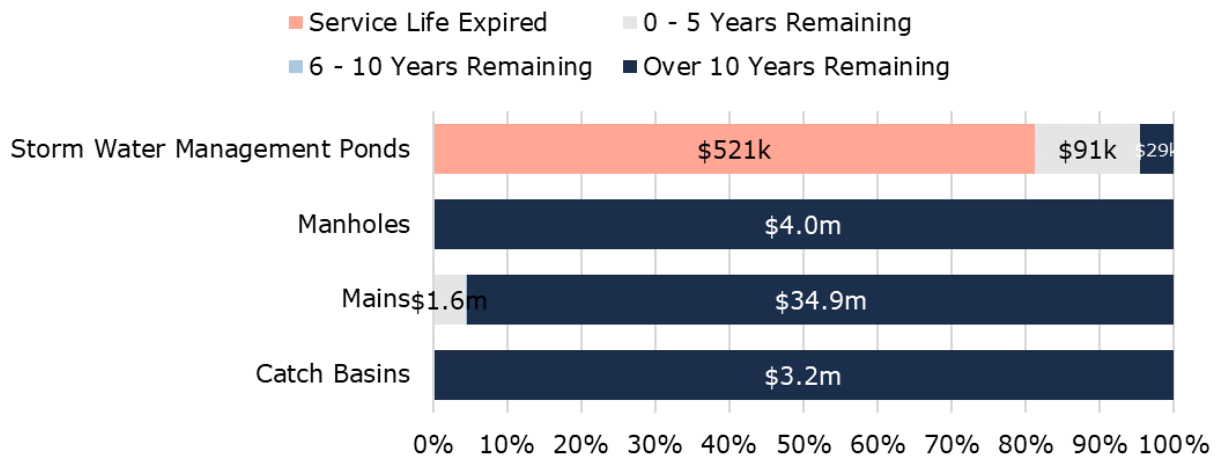
- Each year, 10% of Stormwater mains undergo assessment to promptly identify maintenance requirements.
- The municipality employs the NAASCO Grading System for evaluating Stormwater assets, focusing primarily on the structural index.
- There are ongoing considerations within the municipality to potentially enhance the frequency of these assessments.

Asset Age & Service Life Remaining

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



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.



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.

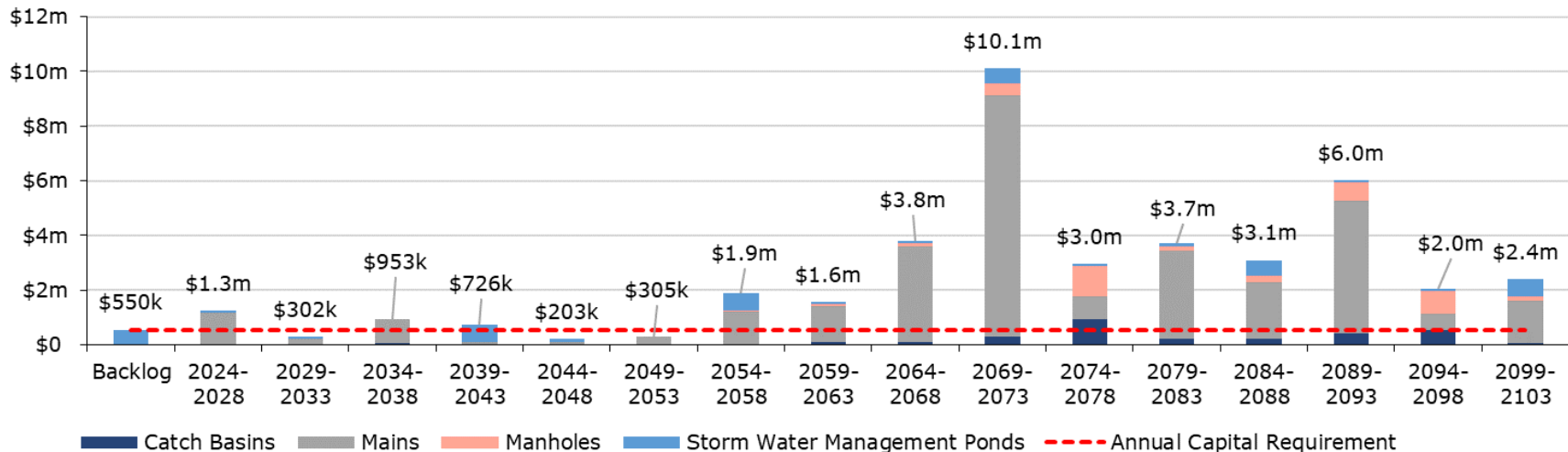
The following table outlines the Municipality’s current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	Maintenance activities encompass main flushing, with 10% of the pipes being flushed each year.
Rehabilitation	Rehabilitation activities include, segment replacement, parging, and slip-lining repairs.
Replacement	Replacement is considered when an asset's condition has deteriorated significantly, and rehabilitation is no longer cost-effective.
	Full replacement is conducted in coordination with other infrastructure replacement projects.

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Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Thames Centre should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 80 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirements at \$554 thousand.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A. These projections are generated in Citywide and rely on the data available in the asset register. Assessed condition data and replacement costs were used to assist in forecasting replacement needs for Storm Water assets.

Risk & Criticality

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data.



The identification of these critical assets by using the risk framework allows Thames Centre to determine appropriate risk mitigation strategies and treatment options. These may include asset-specific lifecycle strategies, condition assessment strategies, or simply the need to collect better asset data. Critical assets do not necessarily require immediate renewal or replacement.

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

Levels of Service

The following tables identify Thames Centre’s current levels of service for the Stormwater system. 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 Municipality 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 Stormwater System.

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include map, of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater system	See Appendix B

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of properties in municipality resilient to a 100-year storm	TBD ⁴
	% of the municipal stormwater management system resilient to a 5-year storm	TBD ⁵
Performance	Capital reinvestment rate	0.21%

⁴ The Municipality does not currently have data available to determine this technical metric. The rate of properties that are expected to be resilient to a 100-year storm is expected to be low.

⁵ The Municipality does not currently have data available to determine this technical metric. The percentage of the stormwater system resilient to a 5-year storm is expected to be high.

Recommendations

Asset Inventory

- Continue to refine the asset inventory to ensure all relevant asset types are included.
- Review and revise replacement costs and critical attribute data on a regular basis.

Condition Assessment Strategies

- Continue with the ongoing assessment program for the water distribution asset category. Additionally, it is crucial to ensure that the condition results are systematically recorded into the database for accurate tracking and analysis.

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Lifecycle Management Strategies

- Document and review lifecycle management strategies for the Stormwater System on a regular basis to achieve the lowest total cost of ownership while maintaining adequate service levels.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics that Thames Centre has established in this AMP.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

Impacts of Growth

Key Insights

- Understanding the key drivers of growth and demand will allow Thames Centre to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure.
- Moderate population and employment growth are expected.
- The costs of growth are 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 Municipality to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure. Increases or decreases in demand can affect what assets are needed and what level of service meets the needs of the community.

Official Plan for the Municipality of Thames Centre (October 2020)

The Strategic Plan for the Municipality of Thames Centre charts a focused course for community development over the next three years, anchored in extensive community input and addressing key priorities such as housing solutions, transparent decision-making, accessible recreation, economic prosperity, and sustainability. Organized around five strategic pillars—Smart Planning, Community Communications & Engagement, Active Living, Economic Development, and Sustainability—the plan reflects the municipality's commitment to responsive governance.

Community consultation efforts, including surveys, online platforms, and local events like Open Houses, shaped the plan's direction by gathering feedback from residents, businesses, and farms. This input guided the formulation of ambitious goals across all pillars. For example, under Smart Planning, initiatives aim to streamline planning processes, diversify residential options, and collaborate on a Transportation Master Plan with Middlesex County to optimize infrastructure use and protect natural resources.

Initiatives under Community Communications & Engagement focus on enhancing transparency through town hall meetings and improved council session live streams, while Active Living strategies prioritize expanding recreational services, particularly for youth and seniors, through comprehensive Parks and Trails Master Plan development. Economic Development goals include incentivizing local businesses, collaborating on county-wide economic strategies, and supporting agricultural initiatives.

Sustainability efforts underscore fiscal responsibility, green initiatives, and community-wide tree planting programs, reinforcing the plan's commitment to long-term environmental stewardship. Recommendations advocate for embedding strategic priorities into budget allocations, policies, and staff reports, supported by the establishment of specialized committees like the Planning and Development Committee and the Economic Development Committee. These initiatives aim to fortify Thames Centre's current quality of life and pave the way for a resilient future community.

Middlesex County Official Plan (July 2023)

The Middlesex County Official Plan is a comprehensive planning document that directs long-term land use policies and physical planning across the county. It provides a framework for coordinating planning efforts among local municipalities, guiding local official plans and zoning by-laws while respecting local planning autonomy. The Plan includes policies for Settlement Areas, Agricultural Areas, and Natural Environment Areas, as well as strategies for Resource Management, Growth Management, and transportation infrastructure.

Recently updated to align with new Provincial legislation and policies, the Official Plan incorporates initiatives like the Cycling Strategy, Corporate Strategic Plan, and Economic Development Strategy Update. The update aims to guide growth until 2046, ensuring consistency with the Provincial Policy Statement and integrating feedback from the Middlesex 2046 Engagement process. Amendment No. 3, adopted by County Council in July 2022 and approved with modifications by the Ministry of Municipal Affairs and Housing in July 2023, reflects these updates and sets a course for coordinated and sustainable development across Middlesex County.

Development Charges Background Study (December 2021)

A Development Charges Background Study for the Municipality was prepared in December 2021 by Watson & Associates Economists Ltd., based on the methodology required under the Development Charges Act.

According to the Study, the adjusted population for 2021 stands at 14,630 residents, factoring in a Census undercount of 2.3%. Looking ahead to 2031, the municipality is projected to experience a 27% population increase, reaching approximately 18,550 residents, including adjustments for Census undercount.

Population Forecast from 2021 to 2046 (excluding Census undercount)			
Year	2021	2031	2046
Population Forecast	14,141	17,931	21,231

By 2031, over half of this growth is expected to occur in Dorchester, accommodating 57% of the municipality’s new residents, while Thorndale will accommodate the remainder. Rural areas and hamlets within Thames Centre, however, are projected to see a marginal decrease in population. Detailed forecasts and methodologies for both residential and non-residential growth are outlined in the study, providing a comprehensive basis for these projections. The forecast indicates that by mid-2031, the population is estimated to reach around 17,930,

with further growth to 21,230 by mid-2046, and ultimately 22,370 by buildout, reflecting increases of approximately 3,790, 7,090, and 8,230 persons respectively.

Impact of Growth on Lifecycle Activities

By July 1, 2025, Thames Centre’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 Municipality’s AMP.

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Appendices

Key Insights

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

Appendix A: 10-Year Capital Requirements

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

Road Network											
Asset Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
HCB Roads	\$0	\$132k	\$7.7m	\$1.4m	\$4.1m	\$443k	\$147k	\$551k	\$2.6m	\$2.7m	\$5.5m
LCB Roads	\$421k	\$226k	\$748k	\$625k	\$2.0m	\$1.3m	\$0	\$0	\$0	\$0	\$0
Sidewalks	\$667k	\$187k	\$41k	\$40k	\$0	\$0	\$338k	\$58k	\$102k	\$172k	\$25k
Streetlights	\$990k	\$35k	\$0	\$0	\$0	\$0	\$131k	\$47k	\$29k	\$0	\$172k
	\$2.1m	\$580k	\$8.5m	\$2.1m	\$6.1m	\$1.8m	\$616k	\$657k	\$2.7m	\$2.9m	\$5.7m

Bridges & Culverts											
Asset Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bridges	\$0	\$426k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Structural Culverts	\$0	\$389k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	\$0	\$815k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Stormwater Collection											
Asset Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Catch Basins	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Mains	\$0	\$0	\$8k	\$1.1m	\$10k	\$0	\$0	\$100k	\$10k	\$0	\$101k
Manholes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SWM Ponds	\$550k	\$0	\$0	\$91k	\$0	\$0	\$0	\$0	\$0	\$0	\$91k
	\$550k	\$0	\$8k	\$1.2m	\$10k	\$0	\$0	\$100k	\$10k	\$0	\$192k

Buildings & Facilities

Asset Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Community Services	\$0	\$0	\$0	\$54k	\$0	\$0	\$0	\$0	\$0	\$50k	\$0
Environmental Services	\$1.8m	\$0	\$0	\$187k	\$0	\$0	\$0	\$0	\$658	\$0	\$0
General Administration	\$354k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Protective Services	\$506k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Recreation and Cultural Services	\$2.5m	\$4k	\$26k	\$498k	\$3k	\$0	\$774	\$3k	\$194k	\$66k	\$58k
Transportation Services	\$217k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$910k
	\$5.4m	\$4k	\$26k	\$739k	\$3k	\$0	\$774	\$3k	\$194k	\$116k	\$968k

Machinery & Equipment

Asset Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Fire Equipment	\$36k	\$26k	\$0	\$0	\$0	\$301k	\$0	\$82k	\$0	\$0	\$31k
IT Hardware & Software	\$69k	\$26k	\$0	\$247k	\$0	\$94k	\$0	\$247k	\$0	\$94k	\$0
Miscellaneous	\$54k	\$23k	\$86k	\$12k	\$0	\$0	\$98k	\$16k	\$0	\$23k	\$66k
Office Equipment	\$0	\$0	\$0	\$0	\$0	\$58k	\$61k	\$25k	\$0	\$0	\$0
Recreation Equipment	\$0	\$0	\$36k	\$0	\$0	\$30k	\$0	\$22k	\$205k	\$46k	\$44k
	\$159k	\$74k	\$122k	\$259k	\$0	\$484k	\$160k	\$391k	\$205k	\$164k	\$142k

Fleet											
Asset Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Cemetery Vehicles	\$74k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Facility Vehicles	\$383k	\$0	\$0	\$42k	\$0	\$43k	\$0	\$99k	\$0	\$298k	\$0
Fire Vehicles	\$832k	\$0	\$485k	\$0	\$549k	\$0	\$0	\$0	\$844k	\$0	\$0
Landfill Vehicles	\$25k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$25k	\$0
Parks Vehicles	\$118k	\$65k	\$0	\$0	\$79k	\$56k	\$144k	\$34k	\$84k	\$258k	\$0
Roads Vehicles	\$984k	\$0	\$333k	\$309k	\$0	\$1.4m	\$247k	\$138k	\$1.4m	\$811k	\$246k
Water Vehicles	\$0	\$0	\$0	\$44k	\$0	\$43k	\$80k	\$0	\$0	\$0	\$0
	\$2.4m	\$65k	\$818k	\$395k	\$628k	\$1.5m	\$472k	\$271k	\$2.3m	\$1.4m	\$246k

Parks & Land Improvements											
Asset Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Cemeteries	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23k	\$0	\$0
Landfill	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$90k	\$0	\$0
Light Standards & Fixtures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23k	\$0	\$0	\$12k
Park Amenities	\$0	\$8k	\$270k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Park Fencing	\$0	\$0	\$0	\$0	\$0	\$0	\$9k	\$0	\$0	\$0	\$0
Parklands, Trails & Parking Lots	\$603k	\$0	\$0	\$100k	\$0	\$129k	\$0	\$88k	\$167k	\$493k	\$17k
Playground Equipment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$53k	\$0
Skateboard Parks	\$247k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Sport Fields & Courts	\$21k	\$0	\$30k	\$0	\$0	\$51k	\$0	\$0	\$0	\$4.6m	\$0
Water Play & Features	\$19k	\$0	\$22k	\$0	\$0	\$0	\$0	\$43k	\$0	\$0	\$315k
Cemeteries	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23k	\$0	\$0
	\$891k	\$8k	\$321k	\$100k	\$0	\$180k	\$9k	\$154k	\$279k	\$5.1m	\$344k

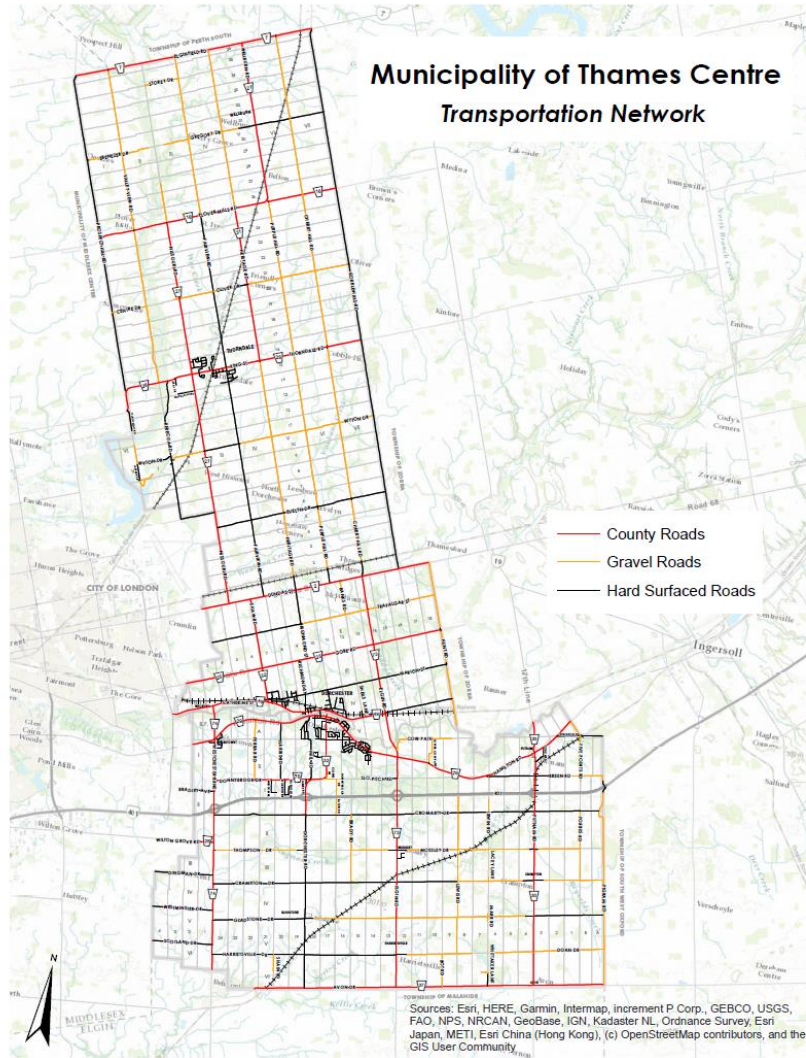
Water Distribution											
Asset Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Hydrant Leads	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Hydrants	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Mains	\$0	\$181k	\$0	\$13k	\$0	\$0	\$948k	\$299k	\$0	\$0	\$0
Pump House & Pumping Station	\$904k	\$0	\$0	\$0	\$0	\$225k	\$0	\$0	\$0	\$0	\$0
Reservoirs	\$91k	\$183k	\$0	\$0	\$0	\$0	\$640k	\$0	\$0	\$0	\$0
Treatment Plant	\$278k	\$387k	\$0	\$0	\$274k	\$76k	\$1.4m	\$0	\$82k	\$0	\$0
Water Tower	\$1.0m	\$0	\$0	\$0	\$164k	\$0	\$0	\$0	\$0	\$504k	\$0
	\$2.3m	\$751k	\$0	\$13k	\$438k	\$301k	\$2.9m	\$299k	\$82k	\$504k	\$0

Wastewater Collection											
Asset Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Mains	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Manholes	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Pollution Control Plant	\$431k	\$0	\$0	\$1.5m	\$0	\$0	\$0	\$0	\$431k	\$0	\$0
Pump Station	\$339k	\$0	\$0	\$792k	\$0	\$0	\$0	\$0	\$226k	\$0	\$0
Treatment Plant	\$276k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$1.1m	\$0
	\$1.0m	\$0	\$0	\$2.3m	\$0	\$0	\$0	\$0	\$657k	\$1.1m	\$0

Asset Portfolio											
Asset Segment	Backlog	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bridges & Culverts	\$0	\$815k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Building & Facilities	\$5.4m	\$4k	\$26k	\$739k	\$3k	\$0	\$774	\$3k	\$194k	\$116k	\$968k
Fleet	\$2.4m	\$65k	\$818k	\$395k	\$628k	\$1.5m	\$472k	\$271k	\$2.3m	\$1.4m	\$246k
Machinery & Equipment	\$159k	\$74k	\$122k	\$259k	\$0	\$484k	\$160k	\$391k	\$205k	\$164k	\$142k
Parks & Land Improvements	\$891k	\$8k	\$321k	\$100k	\$0	\$180k	\$9k	\$154k	\$279k	\$5.1m	\$344k
Road Network	\$2.1m	\$580k	\$8.5m	\$2.1m	\$6.1m	\$1.8m	\$616k	\$657k	\$2.7m	\$2.9m	\$5.7m
Stormwater Collection	\$550k	\$0	\$8k	\$1.2m	\$10k	\$0	\$0	\$100k	\$10k	\$0	\$192k
Wastewater Collection	\$1.0m	\$0	\$0	\$2.3m	\$0	\$0	\$0	\$0	\$657k	\$1.1m	\$0
Water Distribution	\$2.3m	\$751k	\$0	\$13k	\$438k	\$301k	\$2.9m	\$299k	\$82k	\$504k	\$0
	\$14.8m	\$2.3m	\$9.8m	\$7.1m	\$7.2m	\$4.2m	\$4.2m	\$1.9m	\$6.4m	\$11.2m	\$7.6m

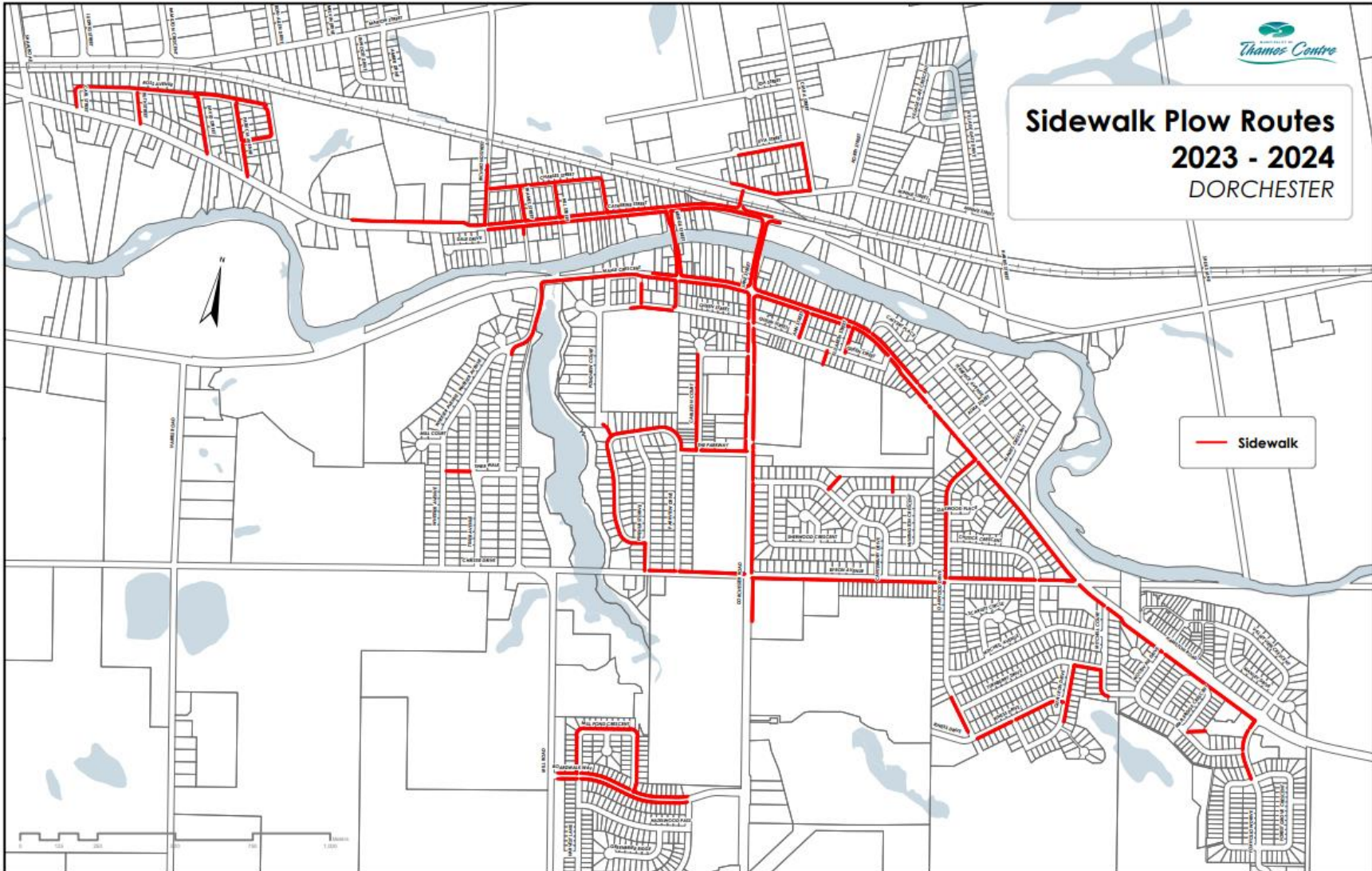
Appendix B: Level of Service Maps

Road Network

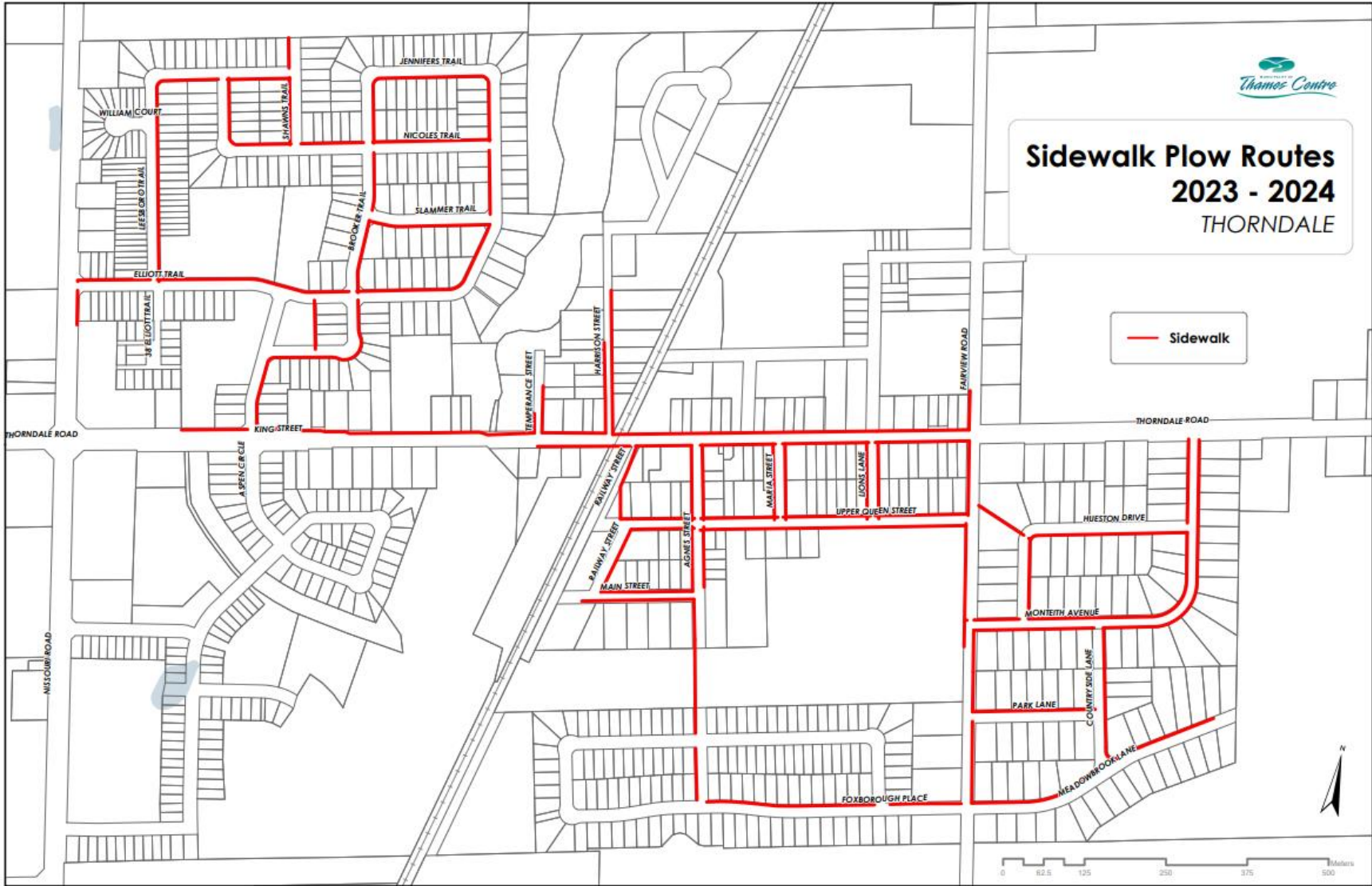


February 2021

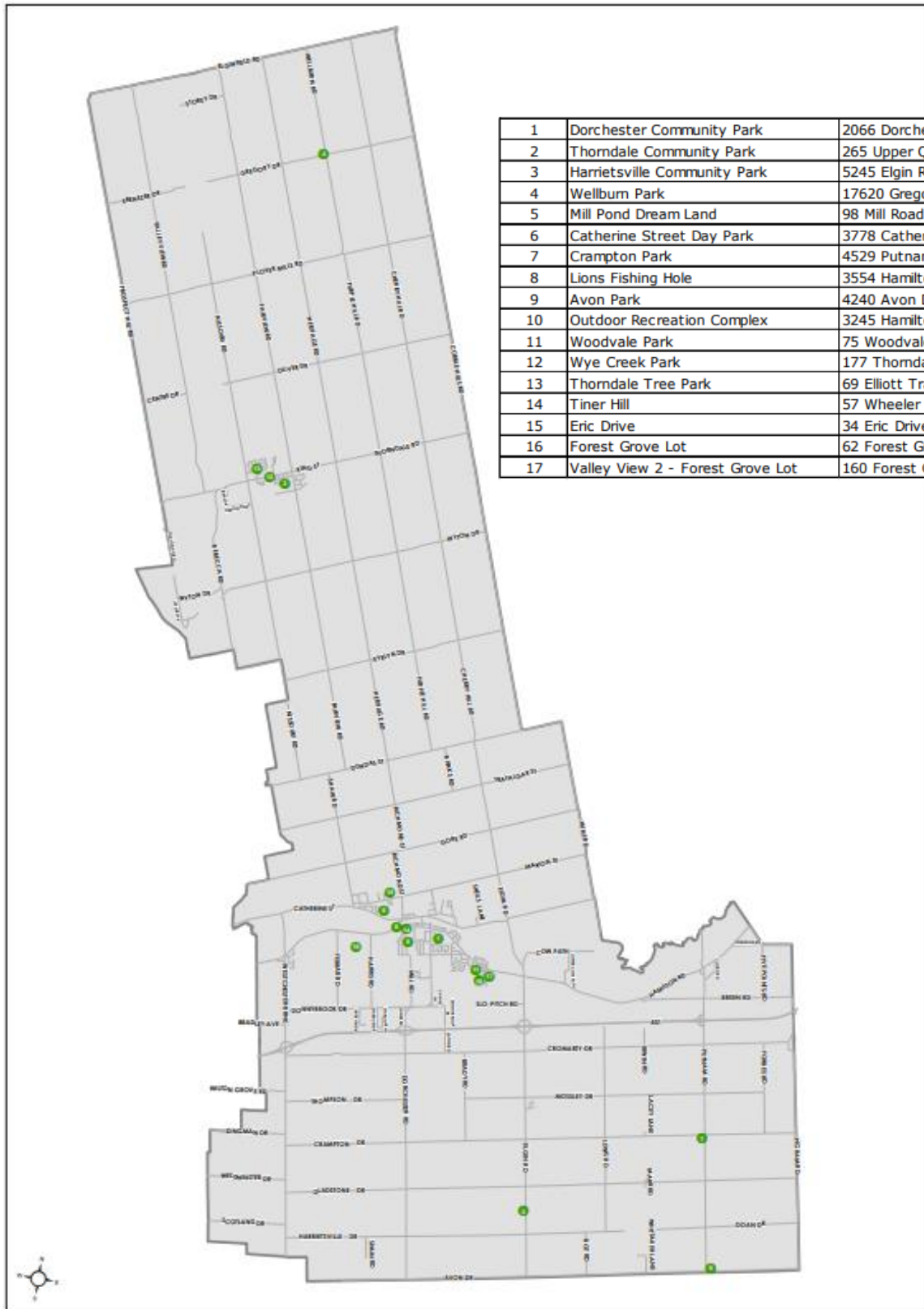
Sidewalk Network – Dorchester



Sidewalk Network – Thorndale

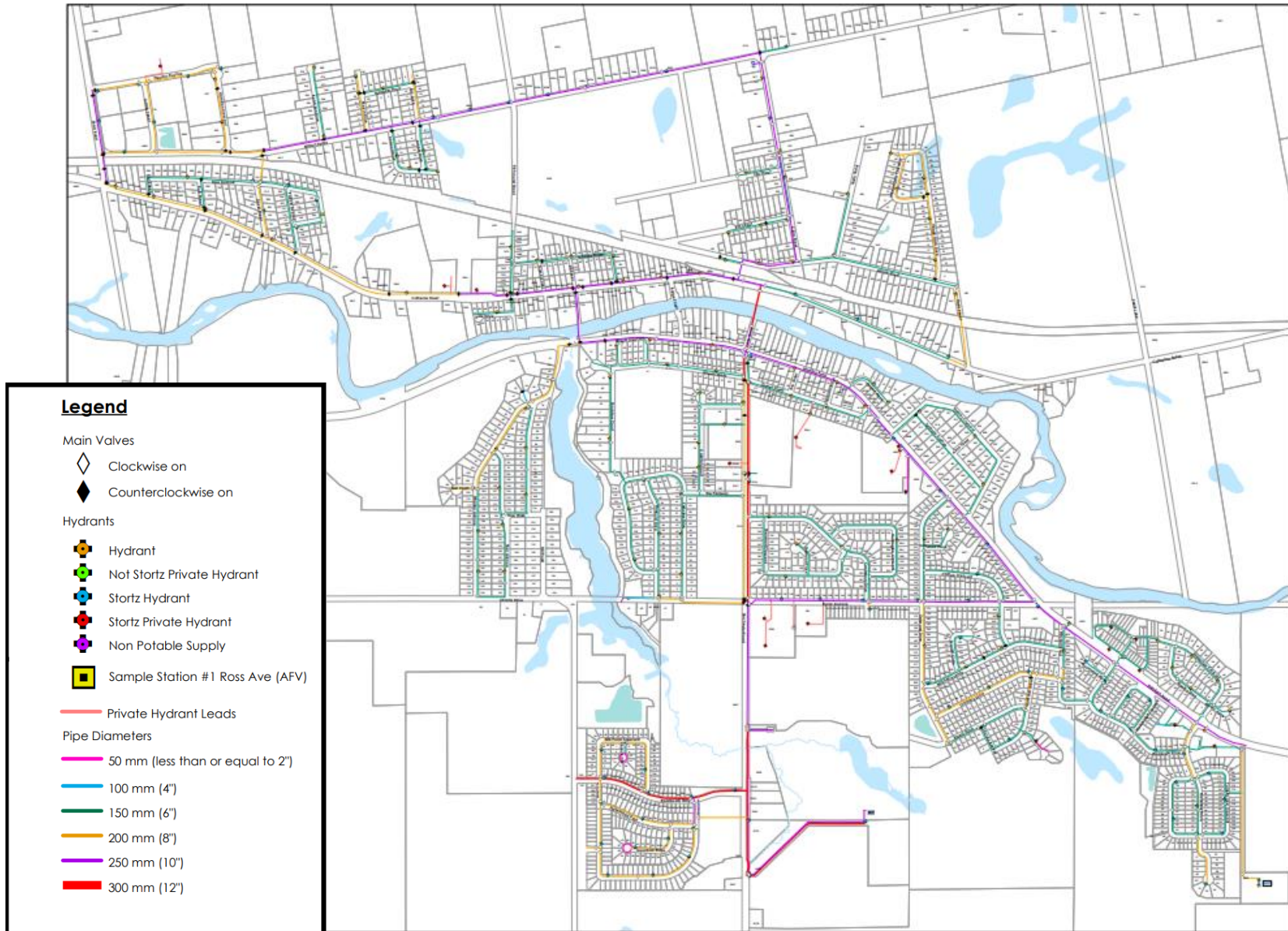


Park & Land Improvements – Parks and Recreation Areas

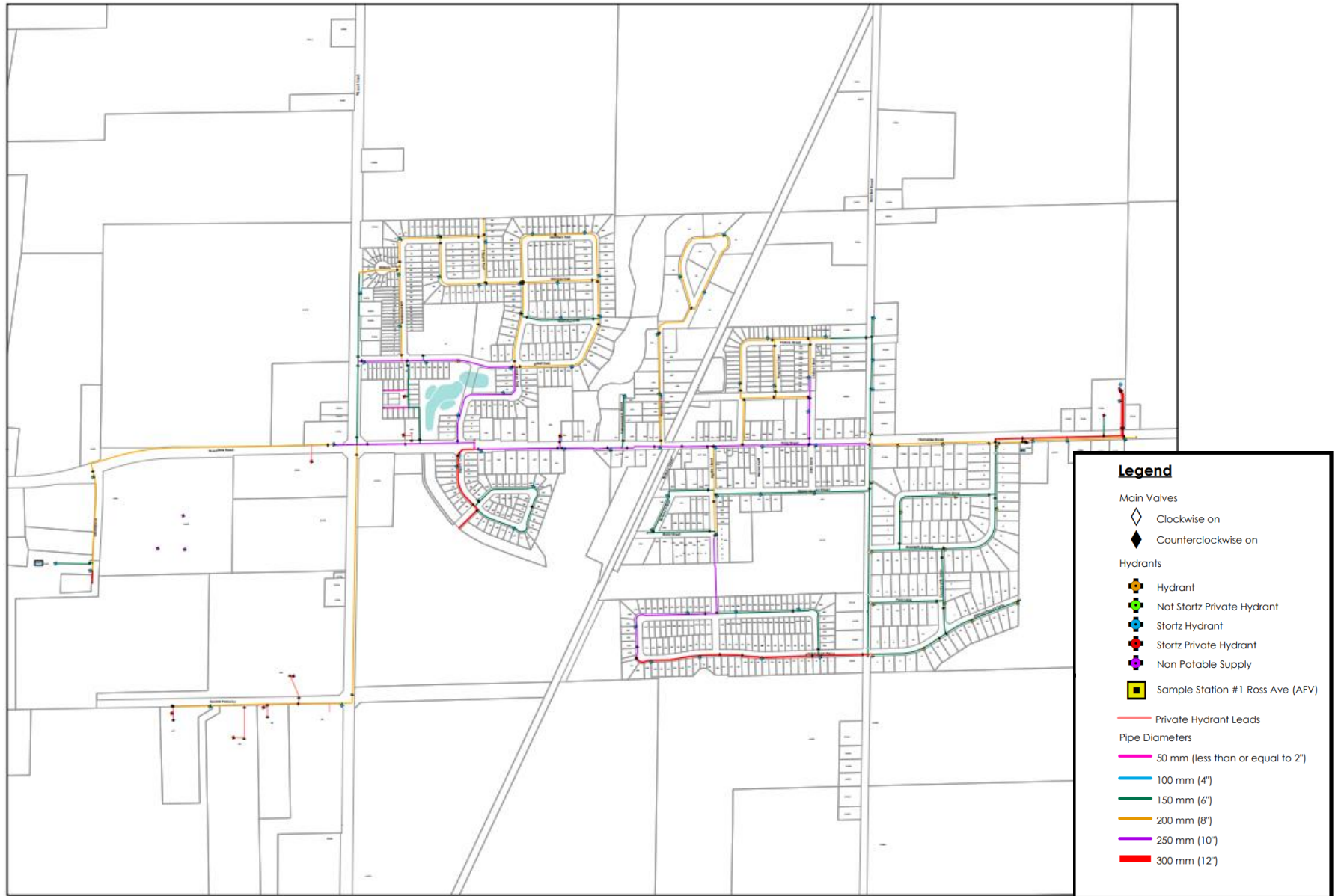


1	Dorchester Community Park	2066 Dorchester Road
2	Thorndale Community Park	265 Upper Queen Street
3	Harrietsville Community Park	5245 Elgin Road
4	Wellburn Park	17620 Gregory Drive
5	Mill Pond Dream Land	98 Mill Road
6	Catherine Street Day Park	3778 Catherine Street
7	Crampton Park	4529 Putnam Road
8	Lions Fishing Hole	3554 Hamilton Road
9	Avon Park	4240 Avon Drive
10	Outdoor Recreation Complex	3245 Hamilton Road
11	Woodvale Park	75 Woodvale Drive
12	Wye Creek Park	177 Thorndale Road
13	Thorndale Tree Park	69 Elliott Trail
14	Tiner Hill	57 Wheeler Court
15	Eric Drive	34 Eric Drive
16	Forest Grove Lot	62 Forest Grove Crescent
17	Valley View 2 - Forest Grove Lot	160 Forest Grove Crescent

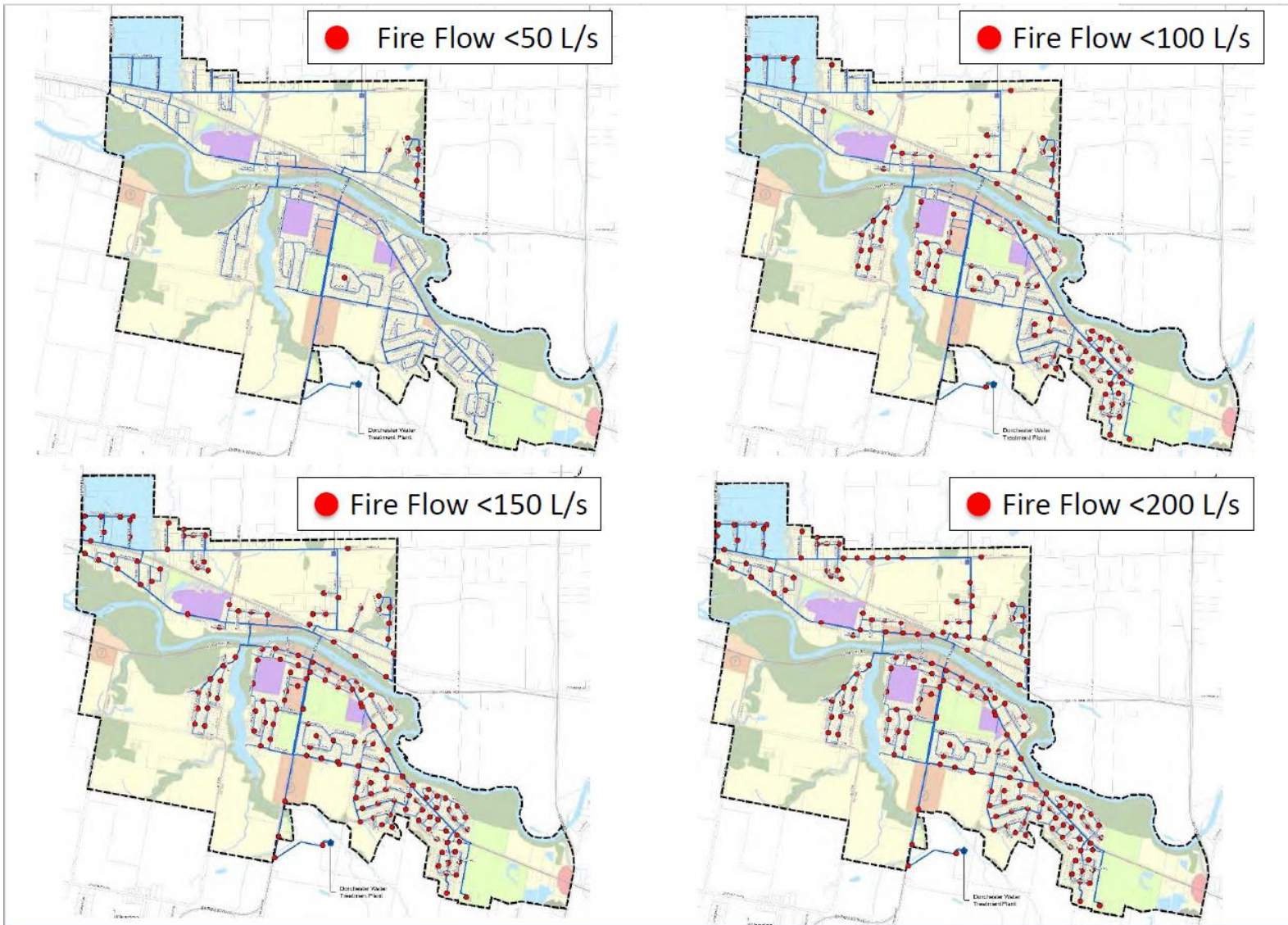
Drinking Water System – Dorchester



Drinking Water System – Thorndale

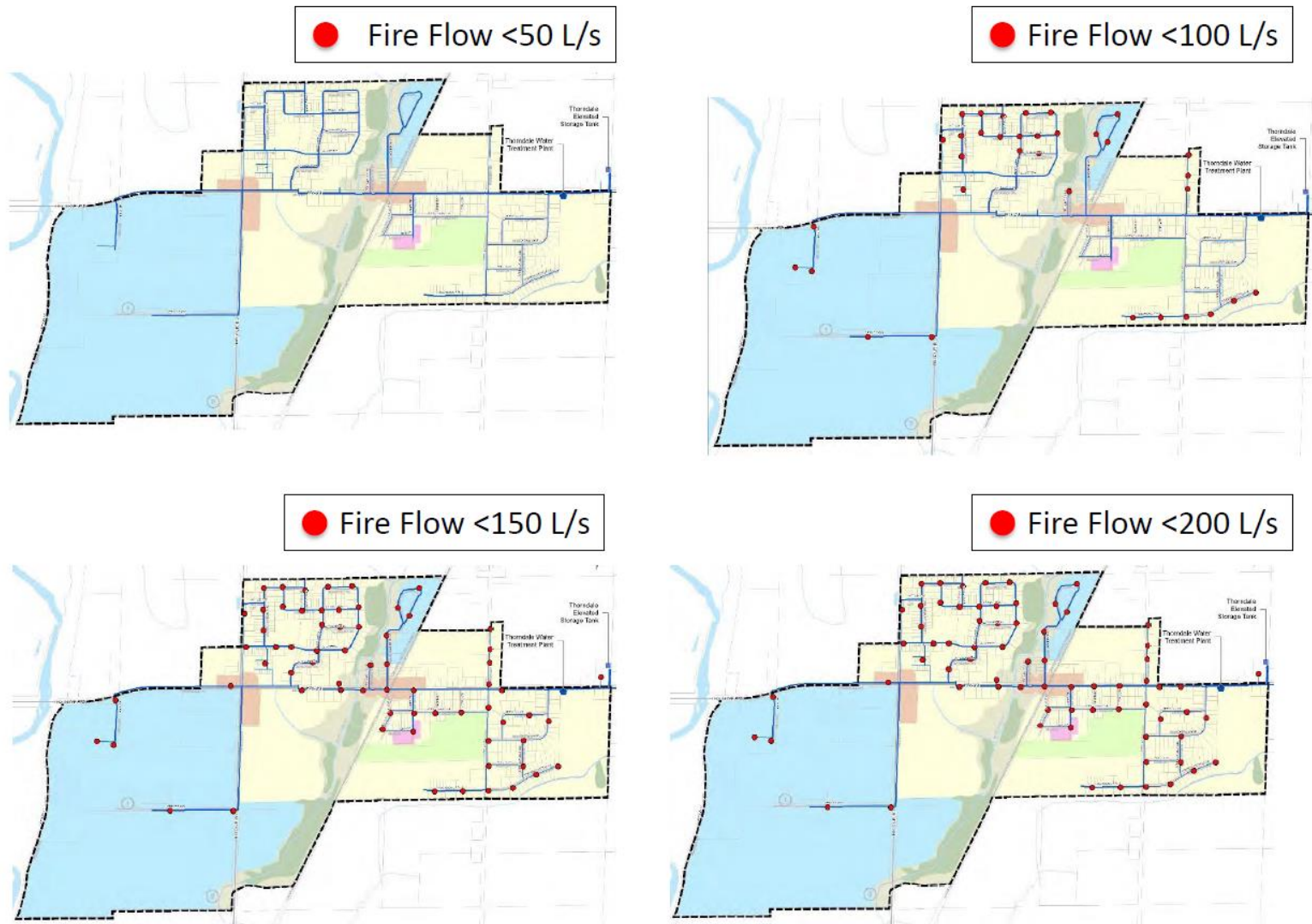


Water Distribution – Fire Flow Areas⁶



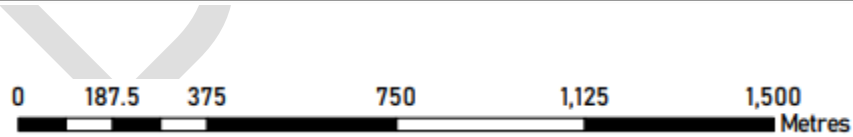
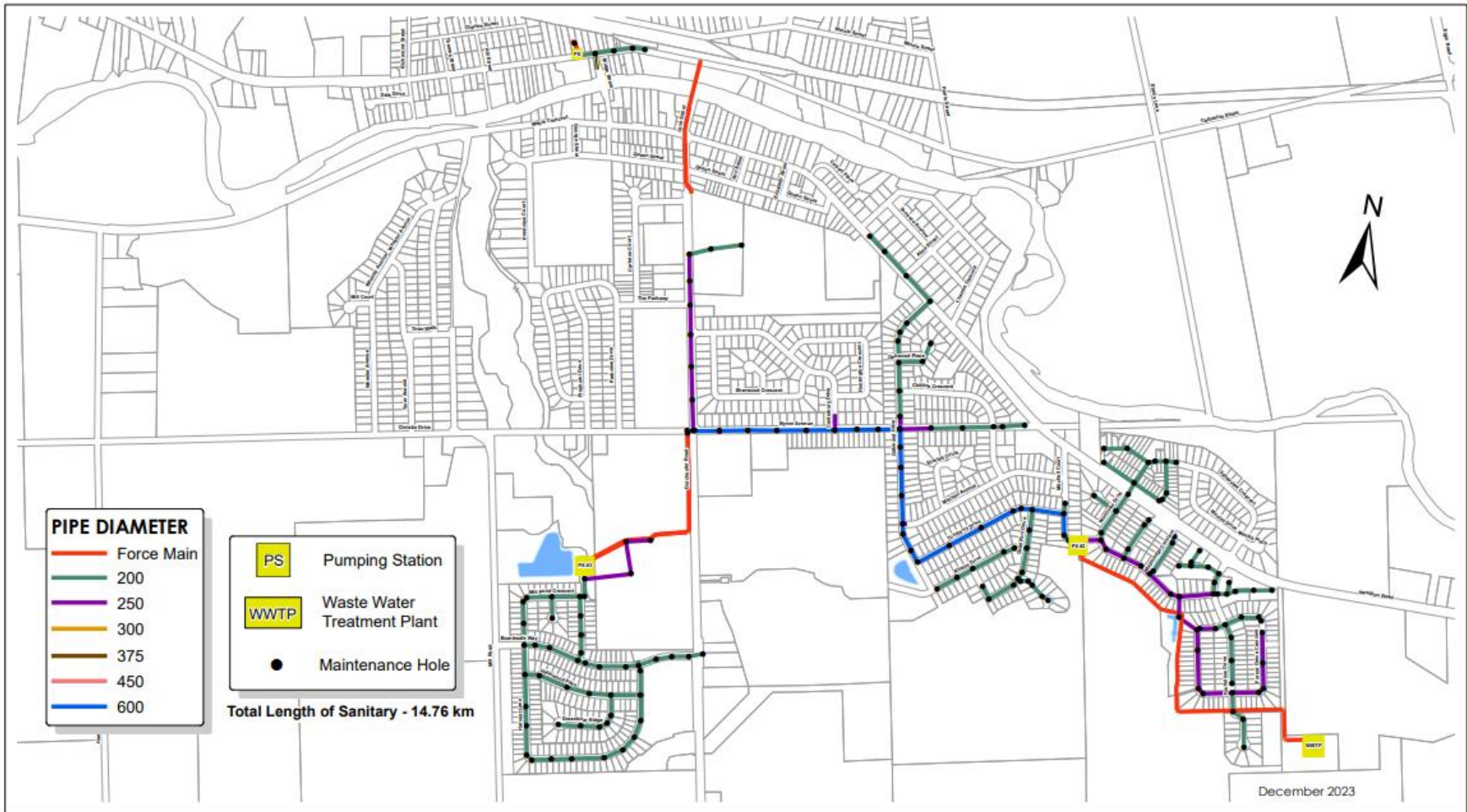
⁶ Water and Wastewater Master Plan Update, 2019

Water Distribution – Fire Flow Areas⁷

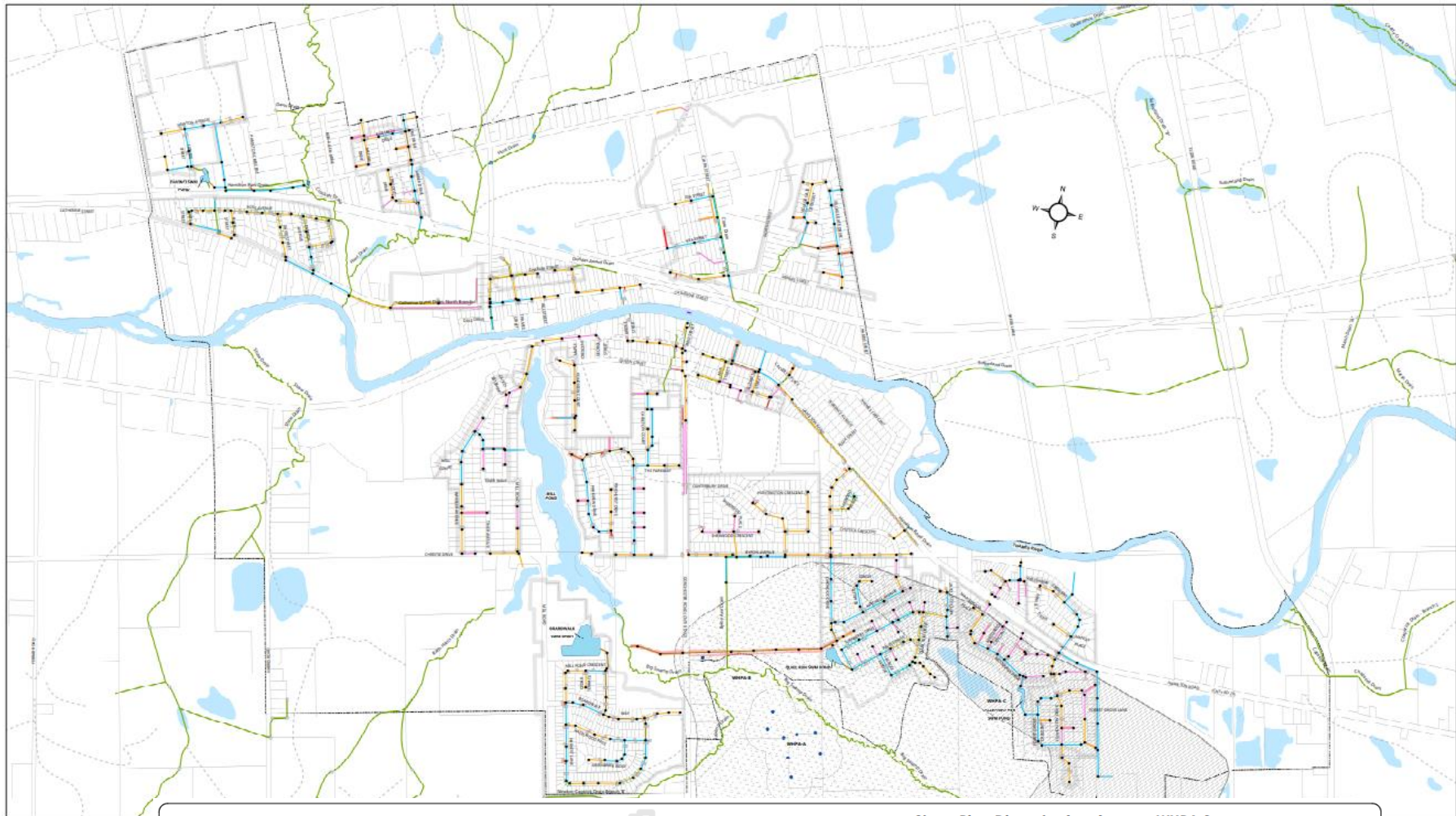


⁷ Water and Wastewater Master Plan Update, 2019

Wastewater System – Dorchester

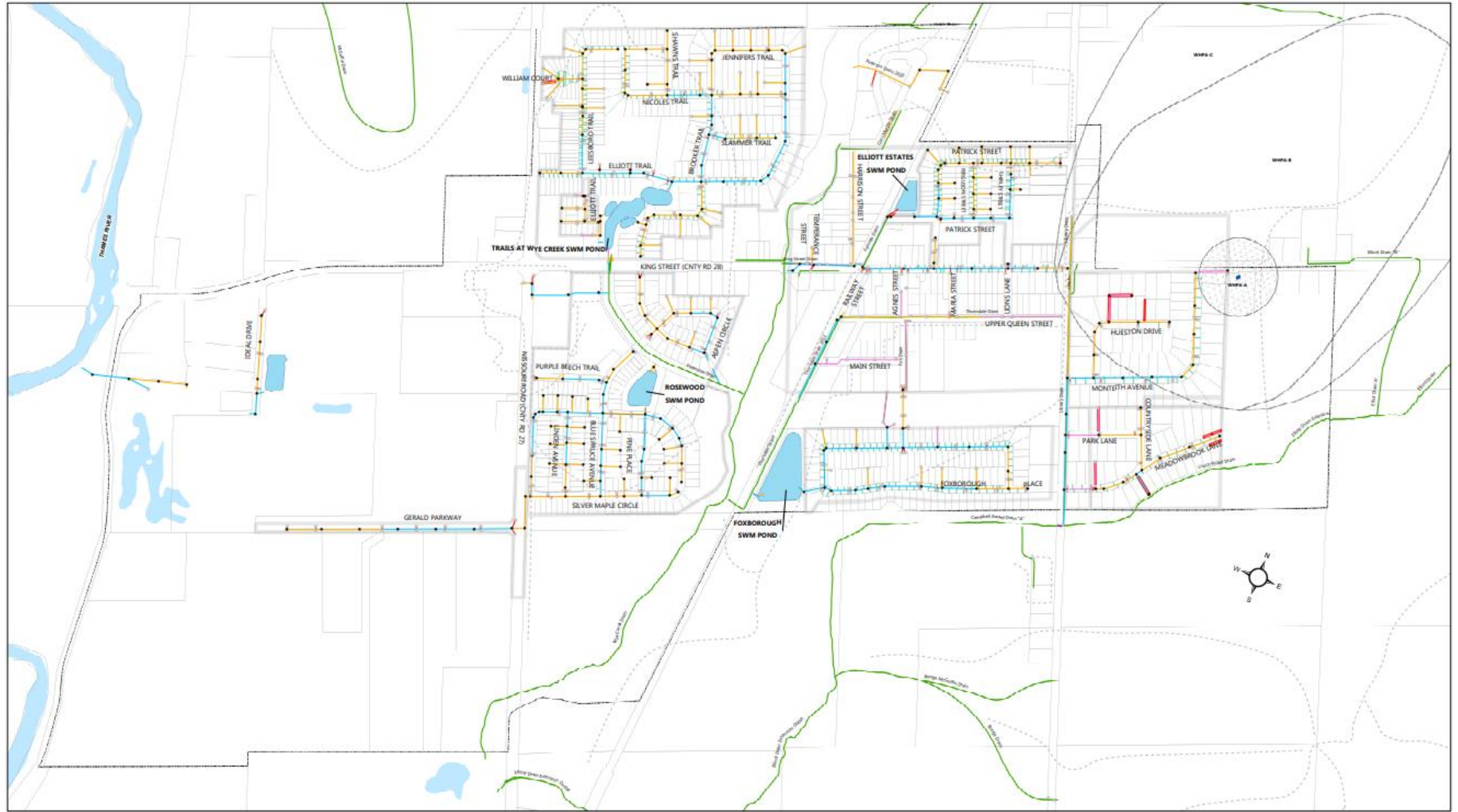


Stormwater System Map – Dorchester



✕ Bridge	— Catchbasin Lead	☁ Sewershed	Storm Pipe Diameter (mm)	WHPA Score
■ Catchbasin	— PDC	▭ Storm Easement	— Up to 250	☹ Vulnerability Score of 10
■ Culvert	— Municipal Drain	☁ Stormwater Management Pond	— 250 - 500	☺ Vulnerability Score of 8
● Maintenance Hole	- - - Watershed Boundary	▭ Urban Boundary	— 500 - 1050	
● Well			— 1050 +	

Stormwater System Map – Thorndale



✕ Bridge	— Catchbasin Lead	☐ Sewer shed	Storm Pipe Diameter (mm)	WHPA Score
■ Catchbasin	— PDC	☐ Storm Easement	— Up to 250	☐ Vulnerability Score of 10
■ Culvert	— Municipal Drain	☐ Stormwater Management Pond	— 250 - 500	☐ Vulnerability Score of 8
● Maintenance Hole	--- Watershed Boundary	☐ Urban Boundary	— 500 - 1050	
● Well			— 1050 +	

Appendix C: Risk Rating Criteria

Risk Definitions

Risk	Integrating a risk management framework into your asset management program requires the translation of risk potential into a quantifiable format. This will allow you to compare and analyze individual assets across your entire asset portfolio. Asset risk is typically defined using the following formula: Risk = Probability of Failure (POF) x Consequence of Failure (COF)
Probability of Failure (POF)	The probability of failure relates to the likelihood that an asset will fail at a given time. The current physical condition and service life remaining are two commonly used risk parameters in determining this likelihood.
POF - Structural	The likelihood of asset failure due to aspects of an asset such as load carrying capacity, condition or breaks
POF - Functional	The likelihood of asset failure due to its performance
POF - Range	1 - Rare 2 - Unlikely 3 - Possible 4 - Likely 5 - Almost Certain
Consequences of Failure (COF)	The consequence of failure describes the overall effect that an asset's failure will have on an organization's asset management goals. Consequences of failure can range from non-eventful to impactful: a small diameter water main break in a subdivision may cause several rate payers to be without water service for a short time. However, a larger trunk water main may break outside a hospital, leading to significantly higher consequences.
COF - Financial	The monetary consequences of asset failure for the organization and its customers
COF - Social	The consequences of asset failure on the social dimensions of the community
COF - Environmental	The consequence of asset failure on an asset's surrounding environment
COF - Operational	The consequence of asset failure on the Municipality's day-to-day operations
COF - Health & safety	The consequence of asset failure on the health and well-being of the community
COF - Economic	The consequence of asset failure on strategic planning
COF - Range	1 - Insignificant 2 - Minor 3 - Moderate 4 - Major 5 - Severe

Risk Frameworks

Road Network – HCB/LCB Roads

Probability of Failure			
Criteria	Sub-Criteria	Value/ Range	Score
Performance	Asset Condition	0-29	5 - Almost Certain
		30-49	4 - Likely
		50-74	3 - Possible
		75-84	2 - Unlikely
		85-100	1 - Rare

Consequence of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Financial (60%)	Replacement Cost (\$)	>\$5,000,000	5 – Severe
		\$1,000,000	4 – Major
		\$500,000	3 - Moderate
		\$250,000	2 – Minor
		<\$50,000	1 – Insignificant
Operational (10%)	Service Class	3	5 – Severe
		4	4 – Major
		5	3 – Moderate
		6	2 – Minor
Social (15%)	AADT – 50%	>2000	5 – Severe
		600	4 – Major
		400	3 – Moderate
		200	2 – Minor
		<50	1 – Insignificant
	Design Class - 50%	LCI	5 – Severe
		C/R	4 – Major
		500	4 – Major
		L/R	3 – Moderate
		400	2 – Minor
Health & Safety (15%)	Speed Limit	300	2 – Minor
		200	1 – Insignificant
		>80	5 – Severe
		70	4 – Major
		60	3 – Moderate
		50	2 – Minor
		<40	1 – Insignificant

Water Distribution – Water Mains

Probability of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Performance	Asset Condition	0	5 - Almost Certain
		30	4 - Likely
		50	3 - Possible
		70	2 - Unlikely
		90	1 - Rare

Consequence of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Financial 60%	Pipe Diameter	400mm	5 - Severe
		350mm	4 - Major
		250mm	3 - Moderate
		150mm	2 - Minor
		100mm	1 - Insignificant
Environmental 10%	Water Pipe Material	PVC	5 - Severe
		Municipex	4 - Major
		AC	3 - Moderate
		HDPE	3 - Moderate
		CI	2 - Minor
		Steel	2 - Minor
		DI	2 - Minor
CU	1 - Insignificant		
Social 30%	Pipe Diameter	400	5 - Severe
		300	4 - Major
		200	3 - Moderate
		100	2 - Minor
		50	1 - Insignificant

Wastewater System – Sanitary Sewer Mains

Probability of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Performance	Asset Condition	0	5 - Almost Certain
		30	4 - Likely
		50	3 - Possible
		70	2 - Unlikely
		90	1 - Rare

Consequence of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Financial 60%	Pipe \$/Unit	\$1,000	5 - Severe
		\$900	4 - Major
		\$700	3 - Moderate
		\$500	2 - Minor
		\$300	1 - Insignificant
Environmental 20%	Segment	Forcemains	5 - Severe
		Sewer Mains	3 - Moderate
		Mains	3 - Moderate
Health & Safety 20%	Sanitary Pipe Diameter	1000mm	5 - Severe
		500mm	4 - Major
		400mm	3 - Moderate
		250mm	2 - Minor
		150mm	1 - Insignificant

Stormwater System – Storm Sewer Mains

Probability of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Performance	Asset Condition	0	5 - Almost Certain
		30	4 - Likely
		50	3 - Possible
		70	2 - Unlikely
		90	1 - Rare

Consequence of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Financial 80%	Pipe \$/Unit	\$5,000	5 - Severe
		\$1,000	4 - Major
		\$700	3 - Moderate
		\$500	2 - Minor
		\$250	1 - Insignificant
Operational 20%	Storm Pipe Material	Concrete Precast	4 - Major
		RCONC	3 - Moderate
		RPC	3 - Moderate
		Concrete	3 - Moderate
		PRPC	3 - Moderate
		Sclair	2 - Minor
		PE	2 - Minor
		PPL	2 - Minor
		HDPE	2 - Minor
		PVC	1 - Insignificant
		CSP	1 - Insignificant
CMP	1 - Insignificant		

Parks & Land Improvements

Probability of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Performance	Asset Condition	0	5 - Almost Certain
		20	4 - Likely
		40	3 - Possible
		60	2 - Unlikely
		80	1 - Rare

Consequence of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Financial 80%	Replacement Cost	>\$5,000,000	5 - Severe
		\$1,000,000	4 - Major
		\$500,000	3 - Moderate
		\$250,000	2 - Minor
		<\$50,000	1 - Insignificant
Social 20%	Segment	Playground Equipment	5 - Severe
		Sport Fields & Courts	4 - Major
		Splash Pads	4 - Major
		Skateboard Park	4 - Major
		Park Amenities	3 - Moderate
		Trails	2 - Minor
		Miscellaneous	2 - Minor
		Parking Lot	1 - Insignificant
		Lighting	1 - Insignificant

Facilities

Probability of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Performance	Asset Condition	0	5 - Almost Certain
		20	4 - Likely
		40	3 - Possible
		60	2 - Unlikely
		80	1 - Rare

Consequence of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Financial 80%	Replacement Cost	\$10,000,000	5 - Severe
		\$750,000	4 - Major
		\$500,000	3 - Moderate
		\$250,000	2 - Minor
		\$100,000	1 - Insignificant
Operational 20%	Segment	Protective Services	5 - Severe
		Rec & Cultural Services	4 - Major
		Environmental Services	4 - Major
		Transportation Services	3 - Moderate
		Community Services	3 - Moderate
		General Administration	3 - Moderate

Fleet

Probability of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Performance	Asset Condition	0	5 - Almost Certain
		20	4 - Likely
		40	3 - Possible
		60	2 - Unlikely
		80	1 - Rare

Consequence of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Financial 80%	Replacement Cost	\$200,000	5 - Severe
		\$125,000	4 - Major
		\$75,000	3 - Moderate
		\$25,000	2 - Minor
		\$0	1 - Insignificant
Social 20%	Segment	Fire Vehicles	5 - Severe
		Water Vehicles	4 - Major
		Roads Vehicles	4 - Major
		Parks Vehicles	3 - Moderate
		Landfill	3 - Moderate
		Arena	3 - Moderate
		Building & Inspection Vehicles	2 - Minor
		Administration	2 - Minor

Machinery & Equipment

Probability of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Performance	Asset Condition	0	5 - Almost Certain
		20	4 - Likely
		40	3 - Possible
		60	2 - Unlikely
		80	1 - Rare

Consequence of Failure			
Criteria	Sub-Criteria	Value/Range	Score
Financial 80%	Replacement Cost	\$200,000	5 - Severe
		\$125,000	4 - Major
		\$75,000	3 - Moderate
		\$25,000	2 - Minor
		\$0	1 - Insignificant
Social 20%	Department	Protective Services	5 - Severe
		Water	4 - Major
		Wastewater	4 - Major
		Transportation	4 - Major
		Storm Water	4 - Major
		Health Services	4 - Major
		Environmental	4 - Major
		Community Services	3 - Moderate
		Fleet	3 - Moderate
		Development Services	2 - Minor
		Information Technology	2 - Minor
		General Government	2 - Minor

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 Municipality'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 Municipality'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 Municipality 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 Municipality 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 Municipality 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 Municipality should prioritize the collection of assessed condition data based on the anticipated value of this data in decision-making. The International Infrastructure Management Manual (IIMM) identifies four key criteria to consider when making this determination:

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