APPENDIX "A" TO BY-LAW 2025-08

Asset Management Plan

Municipality of St.-Charles

2024

This Asset Management Program was prepared by:

Empowering your organization through advanced asset management, budgeting & GIS solutions.
2024 Update by Kim Thibeault

Key Statistics

Replacement cost of asset portfolio
$37.9 million

Replacement cost of infrastructure per capita
$28,000

The average condition of the assets
49%

Percentage of assets with assessed condition data
78%

The average annual requirement
$1.2 million

Recommended timeframe for eliminating annual infrastructure deficit
15-20 Years

Target reinvestment rate
3.2%

Actual reinvestment rate
1.6%

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Executive Summary

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

Scope

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

This AMP include the following asset categories:

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

Findings

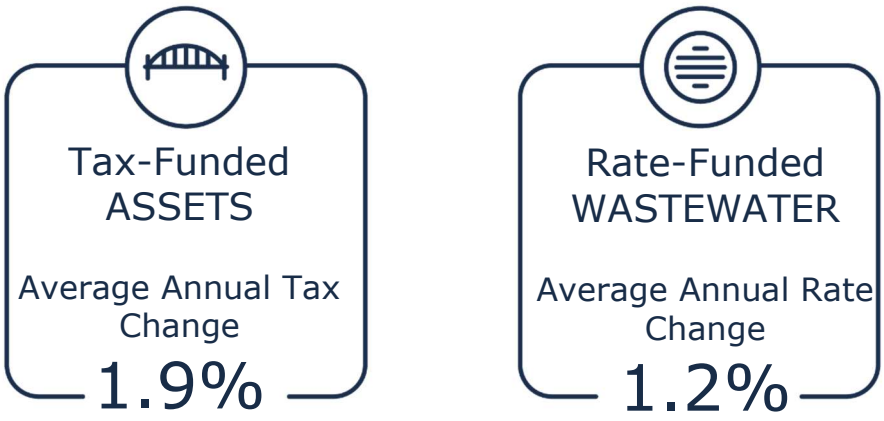
The overall replacement cost of the asset categories included in this AMP totals $37.9 million. 77% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 78% of assets. For the remaining 22% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP.
The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (paved roads) and replacement only strategies (all other assets) to determine the lowest cost option to maintain the current level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Municipality's average annual capital requirement totals $1.2 million. Based on a historical analysis of sustainable capital funding sources, the Municipality is committing approximately $624,000 towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $596,000.

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

Recommendations

A financial strategy was developed to address the annual capital funding gap. The following graphics shows annual tax/rate change required to eliminate the Municipality's infrastructure deficit based on a 15-year plan for tax-funded assets and a 20-year plan for rate-funded assets:



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

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

1 Introduction & Context

Key Insights

- The Municipality of St.-Charles is a small municipality in Northern Ontario and has identified the road network as an infrastructure priority

- 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 Municipality's asset management policy provides clear direction to staff on their roles and responsibilities regarding asset management

- An asset management plan is a living document that should be updated regularly to inform long-term planning

- Ontario Regulation 588/17 outlines several key milestone and requirements for asset management plans in Ontario between July 1, 2022 and 2025

1.1St.-Charles Community Profile

Census Characteristic	Municipality of St.-Charles	Ontario
Population 2021	1,357	14,223,942
Population Change 2016-2021	6.9	5.8
Total Private Dwellings	788	5,929,250
Population Density	4.3/km^2	15.9/km^2
Land Area	314.46 km^2	892,411.76 km^2

The Municipality of St.-Charles is located 59 kilometres east of Sudbury in Northern Ontario. The Municipality is surrounded by several small lakes and borders on the west arm of Lake Nipissing.

The region was settled in 1890 by newcomers from Quebec and Eastern Ontario. The settlers' history and traditions are still reflected in the community today with a notable portion of the community being fluent in both French and English.

St.-Charles remains a small farming community, although agriculture is no longer the largest economic sector. The close proximity to Sudbury, North Bay, and Sturgeon Falls allows residents to commute to larger cities for work.

Demand in the region is notably driven by moderate population growth, a budding summer cottage community, and an aging population above the provincial average. Population growth is largely due to urban sprawl and low housing prices. The Municipality generates a total revenue of $2.6 million from taxes and rates and spends an average of $624,000 annually on capital projects.

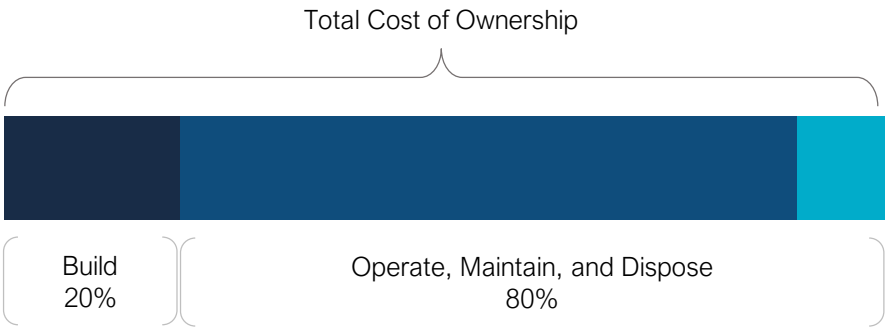
Municipal staff have identified the road network as their primary infrastructure priority. Most paved and gravel roads are in poor or very poor condition as a result of age, poor foundation and drainage, and frequent freeze thaw cycles. Most roads have severe rutting, cracks, and potholes. Staff aim to improve the level of service through a series of rehabilitation and replacement projects.

Secondary infrastructure priorities focus on recreation buildings, including the municipal arena, community center, and a new splash pad. Risk-based project prioritization is essential for capital planning since major infrastructure projects are heavily reliant on the availability of grants. Staff intend to support continuous growth within the Municipality by investing in critical infrastructure and advancing their asset management program.

1.2An Overview of Asset Management

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

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



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

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

Asset Management Policy

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

The Municipality adopted By-law 2019-30 the "Strategic Asset Management Policy" on June 19th, 2019, in accordance with Ontario Regulation 588/17. The guiding principles of the document include the following:

- Forward looking
- Sustainable
- Environmentally Conscious
- Health and safety

Asset Management Strategy

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

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

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

1.3 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.

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

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

The 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. These risk scores can be used to prioritize maintenance, rehabilitation and replacement strategies for critical assets.

Levels of Service

A level of service (LOS) is a measure of what the 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 the Municipality 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 and 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, the Municipality 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 and culverts, water, wastewater, stormwater) the Province, through O. Reg. 588/17, has provided technical metrics that are required to be included in this AMP.

Current and Proposed Levels of Service

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

1.4Ontario Regulation 588/17

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

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

2019

Strategic Asset Management Policy

2022

Asset Management Plan for Core Assets with the following components:

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

2024

Asset Management Plan for Core and Non-Core Assets (same components as 2022) and Asset Management Policy Update

2025

Asset Management Plan for All Assets with the following additional components:

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

O. Reg. 588/17 Compliance Review

The following table identifies the requirements outlined in Ontario Regulation 588/17 for municipalities to meet by July 1, 2022. 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 – 10	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1 - 10.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.2 - 10.2	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.2 - 10.2	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.2 - 10.2	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	4.2.1 – 10.2.1	Complete
Current performance measures in each category	S.5(2), 2	4.5 – 10.5	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.3 – 10.3	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	Appendix B	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	6	Complete

2 Scope and Methodology

Key Insights

- This asset management plan includes 8 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

2.1 Asset Categories Included in this AMP

This asset management plan for the Municipality of St.-Charles is produced in compliance with Ontario Regulation 588/17. The July 2022 deadline under the regulation—the first of three AMPs—requires analysis of only core assets (roads, bridges and culverts, water, wastewater, and stormwater).

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

Asset Category	Source of Funding
Road Network	Tax Levy
Bridges & Culverts	
Stormwater Network	
Buildings & Facilities	
Vehicles	
Machinery & Equipment	
Land Improvements	
Wastewater Network	User Rates

2.2 Asset Data

A key element of a municipality's asset management program includes the current asset related data, and data management practices and processes—including how staff collect, store, analyse, and link data to their decision processes. Standardized, complete, and accurate information contributes to better decision-making and prioritization and can help organizations implement proactive strategies.

A complete asset inventory should include componentized records for high-value assets. Assets such as bridges and buildings consist of several components. For example, a bridge is can be made up of a deck, abutments, columns, piles, bearings, guide rails, and other elements. Each component has a unique estimated useful life and requires asset-specific lifecycle strategies. Over time, each component will age and deteriorate at different rates, resulting in unique conditions and requiring rehabilitative and replacement activities at different times. Annual capital planning is made easier with a detailed inventory that includes asset components.

In the case of assets that have not been componentized, a single record represents the asset with an average estimated useful life, age, and condition. Pooled asset records reduce the staff's capability to develop comprehensive asset management strategies.

2.3 Deriving Replacement Costs

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

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

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

2.4 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:

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

2.5 Reinvestment Rate

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

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

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

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

2.6 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.

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

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

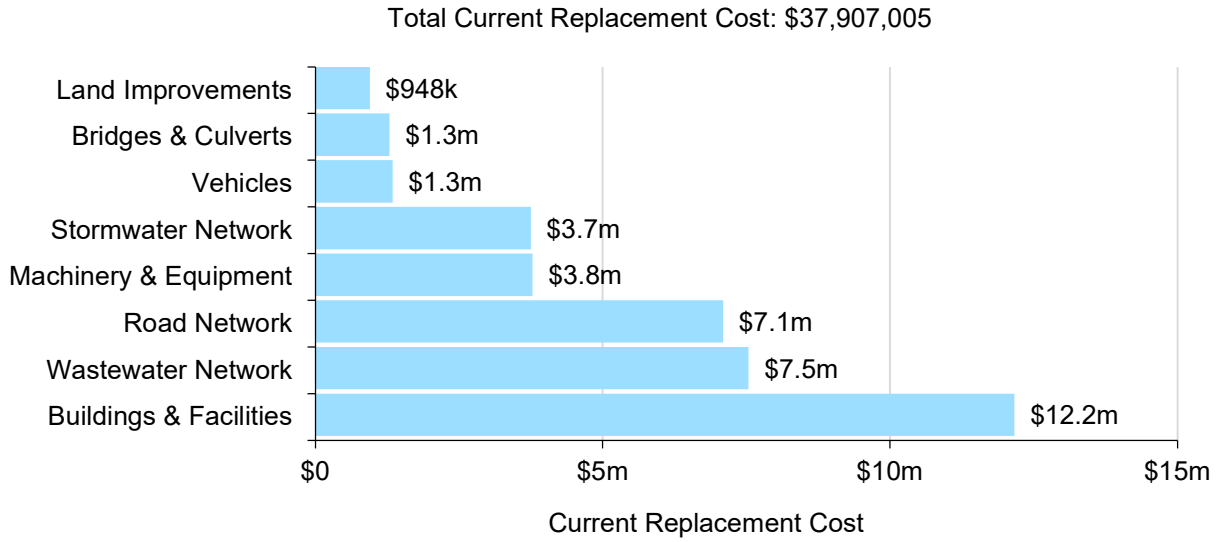
3 Portfolio Overview

Key Insights

- The total replacement cost of the Municipality's asset portfolio is $37.9 million
- The Municipality's target re-investment rate is 3.2%, and the actual re-investment rate is 1.6%, contributing to an expanding infrastructure deficit
- 77% of all assets are in fair or better condition
- 23% of assets are projected to require replacement in the next 10 years
- Average annual capital requirements total $1.2 million per year across all assets

3.1 Total Replacement Cost of Asset Portfolio

The asset categories analysed in this AMP have a total replacement cost of $37.9 million based on inventory data from 2021. 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.



The following table identifies the methods employed to determine replacement costs across each asset category:

Asset Category	Replacement Cost Method	
	User-Defined and/or Unit Cost	Notes
Road Network	99%	Contractor quotes and historical cost
Bridges & Culverts	0%	Historical Cost
Stormwater Network	100%	Insurance appraisal of buildings and cost comparison
Buildings & Facilities	100%	Staff estimates and historical cost
Machinery & Equipment	100%	Staff estimates and historical cost
Vehicles	0%	Historical Cost
Land Improvements	94%	Staff estimates and historical cost
Wastewater Network	99%	Insurance appraisal of buildings and cost comparison
Overall	**78%**	

3.2 Target vs. Actual Reinvestment Rate

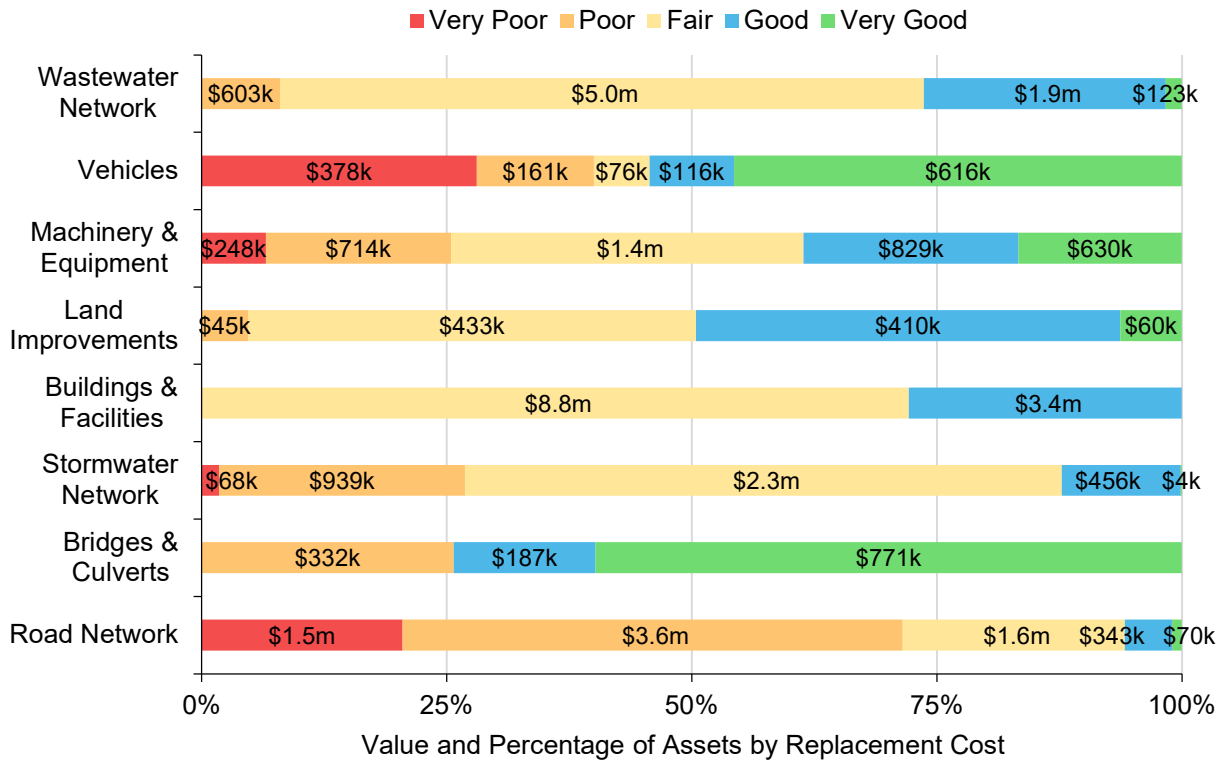
The graph below depicts funding gaps or surpluses by comparing target vs actual reinvestment rate. To meet the long-term replacement needs, the Municipality should be allocating approximately $1.2 million annually, for a target reinvestment rate of 3.2%. Actual annual spending on infrastructure totals approximately $624,000, for an actual reinvestment rate of 1.6%.

3.3 Service Life Remaining

Based on asset age, available assessed condition data, and estimated useful life, 23% of the Municipality’s assets will require replacement within the next 10 years. Capital requirements over the next 10 years are identified in Appendix B.

3.4 Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 77% of assets in St.-Charles are in fair or better condition. This estimate relies on both age-based and field condition data.

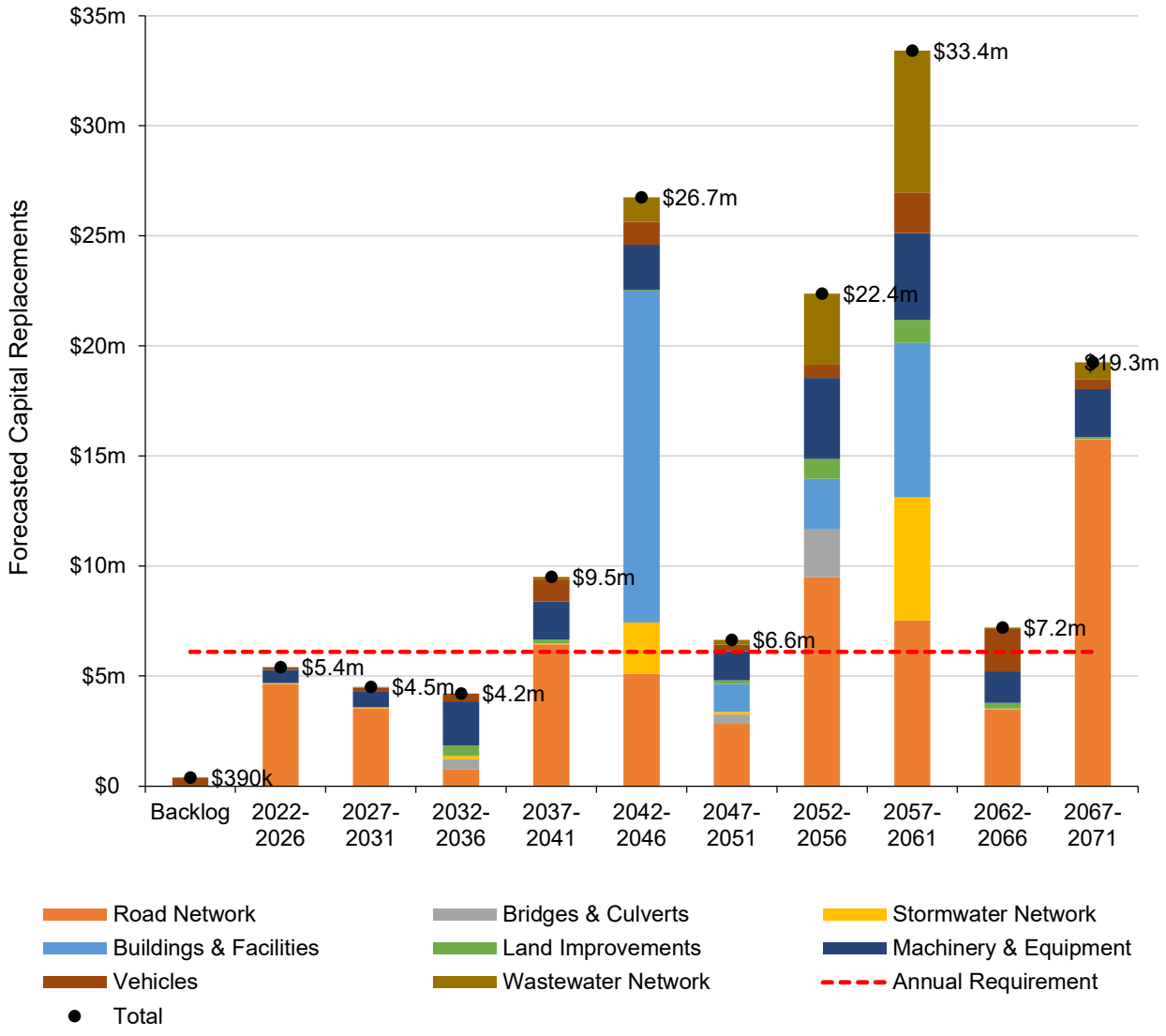


This AMP relies on assessed condition data for 78% of assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

Asset Category	% of Assets with Assessed Condition	Source of Condition Data
Road Network	100%	Staff Assessed
Bridges & Culverts	100%	Staff Assessed
Stormwater Network	99%	Staff Assessed
Buildings & Facilities	79%	Staff Assessed
Machinery & Equipment	100%	Staff Assessed
Vehicles	0%	N/A
Land Improvements	94%	Staff Assessed
Wastewater Network	99%	Staff Assessed

3.5 Forecasted Capital Requirements

The development of a long-term capital forecast should include both asset rehabilitation and replacement requirements. With the development of asset-specific lifecycle strategies that include the timing and cost of future capital events, the Municipality can produce an accurate long-term capital forecast. 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. This capital forecast includes an assumption of 3% annual inflation. The forecasted requirements are aggregated into 5-year bins. The trend line represents the average 5-year capital requirement of $6.1 million; this amount does not account for inflation.



4 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 including sidewalks, road culverts and streetlights.

The Municipality's roads and sidewalks are maintained by municipal staff who are also responsible for winter snow clearing, ice control and snow removal operations.

The state of the infrastructure for the road network is summarized in the following table.

Replacement Cost	Condition	Financial Capacity	
$7.1 million	Poor (31%)	Annual Requirement:	$491,000
		Funding Available:	$328,000
		Annual Deficit:	$163,000

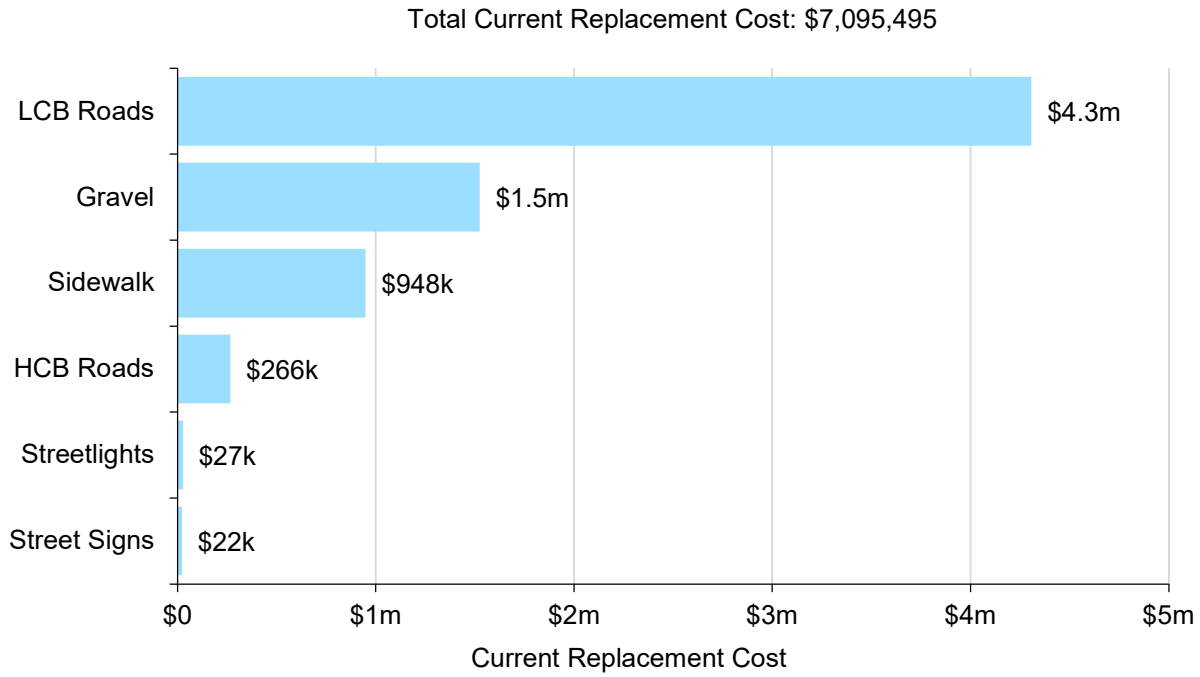
The following core values and level of service statements are a key driving force behind the Municipality's asset management planning:

Service Attribute	Level of Service Statement
Scope	The road network service is conveniently accessible to the whole community in sufficient capacity (meets traffic demands) and is available under most weather conditions with occasional flooding causing service interruptions.
Quality	The road network is in poor condition with minimal unplanned service interruptions and road closures.

4.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Municipality's road network inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Gravel	77.7 km	$1,524,445	$164,312
HCB Roads	608 m	$266,304	$13,315
LCB Roads	18.1 km	$4,307,331	$287,155
Sidewalk	2.6 km	$948,096	$24,912
Street Signs	235	$22,225	$854
Streetlights[1]	48	$27,096	$774
Total		**$7,095,495**	**$491,323**



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

[1] The streetlight asset only includes the light fixture. It does not include the light pole or the light bulb.

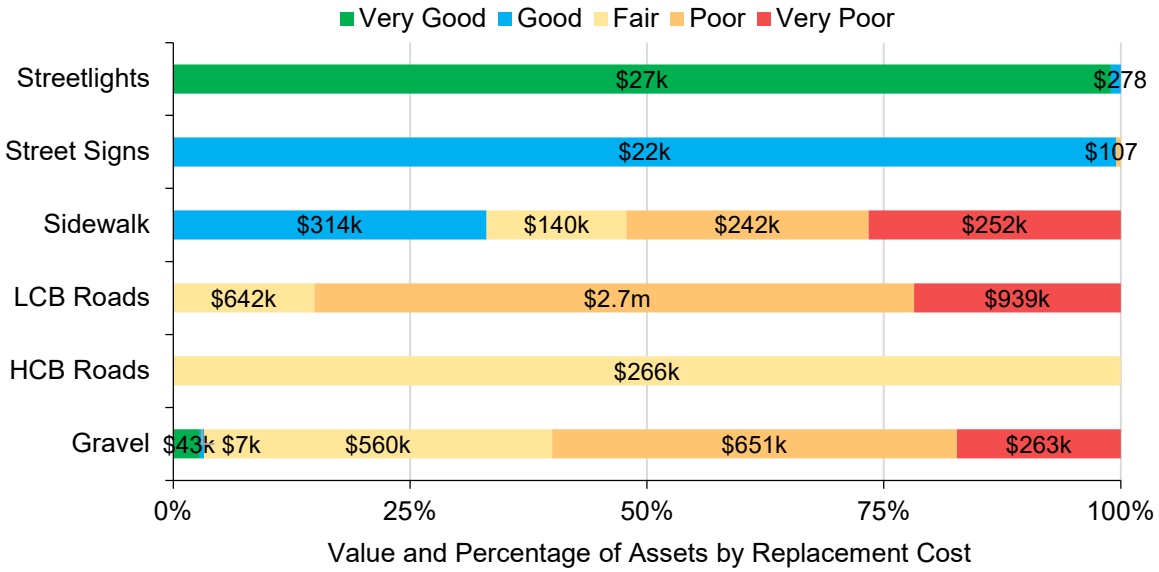
4.2 Asset Condition & Age

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

The estimated useful life provided for roads refers to the surface of the road alone and does not include the estimated useful of life of the road base. The average age of the roads is calculated based on the installation date of the road base, and therefore does not include the date of surface replacements.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Gravel	11	51.6	34% (Poor)
HCB Roads	20	54.0	42% (Fair)
LCB Roads	15	48.7	27% (Poor)
Sidewalk	38	26.3	38% (Poor)
Street Signs	29	17.8	69% (Good)
Streetlights	35	7.0	89% (Very Good)
Average			**31% (Poor)**

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



To ensure that the Municipality's road network 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 roads.

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

Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to 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:

- A Road Needs Study was completed in 2018 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.

In this AMP the following rating criteria is used to determine the current condition of road segments and forecast future capital requirements:

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

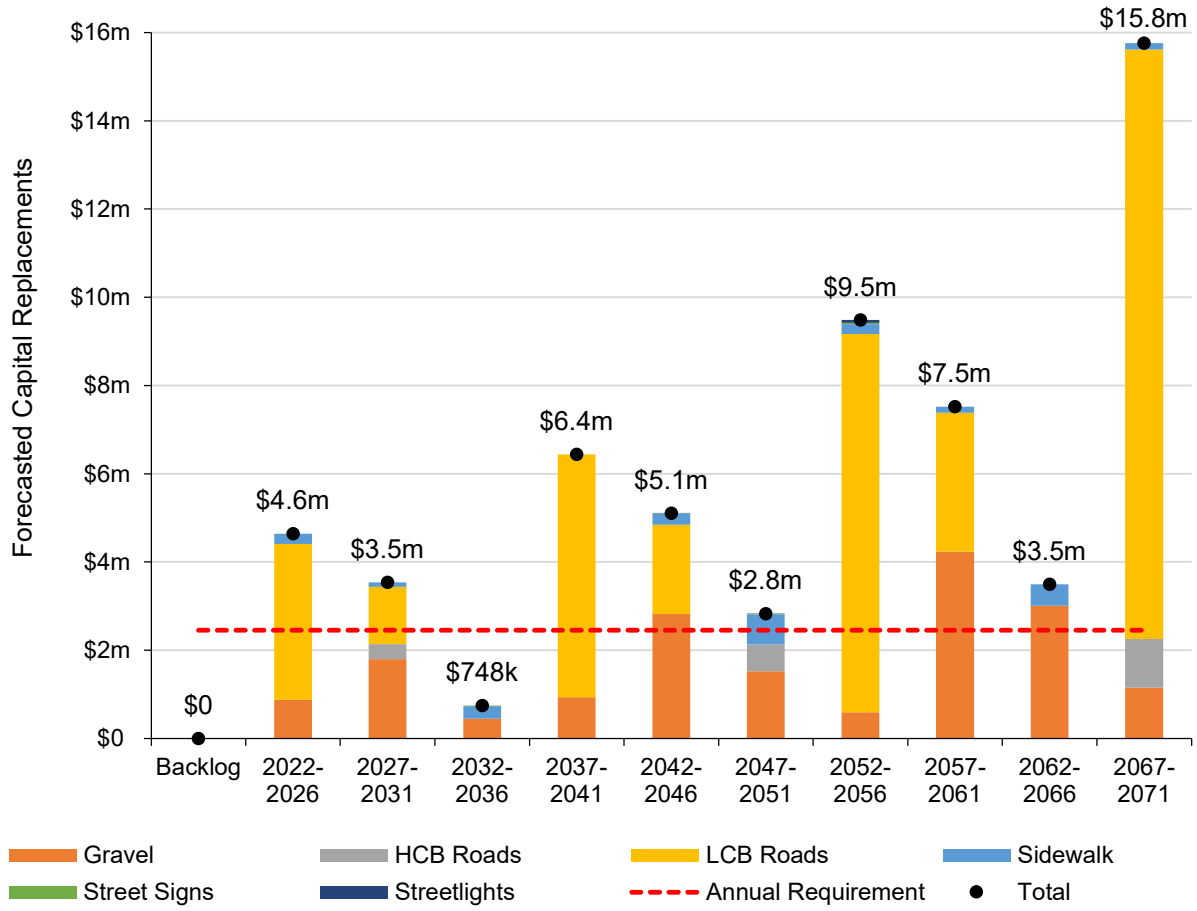
4.3Lifecycle Management Strategy

The following table outlines the Municipality's current lifecycle management strategies for the Municipality's Road network.

Activity Type	Description of Current Strategy
Maintenance	Maintenance activities for roads and sidewalks include winter maintenance such as snow removal and salt/sand for ice removal as needed.
	Gravel roads are treated with calcium chloride on an annual basis and additional is applied as needed.
	Crack sealing is conducted for HCB and LCB roads as needed as a preventative maintenance activity.
Rehabilitation	Rehabilitation activities are conducted as needed based on a case-by-case basis. These activities are mostly reactive. Gravel roads may be re-graveled with 3 inches of aggregate; LCB roads may be surface treated;and a shave and pave and/or slurry seal may be executed for HCB roads.
Replacement	Replacement activities are prioritized based on asset condition and health and safety risks.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Municipality 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. This capital forecast includes an assumption of 3% inflation annually. The forecasted requirements are aggregated into 5-year bins. The trend line represents the average 5-year capital requirement of $2.5 million; this amount does not account for inflation.



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

4.4Risk & Criticality

Risk Matrix

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 2021 inventory data.

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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)

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

4.4.2 Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Municipality is currently facing:

Climate Change & Extreme Events

An increase in the frequency and intensity of precipitation events can result in flooding of sections of the road network. The drainage capacity of the road network is not sufficient to withstand heavy water flow, particularly on roads that are located near bodies of water and roads that are impacted by extreme rutting. Further issues can arise as a result of flooding and poor drainage including accelerated deterioration caused by freeze/thaw cycles. To improve asset resiliency, Staff should identify problem areas and improve drainage through enhanced lifecycle strategies.

Infrastructure Installation

A notable portion of the paved roads need total replacement as a result of poor installation and a weak foundation. Many of the paved roads that experience higher levels of traffic have severe longitudinal vertical rutting along the wheel path. The rutting is likely caused by higher traffic levels and heavy-duty vehicles traveling on a road with poor drainage and a weak road base. The Municipality has noted which roads have been affected and are developing a capital funding strategy to enable full replacement of the asset base and surface.

4.5Levels of Service

The following tables identify the Municipality'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 (2021)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	See Appendix C
Quality	Description or images that illustrate the different levels of road class pavement condition	Very Poor: Widespread signs of deterioration. Requires remedial work to bring road up to standard. Service is affected Poor: Large portions of road exhibiting deterioration with rutting, potholes, distortions, longitude and lateral cracking. Road is mostly below standard. Fair: Some sections of road starting to deteriorate. Requires some remedial work and surface upgrade in near future. Good: Road is in overall good condition. Few sections are starting to show signs of minimal deterioration. Very Good: Road is well maintained and in excellent condition. Surface was newly or recently upgraded. No signs of deterioration or remedial work required.

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 (2021)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km^2)	0
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km^2)	0
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)	0.54
Quality	Average pavement condition index for paved roads in the municipality	Poor (28%)
	Average surface condition for unpaved roads in the municipality (e.g. excellent, good, fair, poor)	Poor (34%)
Performance	Capital reinvestment rate	4.6%

4.6Recommendations

Asset Inventory

- Review road, sidewalk, and appurtenances inventories to determine whether all municipal assets within these asset segments have been accounted for.

Condition Assessment Strategies

- The last comprehensive assessment of the road network was completed in 2018. Consider completing an updated assessment of all roads on a 5 to 7-year cycle.

Lifecycle Management Strategies

- Consider adopting lifecycle management strategies for HCB and LCB roads that include proactive maintenance and rehabilitation to realize potential cost avoidance and maintain a high quality of road pavement condition.
- Evaluate the efficacy of the Municipality'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 and those metrics that the Municipality believes to provide meaningful and reliable inputs into asset management planning.
- 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.

5 Bridges & Culverts

Bridges and culverts represent a critical portion of the transportation services provided to the community. Municipal staff are 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.

The state of the infrastructure for bridges and culverts is summarized in the following table.

Replacement Cost	Condition	Financial Capacity	
$1.3 million	Good (67%)	Annual Requirement:	$32,000
		Funding Available:	$29,000
		Annual Deficit:	$3,000

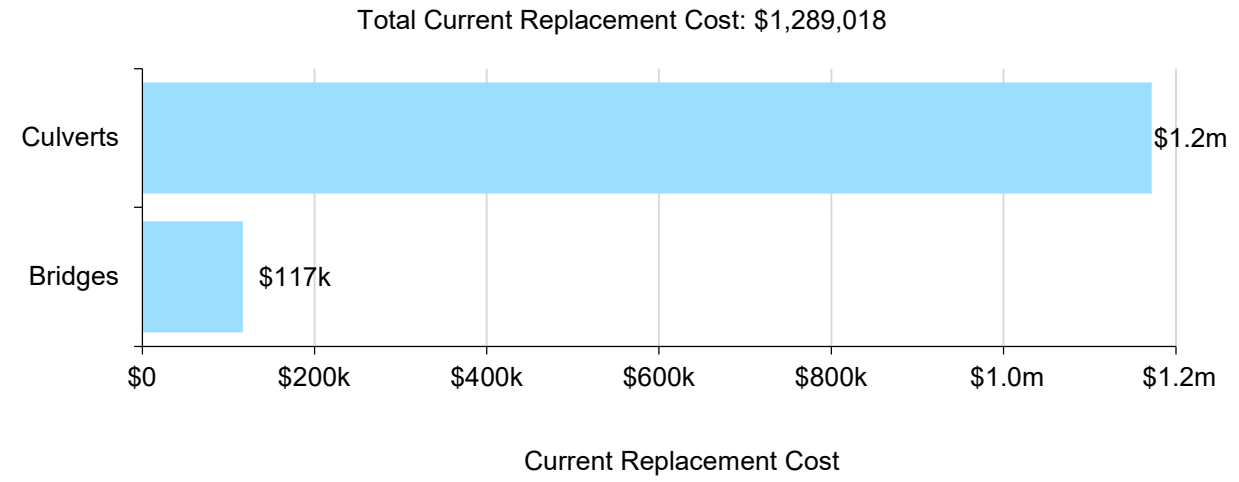
The following core values and level of service statements are a key driving force behind the Municipality's asset management planning:

Service Attribute	Level of Service Statement
Scope	Bridges and culverts are conveniently accessible to the whole community in sufficient capacity (meets traffic demands) and are available under all weather conditions. Only 1 of the bridges and culverts in the Municipality has loading restrictions.
Quality	The bridges and culverts are in good condition with minimal unplanned service interruptions and closures.

5.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Municipality's bridges and culverts inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Bridges	1	$117,108	$2,342
Culverts	11	$1,171,910	$29,298
Total		**$1,289,018**	**$31,640**



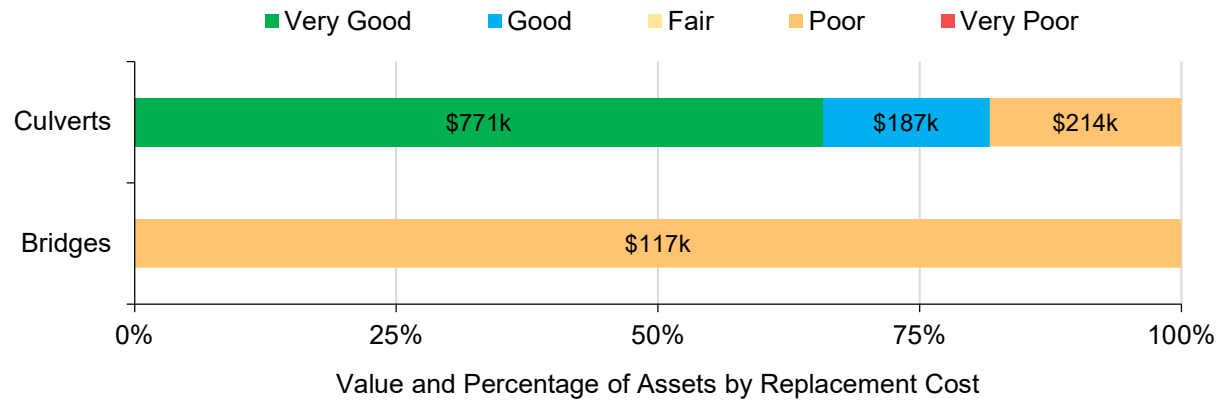
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

5.2 Asset Condition & Age

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Bridges[2]	50	57.0	26% (Poor)
Culverts	40	18.2	71% (Good)
Average			**67% (Good)**

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 bridges & culverts 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 bridges and culverts.

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.

[2] A new OSIM report was completed in September of 2022. The new report recommends that the Richer Road bridge will need to be decommissioned in the near future. Municipal staff are exploring options for partial replacement, full replacement, or permanent retirement.

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:

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

In this AMP, the following rating criteria is used to determine the current condition of bridges and culverts and forecast future capital requirements:

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

5.3 Lifecycle Management Strategy

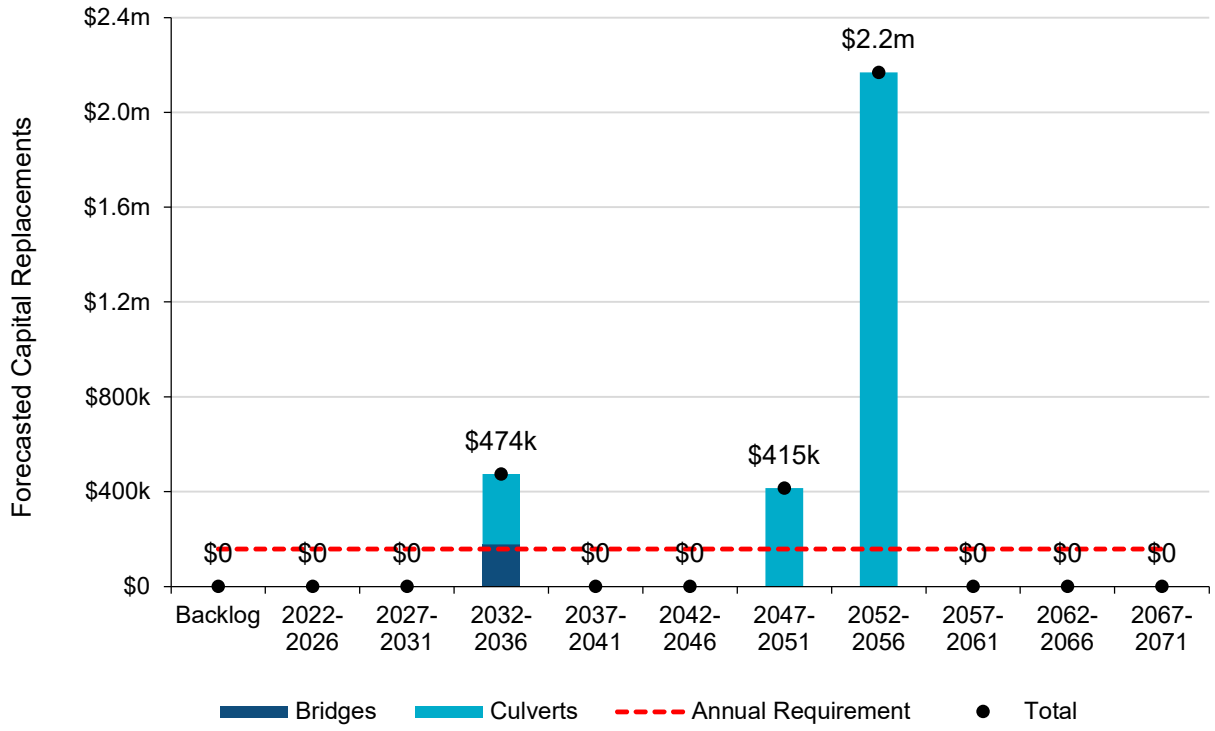
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation and Replacement	All lifecycle activities are driven by the results of mandated structural inspections competed according to the Ontario Structure Inspection Manual (OSIM).
Inspection	The most recent inspection report was completed in 2024 and the next report is schedule for the fall of 2026.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Municipality 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. This capital forecast includes an assumption of 3% inflation annually. The forecasted requirements are aggregated into 5-year bins. The trend line represents the average 5-year capital requirement of $158,000; this amount does not account for inflation.



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B. Although the data shows that there are no capital expenditures expected for the first 10 year, that may not be entirely accurate. ~~The~~ bridge components are pooled under a single asset, therefore, do not allow for component-level condition assessments and lifecycle activities.

5.4 Risk & Criticality

5.4.1 Risk Matrix

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 2021 inventory data.

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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)

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

5.4.2 Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Municipality is currently facing:

Climate Change & Extreme Events
Flooding and extreme weather causes damage to multiple components of the Municipality's bridges including the deck, superstructure, substructure, and approaches. The rising levels of freshwater and the increased frequency and intensity of precipitation events are likely to increase the water flow which can lead to deterioration of bridge components. Staff should identify and monitor affected bridges and culverts. The Municipality also should prioritize infrastructure maintenance, rehabilitation, and replacement based on susceptibility to climate impacts.

Asset Condition & Loading Restrictions
Not Applicable

5.5 Levels of Service

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

5.5.1 Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	Bridges and structural culverts are a key component of the municipal transportation network. All other structures do not have loading or dimensional restrictions meaning that most types of vehicles, including heavy transport, emergency vehicles, and cyclists can cross them without restriction.[3]
Quality	Description or images of the condition of bridges and culverts and how this would affect use of the bridges and culverts	Very Poor: Widespread signs of deterioration. Requires remedial work to bring the bridge up to standard. Service is affected. Poor: Large portions of the bridge/culvert is exhibiting deterioration of the superstructure, abutments, sub-structure, and/or foundation. The bridge/culvert is mostly below service standards. Fair: Some sections of the bridge/culvert is starting to deteriorate. Requires some remedial work and upgrades in the near future to bring the asset up to service standard. Good: Bridge/culvert is in overall good condition. Few sections are starting to show signs of minimal deterioration, service is not affected. Very Good: Bridge/culvert is well maintained and in excellent condition. The asset was newly

[3] A new OSIM report was completed in September of 2022. The new report recommends that the Richer Road bridge be decommissioned as it will no longer support any traffic in the near future.

	or recently upgraded. No signs of deterioration or remedial work required.

5.5.2 Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of bridges in the Municipality with loading or dimensional restrictions	0%
Quality	Average bridge condition index value for bridges in the Municipality	0%
	Average bridge condition index value for structural culverts in the Municipality	0%
Performance	Capital re-investment rate	0%

5.6 Recommendations

Asset Inventory

- 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.

Replacement Costs

- Gather accurate replacement costs and update costs on a regular basis to ensure the accuracy of capital projections.

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 only includes capital costs associated with the reconstruction of bridges and culverts. The Municipality should 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 and those metrics that the Municipality believe to provide meaningful and reliable inputs into asset management planning.
- 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.

6 Stormwater Network

Municipal staff are responsible for the maintenance and operation of a stormwater network. The stormwater network consists of 2.6 km of stormwater mains, catch basins, storm culverts, and other supporting infrastructure.

The state of the infrastructure for the stormwater network is summarized in the following table.

Replacement Cost	Condition	Financial Capacity	
$3.7 million	Fair (46%)	Annual Requirement:	$55,000
		Funding Available:	$20,000
		Annual Deficit:	$ 35,000

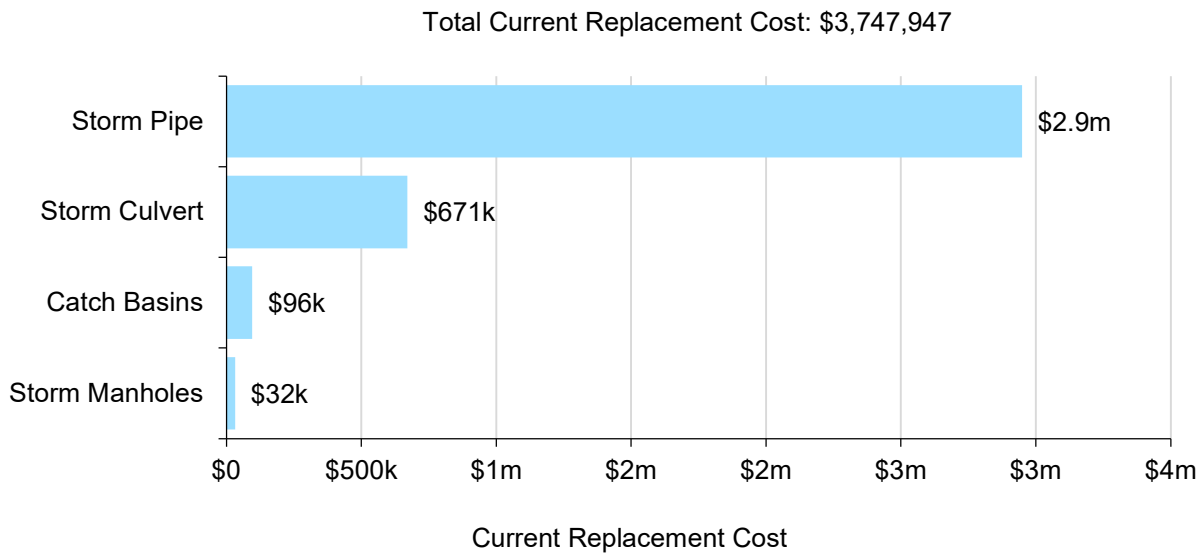
The following core values and level of service statements are a key driving force behind the Municipality's asset management planning:

Service Attribute	Level of Service Statement
Scope	The stormwater network service is conveniently accessible to the whole community in sufficient capacity and is available under all weather conditions.
Quality	The stormwater network is in fair condition with minimal unplanned service interruptions.

6.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Municipality's stormwater network inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Catch Basins	56	$95,654	$2,391
Storm Culvert	603	$671,107	$12,542
Storm Manholes	10	$32,223	$358
Storm Pipe	2.6 km	$2,948,964	$39,320
Total		**$3,747,947**	**$54,611**



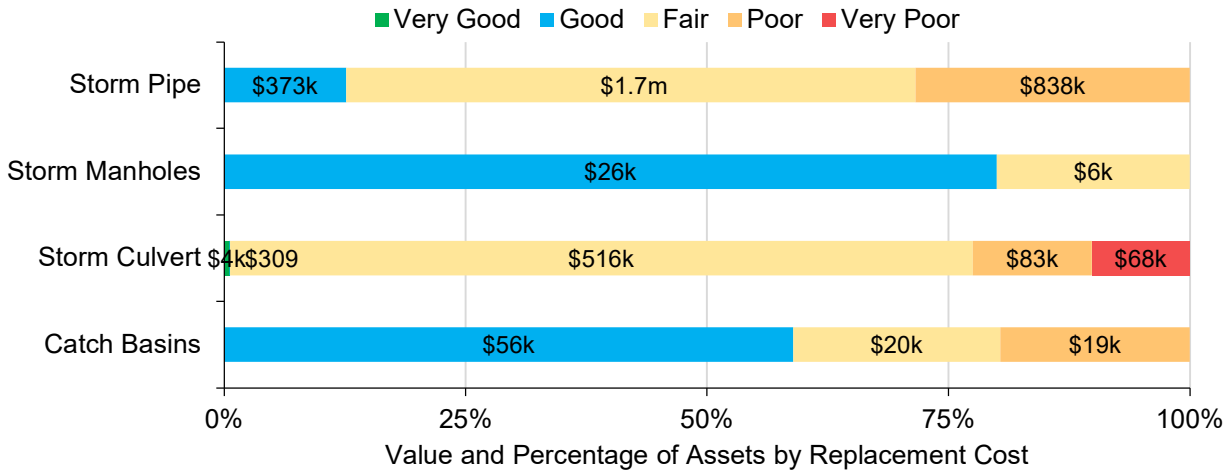
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

6.2 Asset Condition & Age

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Catch Basins	40	28.8	57% (Fair)
Storm Culvert	55	39.0	39% (Poor)
Storm Manholes	90	34.0	66% (Good)
Storm Pipe	75	18.8	47% (Fair)
Average			**46% (Fair)**

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



To ensure that the Municipality's stormwater network 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 network.

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.

6.2.1 Current Approach to Condition Assessment

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

- There are no formal condition assessment programs in place for the stormwater network.
- The last CCTV inspection took place in 2024.
- Condition data, which is provided as part of the CCTV inspection, is used to inform capital planning.
- Other assets that are part of the network, such as catch basins, storm culverts, and manholes are visually assessed on a regular basis. Defects are noted to inform capital planning.

In this AMP the following rating criteria is used to determine the current condition of road segments and forecast future capital requirements:

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

6.3 Lifecycle Management Strategy

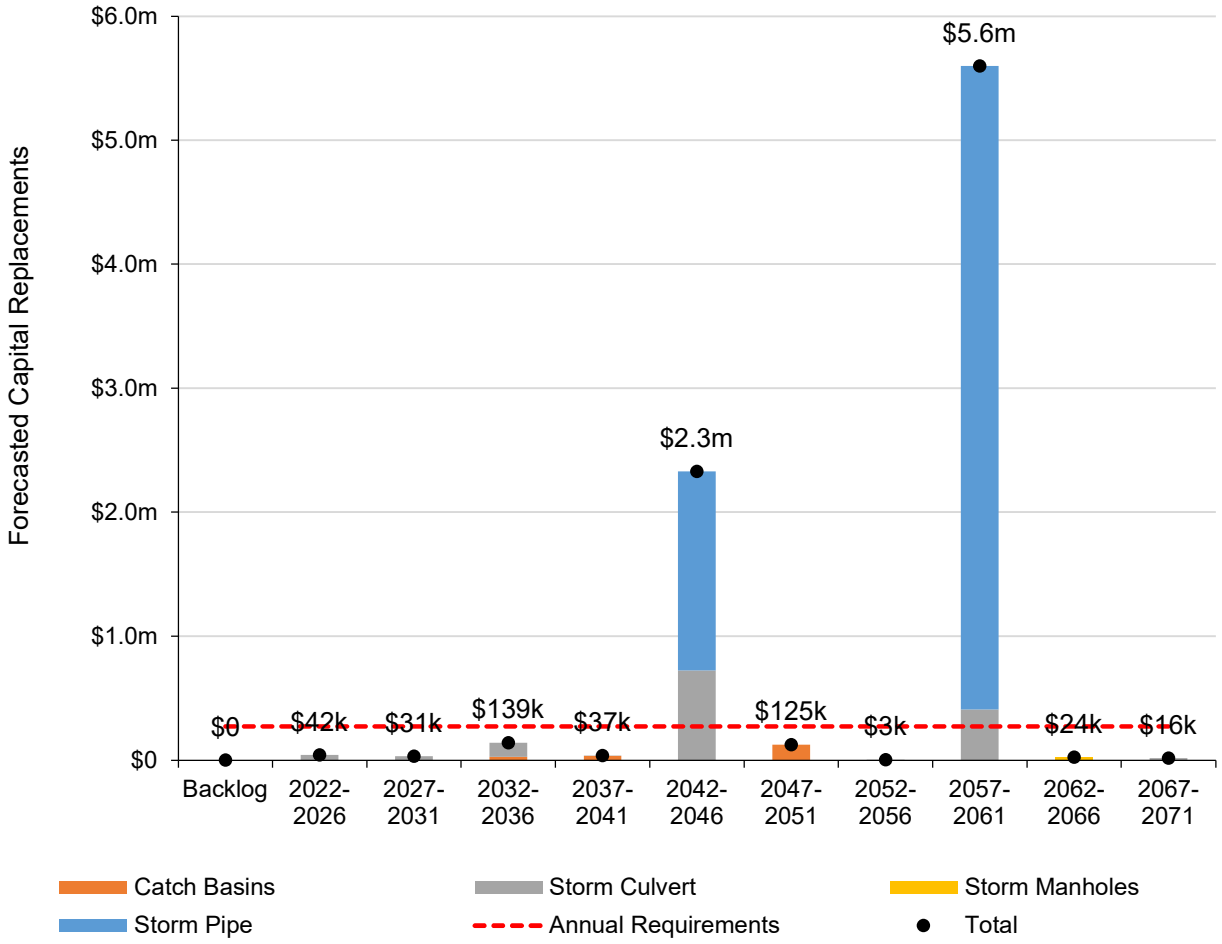
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance	Primary activities include catch basin cleaning and storm main flushing. 50% of the network is flushed annually.
	CCTV inspections are completed as budget becomes available and this information will be used to drive forward rehabilitation and replacement plans.
Rehabilitation	Trenchless re-lining has the potential to reduce total lifecycle costs but would require a formal condition assessment program to determine viability.
Replacement	Replacement activities are based on condition information provided from the most recent CCTV inspection.

6.3.1 Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Municipality 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. This capital forecast includes an assumption of 3% inflation annually. The forecasted requirements are aggregated into 5-year bins. The trend line represents the average 5-year capital requirement of $273,000; this amount does not account for inflation.



The graph shows relatively low annual requirements for the first two decades since the higher valued items, such as storm pipes and culverts, will not require replacement until 2042. The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

6.4 Risk & Criticality

6.4.1 Risk Matrix

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 2021 inventory data.

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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)

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

6.4.2 Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Municipality is currently facing:

Climate Change & Extreme Events
Staff need a better sense of the impacts of climate change on the stormwater network to inform retrofitting and replacement planning. Additional data will help address concerns with system capacity and the ability of the stormwater network to handle any potential increase in the intensity, frequency, and duration of rainfall events. Incorporating a monitoring and maintenance program for all stormwater infrastructure into the asset management plan can further support infrastructure resiliency and reduce risk.

6.5 Levels of Service

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

6.5.1 Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2021)
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 C

6.5.2 Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2021)
Scope	% of properties in municipality resilient to a 100-year storm	100%[4]
	% of the municipal stormwater management system resilient to a 5-year storm	100%[5]
Performance	Capital reinvestment rate	0.5%

[4] This is based on the observations of municipal staff.
[5] This is based on the observations of municipal staff.

6.6 Recommendations

Asset Inventory

- Review the inventory of stormwater mains, culverts, manholes, and catch basins to determine whether all municipal assets within these asset segments have been accounted for.

Condition Assessment Strategies

- Consider completing CCTV inspections on a regular cycle of 5 to 7 years. Utilize CCTV footage and resulting condition ratings to inform lifecycle strategies and replacement activities.

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 network 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 the Municipality has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying 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.

7 Buildings & Facilities

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

- Administrative offices
- A Fire station
- Public works garages and storage sheds
- An Arena and a community centre
- Wellness Center

The asset inventory for buildings and facilities is currently at a basic level. The inventory contains a single record for each building. Buildings consist of several separate capital components that have unique estimated useful lives and require asset-specific lifecycle strategies. Since the components are pooled under a single record, an average condition for the entire building must be applied, which does not account for distinct condition ratings for different components. Municipal staff are working towards enhancing their data by adopting a comprehensive condition assessment program and by following UNIFORMAT II, a format for classifying building elements.

The state of the infrastructure for the buildings and facilities is summarized in the following table.

Replacement Cost	Condition	Financial Capacity	
$12.2 million	Fair (51%)	Annual Requirement:	$243,000
		Funding Available:	$ 87,000
		Annual Deficit:	$156,000

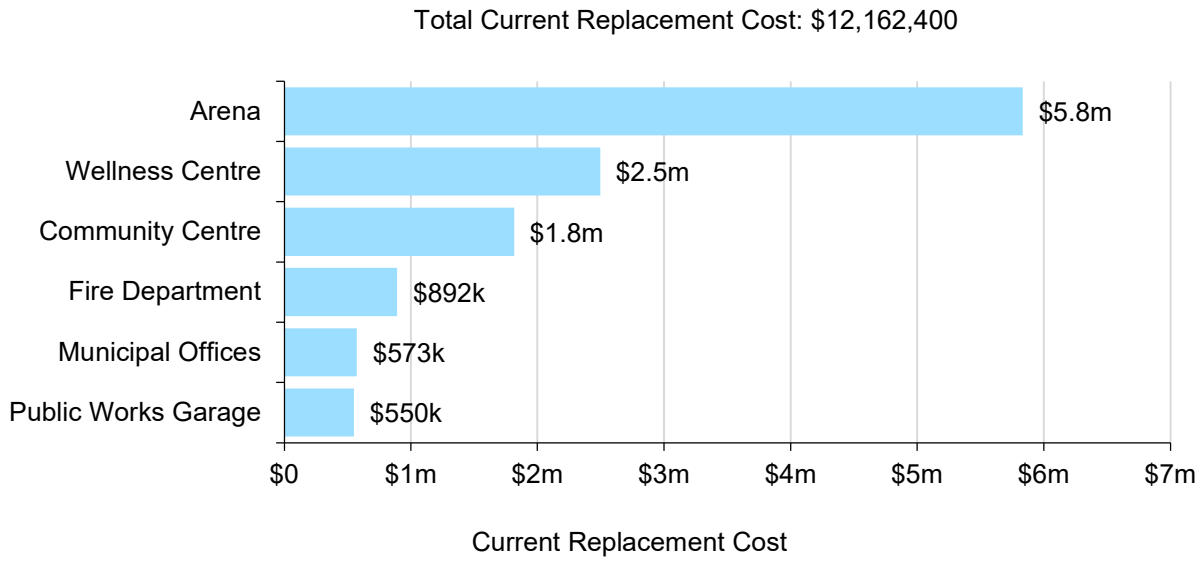
The following core values and level of service statements are a key driving force behind the Municipality's asset management planning:

Service Attribute	Level of Service Statement
Accessible and Reliable	Facilities provide adequate physical access and are available for their defined use within prescribed working hours.
Affordable	Facilities are managed cost-effectively to meet the established levels of service.
Sustainable	There are long-term plans in place for the renewal and replacement of all facilities

7.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Municipality's buildings and facilities inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Arena	1	$5,834,300	$116,686
Community Centre	1	$1,817,200	$36,344
Fire Department	1	$892,000	$17,840
Municipal Offices & Accessory Buildings	1	$572,600	$11,452
Public Works Garage	1	$550,000	$11,000
Wellness Centre	1	$2,496,300	$49,926
Total		**$12,162,400**	**$243,248**



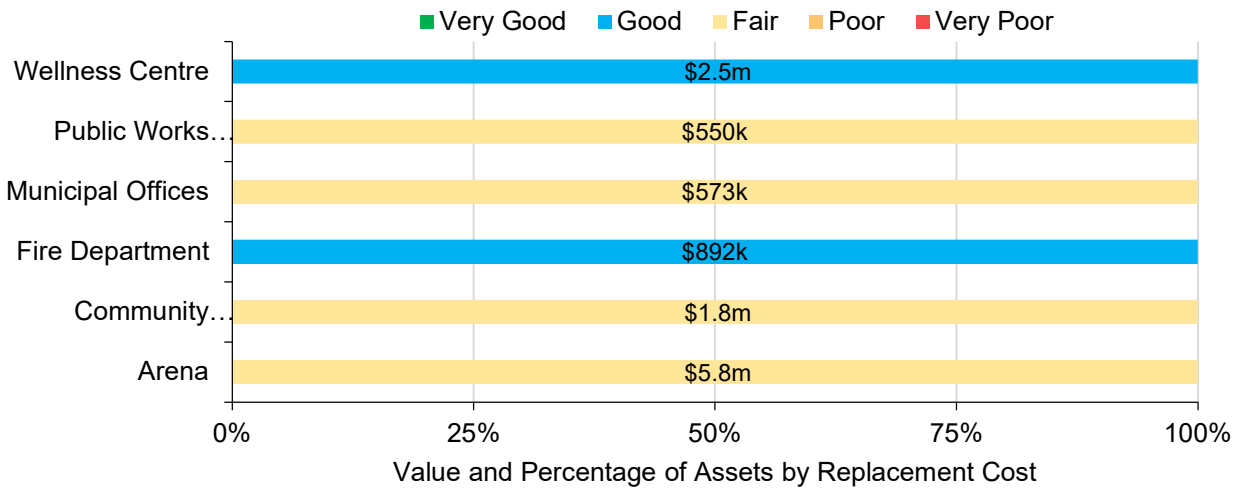
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

7.2 Asset Condition & Age

The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment.[6] The average condition (%) is a weighted value based on replacement cost.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Arena	50	46	42% (Fair)
Community Centre	50	54	45% (Fair)
Fire Department	50	49	65% (Good)
Municipal Offices	50	31	55% (Fair)
Public Works Garage	50	50	46% (Fair)
Wellness Centre	50	15	70% (Good)
Average			**51% (Fair)**

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



To ensure that the Municipality's buildings and facilities continues to provide an acceptable level of service, the Municipality should monitor the average condition of

[6] The data shown in this table does not account for the distinct component conditions, ages, and estimated useful lives because the asset inventory does not include a unique record for each component within a building. Instead, this table shows an estimated rating for the building's structure.

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 and facilities.

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.

7.2.1 Current Approach to Condition Assessment

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

- Health and safety inspection by internal staff is completed monthly
- Municipal buildings are subject to internal inspections on an as-needed basis
- Currently, there are no formal structural condition assessment programs for building assets in place.

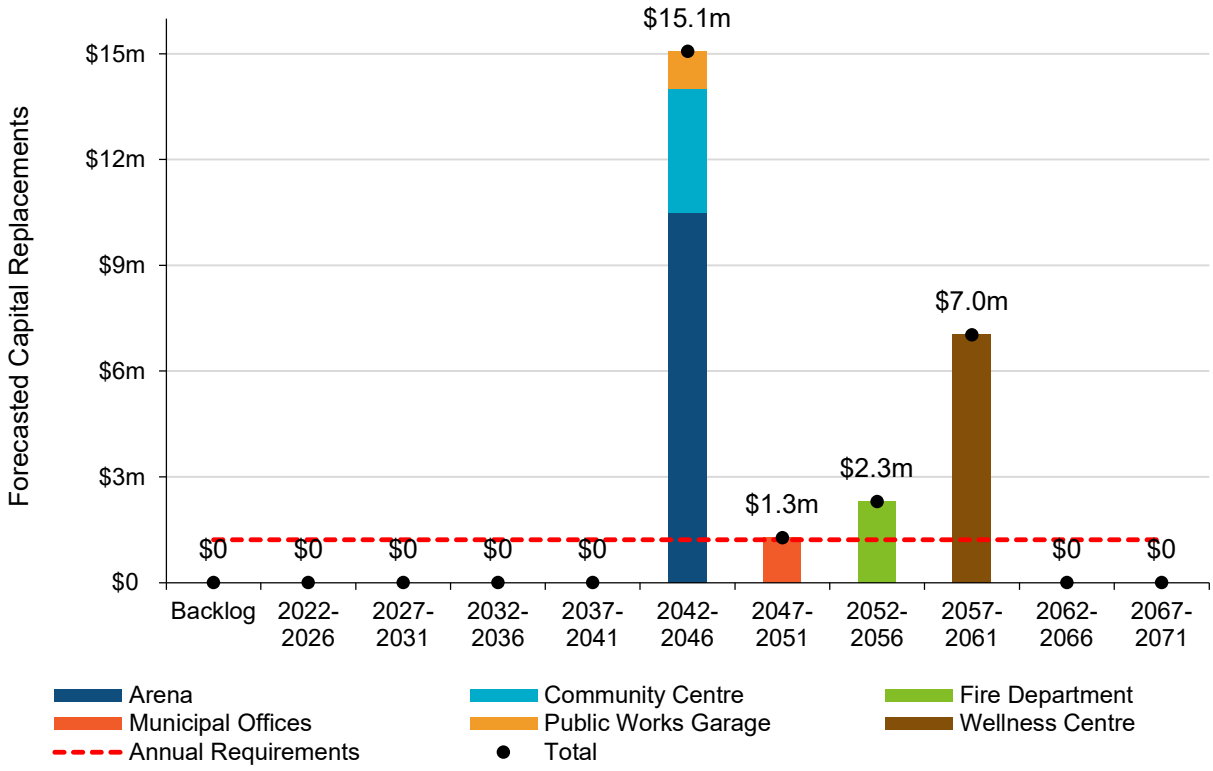
7.3 Lifecycle management Strategy

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

Activity Type	Description of Current Strategy
Maintenance	Health and Safety inspections are completed on a monthly basis.
	Repairs are completed on an as needed basis.
Rehabilitation	Other Maintenance, service calls and rehabilitation activities are completed as per manufacturers recommendations.
Replacement	Full replacement for the building is based on the maintenance records, maintenance time, costs and replacement costs.

7.3.1 Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Municipality 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. This capital forecast includes an assumption of 3% inflation annually. The forecasted requirements are aggregated into 5-year bins. The trend line represents the average 5-year capital requirement of $1.2 million; this amount does not account for inflation.



The asset inventory includes a single pooled asset for each building, therefore, does not account for rehabilitation and replacement activities of the many components that make up a single building. This graph simply shows when the entire building is likely to require renewal or replacement. The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

7.4 Risk and Criticality

7.4.1 Risk Matrix

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 2021 inventory data.

Very Good	Good	Fair	Poor	Very Poor
0 Assets	2 Assets	4 Assets	0 Assets	0 Assets
-	15,000.00 m2	42,865.00 m2	-	-
$0.00	$3,388,300.00	$8,774,100.00	$0.00	$0.00

7.4.2 Risk to Current Asset Management Strategies

Aging Infrastructure & Capital Funding Strategies

Building assets in the Municipality will be reaching the end of their estimated useful life. Major capital rehabilitation projects for buildings and facilities will be heavily reliant on the availability of grant funding opportunities. The Municipality should consider performing internal building structure inspections on a regular cycle and document all deficiencies. With the inspection data, a 5-to- 10-year proactive facilities replacement /rehabilitation plan can be developed to reduce grant dependency and prevent deferral of capital works.

Asset Information & Lifecycle Management Strategies

The estimated useful life for the building assets is age-based. Condition-based estimated useful life can be determined by completing a detailed assessment for all building components. This can increase confidence in the development of data-driven strategies to address infrastructure needs, prioritize the inspections/maintenance activities. An enhanced proactive strategy can extend the service life of assets with lower funding requirement.

7.5Levels of Service

The following tables identify the Municipality's current level of service for the Buildings and Facilities. 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.

7.5.1 Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2024)
Accessible and Reliable	Facilities provide adequate physical access and are available for their defined use within prescribed working hours	60% of facilities that are open to the public meeting AODA standards. AODA Accessibility upgrades occurred in the Arena, Community Center, and Wellness Center.
Affordable	Facilities are managed cost-effectively to meet the established level of service	Upgrades to facilities are usually dependant on grant availability. Percentage of maintenance costs to revenue is very low.
Sustainable	There are long-term plans in place for the renewal and replacement of facilities and/or components.	Average condition of facilities is in good to fair condition with some buildings having components that are in poor condition.

7.5.2 Technical Level of Service

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

Service Attribute	Technical Metric	Current LOS (2024)
Scope	% of facilities that are open to the public are meeting AODA standards	60%
	Total equivalent energy consumption / GJ of all buildings and facilities	3441.2 Gj
Performance	Actual annual capital reserve contribution rate of own source income (of all assets)	18.66%
	% of buildings in good condition	33%
	% of buildings in fair condition	66%

7.6 Recommendations

Asset Inventory

- The Municipality's asset inventory contains a single record for each building. Buildings consist of several separate capital components that have unique estimated useful lives and require asset-specific lifecycle strategies. Staff should work towards a component-based inventory of all facilities to allow for component-based lifecycle planning.

Replacement Costs

- Gather accurate replacement costs and update on a regular basis to ensure the accuracy of capital projections.

Condition Assessment Strategies

- The Municipality should implement regular condition assessments for all facilities to better inform 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

- Measure current levels of service in accordance with the metrics that the Municipality has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs.

8 Vehicles

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

- Fire rescue vehicles to provide emergency services
- Dump trucks to support winter maintenance and construction activities
- Pick-up trucks to support the maintenance of the transportation network and address service requests

The state of the infrastructure for the vehicles is summarized in the following table.

Replacement Cost	Condition	Financial Capacity	
$1.3 million	Fair (49%)	Annual Requirement:	$73,000
		Funding Available:	$26,000
		Annual Deficit:	$47,000

The following core values and level of service statements are a key driving force behind the Municipality's asset management planning:

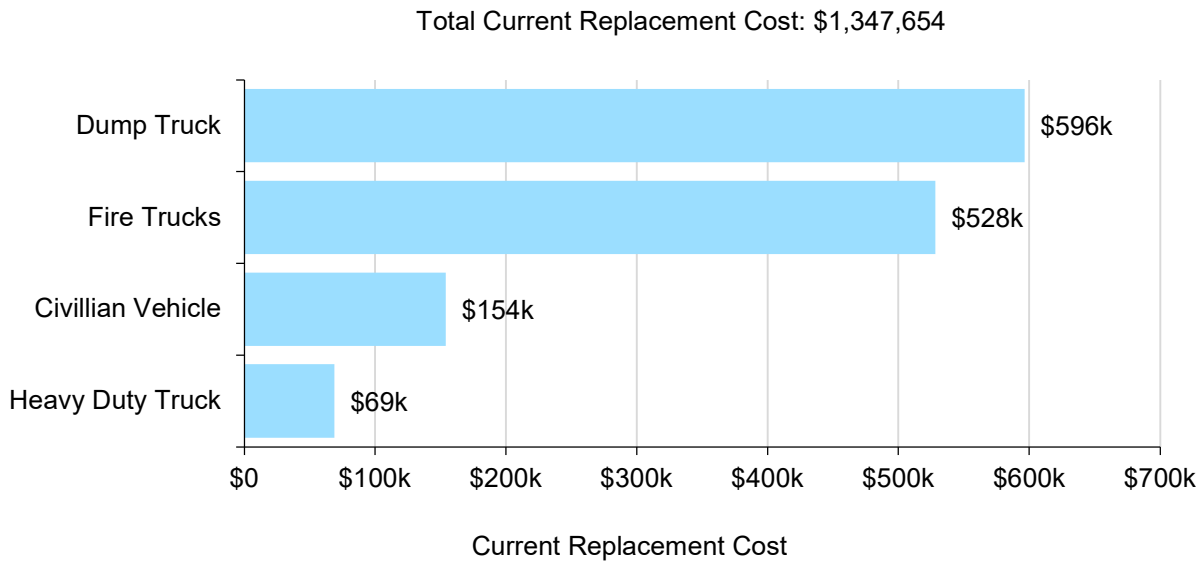
Service Attribute	Level of Service Statement
Accessible and Reliable	Vehicles are in good repair and are available for use during service hours
Safe & Regulatory	Vehicles are safe for operations and meet all relevant regulations
Affordable	Vehicles are managed cost-effectively, ensuring affordable service delivery

Sustainable	There are long term plans in place for the renewal and replacement of all vehicles

8.1 Asset Inventory & Costs

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

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Civillian Vehicle	3	$153,965	$10,264
Dump Truck	3	$596,499	$29,825
Fire Trucks	4	$528,257	$28,129
Heavy Duty Truck	1	$68,933	$4,596
Total		**$1,347,654**	**$72,814**



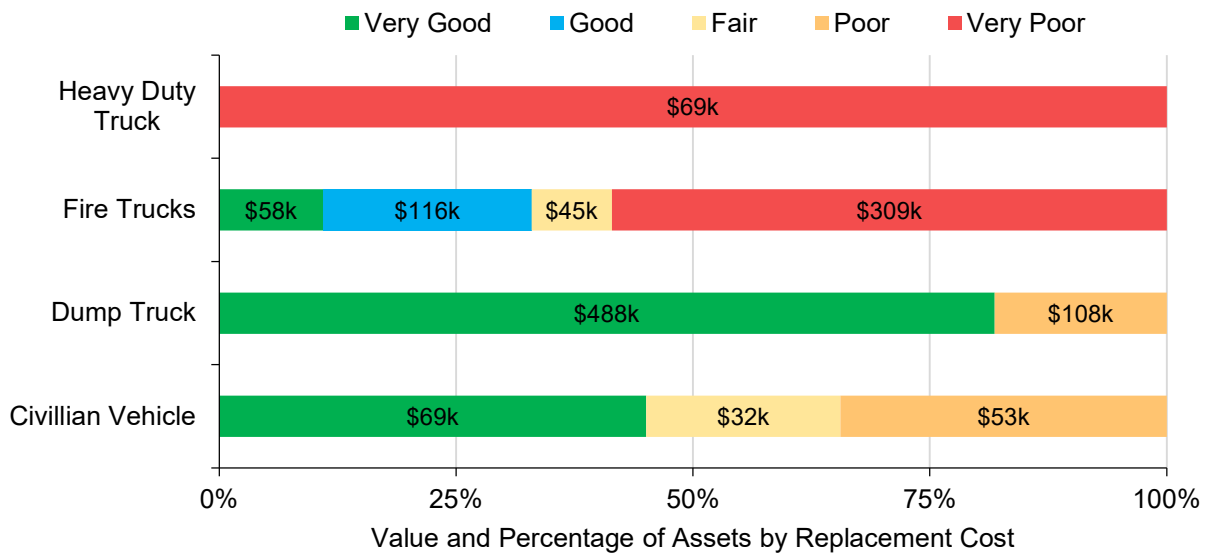
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

8.2 Asset Condition & Age

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Civillian Vehicle	15	6.0	62% (Good)
Dump Truck	20	6.2	70% (Good)
Fire Trucks	19	15.6	27% (Poor)
Heavy Duty Truck	15	18.0	0% (Very Poor)
Average			**49% (Fair)**

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 vehicles 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 vehicles.

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.

8.2.1 Current Approach to Condition Assessment

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

- Visual inspections on vehicles are completed to ensure they are in state of adequate repair prior to operation.
- Safety inspections are completed on a yearly basis.
- Air emission checks for aging vehicles are completed on a regular basis.

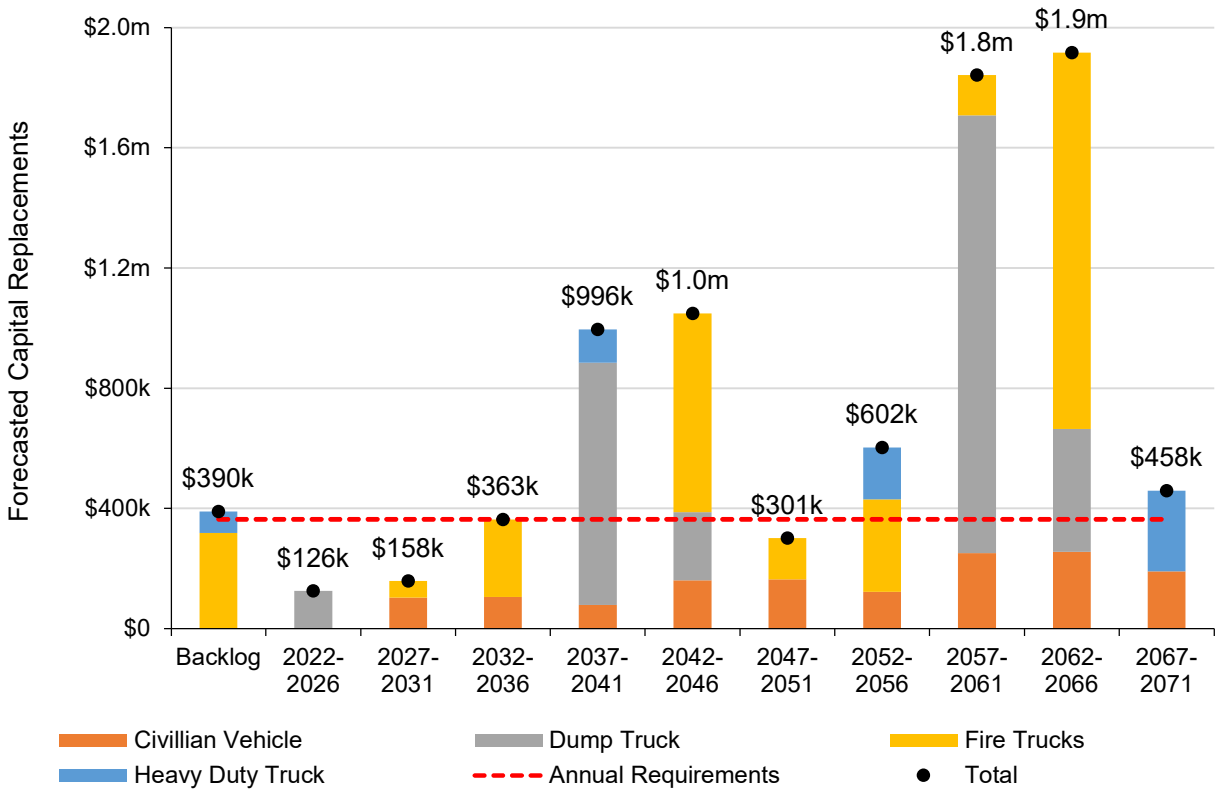
8.3 Lifecycle Management Strategies

The documentation of lifecycle management strategies, current levels of service, and risk are critical to the development of a comprehensive asset management program. These components of the asset management plan support effective short- and long-term capital planning and contribute to more proactive asset management practices, thus extending the estimated useful life of many assets and providing a higher level of service.

Activity Type	Description of Current Strategy
Maintenance	Safety inspection are complete on vehicles on an annual basis by external mechanics.
	Routine maintenance on vehicles is complete on a regular basis by external mechanics.
Rehabilitation	Oil change and other rehabilitation activities are completed based on manufacturers recommendations and staff expertise.
Replacement	Full replacement of the vehicles is based on the break down records, maintenance costs and replacement costs.

8.3.1 Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Municipality 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. This capital forecast includes an assumption of 3% inflation annually. The forecasted requirements are aggregated into 5-year bins. The trend line represents the average 5-year capital requirement of $364,000; this amount does not account for inflation.



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

8.4 Risk and Criticality

8.4.1 Risk Matrix

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 2021 inventory data.

Very Good	Good	Fair	Poor	Very Poor
4 Assets	1 Asset	2 Assets	2 Assets	2 Assets
4.00 unit(s)	1.00 unit(s)	2.00 unit(s)	2.00 unit(s)	2.00 unit(s)
$615,661.00	$116,003.00	$76,405.00	$161,370.00	$378,215.00

8.4.2 Risk to Current Asset Management Strategies

Several vehicles within the Municipality are approaching or have exceeded their estimated useful life. As vehicles age, they will require exponentially increasing O&M costs to ensure compliance with MTO standards and to function adequately. As capital budgets become more constrained, more maintenance will be postponed, which will further amplify this risk. Replacement and major rehabilitation of the vehicles are entirely dependent on the availability of reserve fund. When funds are not available, it will cause the deferral for the vehicles renewal or vehicles purchase. Commitment to a dedicated vehicle reserve contribution can help prevent deferral of capital works.

8.5 Levels of Service

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

8.5.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Accessible and Reliable	Vehicles are in good repair and are available for use during service hours	Most of the vehicles owned by the Municipality are in fair condition (49% average condition)
Safe and Regulatory	Vehicles are safe for operations and meet all relevant regulations	All of the vehicles have completed the regulated MTO maintenance inspections.
Affordable	Vehicles are managed cost-effectively, ensuring affordable service delivery.	O&M cost per Vehicle should be no more then 2% of the replacement cost

8.5.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2024)
Performance	% of vehicles in fair or better condition	64%
	% of vehicles in poor or very poor condition	36%

8.6 Recommendations

Replacement Costs

- Gather accurate replacement costs and update costs on a regular basis to ensure the accuracy of capital projections.

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

- Begin measuring current levels of service in accordance with the metrics that the Municipality has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.

9 Machinery & Equipment

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

- Landscaping equipment to maintain public parks
- Fire equipment to support the delivery of emergency services
- Equipment to run the Arena and Community Center

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

The state of the infrastructure for the machinery and equipment is summarized in the following table.

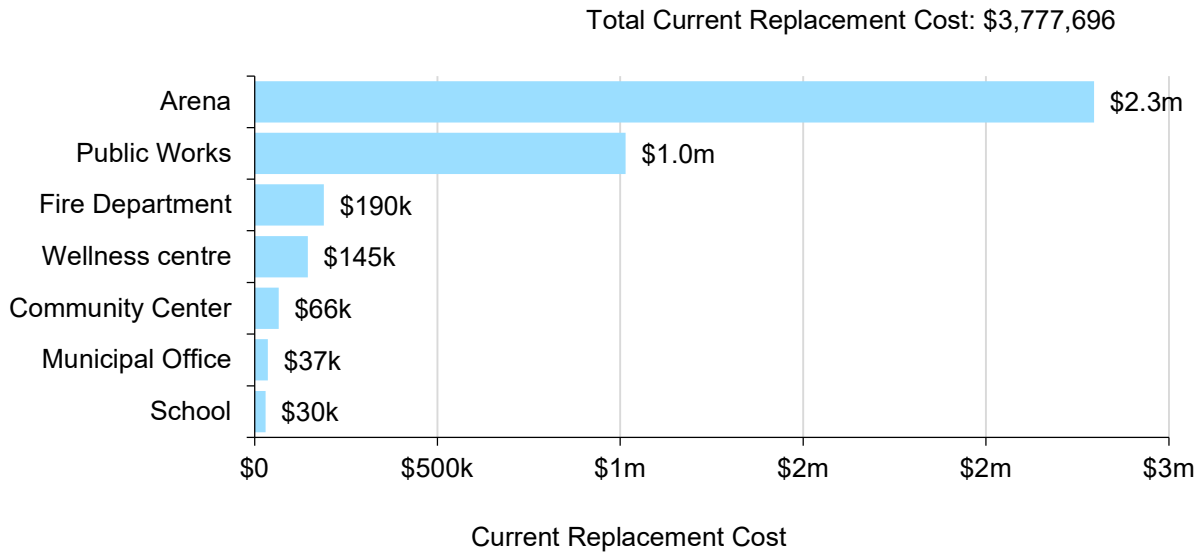
Replacement Cost	Condition	Financial Capacity	
$3.8 million	Good (61%)	Annual Requirement:	$198,000
		Funding Available:	$71,000
		Annual Deficit:	$127,000

Service Attribute	Level of Service Statement
Accessible and Reliable	Machinery and Equipment are available and accessible to readily support business operations.
Affordable	Equipment operations and services are managed cost-effectively, affordable for residents and businesses.
Sustainable	There are long term plans in place for the renewal and replacement of all Machinery and Equipment

9.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Municipality's machinery and equipment inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Arena	14	$2,295,196	$125,626
Community Center	4	$66,000	$3,358
Fire Department	42	$189,689	$11,792
Municipal Office	3	$36,650	$3,730
Public Works	10	$1,014,800	$45,207
School	1	$30,000	$1,500
Wellness centre	269	$145,361	$6,750
Total		**$3,777,696**	**$197,963**



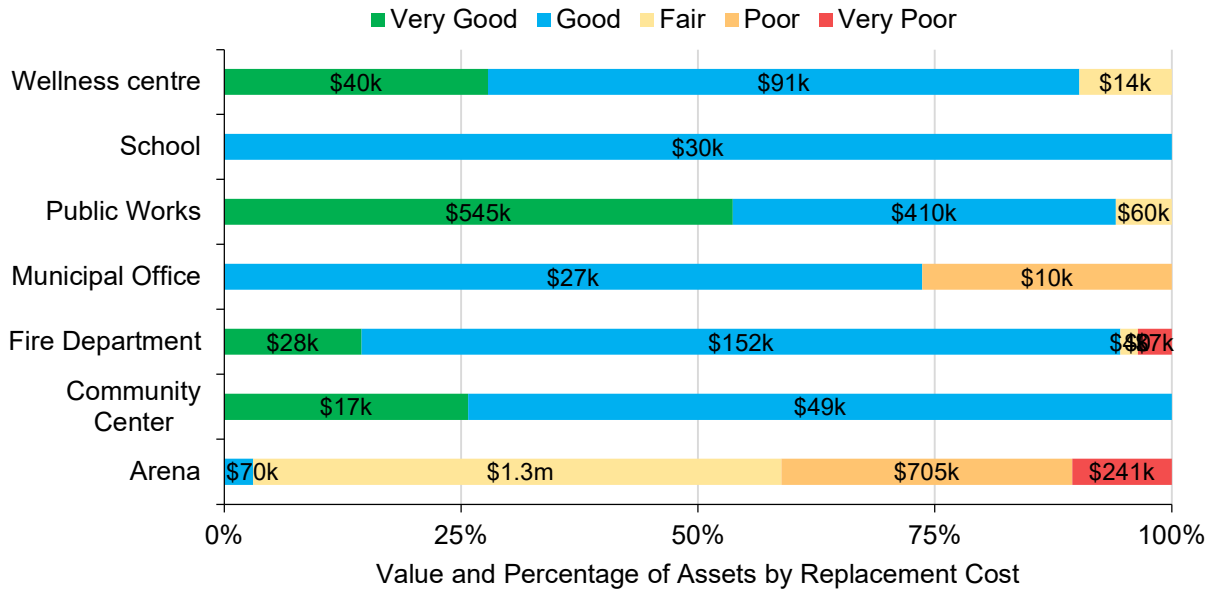
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

9.2 Asset Condition & Age

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Arena	19	12.2	45% (Fair)
Community Center	24	11.3	85% (Very Good)
Fire Department	17	13.1	80% (Very Good)
Municipal Office	15	9.8	69% (Good)
Public Works	24	7.9	89% (Very Good)
School	20	16.0	80% (Very Good)
Wellness centre	24	12.4	83% (Very Good)
Average			**61% (Good)**

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



To ensure that the Municipality's machinery and equipment 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 machinery and equipment.

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.

9.2.1Current Approach to Condition Assessment

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

- Visual inspections on machinery and equipment are completed to ensure they are in state of adequate repair prior to operation.
- Safety checks for machinery and equipment are performed as per manufacturers guidelines or on a yearly basis.

9.3 Lifecycle Management Strategy

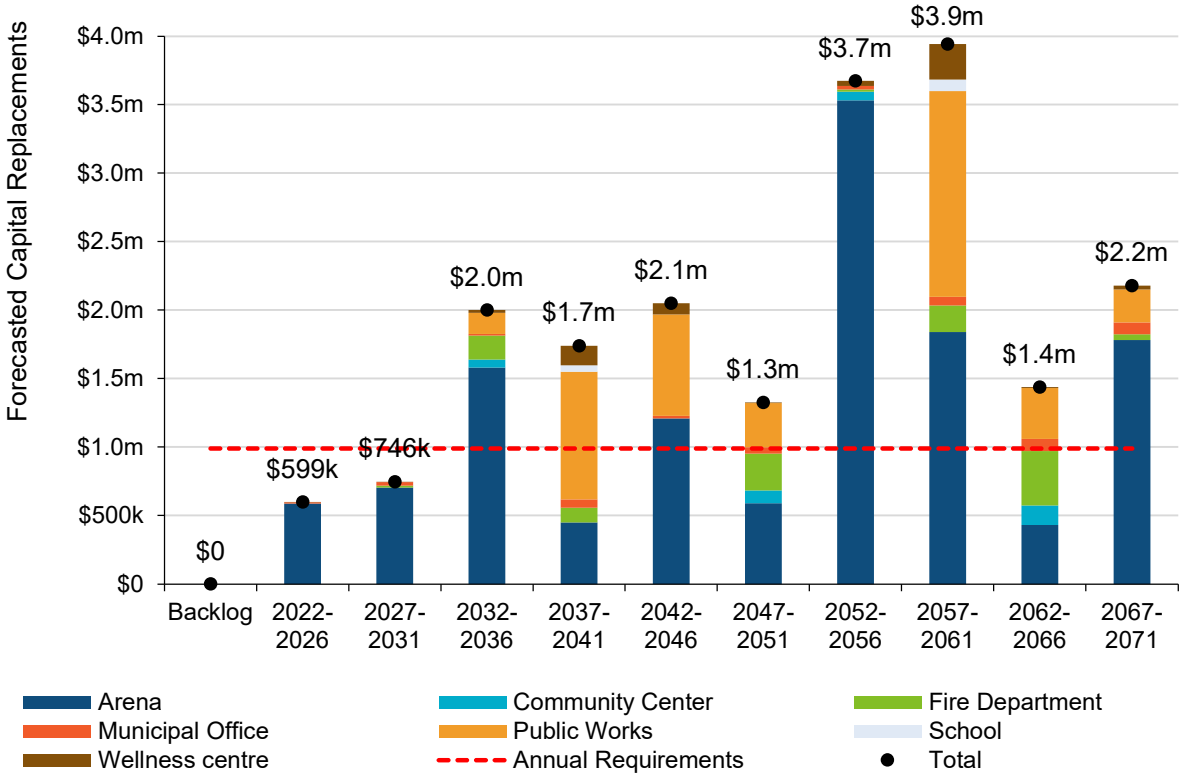
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Diagnostics are completed annually or as per the manufacturer's recommendations.
	Machinery and equipment are maintained according to manufacturer recommended actions and supplemented by the expertise of municipal staff.
Replacement	The replacement of machinery and equipment depends on its break records, maintenance costs, usage and deficiencies identified by mechanics.

9.3.1 Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Municipality 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. This capital forecast includes an assumption of 3% inflation annually. The forecasted requirements are aggregated into 5-year bins. The trend line represents the average 5-year capital requirement of $990,000; this amount does not account for inflation.



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

9.4 Risk and Criticality

9.4.1 Risk Matrix

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 2021 inventory data.

Very Good	Good	Fair	Poor	Very Poor
23 Assets	39 Assets	12 Assets	7 Assets	4 Assets
233.00 unit(s), sq ft	46.00 unit(s)	53.00 unit(s)	7.00 unit(s)	4.00 unit(s)
$629,816.00	$828,567.00	$1,357,152.89	$714,156.44	$248,004.00

9.4.2 Risk to Current Asset Management Strategies

The documentation of lifecycle management strategies, current levels of service, and risk are critical to the development of a comprehensive asset management program. These components of the asset management plan support effective short- and long-term capital planning and contribute to more proactive asset management practices, thus extending the estimated useful life of many assets and providing a higher level of service.

Aging Infrastructure and Funding Strategies

As machinery and equipment age, they will require increasing O&M costs to function adequately. As capital budgets become more constrained, more maintenance will be postponed, and it will cause the deferral for equipment renewal or equipment purchase. Commit to a dedicated machinery and equipment reserve contribution can help prevent deferral of capital works.

9.5 Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by Machinery and Equipment

9.5.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Accessible and Reliable	Equipment is available and accessible to reliably support business operations	Machinery and equipment are maintained according to manufacturer recommended actions and supplemented by the expertise of municipal staff.
Affordable	Equipment operations and services are managed cost-effectively, affordable for residents and businesses	Maintenance, rehabilitation and replacement activities take place as required for certain pieces of equipment and on an ad hoc basis for others.
Sustainable	There are long-term plans in place for the renewal and replacement of all machinery and equipment assets	The average condition of the machinery and equipment is fair and replacement is dependant on Budget allowances.

9.5.2 Technical Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Performance	% of machinery and equipment in fair or better condition	87%
	% of machinery and equipment in poor or very poor condition	13%
Affordable	Maintenance cost to maintain equipment	
Sustainable	Average condition of the Machinery and Equipment	63%

9.6 Recommendations

Asset Inventory

- Review the inventory for machinery & equipment to determine whether all municipal assets within these asset segments have been accounted for.

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 the Municipality has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.

10 Land Improvements

The Municipality of St.-Charles owns a small number of assets that are considered land improvements. This category includes:

- Park assets such as playgrounds, benches, flower boxes, washrooms, and shelters
- Sport field assets such as fences and bleachers
- Miscellaneous landscaping assets

The state of the infrastructure for the land improvements is summarized in the following table.

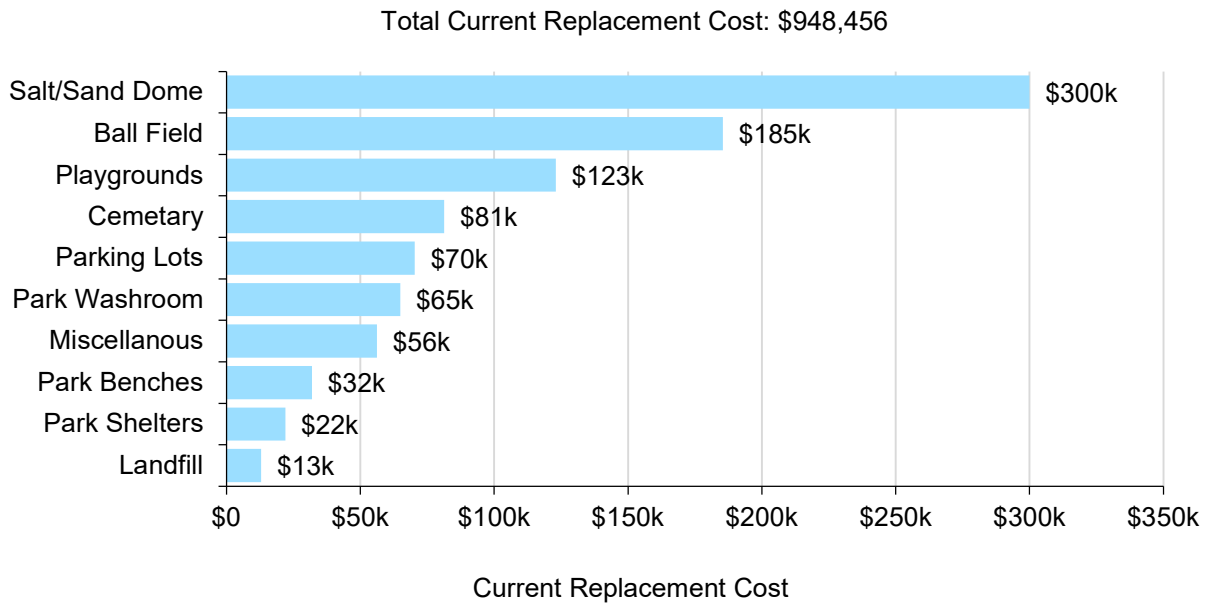
Replacement Cost	Condition	Financial Capacity	
$0.9 million	Good (70%)	Annual Requirement:	$28,000
		Funding Available:	$10,000
		Annual Deficit:	$18,000

Service Attribute	Level of Service Statement
Performance	The Land Improvements owned by the Municipality that are in poor or worse condition is 9% and 91% of the land improvements are in fair or better condition.
Sustainable	There are long term plans in place for the renewal and replacement of all land improvements.

10.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Municipality's land improvements inventory.

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Ball Field	2	$185,403	$7,416
Cemetary	10	$81,378	$1,401
Landfill	2	$13,000	$325
Miscellanous	18	$56,256	$2,156
Park Benches	10	$32,000	$800
Park Shelters	1	$22,000	$550
Park Washroom	1	$65,000	$1,300
Parking Lots	5	$70,380	$1,760
Playgrounds	2	$123,039	$4,922
Salt/Sand Dome	1	$300,000	$7,500
Total		**$948,456**	**$28,129**



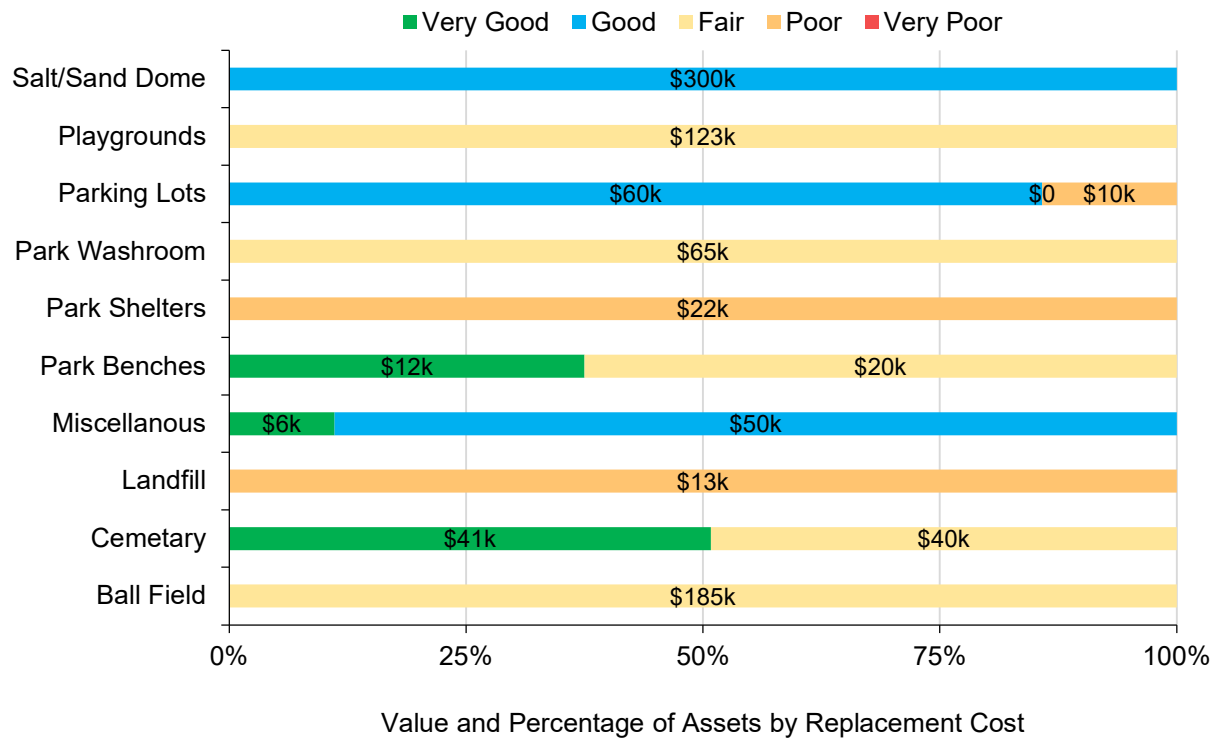
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

10.2 Asset Condition & Age

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

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Condition
Ball Field	25	24.4	60% (Good)
Cemetary	74	14.7	80% (Very Good)
Landfill	40	44.0	40% (Fair)
Miscellanous	27	14.6	82% (Very Good)
Park Benches	40	8.9	75% (Good)
Park Shelters	40	45.0	40% (Fair)
Park Washroom	50	45.0	60% (Good)
Parking Lots	40	20.7	72% (Good)
Playgrounds	25	19.6	60% (Good)
Salt/Sand Dome	40	17.0	80% (Very Good)
Average			**70% (Good)**

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



To ensure that the Municipality's land improvements 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 land improvements.

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.

10.2.1 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:

- Playground structures are inspected by in-house staff on an ad hoc basis by a visual examination for CSA compliance.

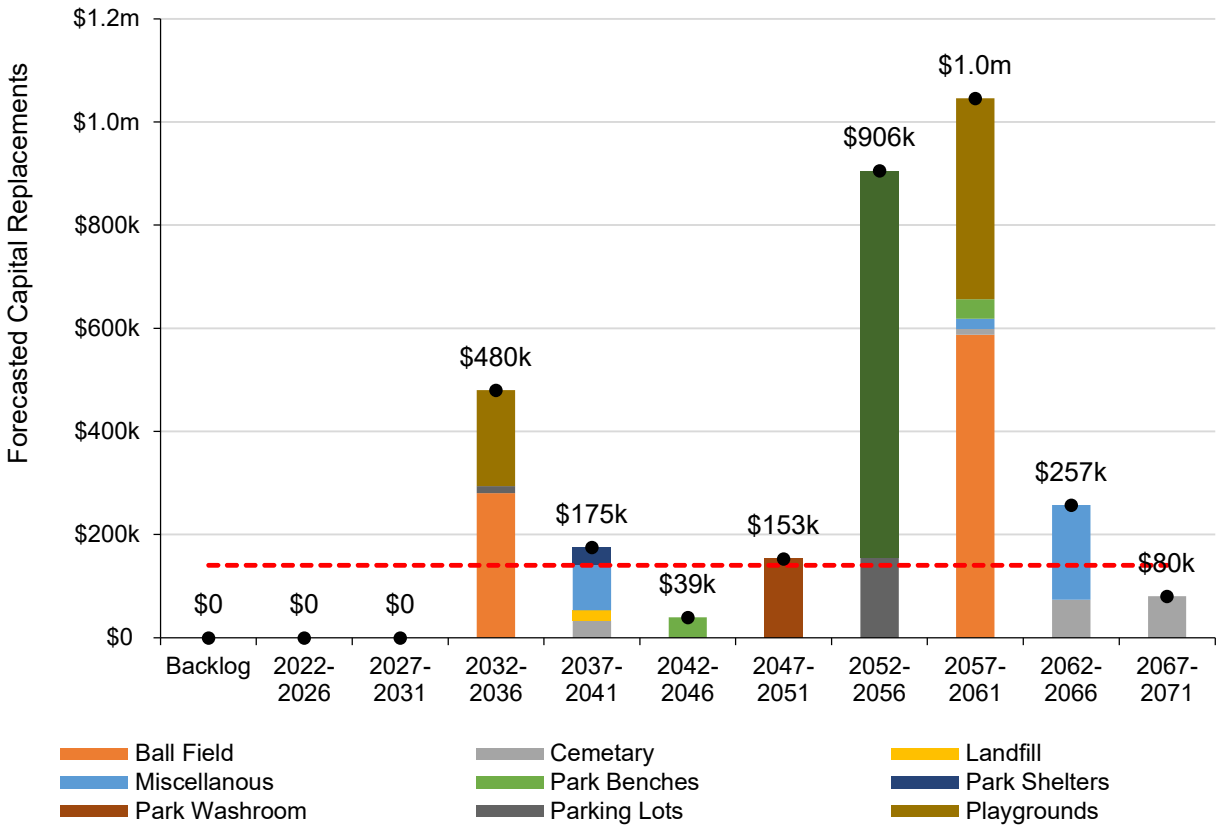
- Lighting, benches and other improvements are inspected seasonally.

10.3 Lifecycle Management Strategy

The documentation of lifecycle management strategies, current levels of service, and risk are critical to the development of a comprehensive asset management program. These components of the asset management plan support effective short- and long-term capital planning and contribute to more proactive asset management practices, thus extending the estimated useful life of many assets and providing a higher level of service.

10.3.1 Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Municipality 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. This capital forecast includes an assumption of 3% inflation annually. The forecasted requirements are aggregated into 5-year. The trend line represents the average 5-year capital requirement of $141,000; this amount does not account for inflation.



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

10.4 Risk and Criticality

10.4.1 Risk Matrix

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 2021 inventory data.

Very Good	Good	Fair	Poor	Very Poor
24 Assets	7 Assets	8 Assets	4 Assets	0 Assets
35.00 unit(s)	5,006.00 sq ft, unit(s)	889.00 sq ft, unit(s)	29.30 unit(s), sq ft	-
$59,634.00	$410,380.00	$433,442.00	$45,000.00	$0.00

10.4.2 Risk to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Municipality is currently facing:

Growth & Infrastructure Design

As the Municipality continues to grow, new residents have higher expectations and different demands than original residents. Major capital rehabilitation projects for recreation services are entirely dependant on the availability of grant funding opportunities. When grants are not available, there may be a risk of not meeting community expectation or safety requirements. This may become critical over time if these assets are not managed proactively.

10.5 Levels of Service

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

10.5.1 Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2024)
Accessible and Reliable	Land Improvement assets are available and accessible to residents.	Land Improvements are maintained to the standards set out by the manufacturer or by regulation.
Safe and Regulatory	Land Improvements are managed cost-effectively, and affordable for residents and businesses	Maintenance, rehabilitation and replacement activities take place on a regular basis
Sustainable	There are long-term plans in place for the renewal and replacement of all land improvement assets.	The average condition of the land improvement assets in fair or better condition is 91%

10.5.2 Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2022)
Performance	% of land improvements in fair or better condition	91%
	% of land improvements in poor or very poor condition	9%

10.6 Recommendations

Asset Inventory

- Review the land improvements inventory to determine whether all municipal assets within these asset segments have been accounted for.

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 the Municipality has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.

11 Wastewater Network

The wastewater management services provided by the Municipality are overseen by the municipal staff and funded primarily through rates. The wastewater network is composed of a pump station, a lift station, lagoons, and an underground system of 4.8 km of wastewater mains.

Replacement Cost	Condition	Financial Capacity	
$7.5 million	53% (Fair)	Annual Requirement:	$100,000
		Funding Available:	$53,000
		Annual Deficit:	$47,000

The state of the infrastructure for the wastewater network is summarized in the following table.

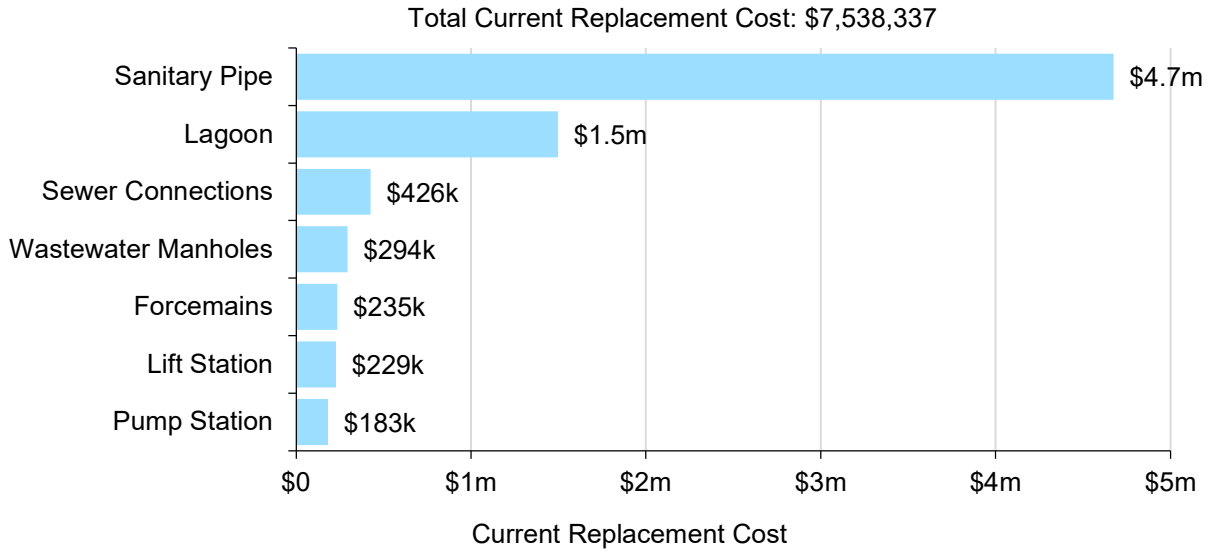
The following core values and level of service statements are a key driving force behind the Municipality’s asset management planning.

Service Attribute	Level of Service Statement
Scope	The Municipal sanitary system is accessible to 14% of the community in sufficient capacity (does not exceed maximum capacity).
Quality/Reliability	The sewer network is in fair condition with minimal unplanned service interruptions due to backups and effluent violations.

11.1 Asset Inventory & Costs

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

Asset Segment	Quantity (Components)	Replacement Cost	Annual Capital Requirement
Forcemains	434	$234,904	$3,132
Lagoon	2(3)	$1,497,456	$15,872
Lift Station	1(3)	$228,686	$5,001
Pump Station	1(2)	$182,746	$3,769
Sanitary Pipe	4.8 km	$4,675,260	$62,337
Sewer Connections	266	$425,600	$5,675
Wastewater Manholes	61	$293,685	$4,518
Total		**$7,538,337**	**$100,303**



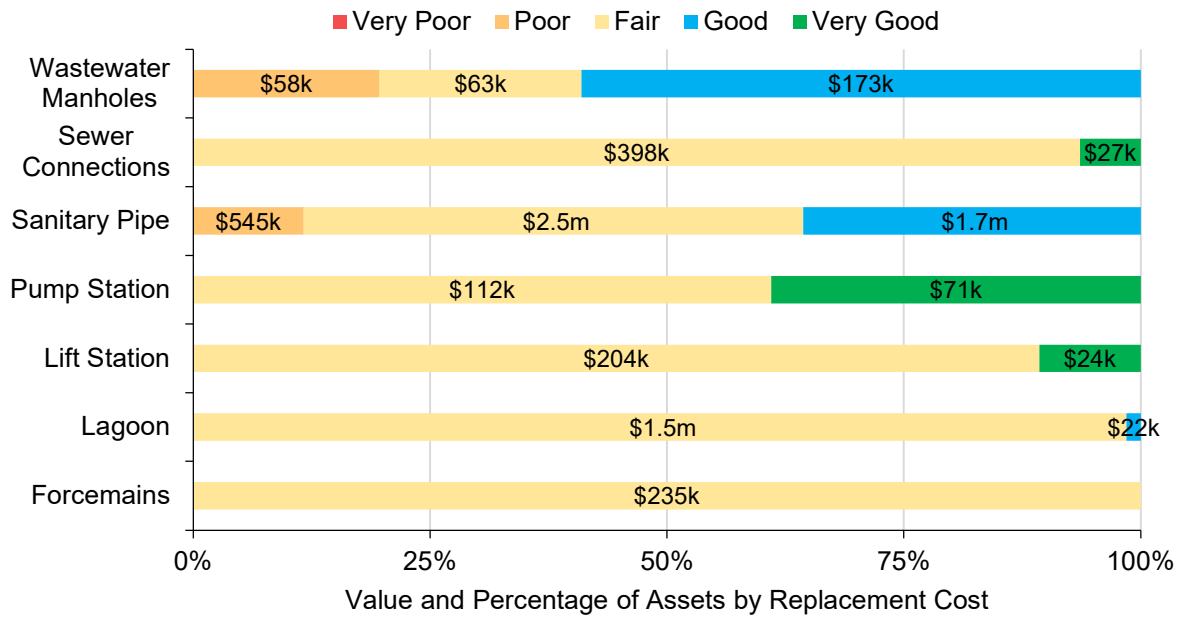
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

11.2 Asset Condition & Age

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

Asset Segment	Estimated Useful Life (Years)	Average Age	Average Condition (%)
Forcemains	75	45.0	40% (Fair)
Lagoon	99	44.4	55% (Fair)
Lift Station	73	40.3	49% (Fair)
Pump Station	61	29.0	60% (Good)
Sanitary Pipe	75	45.0	53% (Fair)
Sewer Connections	75	41.9	44% (Fair)
Wastewater Manholes	65	45.0	58% (Fair)
Average			**53% (Fair)**

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 wastewater network 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 wastewater network.

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

Current Approach to Condition Assessment

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

- There is no formal condition assessment program in place for the wastewater network.
- The last CCTV inspection took place in 2024.
- Condition data, which is provided as part of the CCTV inspection, is used to inform capital planning.
- Other assets that are part of the network, such as pump station, lift station, lagoons, and manholes, are visually assessed on a regular basis by municipal staff. Defects are noted to inform capital planning.

In this AMP the following rating criteria is used to determine the current condition of sewer network assets and forecast future capital requirements:

Condition	Rating
Very Good	80-100
Good	60-80
Fair	40-60
Poor	20-40
Very Poor	0-20

11.3 Lifecycle Management Strategy

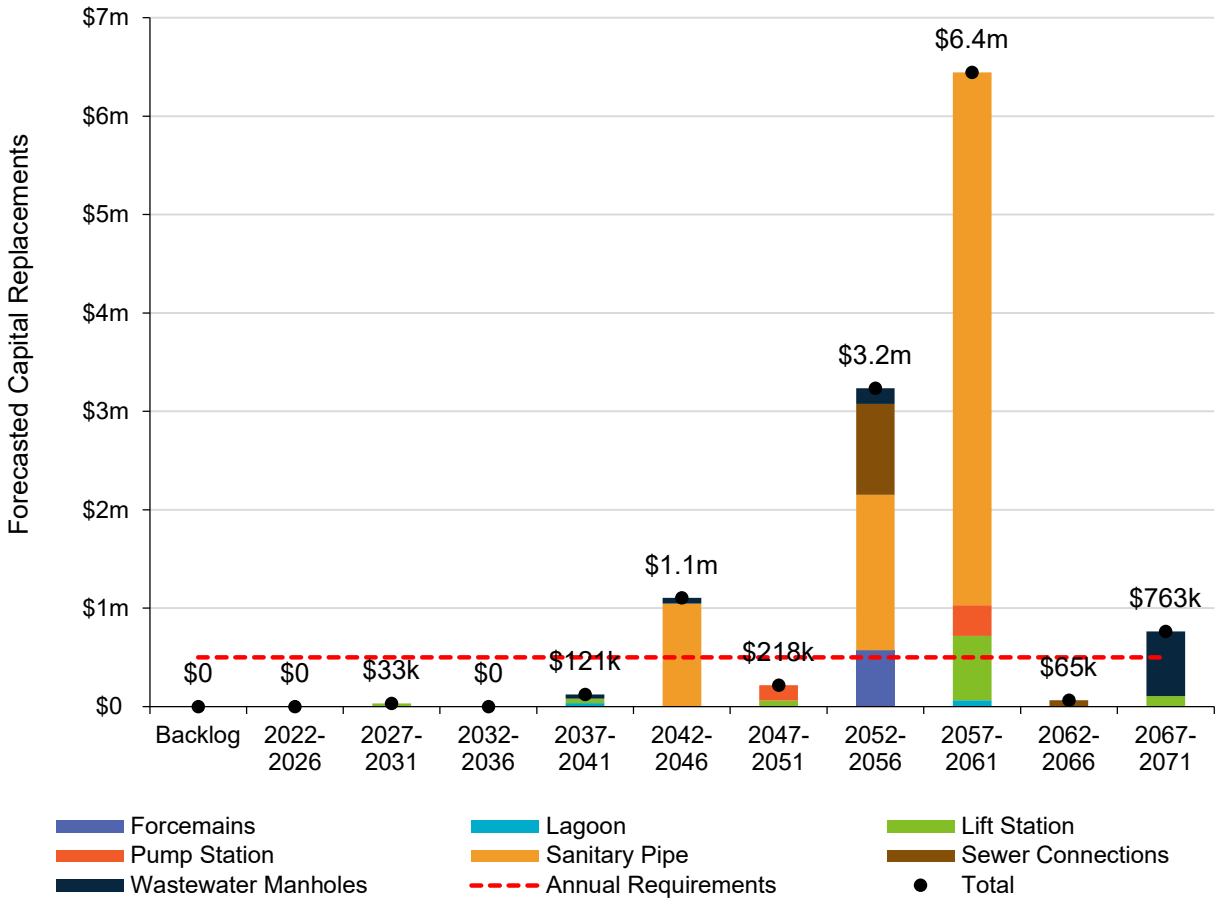
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance	Main flushing is completed on 50% of the network annually using in-house resources.
	Periodic pressure testing may be employed to identify deficiencies and potential leaks.
Rehabilitation	Trenchless re-lining of wastewater mains presents significant challenges and is not always a viable option.
Replacement	In the absence of mid-lifecycle rehabilitative events, most mains are simply maintained with the goal of full replacement once it reaches its end-of-life.
	Replacement activities are identified based on an analysis of the main break rate as well as any issues identified during regular maintenance activities.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Municipality 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. This capital forecast includes an assumption of 3% inflation annually. The forecasted requirements are aggregated into 5-year bins. The trend line represents the average 5-year capital requirement of $502,000; this amount does not account for inflation.



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

11.4 Risk & Criticality

Risk Matrix

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 2021 inventory data.

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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)

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

Risks to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the Municipality is currently facing:

Staff Capacity & Cognizance

Staff cognizance of the wastewater management system is limited. The staff does not have the capacity to conduct formal condition assessments and determine proactive lifecycle strategies for the lagoons, lift station, pump station, and mains. The Municipality will be working with the Ontario Clean Water Association (OCWA) in 2023 to prepare a 10-year upgradation plan.

11.5 Levels of Service

The following tables identify the Municipality's current level of service for wastewater 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 wastewater network.

Service Attribute	Qualitative Description	Current LOS (2021)
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 C
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	The Municipality does not own any combined sewers
	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to	Stormwater can enter into sanitary sewers due to cracks in sanitary mains or through indirect connections (e.g. weeping tiles). In the case of heavy rainfall events, sanitary sewers may experience a volume of water and

Service Attribute	Qualitative Description	Current LOS (2021)
	overflow into streets or backup into homes	sewage that exceeds its designed capacity. In some cases, this can cause water and/or sewage to overflow backup into homes. the disconnection of weeping tiles from sanitary mains and the use of sump pumps and pits directing storm water to the storm drain system can help to reduce the chance of this occurring.
	Description of how sanitary 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 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.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2021)
Scope	% of properties connected to the municipal wastewater system	14%
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	N/A
	# of connection-days per year having wastewater 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	2/171
Performance	Capital re-investment rate	0.7%

11.6 Recommendations

Asset Inventory

- There are a number of pooled assets in the wastewater inventory including the lift station and pump station. Buildings consist of several separate capital components that have unique estimated useful lives and require asset-specific lifecycle strategies. Staff should work towards a component-based inventory of all facilities to allow for component-based lifecycle planning.

Condition Assessment Strategies

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

Risk Management Strategies

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

Lifecycle Management Strategies

- A trenchless re-lining strategy is expected to extend the service life of sanitary 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. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- 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.

12 Impacts of Growth

Key Insights

- 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
- Moderate population increases and declines can be expected
- The costs of growth should be considered in long-term funding strategies that are designed to maintain the current level of service

12.1 Description of Growth Assumptions

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

Sudbury East Planning Area (September 2010)

The Municipality of St.-Charles refers to the Sudbury East Planning Area Official Plan (September 2010) to guide physical development for the next 20-year period.[7] The Plan provides a policy framework for the location of new development, strengthening urban centres, protecting the natural environment, and planning for municipal services such as roads, watermains, sewers, and parks.

The goal of the plan is to ensure that future growth is accommodated within the most appropriate areas for each type of development while also protecting the character of the Sudbury East Planning Area.

The Plan states that modest employment growth is anticipated, particularly in the tourism and resource sectors and to a lessor degree in the agricultural sector.

To analyze population and housing growth, the following table was developed using census data from 2001 to 2021.

Historical Figures	2001	2006	2011	2016	2021
Population	1,245	1159	1282	1269	1357
Population Percentage Change	1.0%	-6.9%	10.6%	-1.0%	6.9%
Private Dwellings	852	697	759	818	788

Population levels in the Municipality have increased and declined at varying rates in the last two decades. The population has ranged between 1,159 and 1,357 with no discernible growth trend. With notable growth occurring in the last 5 years, between 2016 and 2021, population growth may be anticipated in the near future.

[7] The Municipality of St.-Charles adopted By-law No. 2014-26, "Zoning By-law", on June 17th, 2014. The By-law was prepared in accordance with the Sudbury East Planning Area Official Plan. The purpose of the By-law is to regulate the use of land.

12.2 Impact of Growth on Lifecycle Activities

By July 1, 2025, the Municipality'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.

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

13 Financial Strategy

Key Insights

- The Municipality is committing approximately $624,000 towards capital projects per year from sustainable revenue sources
- Given the annual capital requirement of $1,220,000, there is currently a funding gap of $596,000 annually
- For tax-funded assets, we recommend increasing tax revenues by 1.2% each year for the next 15 years to achieve a sustainable level of funding
- For the wastewater network, we recommend increasing rate revenues by 1.9% annually for the next 20 years to achieve a sustainable level of funding

13.1 Financial Strategy Overview

For an asset management plan to be effective and meaningful, it must be integrated with financial planning and long-term budgeting. The development of a comprehensive financial plan will allow the Municipality of St.-Charles to identify the financial resources required for sustainable asset management based on existing asset inventories, desired levels of service, and projected growth requirements.

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

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

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

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

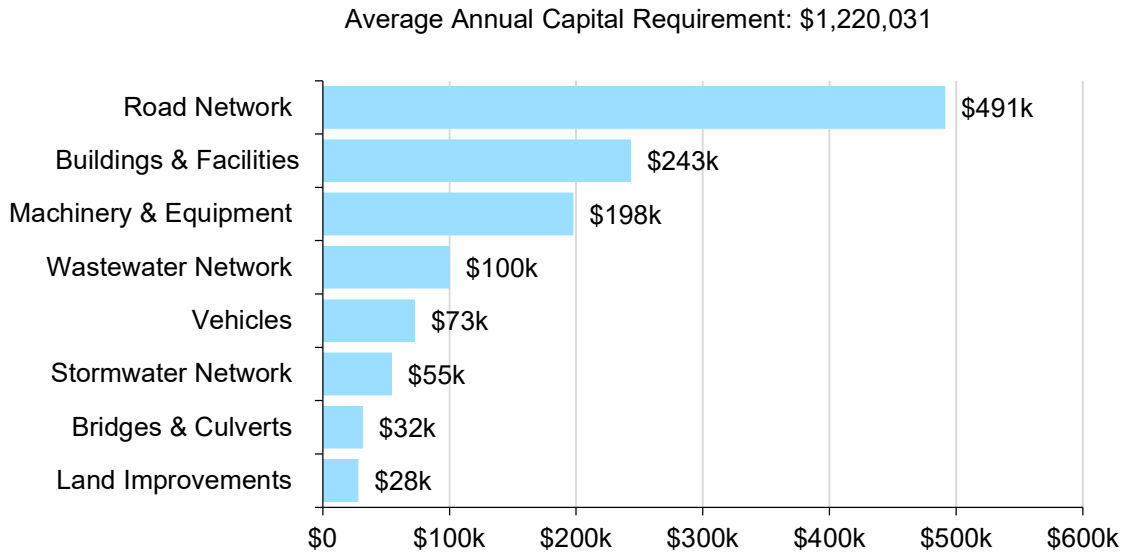
1. In order to reduce financial requirements, consideration has been given to revising service levels downward.

2. All asset management and financial strategies have been considered. For example:
    a. If a zero-debt policy is in place, is it warranted? If not, the use of debt should be considered.
    b. Do user fees reflect the cost of the applicable service? If not, increased user fees should be considered.

Annual Requirements & Capital Funding

Annual Requirements

The annual requirements represent the amount the Municipality should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs and achieve long-term sustainability. In total, the Municipality must allocate approximately $1,220,031 annually to address capital requirements for the assets included in this AMP.



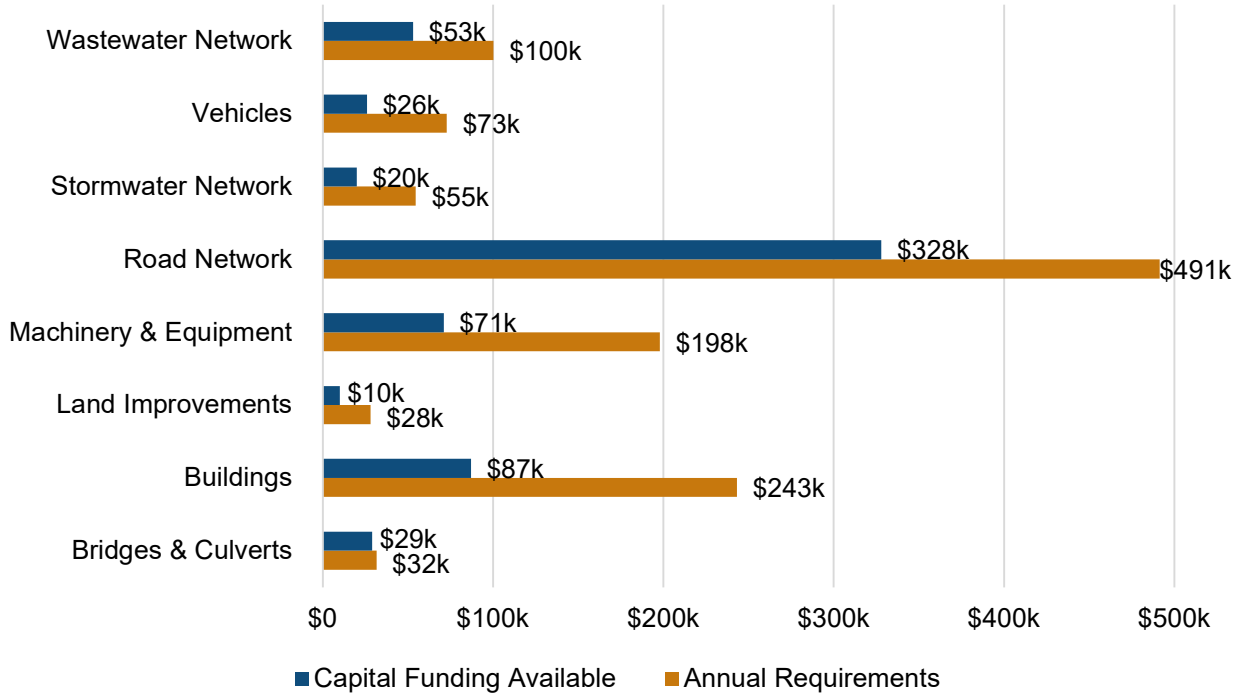
For all asset categories the annual requirement has been calculated based on a "replacement only" scenario, in which capital costs are only incurred at the construction and replacement of each asset.

However, lifecycle management strategies can be developed to identify capital costs that are realized through strategic rehabilitation and renewal of the Municipality's assets. The development of these strategies could allow for a comparison of potential cost avoidance if the strategies were to be implemented.

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

Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Municipality is committing approximately $624,000 towards capital projects per year from sustainable revenue sources. Given the annual capital requirement of $1,220,031, there is currently a funding gap of $596,031 annually.



13.2 Funding Objective

We have developed a scenario that would enable St.-Charles to achieve full funding within 20 years for the following assets:

1. **Tax Funded Assets:** Road Network, Stormwater Network, Bridges & Culverts, Buildings & Facilities, Machinery & Equipment, Land Improvements Vehicles
2. **Rate-Funded Assets:** Wastewater Network

For the purposes of this AMP, we have excluded gravel roads since they are a perpetual maintenance asset and end of life replacement calculations do not normally apply. If gravel roads are maintained properly, they can theoretically have a limitless service life. For each scenario developed we have included strategies, where applicable, regarding the use of cost containment and funding opportunities.

13.3 Financial Profile: Tax Funded Assets

Current Funding Position

The following tables show, by asset category, St.-Charles's average annual asset investment requirements, current funding positions, and funding increases required to achieve full funding on assets funded by taxes.

Asset Category	Avg. Annual Requirement	Annual Funding Available					Annual Deficit
		Taxes	CCBF	OCIF	NORDS	Total Available	
Road Network	491,000	90,000	80,000	100,000	58,000	328,000	163,000
Bridges & Culverts	32,000	1,000	0	0	28,000	29,000	3,000
Stormwater Network	55,000	20,000	0	0	0	20,000	35,000
Buildings & Facilities	243,000	87,000	0	0	0	87,000	156,000
Machinery & Equipment	198,000	71,000	0	0	0	71,000	127,000
Vehicles	73,000	26,000	0	0	0	26,000	47,000
Land Improvements	28,000	10,000	0	0	0	10,000	18,000
Total	**1,120,000**	**305,000**	**80,000**	**100,000**	**86,000**	**571,000**	**549,000**

The average annual investment requirement for the above categories is $1,120,000. Annual revenue currently allocated to these assets for capital purposes is $571,000 leaving an annual deficit of $549,000. Put differently, these infrastructure categories are currently funded at 51% of their long-term requirements.

Full Funding Requirements

In 2022, Municipality of St.-Charles has budgeted annual tax revenues of $2,508,000. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding would require the following tax change over time:

Asset Category	Tax Change Required for Full Funding
Road Network	6.5%
Bridges & Culverts	0.1%
Stormwater Network	1.4%
Buildings & Facilities	6.2%
Machinery & Equipment	5.1%
Vehicles	1.9%
Land Improvements	0.7%
	21.9%

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

a) St.-Charles's debt payments for these asset categories will be decreasing by $17,000 over the next 5 years and by $32,000 over the next 10 years. Although not shown in the table, debt payment decreases will be $64,000 over the next 15 years.

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

	Without Capturing Changes				With Capturing Changes			
	5 Years	**10 Years**	**15 Years**	**20 Years**	**5 Years**	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	549,000	549,000	549,000	549,000	549,000	549,000	549,000	549,000
Change in Debt Costs	N/A	N/A	N/A	N/A	-17,000	-32,000	-64,000	-64,000
Change in OCIF Grants	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Resulting Infrastructure Deficit	549,000	549,000	549,000	549,000	532,000	517,000	485,000	485,000
Tax Increase Required	21.9%	21.9%	21.9%	21.9%	21,2%	20.6%	19.3%	19.3%
Annually	4.1%	2.0%	1.4%	1.0%	4.0%	1.9%	1.2%	0.9%

Financial Strategy Recommendations

Considering all the above information, we recommend the 15-year option. This involves full funding being achieved over 15 years by:

a) when realized, reallocating the debt cost reductions to the infrastructure deficit as outlined above.
b) increasing tax revenues by 1.2% each year for the next 15 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
c) allocating the current CCBF and OCIF revenue as outlined previously.
d) should the scheduled OCIF grant increase, the Municipality should reduce the annual tax increase by an amount equal to the grant increase as it occurs.
e) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
f) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. By Provincial AMP rules, this periodic funding cannot be incorporated into an AMP unless there are firm commitments in place. We have included OCIF formula-based funding, if applicable, since this funding is a multi-year commitment[8].
2. We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

Although this option achieves full funding on an annual basis in 15 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available.

Prioritizing future projects will require the current data to be replaced by condition-based data. Although our recommendations include no further use of debt, the results of the condition-based analysis may require otherwise.

[8] The Municipality should take advantage of all available grant funding programs and transfers from other levels of government. While OCIF has historically been considered a sustainable source of funding, the program is currently undergoing review by the provincial government. Depending on the outcome of this review, there may be changes that impact its availability.

13.4 Financial Profile: Rate Funded Assets

Current Funding Position

The following tables show, by asset category, St.-Charles's average annual asset investment requirements, current funding positions, and funding increases required to achieve full funding on assets funded by rates.

Asset Category	Avg. Annual Requirement	Annual Funding Available				Annual Deficit
		Rates	To Operations	OCIF	Total Available	
Wastewater Network	100,000	106,000	-53,000	0	53,000	47,000

The average annual investment requirement for the above categories is $100,000. Annual revenue currently allocated to these assets for capital purposes is $53,000 leaving an annual deficit of $47,000. Put differently, these infrastructure categories are currently funded at 53% of their long-term requirements.

Full Funding Requirements

In 2022, St.-Charles has budgeted annual wastewater revenues of $106,000. As illustrated in the table below, without consideration of any other sources of revenue, full funding would require the following changes over time:

Asset Category	Tax Change Required for Full Funding
Wastewater Network	44.3%

In the following tables, we have expanded the above scenario to present multiple options. Due to the significant increases required, we have provided phase-in options of up to 20 years:

Wastewater Network				
	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	47,000	47,000	47,000	47,000
Change in OCIF Grants	N/A	N/A	N/A	N/A
Resulting Infrastructure Deficit	47,000	47,000	47,000	47,000
Rate Increase Required	44.3%	44.3%	44.3%	44.3%
Annually	7.7%	3.8%	2.5%	1.9%

Financial Strategy Recommendations

Considering all of the above information, we recommend the 20-year option that includes debt cost reallocations. This involves full funding being achieved over 20 years by:

a) increasing rate revenues by 1.9% each year for the next 20 years.
b) these rate revenue increases are solely for the purpose of phasing in full funding to the respective asset categories covered in this AMP.
c) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. This periodic funding should not be incorporated into an AMP unless there are firm commitments in place.
2. We realize that raising rate revenues for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.
3. Any increase in rates required for operations would be in addition to the above recommendations.

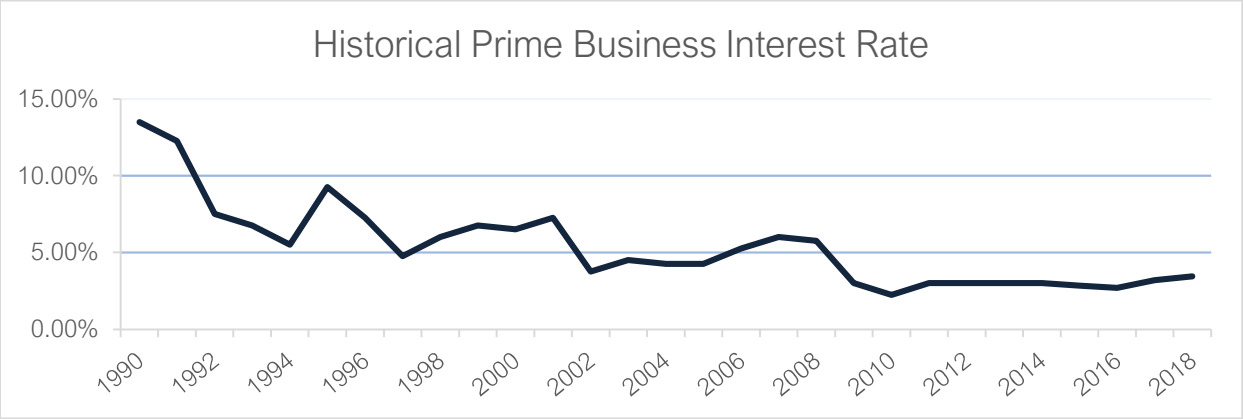
Although this strategy achieves full funding for rate-funded assets over 20 years, the recommendation does require prioritizing capital projects to fit the annual funding available. Prioritizing future projects will require the current data to be replaced by condition-based data. Although our recommendations include no further use of debt, the results of the condition-based analysis may require otherwise.

13.5 Use of Debt

Debt can be strategically utilized as a funding source with in the long-term financial plan. The benefits of leveraging debt for infrastructure planning include:

a) the ability to stabilize tax & user rates when dealing with variable and sometimes uncontrollable factors
b) equitable distribution of the cost/benefits of infrastructure over its useful life
c) a secure source of funding
d) flexibility in cash flow management

Debt management policies and procedures with limitations and monitoring practices should be considered when reviewing debt as a funding option. In efforts to mitigate increasing commodity prices and inflation, interest rates have been rising. Sustainable funding models that include debt need to incorporate the now current realized risk of rising interest rates. The following graph shows the historical changes to the lending rates:



A change in 15-year rates from 5% to 7% would change the premium from 45% to 65%. Such a change would have a significant impact on a financial plan.

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

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

The following tables outline how St.-Charles has historically used debt for investing in the asset categories as listed. There is currently $521,000 of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of $64,000, well within its provincially prescribed maximum of $568,000.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2014	2015	2016	2017	2018
Road Network	0	0	0	0	0	0
Bridges & Culverts	146,000	0	0	0	0	0
Stormwater Network	0	0	0	0	0	0
Buildings & Facilities	0	0	0	0	0	0
Machinery & Equipment	375,000	0	0	0	411,000	0
Vehicles	0	0	0	0	0	0
Land Improvements	0	0	0	0	0	0
Total Tax Funded	521,000	0	0	0	411,000	0
Wastewater Network	0	0	0	0	0	0
Total Rate Funded	**0**	**0**	**0**	**0**	**0**	**0**

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2022	2023	2024	2025	2026	2027	2032
Road Network	0	0	0	0	0	0	0
Bridges & Culverts	32,000	32,000	32,000	32,000	24,000	15,000	0
Stormwater Network	0	0	0	0	0	0	0
Buildings & Facilities	0	0	0	0	0	0	0
Machinery & Equipment	32,000	32,000	32,000	32,000	32,000	32,000	32,000
Vehicles	0	0	0	0	0	0	0
Land Improvements	0	0	0	0	0	0	0
Total Tax Funded	**64,000**	**64,000**	**64,000**	**64,000**	**56,000**	**47,000**	**32,000**
Wastewater Network	0	0	0	0	0	0	0
Total Rate Funded	**0**	**0**	**0**	**0**	**0**	**0**	**0**

The revenue options outlined in this plan allow St.-Charles to fully fund its long-term infrastructure requirements without further use of debt.

13.6 Use of Reserves

Available Reserves

Reserves play a critical role in long-term financial planning. The benefits of having reserves available for infrastructure planning include:

a) the ability to stabilize tax rates when dealing with variable and sometimes uncontrollable factors
b) financing one-time or short-term investments
c) accumulating the funding for significant future infrastructure investments
d) managing the use of debt
e) normalizing infrastructure funding requirement

By asset category, the table below outlines the details of the reserves currently available to St.-Charles.

Asset Category	Balance on December 31, 2021
Road Network	657,000
Bridges & Culverts	657,000
Stormwater Network	524,000
Buildings & Facilities	771,000
Machinery & Equipment	1,020,000
Vehicles	678,000
Land Improvements	771,000
Total Tax Funded	**5,078,000**
Wastewater Network	117,000
Total Rate Funded	**117,000**

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

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

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

Recommendation

In 2024, Ontario Regulation 588/17 will require St.-Charles to integrate proposed levels of service for all asset categories in its asset management plan update. We recommend that future planning should reflect adjustments to service levels and their impacts on reserve balances.

14 Appendices

Key Insights

- Appendix A includes a one-page report card with an overview of key data from each asset category
- Appendix B identifies projected 10-year capital requirements for each asset category
- Appendix C includes several maps that have been used to visualize the current level of service
- Appendix D provides additional guidance on the development of a condition assessment program

Appendix A: Infrastructure Report Card

Asset Category	Replacement Cost (millions)	Asset Condition	Financial Capacity	
Road Network	$7.1	Poor (31%)	Annual Requirement:	$491,000
			Funding Available:	$328,000
			Annual Deficit:	**$163,000**
Bridges & Culverts	$1.3	Good (67%)	Annual Requirement:	$32,000
			Funding Available:	$29,000
			Annual Deficit:	**$3,000**
Stormwater Network	$3.7	Fair (46%)	Annual Requirement:	$55,000
			Funding Available:	$20,000
			Annual Deficit:	**$ 35,000**
Buildings & Facilities	$12.2	Fair (51%)	Annual Requirement:	$243,000
			Funding Available:	$ 87,000
			Annual Deficit:	**$156,000**
Vehicles	$1.3	Fair (49%)	Annual Requirement:	$ 73,000
			Funding Available:	$ 26,000
			Annual Deficit:	**$ 47,000**
Machinery & Equipment	$3.8	Good (61%)	Annual Requirement:	$198,000
			Funding Available:	$ 71,000
			Annual Deficit:	**$127,000**
Land Improvements	0.9	Good (70%)	Annual Requirement:	$ 28,000
			Funding Available:	$ 10,000
			Annual Deficit:	**$ 18,000**
Wastewater Network	$7.5	53% (Fair)	Annual Requirement:	$100,000
			Funding Available:	$ 53,000
			Annual Deficit:	**$ 47,000**
Overall	$37.9	Fair (49%)	Annual Requirement:	$1,220,000
			Funding Available:	$ 624,000
			Annual Deficit:	**$ 596,000**

Appendix B: 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	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gravel	$0	$226k	$397k	$170k	$50k	$35k	$113k	$276k	$418k	$776k	$218k
HCB Roads	$0	$0	$0	$0	$0	$0	$0	$0	$0	$337k	$0
LCB Roads	$0	$0	$0	$997k	$720k	$1.8m	$526k	$631k	$140k	$0	$0
Sidewalk	$0	$0	$139k	$34k	$0	$54k	$0	$45k	$58k	$0	$0
Street Signs	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Streetlights	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$226k**	**$535k**	**$1.2m**	**$770k**	**$1.9m**	**$638k**	**$951k**	**$615k**	**$1.1m**	**$218k**

Bridges & Culverts											
Asset Segment	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Bridges	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Structural Culverts	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Stormwater Network											
Asset Segment	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Catch Basins	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Storm Culvert	$0	$0	$42k	$0	$0	$0	$11k	$2k	$0	$16k	$3k
Storm Manholes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Storm Pipe	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$42k**	**$0**	**$0**	**$0**	**$11k**	**$2k**	**$0**	**$16k**	**$3k**

Buildings & Facilities											
Asset Segment	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Arena	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Community Centre	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fire Department	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Municipal Offices	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Public Works Garage	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wellness Centre	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Vehicles											
Asset Segment	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Civillian Vehicle	$0	$0	$0	$0	$0	$0	$63k	$0	$40k	$0	$0
Dump Truck	$0	$0	$0	$0	$0	$126k	$0	$0	$0	$0	$0
Fire Trucks	$319k	$0	$0	$0	$0	$0	$0	$55k	$0	$0	$0
Heavy Duty Truck	$71k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$390k**	**$0**	**$0**	**$0**	**$0**	**$126k**	**$63k**	**$55k**	**$40k**	**$0**	**$0**

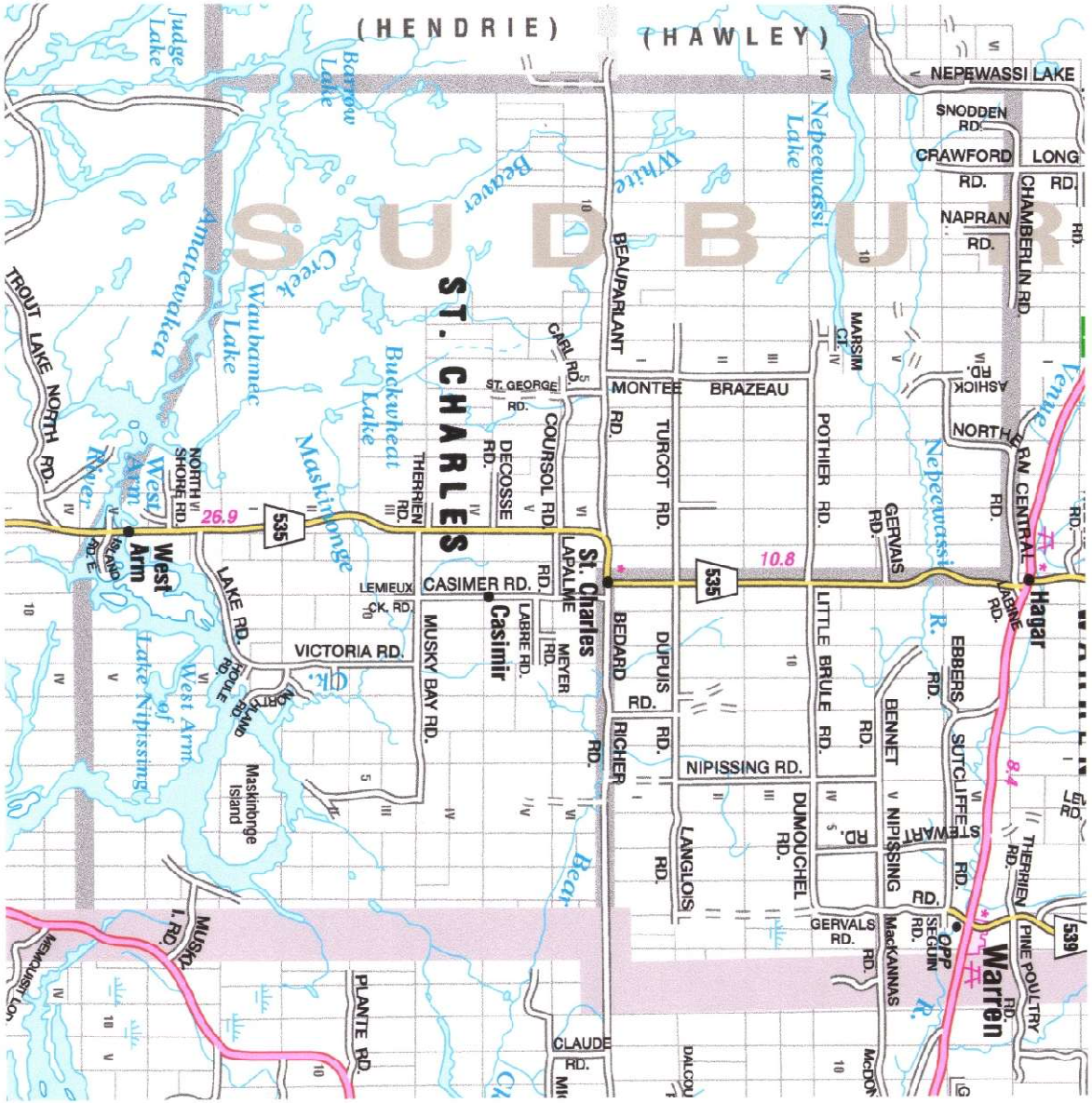
Machinery & Equipment											
Asset Segment	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Arena	$0	$0	$31k	$7k	$223k	$325k	$316k	$106k	$76k	$206k	$0
Community Center	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fire Department	$0	$0	$0	$0	$0	$0	$0	$0	$9k	$0	$3k
Municipal Office	$0	$0	$10k	$0	$0	$0	$0	$12k	$15k	$0	$0
Public Works	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
School	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wellness centre	$0	$0	$21	$0	$22	$2k	$634	$0	$25	$51	$2k
Total	**$0**	**$0**	**$41k**	**$7k**	**$223k**	**$327k**	**$317k**	**$117k**	**$100k**	**$206k**	**$6k**

Land Improvements											
Asset Segment	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Ball Field	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Cemetary	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landfill	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Miscellanous	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Park Benches	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Park Shelters	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Park Washroom	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Parking Lots	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Playgrounds	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Salt/Sand Dome	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Wastewater Network											
Asset Segment	Backlog	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Forcemains	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Lagoon	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Lift Station	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$33k
Pump Station	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sanitary Pipe	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sewer Connections	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Wastewater Manholes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$33k**

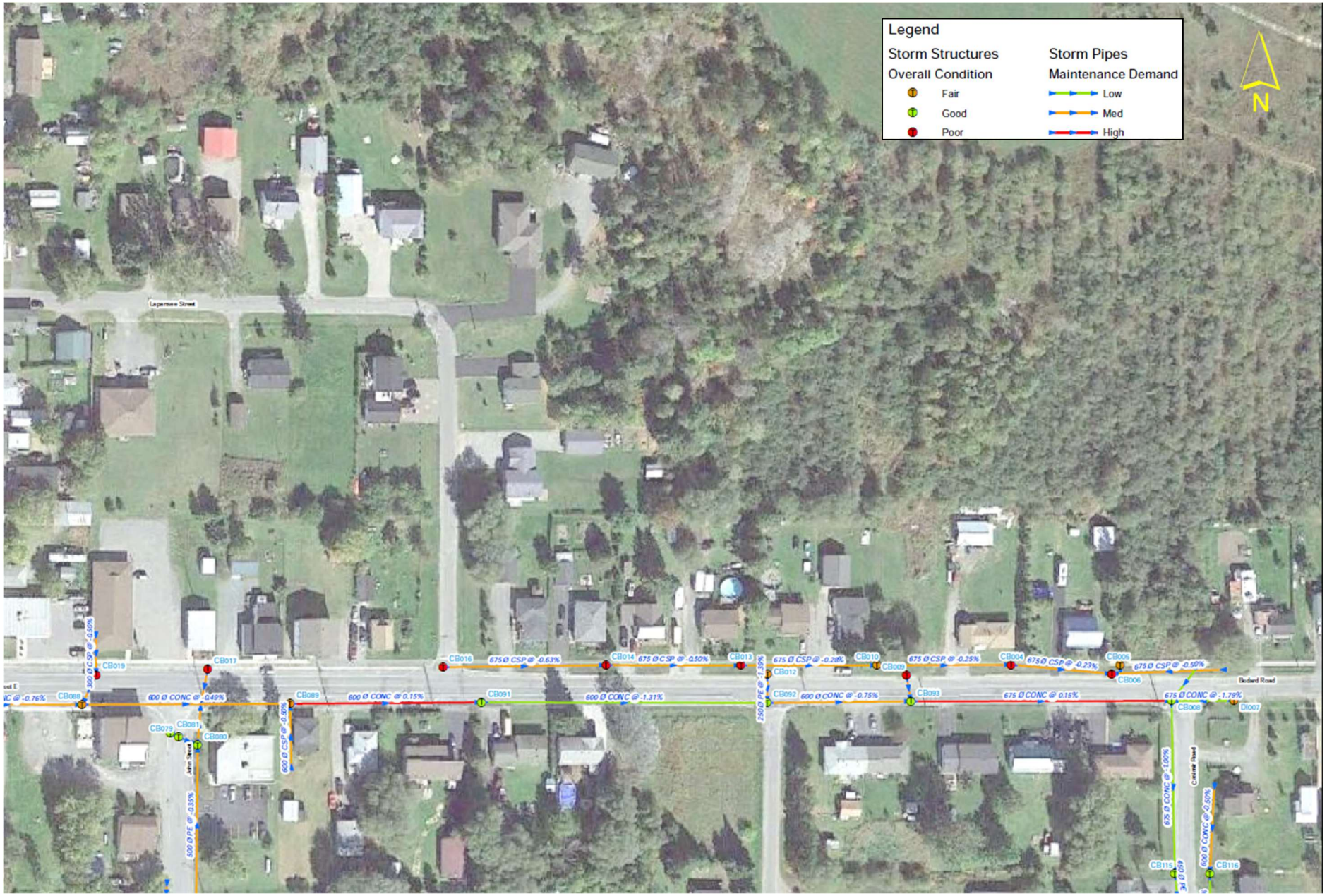
Appendix C: Level of Service Maps

Road Network Map

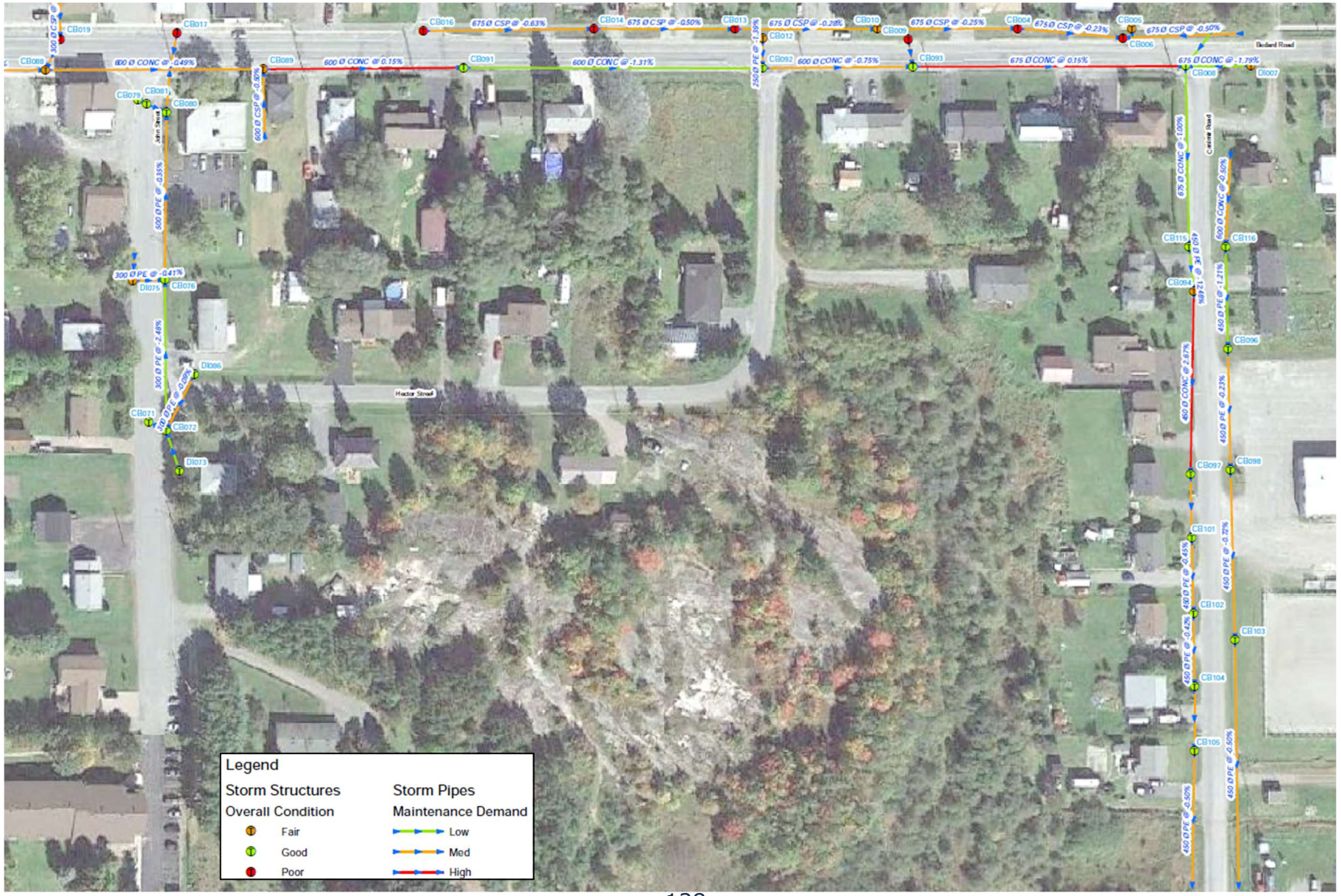


Stormwater network Map (Part 1)

Stormwater network Map (Part 2)

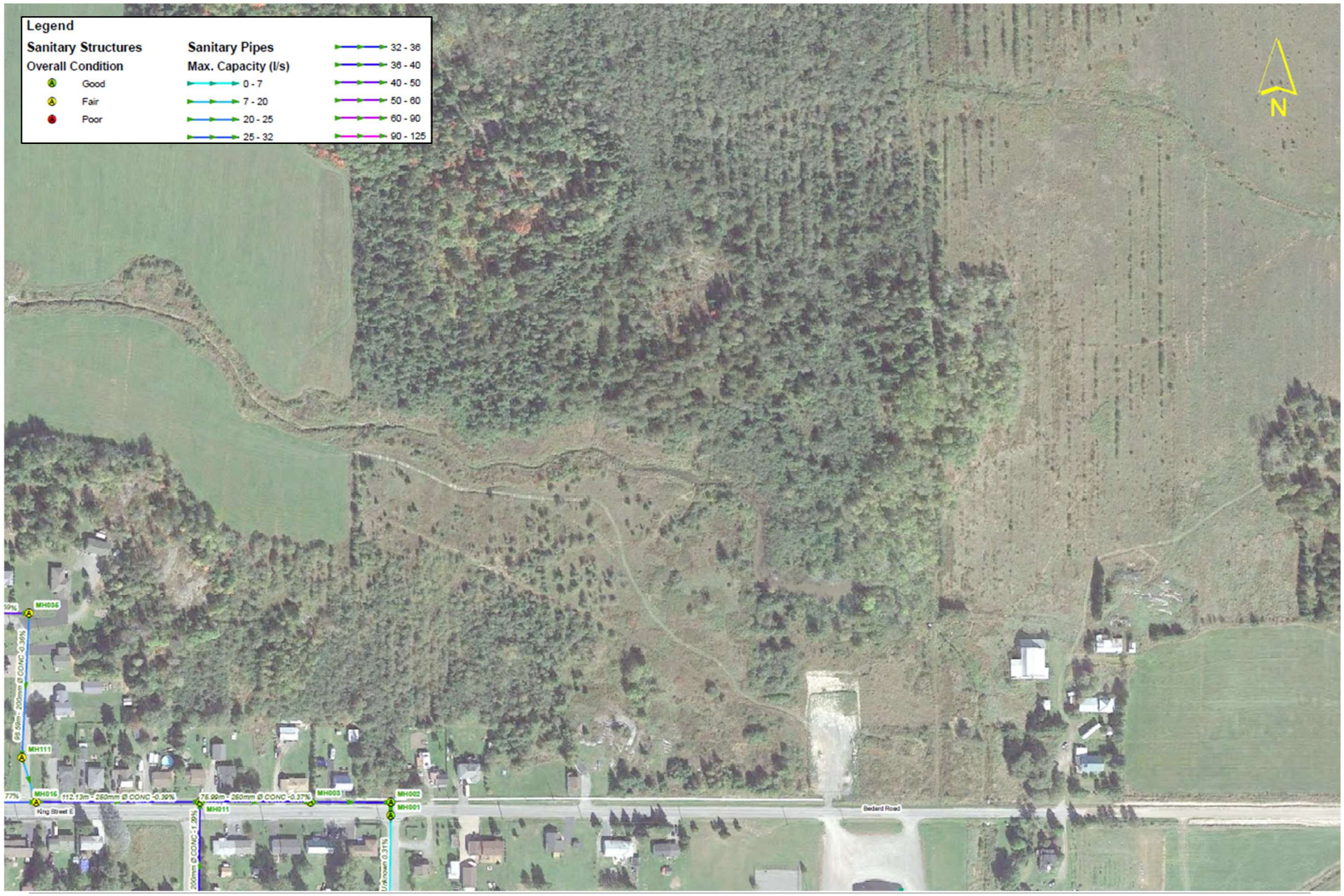


Stormwater network Map (Part 3)



Wastewater network Map (Part 1)

Wastewater network Map (Part 2)



Wastewater network Map (Part 3)

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:

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