# Asset Management Plan

Township of Havelock-Belmont-Methuen (HBM)

2024

This Asset Management Plan was prepared by:


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

# Key Statistics

Replacement cost of asset portfolio

$95.4 million

Replacement cost of infrastructure per household

$24,741

Percentage of assets in fair or better condition

76%

Percentage of assets with assessed condition data

56%

Target reinvestment rate

3.54%

Actual reinvestment rate

3.02%

Annual capital infrastructure deficit

$619 thousand

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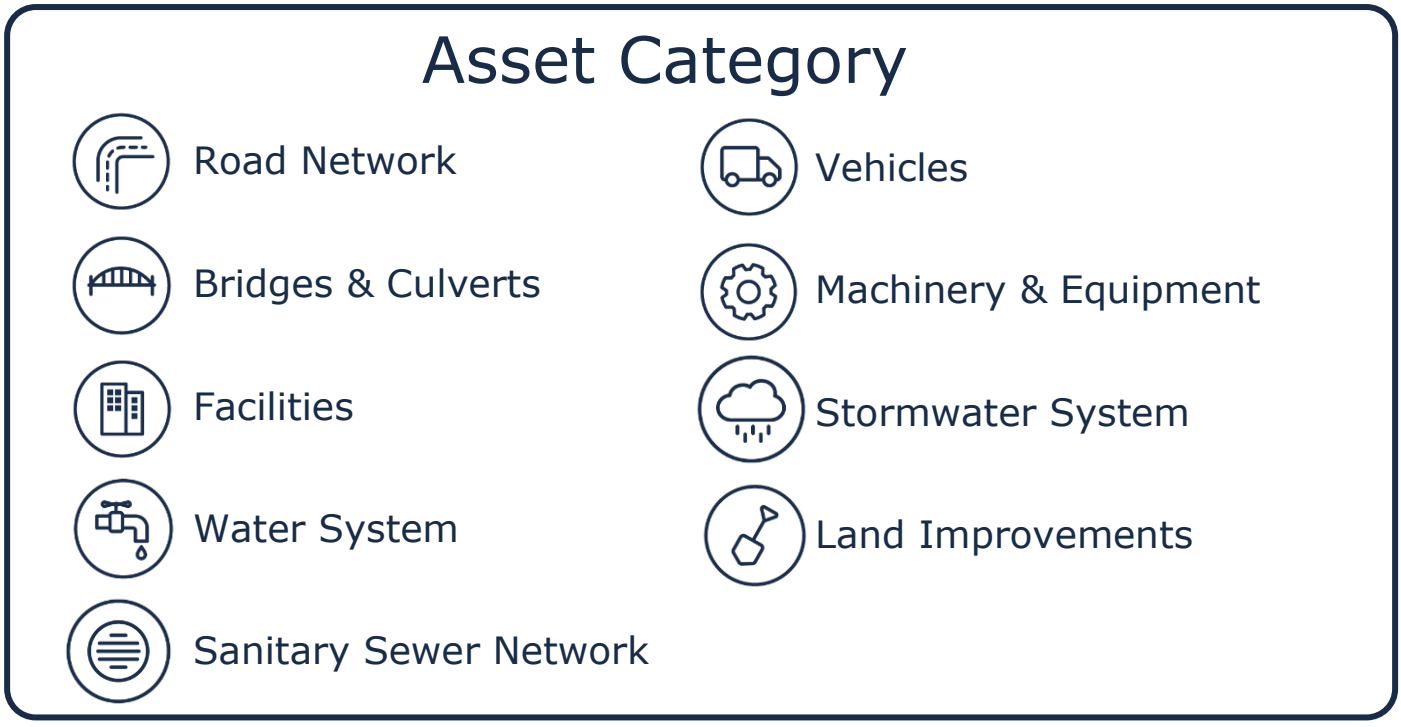
# Executive Summary

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 Asset Management Plan (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 Township 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 Township 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

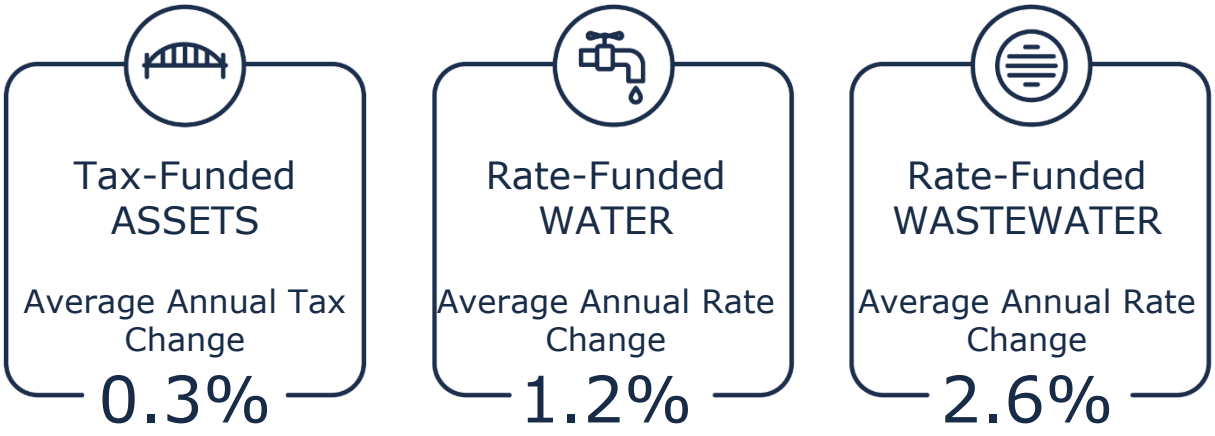
The overall replacement cost of the asset categories included in this AMP totals $95.4 million. 76% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 56% of assets. For the remaining 44% of assets, assessed condition data was unavailable, 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 (roads, bridges, and facilities) 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 Township's average annual capital requirement totals $3.5 million. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $2.9 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $619,000.

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 Township. 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 show the annual tax/rate change required to eliminate the Township's infrastructure deficit based on a 10-year plan for tax-funded assets, and a 20-year plan for both rate-funded categories:




Recommendations to guide continuous refinement of the Township'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 for 2025 compliance

# 1 Introduction & Context

## Key Insights

- The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value ratepayers receive from the asset portfolio

- 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

# 1.1 Havelock-Belmont-Methuen Community Profile

| Census Characteristic | Township of Havelock-Belmont-Methuen | Peterborough County | Ontario |
|---|---|---|---|
| Population 2021 | 5,083 | 147,681 | 14,223,942 |
| Population Change 2016-2021 | 12.2 | 6.8 | 5.8 |
| Total Private Dwellings | 3,856 | 73,045 | 5,929,250 |
| Population Density | 9.6/km$^2$ | 39.1/km$^2$ | 15.9/km$^2$ |
| Land Area | 529.35 km$^2$ | 3,779.47 km$^2$ | 892,411.76 km$^2$ |

The Township of Havelock-Belmont-Methuen (HBM) is a small Township of 5,083 (2021 Census) located within Peterborough County. The Township is situated along the Highway 7, 40km northeast of Peterborough, Ontario.

The Township of Havelock-Belmont-Methuen was incorporated in 1998 via the amalgamation of the former township of Belmont and Methuen with the Village of Havelock. The area was settled in the early 1800's, with the Township of Belmont and Methuen first being surveyed in 1823. The community of Havelock was incorporated as a village in 1892. Fishing, logging, and farming were among the early industries of the area. Early settlers capitalized on the forests, lakes, and rivers of the Canadian Shield. Prosperous iron mines were nearby, and many miners and labourers lived in the area during the time. Mining continues to be an important economic activity for the area.

The Canadian Pacific Railway station along Highway 7 in Havelock was built in 1929. In 1991, it was designated as a Heritage Railway Station by Parks Canada.

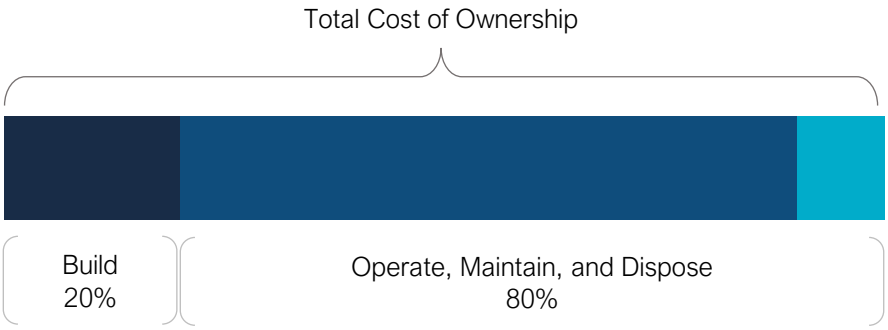
The Township of Havelock-Belmont-Methuen is nearby regional centres such as Peterborough and Oshawa. Havelock-Belmont-Methuen provides a mix of small-town life, access to urban amenities, and natural beauty, making the Township an excellent place for residents to work, live, and play.

The Township has prioritized maintenance of its current infrastructure, allocating resources to ensure the ongoing functionality and resilience of its assets. This dedication highlights the Township's commitment to maintaining the effectiveness and integrity of its essential infrastructure.

# 1.2 An Overview of Asset Management

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

The acquisition of capital assets accounts for only 10-20% of their total cost of ownership. The remaining 80-90% 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.

### 1.2.1 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 Township adopted Policy No. 47 "Strategic Asset Management Policy" on February 5th, 2018, in accordance with Ontario Regulation 588/17.

The objectives of the policy include:

- Fiscal Responsibilities
- Delivery of Services/Programs
- Public Input/Council Direction
- Risk/Impact Mitigation

### 1.2.2 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 Township plans to achieve asset management objectives through planned activities and decision-making criteria.

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

### 1.2.3 Asset Management Plan

The asset management plan (AMP) presents the outcomes of the Township'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 Township 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.

## 1.3.1 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 | 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 Township'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.

### 1.3.2 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.

### 1.3.3 Levels of Service

A level of service (LOS) is a measure of what the Township 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 Township as worth measuring and evaluating. The Township measures the level of service provided at two levels: Community Levels of Service, and Technical Levels of Service.

#### Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories (roads, bridges & culverts, stormwater network, water system, and sanitary sewer network) 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 (facilities, land improvements, machinery & equipment, and vehicles), the Township 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 Township's asset management strategies on the physical condition of assets or the quality/capacity of the services they provide.

For core asset categories (roads, bridges & culverts, stormwater network, water system, and sanitary sewer network), the province, through O. Reg. 588/17, has provided technical metrics that are required to be included in this AMP. For non-core asset categories (facilities, land improvements, machinery & equipment, and vehicles), the Township has determined the technical metrics that will be used to determine the technical level of service provided. These metrics can be found in the Levels of Service subsection within each asset category.

## Current and Proposed Levels of Service

This AMP focuses on measuring the current level of service provided to the community. Once current levels of service have been measured, the Township 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 Township. 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 Township must identify a lifecycle management and financial strategy which allows these targets to be achieved.

# 1.4 Ontario Regulation 588/17

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

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

**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 strategies

### 1.4.1 O. Reg. 588/17 Compliance Review

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

| Requirement | O. Reg. Section | AMP Section Reference | Status |
|---|---|---|---|
| Summary of assets in each category | S.5(2), 3(i) | 4.1.1 - 4.9.1 | Complete |
| Replacement cost of assets in each category | S.5(2), 3(ii) | 4.1.1 - 4.9.1 | Complete |
| Average age of assets in each category | S.5(2), 3(iii) | 4.1.3 - 4.9.3 | Complete |
| Condition of assets in each category | S.5(2), 3(iv) | 4.1.2 - 4.6.2 | Complete |
| Description of Township's approach to assessing the condition of assets in each category | S.5(2), 3(v) | 4.1.2 - 4.9.2 | Complete |
| Current levels of service in each category | S.5(2), 1(i-ii) | 4.1.6 – 4.9.6 | Complete |
| Current performance measures in each category | S.5(2), 2 | 4.1.6 – 4.9.6 | Complete |
| Lifecycle activities needed to maintain current levels of service for 10 years | S.5(2), 4 | 4.1.4 – 4.9.4 | Complete |
| Costs of providing lifecycle activities for 10 years | S.5(2), 4 | Appendix A | Complete |
| Growth assumptions | S.5(2), 5(i-ii)<br>S.5(2), 6(i-vi) | 5.1 - 5.2 | Complete |

# 2 Scope and Methodology

## Key Insights

- This asset management plan includes 9 asset categories
- The source and recency of replacement costs impacts the accuracy and reliability of asset portfolio valuation
- 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 Township of Havelock-Belmont-Methuen is produced in compliance with Ontario Regulation 588/17. The July 2024 deadline under the regulation requires analysis of both core and non-core assets.

The AMP summarizes the state of the infrastructure for the Township'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 | |
| Facilities | |
| Vehicles | |
| Land Improvements | |
| Machinery & Equipment | |
| Stormwater System | |
| Water System | User Rates |
| Sanitary Sewer Network | |

## 2.2 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 Township incurred. As assets age, and new products and technologies become available, cost inflation becomes a less reliable method.

## 2.3 Estimated Useful Life and Service Life Remaining

The estimated useful life (EUL) of an asset is the period over which the Township 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 Township can determine the service life remaining (SLR) for each asset. Using condition data and the asset's SLR, the Township can more accurately forecast when it will require replacement. The SLR is calculated as follows:

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

# 2.4 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 Township can determine the extent of any existing funding gap. The reinvestment rate is calculated as follows:

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

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

# 2.5 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 Township'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 C includes additional information on the role of asset condition data and provides basic guidelines for the development of a condition assessment program.

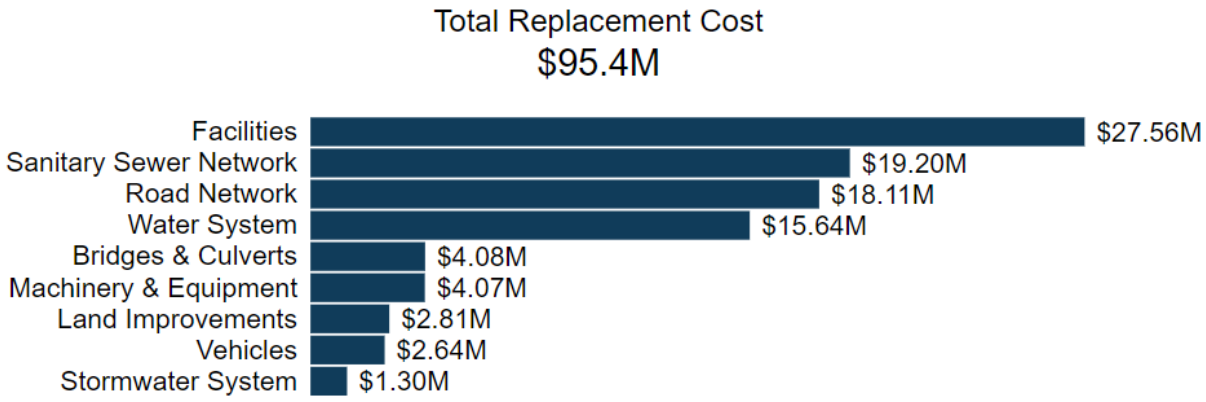
# 3 Portfolio Overview

## Key Insights

- The total replacement cost of the Township's asset portfolio is $95.4 million
- The Township's target re-investment rate is 3.54%, and the actual re-investment rate is 3.02%, contributing to an expanding infrastructure deficit
- 76% of all assets are in fair or better condition
- Average annual capital requirements total $3.5 million per year across all assets

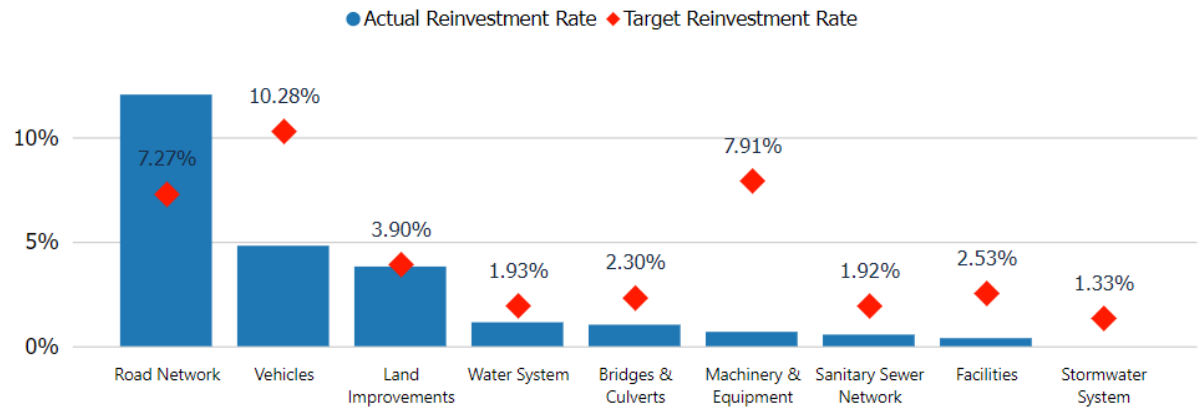
# 3.1 Total Replacement Cost of Asset Portfolio

The asset categories analyzed in this AMP have a total replacement cost of $95.4 million based on inventory data from 2022. 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.



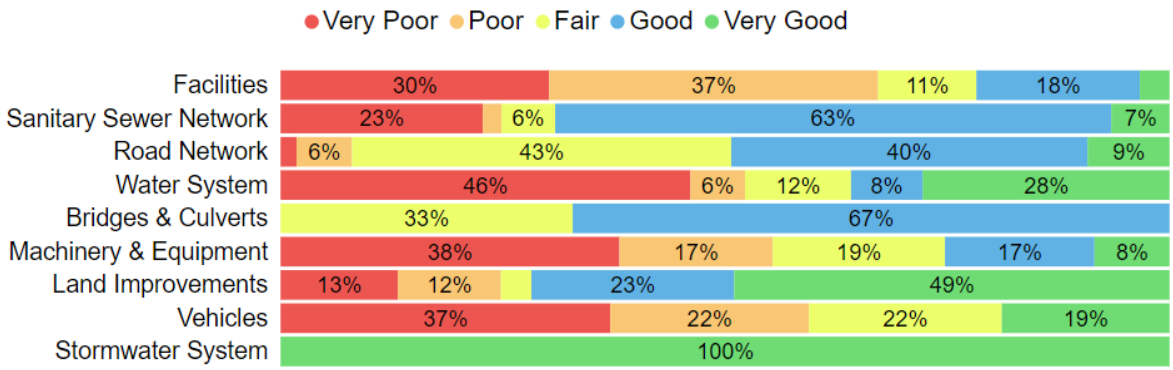
# 3.2 Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps or surpluses by comparing target vs actual reinvestment rate. To meet the long-term replacement needs, the Township should be allocating approximately $3.5 million annually, for a target reinvestment rate of 3.54%. Actual annual spending on infrastructure totals approximately $2.9 million, for an actual reinvestment rate of 3.02%.



# 3.3 Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 76% of assets in Havelock-Belmont-Methuen are in fair or better condition. This estimate relies on both age-based and field condition data.

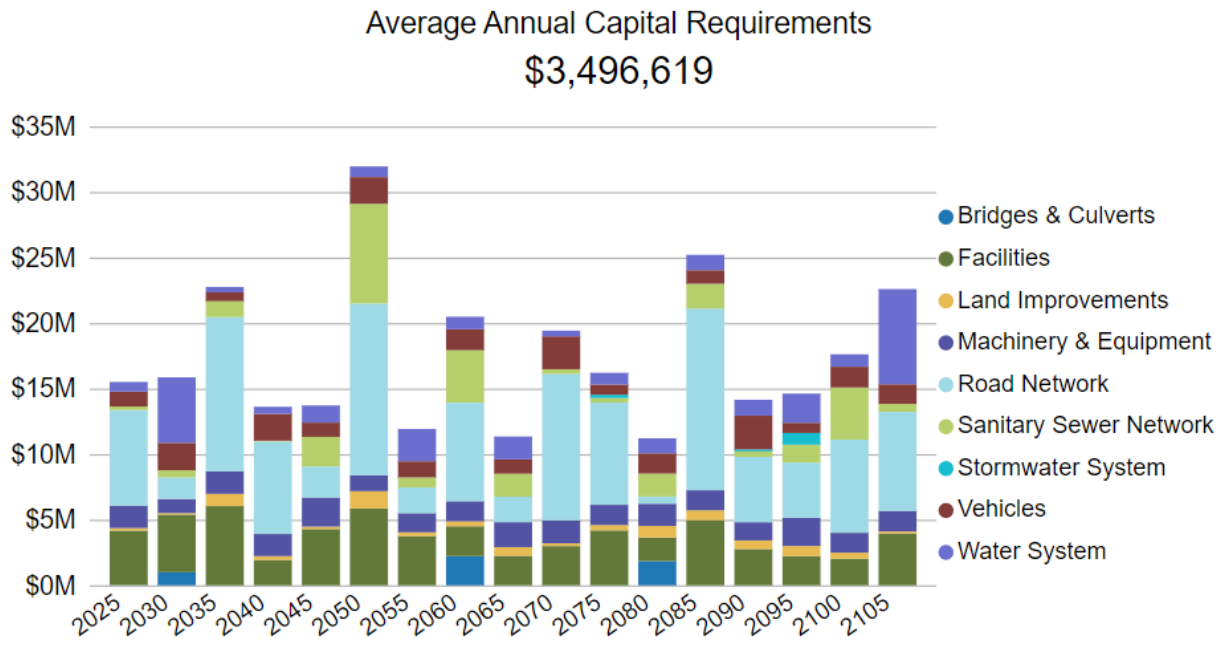



This AMP relies on assessed condition data for 56% of assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

| Asset Category | % of Assets with Assessed Condition | Source of Condition Data |
|---|---|---|
| Road Network | 82% | Road Needs Study |
| Bridges & Culverts | 100% | OSIM Report |
| Stormwater System | 0% | N/A |
| Facilities | 100% | Building Condition Assessment |
| Machinery & Equipment | 0% | N/A |
| Vehicles | 0% | N/A |
| Land Improvements | 0% | N/A |
| Sanitary Sewer Network | 36% | Building Condition Assessment |
| Water System | 0% | N/A |

# 3.4 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 Township can produce an accurate long-term capital forecast. The following graph identifies capital requirements over the next 80 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.



# 4 Analysis of Assets

## Key Insights

- Assets are valued at $95.4 million
- 76% of tax-funded assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for all assets is approximately $3.5 million

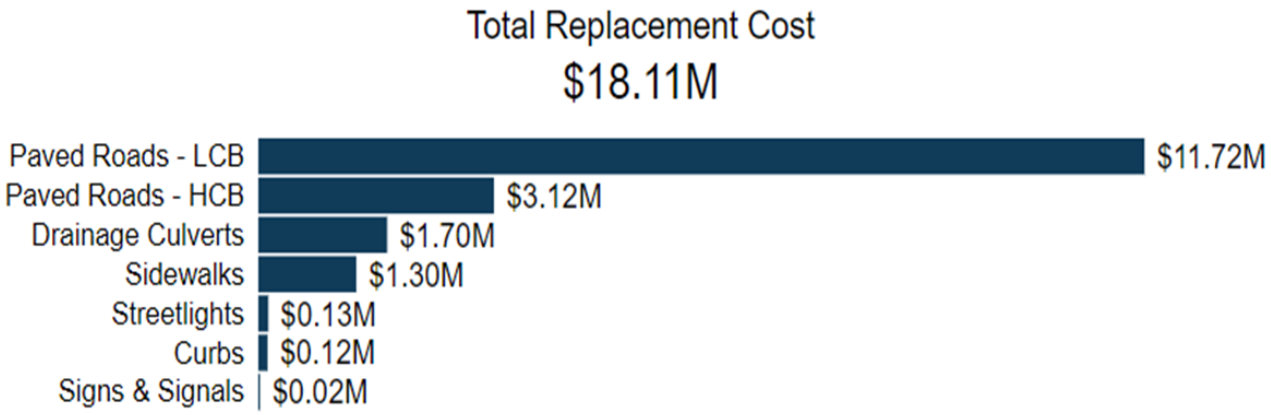
# 4.1 Road Network

The Road Network is a critical component of the provision of safe and efficient transportation services for communities within the Township. It includes all municipally owned and maintained roadways in addition to supporting roadside infrastructure including sidewalks, drainage culverts, signs & signals and streetlights.

## 4.1.1 Asset Inventory & Replacement Cost

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

| Asset Segment | Quantity | Replacement Cost Method | Total Replacement Cost |
|---|---|---|---|
| Curbs | 1,780 m | CPI Tables | $121,788 |
| Drainage Culverts | 6528 | CPI Tables | $1,703,576 |
| Paved Roads - HCB | 10.4 kms | Cost/Unit | $3,115,500 |
| Paved Roads - LCB | 65.1 kms | Cost/Unit | $11,718,000 |
| Sidewalks | 14,931 m | CPI Tables | $1,295,046 |
| Signs & Signals | 86 | CPI Tables | $22,694 |
| Streetlights | 1 (pooled) | CPI Tables | $131,459 |
| | | **Total:** | **$18,108,063** |



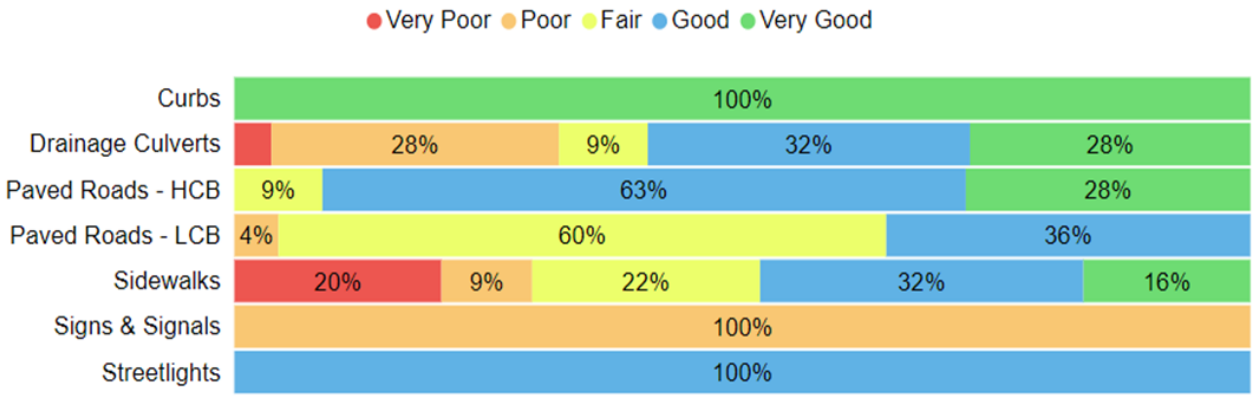

Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

## 4.1.2 Asset Condition

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

| Asset Segment | Average Condition (%) | Average Condition Rating | Condition Source |
|---|---|---|---|
| Curbs | 92% | Very Good | Age-Based |
| Drainage Culverts | 57% | Fair | Age-Based |
| Paved Roads - HCB | 78% | Good | Assessed |
| Paved Roads - LCB | 71% | Good | Assessed |
| Sidewalks | 51% | Fair | Age-Based |
| Signs & Signals | 32% | Poor | Age-Based |
| Streetlights | 75% | Good | Age-Based |
| | **44%** | **Fair** | **100% Assessed** |

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




To ensure that the Township's continues to provide an acceptable level of service, the Township 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 road network.

## Current Approach to Condition Assessment

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

- A Road Needs Study was completed in 2021 that included a detailed assessment of the condition of each road segment

### 4.1.3 Estimated Useful Life & Average Age

The Estimated Useful Life for road network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

| Asset Segment | Estimated Useful Life | Average Age |
|---|---|---|
| Curbs | 10 | 3 Years 1 Month |
| Drainage Culverts | 30 | 10 Years 11 Months |
| Paved Roads - HCB | 20 | 19 Years |
| Paved Roads - LCB | 10 | 19 Years |
| Sidewalks | 40 | 25 Years 8 Months |
| Signs & Signals | 20 | 13 Years 6 Months |
| Streetlights | 20 | 5 Years 1 Month |
| | | **15 Years 6 Months** |

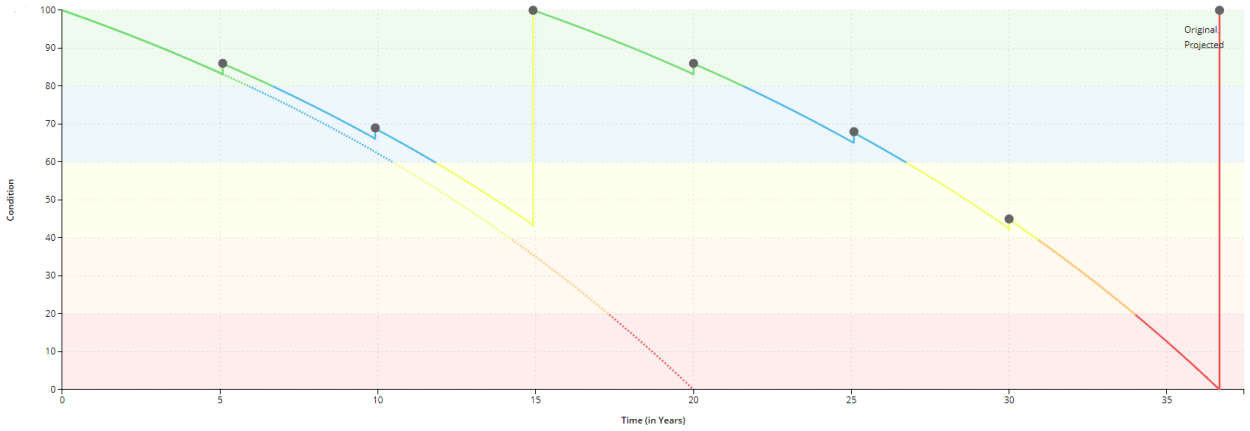
Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

## 4.1.4 Lifecycle Management Strategy

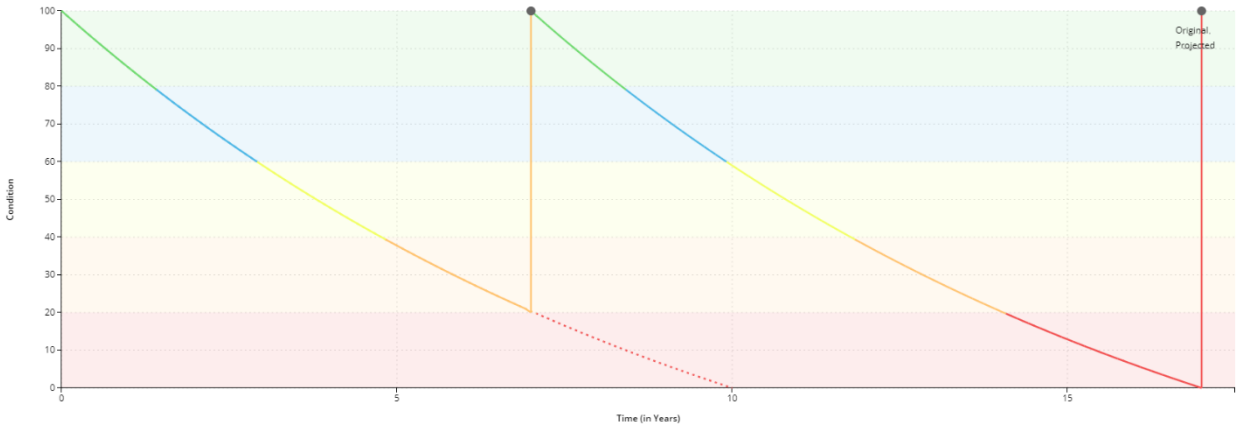
The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history, and environment.

The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of Asphalt (HCB) and Surface Treated Roads (LCB). Instead of allowing the roads to deteriorate until replacement is required, strategic rehabilitation is expected to extend the service life of roads at a lower total cost.

| Asphalt Roads (HCB) | | |
|---|---|---|
| **Event Name** | **Event Class** | **Event Trigger** |
| Crack Sealing | Maintenance | 5 Years (Repeated) |
| Single Surface Overlay | Rehabilitation | 15 Years |
| Reconstruction | Replacement | 15% Condition |



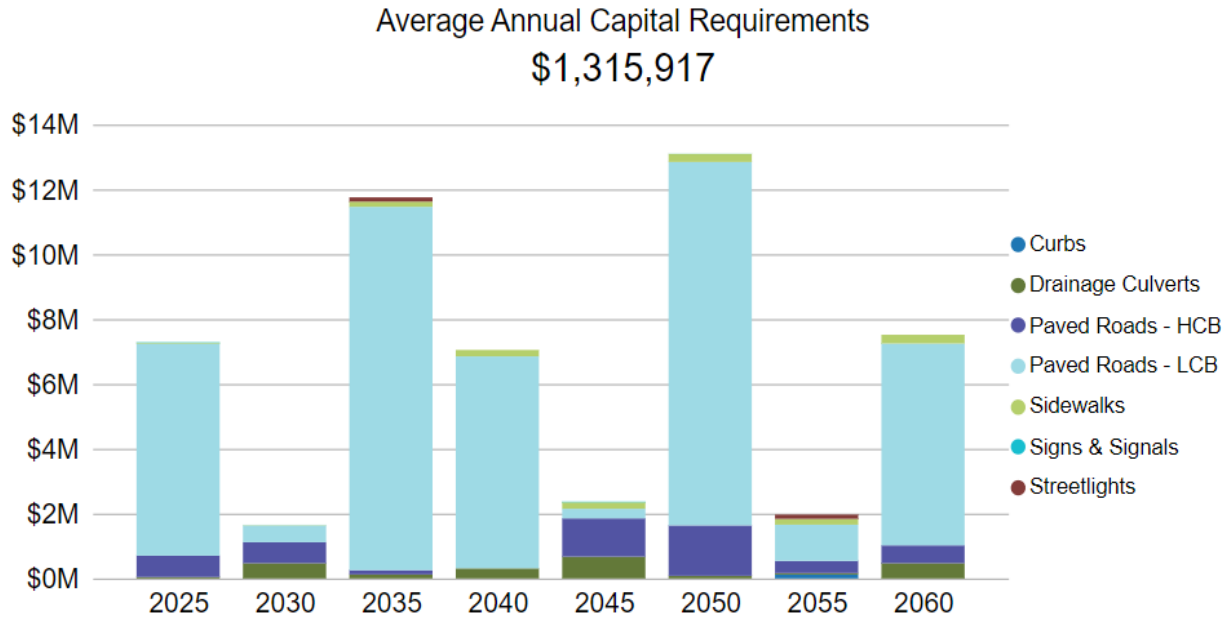

| Surface Treated Roads (LCB) | | |
|---|---|---|
| **Event Name** | **Event Class** | **Event Trigger** |
| Double Surface Treatment | Rehabilitation | 7 Years |
| Full Reconstruction | Replacement | 15% Condition |




## Forecasted Capital Requirements

Based on the lifecycle strategies identified previously for HCB and LCB roads, the following graph forecasts capital requirements for the road network.

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 35 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.

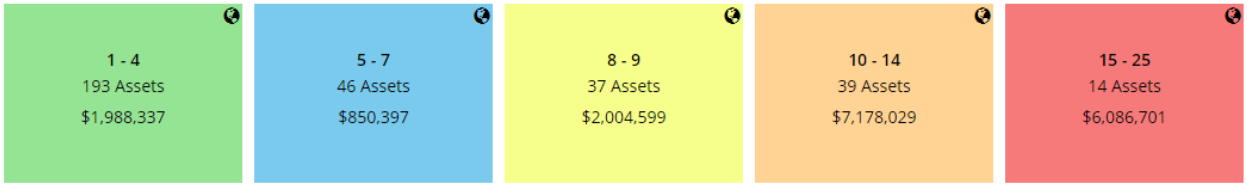



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

## 4.1.5 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 2022 inventory data.




This is a high-level model developed for the purposes of this AMP and Township 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 Asphalt Roads (HCB), and Surface Treated Roads (LCB) are documented below:

| Probability of Failure (POF) | Consequence of Failure (COF) |
|---|---|
| Condition | Replacement Cost (Economic) |
| Service Life Remaining | Annual Average Daily Traffic Counts (Economic) |
| | Roadside Environment (Social) |
| | Speed Limit (Health & Safety) |

The identification of critical assets allows the Township 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 Township is currently facing:

**Asset Data & Information**

Currently, there are multiple data streams pertaining to the Township's gravel, HCB, and LCB road surfaces. Staff should consider allocating resources into merging these different data sources. Once completed, staff can confidently develop data-driven strategies to address infrastructure needs.

**Climate Change & Extreme Weather Events**

An increase in the frequency and intensity of precipitation events can result in flooding of sections of the road network. Further issues can arise due to 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.

## 4.1.6 Levels of Service

The following tables identify the Township'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 Township 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.

<table>
<tr><th>Service Attribute</th><th>Qualitative Description</th><th>Current LOS (2022)</th></tr>
<tr><td>Scope</td><td>Description, which may include maps, of the road network in the Township and its level of connectivity</td><td>The majority of the Township's roads are unpaved, primarily making up the rural areas. Residential and urban areas utilize a mix of HCB and LCB roads. Most of these roads are single lane rural, local, and collector segments.</td></tr>
<tr><td>Quality</td><td>Description or images that illustrate the different levels of road class pavement condition</td><td>The Township completed a Road Management Study in May 2021 in coordination with Engage Engineering Ltd. Every road section received rating which considers pertinent attribute details including drainage, alignment, surface condition, structural adequacy, and more. The following rating scale was applied:
<table>
<tr><th>Condition</th><th>Rating</th></tr>
<tr><td>Very Good</td><td>80-100</td></tr>
<tr><td>Good</td><td>60-80</td></tr>
<tr><td>Fair</td><td>40-60</td></tr>
<tr><td>Poor</td><td>20-40</td></tr>
<tr><td>Very Poor</td><td>0-20</td></tr>
</table>
</td></tr>
</table>

### 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 (2022) |
|---|---|---|
| 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$^2$) | 86.47[1] |
| | Lane-km of local roads (MMS classes 5 and 6) per land area (km/km$^2$) | 229.89[2] |
| Quality | Average pavement condition index for paved roads in the Township | HCB: 78<br>LCB: 71 |
| | Average surface condition for unpaved roads in the Township (e.g. excellent, good, fair, poor) | Good |

[1] Assumed 2 lanes. Includes all road surface types.
[2] Assumed 2 lanes. Includes all road surface types.

### 4.1.7 Recommendations

## Asset Inventory

- To ensure accuracy and consistency in inventory tracking and reporting, it's advisable to standardize unit of measure across all assets. Conducting an audit to identify discrepancies and implementing a uniform measurement system, supported by updated software and staff training, will enhance data reliability and asset management efficiency.
- Merge and reconcile various data streams. Specifically, the Township's asset register contains both TCA and non-financial assets for its road assets. Moving forward, staff should allocate resources to reconciling both datasets.
- Use available unit costs to develop user-defined replacement costs, which are more reliable than inflate costs.
- Review road culverts and sidewalk inventory to determine whether all municipal assets within these asset segments have been accounted for.

## Lifecycle Management Strategies

- Implement the identified lifecycle management strategies for HCB and LCB roads to realize potential cost avoidance and maintain a high quality of road pavement condition.
- Evaluate the efficacy of the Township's lifecycle management strategies at regular intervals to determine the impact cost, condition, and risk. This could be done by updating the condition assessment data whenever new data becomes available and rerunning the capital projections and risk reports.

## 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 Township 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.

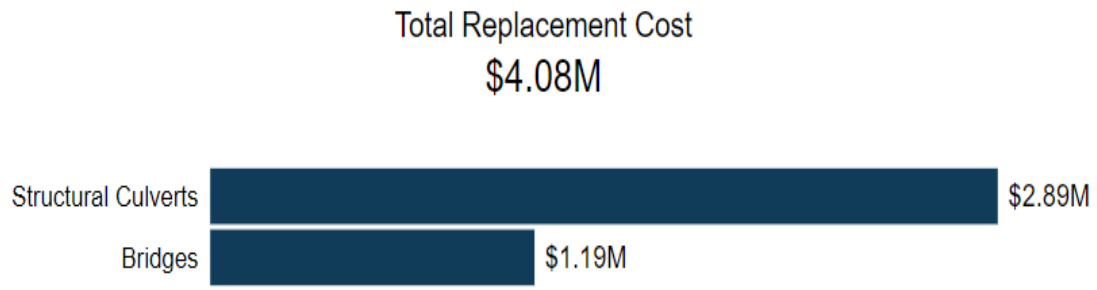
# 4.2 Bridges & Culverts

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

## 4.2.1 Asset Inventory & Replacement Cost

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

| Asset Segment | Quantity | Replacement Cost Method | Total Replacement Cost |
|---|---|---|---|
| Bridges | 2 | User-defined | $1,190,000 |
| Structural Culverts | 3 | User-defined | $2,890,000 |
| | | | **$4,080,000** |



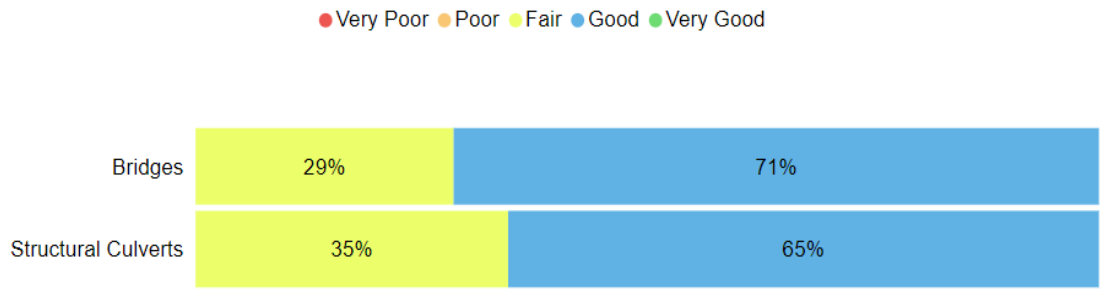

Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

## 4.2.2 Asset Condition

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

| Asset Segment | Average Condition (%) | Average Condition Rating | Condition Source |
|---|---|---|---|
| Bridges | 69% | Good | 100% Assessed |
| Structural Culverts | 65% | Good | 100% Assessed |

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




To ensure that the Township's continues to provide an acceptable level of service, the Township 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.

### 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 Township'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). OSIM reports are completed by external consultants

### 4.2.3 Estimated Useful Life & Average Age

The Estimated Useful Life for culverts assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

| Asset Segment | Average Estimated Useful Life | Average Age |
|---|---|---|
| Bridges | 75 Years | 9 Years 3 Months |
| Structural Culverts | 50 Years | 26 Years 4 Months |
| | **Average:** | **19 Years 6 Months** |

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

### 4.2.4 Lifecycle Management Strategy

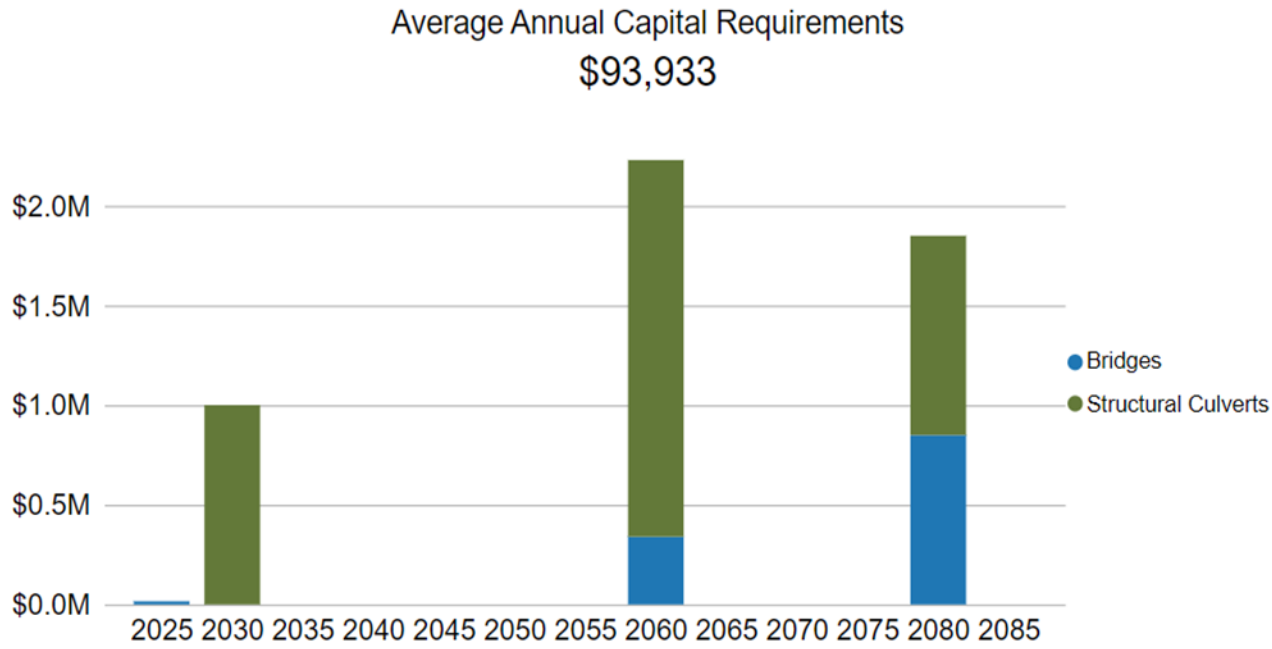
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the Township'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). |
| | The most recent inspection report was completed in 2023 by Jewell Engineering. |

## Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 65 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.

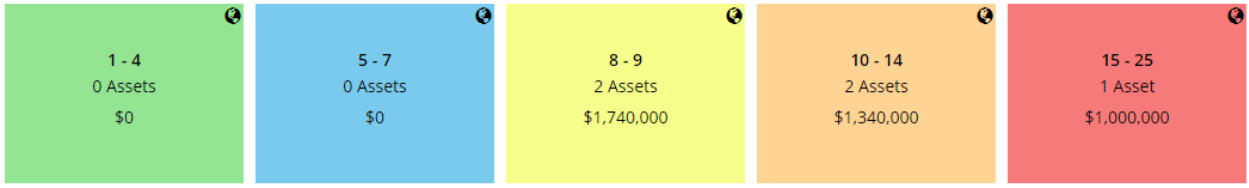



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.2.5 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 2022 inventory data




This is a high-level model developed for the purposes of this AMP and Township 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 culverts are documented below:

| Probability of Failure (POF) | Consequence of Failure (COF) |
|---|---|
| Condition (Structural) | Replacement Cost (Economic) |
| Service Life Remaining (%) | |

The identification of critical assets allows the Township 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 Township is currently facing:

**Infrastructure Re-Investment**
Major capital rehabilitation and replacement projects are often entirely dependant on the availability of grant funding opportunities. When grants are not available, rehabilitation and replacement projects may be deferred. An annual capital funding strategy could reduce dependency on grant funding and help prevent deferral of capital works.

## 4.2.6 Levels of Service

The following tables identify the Township's current level of service for 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 Township 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 culverts.

| Service Attribute | Qualitative Description | Current LOS (2022) |
|---|---|---|
| Scope | Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists, and farm equipment) | Bridges and structural culverts are a key component of the municipal transportation network. None of the municipality's structures have loading or dimensional restrictions meaning that most types of vehicles, including heavy transport, motor vehicles, emergency vehicles and cyclists can cross them without restriction |
| Quality | Description or images of the condition of culverts and how this would affect use of the culverts | See Appendix B |

### Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2022) |
|---|---|---|
| Scope | % of bridges in the Township with loading or dimensional restrictions | 0% |
| Quality | Average bridge condition index value for bridges in the Township | 69 |
| | Average bridge condition index value for bridges and culverts in the Township | 65 |

### 4.2.7 Recommendations

## Data Review/Validation

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

## Risk Management Strategies

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

## Lifecycle Management Strategies

- The Township should work towards integrating projected capital rehabilitation and renewal costs for bridges and culverts for long-term planning purposes.

## 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 Township 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.

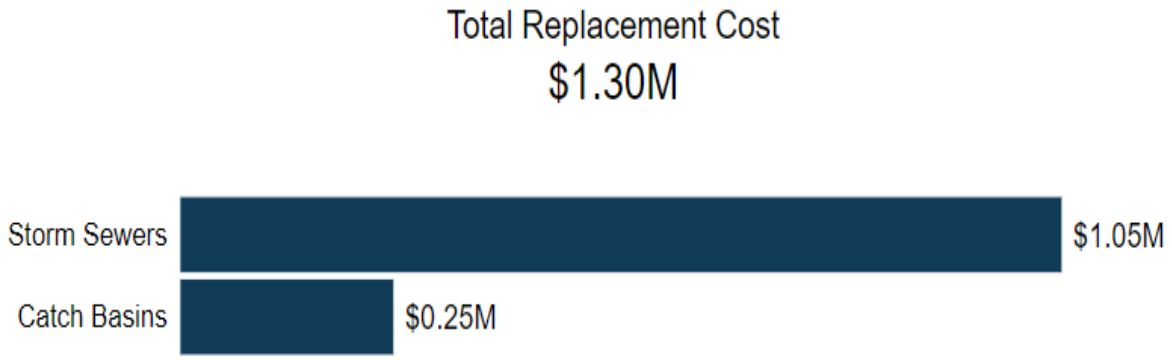
# 4.3 Stormwater System

The Township is responsible for owning and maintaining a stormwater system of an unknown length of storm sewer mains and catch basins. Information within this document reflects data within the asset register as of 2022.

## 4.3.1 Asset Inventory & Replacement Cost

The following table includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's sanitary network inventory.

| Asset Segment | Quantity | Replacement Cost Method | Total Replacement Cost |
|---|---|---|---|
| Catch Basins | Unknown[3] | CPI Tables | $253,500[4] |
| Storm Sewers | Unknown[1] | CPI Tables | $1,048,852[2] |
| | | **Total:** | **$1,302,352** |




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

[3] The stormwater inventory is incomplete and has not been broken out into consistent sections of storm sewer mains. The Township plans to update the inventory as assessments occur, and should be updated in future iterations of the Plan

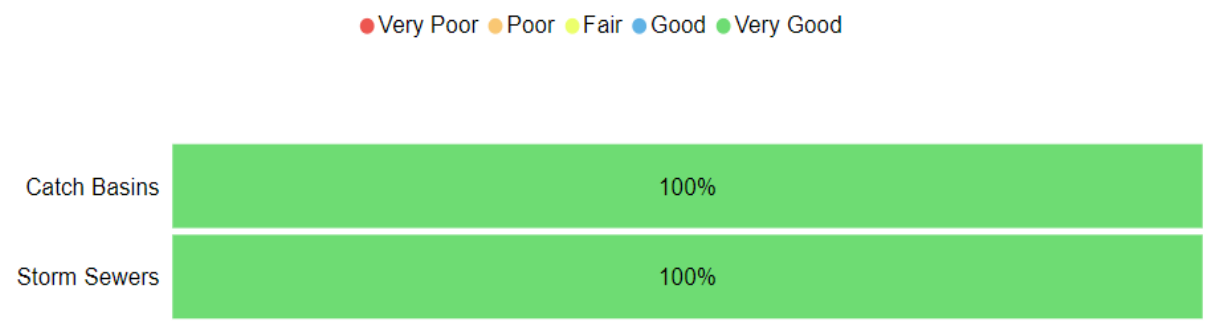
[4] This value is based on the best available costs in the Township's asset inventory. It is recognized that it likely understates the full value of the stormwater network.

## 4.3.2 Asset Condition

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

| Asset Segment | Average Condition (%) | Average Condition Rating | Condition Source |
|---|---|---|---|
| Catch Basins[3] | 93% | Very Good | Age-Based |
| Storm Sewers[5] | 100% | Very Good | Age-Based |
| | **98%** | **Very Good** | **Age-Based** |

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




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

[5] The condition of storm mains and catch basins are likely overstated as the available stormwater inventory is incomplete. Assets included are from the last decade, excluding older assets that are likely in poorer condition. Staff estimates place the stormwater network to be in fair to poor condition overall. Future iterations of the plan will be updated as the inventory becomes more accurate.

### 4.3.3 Estimated Useful Life & Average Age

The Estimated Useful Life for stormwater network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

| Asset Segment | Average Estimated Useful Life | Average Age |
|---|---|---|
| Catch Basins | 60 | 3 Years 8 Months |
| Storm Sewers | 80 | 6 Years |
| | **Average:** | **5 Years 1 Month** |

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

## 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 Township's current approach:

- There are no formal condition assessment programs in place for the stormwater network
- As the Township refines the available asset inventory for the stormwater network a regular assessment cycle should be established

### 4.3.4 Lifecycle Management Strategy

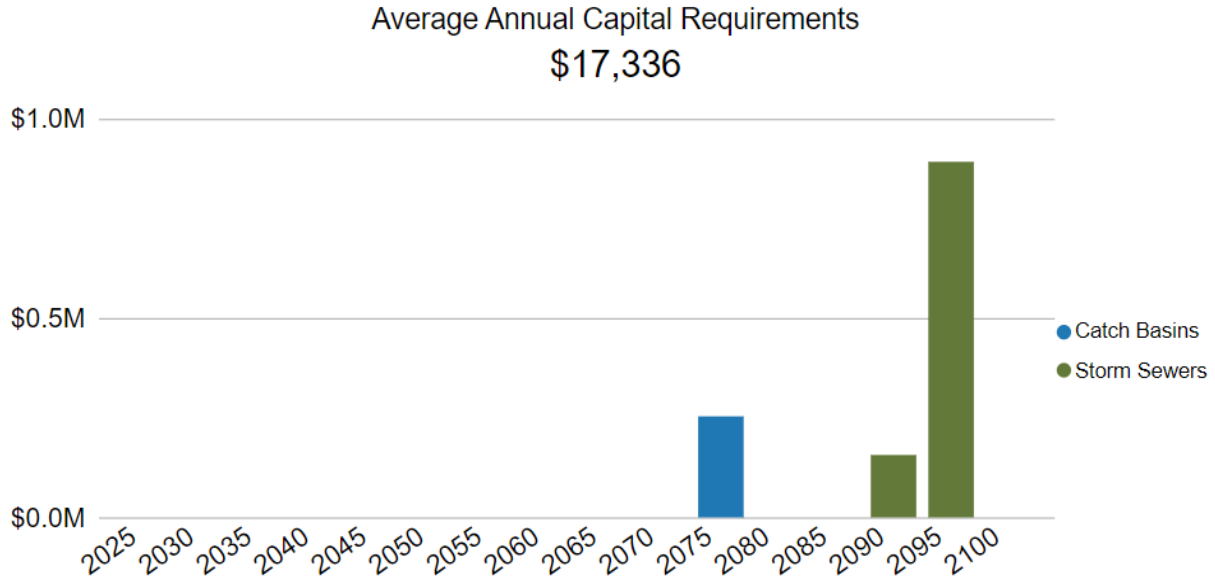
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance/ Rehabilitation | Flushing and cleaning of stormwater assets are completed on an as needed basis. There are no formalized maintenance or rehabilitation strategies currently in place. However, the Township is undergoing a master drainage plan, which will assist in the proactive management of its asset infrastructure |
| Replacement | Replacement activities are carried out on an as needed basis, in a reactive manner |

## Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 75 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.




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

# 4.3.5 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 2022 inventory data.


This is a high-level model developed for the purposes of this AMP and Township 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 stormwater mains are documented below:

| Probability of Failure (POF) | Consequence of Failure (COF) |
|---|---|
| Condition (Structural) | Replacement Cost (Economic) |
| Service Life Remaining (%) | |

The identification of critical assets allows the Township 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 Township is currently facing:

**Asset Data Confidence**
There is a lack of confidence in the available inventory data and condition data. Staff plan to prioritize data refinement efforts to increase the accuracy and reliability of asset data and information. Once completed, staff can confidently develop data-driven strategies to address infrastructure needs.

## 4.3.6 Levels of Service

The following tables identify the Township's current level of service for the sanitary network. These metrics include the technical and community level of service metrics that the Township has selected for this AMP.

### Community Levels of Service

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

| Service Attribute | Qualitative Description | Current LOS (2022) |
|---|---|---|
| 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 | The Village of Havelock's stormwater system is comprised of catch basins, stormwater mains, and natural drainage features. Other areas of the Township are primarily managed by ditches and street culverts. |

### 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 (2022) |
|---|---|---|
| Scope | % of properties in municipality resilient to a 100-year storm | TBD[6] |
| | % of the municipal stormwater management system resilient to a 5-year storm | TBD[7] |

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

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

### 4.3.7 Recommendations

## Asset Inventory

- The Township's Stormwater Network inventory remains at a basic level of maturity and staff do not have a high level of confidence in its accuracy or reliability. The development of a comprehensive inventory of the stormwater system should be priority

## Condition Assessment Strategies

- The development of a comprehensive inventory should be accompanied by a system-wide assessment of the condition of all assets in the Stormwater Network through CCTV inspections

## 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.
- Routine preventative maintenance, such as stormwater main flushing and catch basin cleaning, should be scheduled to extend service life of assets and prevent blockages.

## Levels of Service

- Continue measuring current levels of service in accordance with the metrics that the Township 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.

# 4.4 Facilities

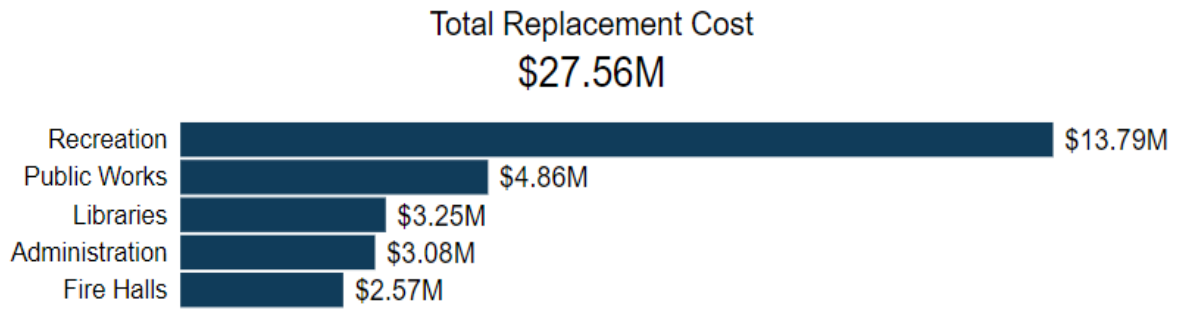
The Township of Havelock-Belmont-Methuen owns and maintains several facilities that provide key services to the community. These include:

- administrative offices
- public libraries
- fire stations and associated offices and facilities
- public works garages and storage sheds
- solid waste facilities
- medical centre
- arenas and community centres

## 4.4.1 Asset Inventory & Replacement Cost

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

| Asset Segment | Facility Components | Replacement Cost Method | Total Replacement Cost |
|---|---|---|---|
| Administration | 80 | User Defined | $3,077,195 |
| Fire Halls | 130 | User Defined | $2,574,415 |
| Libraries | 140 | User Defined | $3,246,430 |
| Public Works | 125 | User Defined | $4,863,595 |
| Recreation | 254 | User Defined | $13,794,695 |
| | | | **$27,556,330** |



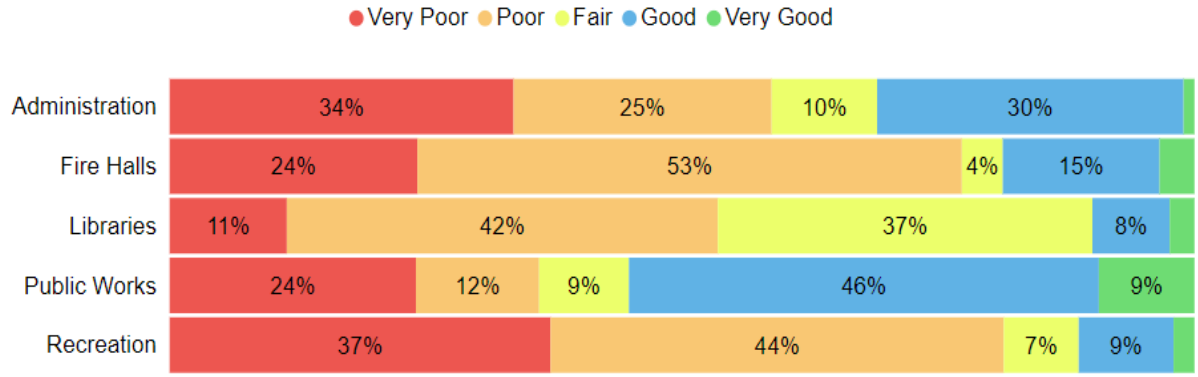

Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

## 4.4.2 Asset Condition

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

| Asset Segment | Average Condition (%) | Average Condition Rating | Condition Source |
|---|---|---|---|
| Administration | 60% | Good | Assessed |
| Fire Halls | 62% | Good | Assessed |
| Libraries | 65% | Good | Assessed |
| Public Works | 64% | Good | Assessed |
| Recreation | 56% | Fair | Assessed |
| Administration | 60% | Good | Assessed |
| | **59%** | **Fair** | **Assessed** |

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




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

## 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 Township's current approach:

- Detailed structural assessments have been recently completed for all facilities owned and managed by the Township. These assessments were performed by Accent Building Sciences Inc. (ABSI) and inspected each facility at a component level (UNIFORMAT II).
- Inspection logs and deficiency lists for the arena are routinely updated internally by staff.

### 4.4.3 Estimated Useful Life & Average Age

The Estimated Useful Life for buildings and facilities assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

| Asset Segment | Average Estimated Useful Life | Average Age |
|---|---|---|
| Administration | 10-75 | 21 Years |
| Fire Halls | 10-75 | 20 Years 2 Months |
| Libraries | 10-75 | 19 Years 11 Months |
| Public Works | 10-75 | 22 Years 3 Months |
| Recreation | 10-150 | 27 Years 7 Months |
| Administration | 10-75 | 21 Years |
| | **Average:** | **23 Years 2 Months** |

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

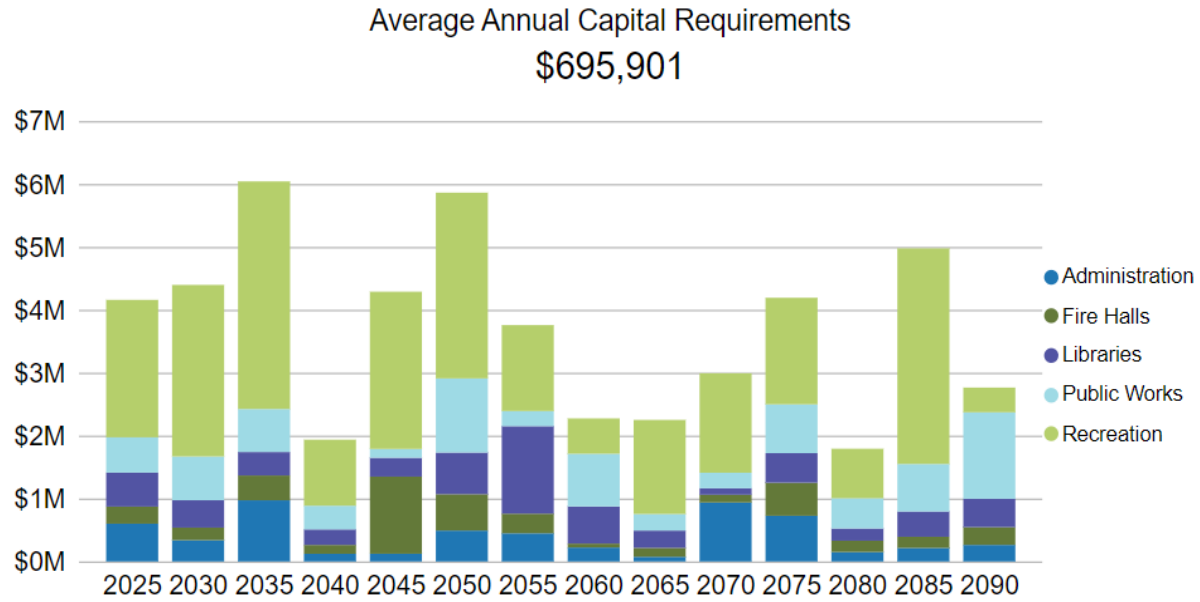
### 4.4.4 Lifecycle Management Strategy

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 Township's current lifecycle management strategy.

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance / Rehabilitation | Municipal buildings are subject to internal staff inspections to identify health & safety and accessibility requirements. Routine maintenance is conducted on an as needed basis. |
| Replacement | Facility condition assessment studies are conducted periodically. These studies assess facilities at a component level, suggesting a replacement schedule for components nearing the end of life. Replacement activities are conducted based on necessity and availability of funding |

## Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 65 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.

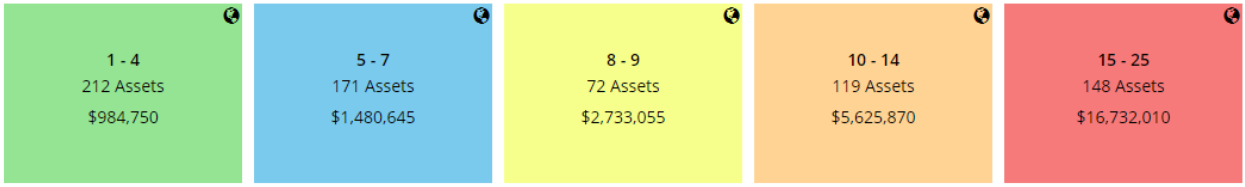



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.4.5 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 2022 inventory data.




This is a high-level model developed for the purposes of this AMP and Township 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 buildings and facilities are documented below:

| Probability of Failure (POF) | Consequence of Failure (COF) |
|---|---|
| Condition | Replacement Cost (Economic) |
| | Category (Social) |

The identification of critical assets allows the Township 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 Township is currently facing:

**Capital Funding Strategies**
Major capital rehabilitation and replacement projects are often entirely dependant on the availability of grant funding opportunities. When grants are not available, rehabilitation and replacement projects may be deferred. An annual capital funding strategy could reduce dependency on grant funding and help prevent deferral of capital works.

## 4.4.6 Levels of Service

The following tables identify the Township's current level of service for the facilities and buildings. These metrics include the technical and community level of service metrics that the Township 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 facilities.

| Service Attribute | Qualitative Description | Current LOS (2022) |
|---|---|---|
| Affordable | Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on municipal facilities | Refer to section 4.4.2 & 4.4.4 |

### Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2022) |
|---|---|---|
| Quality | % of facilities that assets that are in fair or better condition | 33% |

### 4.4.7 Recommendations

#### 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

- Continue to execute upon rehabilitation and replacement activities recommended in the facilities condition assessment report.

#### Levels of Service

- Continue measuring current levels of service in accordance with the metrics that the Township 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.

# 4.5 Machinery & Equipment

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

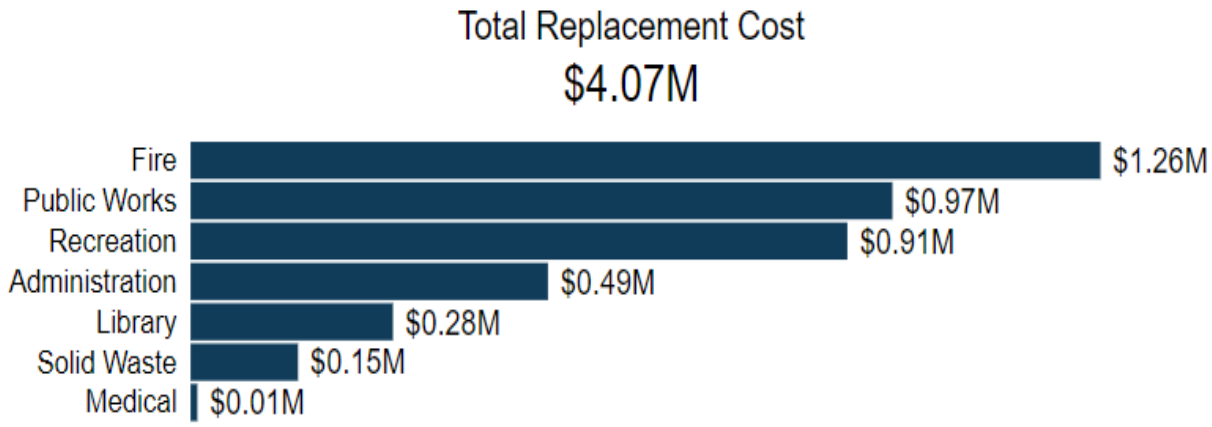
- Administration equipment to serve the Township's IT and office needs
- Fire equipment to outfit staff and vehicles
- Books and computers for the libraries
- Equipment for the medical centre
- Public Works field equipment
- Bleachers, playground equipment and servicing equipment for recreation
- Solid Waste storage bins

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

## 4.5.1 Asset Inventory & Replacement Cost

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

| Asset Segment | Quantity | Replacement Cost Method | Total Replacement Cost |
|---|---|---|---|
| Administration | 149 | CPI Tables | $494,435 |
| Fire | 931 | User Defined | $1,258,820 |
| Library | 981 | CPI Tables | $279,952 |
| Medical | 4 | CPI Tables | $9,284 |
| Public Works | 24 | CPI Tables | $971,022 |
| Recreation | 216 | CPI Tables | $908,671 |
| Solid Waste | 19 | CPI Tables | $148,611 |
| | | | **$4,070,795** |



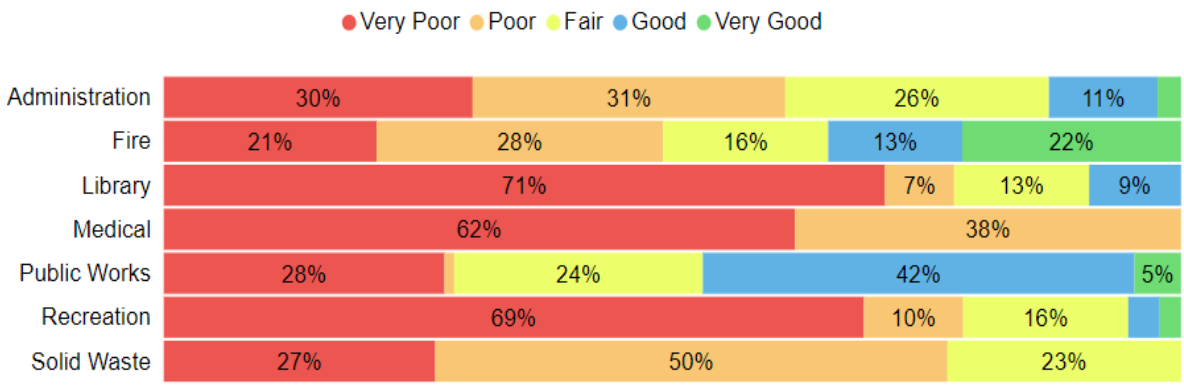

Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

## 4.5.2 Asset Condition

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

| Asset Segment | Average Condition (%) | Average Condition Rating | Condition Source |
|---|---|---|---|
| Administration | 33% | Poor | Age-Based |
| Fire | 48% | Fair | Age-Based |
| Library | 18% | Very Poor | Age-Based |
| Medical | 9% | Very Poor | Age-Based |
| Public Works | 50% | Fair | Age-Based |
| Recreation | 15% | Very Poor | Age-Based |
| Solid Waste | 27% | Poor | Age-Based |
| | **36%** | **Poor** | **Age-Based** |

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




To ensure that the Township's machinery and equipment continues to provide an acceptable level of service, the Township 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.

## 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 Township's current approach:

- Fire and emergency equipment are inspected routinely as adherence to legislation
- There are no formal condition assessment programs in place for most (ex. non-protection) machinery and equipment

### 4.5.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Land Improvement assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

| Asset Segment | Average Estimated Useful Life | Average Age |
|---|---|---|
| Administration | 4-20 | 6 Years 8 Months |
| Fire | 2-30 | 7 Years 8 Months |
| Library | 4-50 | 20 Years 1 Month |
| Medical | 10-20 | 30 Years |
| Public Works | 5-25 | 11 Years 3 Months |
| Recreation | 5-30 | 13 Years 9 Months |
| Solid Waste | 10-20 | 9 Years 8 Months |
| | **Average:** | **11 Years 5 Months** |

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

## 4.5.4 Lifecycle Management Strategy

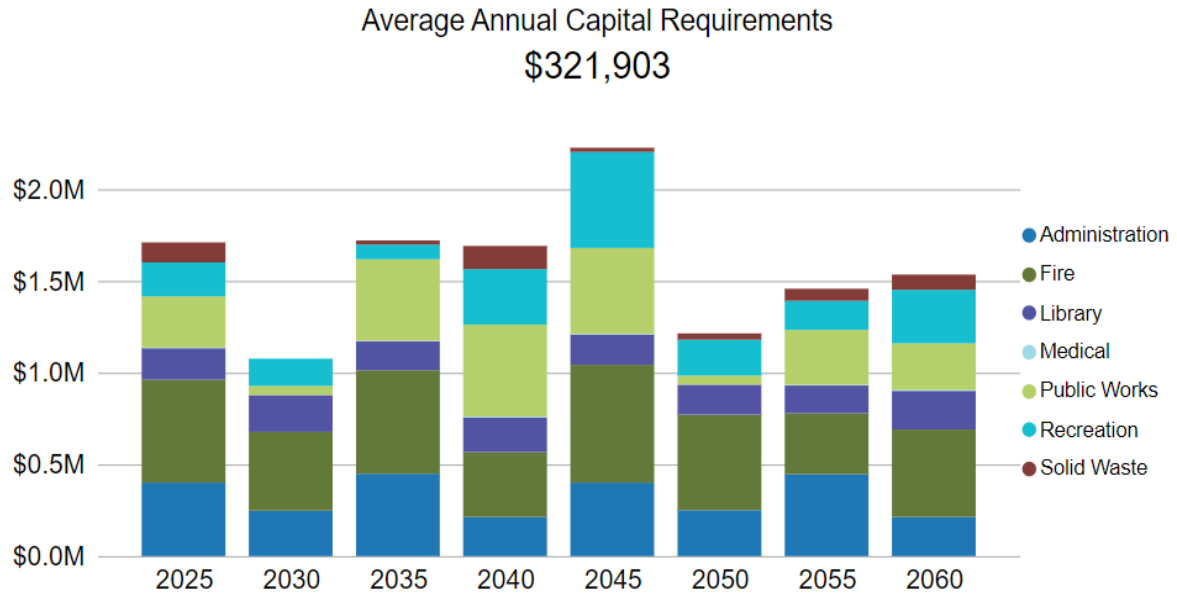
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance/ Rehabilitation | Maintenance program varies by department |
| | Machinery and equipment is maintained according to manufacturer recommended actions and supplemented by the expertise of municipal staff |
| Replacement | The replacement of machinery and equipment depends on deficiencies identified by operators that may impact their ability to complete required tasks |

### Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 35 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.

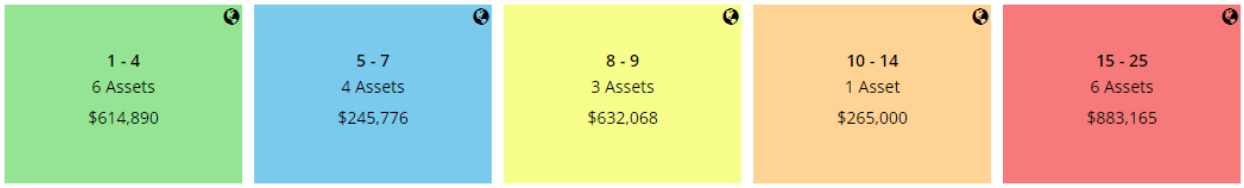


The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.5.5 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 2022 inventory data.




This is a high-level model developed for the purposes of this AMP and Township 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 machinery and equipment are documented below:

| Probability of Failure (POF) | Consequence of Failure (COF) |
|---|---|
| Condition | Replacement Cost (Economic) |
| Service Life Remaining (%) | Department (Operational) |

The identification of critical assets allows the Township 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 Township is currently facing:

**Lifecycle Management Strategies**

The current lifecycle management strategy for Machinery & Equipment is considered more reactive than proactive. It is a challenge to find the right balance between maintenance, capital rehabilitation, and the replacement of assets. Staff hope to develop better defined strategies that will extend asset lifecycles and result in a lower total cost to the Township. These strategies will require sustainable annual funding to minimize the deferral of capital works.

**Organizational Cognizance and Capacity**

Both short- and long-term planning requires the regular collection of infrastructure data to support asset management decision-making. Staff find it challenging to allocate appropriate resources towards data collection and condition assessments to ensure that asset condition and attribute data is regularly reviewed and updated. A standardized approach to data gathering and condition assessments with achievable goals can enable the Township to regularly update their asset data and information.

## 4.5.6 Levels of Service

The following tables identify the Township's current level of service for the machinery and equipment. These metrics include the technical and community level of service metrics that the Township 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 machinery and equipment.

| Service Attribute | Qualitative Description | Current LOS (2022) |
|---|---|---|
| Affordable | Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on machinery & equipment assets | Refer to 4.5.2 & 4.5.4 |

### Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2022) |
|---|---|---|
| Quality | % of machinery & equipment that is in fair or better condition | 45% |

### 4.5.7 Recommendations

## Asset Inventory

- Merge and reconcile various data streams. Specifically, the Township's asset register contains both TCA and non-financial assets for its protection assets. Moving forward, staff should allocate resources to reconciling both datasets.
- The asset register should be reviewed and updated on a scheduled basis. It is recommended that prior to the 2025 compliant asset management plan, that the Township allocate resources to conduct a thorough data cleanse and validation of its inventory.

## Replacement Costs

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

## Condition Assessment Strategies

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

## Risk Management Strategies

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

## Levels of Service

- Continue measuring current levels of service in accordance with the metrics that the Township 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.

# 4.6 Vehicles

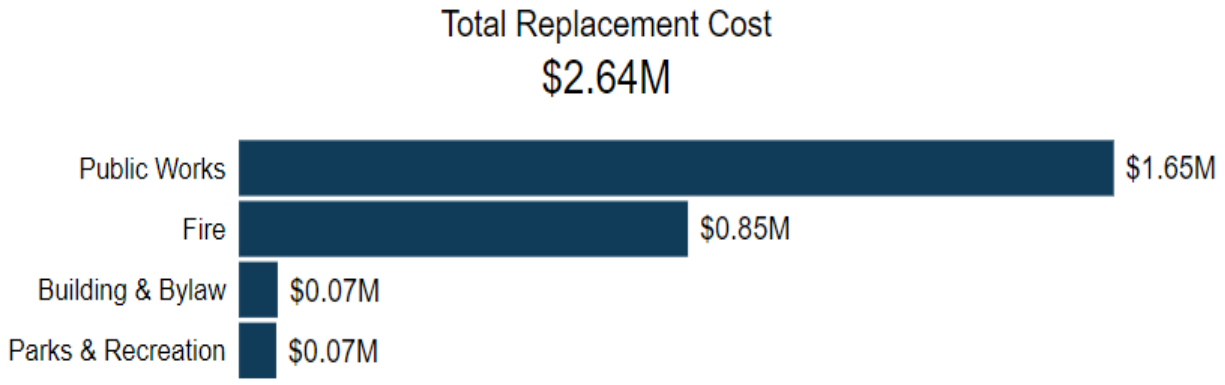
Vehicles allow staff to efficiently deliver municipal services and personnel. Municipal vehicles are used to support several service areas, including:

- tandem axle trucks and snowplows for winter control activities
- fire rescue vehicles to provide emergency services
- pick-up trucks to support the maintenance of the transportation network and address service requests for Environmental Services and Parks & Recreation

## 4.6.1 Asset Inventory & Replacement Cost

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

| Asset Segment | Quantity | Replacement Cost Method | Total Replacement Cost |
|---|---|---|---|
| Building & Bylaw | 2 | CPI Tables | $73,138 |
| Fire | 8 | User Defined | $847,000 |
| Parks & Recreation | 1 | CPI Tables | $70,364 |
| Public Works | 11 | CPI Tables | $1,650,397 |
| | | | **$2,640,899** |



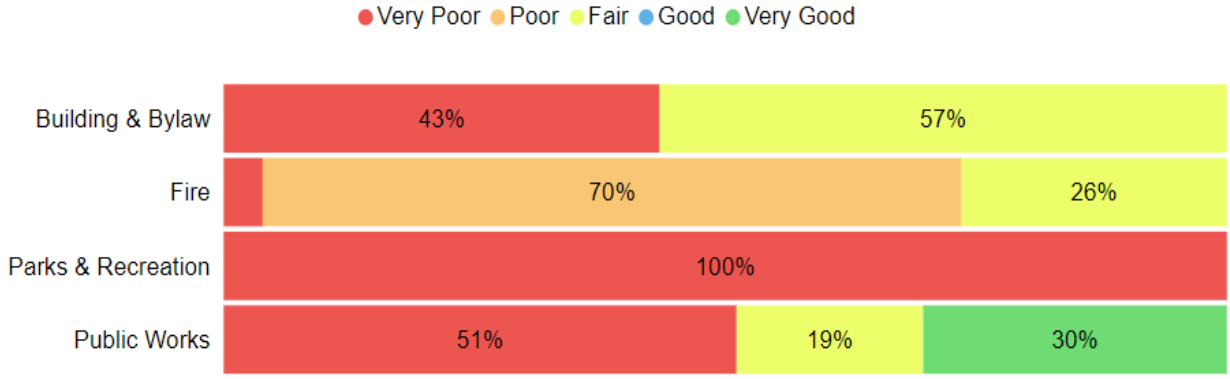

Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

## 4.6.2 Asset Condition

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

| Asset Segment | Average Condition (%) | Average Condition Rating | Condition Source |
|---|---|---|---|
| Building & Bylaw | 24% | Poor | Age-Based |
| Fire | 35% | Poor | Age-Based |
| Parks & Recreation | 0% | Very Poor | Age-Based |
| Public Works | 39% | Poor | Age-Based |
| | **36%** | **Poor** | **Age-Based** |

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




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

### 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 Township's current approach:

- Staff complete regular visual inspections of vehicles via circle checks to ensure they are in state of adequate repair prior to operation
- The mileage of vehicles is used as a proxy to determine remaining useful life and relative vehicle condition

### 4.6.3 Estimated Useful Life & Average Age

The Estimated Useful Life for fleet assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

| Asset Segment | Average Estimated Useful Life | Average Age |
|---|---|---|
| Building & Bylaw | 7 | 7 Years 10 Months |
| Fire | 7-20 | 10 Years 3 Months |
| Parks & Recreation | 5 | 19 Years |
| Public Works | 4-10 | 6 Years 3 Months |
| | **Average:** | **8 Years 6 Months** |

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

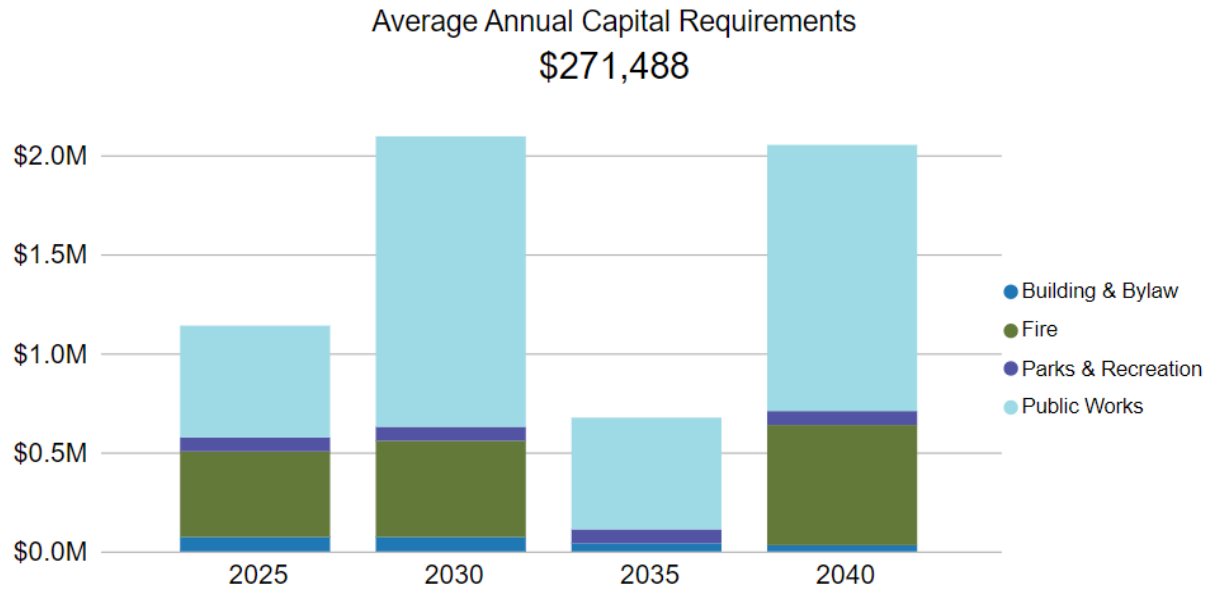
### 4.6.4 Lifecycle Management Strategy

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 Township's current lifecycle management strategy.

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance / Rehabilitation | Visual inspections completed and documented on a regular basis. |
| | Annual preventative maintenance activities include system components check and additional detailed inspections. |
| Replacement | Vehicle age, kilometres and annual repair costs are taken into consideration when determining appropriate treatment options. |

## Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 15 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.




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

# 4.6.5 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 2022 inventory data.


This is a high-level model developed for the purposes of this AMP and Township 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 vehicles are documented below:

| Probability of Failure (POF) | Consequence of Failure (COF) |
|---|---|
| Condition | Replacement Cost (Economic) |
| Service Life Remaining (%) | |

The identification of critical assets allows the Township 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 Township is currently facing:

**Capital Funding Strategies**

The timely replacement of the Township's vehicles is critical to the community. With multiple assets, scheduled for replacement in the coming years (refer to appendix A), the Township must ensure that appropriate funding is in place so that there is no disruption in critical services provided to the community.

## 4.6.6 Levels of Service

The following tables identify the Township's current level of service for the vehicles. These metrics include the technical and community level of service metrics that the Township 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 vehicles.

| Service Attribute | Qualitative Description | Current LOS (2022) |
|---|---|---|
| Affordable | Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on vehicles | Refer to 4.6.2 & 4.6.4 |

### Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2022) |
|---|---|---|
| Quality | % of vehicles that are in fair or better condition | 41% |

### 4.6.7 Recommendations

## Asset Inventory

- Merge and reconcile various data streams. Specifically, the Township's asset register contains both TCA and non-financial assets for its protection assets. Moving forward, staff should allocate resources to reconciling both datasets.

## 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 Township 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.

## Lifecycle Management Strategy

- Define proactive maintenance and renewal strategies employed by the Township to extend service life of vehicles. These activities should have a clear trigger identified (e.g. mileage) to ensure consistency across vehicles.

# 4.7 Land Improvements

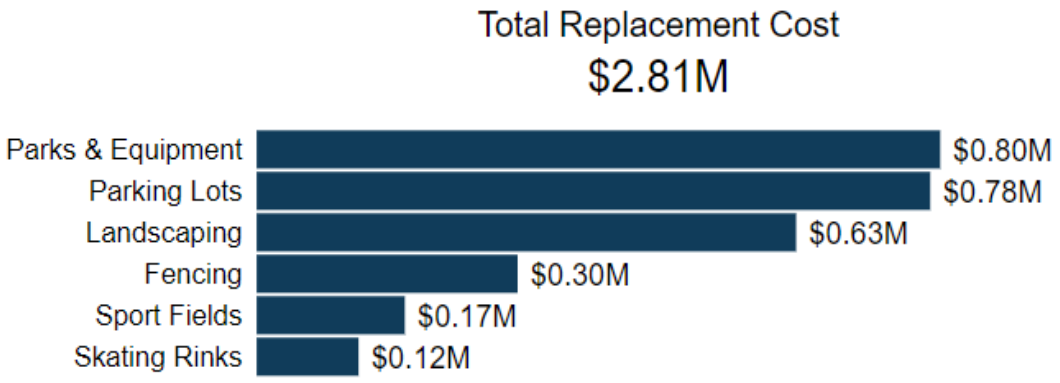
The Township of Havelock-Belmont-Methuen owns a considerable number of assets considered Land Improvements. This category includes:

- Parking lots
- Landscaping and playground equipment for parks
- Fencing and signage
- Skating rinks and sports fields

## 4.7.1 Asset Inventory & Replacement Cost

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

| Asset Segment | Quantity | Replacement Cost Method | Total Replacement Cost |
|---|---|---|---|
| Fencing | 8526 | CPI Tables | $304,171 |
| Landscaping | 7 | CPI Tables | $628,691 |
| Parking Lots | 7 | CPI Tables | $784,979 |
| Parks & Equipment | 16 | CPI Tables | $796,644 |
| Skating Rinks | 1 | CPI Tables | $118,710 |
| Sport Fields | 7 | CPI Tables | $172,649 |
| | | | **$2,805,844** |



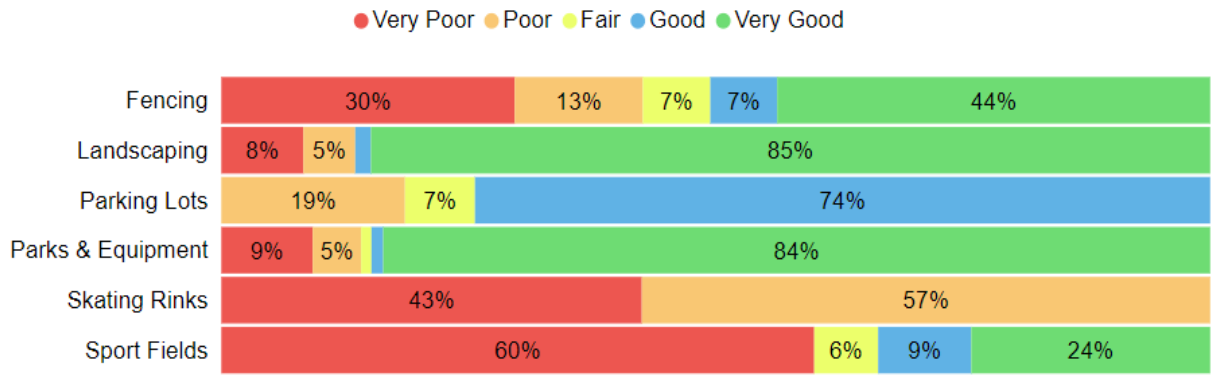

Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

## 4.7.2 Asset Condition

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

| Asset Segment | Average Condition (%) | Average Condition Rating | Condition Source |
|---|---|---|---|
| Fencing | 51% | Fair | Age-Based |
| Landscaping | 75% | Good | Age-Based |
| Parking Lots | 62% | Good | Age-Based |
| Parks & Equipment | 87% | Good | Age-Based |
| Skating Rinks | 16% | Very Poor | Age-Based |
| Sport Fields | 36% | Fair | Age-Based |
| | **67%** | **Good** | **Age-Based** |

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




To ensure that the Township's land improvements continue to provide an acceptable level of service, the Township 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.

## 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 Township's current approach:

- Staff complete regular visual inspections of land improvements assets to ensure they are in state of adequate repair
- Staff conduct formal inspections of outdoor play space, fixed play structures and surfacing in accordance with CAN/CSA-Z614 and required as per O. Reg. 137/15

### 4.7.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Land Improvement assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

| Asset Segment | Average Estimated Useful Life | Average Age |
|---|---|---|
| Fencing | 20-40 | 32 Years 7 Months |
| Landscaping | 10-75 | 28 Years 8 Months |
| Parking Lots | 40 | 17 Years 10 Months |
| Parks & Equipment | 5-40 | 8 Years 8 Months |
| Skating Rinks | 1-20 | 13 Years 7 Months |
| Sport Fields | 20-30 | 20 Years 10 Months |
| | **Average:** | **22 Years** |

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

## 4.7.4 Lifecycle Management Strategy

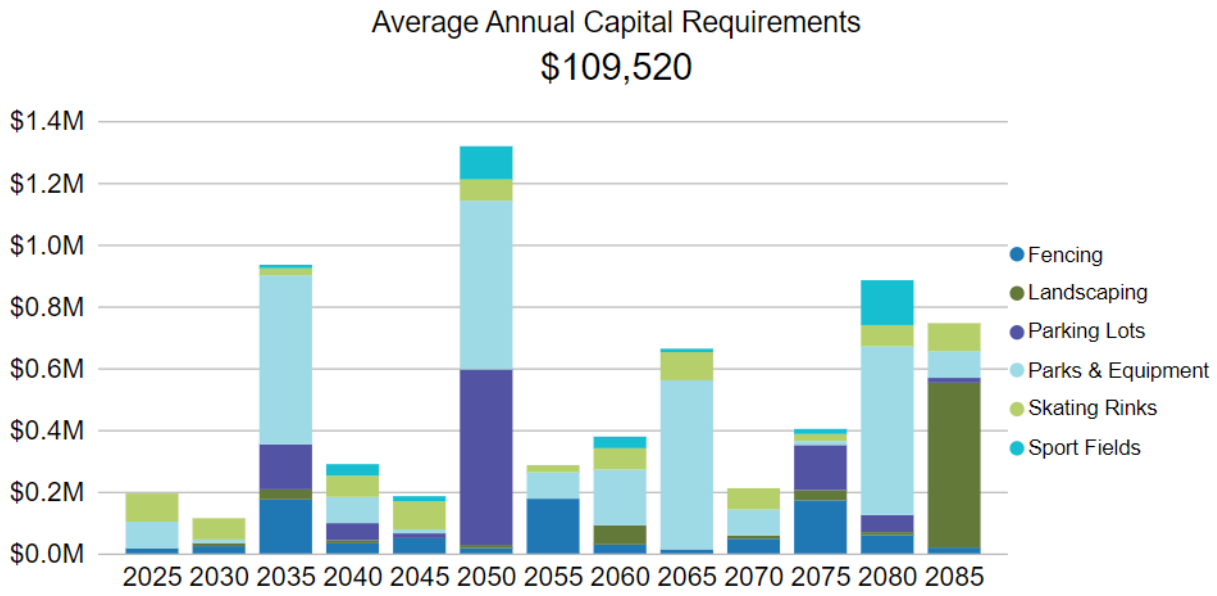
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenanace, Rehabilitation & Replacement | The land improvements asset category includes several unique asset types and lifecycle requirements are dealt with on a case-by-case basis.<br>Regular inspections are carried out according to Canadian Standards Association (CSA) guidelines |

### Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 60 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.




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

# 4.7.5 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 2022 inventory data.


This is a high-level model developed for the purposes of this AMP and Township 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 land improvements are documented below:

| Probability of Failure (POF) | Consequence of Failure (COF) |
|---|---|
| Condition | Replacement Cost (Economic) |
| Service Life Remaining | |

The identification of critical assets allows the Township 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 Township is currently facing:

**Asset Data & Information**

The Township's Land Improvement assets exclusively utilize CPI to derive replacement cost values. Furthermore, asset segment condition ratings are strictly age-based. It is recommended that the Township allocate resources in the future to improve its asset register data. Failure to do so may result in the Township incurring unexpected asset failures, and necessary expenditure.

## 4.7.6 Levels of Service

The following tables identify the Township's current level of service for Land improvements. These metrics include the technical and community level of service metrics that the Township 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 Land improvements.

| Service Attribute | Qualitative Description | Current LOS (2022) |
|---|---|---|
| Affordable | Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on land improvement assets | Refer to 4.7.2 & 4.7.4 |

### Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2022) |
|---|---|---|
| Quality | % of land improvement assets that are in fair or better condition | 75% |

### 4.7.7 Recommendations

## Replacement Costs

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

## Condition Assessment Strategies

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

## Risk Management Strategies

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

## Levels of Service

- Continue measuring current levels of service in accordance with the metrics that the Township 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.

# 4.8 Sanitary Sewer Network

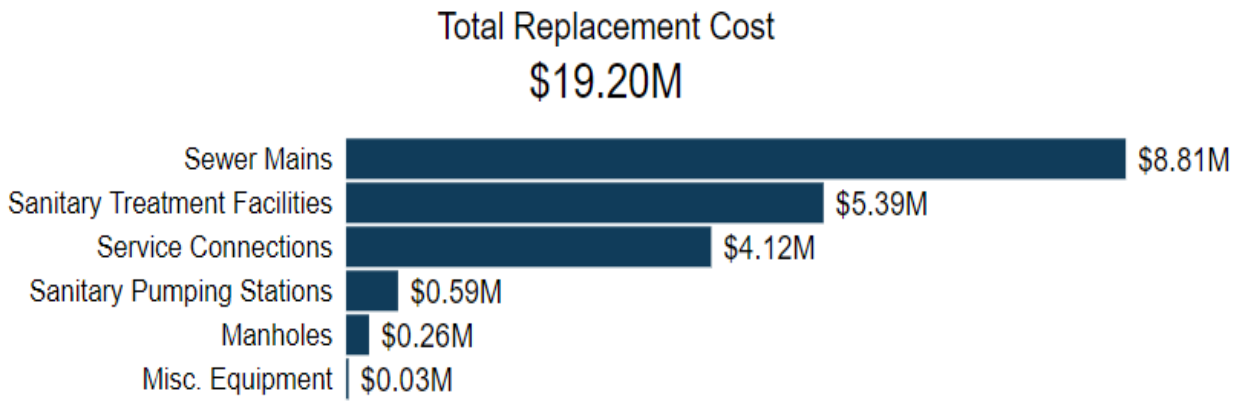
The Township manages the sanitary lines, whereas Ontario Clean Water Agency monitors the effluent quality. The sanitary sewer network is comprised of:

- The Havelock wastewater collection system
- The Havelock pumping station
- The wastewater treatment facility and lagoons

## 4.8.1 Asset Inventory & Replacement Cost

The following table includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's sanitary network inventory.

| Asset Segment | Quantity | Replacement Cost Method | Total Replacement Cost |
|---|---|---|---|
| Manholes | 40 | Cost/Unit | $260,000 |
| Misc. Equipment | 6 | CPI Tables | $28,329 |
| Sanitary Pumping Stations | 1 (38) | User Defined | $587,310 |
| Sanitary Treatment Facilities | 1 (118) | User Defined | $5,393,390 |
| Service Connections | 616 | CPI Tables | $4,124,355 |
| Sewer Mains | 12,694 m | CPI Tables | $8,806,657 |
| | | Total: | $19,200,041 |



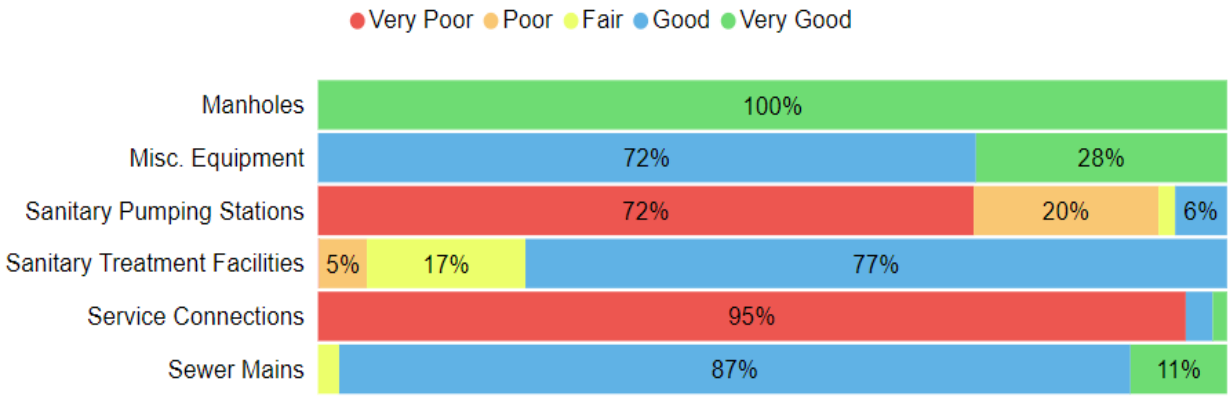

Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

## 4.8.2 Asset Condition

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

| Asset Segment | Average Condition (%) | Average Condition Rating | Condition Source |
|---|---|---|---|
| Manholes | 87% | Very Good | Age-Based |
| Misc. Equipment | 75% | Good | Age-Based |
| Sanitary Pumping Stations | 45% | Fair | Assessed |
| Sanitary Treatment Facilities | 80% | Very Good | Assessed |
| Service Connections | 4% | Very Poor | Age-Based |
| Sewer Mains | 79% | Good | Age-Based |
| | **58%** | **Fair** | **Assessed Age-Based** |

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




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

## Current Approach to Condition Assessment

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

- CCTV inspections are entirely reactive and conducted on an as needed basis

### 4.8.3 Estimated Useful Life & Average Age

The Estimated Useful Life for sanitary network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

| Asset Segment | Average Estimated Useful Life | Average Age |
|---|---|---|
| Manholes | 60 | 6 Years 7 Months |
| Misc. Equipment | 10-30 | 3 Years 1 Month |
| Sanitary Pumping Stations | 10-75 | 29 Years 4 Months |
| Sanitary Treatment Facilities | 10-75 | 13 Years 5 Months |
| Service Connections | 40-60 | 14 Years |
| Sewer Mains | 75 | 37 Years 10 Months |
| **Average:** | | **20 Years 2 Months** |

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

## 4.8.4 Lifecycle Management Strategy

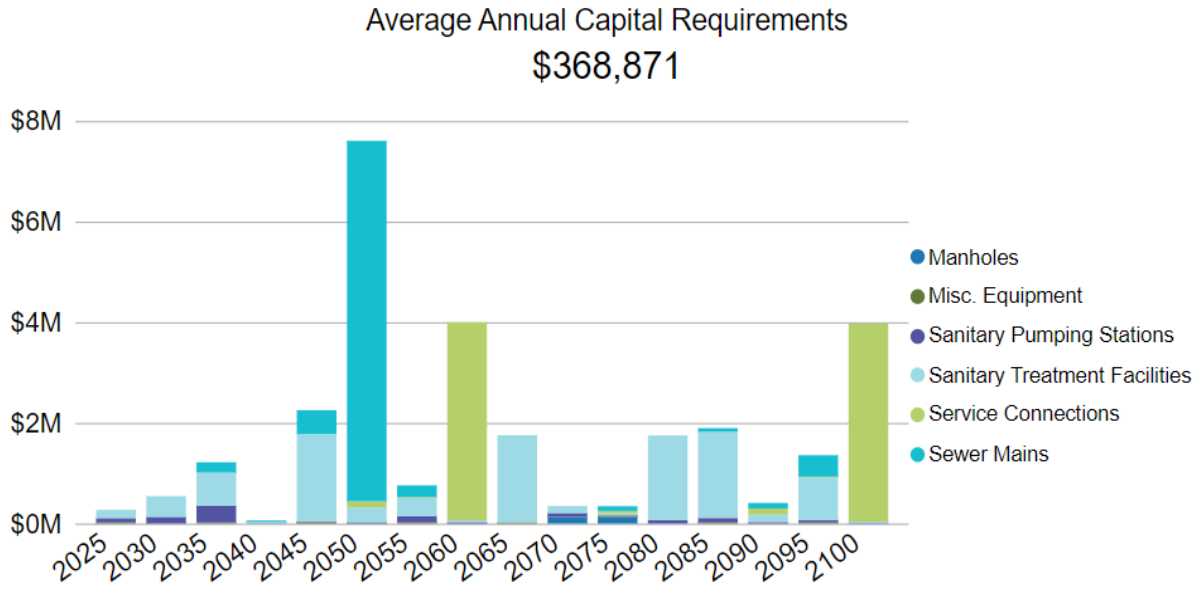
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance/ Rehabilitation | Flushing and cleaning of sanitary assets are completed on an as needed basis. There are no formalized rehabilitation strategies currently in place. |
| Replacement | Replacement activities are carried out on an as needed basis, in a reactive manner |

### Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 75 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.

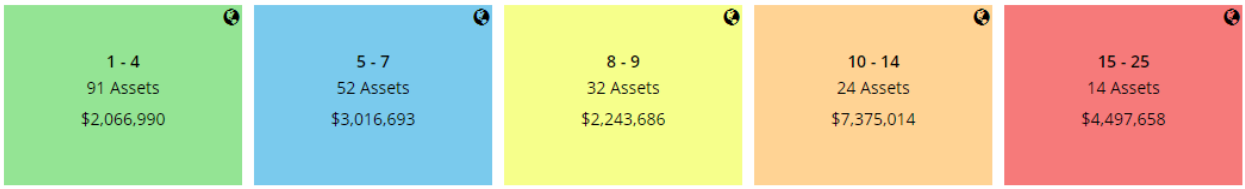



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.8.5 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 2022 inventory data.




This is a high-level model developed for the purposes of this AMP and Township 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 sanitary network are documented below:

| Probability of Failure (POF) | Consequence of Failure (COF) |
|---|---|
| Condition | Replacement Cost (Economic) |
| Service Life Remaining (%) | |

The identification of critical assets allows the Township 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 Township is currently facing:

**Inflow & Infiltration**

The network experiences notable inflow and infiltration issues, particularly in the spring, which reduces overall collection and treatment capacity. To address concerns with inflow & infiltration staff aim to become more proactive with flow monitoring. A regular flow monitoring program would help identify I&I at an earlier stage and provide staff with data to inform lifecycle planning.

**Lifecycle Management Strategies**

The current lifecycle management strategy for all asset categories is considered more reactive than proactive. It is a challenge to find the right balance between maintenance, capital rehabilitation, and the replacement of assets. Staff hope to develop better defined strategies that will extend asset lifecycles and result in a lower total cost to the Town. These strategies will require sustainable annual funding to minimize the deferral of capital works.

## 4.8.6 Levels of Service

The following tables identify the Township's current level of service for the sanitary network. These metrics include the technical and community level of service metrics that the Township has selected for this AMP.

### Community Levels of Service

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

| Service Attribute | Qualitative Description | Current LOS (2022) |
|---|---|---|
| Scope | Description, which may include maps, of the user groups or areas of the Township that are connected to the municipal wastewater system | See Appendix B |
| Reliability | Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes | The Township does not own any combined sewers |
| | Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches | |
| | Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes | 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 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 sanitary network.

| Service Attribute | Technical Metric | Current LOS (2022) |
|---|---|---|
| Scope | % of properties connected to the municipal wastewater system | TBD[8] |
| Reliability | # of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity | 0 |

[8] The Township does not currently have data available to determine this technical metric. All properties within the Village of Havelock are connected to the wastewater system. Other communities rely on septic services.

| | | |
|---|---|---|
| | compared to the total number of properties connected to the municipal wastewater system | |
| | # 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 | 0 |

### 4.8.7 Recommendations

## Asset Inventory

- Much of the asset register is utilizing CPI to derive replacement cost values. Furthermore, user-defined costing (manholes), are using regional estimates. Internal staff should allocate resources more accurately valuated the asset portfolio's replacement value

## Condition Assessment Strategies

- Identify condition assessment strategies for high value and high-risk sanitary 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 Township's lifecycle management strategies at regular intervals to determine the impact cost, condition and risk.

## Levels of Service

- Continue measuring current levels of service in accordance with the metrics that the Township 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.

# 4.9 Water System

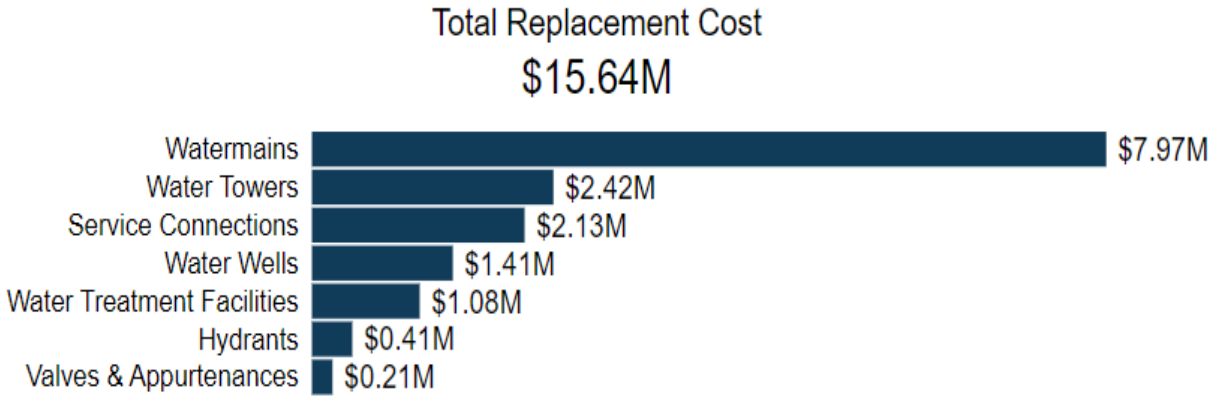
The Township manages the water lines, whereas Ontario Clean Water Agency monitors the water quality. The water system is comprised of:

- Havelock water distribution system
- Township water wells
- Township treatment and pumping facilities
- Township water storage tower

## 4.9.1 Asset Inventory & Replacement Cost

The following table includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's water network inventory.

| Asset Segment | Quantity (components) | Replacement Cost Method | Total Replacement Cost |
|---|---|---|---|
| Hydrants | 85 | User Defined | $405,000 |
| Service Connections | 697 | CPI Tables | $2,134,281 |
| Valves & Appurtenances | 101 | CPI Tables | $206,430 |
| Water Towers | 1 (2) | CPI Tables | $2,423,759 |
| Water Treatment Facilities | 1 (12) | CPI Tables | $1,081,668 |
| Water Wells | 3 (17) | CPI Tables | $1,414,090 |
| Watermains | 12,097 m | CPI Tables | $7,971,351 |
| | | **Total:** | **$15,636,579** |



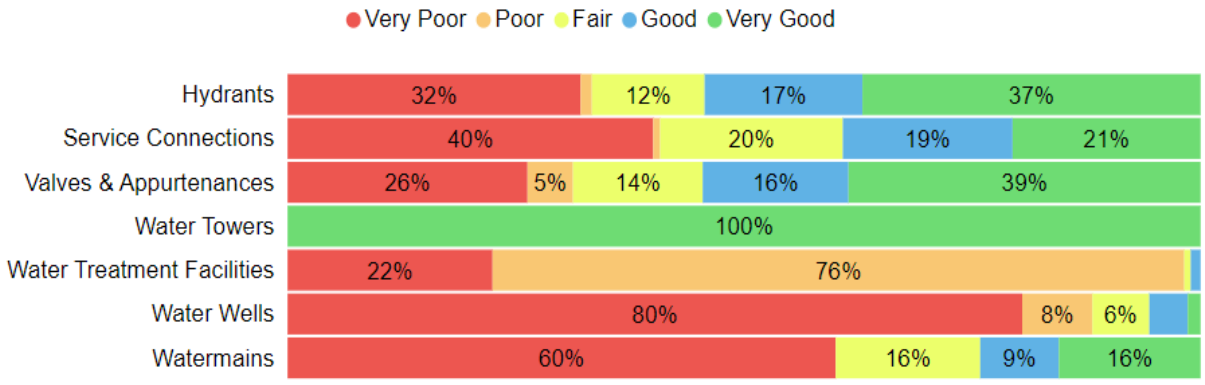
Each asset’s replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

## 4.9.2 Asset Condition

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

| Asset Segment | Average Condition (%) | Average Condition Rating | Condition Source |
|---|---|---|---|
| Hydrants | 51% | Fair | Age-Based |
| Service Connections | 41% | Fair | Age-Based |
| Valves & Appurtenances | 54% | Fair | Age-Based |
| Water Towers | 89% | Very Good | Age-Based |
| Water Treatment Facilities | 30% | Poor | Age-Based |
| Water Wells | 17% | Very Poor | Age-Based |
| Watermains | 38% | Poor | Age-Based |
| | **44%** | **Fair** | **Age-Based** |

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




To ensure that the Township's water network continues to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and

replacement activities is required to increase the overall condition of the water network.

## Current Approach to Condition Assessment

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

- Staff primarily rely on the age and material of water mains to determine the projected condition of water mains
- There are no formal condition assessment programs in place for the water distribution mains
- Water treatment and pumping facilities are operated on by the Ontario Clean Water Agency (OCWA). Facility components are assessed routinely to meet Drinking Water Quality Management Systems (DWQMS) requirements.

## 4.9.3 Estimated Useful Life & Average Age

The Estimated Useful Life for water network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

| Asset Segment | Average Estimated Useful Life | Average Age |
|---|---|---|
| Hydrants | 60 | 30 Years 7 Months |
| Service Connections | 40 | 21 Years 10 Months |
| Valves & Appurtenances | 60 | 34 Years 11 Months |
| Water Towers | 40-90 | 6 Years 1 Month |
| Water Treatment Facilities | 8-60 | 25 Years 3 Months |
| Water Wells | 10-30 | 20 Years 1 Month |
| Watermains | 75 | 40 Years |
| | **Average:** | **28 Years 6 Months** |

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

### 4.9.4 Lifecycle Management Strategy

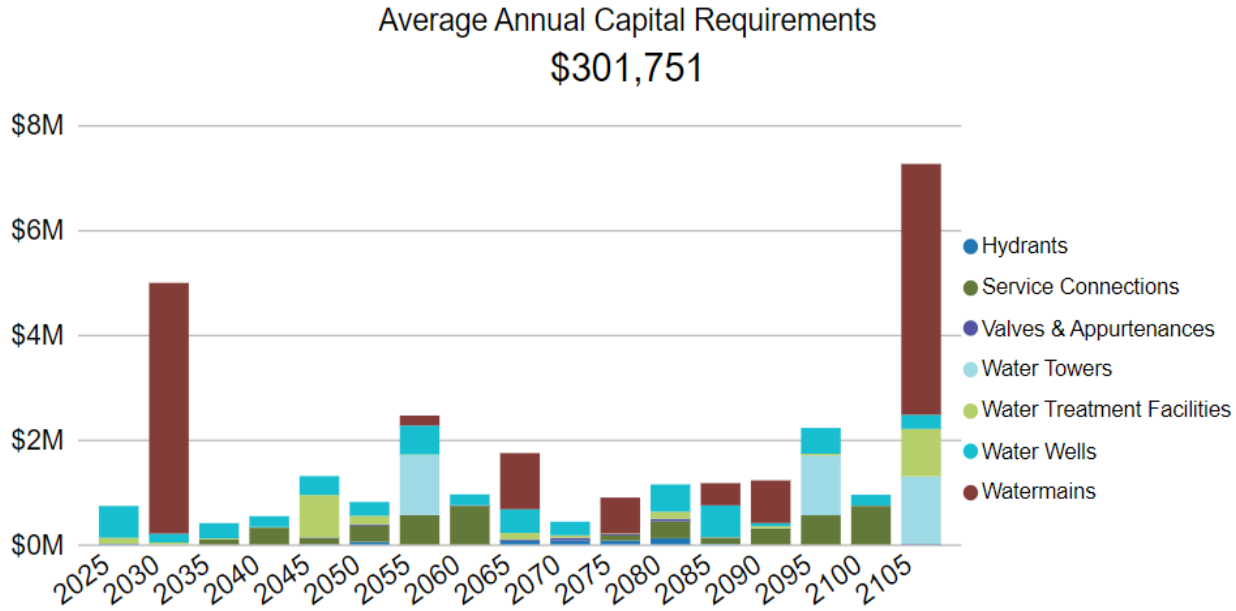
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance/ Rehabilitation | Flushing is carried out on as an-needed basis to meet water quality requirements |
| | Trenchless re-lining of water mains presents significant challenges and is not always a viable option |
| Replacement | In the absence of mid-lifecycle rehabilitative events, most mains are simply maintained with the goal of full replacement once it reaches its end-of-life. Replacement activities are identified based on a deficiency list that factors in age, pipe material and the history of breaks. |

## Forecasted Capital Requirements

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

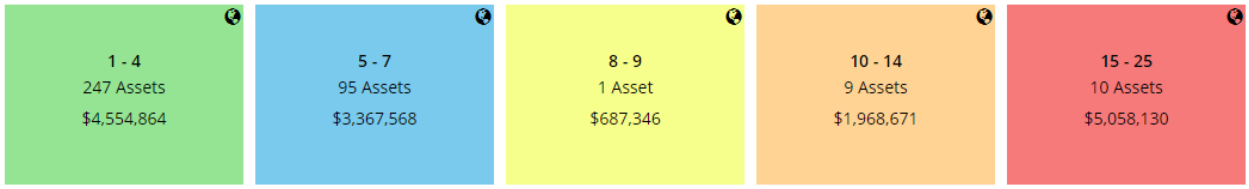



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.9.5 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 2022 inventory data.




This is a high-level model developed for the purposes of this AMP and Township 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 water network are documented below:

| Probability of Failure (POF) | Consequence of Failure (COF) |
|---|---|
| Condition | Replacement Cost (Economic) |
| Service Life Remaining (%) | |

The identification of critical assets allows the Township 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 Township is currently facing:

**Asset Data Confidence**

There is a lack of confidence in the available inventory data and condition data. Staff plan to prioritize data refinement efforts to increase the accuracy and reliability of asset data and information. Once completed staff can confidently develop data-driven strategies to address infrastructure needs.

**Lifecycle Management Strategies**

The current lifecycle management strategy for all asset categories is considered more reactive than proactive. It is a challenge to find the right balance between maintenance, capital rehabilitation, and the replacement of assets. Staff hope to develop better defined strategies that will extend asset lifecycles and result in a lower total cost to the Town. These strategies will require sustainable annual funding to minimize the deferral of capital works.

## 4.9.6 Levels of Service

The following tables identify the Township's current level of service for the water network. These metrics include the technical and community level of service metrics that the Township has selected for this AMP.

### Community Levels of Service

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

| Service Attribute | Qualitative Description | Current LOS (2022) |
|---|---|---|
| Scope | Description, which may include maps, of the user groups or areas of the Township that are connected to the municipal water system | See Appendix B |
| | Description, which may include maps, of the user groups or areas of the Township that have fire flow | See Appendix B |
| Reliability | Description of boil water advisories and service interruptions | No boil water advisories have been reported in 2022 |

### Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2022) |
|---|---|---|
| Scope | % of properties connected to the municipal water system | TBD[9] |
| | % of properties where fire flow is available | TBD[10] |

[9] The Township does not currently have data available to determine this technical metric. All properties within the Village of Havelock are connected to the water system. Other communities rely on well water.

[10] The Township does not currently have data available to determine this technical metric. Properties connected to the water system are expected to meet fire flow requirements.

| | | |
|---|---|---|
| Reliability | # of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system | 0 |
| | # of connection-days per year where water is not available due to water main breaks compared to the total number of properties connected to the municipal water system | 0 |

### 4.9.7 Recommendations

#### Replacement Costs

#### Asset Inventory

- Much of the asset register is utilizing CPI to derive replacement cost values. Furthermore, user-defined costing (hydrants), are using regional estimates. Internal staff should allocate resources more accurately valuated the asset portfolio's replacement value

#### Condition Assessment Strategies

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

#### Risk Management Strategies

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

#### Levels of Service

- Continue measuring current levels of service in accordance with the metrics that the Township 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.

# 5 Impacts of Growth

## Key Insights

- Understanding the key drivers of growth and demand will allow the Township to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure

- Moderate population growth is expected over the next 25 years

  The costs of growth should be considered in long-term funding strategies that are designed to maintain the current level of service

# 5.1 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 Township to plan for new infrastructure more effectively, and the upgrade or disposal of existing infrastructure. Increases or decreases in demand can affect what assets are needed and what level of service meets the needs of the community.

## 5.1.1 Township of Havelock-Belmont-Methuen Official Plan (Consolidated December 2015)

The Township adopted the Official Plan in 2012 to ensure conformance with the County of Peterborough Official Plan, and address matters of local planning interest. The Official Plan is a planning document for the purpose of guiding the future development of the Township of Havelock-Belmont-Methuen.

Key settlement areas have been identified in the Official plan to accommodate population growth.

Over the next 20 years, from 2012, the Township is expected to grow by 9.2% or approximately 375 persons. The focus of these settlement areas is to optimize the use of public services and infrastructure, and to minimize outward sprawl of development into areas of natural resources and natural heritage.

## 5.1.2 County of Peterborough Official Plan (2022)

The Growth Plan for the Greater Golden Horseshoe (the "Growth Plan") and its Amendment 1 was approved by the Lieutenant Governor in Council to take effect on August 28, 2020. The Plan emphasis on optimizing the use of existing infrastructure and services public service facilities before expanding the urban area. The Growth Plan establishes the population and employment forecasts for County of Peterborough to 2051 as the following: Population 82,000, Employment 26,000.

Under the Plan, the County of Peterborough Official Plan is responsible for allocating growth among the eight local municipalities based on a combination of local factors including: local planning policy; historic and recent growth trends; market demand; and the capacity to accommodate growth from land supply and servicing perspectives. The County has allocated 6% percent of the new population growth in the County to the Township of Havelock-Belmont-Methuen.

## 5.2 Impact of Growth on Lifecycle Activities

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

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

# 6 Financial Strategy

## Key Insights

- The Township is committing approximately $2.9 million towards capital projects per year from sustainable revenue sources

- Given the annual capital requirement of $3.5 million, there is currently a funding gap of $619,000 annually

- For tax-funded assets, we recommend increasing tax revenues by 0.3% each year for the next 10 years to achieve a sustainable level of funding

- For rate-funded sanitary sewer network, we recommend increasing tax revenues by 2.6% each year for the next 20 years to achieve a sustainable level of funding

- For the rate-funded water system, we recommend increasing tax revenues by 1.2% each year for the next 20 years to achieve a sustainable level of funding

# 6.1 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 Township of HBM to identify the financial resources required for sustainable asset management based on existing asset inventories, desired levels of service, and projected growth requirements.

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

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

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

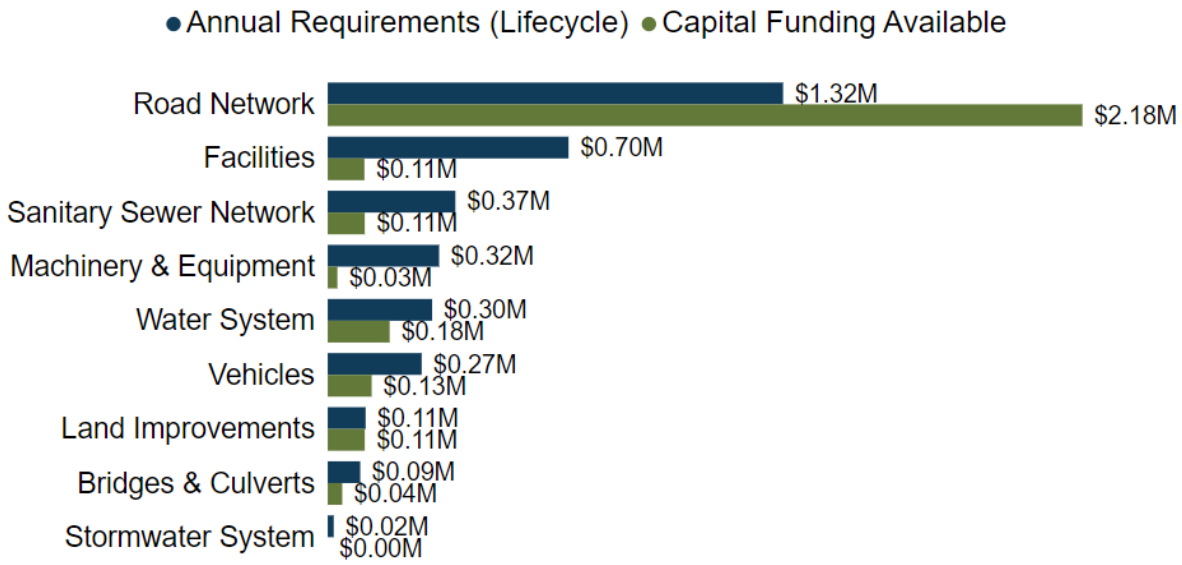
If the financial plan component results in a funding shortfall, the province requires the inclusion of a specific plan as to how the impact of the shortfall will be managed. In determining the legitimacy of a funding shortfall, the province may evaluate a Township's approach to the following:

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

### 6.1.1 Annual Requirements & Capital Funding

## Annual Requirements

The annual requirements represent the amount the Township 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 Township must allocate approximately $3.5 million annually to address capital requirements for the assets included in this AMP.




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

However, for the Road Network, Bridges & Culverts, and Facilities, lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal of the Township's roads. The development of these strategies allows for a comparison of potential cost avoidance

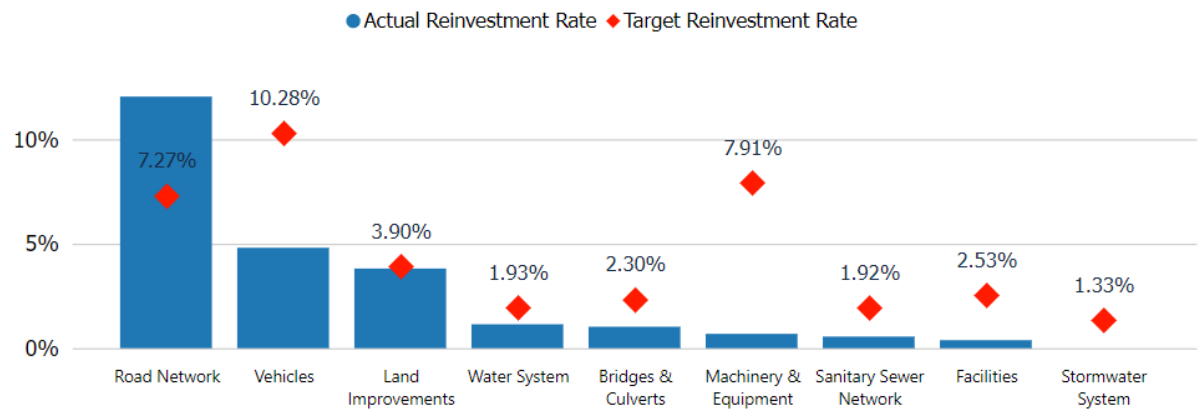
if the strategies were to be implemented. The following compares two scenarios for the aforementioned categories:

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.

The implementation of a proactive lifecycle strategies for various asset categories leads to a potential annual cost avoidance of $65,471. As the lifecycle strategy scenario represents the lowest cost option available to the Township, we have used these annual requirements in the development of the financial strategy.

## Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $2,877,000 towards capital projects per year. Given the annual capital requirement of $3,496,000, there is currently a funding gap of $619,000 annually.



# 6.2 Funding Objective

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

- **Tax Funded Assets:** Road Network, Bridges & Culverts, Stormwater Network, Facilities, Machinery & Equipment, Land Improvements, and Vehicles
- **Rate Funded Assets:** Water System and Sanitary Sewer Network

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

# 6.3 Financial Profile: Tax Funded Assets

## 6.3.1 Current Funding Position

The following tables show, by asset category, HBM'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 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Taxes | CCBF | OCIF | OMPF | Taxes to Reserves | Aggregate Resources Trust | Total Available | Annual Deficit |
| Bridges & Culverts | $94,000 | | | | | $42,000 | | $42,000 | $52,000 |
| Facilities | $696,000 | | | | | $106,000 | | $106,000 | $590,000 |
| Land Improvements | $110,000 | | | | | $107,000 | | $107,000 | $3,000 |
| Machinery & Equipment | $321,000 | | | | | $28,000 | | $28,000 | $293,000 |
| Road Network | $1,316,000 | | $144,000 | $228,000 | $1,343,000 | $305,000 | $161,000 | $2,181,000 | -$865,000 |
| Stormwater Network | $17,000 | | | | | | | | $17,000 |
| Vehicles | $271,000 | | | | | $127,000 | | $127,000 | $144,000 |
| | **$2,825,000** | **$0** | **$144,000** | **$228,000** | **$1,343,000** | **$715,000** | **$161,000** | **$2,591,000** | **$234,000** |

The average annual investment requirement for the above categories is $2.8 million. Annual revenue currently allocated to these assets for capital purposes is $2.6 million leaving an annual deficit of $234 thousand. Put differently, these infrastructure categories are currently funded at 92% of their long-term requirements.

## 6.3.2 Full Funding Requirements

In 2022, the Township of HBM has annual tax revenues of $6,958,517. 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 |
|---|---|
| Bridges & Culverts | 0.7% |
| Facilities | 8.5% |

| | |
|---|---|
| Land Improvements | 0.0% |
| Machinery & Equipment | 4.2% |
| Road Network | -12.3% |
| Stormwater Network | 0.2% |
| Vehicles | 2.1% |
| **Weighted Average Total** | **3.4%** |

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:

| | Tax-Funded Asset Categories | | | |
|---|---|---|---|---|
| | 5 Years | 10 Years | 15 Years | 20 Years |
| Infrastructure Deficit | $234,000 | $234,000 | $234,000 | $234,000 |
| Tax Increase Required | 3.4% | 3.4% | 3.4% | 3.4% |
| **Annually:** | **0.7%** | **0.3%** | **0.2%** | **0.2%** |

### 6.3.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 10-year option. This involves full funding being achieved over 10 years by:

a) increasing tax revenues by 0.3% each year for the next 10 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
b) allocating the current gas tax (CCBF), OCIF revenue and OMPF revenue as outlined previously.
c) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
d) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

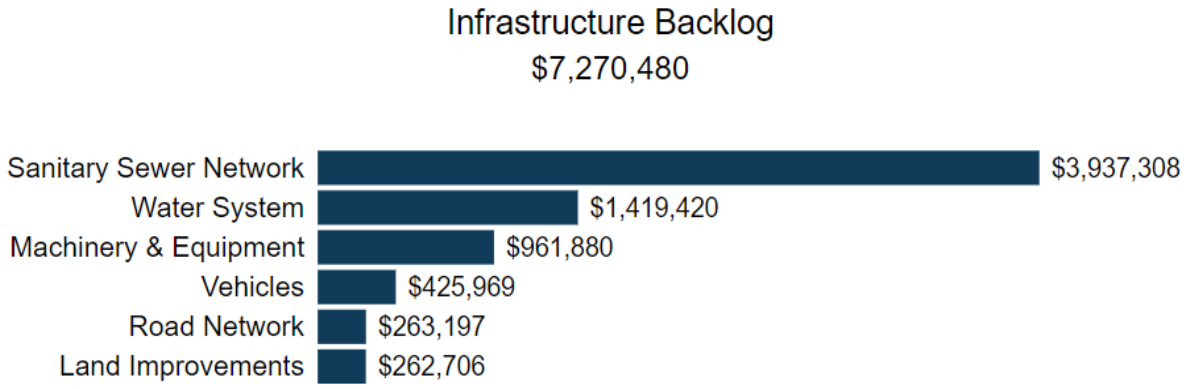
Notes:

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[11].

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.
3. The Township is currently in the process of applying for substantial funding that will impact the roads, stormwater, water and sanitary networks lifecycles. Although not yet approved, the related project is expected to run from 2024 to 2027, in which the Township would receive approximately $8.4M[12] of funding for those asset classes. This will impact the Township's financial strategy as it relates to those asset categories starting with the 2025 compliant AMP.

Although this option achieves full funding on an annual basis in 10 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows the pent-up investment demand of $1,913,752 in backlog, for tax-funded assets.




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.

[11] The Township 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.

[12] Provincial funding source accounting for 73%

# 6.4 Financial Profile: Rate Funded Assets

## 6.4.1 Current Funding Position

The following tables show, by asset category, HBM'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 | Rates | To Operations | Total Available | Annual Deficit |
|---|---|---|---|---|---|
| Water System | $302,000 | $530,000 | $-351,000 | $179,000 | $123,000 |
| Sanitary Sewer Network | $369,000 | $496,000 | $-389,000 | $107,000 | $262,000 |
| | **$671,000** | **$1,026,000** | **$-740,000** | **$286,000** | **$385,000** |

The average annual investment requirement for the above categories is $671 thousand. Annual revenue currently allocated to these assets for capital purposes is $286 thousand leaving an annual deficit of $385 thousand. Put differently, these infrastructure categories are currently funded at 43% of their long-term requirements.

## 6.4.2 Full Funding Requirements

In 2022, the Township of HBM has annual water and sanitary revenues of $530,000 and $496,000, respectively. 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 |
|---|---|
| Sanitary Sewer Network | 23.2% |
| Water System | 52.8% |
| **Weighted Average Total** | **37.5%** |

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:

| | Water System | | | |
|---|---|---|---|---|
| | 5 Years | 10 Years | 15 Years | 20 Years |
| Infrastructure Deficit | $123,000 | $123,000 | $123,000 | $123,000 |
| Tax Increase Required | 23.2% | 23.2% | 23.2% | 23.2% |
| **Annually:** | **4.6%** | **2.3%** | **1.5%** | **1.2%** |

| | Sanitary Sewer Network | | | |
|---|---|---|---|---|
| | 5 Years | 10 Years | 15 Years | 20 Years |
| Infrastructure Deficit | $262,000 | $262,000 | $262,000 | $262,000 |
| Tax Increase Required | 52.8% | 52.8% | 52.8% | 52.8% |
| **Annually:** | **10.6%** | **5.3%** | **3.5%** | **2.6%** |

### 6.4.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 20-year option. This involves full funding being achieved over 20 years by:

a) increasing rate revenues by 2.6% for sanitary services and 1.2% for water services each year for the next 20 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
b) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

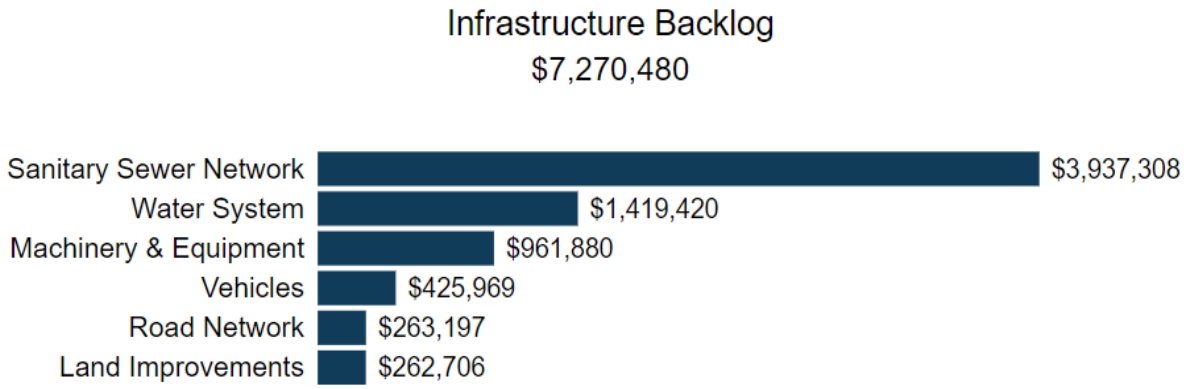
Notes:

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. The Township is currently in the process of applying for substantial funding that will impact the roads, stormwater, water and sanitary networks

lifecycles. Although not yet approved, the related project is expected to run from 2024 to 2027, in which the Township would receive approximately $8.4M[13] of funding for those asset classes. This will impact the Township's financial strategy as it relates to those asset categories starting with the 2025 compliant AMP.

4. Any increase in rates required for operations would be in addition to the above recommendations.

Although this option achieves full funding on an annual basis in 20 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows the pent-up investment demand of $5,356,728 in backlog, for rate-funded assets.




[13] Provincial funding source accounting for 73%

# 6.5 Use of Debt

The Township has no debt on the assets included in this Asset Management Plan. The revenue options outlined in this plan allow Havelock-Belmont-Methuen to fully fund its long-term infrastructure requirements without the use of debt.

# 6.6 Use of Reserves

## 6.6.1 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 HBM.

| Asset Category | Balance at December 31, 2022 |
|---|---|
| Bridges & Culverts | $131,000 |
| Facilities | $1,453,000 |
| Land Improvements | $223,000 |
| Machinery & Equipment | $2,636,000 |
| Road Network | $1,626,000 |
| Stormwater Network | $131,000 |
| Vehicles | $1,752,000 |
| **Total Tax Funded:** | **$7,952,000** |
| Water System | $131,000 |
| Sanitary Sewer Network | $1,555,000 |
| **Total Rate Funded:** | **$1,686,000** |

There is considerable debate in the municipal sector as to the appropriate level of reserves that a Township should have on hand. There is no clear guideline that has gained wide acceptance. Factors that municipalities should consider 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 HBM'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.

### 6.6.2 Recommendation

In 2025, Ontario Regulation 588/17 will require HBM 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.

# 7 Appendices

## Key Insights

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

# Appendix A: 10-Year Capital Requirements

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

**Road Network**

| Asset Segment | Backlog | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Curbs | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| Drainage Culverts | $28k | $2k | $0k | $32k | $0k | $0k | $0k | $11k | $469k | $2k | $0k |
| Paved Roads - HCB | $0k | $14k | $0k | $49k | $344k | $93k | $93k | $80k | $374k | $15k | $215k |
| Paved Roads - LCB | $0k | $0k | $297k | $311k | $3m | $3m | $296k | $0k | $0k | $0k | $0k |
| Sidewalks | $236k | $0k | $0k | $0k | $0k | $28k | $0k | $0k | $0k | $11k | $0k |
| Signs & Signals | $0k | $0k | $0k | $0k | $0k | $0k | $6k | $11k | $5k | $0k | $0k |
| Streetlights | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| | **$17k** | **$692k** | **$50k** | **$1.5m** | **$616k** | **$3.6m** | **$7.7m** | **$4.5m** | **$6.5m** | **$4.6m** | **$864k** |

**Bridges & Culverts**

| Asset Segment | Backlog | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bridges | $0 | $0 | $4,000 | $4,000 | $4,000 | $4,000 | $4,000 | $0 | $0 | $0 | $0 |
| Structural Culverts | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| | **$0** | **$0** | **$4,000** | **$4,000** | **$4,000** | **$4,000** | **$4,000** | **$0** | **$0** | **$0** | **$0** |

| Storm Network | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
| Catch Basins | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Storm Sewers | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** |

| Facilities | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
| Administration | $0k | $0k | $61k | $55k | $26k | $2k | $167k | $350k | $0k | $26k | $0k |
| Fire Halls | $0k | $0k | $36k | $148k | $59k | $2k | $48k | $15k | $139k | $8k | $0k |
| Libraries | $0k | $0k | $86k | $215k | $41k | $0k | $45k | $240k | $10k | $45k | $105k |
| Public Works | $0k | $0k | $144k | $171k | $227k | $27k | $9k | $129k | $549k | $6k | $0k |
| Recreation | $0k | $0k | $1m | $1m | $80k | $30k | $706k | $131k | $383k | $42k | $1848k |
| Administration | $0k | $0k | $61k | $55k | $26k | $2k | $167k | $350k | $0k | $26k | $0k |
| | **$0k** | **$0k** | **$1m** | **$2m** | **$432k** | **$60k** | **$976k** | **$865k** | **$1m** | **$127k** | **$2m** |

| Machinery & Equipment | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
| Administration | $150k | $0k | $35k | $70k | $65k | $85k | $143k | $37k | $18k | $34k | $8k |
| Fire | $59k | $3k | $65k | $74k | $86k | $60k | $86k | $248k | $147k | $66k | $60k |
| Library | $148k | $0k | $19k | $20k | $26k | $20k | $58k | $0k | $47k | $83k | $19k |
| Medical | $6k | $0k | $0k | $4k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| Public Works | $46k | $1k | $183k | $62k | $0k | $0k | $217k | $0k | $33k | $11k | $0k |
| Recreation | $625k | $0k | $7k | $0k | $6k | $10k | $120k | $34k | $15k | $0k | $76k |
| Solid Waste | $29k | $0k | $10k | $12k | $18k | $0k | $79k | $0k | $0k | $0k | $0k |
| | **$1m** | **$3k** | **$320k** | **$242k** | **$200k** | **$176k** | **$702k** | **$319k** | **$260k** | **$194k** | **$164k** |

| Vehicles | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
| Building & Bylaw | $32k | $0k | $0k | $41k | $0k | $0k | $0k | $0k | $32k | $0k | $41k |
| Fire | $33k | $0k | $0k | $0k | $0k | $38k | $36k | $325k | $298k | $0k | $150k |
| Parks & Recreation | $70k | $0k | $0k | $0k | $0k | $0k | $70k | $0k | $0k | $0k | $0k |
| Public Works | $354k | $258k | $233k | $0k | $134k | $20k | $399k | $0k | $145k | $345k | $20k |
| | **$489k** | **$258k** | **$233k** | **$41k** | **$134k** | **$58k** | **$505k** | **$325k** | **$475k** | **$345k** | **$212k** |

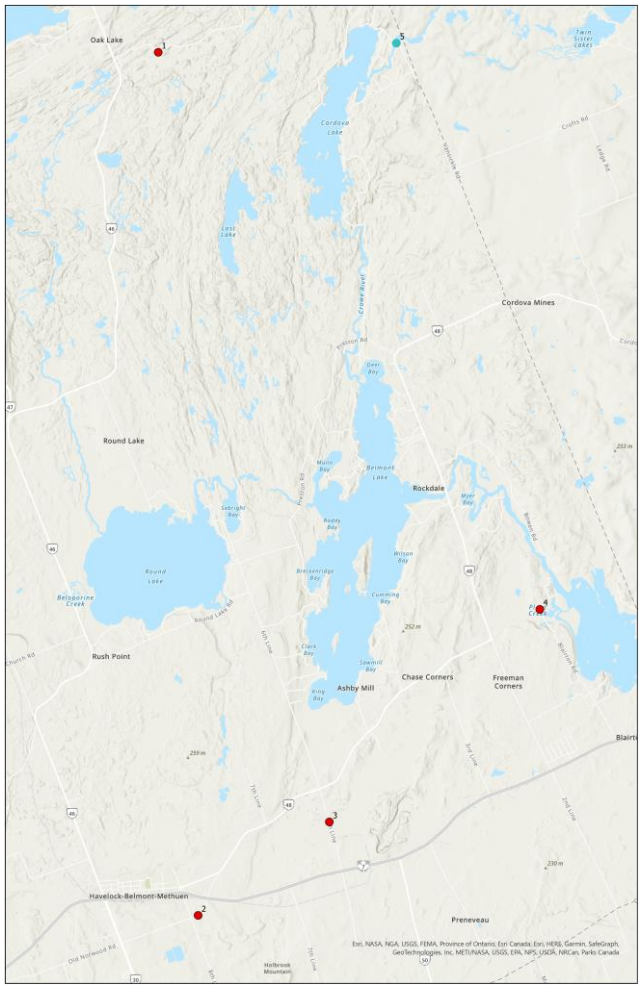
| Land Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
| Fencing | $74k | $0k | $0k | $14k | $3k | $0k | $0k | $1k | $0k | $0k | $24k |
| Landscaping | $52k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $10k | $0k | $0k |
| Parking Lots | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| Parks & Equipment | $31k | $0k | $10k | $33k | $18k | $16k | $13k | $6k | $4k | $8k | $0k |
| Skating Rinks | $50k | $0k | $5k | $5k | $5k | $5k | $73k | $5k | $5k | $5k | $5k |
| Sport Fields | $66k | $0k | $38k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| | **$273k** | **$0k** | **$52k** | **$51k** | **$26k** | **$21k** | **$86k** | **$11k** | **$18k** | **$13k** | **$28k** |

| Sanitary Network | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
| Manholes | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| Misc. Equipment | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $21k | $0k | $0k | $0k |
| Sanitary Pumping Stations | $0k | $0k | $15k | $12k | $4k | $60k | $0k | $13k | $50k | $47k | $3k |
| Sanitary Treatment Facilities | $0k | $0k | $33k | $9k | $15k | $2k | $2k | $136k | $0k | $31k | $105k |
| Service Connections | $4m | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| Sewer Mains | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| | **$4m** | **$0k** | **$48k** | **$20k** | **$19k** | **$62k** | **$2k** | **$169k** | **$50k** | **$78k** | **$107k** |

| Water Network | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 |
| Hydrants | $120k | $0k | $0k | $0k | $0k | $0k | $10k | $0k | $0k | $0k | $0k |
| Service Connections | $704k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| Valves & Appurtenances | $49k | $0k | $0k | $0k | $0k | $0k | $4k | $0k | $0k | $0k | $0k |
| Water Towers | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| Water Treatment Facilities | $140k | $0k | $0k | $103k | $0k | $6k | $0k | $6k | $26k | $0k | $0k |
| Water Wells | $410k | $122k | $0k | $161k | $0k | $0k | $446k | $0k | $168k | $0k | $0k |
| Watermains | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k | $0k |
| | **$1m** | **$122k** | **$0k** | **$264k** | **$0k** | **$6k** | **$459k** | **$6k** | **$194k** | **$0k** | **$0k** |

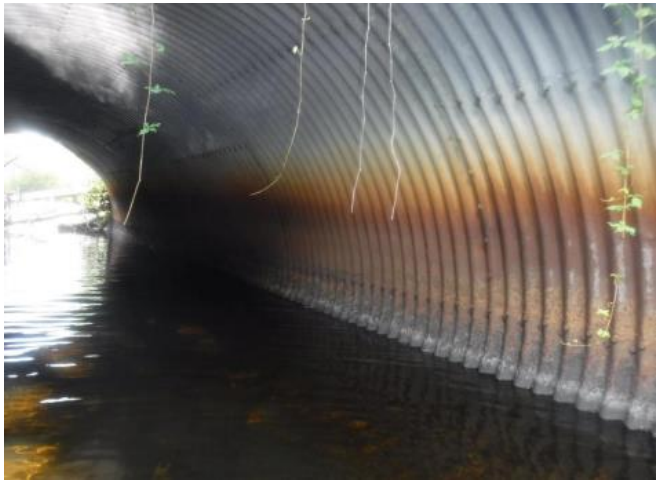
# Appendix B: Level of Service Maps

Bridges & Culverts Location Map

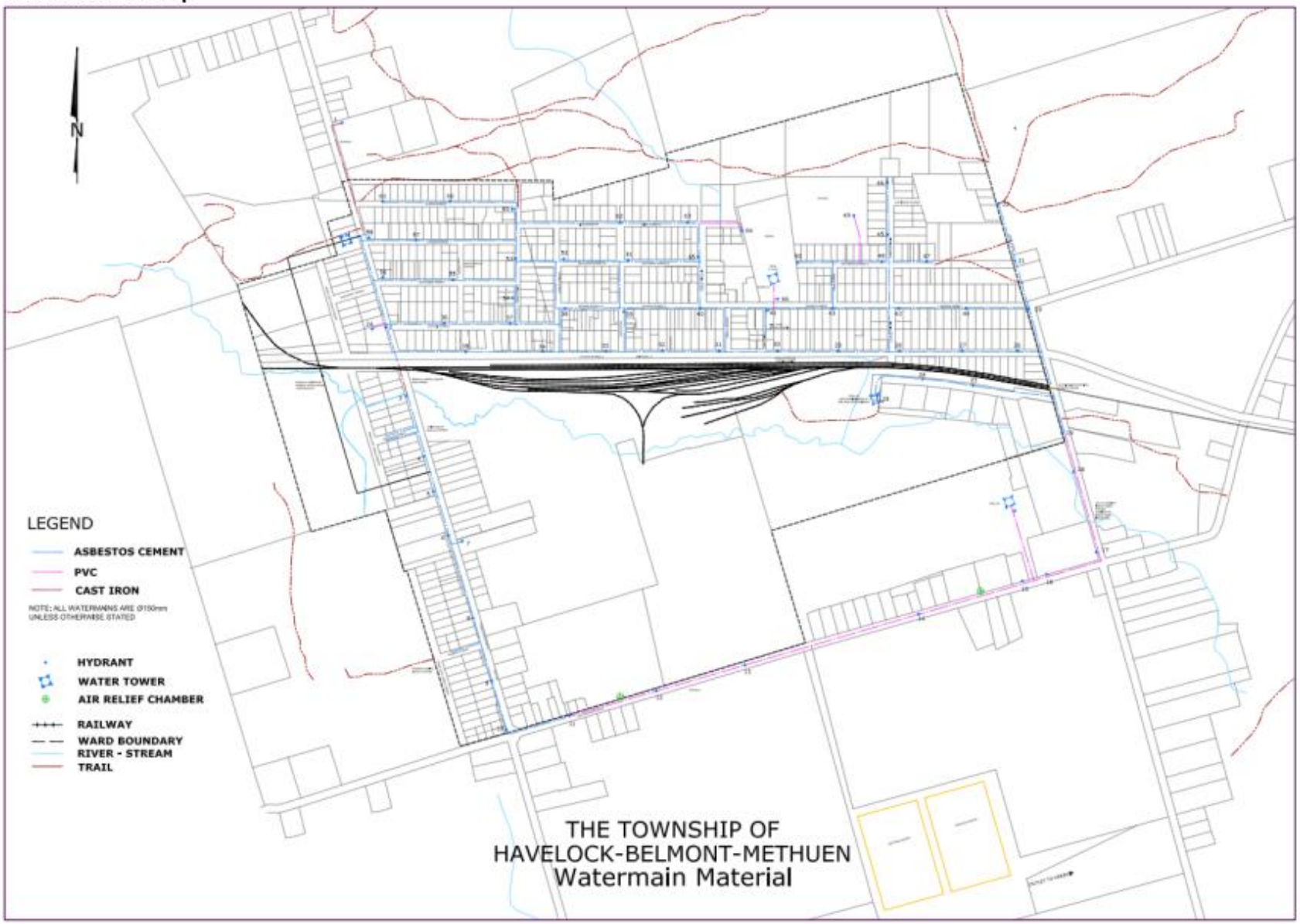


**Images of Bridge in Fair Condition**
Devil Four Mile Otter Creek Bridge
Inspected: 2023-08-31

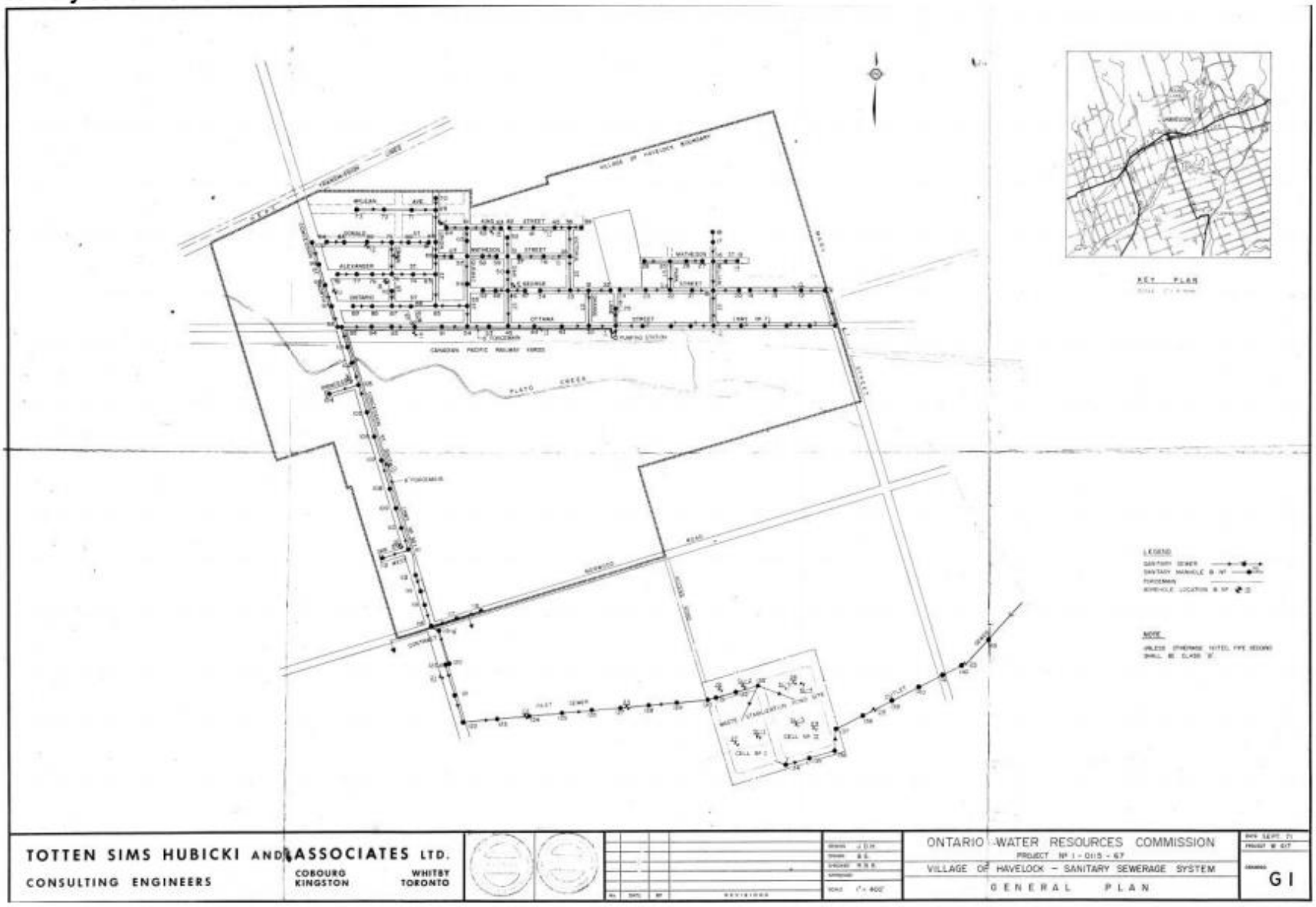
**Images of Culvert in Good Condition**
Vansickle Road Deer Bridge Culvert
Inspected: 2023-08-31



## Water Network Map



## Sanitary Sewer Network



# Appendix C: 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 Township'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 Township'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 Township 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 Township 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 Township 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 Township 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