# AMP
# State of the Infrastructure
## Update

2024

This Asset Management Program was prepared by:


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

# Key Statistics

Replacement cost of asset portfolio

$318.6 million

Replacement cost of infrastructure per household

$139,904 (2023)

Percentage of assets in fair or better condition

80%

Percentage of assets with assessed condition data

81%

Target reinvestment rate

2.3%

Actual reinvestment rate

1.2%

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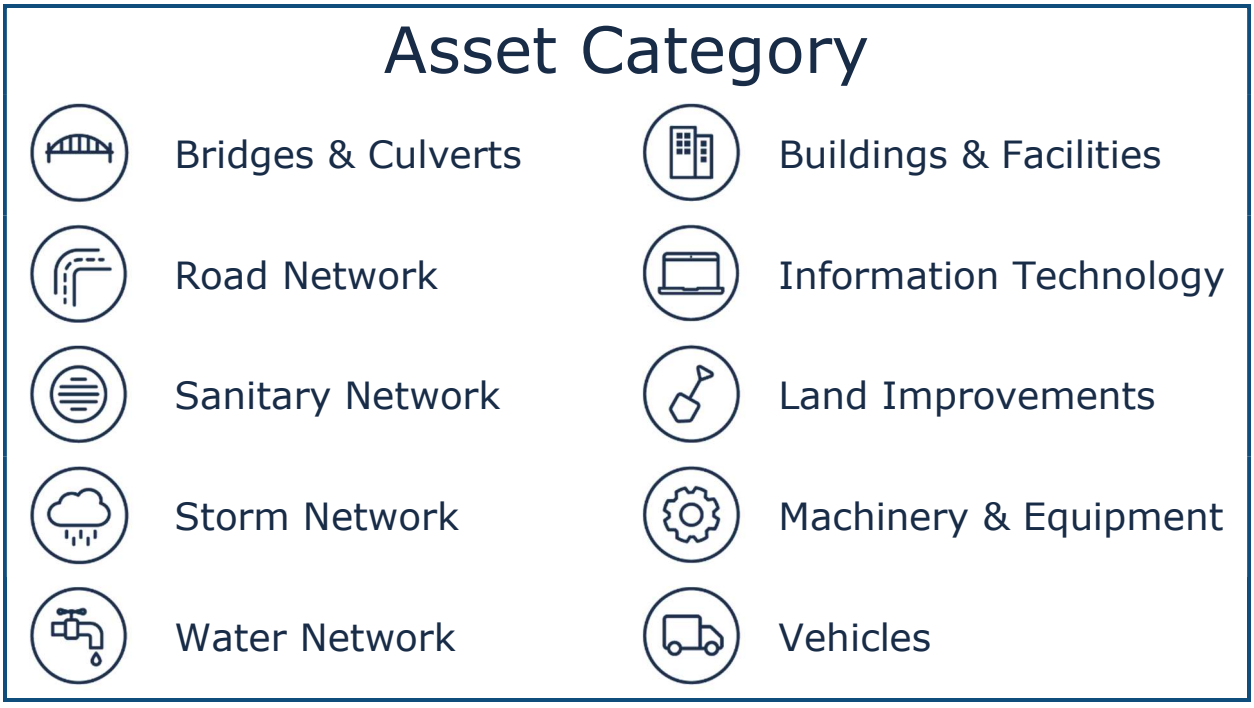
# Executive Summary

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

## Scope

This AMP identifies the current practices and strategies that are in place to manage public infrastructure and makes recommendations where they can be further refined. Through the implementation of sound asset management strategies, the 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 Asset Management Plan (AMP) totals $318.6 million. 80% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 81% of assets. For the remaining 19% 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-based condition data misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP.
The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (paved roads) and replacement only strategies (all other assets) to determine the lowest cost option to maintain the current level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Township's average annual capital requirement totals $7.2 million. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $5.9 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $1.3 million.

It is important to note that this AMP represents a snapshot in time and is based on the best available processes, data, and information at the

Township. Strategic asset management planning is an ongoing and dynamic process that requires continuous improvement and dedicated resources.

# 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

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

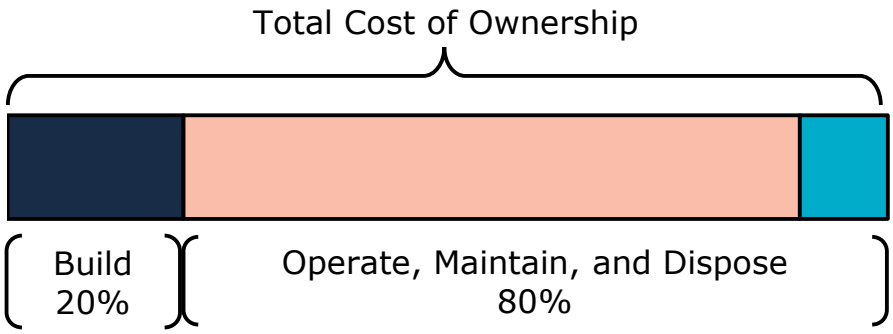
- An asset management plan is a living document that should be updated regularly to inform long-term planning

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

# 1.1 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, maintenance and disposal. 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.

### 1.1.1 Asset Management Policy

An asset management policy represents a statement of the principles guiding the Township'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 By-law No. 54-2019 "A By-law to Adopt a Strategic Asset Management Policy for the Township of North Huron" on June 3rd, 2019, in accordance with Ontario Regulation 588/17.

The objectives of the policy are to provide a framework for implementing asset management, and to provide guidance to staff responsible for asset management.

### 1.1.2 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 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.

### 1.1.3 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.

## 1.2 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.

### 1.2.1 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 | Mill & Re-surface | $$ |
| Replacement/ Reconstruction | Asset end-of-life activities that often involve the complete replacement of assets | Full Reconstruction | $$$ |

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

The 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.

### 1.2.2 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.

## 1.2.3 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, quantitative 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 LOS, and Technical LOS.

### Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories (roads, bridges, water, wastewater, storm) the province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP. For non-core asset categories, the 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, water, wastewater, storm) the province, through O. Reg. 588/17, has provided technical metrics that are required to be included in this AMP. For non-core asset categories, the 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 that allows these targets to be achieved.

# 1.3 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

### 1.3.1 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 - 5.2.1 | Complete |
| Replacement cost of assets in each category | S.5(2), 3(ii) | 4.1.1 - 5.2.1 | Complete |
| Average age of assets in each category | S.5(2), 3(iii) | 4.1.3 - 5.2.3 | Complete |
| Condition of core assets in each category | S.5(2), 3(iv) | 4.1.2 – 5.2.2 | Complete |
| Description of Township's approach to assessing the condition of assets in each category | S.5(2), 3(v) | 4.1.2 – 5.2.2 | Complete |
| Current levels of service in each category | S.5(2), 1(i-ii) | 4.1.6 - 5.2.6 | Complete |
| Current performance measures in each category | S.5(2), 2 | 4.1.6 - 5.2.6 | Complete |
| Lifecycle activities needed to maintain current levels of service for 10 years | S.5(2), 4 | 4.1.4 - 5.2.4 | Complete |
| Costs of providing lifecycle activities for 10 years | S.5(2), 4 | Appendix A | Complete |
| Growth assumptions | S.5(2), 5(i-ii)<br>S.5(2), 6(i-vi) | 6.1-6.2 | Complete |

# 2 Scope and Methodology

## Key Insights

- This asset management plan includes 10 asset categories and is divided between tax-funded and rate-funded categories

- The source and recency of replacement costs impacts the accuracy and reliability of asset portfolio valuation

- Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life

## 2.1 Asset Categories Included in this AMP

This asset management plan for the Township of North Huron is produced in compliance with Ontario Regulation 588/17. The July 2024 deadline under the regulation—the second of three AMPs—requires analysis of all 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 | |
| Storm Network | |
| Buildings & Facilities | |
| Vehicles | |
| Machinery & Equipment | |
| Information Technology | |
| Land Improvements | |
| Water Network | User Rates |
| Sanitary 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 (CPI) or Non-Residential Building Construction Price Index (NRBCPI)

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 date 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:

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

## 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:

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

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

## 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.

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

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

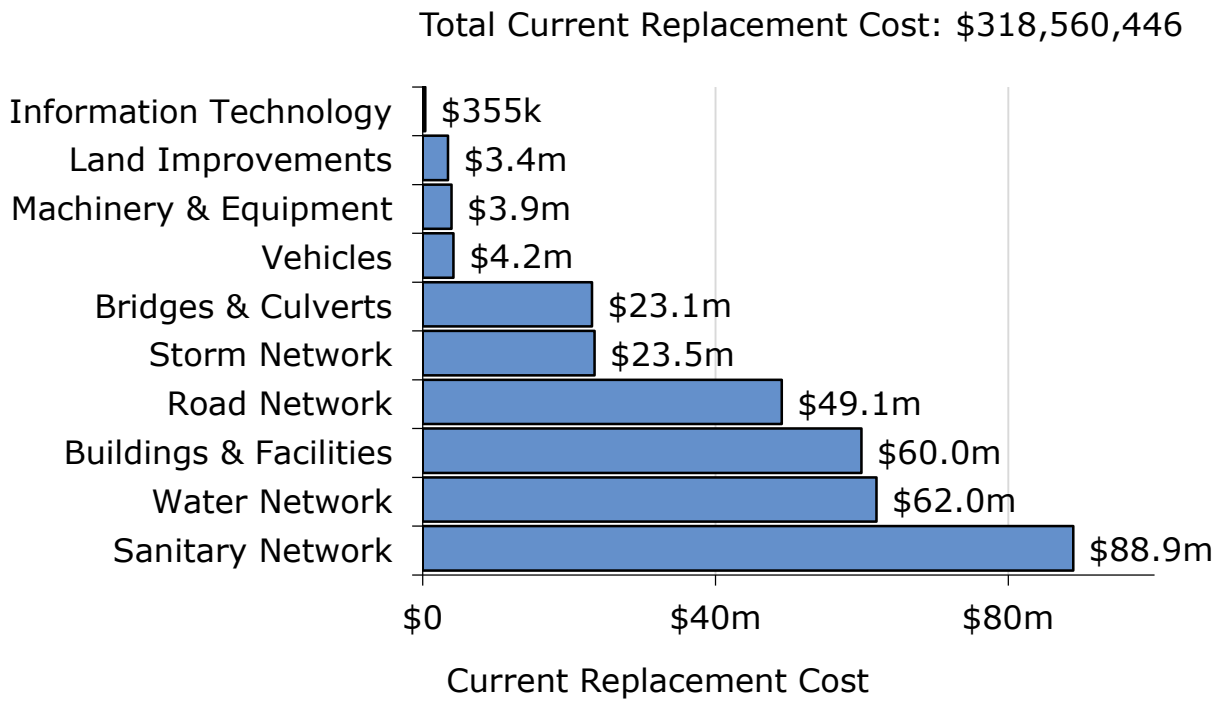
# 3 Portfolio Overview

## Key Insights

- The total replacement cost of the Township's asset portfolio is $318.6 million
- The Township's target re-investment rate is 2.3%, and the actual re-investment rate is 1.2%, contributing to an expanding infrastructure deficit
- 80% of all assets are in fair or better condition
- 18% of assets are projected to require replacement in the next 10 years
- Average annual capital requirements total $7.2 million per year across all assets

# 3.1 Total Replacement Cost of Asset Portfolio

The asset categories analysed in this AMP have a total replacement cost of $318.6 million based on inventory data from 2023. 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.

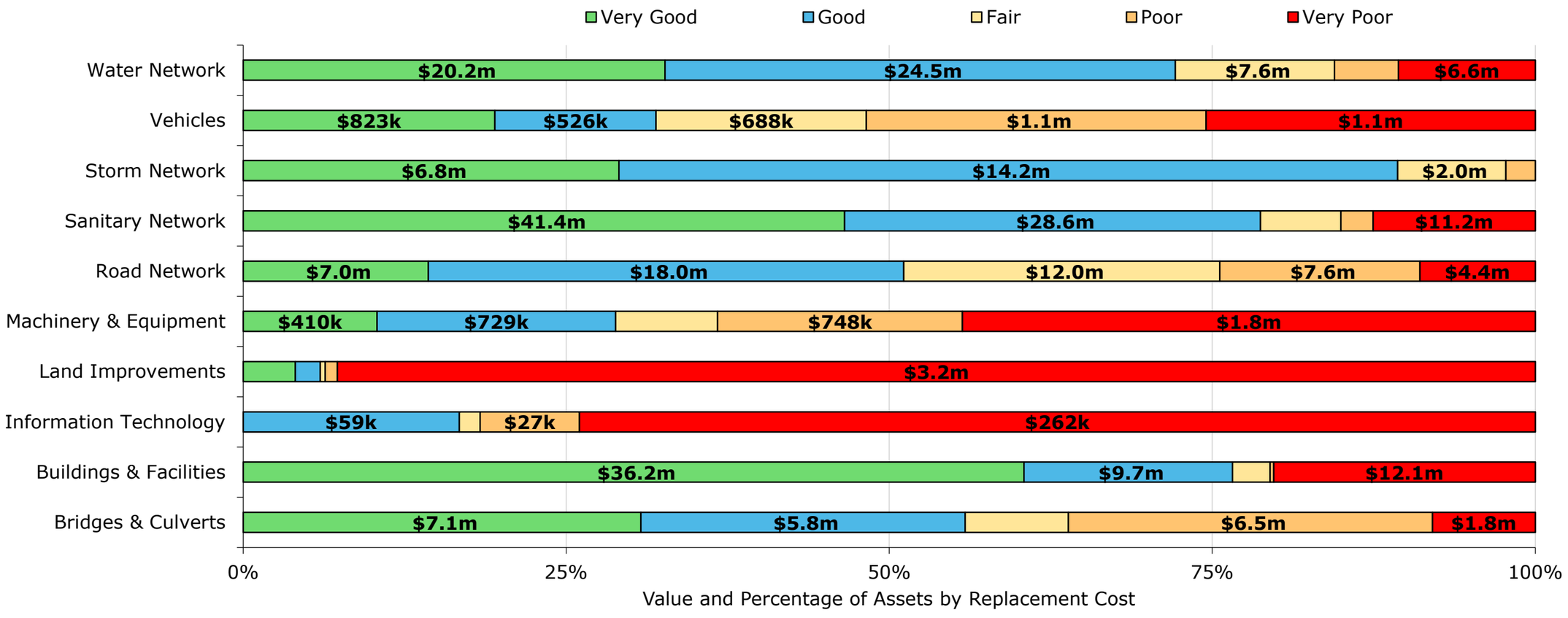



# 3.2 Target vs. Actual Reinvestment Rate

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 $7.2 million annually, for a target reinvestment rate of 2.3%. Actual annual spending on infrastructure totals approximately $5.9 million, for an actual reinvestment rate of 1.2%.

# 3.3 Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 65% of assets in North Huron 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 81% of assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

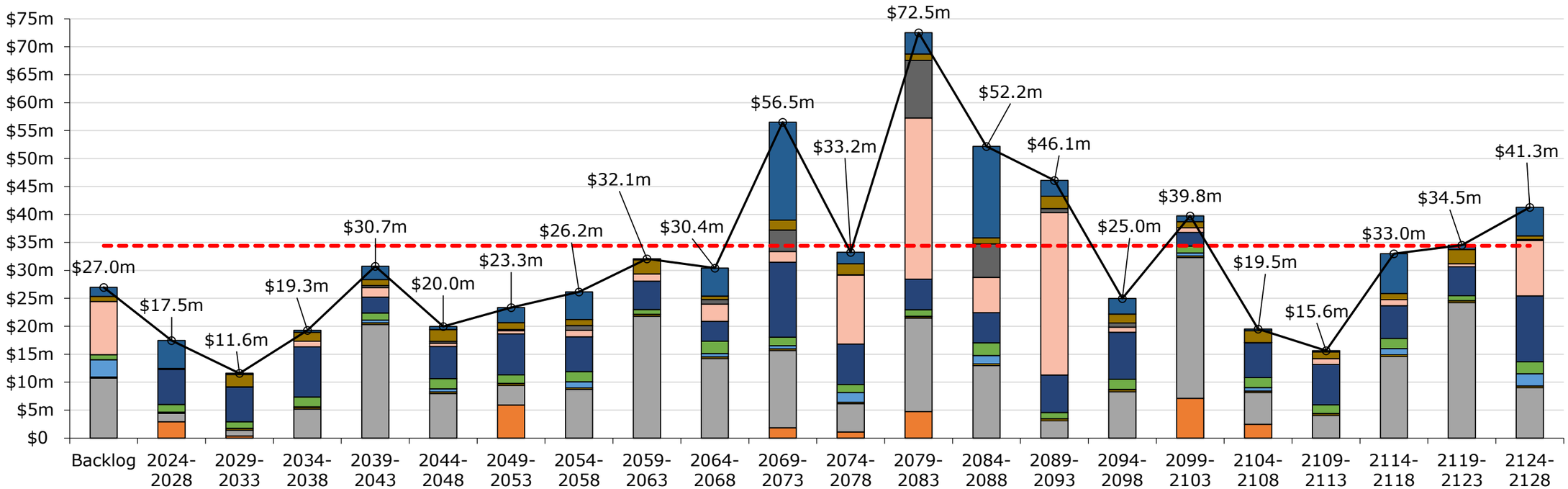
| Asset Category | Asset Segment | % of Assets with Assessed Condition | Source of Condition Data |
|---|---|---|---|
| Road Network | All | 90% | 2021 Streetscan Canada, 2016 Road Needs Study, & Staff Assessments |
| Bridges & Culverts | All | 100% | 2022 OSIM Report & Staff Assessment |
| Storm Network | All | 78% | Staff Assessments |
| Buildings & Facilities | All | 78% | Staff Assessments & 2023 B.M Ross & 2020 Capital Mangement Eng. |
| Machinery & Equipment | All | 0% | N/A |
| Information Technology | All | 0% | N/A |
| Vehicles | All | 4% | N/A |
| Land Improvements | | 1% | N/A |
| Water Network | All | 80% | 2013 Don Nicholson |
| Sanitary Network | Facilities & Mains | 84% | 2013 Don Nicholson & 2020 Capital Management Eng. |

## 3.4 Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 16% of the Township's assets will require replacement within the next 10 years. Capital requirements over the next 10 years are identified in Appendix A.

## 3.5 Forecasted Capital Requirements

The development of a long-term capital forecast should include both asset rehabilitation and replacement requirements. With the development of asset-specific lifecycle strategies that include the timing and cost of future capital events, the Township can produce an accurate long-term capital forecast. The following graph identifies capital requirements over the next 100 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 Tax-funded Assets

## Key Insights

- Tax-funded assets are valued at $167.6 million
- 75% of tax-funded assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for tax-funded assets is approximately $5.0 million
- Critical assets should be evaluated to determine appropriate risk mitigation activities and treatment options

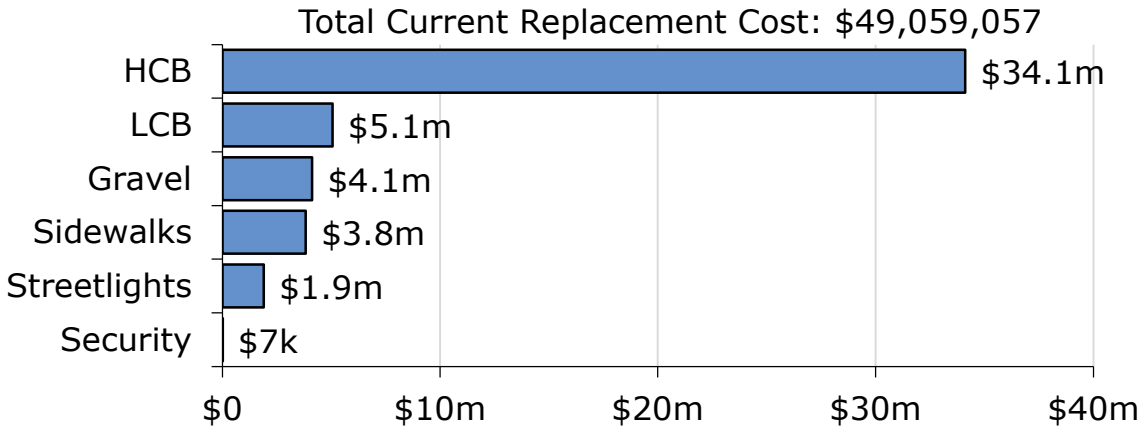
# 4.1 Road Network

The road network is a critical component for the provision of safe and efficient transportation services. It includes all municipally owned and maintained roadways in addition to supporting roadside infrastructure including sidewalks and streetlights.

## 4.1.1 Asset Inventory & Costs

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

| Asset Segment | Quantity | Replacement Cost | Annual Capital Requirement |
|---|---|---|---|
| Gravel | 120,252 m | $4,125,000 | $0 |
| HCB | 48,486 m | $34,119,000 | $995,000 |
| LCB | 11,268 m | $5,071,000 | $138,000 |
| Security | 1 (asset) | $7,000 | $2,000 |
| Sidewalks | 33,235 m | $3,835,000 | $66,000 |
| Streetlights | 613 (assets) | $1,903,000 | $97,000 |
| | **Total** | **$49,060,000** | **$1,298,000** |




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 & Age

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

| Asset Segment | Estimated Useful Life (Years) | Average Age (Years) | Average Condition |
|---|---|---|---|
| HCB | 25 Years | 46.6 | Fair (53%) |
| LCB | 10 Years | 3 | Fair (50%) |
| Security | 4 Years | 2 | Fair (48%) |
| Sidewalks | 60 Years | 34.5 | Good (79%) |
| Streetlights | 5-20 Years | 7.1 | Fair (50%) |
| | **Average** | **38.5** | **Fair (55%)** |

## Current Approach to Condition Assessment

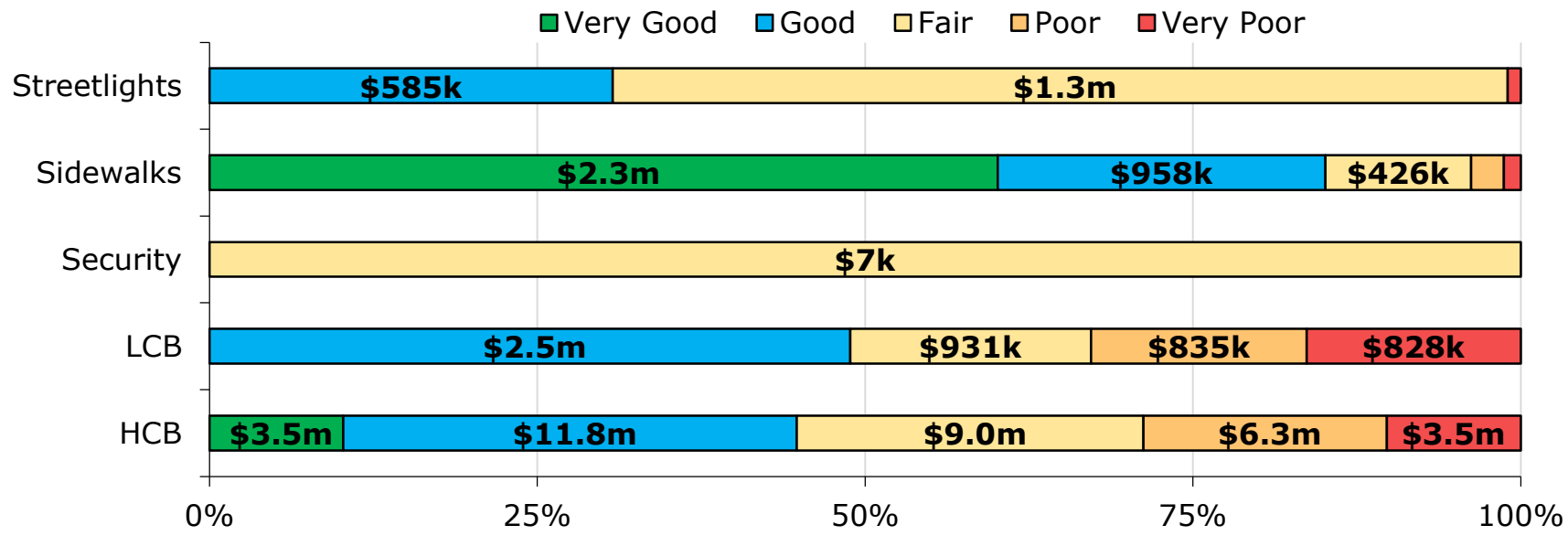
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township's current approach:

- A Road Needs Study was completed in 2016 by external contractors that included a detailed assessment of the condition of each road segment
- A street scan was completed in 2021 and the data has been uploaded into the municipalities asset management system
- Staff assessments are completed based on Ontario Maintenance Standards
- In the future staff aim to perform Road Needs Studies internally

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

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

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




Value and Percentage of Assets by Replacement Cost

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

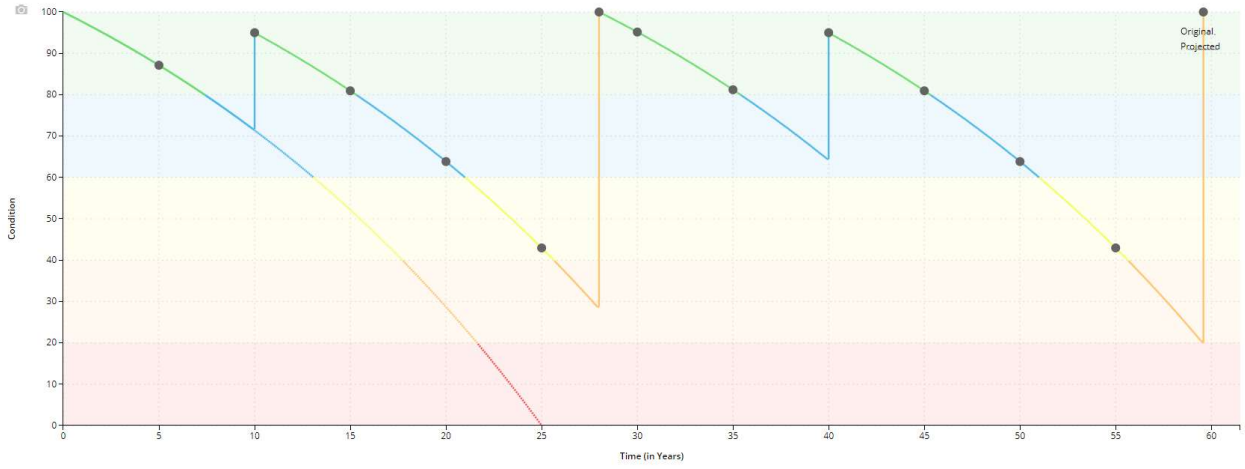
Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

## 4.1.3 Lifecycle Management Strategy

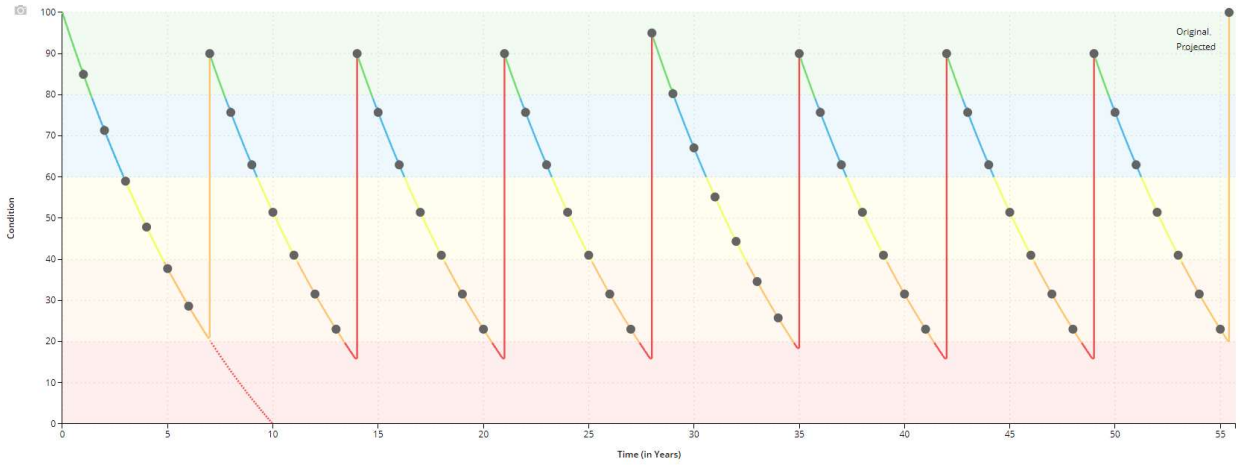
The condition or performance of most road network assets will deteriorate over time. This process is affected by a range of factors including the asset's characteristics, location, utilization, maintenance history and environment.

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

| Paved Roads (HCB) | | |
|---|---|---|
| **Event Name** | **Event Class** | **Event Trigger** |
| Crack Sealing | Maintenance | 5 Years (Repeated) |
| Single Lift 1 | Rehabilitation | 10 Years |
| Double Lift | Rehabilitation | 28 Years |
| Single Lift 2 | Rehabilitation | 40 Years |
| Full Reconstruction | Replacement | Condition |



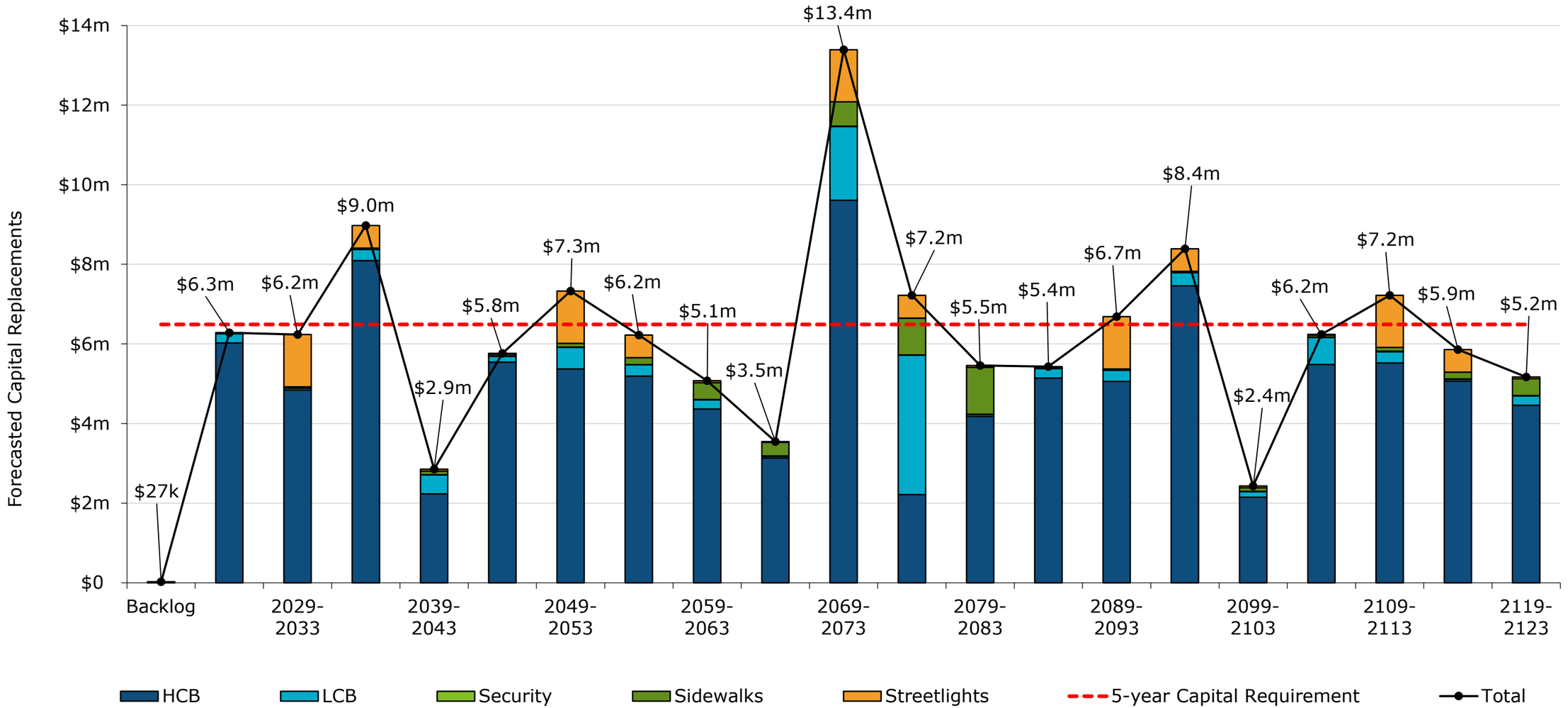
| Paved Roads (LCB) | | |
|---|---|---|
| **Event Name** | **Event Class** | **Event Trigger** |
| Patching | Maintenance | 1 Year (Repeated) |
| Pulverizing and Repaving | Rehabilitation | 28 Years |
| Single Surface Treatment – 1st Cycle | Rehabilitation | 7 Years (Repeated) |
| Single Surface Treatment – 2nd Cycle – 1st Application | Rehabilitation | 35 Years |
| Single Surface Treatment – 2nd Cycle – 2nd Application | Rehabilitation | 42 Years |
| Single Surface Treatment – 2nd Cycle – 3rd Application | Rehabilitation | 49 Years |
| Full Reconstruction | Replacement | Condition |



## Forecasted Capital Requirements

Based on the lifecycle strategies identified previously for HCB and LCB roads, and assuming the end-of-life replacement of all other assets in this category, the following graph forecasts capital requirements for the road network.

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 100 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.

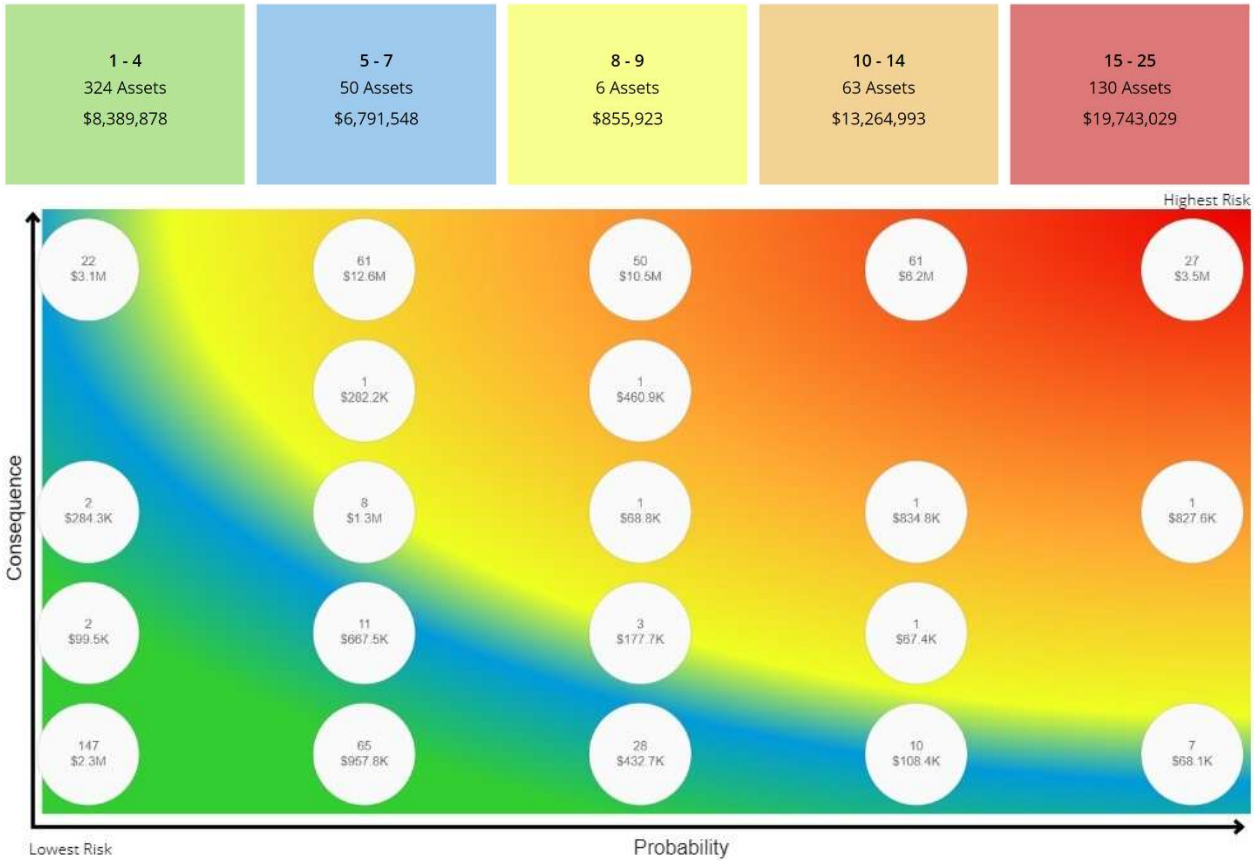



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.1.4 Risk & Criticality

## Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. Appendix C states the criteria used to determine the risk rating of each asset.




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

The identification of critical assets allows staff 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:

**Climate Change**
As severe weather events become more frequent and intense, increased strain will be placed on the Township's road network. Irregular freeze-thaw cycles will also speed up asphalt and concrete deterioration.

**Lifecyle Management Strategies**
There is some concern that the lack of defined lifecycle management strategy for roads in the past resulted in the inadequate maintenance of road pavement structures. Staff are working on the development of a suitable lifecycle management strategy for roads that accounts for their current condition and how they have been historically maintained.

**Organizational Cognizance/Capacity**
There is presently not enough staff capacity to manage capital projects relating to the road network. Due to staffing constraints, the Township is not able to engage in proactive management of the road network assets.

**Financial Reinvestment**
The current level of financial reinvestment does not sufficiently address maintenance and capital rehabilitation requirements to ensure roads remain in an adequate state of repair and achieve their intended service life. The financial strategy in this report addresses the extent of this underfunding.

# 4.1.5 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.

| Service Attribute | Qualitative Description | Current LOS (2023) |
|---|---|---|
| Scope | Description, which may include maps, of the road network in the Township and its level of connectivity | See Appendix B |
| Safe & Regulatory | Description of minimum maintenance standards for road network (road surfaces and sidewalks) | The Township maintains its road network according to the Ontario Minimum Maintenance Standards |
| Quality | Description or images that illustrate the different levels of asphalt road pavement condition | The Township completed a Road Needs Study in 2016 and a StreetScan in 2021. Every road section received a Pavement Condition Index (PCI) from 0-100.<br><br>(0-60) Road surface exhibits moderate to significant deterioration (49% of roads have a PCI within 20-59)<br><br>(60-100) Road surface is in good condition or has been recently re-surfaced (51% of roads have a PCI within 61-100) |

## Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2023) |
|---|---|---|
| Scope | Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km$^2$) | N/A |
| | Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km$^2$) | N/A |
| | Lane-km of local roads (MMS classes 5 and 6) per land area (km/km$^2$) | 969 |
| Quality | % of sidewalks inspected | 98% |
| | % of road network inspected | 93% |
| | Average pavement condition index for paved roads in the Township | HCB: 53%<br>LCB: 50% |
| | Average surface condition for unpaved roads in the Township (e.g. excellent, good, fair, poor) | Good |
| Performance | Capital reinvestment rate | 2% |

## 4.1.6 Recommendations

### Asset Inventory

- Review road network 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.

### Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This includes the regular review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk frameworks 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 provide meaningful and reliable inputs into asset management planning.
- Work towards identifying obtainable 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.

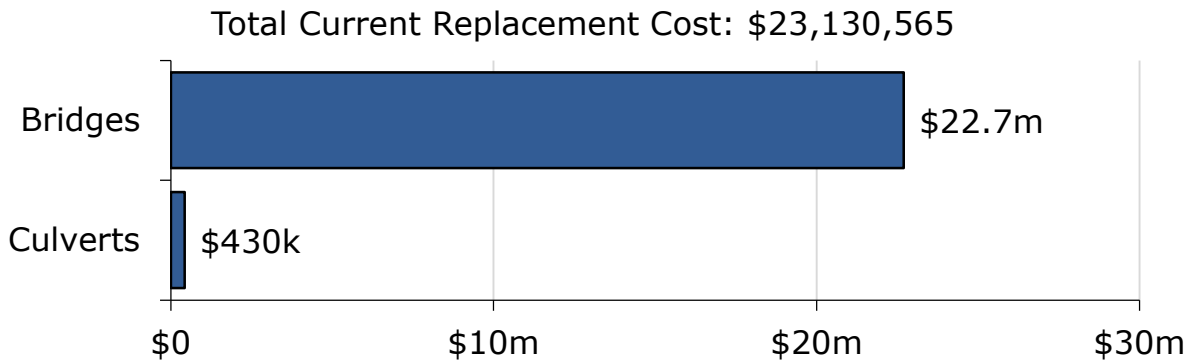
# 4.2 Bridges & Culverts

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

## 4.2.1 Asset Inventory & Costs

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

| Asset Segment | Quantity | Replacement Cost | Annual Capital Requirement |
|---|---|---|---|
| Bridges | 12 | $22,701,000 | $284,000 |
| Culverts | 1 | $430,000 | $5,000 |
| **Total** | **12** | **$23,131,000** | **$289,000** |




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

## 4.2.2 Asset Condition & Age

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

| Asset Segment | Estimated Useful Life (Years) | Average Age (Years) | Average Condition |
|---|---|---|---|
| Bridges | 80-96 Years | 59.4 | Good (61%) |
| Culverts | 80 Years | 132 | Good (73%) |
| **Average** | | **65** | **Good (61%)** |

## Current Approach to Condition Assessment

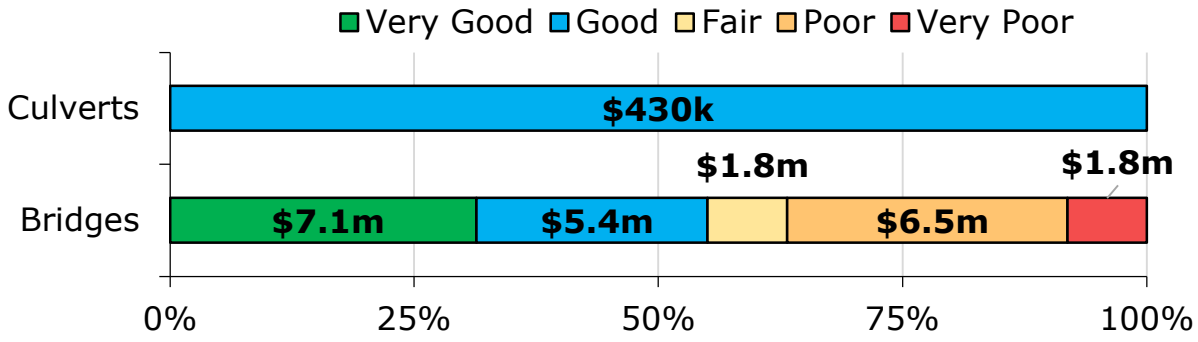
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township's current approach:

- 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)

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

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

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




Value and Percentage of Assets by Replacement Cost

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

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

### 4.2.3 Lifecycle Management Strategy

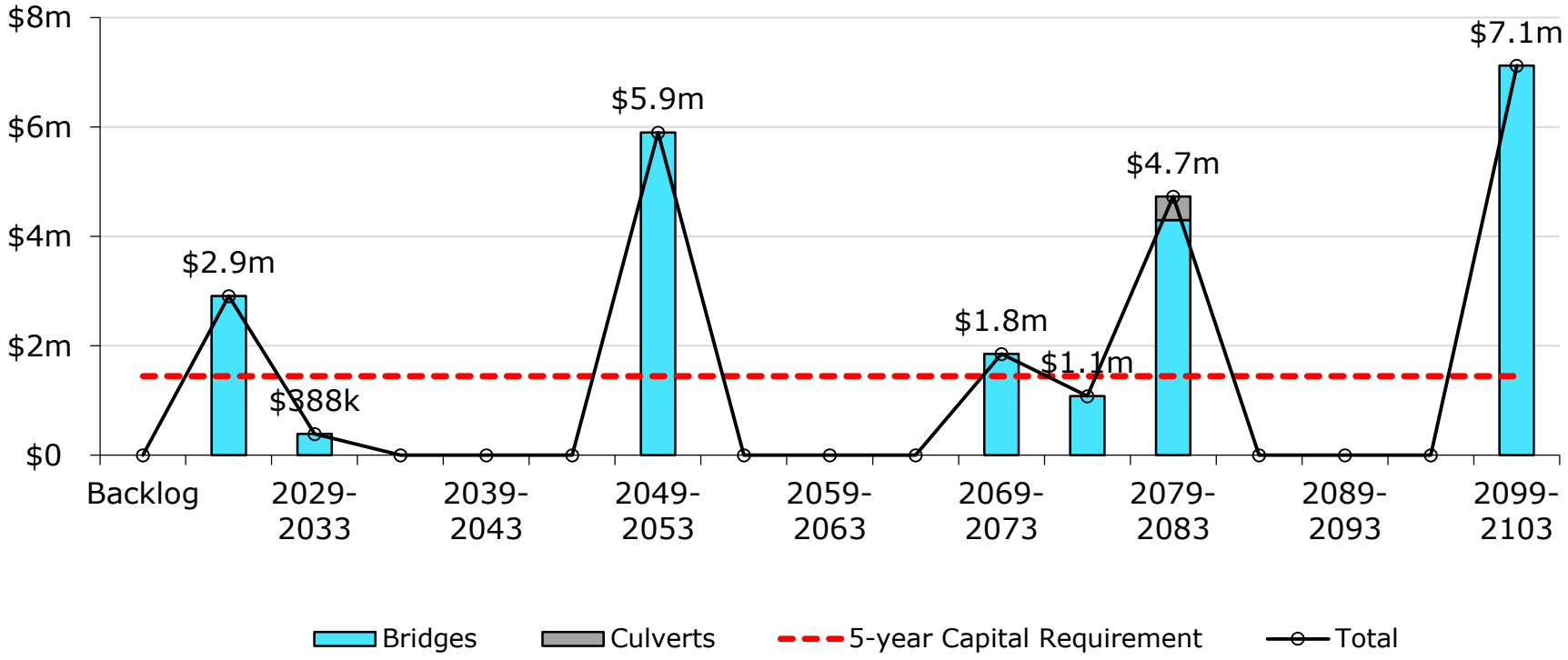
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the 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) |
| Inspection | The most recent inspection report was completed in 2022 by BM Ross and internal staff. |

## 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.



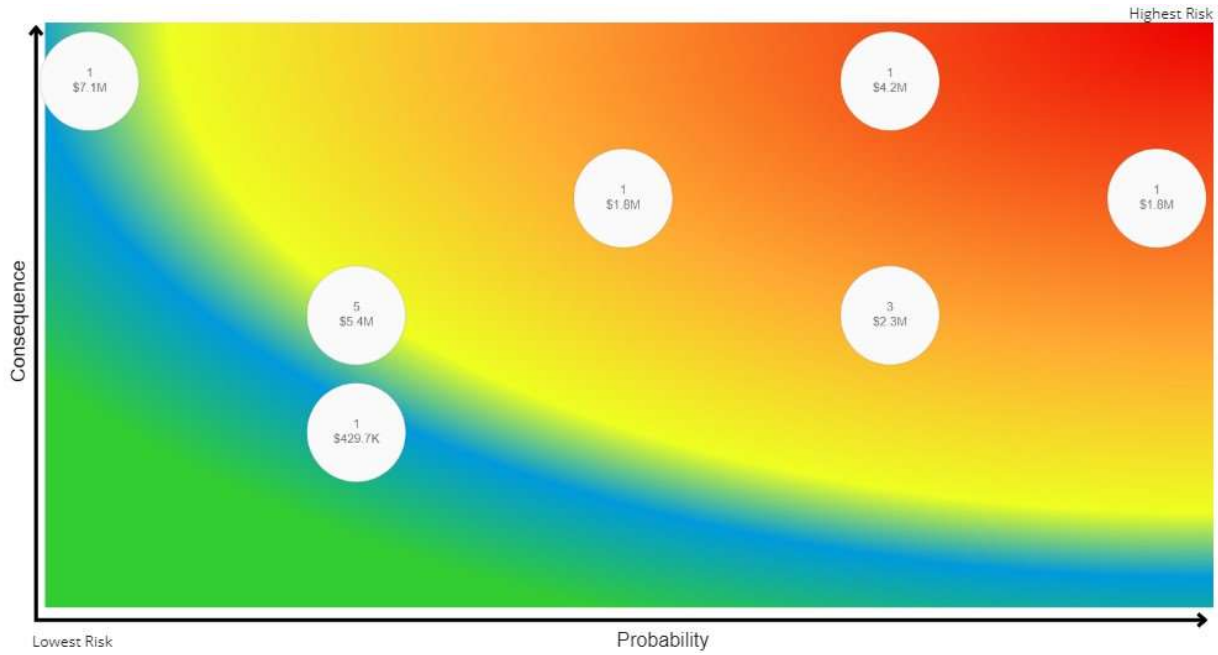

The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.2.4 Risk & Criticality

## Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. Appendix C states the criteria used to determine the risk rating of each asset.

| 1 - 4 | 5 - 7 | 8 - 9 | 10 - 14 | 15 - 25 |
|---|---|---|---|---|
| 1 Asset | 6 Assets | 0 Assets | 4 Assets | 2 Assets |
| $429,743 | $12,496,207 | $0 | $4,176,168 | $6,028,447 |




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

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:

**Environmental & Climate Change**
The Township's bridges and culverts are experiencing significant erosion due to increased rainfall amounts and freeze-thaw events. This is causing the assets to deteriorate much quicker, resulting in more frequent rehabilitation and replacement of the Township's bridges and culverts. As the effects of climate change become more pervasive, these effects are expected to increase.

**Capital Funding Strategies**
The current level of investment in infrastructure is not sufficient to meet lifecycle requirements and maintain a good state of repair. There is currently no budget set aside to address rehabilitation and replacement needs for the Township's bridges and culverts.

# 4.2.5 Levels of Service

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

| Service Attribute | Qualitative Description | Current LOS (2023) |
|---|---|---|
| Scope | Description of the traffic that is supported by municipal bridges and culverts (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists) | Bridges and culverts are a key component of the municipal transportation network. The traffic that is supported by the Township's bridges and culverts includes motor vehicles, emergency vehicles, pedestrians and cyclists |
| Safe & Regulatory | Compliant of the OSIM inspection process | OSIM inspections are completed every two years according to the regulations. The inspections are performed by an external contractor |
| Quality | Description or images of the condition of bridges and culverts and how this would affect use of the bridges and culverts | See Appendix B |

## Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2023) |
|---|---|---|
| Scope | % of bridges in the Township with loading or dimensional restrictions | 0% |
| Quality | Average bridge condition index value for bridges in the Township | 62% |
| | % of bridges inspected every two years | 100% |
| Performance | Capital re-investment rate | 0.10% |

# 4.2.6 Recommendations

## Data Review/Validation

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

## Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This will 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 identifying projected capital rehabilitation and renewal costs for bridges and bridges and integrating these costs into long-term planning.

## Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17 and those metrics that Township staff 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.

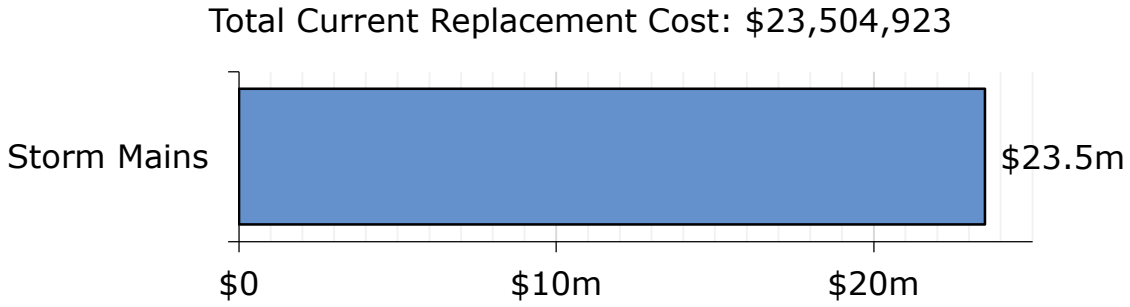
# 4.3 Storm Network

The Township owns and maintains a storm network of approximately 20km of storm mains.

## 4.3.1 Asset Inventory & Costs

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

| Asset Segment | Quantity | Replacement Cost | Annual Capital Requirement |
|---|---|---|---|
| Storm Mains | 20,227 m | $23,505,000 | $318,000 |
| **Total** | | **$23,505,000** | **$318,000** |




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

## 4.3.2 Asset Condition & Age

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

| Asset Segment | Estimated Useful Life (Years) | Average Age (Years) | Average Condition |
|---|---|---|---|
| Storm Mains | 50-86 Years | 32.2 | Good (74%) |
| **Average** | | **32.2** | **Good (74%)** |

## Current Approach to Condition Assessment

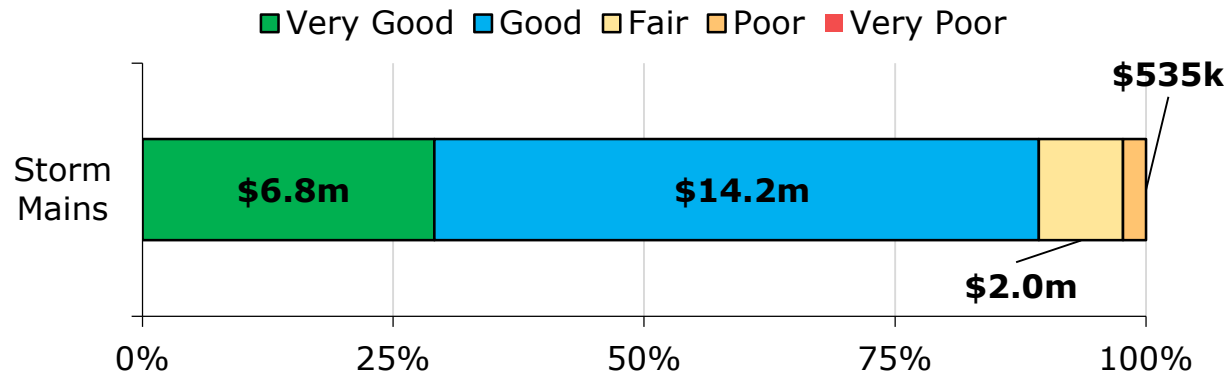
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township's current approach:

- No formal regular inspection program is in place for the Township's storm network
- CCTV inspections of storm sewers are completed before large capital road reconstructions

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

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

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




Value and Percentage of Assets by Replacement Cost

To ensure that the Township's storm 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 will re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the storm network.

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

### 4.3.3 Lifecycle Management Strategy

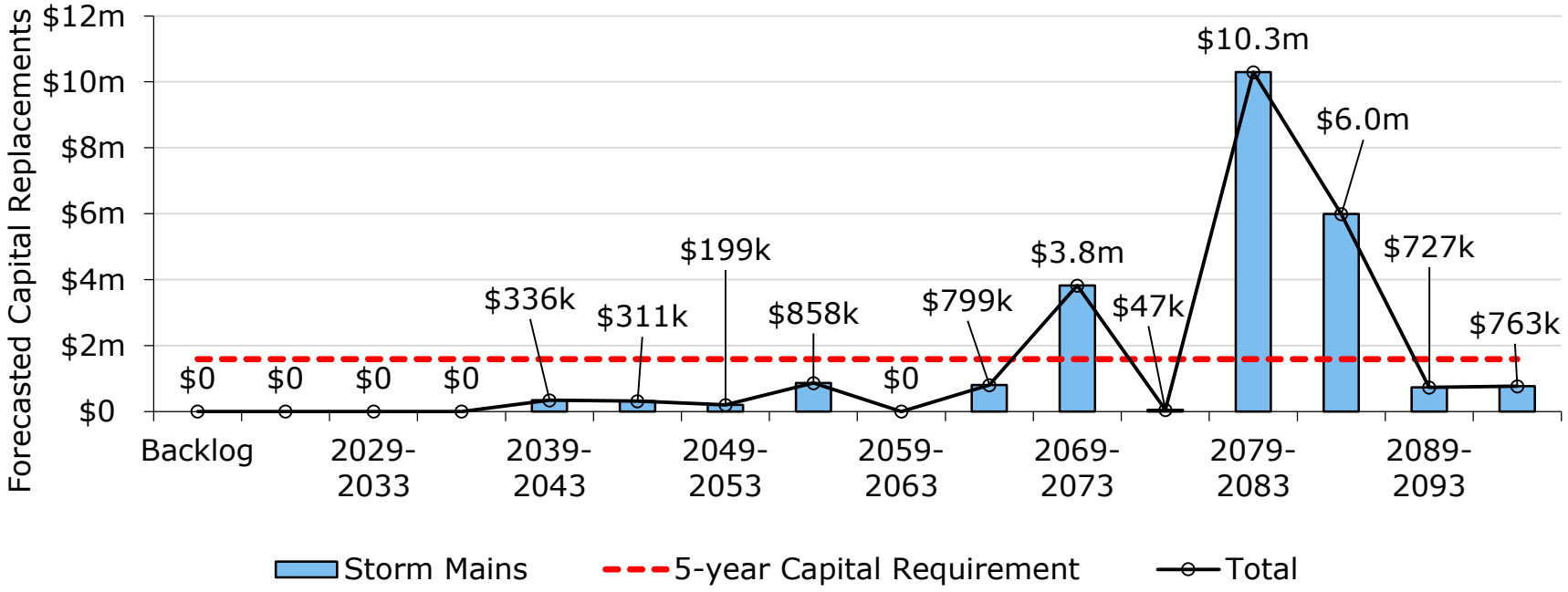
The condition or performance of most assets will deteriorate over time. To ensure that municipal storm assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance | Catch basin cleaning is completed yearly. Flushing occurs on an ad-hoc basis. |
| Rehabilitation | No formal rehabilitation program is in place for the storm network |
| Replacement | Replacement of the storm network is completed in alignment with water and sanitary renewals |

## 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.

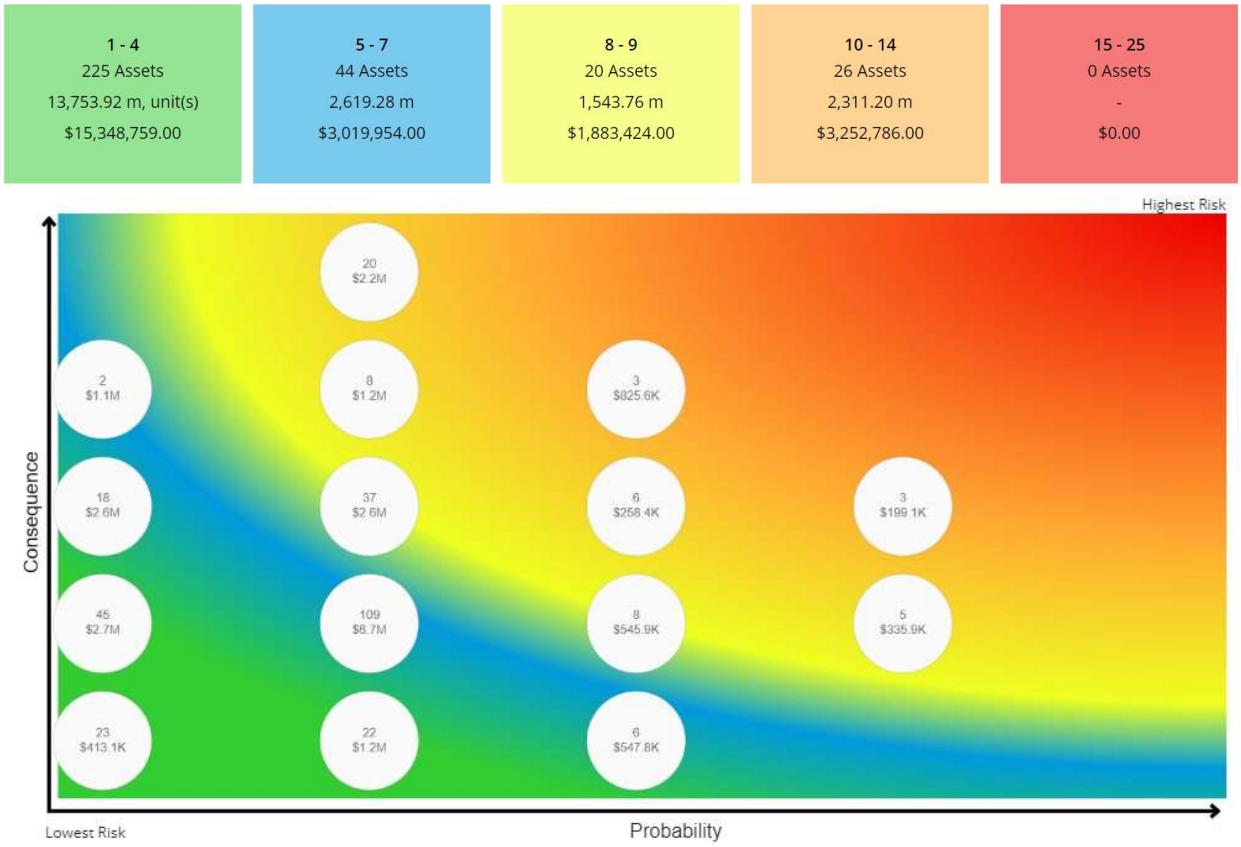



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.3.4 Risk & Criticality

## Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. Appendix C states the criteria used to determine the risk rating of each asset.




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

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:

**Climate Change & Extreme Events**
Increased storm intensity and extreme weather events resulting from climate change have created additional strain on the Municipality's storm network.

**Asset Data Confidence**
Township staff have very little confidence in the asset data available for the storm network. A lack of data and confidence in that data provides challenges to the Township’s asset management planning.

**Infrastructure Design**
Most of the material that has been used for the storm network does not have a long estimated useful life. This results in more frequent renewal and replacement required of the Township’s storm mains.

# 4.3.5 Levels of Service

The following tables identify the Township’s current level of service for the storm 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 storm network.

| Service Attribute | Qualitative Description | Current LOS (2023) |
|---|---|---|
| Scope | Description and a map, of the Township's storm network, flood plain mapping of the Township, including the extent of protection provided by the municipal storm system | See Appendix B |
| Safe & Regulatory | Description of the level of storm intensity that the municipal stormwater network is designed to handle (e.g. 1 in 5-year storm). | Most of the system is designed to handle 1 in 5-year to 1 in 25-year storms. However, most of the system is not capable of handling a 1 in 100-year storm. |
| Quality | Description of the current condition of the stormwater network and the plans that are in place to maintain or improve the provided level of service | A Lidar Scan was completed by the municipality 7 years ago to assess the condition of the stormwater network. Overall, the storm network in the Township is in good condition. |

## Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2023) |
|---|---|---|
| Scope | % of properties in Township resilient to a 100-year storm | Approximately 25% |
| | % of the municipal storm management system resilient to a 5-year storm | Less than 5% |
| | % of storm main flushed/cleaned per year | To Be Determined |
| Performance | % of the storm network that is in good or very good condition | 89% |
| | % of the storm network that is in poor or very poor condition | 2% |
| | Capital reinvestment rate | 0% |

## 4.3.6 Recommendations

### Asset Inventory

- The Township's storm 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 storm network should be a future priority.

### Condition Assessment Strategies

- The development of a comprehensive inventory will be accompanied by a system-wide assessment of the condition of all assets in the storm network through CCTV inspections.

### Risk Management Strategies

- The Municipality plans to implement risk-based decision-making as part of asset management planning and budgeting processes. This will 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 storm network on a regular basis to achieve the lowest total cost of ownership while maintaining adequate service levels.

## Levels of Service

- Continue to measure current levels of service in accordance with the metrics that the 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 Buildings & Facilities

The Township of North Huron owns and maintains several buildings and facilities that provide key services to the community. These include:

- Community centers
- Public libraries
- Fire halls
- Public works and transportation services buildings
- A Town Hall and Theatre

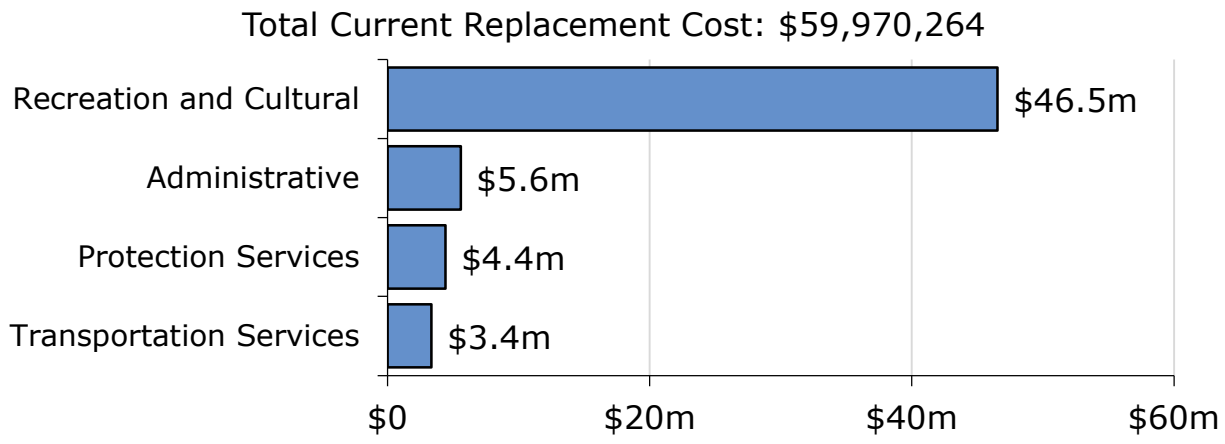
## 4.4.1 Asset Inventory & Costs

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

| Asset Segment | Quantity | Replacement Cost | Annual Capital Requirement |
|---|---|---|---|
| Administrative | 17 | $5,658,500 | $196,400 |
| Protection Services | 39 | $4,439,000 | $156,000 |
| Recreation and Cultural | 125 | $46,548,000 | $1,873,000 |
| Transportation Services | 21 | $3,378,000 | $100,000 |
| **Total** | | **$59,970,000** | **$2,325,000** |

A further breakdown of the above asset segments and the subclasses that comprise them, is included below.

| Asset Segment | Facility Names |
|---|---|
| Administrative | Town Hall and Theatre |
| | Wingham Records Storage |
| | Cemetery Buildings |
| | Landfill Office |
| Protection Services | Wingham Fire Hall |
| | Blyth Firehall |
| Recreation and Cultural | North Huron Wescast Community Centre |
| | Belgrave Arena |
| | Blyth Community Centre |
| | Blyth Memorial Hall |
| | Blyth Campground |
| | Wingham Library |
| | North Huron Museum |
| | North Huron Children's Centre |
| | Parks Buildings |
| Transportation Services | Wingham Public Works Shop |
| | Blyth Public Works shop |
| | East Wawanosh Public Works Shop |



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 & Age

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

| Asset Segment | Estimated Useful Life (Years) | Average Age (Years) | Average Condition |
|---|---|---|---|
| Administration | 5-130 Years | 54 | Good (76%) |
| Protection Services | 15-100 Years | 4.4 | Very Good (86%) |
| Recreation and Cultural | 5-149 Years | 28.9 | Good (64%) |
| Transportation Services | 20-70 Years | 49.2 | Fair (53%) |
| **Average** | | **28.3** | **Good (66%)** |

### Current Approach to Condition Assessment

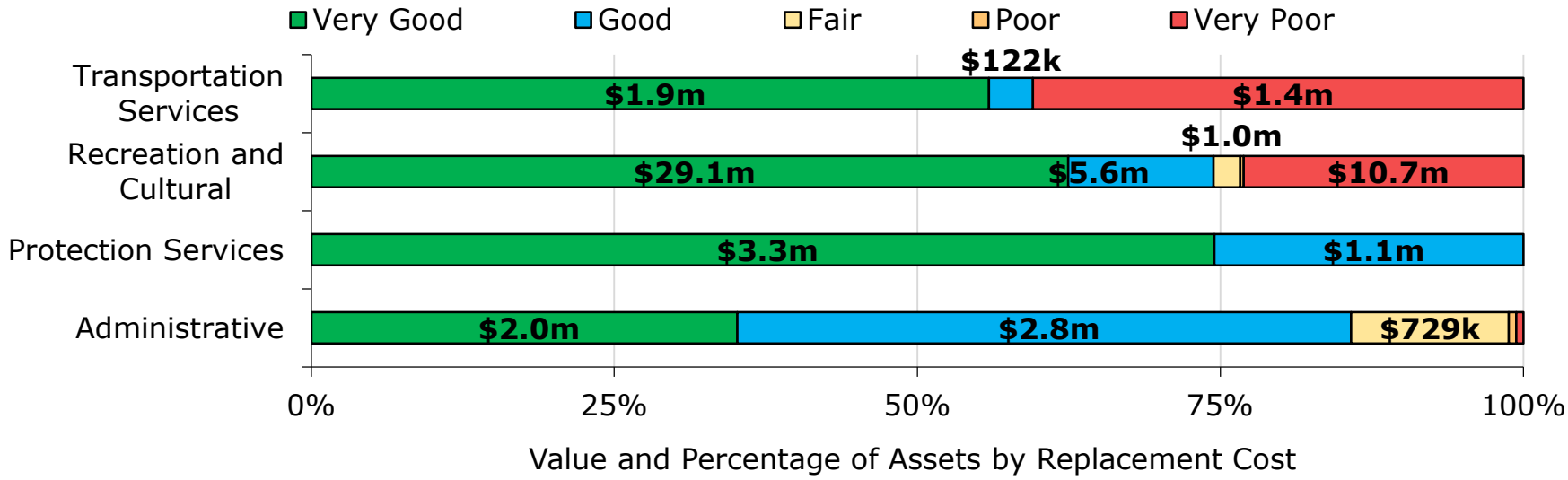
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township's current approach:

- A Building Condition Assessment (BCA) was completed in 2021 by B.M Ross and 2020 by Capital Management Engineering for the most frequently used buildings in the Township.
- Asbestos audits and building audits were completed 9 years ago by external contractors. Blyth district community center and North Huron Wescast community complex received condition assessments 4 years ago.
- Health and safety walkthroughs are performed monthly by internal staff

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

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

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 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 buildings.

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

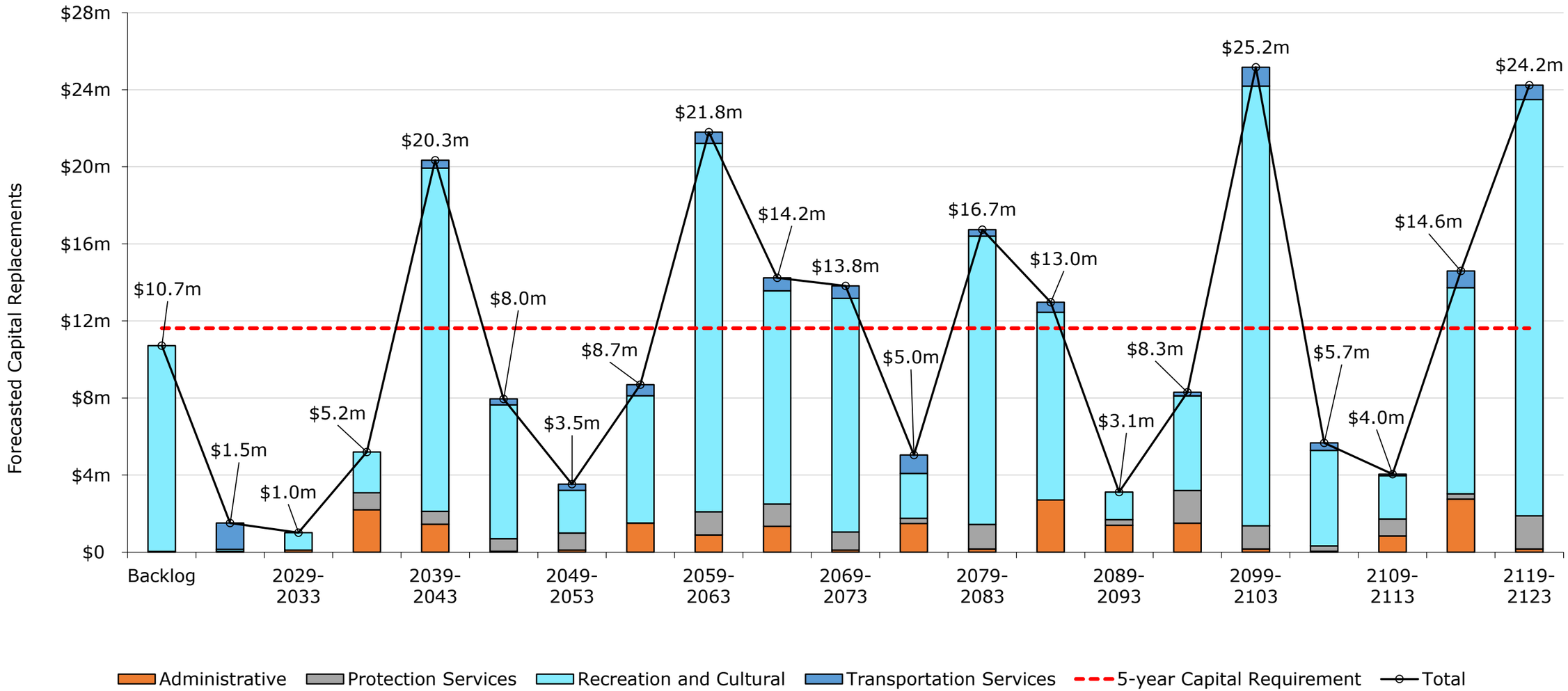
### 4.4.3 Lifecycle Management Strategy

The condition or performance of municipal facilities will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of the Township, 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 regular inspections to identify health & safety requirements as well as structural deficiencies that require additional attention |
| | External contractors competes inspection and maintenance on the HVAC systems bi-annually |
| Replacement | The Township reviews the repair costs for buildings, and if the repair costs are significant, the facility or component will be replaced |
| | Service life remaining is also considered when determining which assets are eligible for replacement |

## 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 100 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.

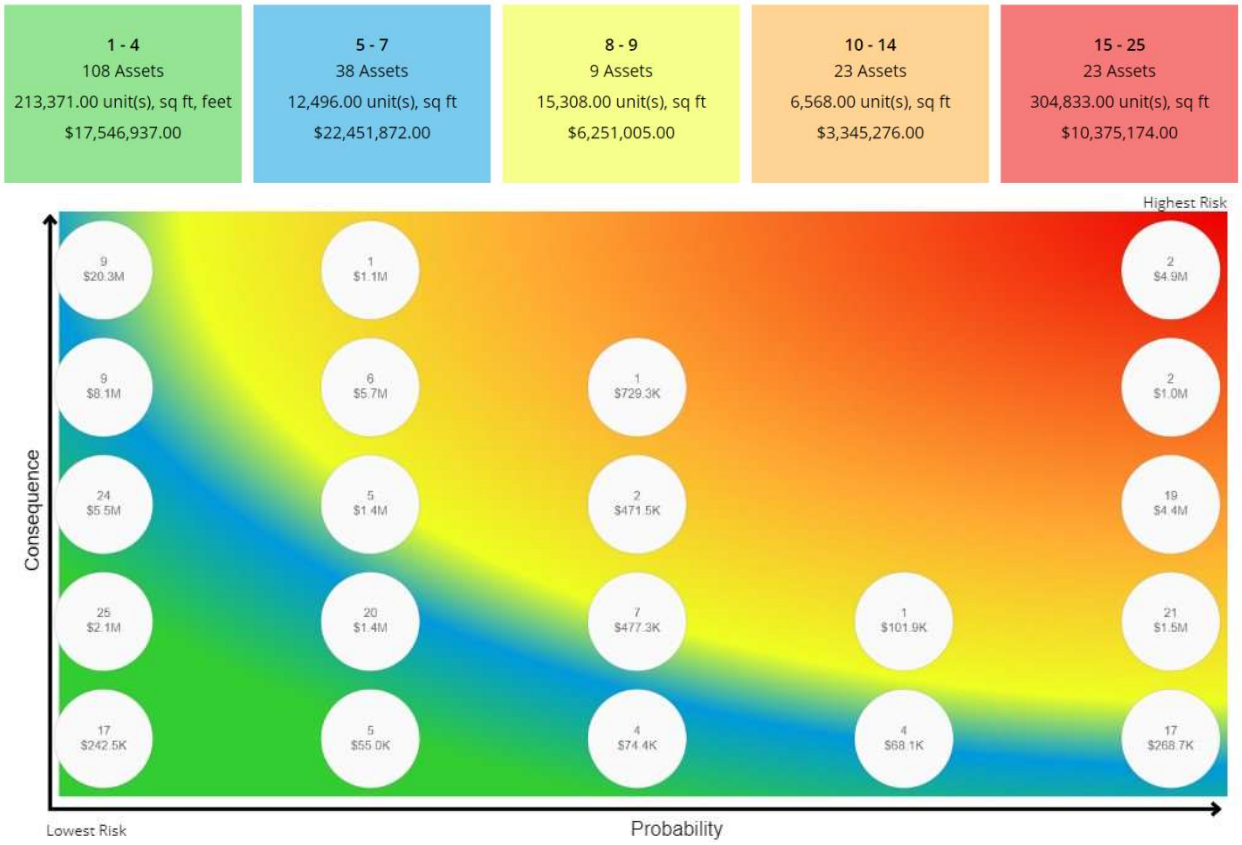



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.4.4 Risk & Criticality

## Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. Appendix C shows the criteria used to determine the risk rating of each asset.




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

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**
No regular inspections are performed on the Township's buildings, resulting in low confidence in the data available. This has impacted the ability to support asset management planning

**Capital Funding Strategies**
The Township has recently been dependent on funding from both the provincial and federal government for capital projects. Staff are always looking for other funding opportunities as the Township is heavily reliant on funding opportunities, and having these funds available is a risk. The recent hike in construction costs has also affected the ability to invest in reconstruction.

**Growth**
Staff in the Township are outgrowing the Town Hall building. Renovations or replacement will be required in order to accommodate the growing number of Township staff.

# 4.4.5 Levels of Service

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

| Service Attribute | Qualitative Description | Current LOS (2023) |
|---|---|---|
| Scope | Description of the current condition of municipal facilities and the plans that are in place to maintain or improve the provided level of service | A Building Condition Assessment (BCA) was completed in 2020 for the most frequently used buildings |
| Quality | Description of initiatives that aim to make facilities more accessible | Staff are aiming to complete an accessibility audit for facility assets. The County's accessibility community identified a few steps prior to the Covid-19 outbreak, staff are working towards addressing these issues. The programs offered are suitable for most demographics. However, financial barriers may be preventing some services offered. |
| Safe and Accessible | Ensuring that all municipal spaces are compliant and accessible to all users | Accessibility upgrades are planned for municipal facilities, but they are largely dependent on grant funding to occur. |

## Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2023) |
|---|---|---|
| Scope | # of buildings that are energy efficient | 1 |
| Performance | % of the buildings in good or very good condition | 77% |
| | % of the buildings in poor or very poor condition | 21% |
| | Average Risk Rating associated with buildings | 7.82 - Low |
| | Capital reinvestment rate | 0% |

## 4.4.6 Recommendations

### Asset Inventory

- The Township should incorporate Building Condition Assessment results into the Citywide software system BCAs more frequently in their facility maintenance plans.
- The Township staff are continuing to work towards further breaking down and componentizing their buildings inventory to ensure a comprehensive buildings inventory is documented in their asset database. All new buildings are being componentized, and staff are working to upload these components in Citywide and componentize older facilities.

### Replacement Costs

- Gather accurate replacement costs and update regularly to ensure the accuracy of capital projections.

### Condition Assessment Strategies

- The Township should implement regular condition assessments for all facilities to better inform short- and long-term capital requirements.

### Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular review of high-risk assets to determine appropriate risk mitigation strategies.

- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

## Levels of Service

- Begin 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.

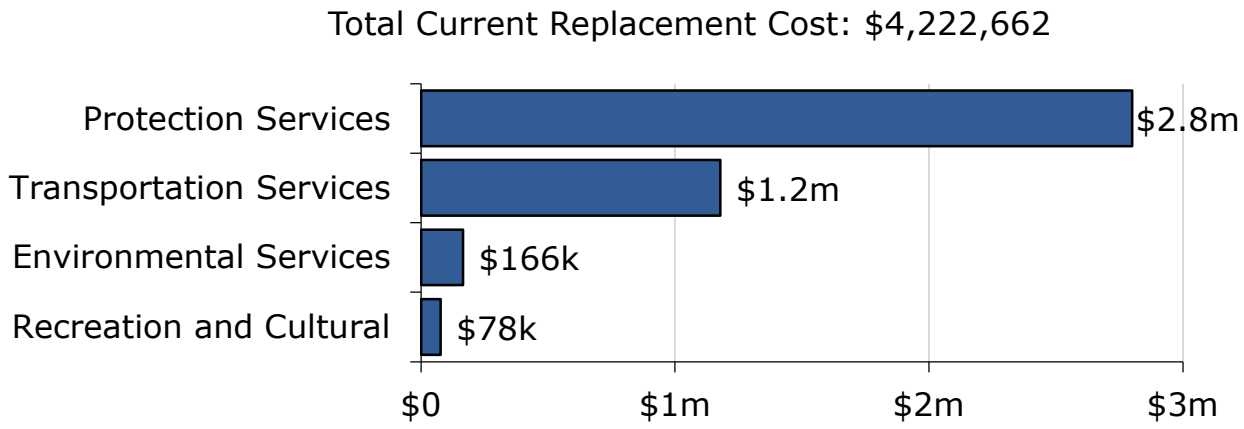
# 4.5 Vehicles

Vehicles allow staff to efficiently deliver municipal services and personnel. Municipal vehicles are used to support several service areas, including protection services, transportation services, environmental services, and recreation and cultural services.

## 4.5.1 Asset Inventory & Costs

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 | Annual Capital Requirement |
|---|---|---|---|
| Environmental Services | 1 | $166,000 | $11,000 |
| Protection Services | 9 | $2,800,000 | $178,000 |
| Recreation and Cultural | 2 | $78,000 | $7,000 |
| Transportation Services | 15 | $1,179,000 | $112,000 |
| | | **$4,223,000** | **$307,000** |




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 & Age

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

| Asset Segment | Estimated Useful Life (Years) | Average Age (Years) | Average Condition |
|---|---|---|---|
| Environmental Services | 15 Years | 9 | Poor (39%) |
| Protection Services | 5-20 Years | 8.7 | Fair (49%) |
| Recreation and Cultural | 12 Years | 8 | Good (60%) |
| Transportation Services | 5-15 Years | 8.9 | Poor (29%) |
| | | **8.8** | **Fair (43%)** |

## Current Approach to Condition Assessment

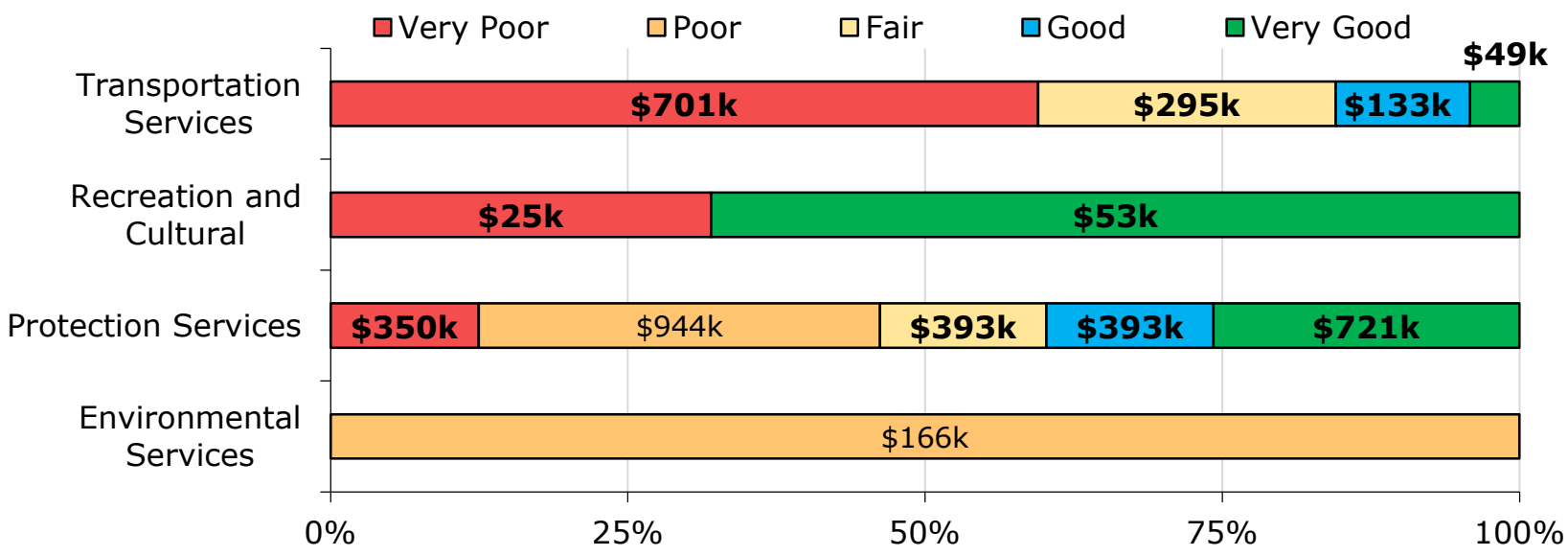
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township's current approach:

- A fleet management report has been prepared and presented to council by the Public Works department to evaluate the condition and estimated useful lives of the vehicles and determine their current levels of service
- An external contractor completes annual yearly safety inspections
- Fire vehicles are inspected monthly

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

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

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




Value and Percentage of Assets by Replacement Cost

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 will re-evaluate their lifecycle management strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the vehicles.
Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

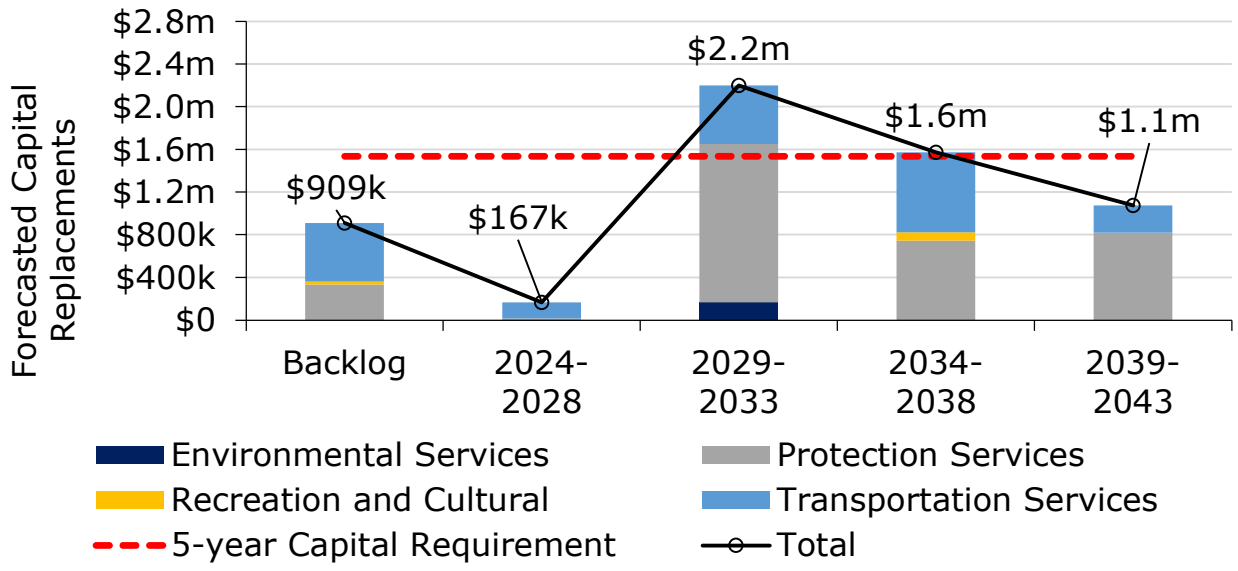
## 4.5.3 Lifecycle Management Strategy

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance / Rehabilitation | Maintenance on vehicles is performed based on the typical maintenance activities outlined in the MOT standards |
| Replacement | Insurance policies dictate the age at which fire vehicles must be replaced. Other vehicles are replaced based on their estimated useful life or run near to failure |

### Forecasted Capital Requirements

The following graph forecasts long-term fleet 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 25 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.

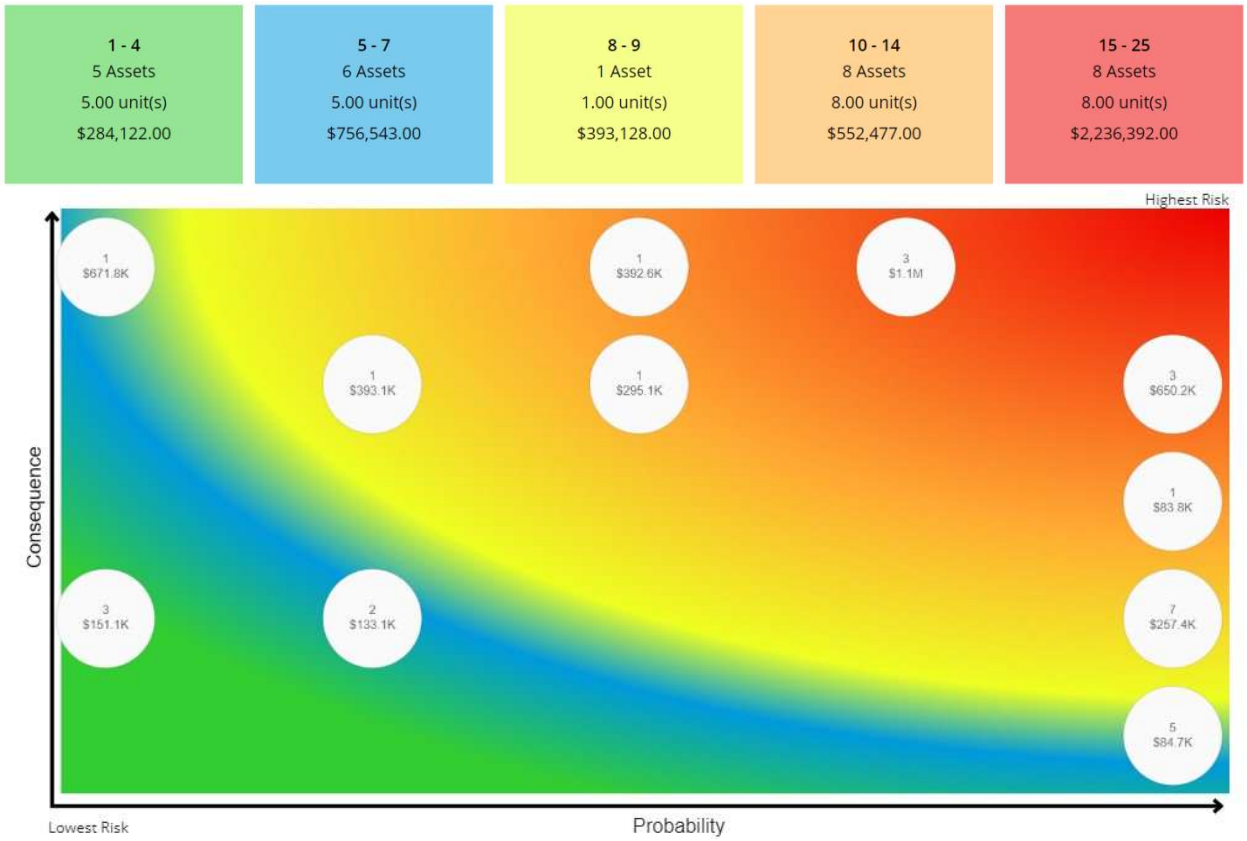


The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

## 4.5.4 Risk & Criticality

### Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.




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

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:

**Regulatory Compliance**
Insurance policy requirements dictate the age at which fire vehicles must be replaced. To comply with these regulations, fire vehicles are often replaced prematurely, prior to the end of their useful life. This requires significant funding to meet regulatory requirements.

# 4.5.5 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 (2023) |
|---|---|---|
| Scope | Description of the current condition of municipal vehicles and the plans that are in place to maintain or improve the provided level of service | Aside from the fire department, Public Works presented a fleet management report to council to discuss EULs and conditions to better represent the real data. The fire department is following an insurance recommended guideline of 20 years for front-line vehicles and 25 years for non-front-line vehicles |

## Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2023) |
|---|---|---|
| Scope | % of vehicles where asset age exceeds estimated useful life (excluding fire vehicles) | 49% |
| | % of fire vehicles where asset age exceeds estimated useful life | 12% |
| Performance | % of vehicles that are in good or very good condition (excluding fire vehicles) | 19% |
| | % of fire vehicles that are in good or very good condition | 39% |
| | % of vehicles that are in poor or very poor condition (excluding fire vehicles) | 61% |
| | % of fire vehicles that are in poor or very poor condition | 29% |
| | Average Risk Rating associated to vehicles (excluding fire vehicles) | 12.8 – High |
| | Average Risk Rating associate to fire vehicles | 13.59 – High |
| | Capital reinvestment rate | 4.55% |

## 4.5.6 Recommendations

### Replacement Costs

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

### Condition Assessment Strategies

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

### Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This should include the regular

review of high-risk assets to determine appropriate risk mitigation strategies.
- Review risk models regularly and adjust according to an evolving understanding of the probability and consequences of asset failure.

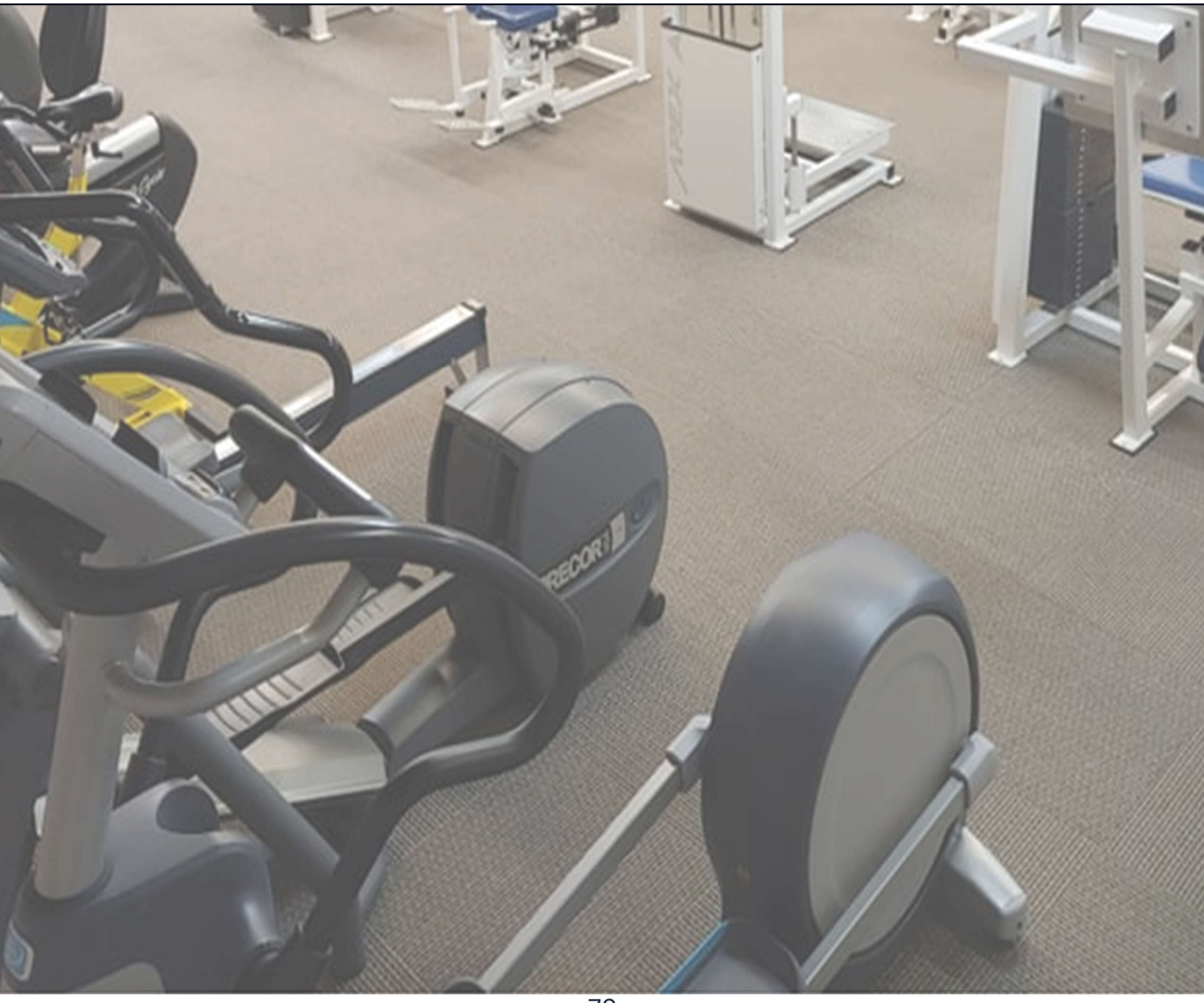
## Levels of Service

- Begin measuring current levels of service in accordance with the metrics that the 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 Machinery & Equipment

In order 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. These include:

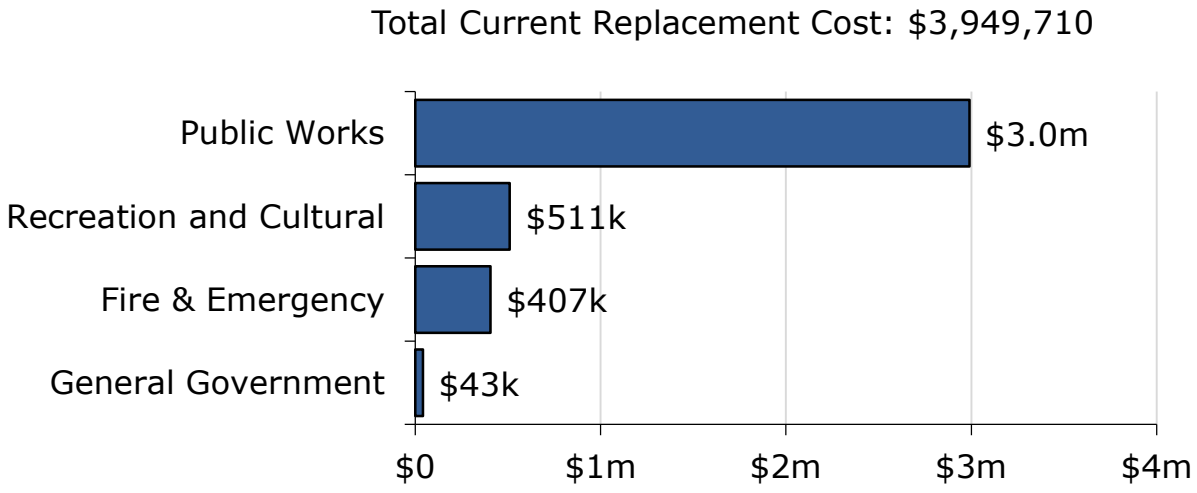
- Landscaping equipment to maintain public grassed spaces
- Fire equipment to support the delivery of emergency services
- Plows to provide winter control activities
- Road maintenance equipment
- Fitness and recreational equipment



## 4.6.1 Asset Inventory & Costs

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

| Asset Segment | Quantity | Replacement Cost | Annual Capital Requirement |
|---|---|---|---|
| Fire & Emergency | 101 | $407,000 | $39,000 |
| General Government | 1 | $43,000 | $4,000 |
| Public Works | 50 | $2,990,000 | $221,000 |
| Recreation and Cultural | 38 | $511,000 | $50,000 |
| **Total** | | **$3,950,000** | **$314,000** |




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 & Age

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

| Asset Segment | Estimated Useful Life (Years) | Average Age (Years) | Average Condition |
|---|---|---|---|
| Fire & Emergency | 5-20 Years | 11 | Very Poor (19%) |
| General Government | 12 Years | 19 | Very Poor (0%) |
| Public Works | 5-28 Years | 11.4 | Poor (37%) |
| Recreation and Cultural | 5-15 Years | 8.1 | Poor (35%) |
| **Average** | | **10.6** | **Poor (34%)** |

## Current Approach to Condition Assessment

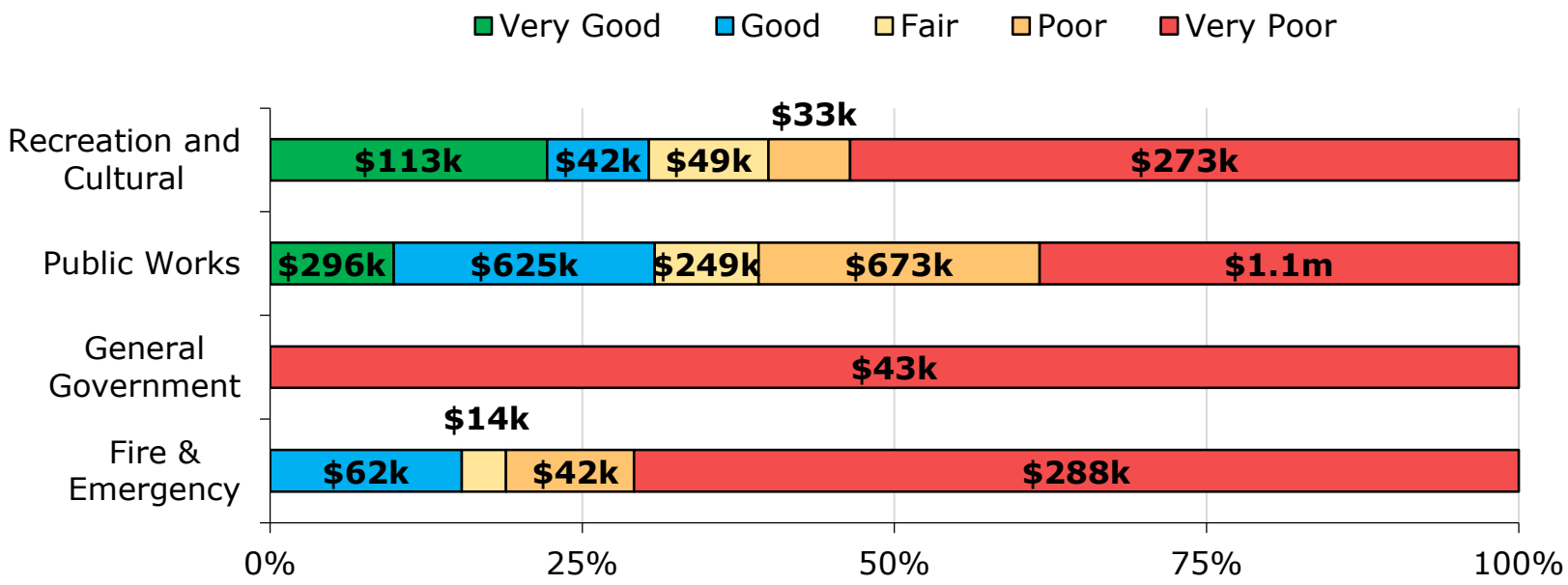
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township's current approach:

- Recreation and cultural machinery & equipment assets are assessed on a yearly basis
- Fire machinery & equipment assets are also assessed annually by external contractors, with additional assessments completed every month by internal staff

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

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

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




Value and Percentage of Assets by Replacement Cost

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

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

## 4.6.3 Lifecycle Management Strategy

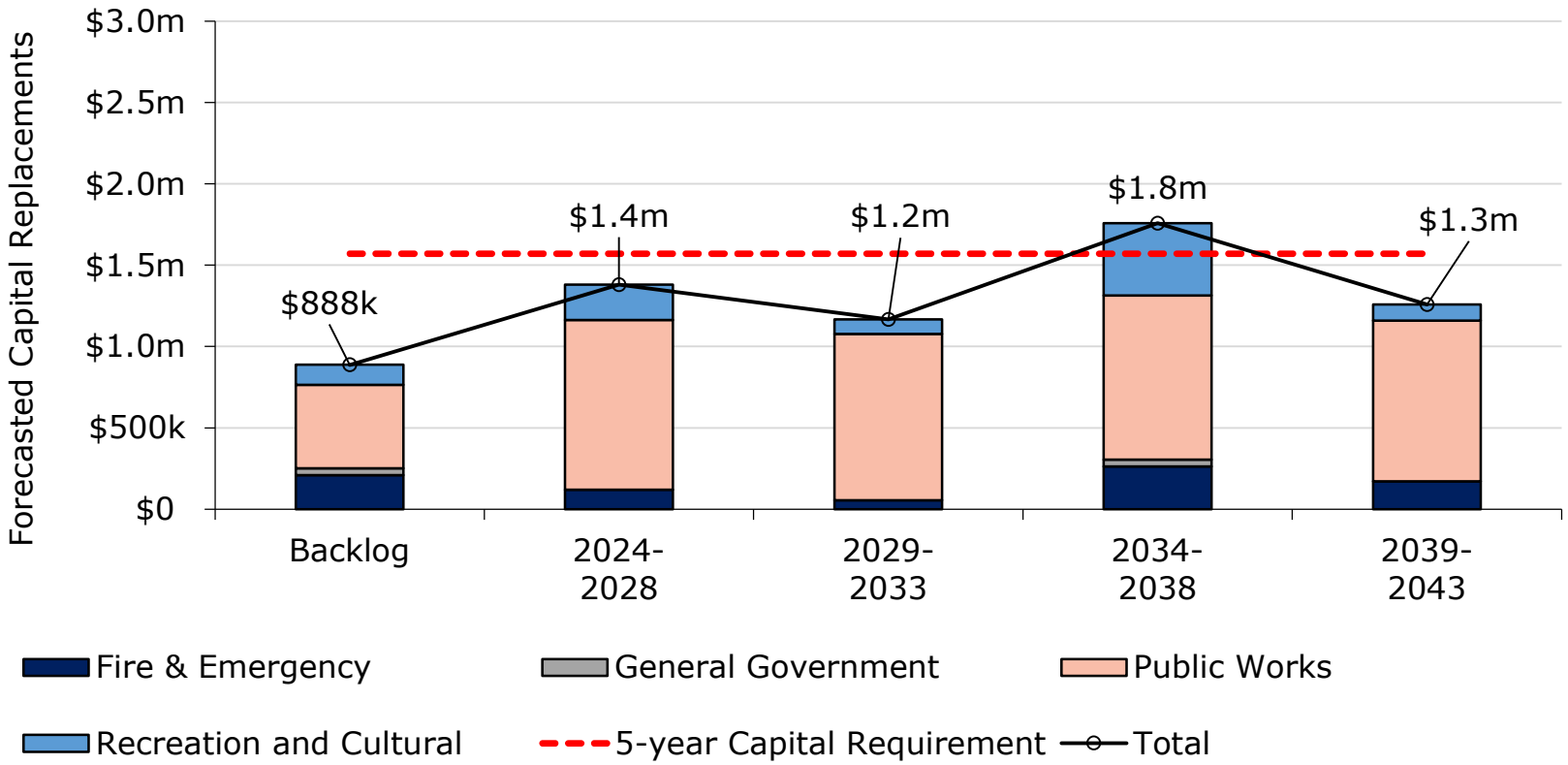
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance/ Rehabilitation | Maintenance programs vary by department |
| | Fire Protection Services equipment is inspected annually by an external contractor |
| | External contractors perform maintenance on the Arena equipment on a regular basis, and Fitness equipment is maintained by an external contractor on a quarterly basis. Public Works equipment is inspected before use. |
| Replacement | The replacement of machinery and equipment depends on deficiencies identified by operators and their EUL. |

### 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 20 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins.

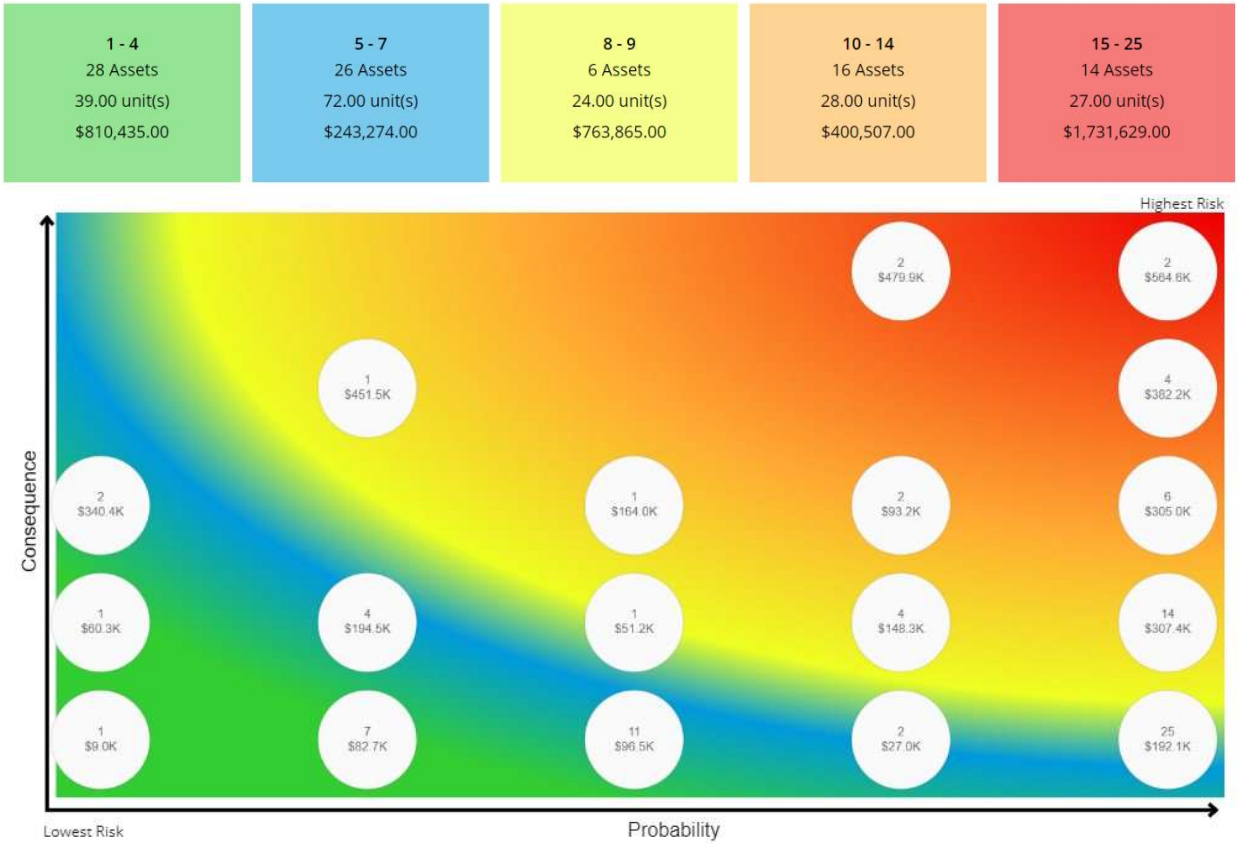



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.6.4 Risk & Criticality

## Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.




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

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:

**Climate Change & Extreme Weather Events**
Due to the change in humidity and higher temperatures, machinery and equipment have to work harder to start and run. The rapid and intermittent change in seasons is also causing more wear and tear to Township machinery & equipment.

# 4.6.5 Levels of Service

The following tables identify the Township's current level of service for the machinery & 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 & equipment.

| Service Attribute | Qualitative Description | Current LOS (2023) |
|---|---|---|
| Scope | Description of the current condition of municipal machinery & equipment and the plans that are in place to maintain or improve the provided level of service | Ice re-surfacers and Pubic Works machinery are usually run to failure. The fitness department has a replacement schedule for their fitness equipment and are seeking to implement it. Self-contained breathing apparatus (SCBA) units get replaced regularly, and all fire equipment is replaced according to regulations. |

## Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2023) |
|---|---|---|
| Performance | % of machinery & equipment in good or very good condition | 29% |
| | % of machinery & equipment in poor or very poor condition | 63% |
| | Average Risk Rating associated with machinery & equipment | 12.86 - High |
| | Capital reinvestment rate | 7.67% |

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

## Risk Management Strategies

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

## Levels of Service

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

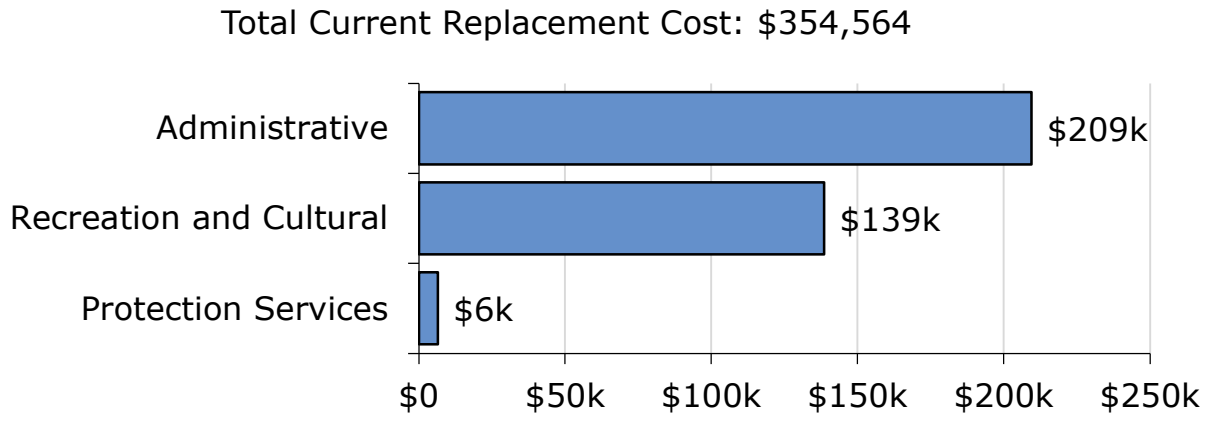
# 4.7 Information Technology (IT)

To maintain the high quality of public infrastructure and support the delivery of core services, Township staff own and employ various types of information technology.

## 4.7.1 Asset Inventory & Costs

The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Township's information technology inventory.

| Asset Segment | Quantity | Replacement Cost | Annual Capital Requirement |
|---|---|---|---|
| Administrative | 13 | $209,000 | $33,000 |
| Protection Services | 1 | $6,000 | $1,000 |
| Recreation and Cultural | 15 | $139,000 | $23,000 |
| **Total** | | **$355,000** | **$57,000** |




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 & Age

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

| Asset Segment | Estimated Useful Life (Years) | Average Age (Years) | Average Condition |
|---|---|---|---|
| Administrative | 3-20 Years | 9.3 | Very Poor (10%) |
| Protection Services | 6 Years | 14 | Very Poor (0%) |
| Recreation and Cultural | 4-10 Years | 9.1 | Poor (31%) |
| **Average** | | **9.4** | **Very Poor (18%)** |

## Current Approach to Condition Assessment

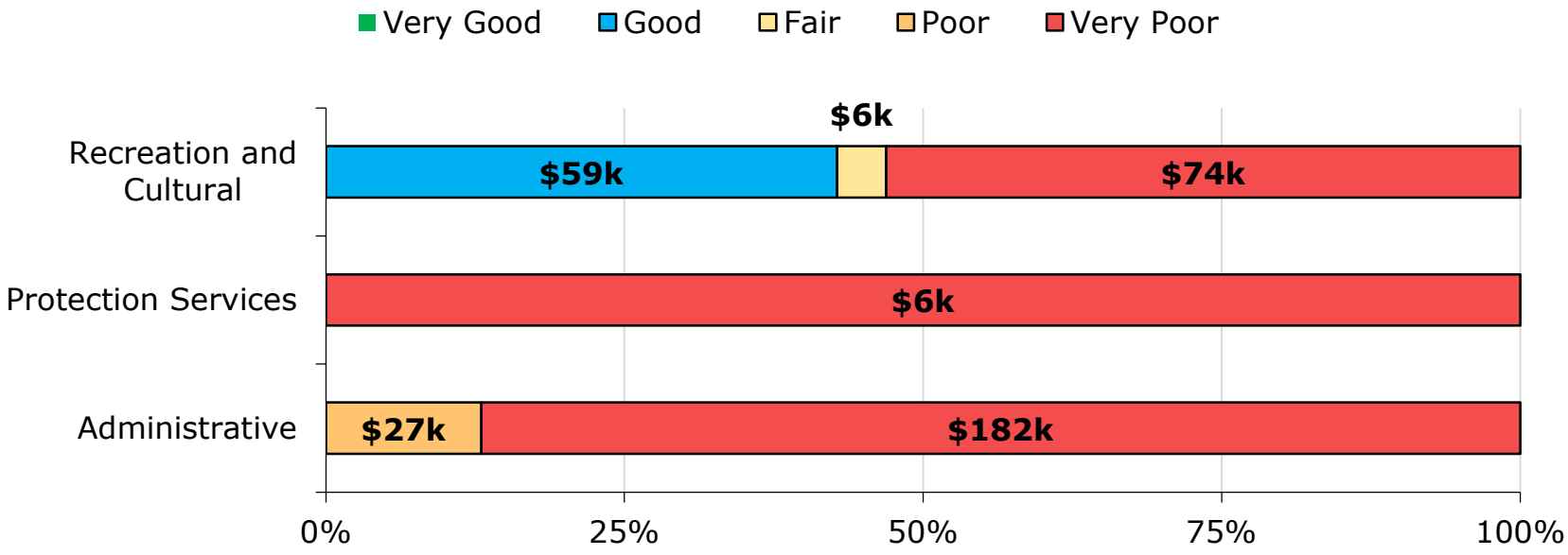
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township's current approach:

- An independent contractor (ContinuIT) is responsible for all Information Technology asset maintenance in the Township

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

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

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




Value and Percentage of Assets by Replacement Cost

To ensure that the Township's information technology continues to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff will 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 information technology.

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

### 4.7.3 Lifecycle Management Strategy

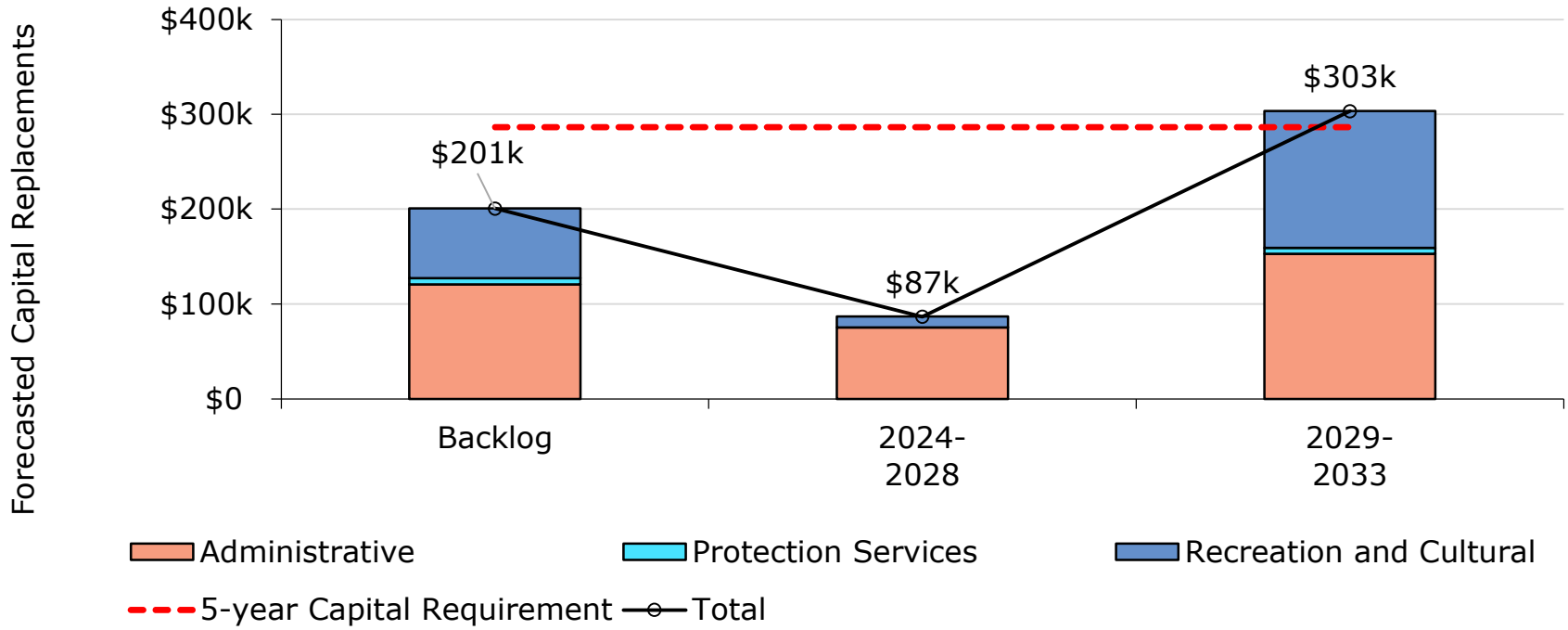
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance, Rehabilitation & Replacement | An independent contractor is responsible for all IT assets in the Township. The contractor provides reports on the EUL of Township IT assets and which assets require renewal or replacement. |

## 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 10 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 1-year bins.

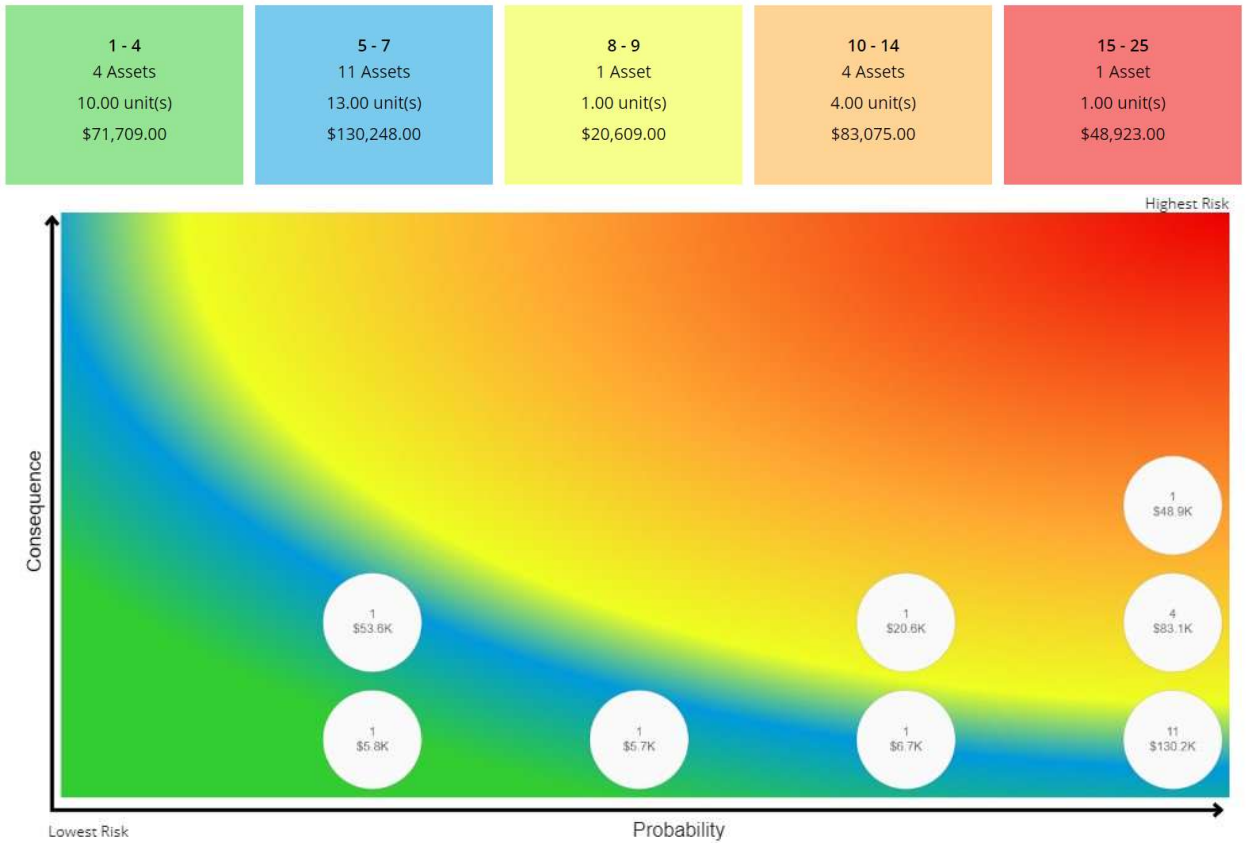



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.7.4 Risk & Criticality

## Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.




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

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**

The Information Technology inventor contains a pooled inventory of IT assets. To better understand the inventory, segmentation of the IT assets would be beneficial

**Capital Funding Strategies**

Sufficient funding is not available for additional software and technology adoption. As a result, the Township must work with outdated technology that does not best suit their needs.

# 4.7.5 Levels of Service

The following tables identify the Township's current level of service for IT assets. These metrics include the technical and community levels 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 information technology assets.

| Service Attribute | Qualitative Description | Current LOS (2023) |
|---|---|---|
| Scope | Description of the current condition of municipal IT assetsand the plans in place to maintain or improve the provided level of service | The Township has an IT strategic Plan with a 4-year cycle. The main server was upgraded in 2022. |

## Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2023) |
|---|---|---|
| Performance | % of IT assets in good or very good condition | 17% |
| | % of IT assets in poor or very poor condition | 82% |
| | Average Risk Rating associate to IT assets | 7.47 – Low |
| | Capital reinvestment rate | 0% |

## 4.7.6 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 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 regularly and adjust according to an evolving understanding of the probability and consequences of asset failure.

### Levels of Service

- Begin measuring current levels of service in accordance with the metrics that the 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 Land Improvements & Green Infrastructure

The Township of North Huron owns a small number of assets that are considered land improvements. This category includes:

- Municipal parking lots
- Fencing and signage
- Miscellaneous landscaping and other assets
- Infrastructure in parks and other green spaces
- North Huron Landfill
- Cemeteries

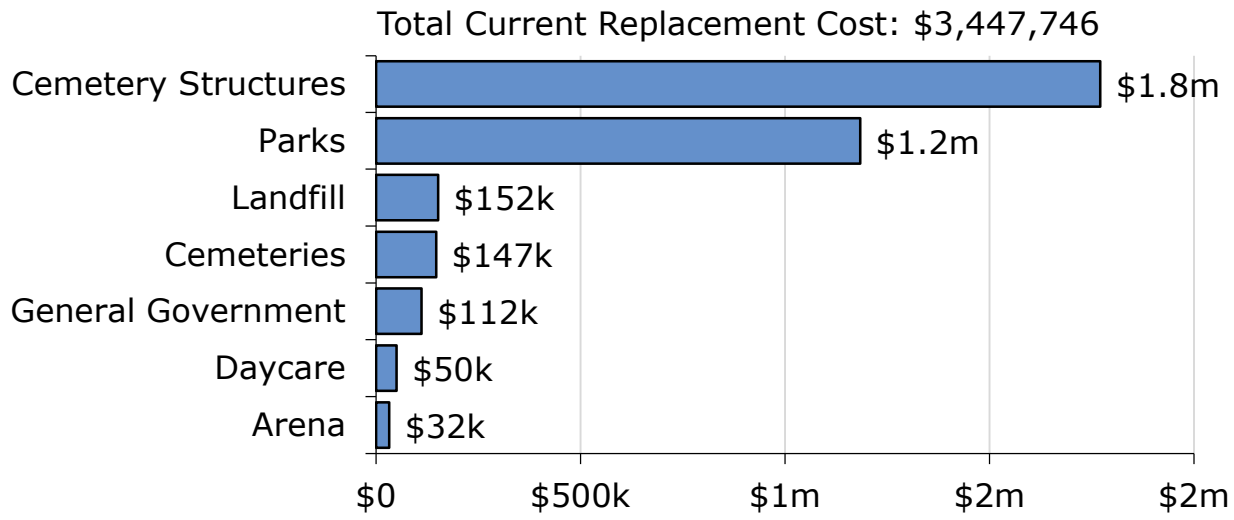
## 4.8.1 Asset Inventory & Costs

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

| Asset Segment | Quantity | Replacement Cost | Annual Capital Requirement |
|---|---|---|---|
| Arena | 1 | $32,000 | $2,000 |
| Cemeteries | 5 | $147,000 | $3,000 |
| Cemetery Structures | 6 | $1,771,000 | $38,000 |
| Daycare | 1 | $50,000 | $3,000 |
| General Government | 5 | $112,000 | $5,000 |
| Landfill | 3 | $152,000 | $11,000 |
| Parks | 20 | $1,184,000 | $60,000 |
| **Total** | | **$3,448,000** | **$120,000** |

A further breakdown of the above asset segments and the subclasses that comprise them, including green infrastructure, is included below.

| Asset Type | Asset Sub-Type | Description |
|---|---|---|
| Arena | Wingham Arena | Includes electronic signs, like that at the NHWCC. |
| Cemeteries | Cemeteries | Includes cemetery lands |
| | Cemetery structures | Columbaria in the Wingham and Blyth cemeteries. |
| Lighting | Streetlighting | Includes streetlights and seasonal decorative lighting |
| Daycare | Facility playgrounds | Constitutes of the Wingham Daycare playground equipment |
| General Government | Township décor | Includes decorative Township signage and statues |
| Landfill | North Huron Landfill | Includes Township landfill sites and permanent landfill equipment |
| Parks | Greenspaces | Includes planted gardens and nature areas. |
| | Courts and Fields | Includes a variety of courts throughout the Township. Includes lighting, bleachers, fencing, and other court equipment |
| | Trails | Includes trails with a variety of surface types including stone dust, asphalt, and grass. |



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 & Age

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

| Asset Segment | Estimated Useful Life (Years) | Average Age (Years) | Average Condition |
|---|---|---|---|
| Arena | 20 Years | 13.0 | Poor (30%) |
| Cemeteries | 50 Years | 9.6 | Very Good (82%) |
| Cemetery Structures | 50-116 Years | 102.7 | Very Poor (0%) |
| Daycare | 20 Years | 22 | Very Poor (0%) |
| General Government | 20-75 Years | 33 | Poor (35%) |
| Landfill | 11-50 Years | 30.7 | Very Poor (10%) |
| Parks | 10-42 Years | 24.1 | Very Poor (1%) |
| **Average** | | **35.1** | **Very Poor (6%)** |

### Current Approach to Condition Assessment

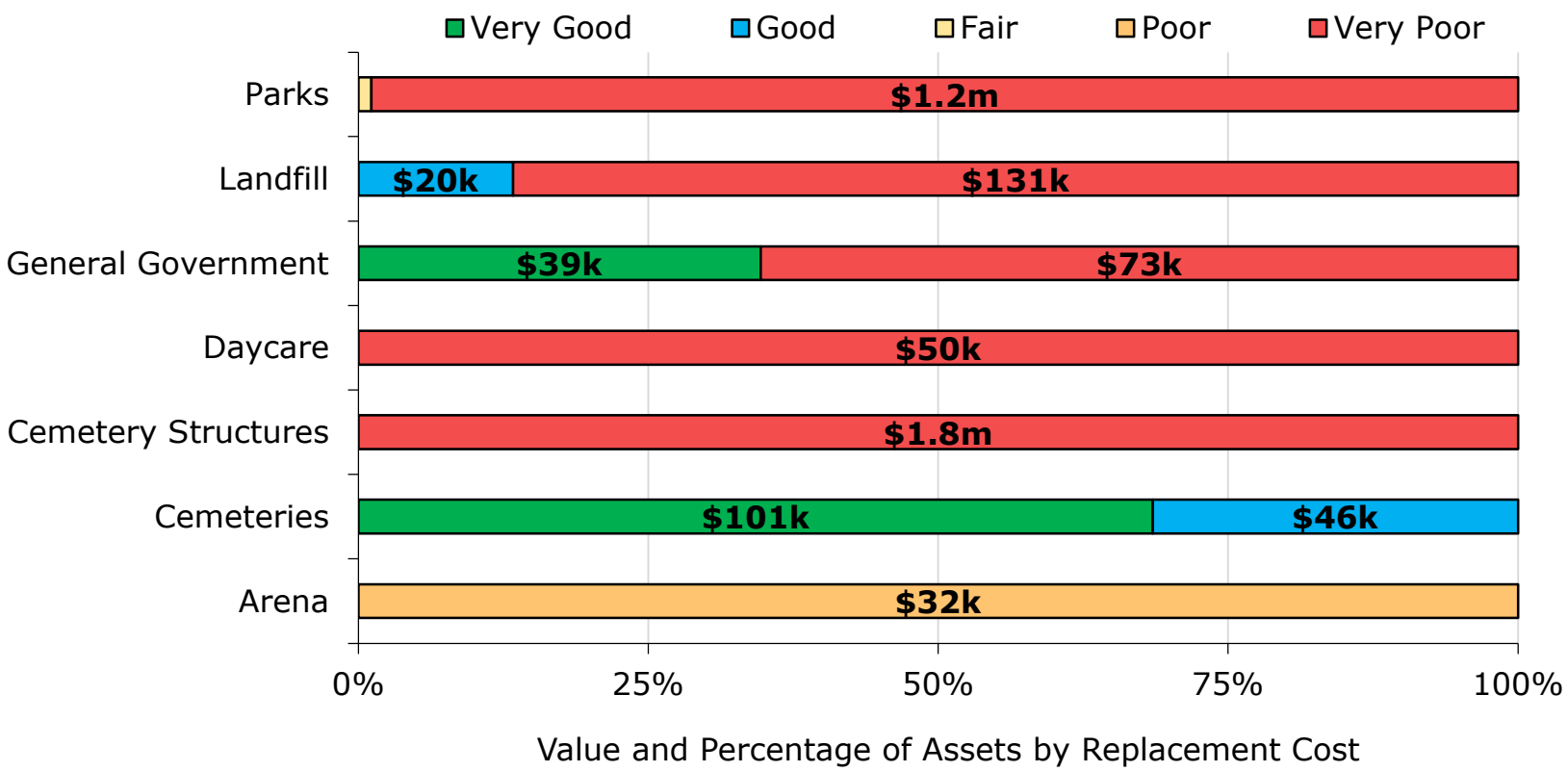
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township's current approach:

- Staff complete visual inspections of land improvements assets once a month to ensure they are in a state of adequate repair
- Visual inspections for daycare assets are performed daily and an external contractor performs an inspection once a year according to the Ministry of Education requirements

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

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

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




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

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

## 4.8.3 Lifecycle Management Strategy

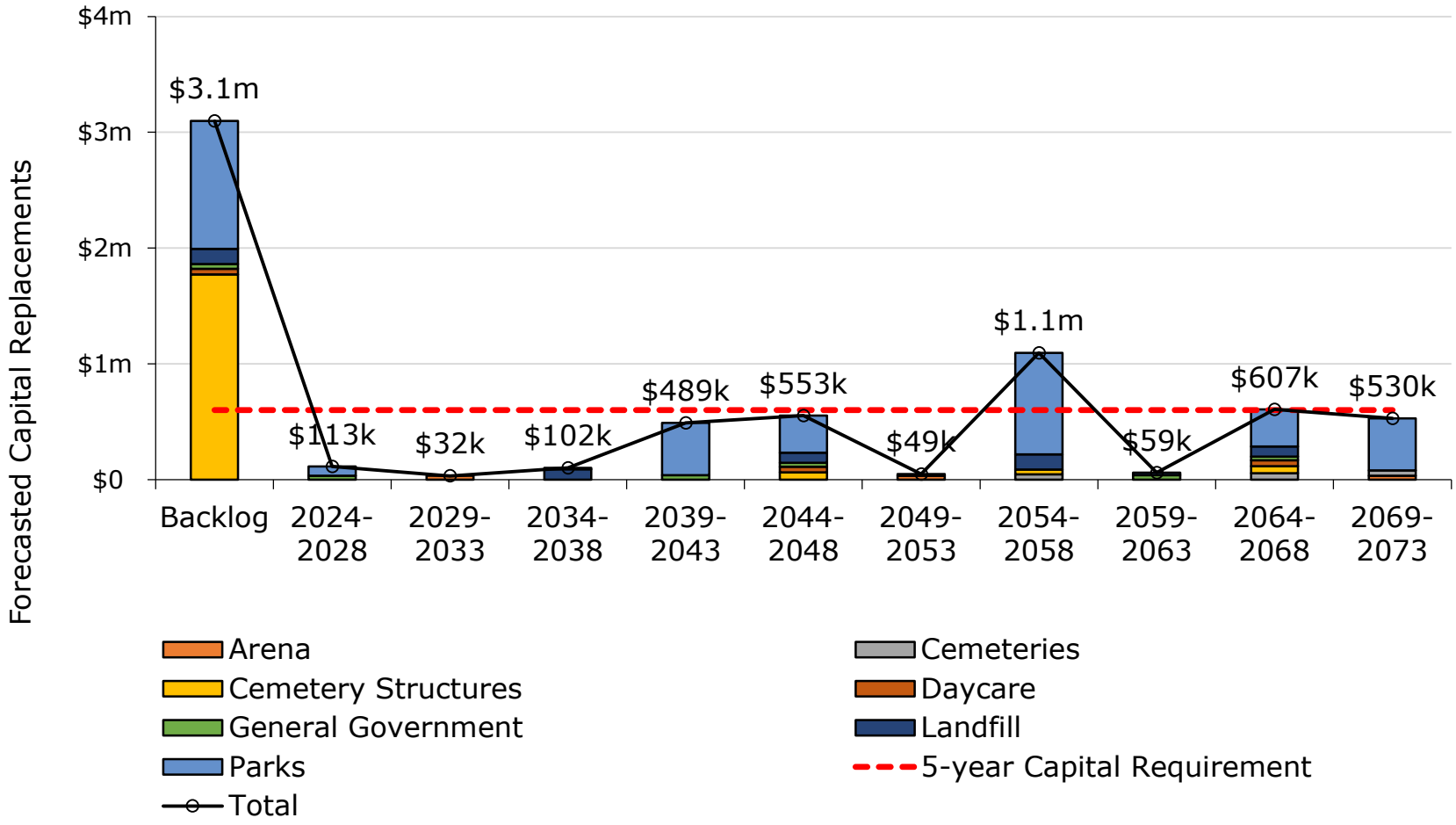
The condition or performance of most land improvement assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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. |

### 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 55 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.

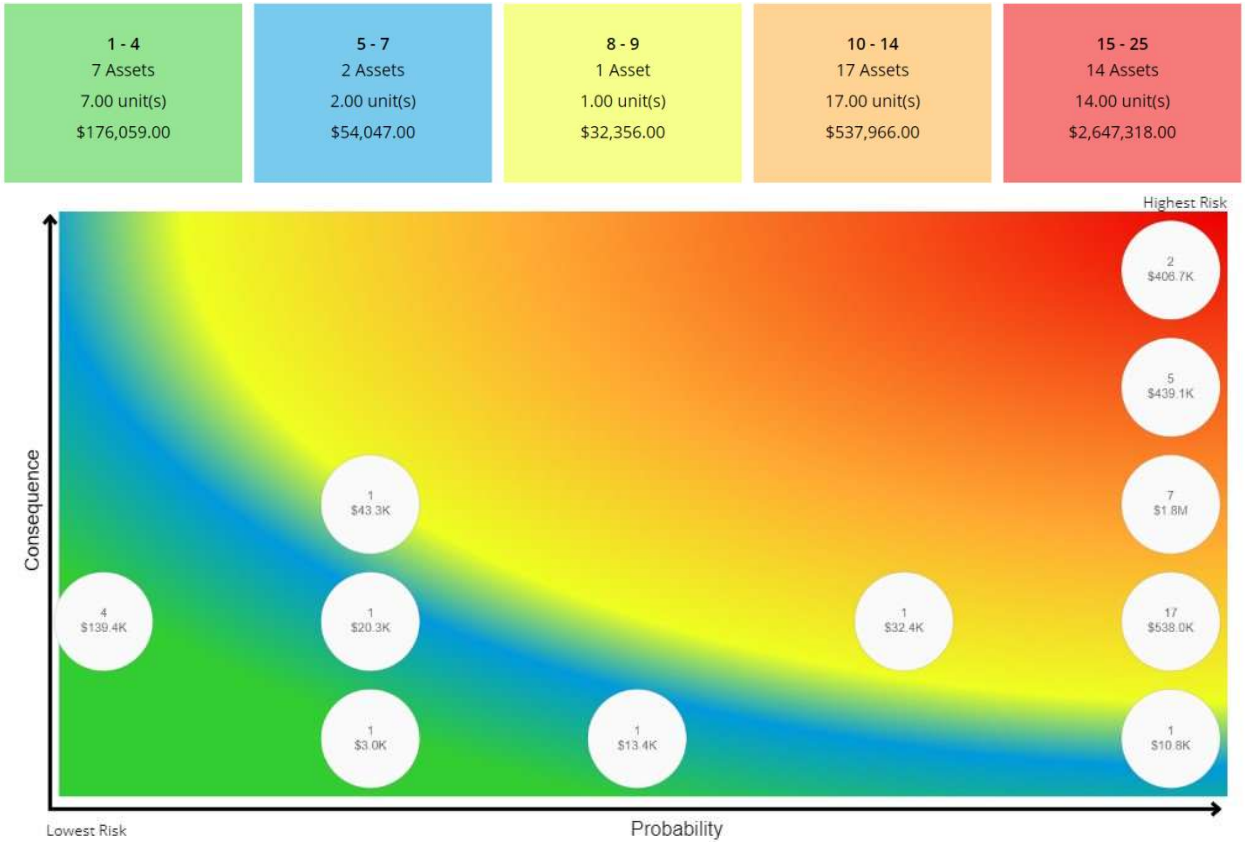



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 4.8.4 Risk & Criticality

## Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.




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

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

# 4.8.5 Levels of Service

The following tables identify the Township's current LOS for land improvement assets. 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 information technology assets.

| Service Attribute | Qualitative Description | Current LOS (2023) |
|---|---|---|
| Scope | Description of the current condition of municipal land improvment assets and the plans that are in place to maintain or improve the provided level of service | Playground assets are aging, and the ground is in need for a replacement. The airport has been sold to a private entity. Additionally, a cultural and recreation master plan has been developed. |
| Safe and Accessible | Ensuring that all municipal spaces are compliant and accessible to all users | Accessibility upgrades are planned for outdoor municipal spaces and assets, but they are largely dependent on grant funding to occur. |

## Technical Levels of Service

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

| Service Attribute | Technical Metric | Current LOS (2023) |
|---|---|---|
| Performance | % of land improvement assets in good or very good condition | 6% |
| | % of land improvement assets in poor or very poor condition | 94% |
| | Average Risk Rating associate to IT assets | 15.18 – Very High |
| | Capital reinvestment rate | 0.58% |

# 4.8.6 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

- Begin 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 Analysis of Rate-funded Assets

## Key Insights

- Rate-funded assets are valued at $150.9 million
- 85% of rate-funded assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for rate-funded assets is approximately $2.2 million
- Critical assets should be evaluated to determine appropriate risk mitigation activities and treatment options

# 5.1 Water Network

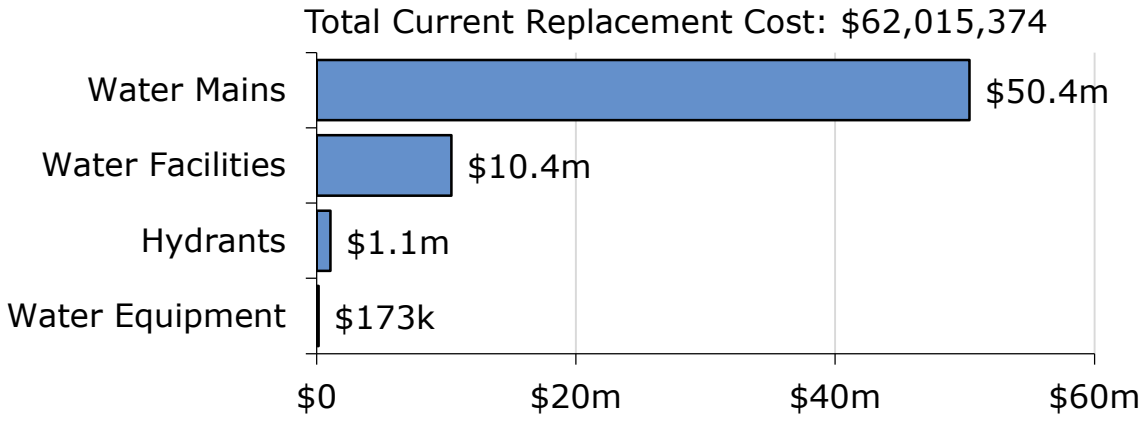
The water services provided by the Township include the following:

- Hydrants
- Water Equipment
- Water Facilities
- Water Mains

## 5.1.1 Asset Inventory & Costs

The table below includes the quantity, replacement cost method, and annual capital requirements of each asset segment in the Township's water network inventory.

| Asset Segment | Quantity | Replacement Cost | Annual Capital Requirement |
|---|---|---|---|
| Hydrants | 206 | $1,073,000 | $21,000 |
| Water Equipment | 7 | $173,000 | $8,000 |
| Water Facilities | 22 | $10,407,000 | $187,000 |
| Water Mains | 45,483 m | $50,362,000 | $686,000 |
| **Total** | | **$62,015,000** | **$902,000** |




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

## 5.1.2 Asset Condition & Age

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

| Asset Segment | Estimated Useful Life (Years) | Average Age (Years) | Average Condition |
|---|---|---|---|
| Hydrants | 50 Years | 29.3 | Fair (45%) |
| Water Equipment | 5-50 Years | 4.9 | Good (73%) |
| Water Facilities | 10-90 Years | 17.8 | Poor (29%) |
| Water Mains | 30-75 Years | 34.2 | Good (71%) |
| **Average** | | **32.1** | **Good (63%)** |

## Current Approach to Condition Assessment

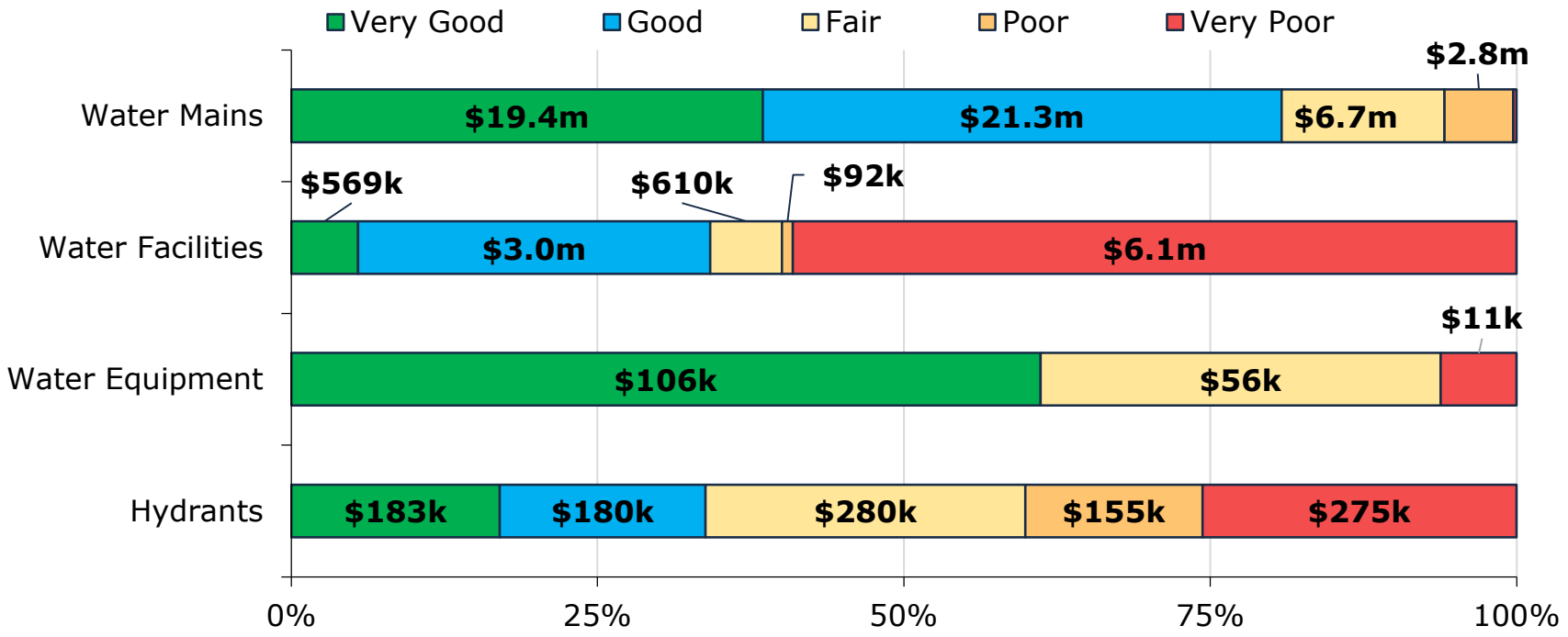
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township's current approach:

- Water assets are assessed once a year based on the age of the asset and the number of complaints received to determine asset condition.
- Fire hydrants are flushed biannually
- Watermain repairs are done reactively based on recorded breaks

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

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

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




Value and Percentage of Assets by Replacement Cost

To ensure that the Township's water network continues to provide an acceptable level of service, the Township will continue to monitor the average condition of all assets. If the average condition declines, staff will 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.

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

### 5.1.3 Lifecycle Management Strategy

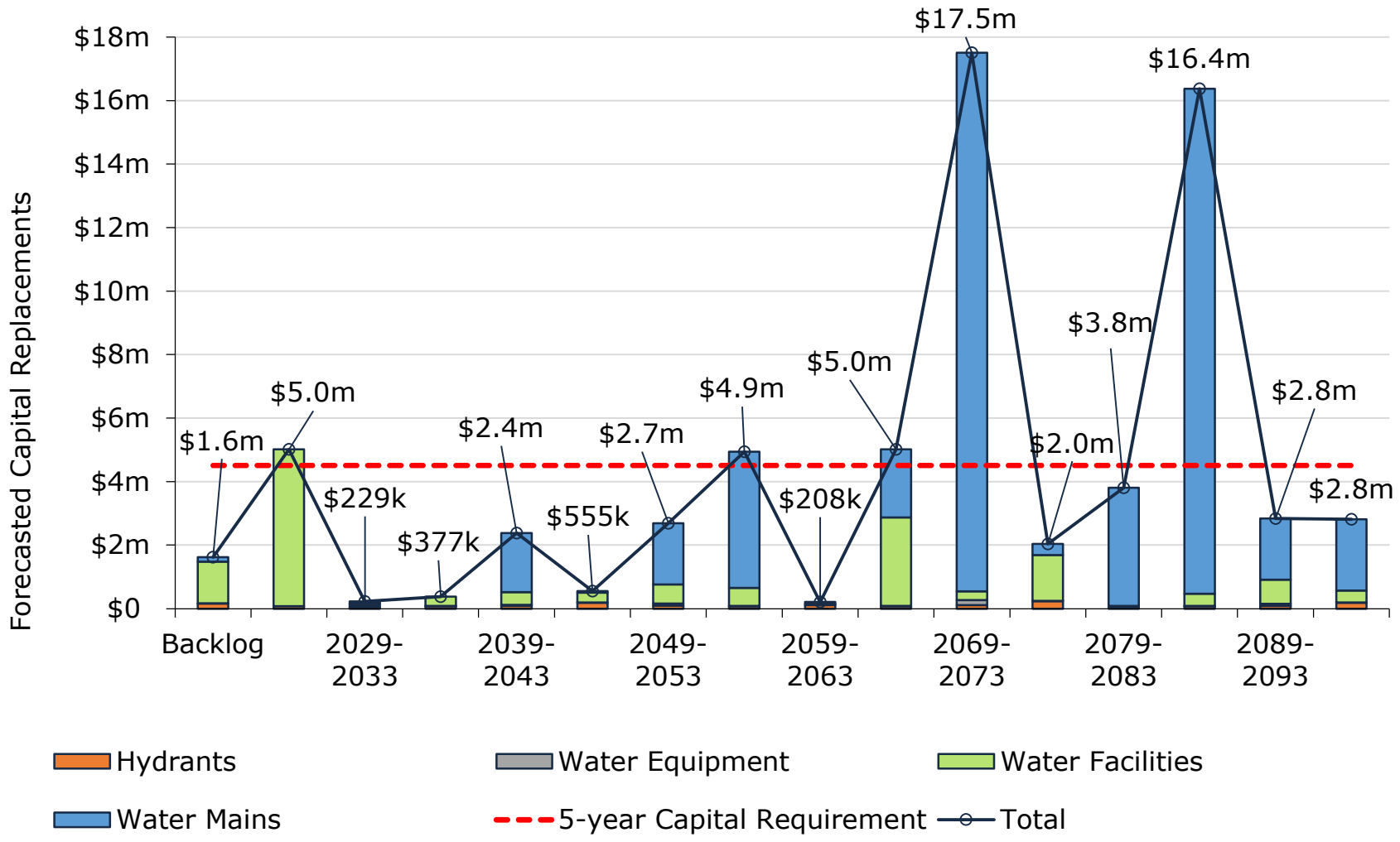
The condition or performance of most assets will deteriorate over time. To ensure that municipal water assets are performing as expected and meeting the needs of the Township, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance | Watermain flushing is completed every spring. Hydrant flushing is completed every Spring and Fall. Valve turning is also completed. |
| Repair | Watermain breaks and other water assets are repaired reactively dependent on servicing requirements or unexpected breaks. |
| Replacement | Replacement activities are identified based on the age and size of the water main and the age or condition of the associated water assets. |

#### Forecasted Capital Requirements

The following graph forecasts long-term capital requirements for water assets. 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.

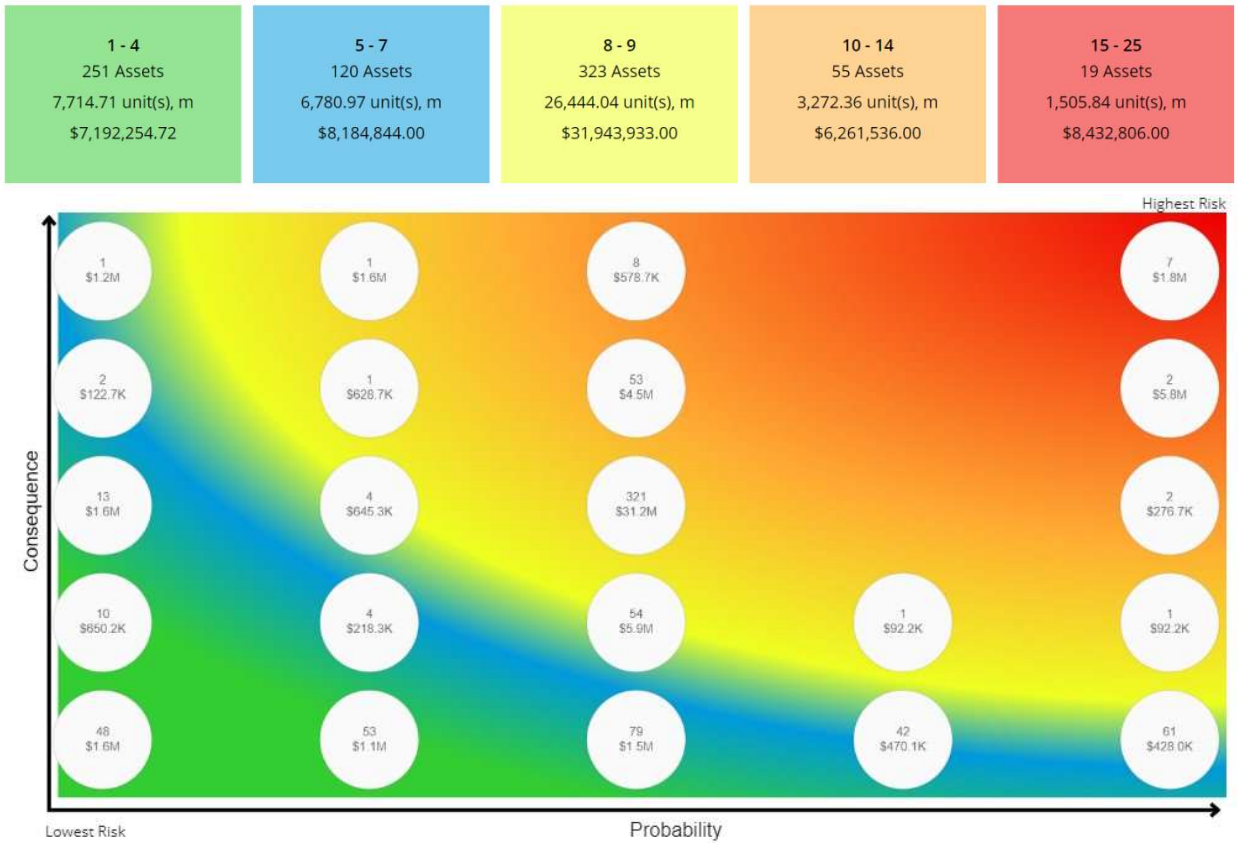



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 5.1.4 Risk & Criticality

## Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.




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

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:

**Financial Reinvestment**
There is not sufficient funding available in the Township to perform the required maintenance on the water network.

**Climate Change & Extreme Events**
Increased summer temperatures and irregular freeze-thaw cycles may place a strain on the water network.

# 5.1.5 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 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 water network.

| Service Attribute | Qualitative Description | Current LOS (2023) |
|---|---|---|
| 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 were issued during the time period covered by this AMP |

## 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 (2023) |
|---|---|---|
| Scope | % of properties connected to the municipal water system | 37% |
| | % of properties where fire flow is available | Greater than 95% |
| | % of water system that is in good or very good condition | 72% |
| | % of water system that is in poor or very poor condition | 16% |
| 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 in a region of the municipality due to water main breaks compared to the total number of properties connected to the municipal water system | 2 |
| Performance | Capital re-investment rate | 0.5% |

## 5.1.6 Recommendations

### Replacement Costs

- Gather accurate replacement costs and update regularly to ensure the accuracy of capital projections.

### Condition Assessment Strategies

- Identify condition assessment strategies for high-value and high-risk water 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.

## Levels of Service

- Continue to measure 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.

# 5.2 Sanitary Network

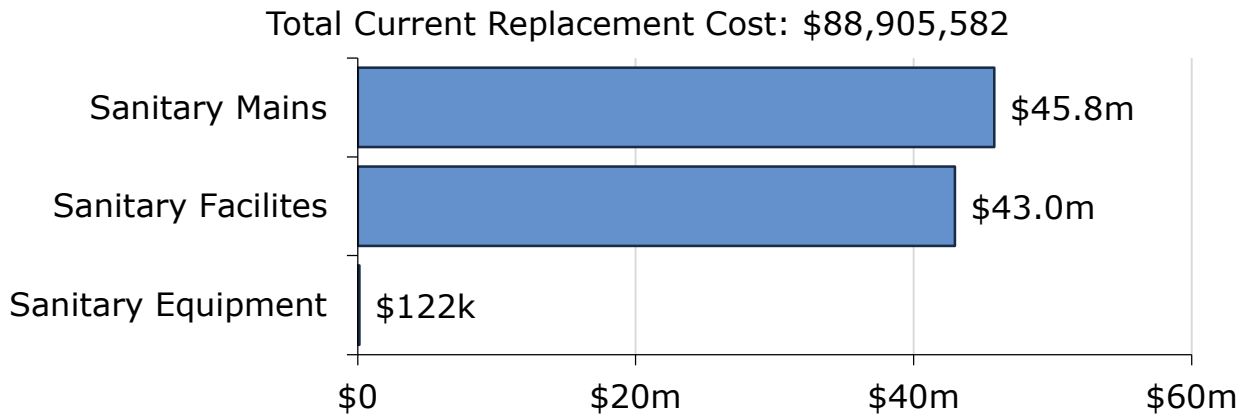
The sewer services provided by the Township include the following:

- Sanitary equipment
- Sanitary facilities
- Sanitary mains

## 5.2.1 Asset Inventory & Costs

The table below 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 | Annual Capital Requirement |
|---|---|---|---|
| Sanitary Equipment | 3 | $122,000 | $4,000 |
| Sanitary Facilities | 4 | $42,970,000 | $648,000 |
| Sanitary Mains | 39,866 m | $45,814,000 | $618,000 |
| **Total** | | **$88,906,000** | **$1,270,000** |




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

## 5.2.2 Asset Condition & Age

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

| Asset Segment | Estimated Useful Life (Years) | Average Age | Average Condition (%) |
|---|---|---|---|
| Sanitary Equipment | 5-75 Years | 13.7 | Fair (59%) |
| Sanitary Facilities | 52-75 Years | 50.5 | Good (71%) |
| Sanitary Mains | 56-75 Years | 36.7 | Good (67%) |
| **Average** | | **36.7** | **Good (69%)** |

## Current Approach to Condition Assessment

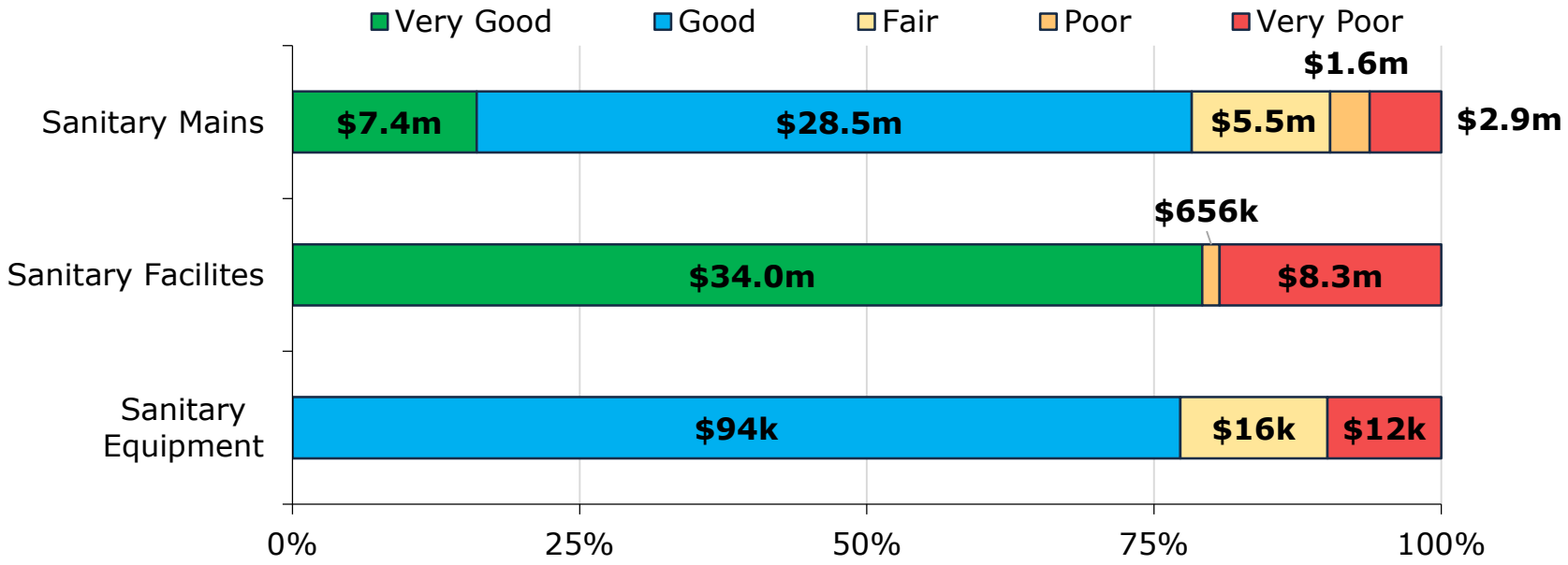
Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township's current approach:

- CCTV inspections are completed for sanitary mains; 80% of the system was reviewed in 2015, another 32% of the system was assessed in 2019.
- CCTV inspections of sanitary mains are completed before large capital road reconstructions
- The Township plans to conduct CCTV inspections of sanitary mains every 5 years.

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

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

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




Value and Percentage of Assets by Replacement Cost

To ensure that the Township's sanitary network continues to provide an acceptable level of service, the Township will continue to monitor the average condition of all assets. If the average condition declines, staff will 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.

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

### 5.2.3 Lifecycle Management Strategy

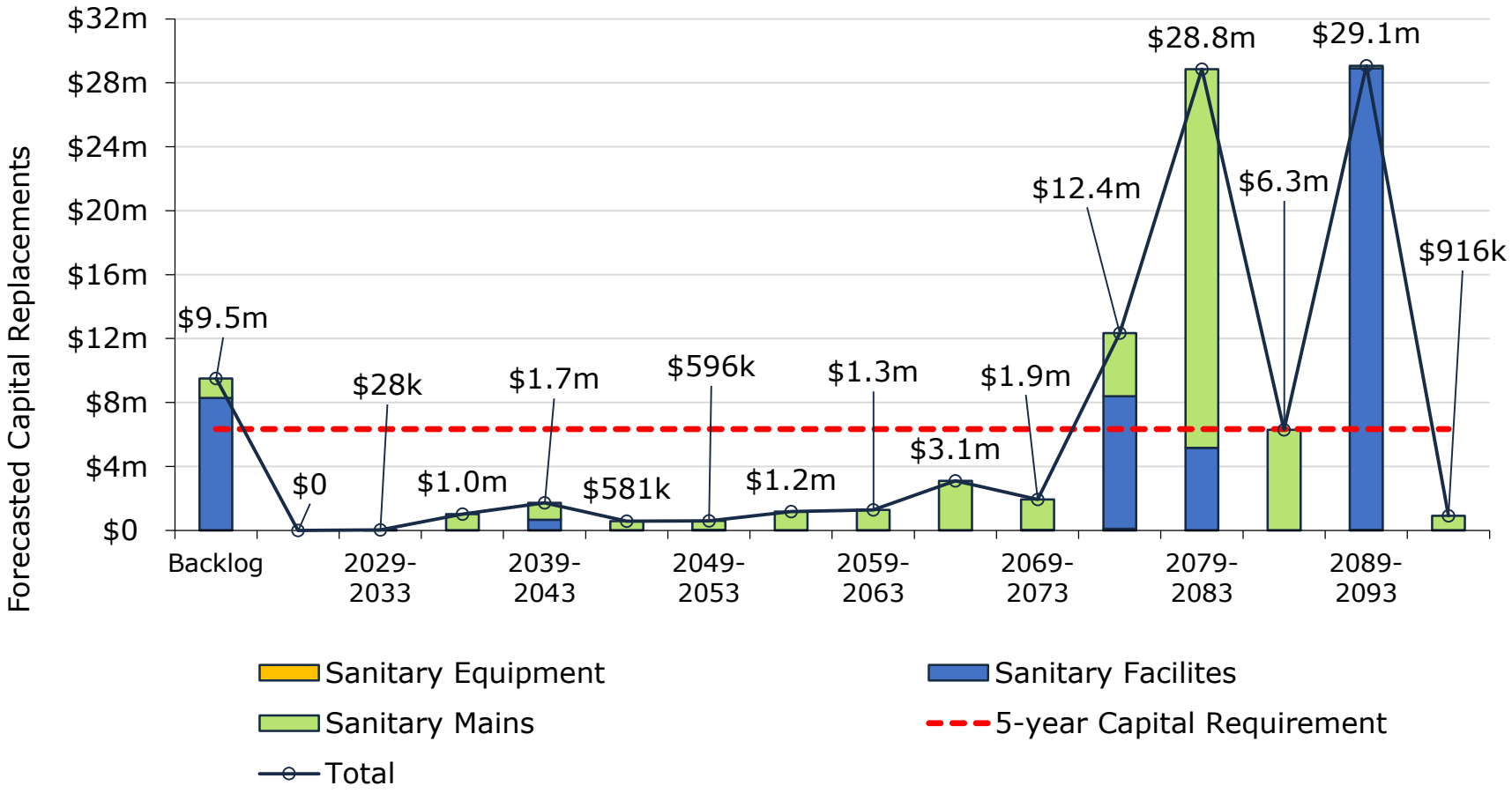
The condition or performance of most sanitary assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

| Activity Type | Description of Current Strategy |
|---|---|
| Maintenance | Full pipe system flushing is performed every 5 years based on an annual rotation |
| Rehabilitation | The Township is planning to adopt a relining program |
| Replacement | Age and historical issues determine when sanitary network assets should be replaced |

#### 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.

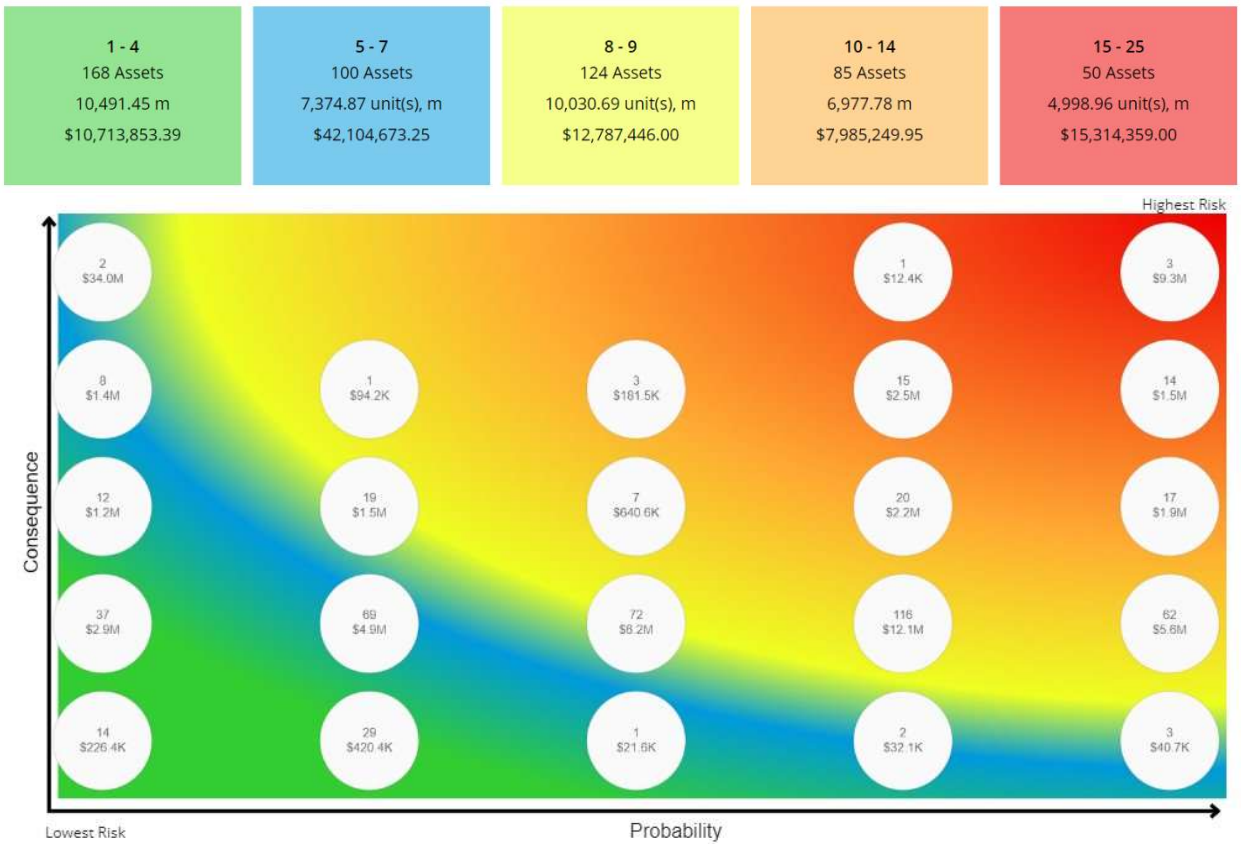



The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

# 5.2.4 Risk & Criticality

## Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2023 inventory data. See Appendix C for the criteria used to determine the risk rating of each asset.




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

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

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**
No recent condition data is available for the sanitary network. Staff plan to complete CCTV inspections every 5 years going forward.

**Lifecycle Management Strategies**
There are currently no lifecycle management strategies in place for the sanitary network. It is a challenge to find the right balance between maintenance, capital rehabilitation, and the replacement of assets.

# 5.2.5 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 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 sanitary network.

| Service Attribute | Qualitative Description | Current LOS (2023) |
|---|---|---|
| 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 | Quality of the effluent that is discharged from sewage treatment plants in the municipal wastewater system | Quality testing is performed. The Township has seen some issues in the Blyth area when there is a high volume of water. |

## 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 (2023) |
|---|---|---|
| Scope | % of properties connected to the municipal wastewater system | 36% |
| | % of sanitary sewers flushed annually | 10% |
| | # of sanitary sewer backups annually | 0 |
| Reliability | # 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 |
| | % of wastewater system that is in good or very good condition | 78.7% |
| | % of wastewater system that is in poor or very poor condition | 15% |
| Performance | Capital re-investment rate | 0.32% |

# 5.2.6 Recommendations

## Condition Assessment Strategies

- Identify condition assessment strategies for high value and high-risk water 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 to measure 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.

# 6 Impacts of Growth

## Key Insights

- 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

- Small population and employment growth is expected

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

# 6.1 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.

## 6.1.1 Township of North Huron Official Plan (Consolidated December 2022)

The Township of North Huron adopted an Official Plan to provide a legislative basis to implement the community's visions and goals. The policies included in the Plan are consistent with the Provincial Policy Statement and conform with the County of Huron Official Plan. Such policies are intended to identify appropriate locations for residential, commercial, and industrial development, while ensuring the protection of resources and the community's health.

The Consolidated Official Plan was adopted by the Township on September 6th, 2022 and approved by the County of Huron on October 5th, 2022.

The Township of North Huron was formed by the amalgamation of three smaller municipalities, and consists of agricultural areas, a small village, one town and several small hamlets. The Official Plan considers the desire to preserve the natural features of the Township, while promoting the longer-term future and flexibility of agriculture, and strengthening the economy.

The desire to live, work and retire in small communities is a driving factor in directing future development in North Huron. The settlement areas of Wingham and Blyth are the primary focus for urban development and will provide increased employment opportunities. Any new residential development proposed outside of these areas will be directed to already existing hamlets and the settlement area of Hutton Heights. East Wawanosh will remain a rural area for agricultural activities.

The development of urban places is promoted based on the level of service they provide. All non-farm uses are directed to urban settlement areas, to

minimize conflicts with the agricultural area. The Township also intends to provide adequate land for recreational services to serve the needs of the residents.

### 6.1.2 Huron County Official Plan (October 2023)

The Huron County Official Plan was consolidated on October 18th, 2023. Population growth for the Township of North Huron is defined in the County Plan. The population of North Huron is expected to reach 5,057 people by 2041, an increase of 125 people from 2016. Employment within the Township is expected to grow by 81 jobs between 2016 and 2041, resulting in a total number of 3,262 jobs by 2041.

The following table outlines the population and employment forecasts allocated to the Township of North Huron.[1]

| | 2016 | 2023 | 2026 | 2031 | 2036 | 2041 |
|---|---|---|---|---|---|---|
| Forecasted Population | 4,932 | 4,982 | 5,040 | 5,082 | 5,082 | 5,057 |
| Forecasted Employment | 3,181 | 3,213 | 3,251 | 3,278 | 3,278 | 3,262 |

## 6.2 Impact of Growth on Lifecycle Activities

By July 1, 2025, the Township's AMP 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.

[1] The above projections are based on 2016 census data. More recent population statistics from the 2023 Census is slightly higher than the suggested projections. The recorded population in the Township of North Huron is 5,052 in 2023.

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.

# 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 identifies the criteria used to calculate risk for each asset category
- Appendix D provides additional guidance on the development of a condition assessment program

# Appendix A: 10-Year Capital Requirements

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

**Road Network**

| Asset Segment | Backlog | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HCB | $0 | $2.1m | $1.1m | $1.2m | $828k | $822k | $977k | $2.2m | $533k | $672k | $485k |
| LCB | $0 | $0 | $0 | $0 | $46k | $190k | $46k | $0 | $0 | $0 | $0 |
| Security | $0 | $0 | $7k | $0 | $0 | $0 | $7k | $0 | $0 | $0 | $7k |
| Sidewalks | $14k | $0 | $0 | $0 | $0 | $9k | $0 | $10k | $12k | $0 | $0 |
| Streetlights | $12k | $0 | $7k | $0 | $0 | $0 | $12k | $0 | $0 | $1.3m | $47k |
| | **$27k** | **$2.1m** | **$1.1m** | **$1.2m** | **$874k** | **$1.0m** | **$1.0m** | **$2.2m** | **$545k** | **$1.9m** | **$539k** |

**Bridges & Culverts**

| Asset Segment | Backlog | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bridges | $0 | $2.9m | $0 | $0 | $0 | $0 | $388k | $0 | $0 | $0 | $0 |
| Culverts | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| | **$0** | **$2.9m** | **$0** | **$0** | **$0** | **$0** | **$388k** | **$0** | **$0** | **$0** | **$0** |

**Storm Network**

| Asset Segment | Backlog | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Storm Mains | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** | **$0** |

**Buildings**

| Asset Segment | Backlog | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Administrative | $33k | $0 | $35k | $0 | $0 | $0 | $0 | $105k | $0 | $0 | $0 |
| Protection Services | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Recreation and Cultural | $10.7m | $49k | $20k | $20k | $0 | $23k | $177k | $597k | $20k | $0 | $114k |
| Transportation Services | $0 | $1.4m | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| | **$10.7m** | **$1.4m** | **$55k** | **$20k** | **$0** | **$23k** | **$177k** | **$702k** | **$20k** | **$0** | **$114k** |

| Vehicles | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
| Environmental Services | $0 | $0 | $0 | $0 | $0 | $0 | $166k | $0 | $0 | $0 | $0 |
| Protection Services | $334k | $16k | $0 | $0 | $0 | $0 | $1.0m | $0 | $0 | $393k | $49k |
| Recreation and Cultural | $25k | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Transportation Services | $550k | $69k | $82k | $0 | $0 | $0 | $99k | $21k | $133k | $295k | $0 |
| | **$909k** | **$84k** | **$82k** | **$0** | **$0** | **$0** | **$1.3m** | **$21k** | **$133k** | **$688k** | **$49k** |

| Machinery & Equipment | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
| Fire & Emergency | $209k | $65k | $14k | $0 | $42k | $0 | $40k | $0 | $0 | $14k | $0 |
| General Government | $43k | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Public Works | $512k | $16k | $564k | $111k | $54k | $297k | $65k | $395k | $0 | $484k | $78k |
| Recreation and Cultural | $124k | $124k | $26k | $33k | $0 | $33k | $50k | $24k | $8k | $9k | $0 |
| | **$888k** | **$205k** | **$604k** | **$145k** | **$96k** | **$330k** | **$155k** | **$419k** | **$8k** | **$507k** | **$78k** |

| Information Technology | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
| Administrative | $121k | $62k | $7k | $0 | $7k | $0 | $132k | $14k | $0 | $0 | $7k |
| Protection Services | $6k | $0 | $0 | $0 | $0 | $0 | $6k | $0 | $0 | $0 | $0 |
| Recreation and Cultural | $74k | $0 | $6k | $0 | $6k | $0 | $79k | $54k | $0 | $6k | $6k |
| | **$201k** | **$62k** | **$12k** | **$0** | **$13k** | **$0** | **$218k** | **$67k** | **$0** | **$6k** | **$13k** |

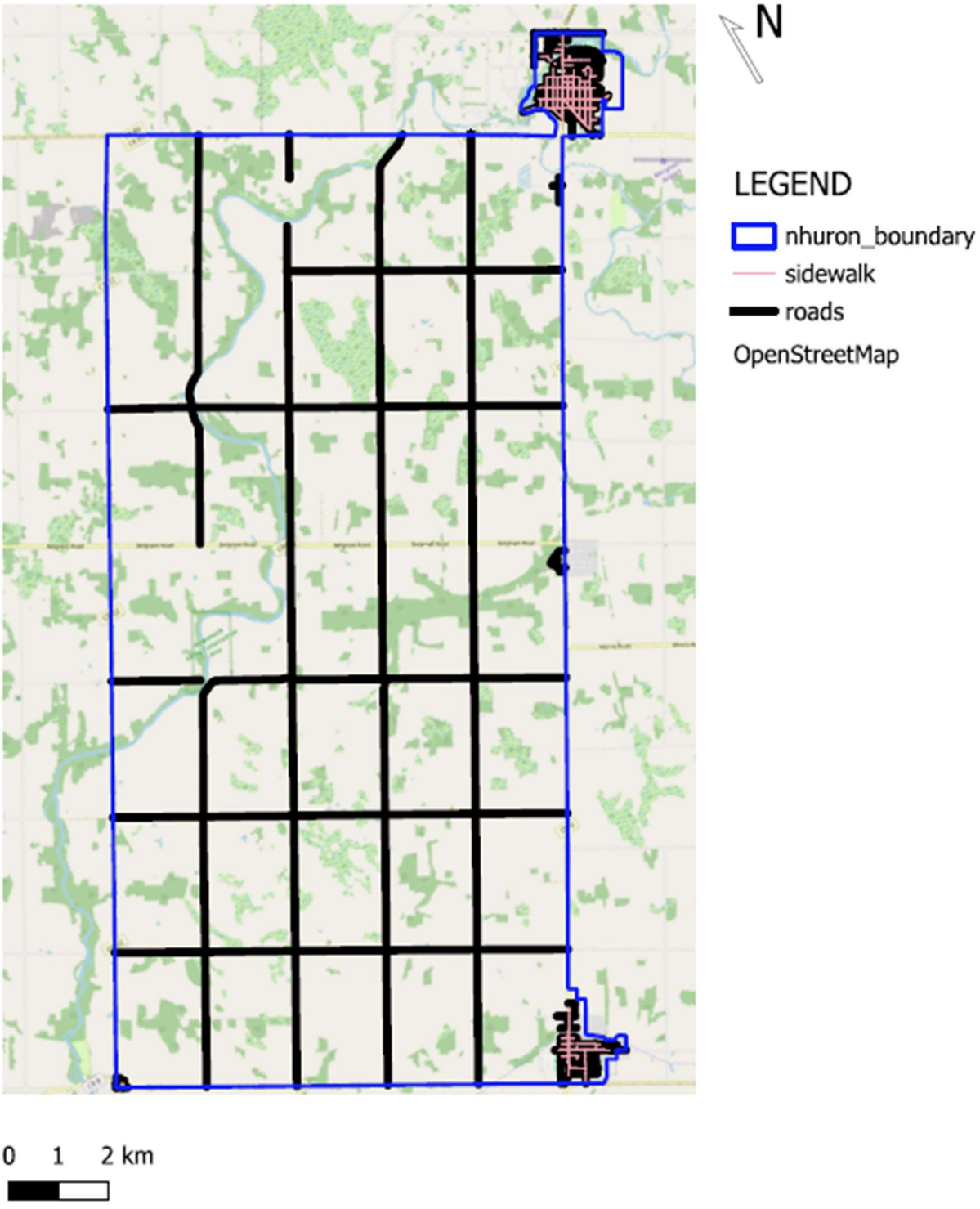
| Land Improvements | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
| Arena | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $32k | $0 | $0 | $0 |
| Cemeteries | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Cemetery Structures | $1.8m | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Daycare | $50k | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| General Government | $40k | $0 | $0 | $0 | $16k | $16k | $0 | $0 | $0 | $0 | $0 |
| Landfill | $131k | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Parks | $1.1m | $0 | $0 | $34k | $32k | $13k | $0 | $0 | $0 | $0 | $0 |
| | **$3.1m** | **$0** | **$0** | **$34k** | **$49k** | **$30k** | **$0** | **$32k** | **$0** | **$0** | **$0** |

| Water Network | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
| Hydrants | $155k | $0 | $15k | $0 | $50k | $10k | $0 | $15k | $20k | $5k | $5k |
| Water Equipment | $11k | $0 | $0 | $0 | $0 | $0 | $22k | $0 | $0 | $0 | $46k |
| Water Facilities | $1.3m | $4.8m | $0 | $0 | $0 | $105k | $0 | $0 | $0 | $0 | $66k |
| Water Mains | $142k | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $51k |
| | **$1.6m** | **$4.8m** | **$15k** | **$0** | **$50k** | **$115k** | **$22k** | **$15k** | **$20k** | **$5k** | **$167k** |

| Sanitary Network | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Asset Segment | Backlog | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 |
| Sanitary Equipment | $12k | $0 | $0 | $0 | $0 | $0 | $12k | $0 | $0 | $0 | $16k |
| Sanitary Facilities | $8.3m | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Sanitary Mains | $1.2m | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| | **$9.5m** | **$0** | **$0** | **$0** | **$0** | **$0** | **$12k** | **$0** | **$0** | **$0** | **$16k** |

# Appendix B: Level of Service Maps

## Road Network Map



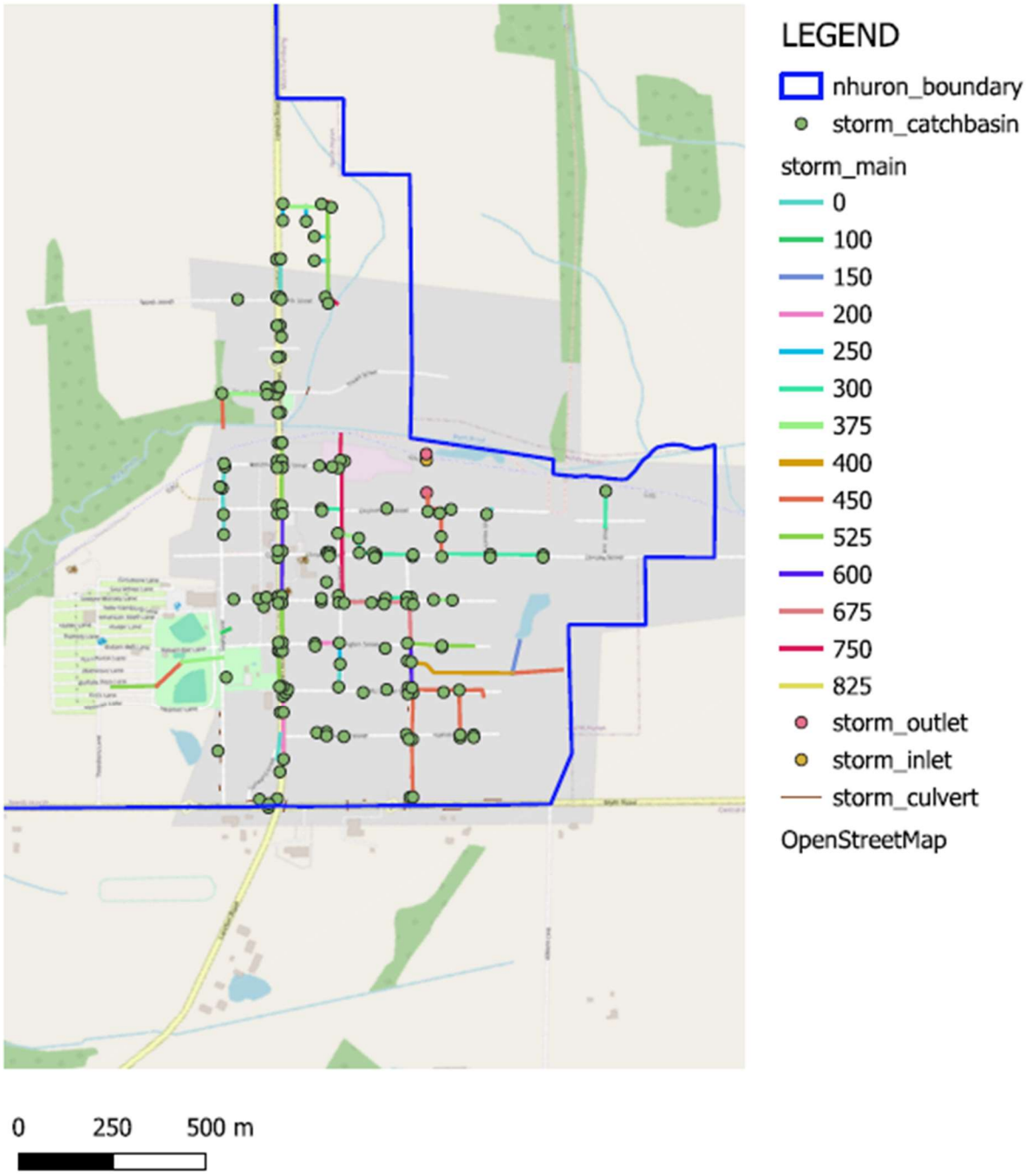
## Images of Bridge in Excellent Condition

10th Line with a BCI of 96

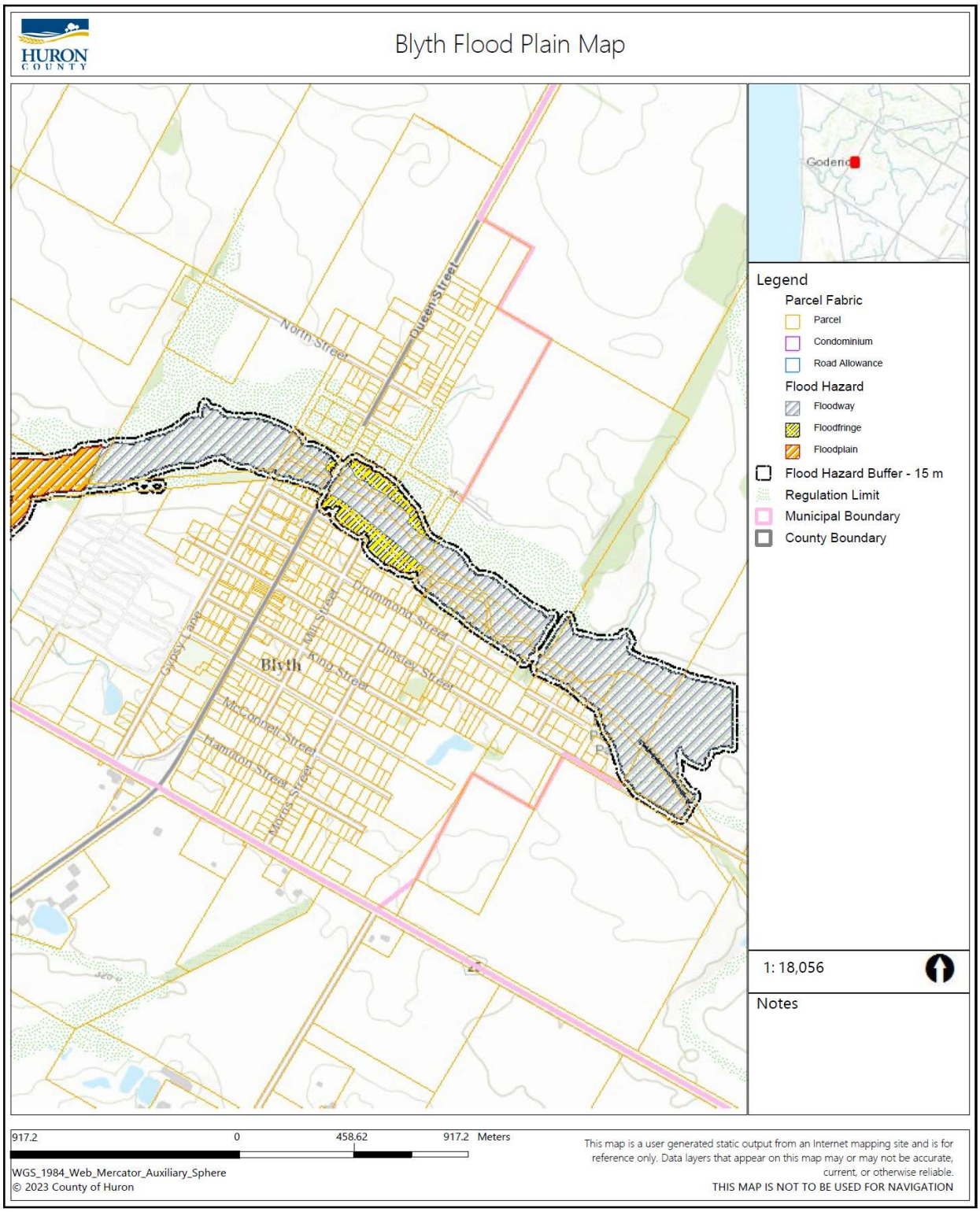
## Images of Bridge in Poor Condition

Taylor Bridge with a BCI of 37

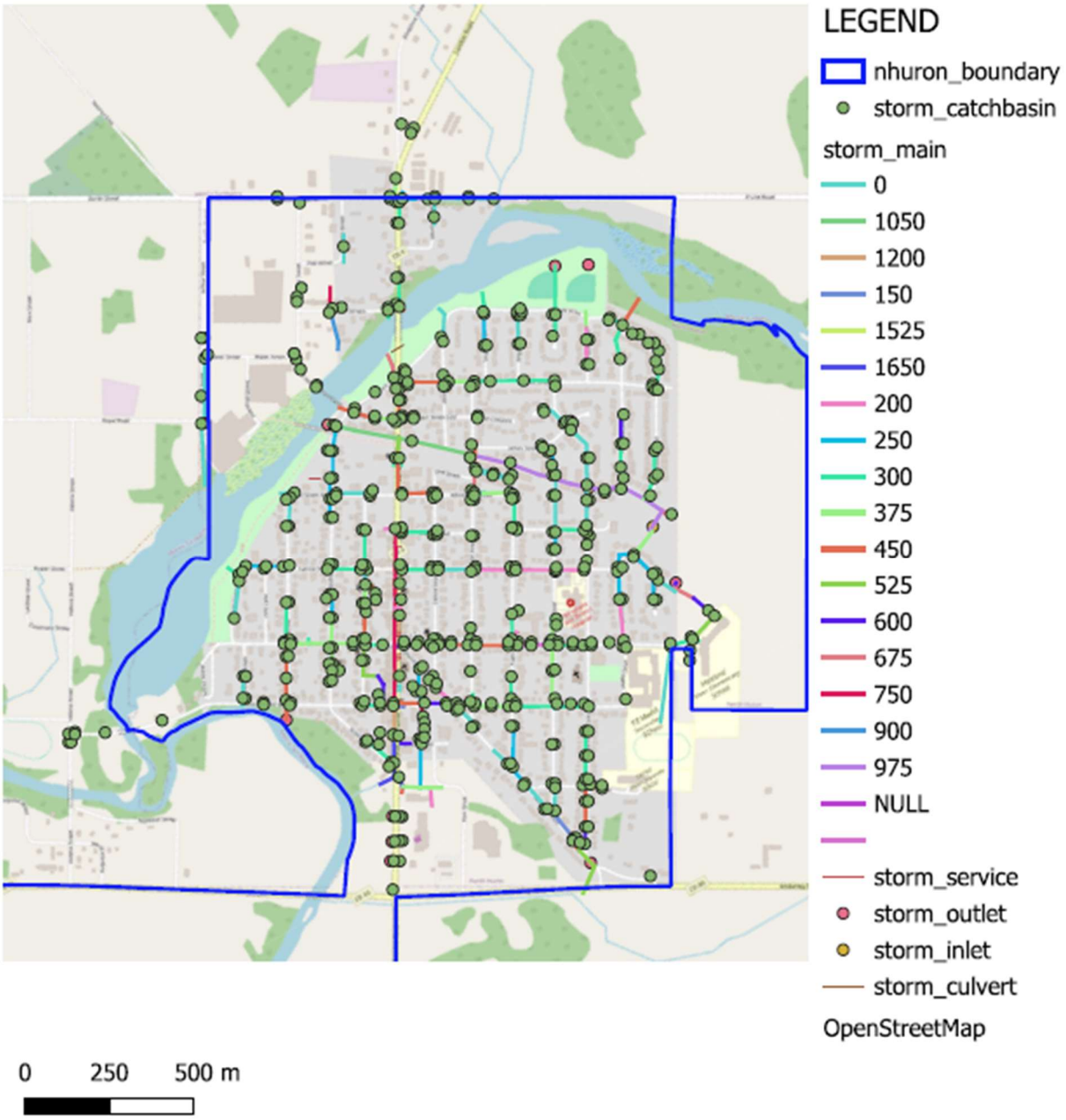
## Storm Network Map (Blyth)



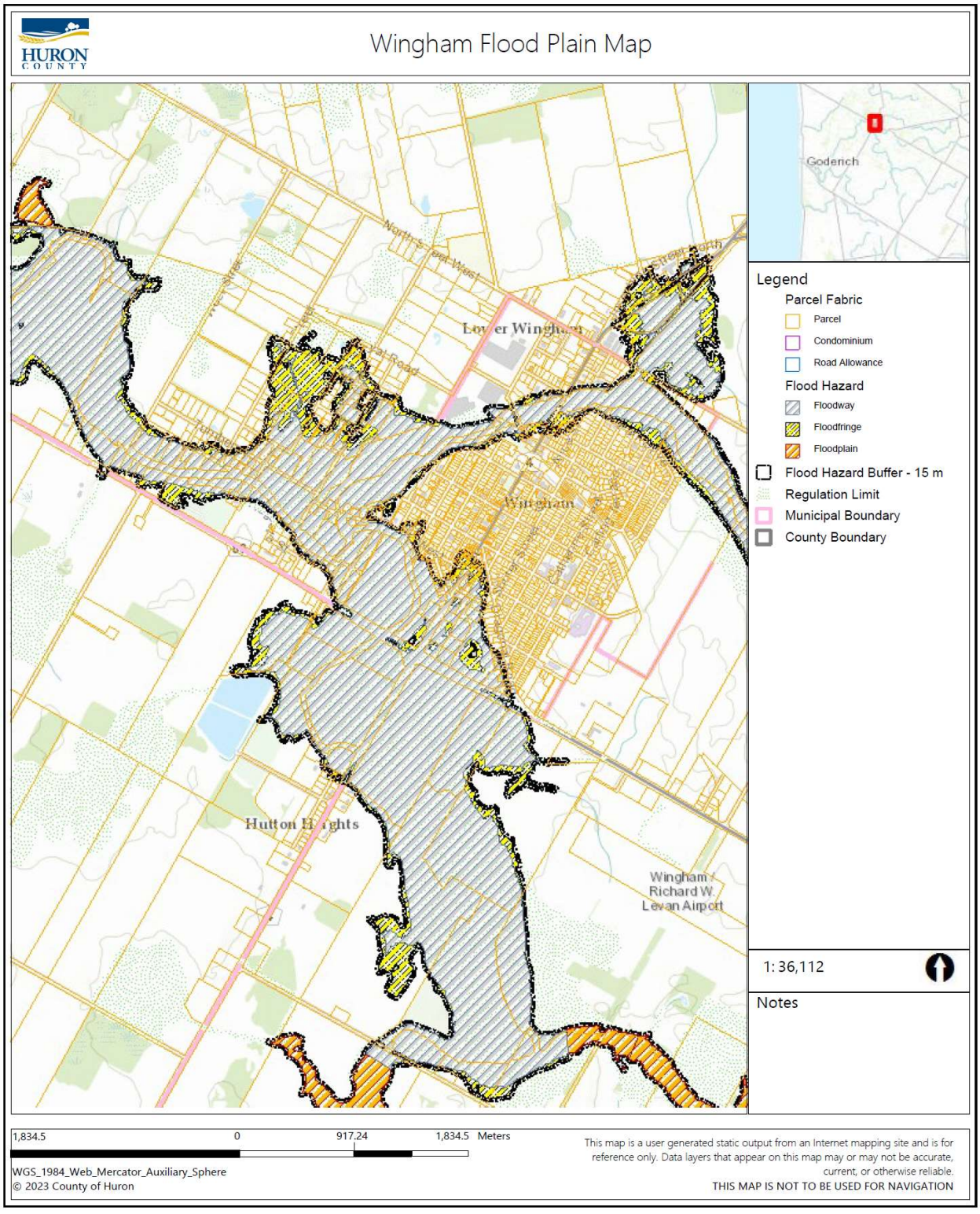
## Flood Plain Map (Blyth)



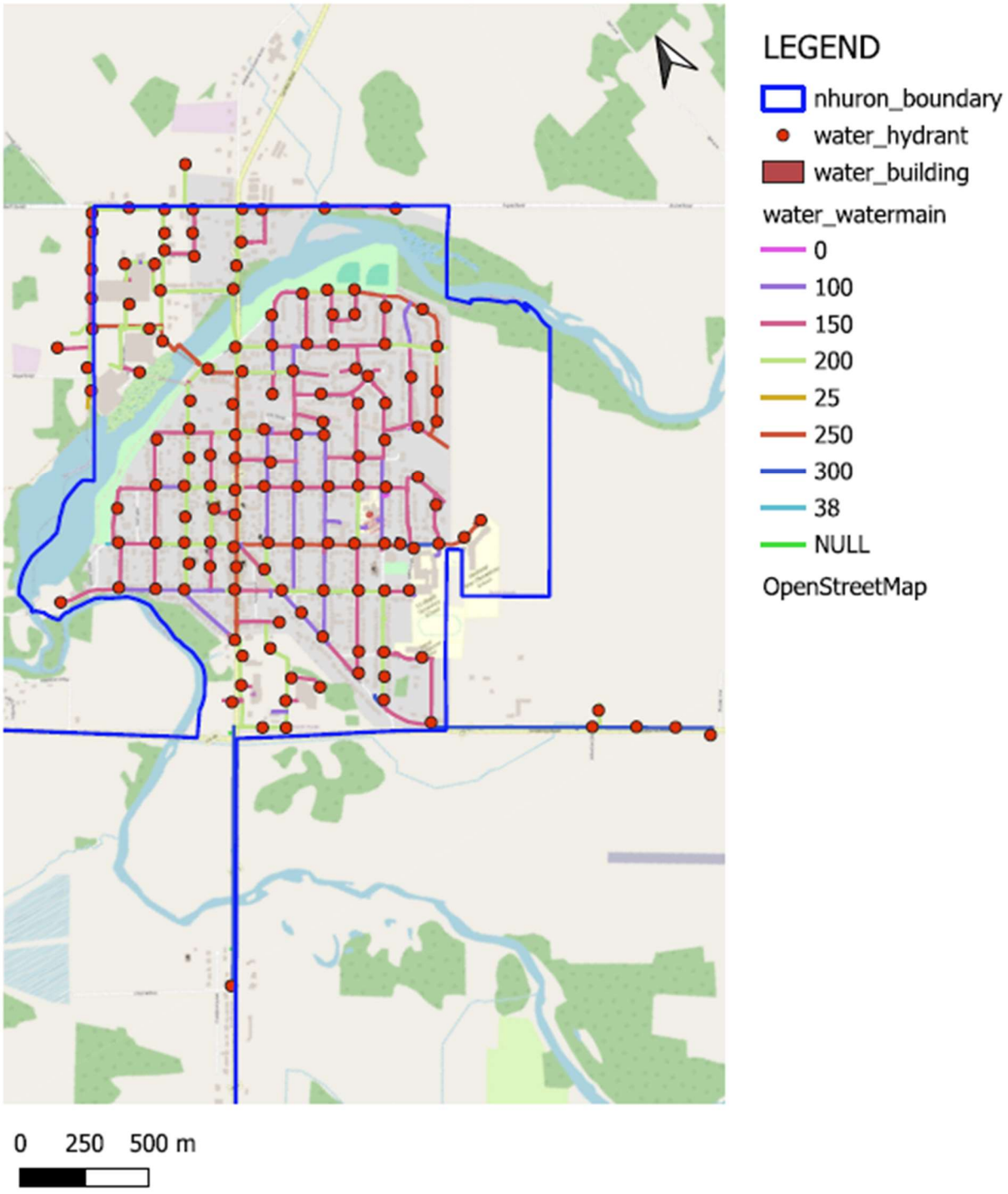
## Storm Network Map (Wingham)



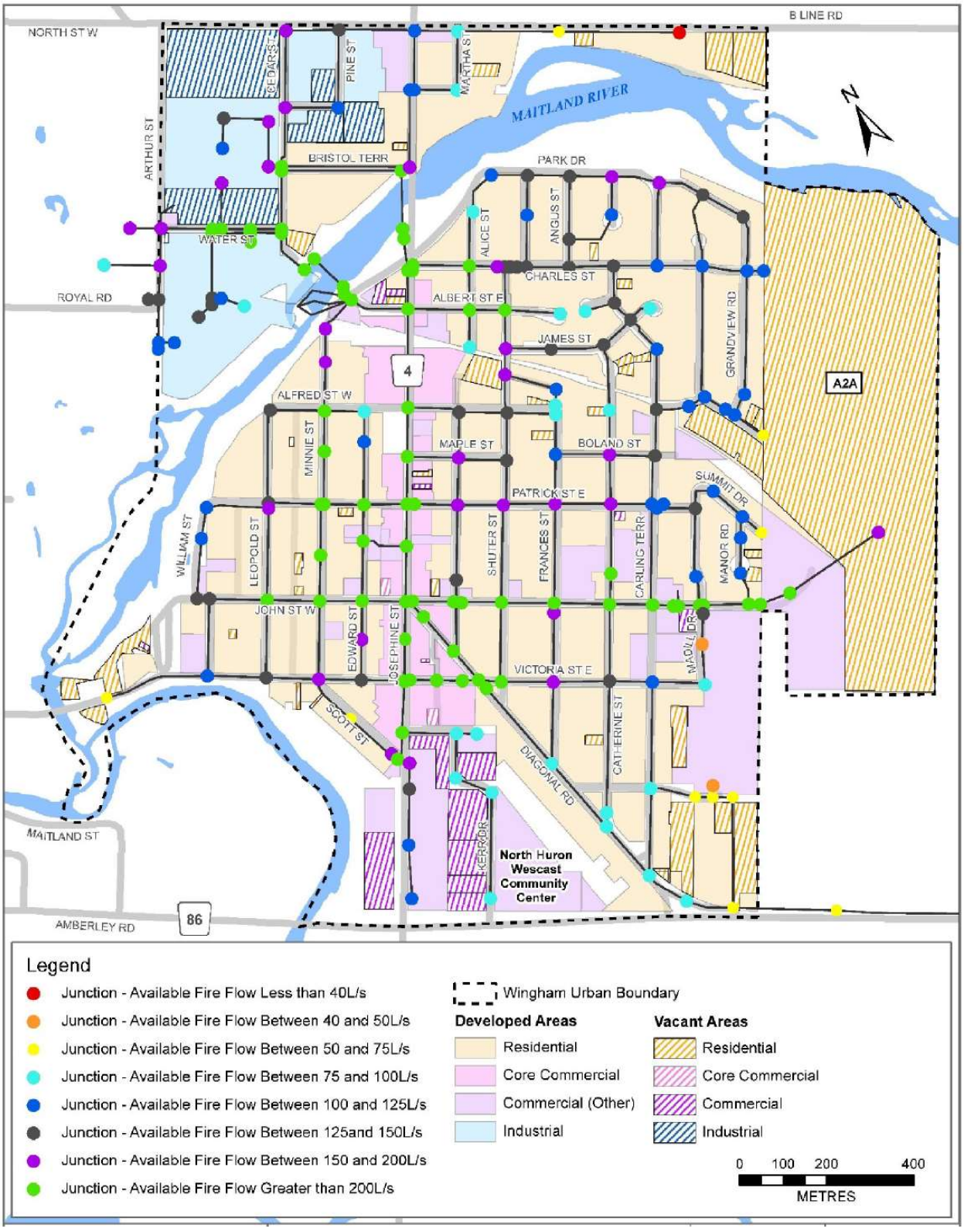
## Flood Plain Map (Wingham)



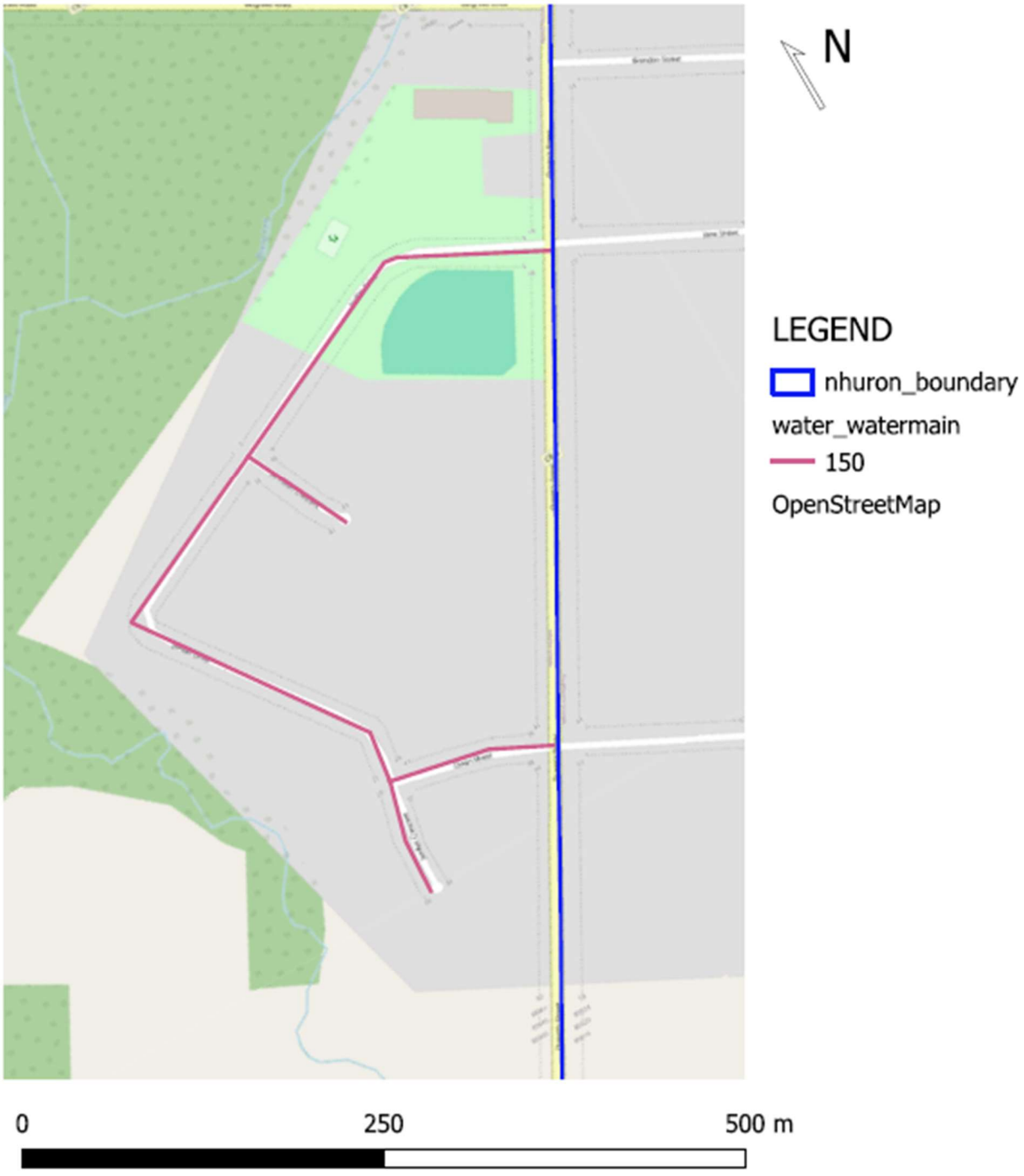
## Water Network Map (Wingham)



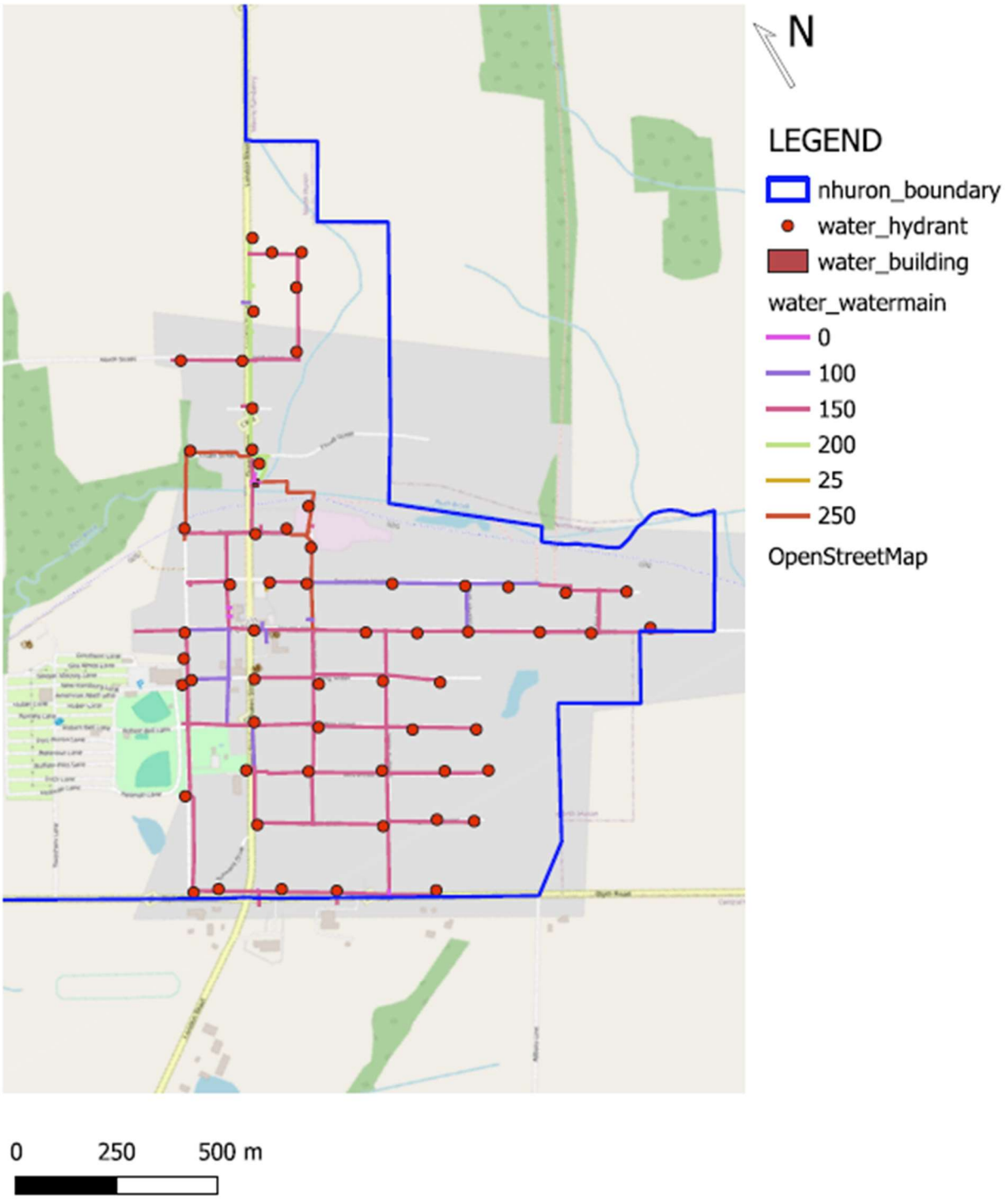
## Fire Flow Map (Wingham)



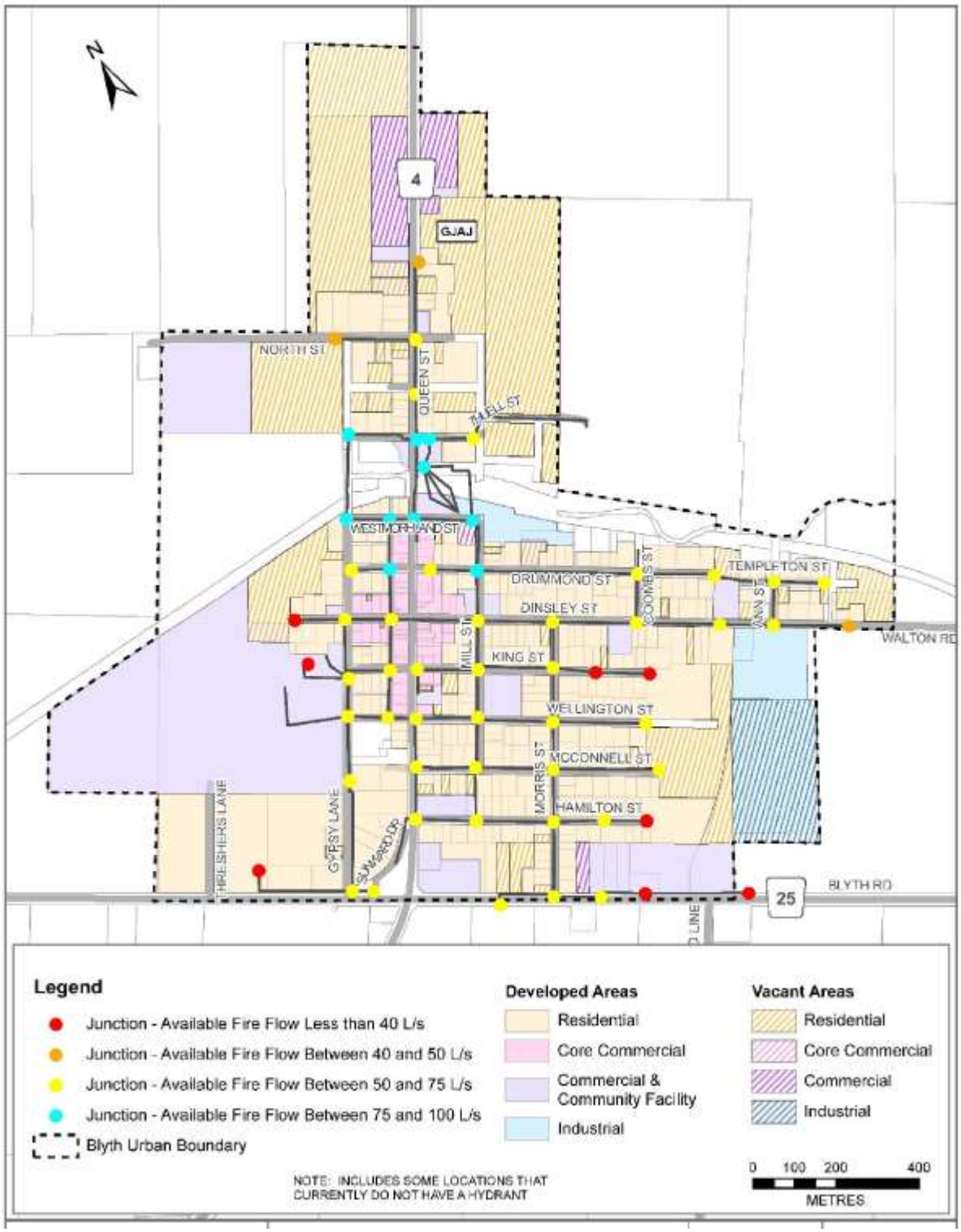
## Water Network Map (Belgrave)



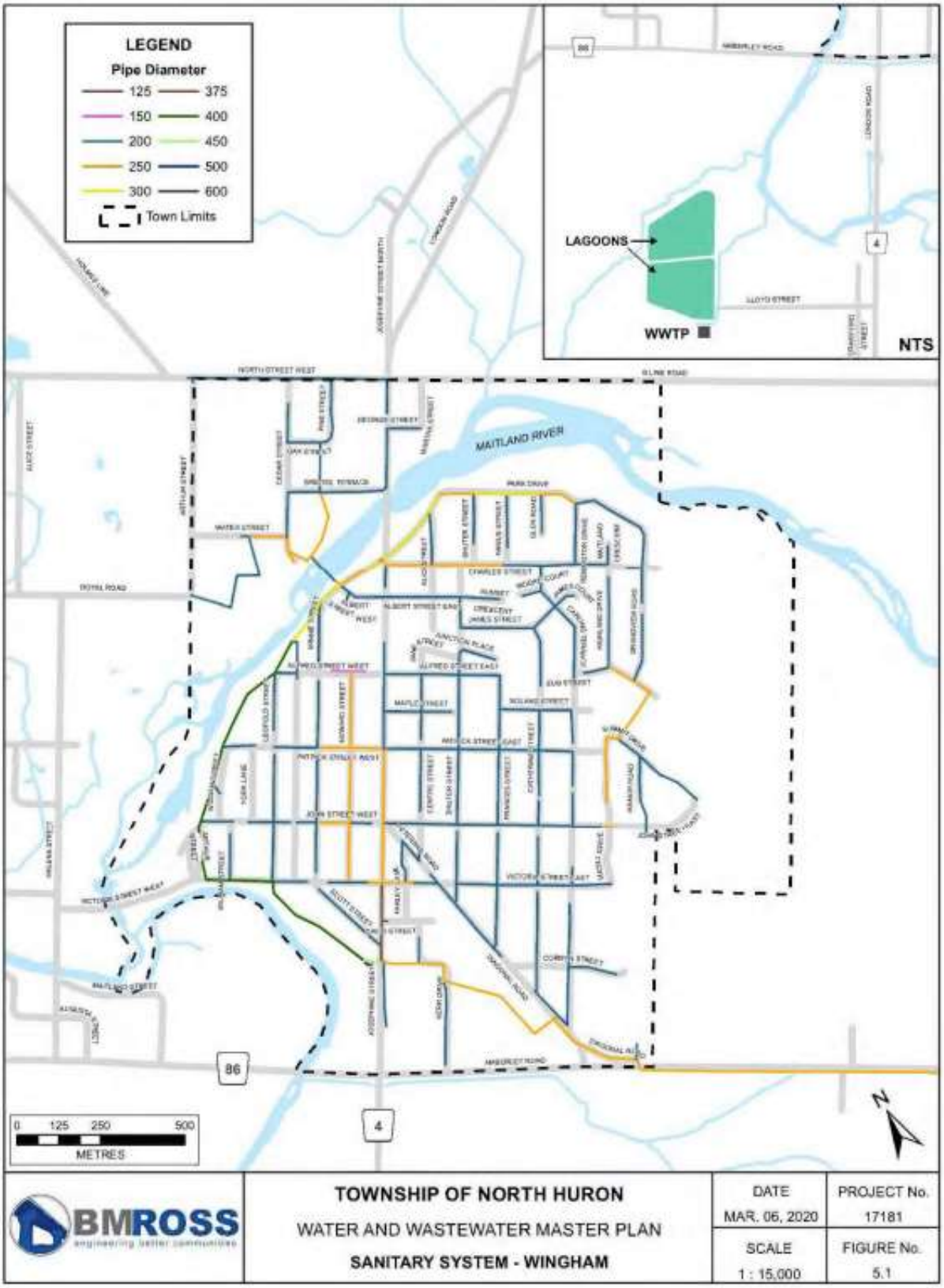
## Water Network Map (Blyth)



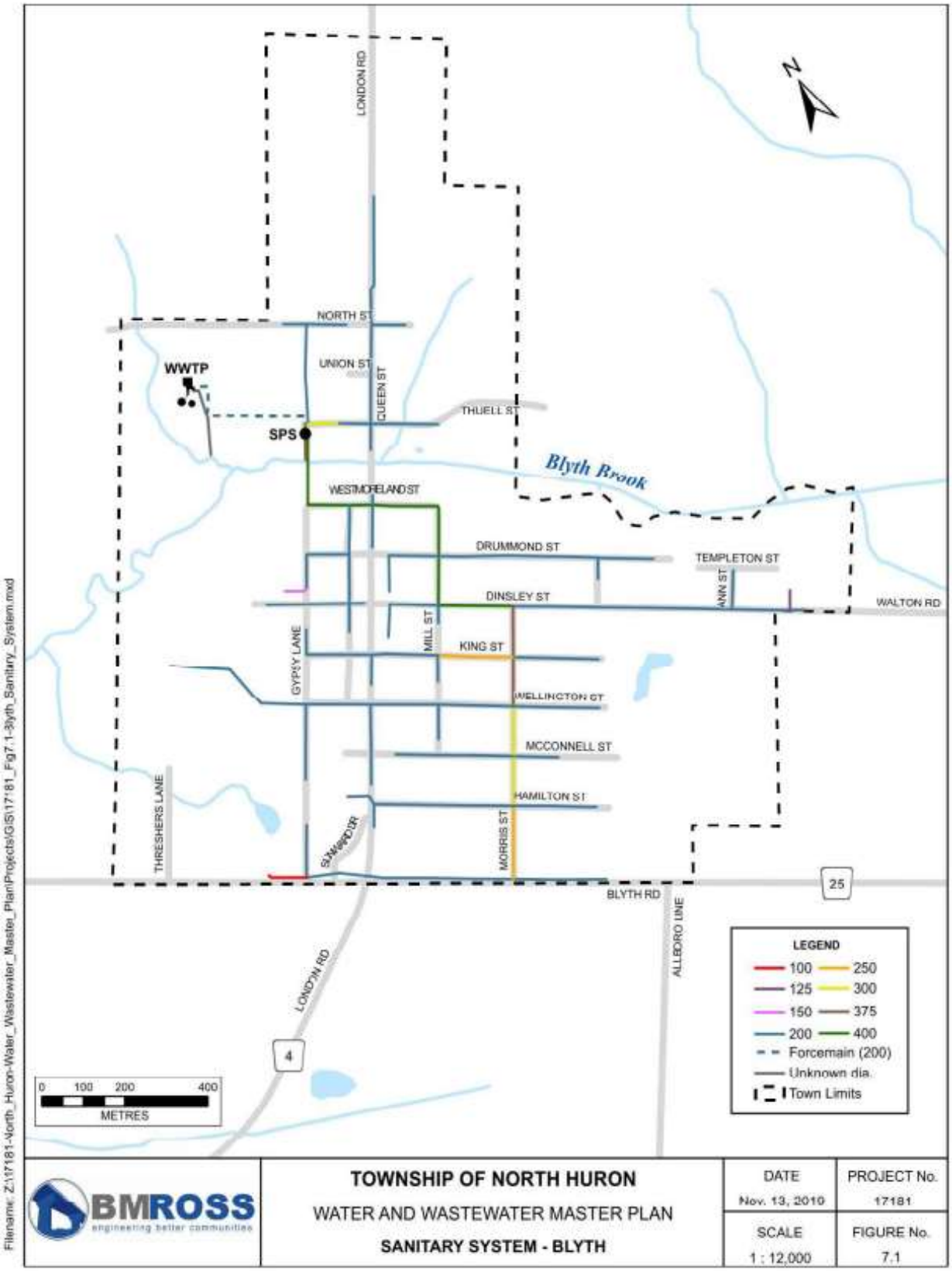
## Fire Flow Map (Blyth)



## Sanitary Network (Wingham)



## Sanitary Network (Blyth)



# Appendix C: Risk Rating Criteria

## Probability of Failure

| Asset Category | Risk Criteria | Criteria Weighting | Value/Range | Probability of Failure Score |
|---|---|---|---|---|
| Road Network<br>Bridges<br>Buildings<br>Machinery & Equipment<br>Vehicles<br>Information Technology<br>Land Improvements | Condition | 100% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| Sanitary Network (Mains) | Condition | 80% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| | Pipe Material | 20% | PVC | 1 |
| | | | AC | 2 |
| | | | Concrete | 2 |
| | | | Clay | 5 |

| | | | | |
|---|---|---|---|---|
| Water Network (Mains) | Condition | 80% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| | Pipe Material | 20% | Ductile Iron | 3 |
| | | | Plastic | 3 |
| | | | PVC | 3 |
| | | | Cast Iron | 4 |
| Storm Network (Mains) | Condition | 80% | 80-100 | 1 |
| | | | 60-79 | 2 |
| | | | 40-59 | 3 |
| | | | 20-39 | 4 |
| | | | 0-19 | 5 |
| | Pipe Material | 20% | AC | 2 |
| | | | Cast Iron | 2 |
| | | | Ductile Iron | 2 |
| | | | Concrete | 2 |
| | | | PVC | 2 |

## Consequence of Failure

| Asset Category | Risk Classification | Risk Criteria | Value/Range | Consequence of Failure Score |
|---|---|---|---|---|
| Road Network<br>Bridges<br>Buildings<br>Machinery & Equipment<br>Vehicles<br>Information Technology<br>Land Improvements | Economic (100%) | Replacement Cost (100%) | $0-$25,000 | 1 |
| | | | $25,000-$100,000 | 2 |
| | | | $100,000-$250,000 | 3 |
| | | | $250,000-$500,000 | 4 |
| | | | $500,000+ | 5 |
| Storm Network | Economic (80%) | Replacement Cost (100%) | $0-$25,000 | 1 |
| | | | $25,000-$100,000 | 2 |
| | | | $100,000-$250,000 | 3 |
| | | | $250,000-$500,000 | 4 |
| | | | $500,000+ | 5 |
| | Operational (20%) | Pipe Diameter (100%) | 0-200mm | 1 |
| | | | 200-300mm | 2 |
| | | | 300-525mm | 3 |
| | | | 525-750mm | 4 |
| | | | 750mm+ | 5 |

| | | | | |
|---|---|---|---|---|
| Water Network (Water Mains) | Economic (80%) | Replacement Cost (100%) | $0-$25,000 | 1 |
| | | | $25,000-$100,000 | 2 |
| | | | $100,000-$250,000 | 3 |
| | | | $250,000-$500,000 | 4 |
| | | | $500,000+ | 5 |
| | Operational (20%) | Pipe Material (100%) | 0-50mm | 1 |
| | | | 50-100mm | 2 |
| | | | 100-200mm | 3 |
| | | | 200-250mm | 4 |
| | | | 250mm+ | 5 |
| Sanitary Network (Sanitary Mains) | Economic (80%) | Replacement Cost (100%) | $0-$25,000 | 1 |
| | | | $25,000-$100,000 | 2 |
| | | | $100,000-$250,000 | 3 |
| | | | $250,000-$500,000 | 4 |
| | | | $500,000+ | 5 |
| | Operational (20%) | Pipe Diameter (100%) | 0-100mm | 1 |
| | | | 100-200mm | 2 |
| | | | 200-300mm | 3 |
| | | | 300-375mm | 4 |
| | | | 375mm+ | 5 |

# Appendix D: Condition Assessment Guidelines

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

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