Asset Management Plan

Township of Ashfield-Colborne-Wawanosh

2024

This Asset Management Plan was prepared by:

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

Key Statistics

$207.3m	Replacement Cost of Asset Portfolio
$65k	Replacement Cost of Infrastructure Per Household
95%	Percentage of Assets in Fair or Better Condition
89%	Percentage of Assets with Assessed Condition Data

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Executive Summary

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

Scope

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

This AMP include the following asset categories:

Asset Categories


Road Network


Bridges & Culverts


Buildings


Storm Network


Vehicles


Equipment


Land Improvements


Water Network

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

Findings

The overall replacement cost of the asset categories included in this AMP totals $207.3 million. 95% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 89% of assets. For the remaining 11% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP. The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (paved road) and replacement only strategies (all other assets) to determine the lowest cost option to maintain the current level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Municipality's average annual capital requirement totals $4.9 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 Municipality. Strategic asset management planning is an ongoing and dynamic process that requires continuous improvement and dedicated resources.

Recommendations

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

- Reviewing asset data to update and maintain a complete and accurate centralized asset register
- Developing portfolio-wide condition assessment strategies with a regular schedule
- Reviewing and updating lifecycle management strategies
- Developing and regularly reviewing short- and long-term plans to meet capital requirements
- Continuing to measure current levels of service and identify sustainable proposed levels of service
- Developing a 10-year financial strategy that will support proposed levels of service

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

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

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

1.1 Ashfield-Colborne-Wawanosh Community Profile

Census Characteristic	Township of Ashfield-Colborne-Wawanosh	Ontario
Population 2021	5,884	14,223,942
Population Change 2016-2021	8.5%	5.8%
Total Private Dwellings	3,149	5,929,250
Population Density	10.0/km^2	15.9/km^2
Land Area	586.88km^2	892,411.76 km^2

The Township of Ashfield-Colborne-Wawanosh is a lower-tier Township and part of the Huron County located in southwestern Ontario. Ashfield-Colborne-Wawanosh is situated on the southeast side of Lake Huron.

The Township of Ashfield-Colborne-Wawanosh formed in 2001 through the amalgamation of the former Townships of Ashfield, Colborne, and West Wawanosh. This reorganization was part of a provincial initiative to reduce the number of municipalities throughout Ontario. The also Township includes several small communities and hamlets. These communities are typical of rural Ontario, offering a quiet, close-knit environment.

The region is characterized by a mix of agricultural lands, small communities, and beautiful stretches of shoreline. The area is known for its scenic beauty, including natural attractions and outdoor recreational opportunities. The Township provides various services to its residents, including public libraries, community centers, and fire services.

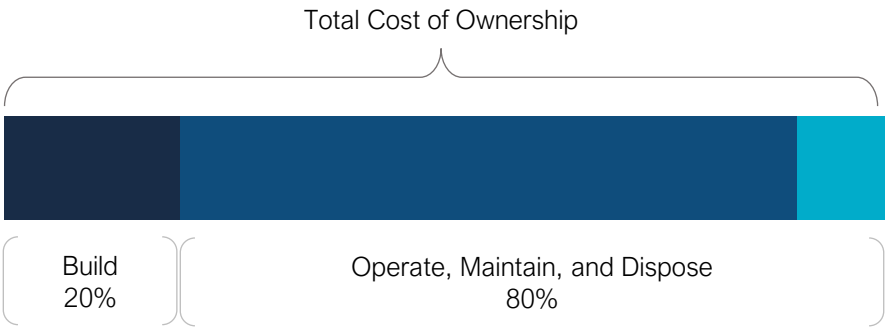
As a predominantly agricultural area, demand within the Township is strongly driven to the agricultural sector. This includes demand for agricultural inputs, services, and infrastructure that supports farming operations. Given its location along Lake Huron and its natural beauty, tourism and recreational activities drive demand in sectors such as hospitality, leisure, and retail. This includes accommodations, dining establishments, and outdoor recreational services.

The infrastructure priorities for Ashfield-Colborne-Wawanosh are focused on environmental stewardship, agricultural support, conservation, community development, and managing settlement growth within designated areas to preserve the natural environment and enhance community sustainability.

1.2 An Overview of Asset Management

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

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



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

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

1.2.1 Asset Management Policy

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

Ashfield-Colborne-Wawanosh's Asset Management Policy was approved by Council in 2019, in accordance with Ontario Regulation 588/17.

The goals and objectives of the policy is to:

- Ensure infrastructure supports effective, reliable service delivery to meet present and future community needs
- Promote long-term sustainability by addressing environmental impacts, adapting to climate change, and maintaining ecological balance
- Support economic competitiveness, community well-being, and local job creation through strategic infrastructure investments
- Incorporate evidence-based decision-making, stakeholder engagement, and alignment with long-term financial and operational plans
- Focus on the long-term maintenance, repair, and replacement of assets to enhance resilience and operational efficiency

1.2.2 Asset Management Strategy

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

The Strategic Plan for Ashfield-Colborne-Wawanosh (2023) emphasizes balancing tradition and progress by fostering community trust, advancing service excellence, promoting sustainability, supporting economic growth, and ensuring safety and well-being. Guided by values of fiscal responsibility, inclusivity, and transparency, the plan addresses current challenges like infrastructure gaps and demographic shifts while leveraging strengths in community engagement and natural resources. It aims to build a sustainable, inclusive, and thriving community through improved communication, environmental stewardship, and support for local business and workforce development.

1.2.3 Asset Management Plan

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

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

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

1.3 Key Concepts in Asset Management

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

1.3.1 Lifecycle Management Strategies

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

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

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

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

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

The Municipality's approach to lifecycle management is described within each asset category outlined in this AMP. Developing and implementing a proactive lifecycle strategy will help staff to determine which activities to perform on an asset and when they should be performed to maximize useful life at the lowest total cost of ownership.

1.3.2 Risk Management Strategies

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

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

This AMP includes a high-level evaluation of asset risk and criticality. Each asset has been assigned a probability of failure score and consequence of failure score based on available asset data. These risk scores can be used to prioritize maintenance, rehabilitation, and replacement strategies for critical assets.

1.3.3 Levels of Service

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

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

Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories (roads, bridges & culverts, water, sanitary, and 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 Municipality has determined the qualitative descriptions that will be used to determine the community level of service provided. These descriptions can be found in the Levels of Service subsection within each asset category.

Technical Levels of Service

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

For core asset categories (roads, bridges & culverts) 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 Municipality has determined the technical metrics that will be used to determine the technical level of service provided. These metrics can be found in the Levels of Service subsection within each asset category.

Current and Proposed Levels of Service

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

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

1.4 Climate Change

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

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

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

1.4.1 Ashfield-Colborne-Wawanosh Climate Profile

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

Higher Average Annual Temperature:

- Between the years 1971 and 2000 the annual average temperature was 7.2 ºC
- Under a high emissions scenario, the annual average temperatures are projected to increase by 4.7 ºC by the year 2050 and over 6.5 ºC by the end of the century.

Increase in Total Annual Precipitation:

- Under a high emissions scenario, Ashfield-Colborne-Wawanosh is projected to experience an 12% increase in precipitation by the year 2051 and a 16% increase by the end of the century.

Increase in Frequency of Extreme Weather Events:

- It is expected that the frequency and severity of extreme weather events will change.
- In some areas, extreme weather events will occur with greater frequency and severity than others especially those impacted by Great Lake winds.

1.4.2 Lake Huron

The Great Lakes are one of the largest sources of fresh water on earth, containing 21 percent of the world's surface freshwater. There are 35 million people living in the Great Lakes watershed and Lake Huron is the second largest of the Great Lakes. The area of Lake Huron Watershed is approximately 131,100 km^2. The physical impacts of climate change are most noticeable from: flooding, extreme weather events such as windstorms and tornados, and/or rising water levels eroding shorelines and natural spaces. Erosion and flooding pose a threat to the surrounding built infrastructure such as park assets, bridges, and roads. Communities located in the Great Lakes region may experience more severe windstorms or tornados due to climate change, causing damage to both the natural and built environment.

Public health and safety depend on the stability and predictability of the ecosystem in the Great Lakes watershed. The quality of water is threatened by anthropogenic climate change due to blue-green algae blooms, soil erosion, and agricultural, stormwater, and wastewater runoff. These phenomena put undue stress on regional water filtering and treatment systems. The safety of the public is threatened by the physical impacts of flooding such as flooding and erosion. In some cases, homeowners located near the lakeshore are already at risk of losing their homes.

1.4.3 Integrating Climate change and Asset Management

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

To achieve the sustainable delivery of services, climate change considerations should be incorporated into asset management practices. The integration of asset management and climate change adaptation observes industry best practices and enables the development of a holistic approach to risk management. The Township is involved in environmental conservation efforts, including managing water quality and protecting natural habitats. Its location along Lake Huron also places a focus on shoreline preservation and sustainable development practices.

1.5 Ontario Regulation 588/17

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

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

2019

Strategic Asset Management Policy

2022

Asset Management Plan for Core Assets with the following components:

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

2024

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

2025

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

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

1.5.1 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 – 5.1.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1.1 – 5.1.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.1.3 – 5.1.3	Complete
Condition of assets in each category	S.5(2), 3(iv)	4.1.2 – 5.1.2	Complete
Description of Municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.1.2 – 5.1.2	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	4.1.6 – 5.1.6	Complete
Current performance measures in each category	S.5(2), 2	4.1.6 – 5.1.6	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.1.4 – 5.1.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	Appendix A	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	6.1 - 6.2	Complete

2 Scope and Methodology

Key Insights

- This asset management plan includes 8 asset 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 Ashfield-Colborne-Wawanosh is produced in compliance with Ontario Regulation 588/17. The July 2024 deadline under the regulation requires analysis of both core and non-core assets.

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

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

2.2 Deriving Replacement Costs

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

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

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

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

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

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

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

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

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

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

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

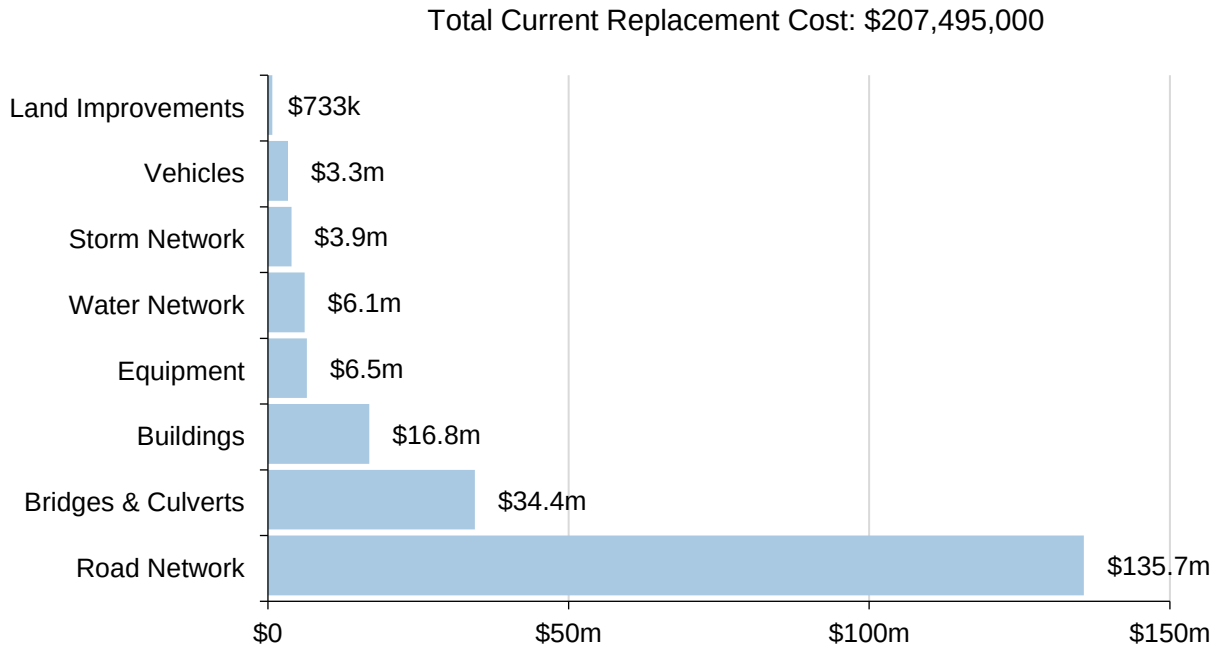
3 Portfolio Overview

Key Insights

- The total replacement cost of the Municipality’s asset portfolio is $207.3 million
- 95% of all assets are in fair or better condition
- Average annual capital requirements total $4.9 million per year across all assets

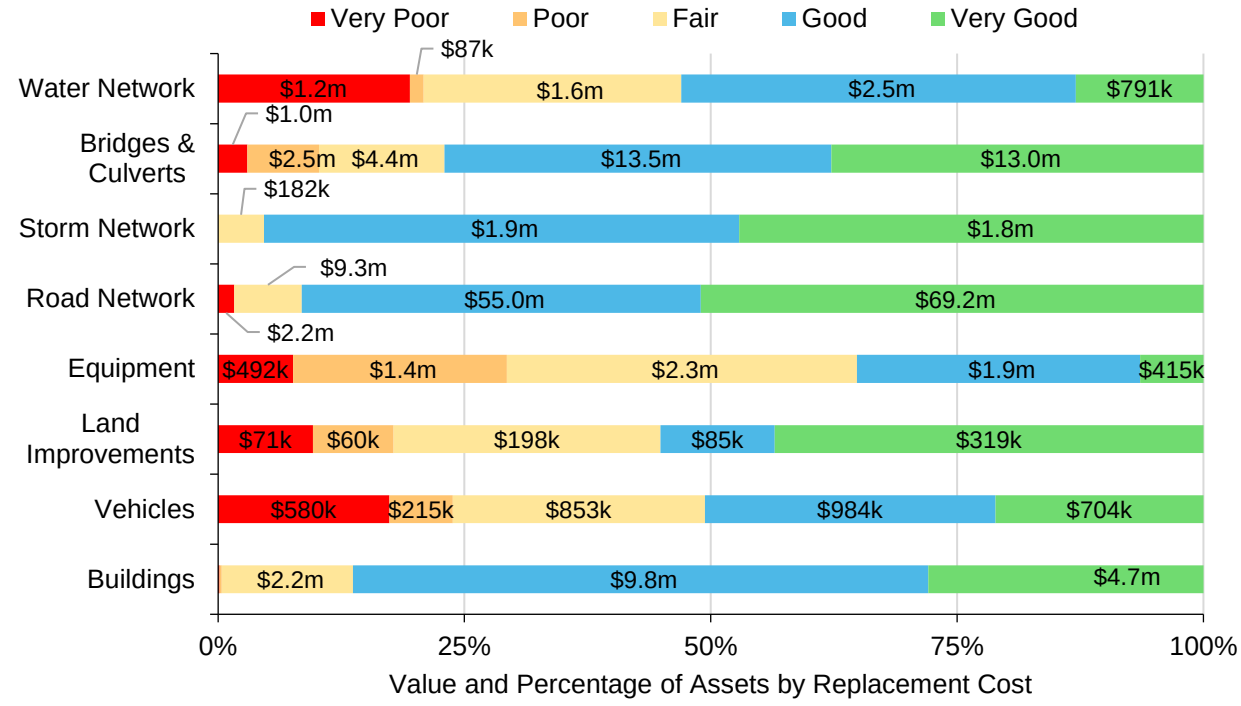
3.1 Total Replacement Cost of Asset Portfolio

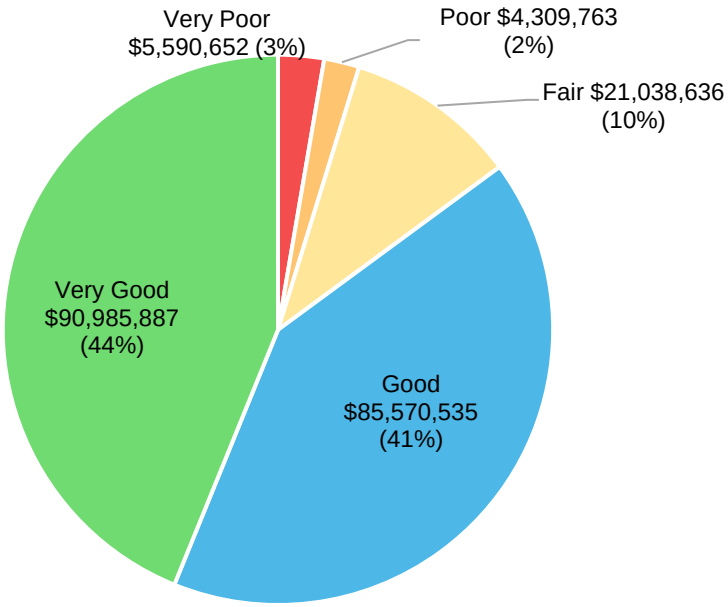
The asset categories analyzed in this AMP have a total replacement cost of $207.3 million based on inventory data from 2022. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.



3.2 Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 95% of assets in Ashfield-Colborne-Wawanosh are in fair or better condition. This estimate relies on both age-based and field condition data.





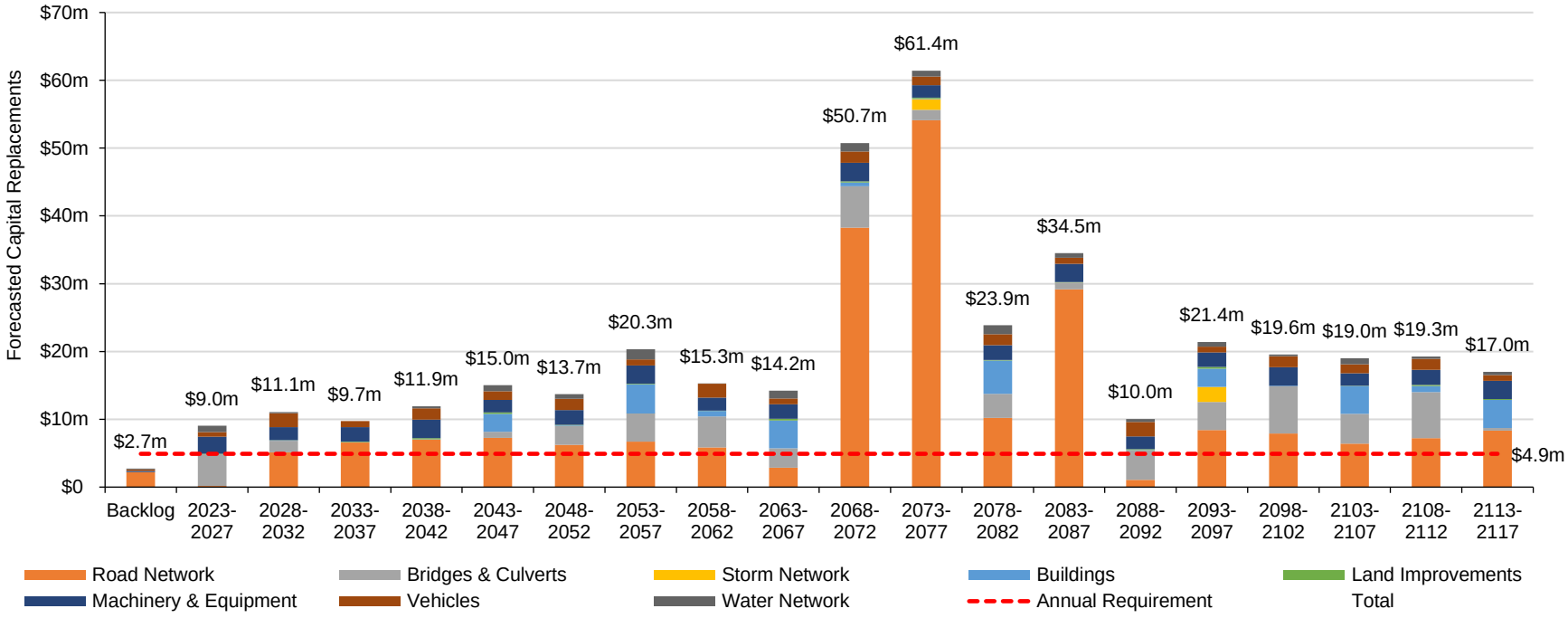
This AMP relies on assessed condition data for 89% of assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table 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%	BM Ross
Bridges & Culverts	All	97%	BM Ross
Storm Network	All	96%	TMC and Internal Assessments
Buildings	All	92%	TMC and Internal Assessments
Land Improvements	All	65%	TMC and Internal Assessments
Vehicles	All	85%	Internal Staff
Equipment	All	92%	TMC and Internal Assessments
Water Network	All	0%	Age-based

3.3 Forecasted Capital Requirements

The development of a long-term capital forecast should include both asset rehabilitation and replacement requirements. With the development of asset-specific lifecycle strategies that include the timing and cost of future capital events, the Municipality can produce an accurate long-term capital forecast.

The following graph identifies capital requirements over the next 95 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 $201.2 million
- 96% of tax-funded assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for all assets is approximately $4.8 million

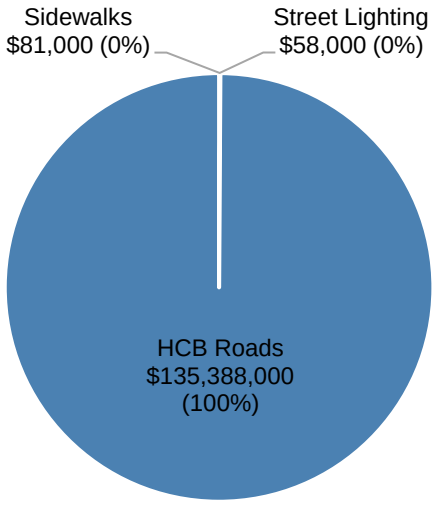
4.1 Road Network

The road network is a critical component of the provision of safe and efficient transportation services and represents the highest value asset category in the Municipality's asset portfolio. It includes all municipally owned and maintained roadways in addition to supporting roadside infrastructure including sidewalks, and streetlights.

4.1.1 Asset Inventory & Replacement Costs

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

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Gravel Roads	266,480	Meters	Not Planned for Replacement	
HCB Roads	175,858	Meters	$135,388,000	Cost per unit
Sidewalks	1	Assets	$81,000	CPI
Street Lighting	93	Assets	$58,000	CPI

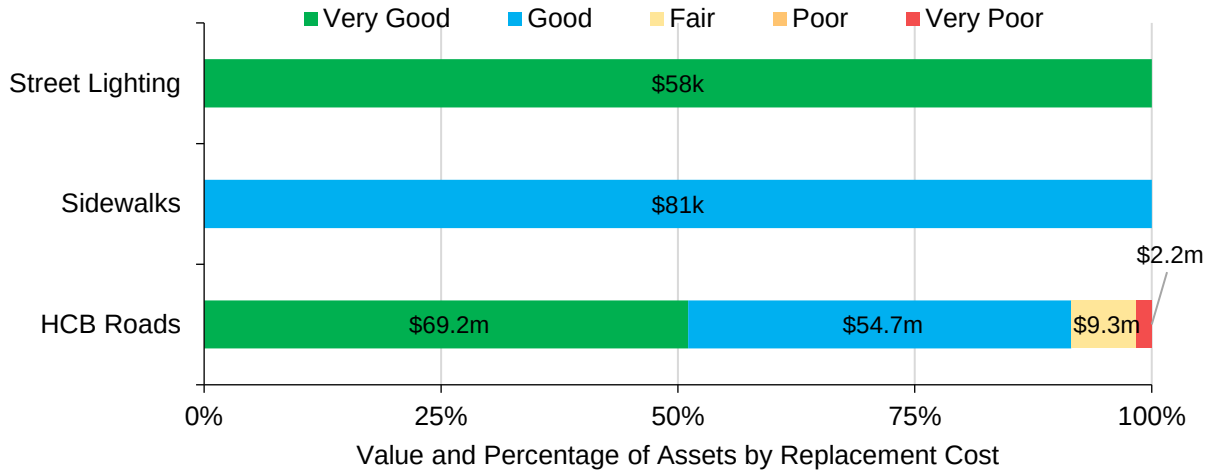


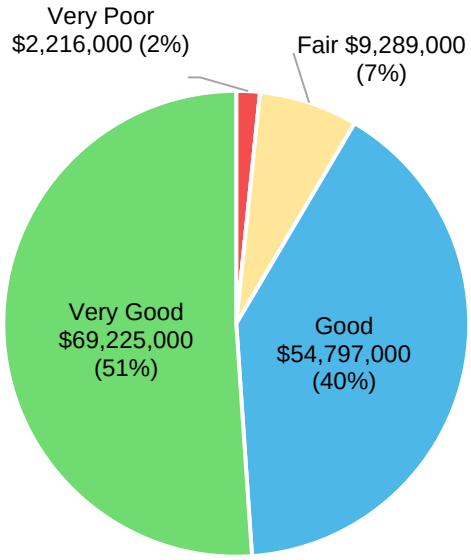
Total Current Replacement Cost: $135,527,000

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

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





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

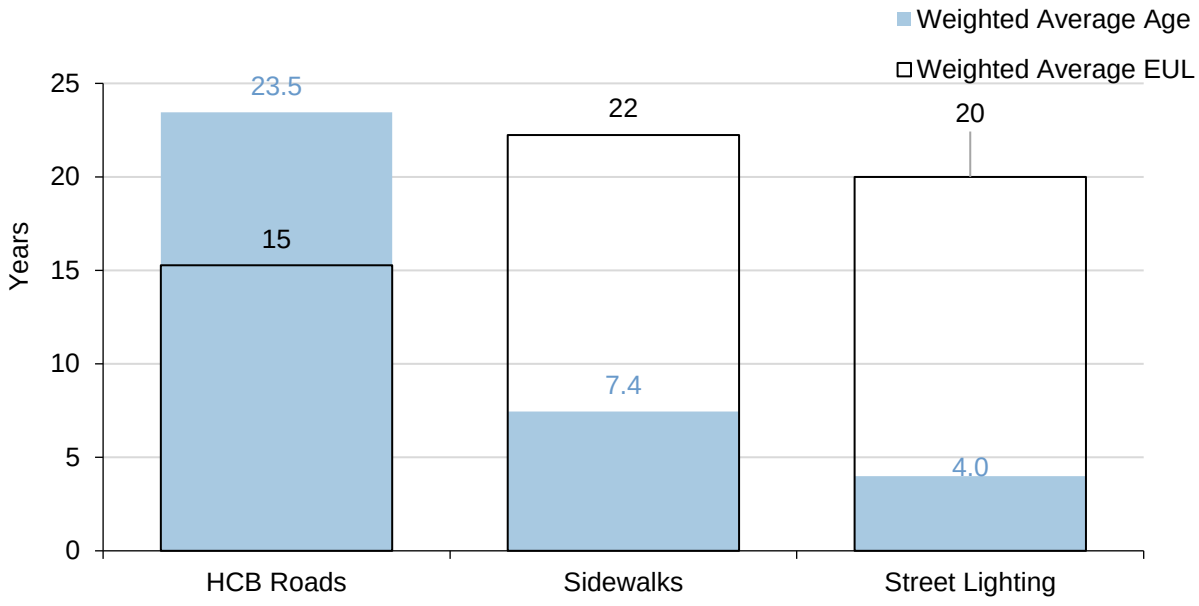
Current Approach to Condition Assessment

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

- Periodic road needs studies are conducted by the Township's external engineer, with the last study completed in 2021. These assessments provide five and ten-year capital plans and are typically performed within five years of the previous assessment
- Informal condition assessments of roads are performed on a regular basis by internal staff
- Sidewalks are evaluated annually, whereas streetlights are continually monitored for functionality without any specific condition assessment

4.1.3 Estimated Useful Life & Average Age

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



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

4.1.4 Lifecycle Management Strategy

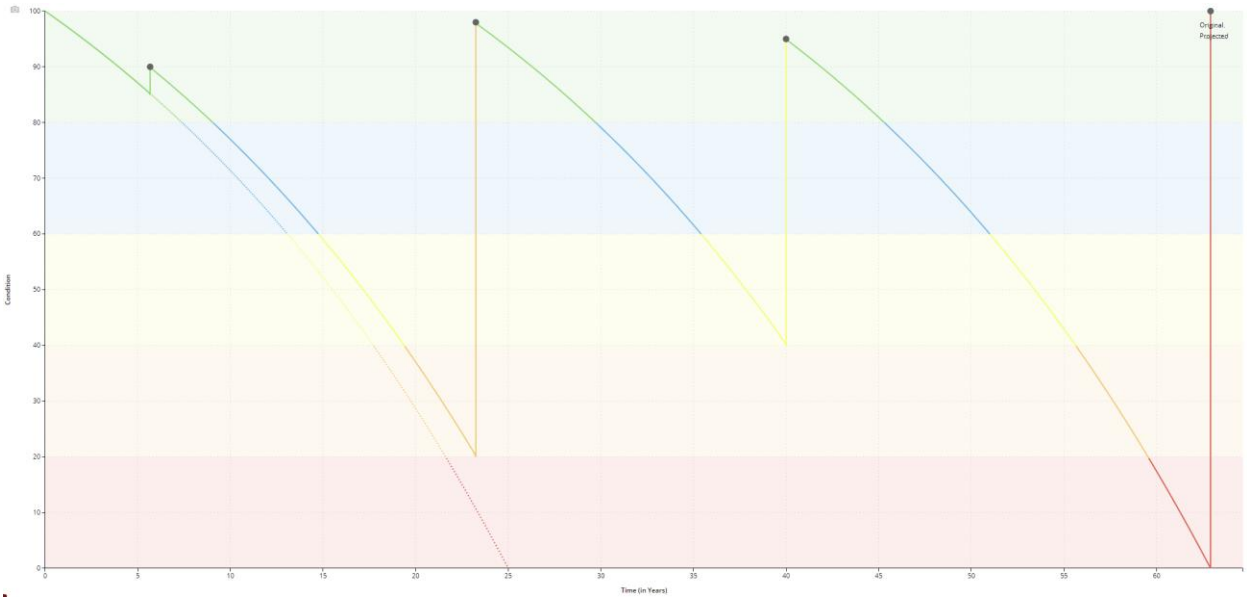
The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history, and environment.

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

Activity Type	Description of Current Strategy
Maintenance	Inspections follow the Minimum Maintenance Standard, with frequency adjustments based on road classification
	Maintenance activities, including inspections, spray-patching, crack sealing, shoulder repair, and vegetation management, are conducted routinely
	Road surface grading is completed for both gravel and HCB roads annually
	Regular re-surfacing of gravel roads is performed biennially
	Regravelling, application of dust suppressants, and grading is performed on a regular basis for gravel roads
Rehabilitation	Rehabilitation activities for HCB and gravel roads depends on its condition and is based on recommendations from the RNS
	Single lift overlay and pulverize and pave is completed to enhance road durability, smoothness, and longevity by applying new layers of asphalt and repaving
Replacement	Replacement of road assets is considered when their condition has significantly deteriorated, making rehabilitation no longer cost-effective
	Assets nearing the end of their expected service life or those requiring frequent and costly repairs are prioritized for replacement. These decisions are included in the 5-year plan but may also be identified by internal staff

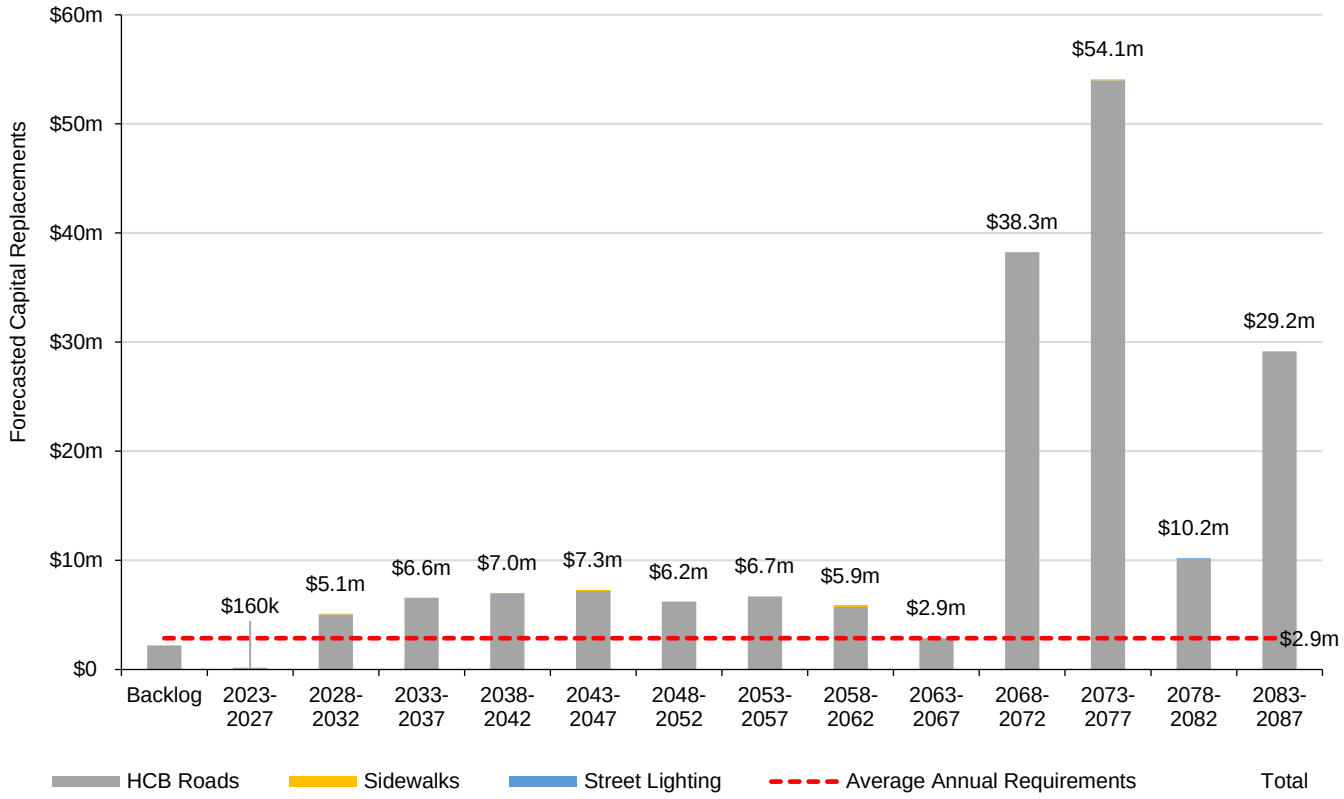
The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of paved roads. Instead of allowing the roads to deteriorate until replacement is required, strategic rehabilitation is expected to extend the service life of roads at a lower total cost.

Paved Roads		
Event Name	**Event Class**	**Event Trigger**
Crack Sealing	Preventative Maintenance	PCI: 85-95
Pulverize and Pave	Rehabilitation	PCI: 20
Single Lift Overlay	Rehabilitation	PCI: 40-75
Full Reconstruction	Replacement	PCI: 0



Forecasted Capital Requirements

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

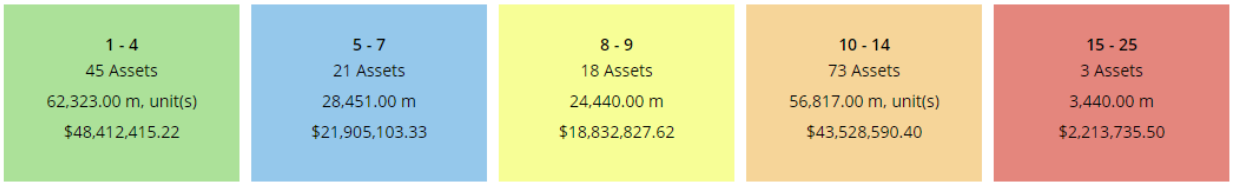


The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

4.1.5 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2022 inventory data.



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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic) – All assets
Service Life Remaining (Years)	Roadside Environment (Economic) – Roads
	Commercial Traffic (Operational) – Roads
	Traffic Range (Social) – Roads
	Segment (Health and Safety) – Roadside appurtenances

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

Risks to Current Asset Management Strategies

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

Climate Change & Extreme Events
Climate change increases the risk of erosion for the Township's road network, particularly for roads near erosion hazards. More frequent and intense weather events, such as heavy rainfall, can rapidly deteriorate these roads by washing away soil and weakening foundations. Addressing this issue is crucial to maintain road safety and integrity in the face of evolving climate conditions.

4.1.6 Levels of Service

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

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	See Appendix B

Quality	Description or images that illustrate the different levels of road class pavement condition	The Township completed a Road Management Study in February 2021 in coordination with B.M. Ross and Associates Limited. Every road section received a surface condition rating (1-10). (1-5) Road surface exhibits moderate to significant deterioration and requires renewal or full replacement within 1-5 years (6-10) Road surface is in good condition or has been recently re-surfaced. Renewal or reconstruction is not required for 6-10+ years

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2022)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km^2)	N/A
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km^2)	0.76
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)	0.71
Quality	Average pavement condition index for paved roads in the Municipality	78
	Average surface condition for unpaved roads in the Municipality (e.g. excellent, good, fair, poor)	Very Good

4.1.7 Recommendations

Asset Inventory

- Continue to refine and update attribute information to supplement the risk and lifecycle strategies.
- Update replacement costs based on recent project prices on a regular basis, every 1-2 years.
- Update condition (PCI) information regularly, as it becomes available, to ensure capital forecasts are reliable.

Lifecycle Management Strategies

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

Risk Management Strategies

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

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17 and those metrics that the Municipality believes to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

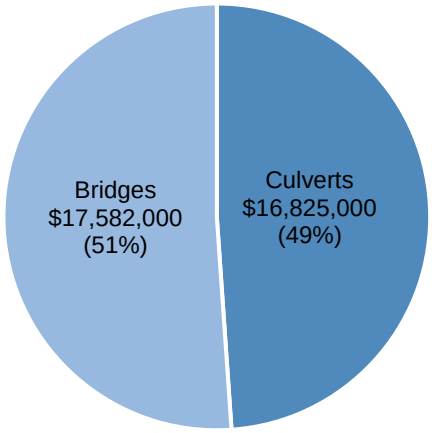
4.2 Bridges & Culverts

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

4.2.1 Asset Inventory & Replacement Costs

The table below includes the quantity, unit of measure, total replacement cost, and primary replacement cost method of each asset segment in the Municipality's bridges & culverts inventory.

Segment	Quantity (Components)	Unit of Measure	Replacement Cost	Primary RC Method
Bridges	17	Assets	$17,582,000	User-defined
Culverts	55	Assets	$16,825,000	User-defined

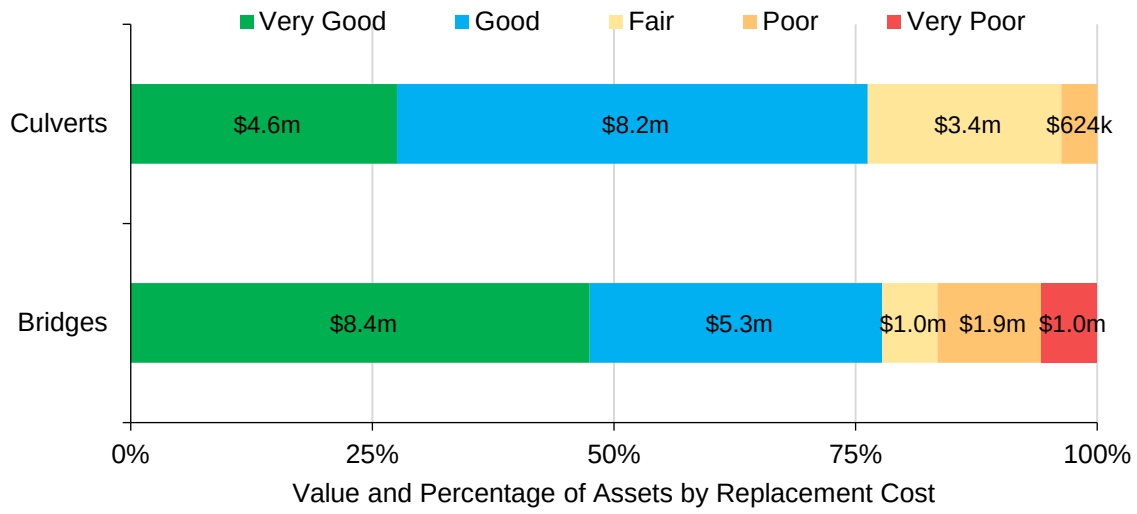


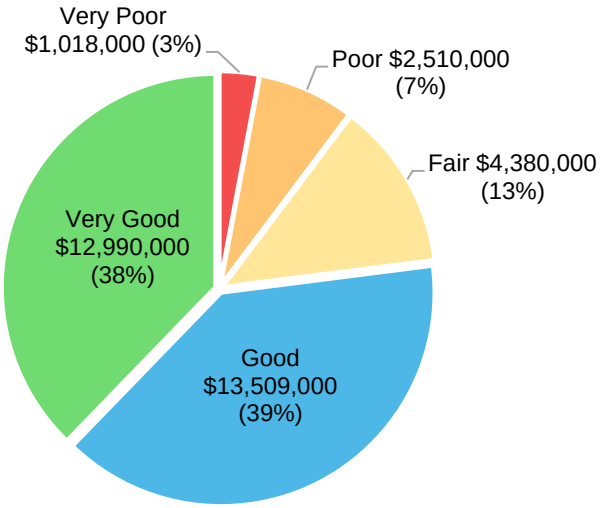
Total Current Replacement Cost: $34,407,000

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

4.2.2 Asset Condition

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





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

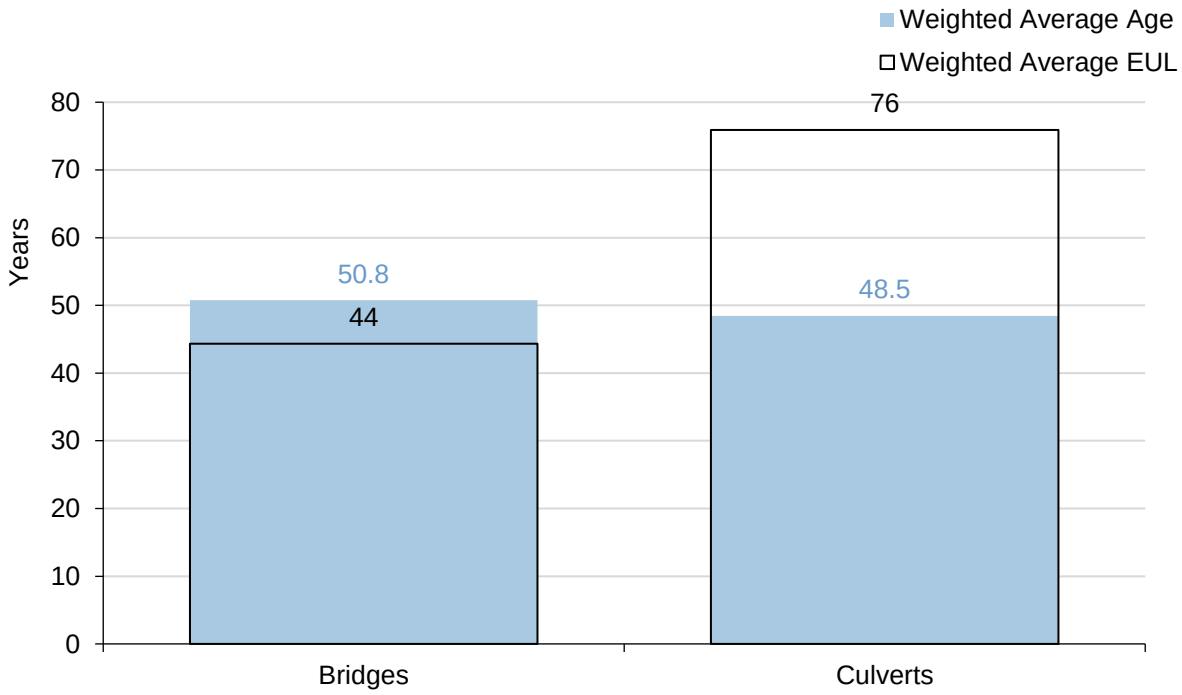
Current Approach to Condition Assessment

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

- Bridges and structural culvert assets are assessed every two years, following the guidelines set by the Ontario Structure Inspection Manual (OSIM). The most recent inspection was conducted in 2023 and are completed by external consultants.

4.2.3 Estimated Useful Life & Average Age

The Estimated Useful Life for bridge & culvert assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Assessed condition may increase or decrease the average service life remaining.



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

4.2.4 Lifecycle Management Strategy

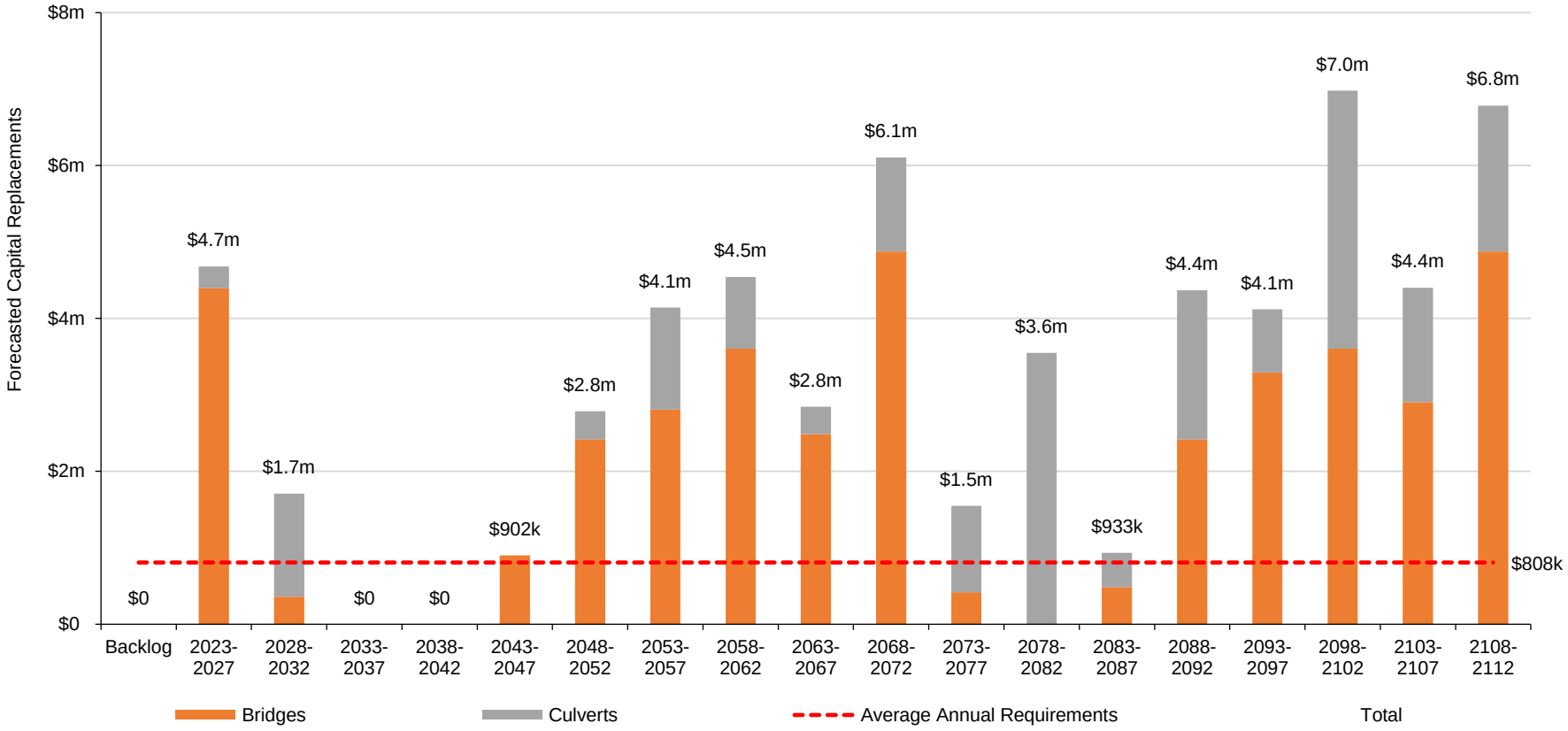
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance	Maintenance activities for bridges and culverts include routine inspections, cleaning, minor repairs, and vegetation management
	Bridges are specifically inspected and cleaned in the spring, with minor repairs carried out as needed
Rehabilitation & Replacement	Rehabilitation for bridges and culverts involves structural repairs and erosion control, which are initiated based on recommendations from the Ontario Structure Inspection Manual (OSIM) report
	Replacement of bridges and culverts is considered when an asset's condition has significantly deteriorated, and rehabilitation is deemed no longer cost-effective
	Assets nearing the end of their expected service life or those that require frequent and costly repairs are prioritized for replacement, as recommended by the OSIM

Forecasted Capital Requirements

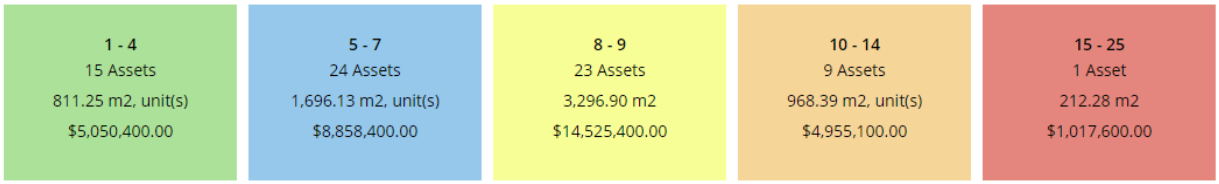
The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Municipality should allocate towards funding rehabilitation and replacement needs. The graph identifies capital requirements over the next 90 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.



4.2.5 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2022 inventory data.



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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)
Service Life Remaining (Years)	Surface Type (Economic)
	Number of Spans (Operational)
	Traffic Range (Social)

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

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
Climate change and extreme weather events threaten the Township's bridges and culverts, particularly through increased erosion near lakesides and bridge abutments. This erosion compromises safety, undermines structural integrity, and elevates maintenance costs, necessitating more frequent inspections and repairs. Proactive measures to mitigate erosion are essential to maintain these critical infrastructures amidst changing climate conditions

4.2.6 Levels of Service

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

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	Bridges and structural culverts are a key component of the municipal transportation network. Currently, there are 7 structures with loading or dimensional restrictions. All other structures can support various types of vehicles, including heavy transport, emergency vehicles, and cyclists.
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 & culverts.

Service Attribute	Technical Metric	Current LOS (2022)
Scope	% of bridges in the Municipality with loading or dimensional restrictions	12%[1]
Quality	Average bridge condition index value for bridges in the Municipality	69
	Average bridge condition index value for structural culverts in the Municipality	72

[1] Replacement cost weighted calculation.

4.2.7 Recommendations

Asset Inventory

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

Risk Management Strategies

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

Lifecycle Management Strategies

- This AMP only includes capital costs associated with the reconstruction of culverts. The Municipality should work towards identifying projected capital rehabilitation and renewal costs for culverts and integrating these costs into long-term planning.

Levels of Service

- Continue to measure current levels of service in accordance with the metrics identified in O. Reg. 588/17 and those metrics that the Municipality believe to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

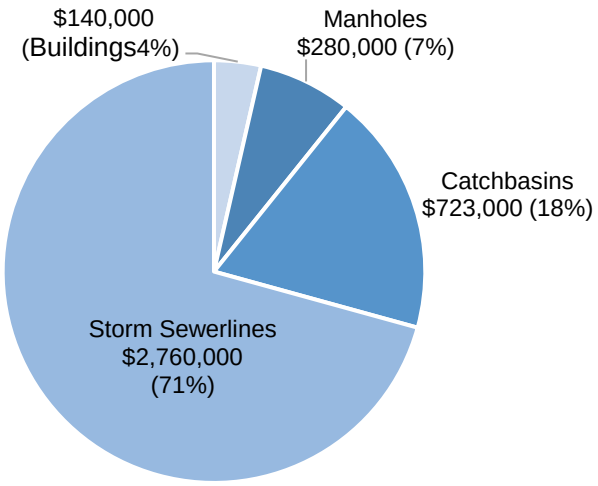
4.3 Storm Network

The Township is responsible for owning and maintaining a storm network comprised of storm sewer lines, catch basins, manholes, and stormwater buildings. Staff are working towards improving the accuracy and reliability of their storm network inventory to assist with long-term asset management planning.

4.3.1 Asset Inventory & Replacement Cost

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

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Catchbasins	85	Assets	$722,500	User-defined
Manholes	34	Assets	$280,000	User-defined
Storm Sewerlines	4,327	Meters	$2,759,996	User-defined
Stormwater Buildings	3	Assets	$140,000	User-defined

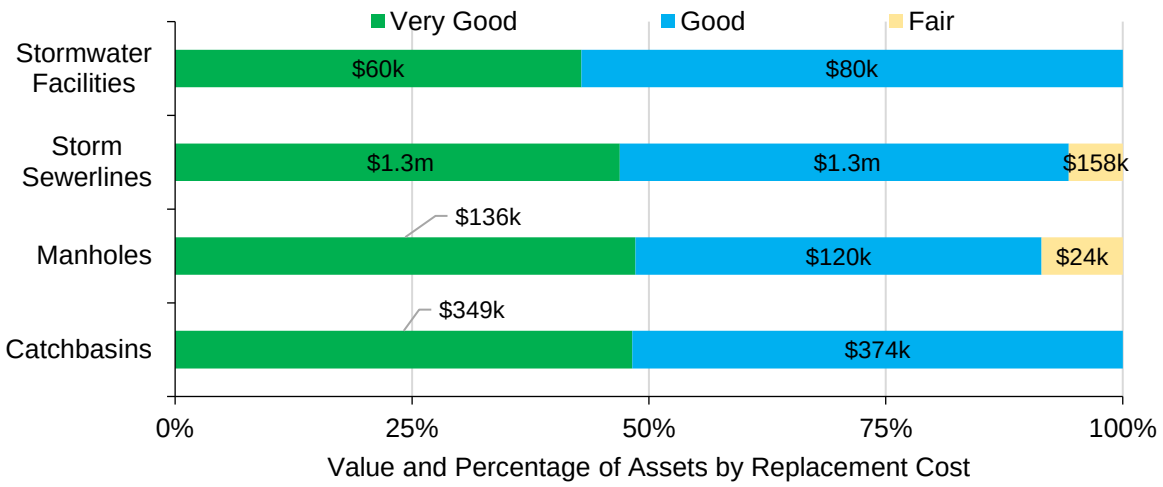


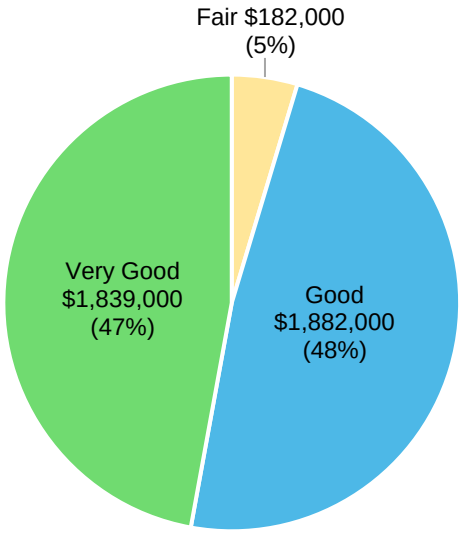
Total Current Replacement Cost: $3,902,000

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

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





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

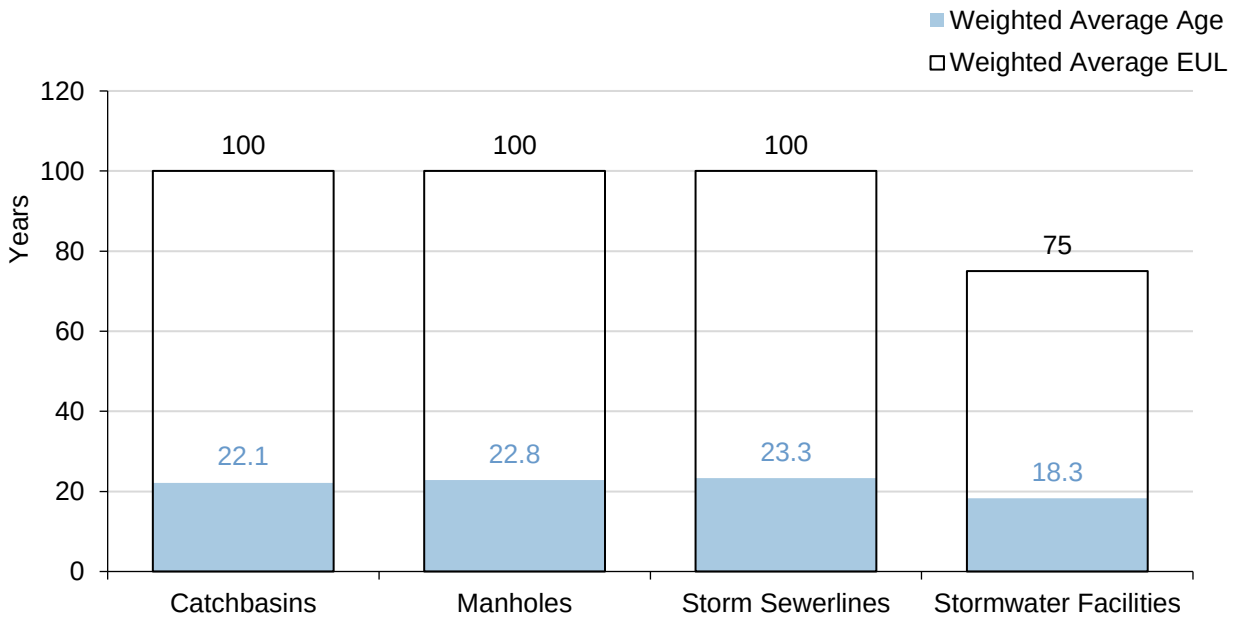
Current Approach to Condition Assessment

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

- Assessments are primarily conducted by the external maintenance team, and by external contractors for specialized assessments
- Manholes are assessed annually by internal staff to ensure safety and functionality

4.3.3 Estimated Useful Life & Average Age

The Estimated Useful Life for storm network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Assessed condition may increase or decrease the average service life remaining.



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

4.3.4 Lifecycle Management Strategy

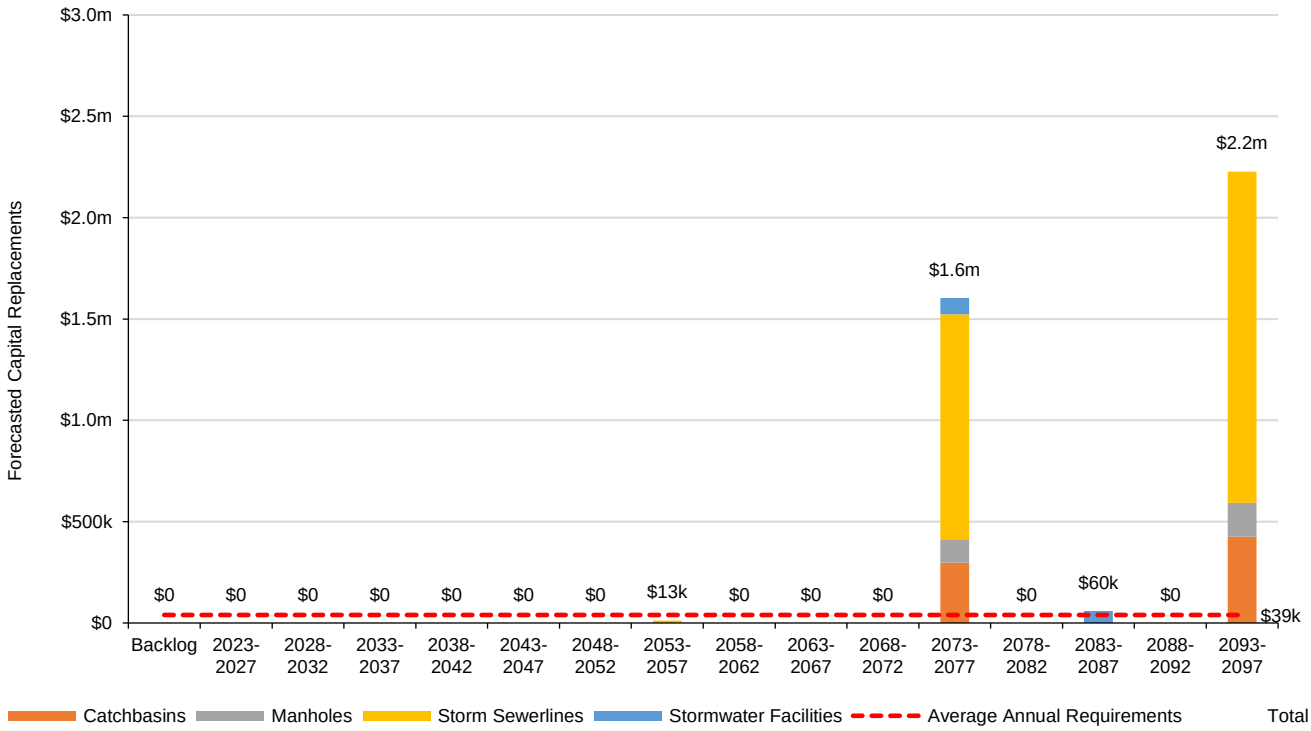
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance	Routine maintenance activities for the storm network include inspections, cleaning, minor repairs, and vegetation management
	Inspections are conducted annually, with cleaning and minor repairs performed as needed
Rehabilitation	Rehabilitation of the storm network involves structural repairs and upgrading outdated systems, typically initiated when defects are observed
Replacement	Replacement of storm network assets is considered when an asset's condition has significantly deteriorated, the asset has failed, maintenance or rehabilitation is no longer cost-effective, and when in alignment with other underground infrastructure projects

Forecasted Capital Requirements

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

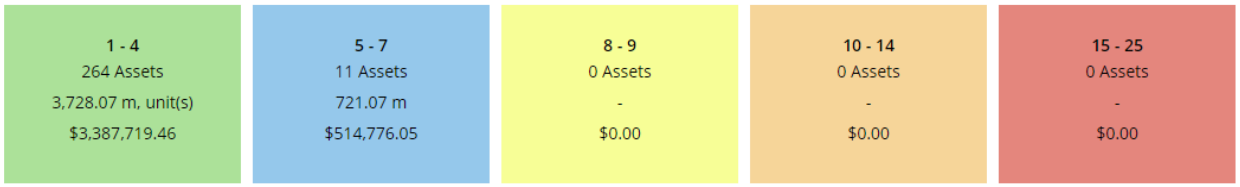


The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

4.3.5 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2022 inventory data.



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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)
Service Life Remaining (Years)	Pipe Diameter (Social)
Material	

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

Risks to Current Asset Management Strategies

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

Capital Funding Strategies

Infrastructure reinvestment poses a risk to the Township's storm network as the current level of investment heavily depends on grants. If grants are delayed or reduced, it could lead to deferred maintenance and delayed upgrades, increasing the risk of flooding and infrastructure failure. Proactive planning is crucial to mitigate these risks and maintain the network's functionality.

4.3.6 Levels of Service

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

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater system	See Appendix B

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2022)
Scope	% of properties in municipality resilient to a 100-year storm	95%
	% of the municipal stormwater management system resilient to a 5-year storm	100%

4.3.7 Recommendations

Asset Inventory

- Continue refining the asset register to ensure that replacement costs, condition scores, and so on, are up to date.

Condition Assessment Strategies

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

Risk Management Strategies

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

Levels of Service

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

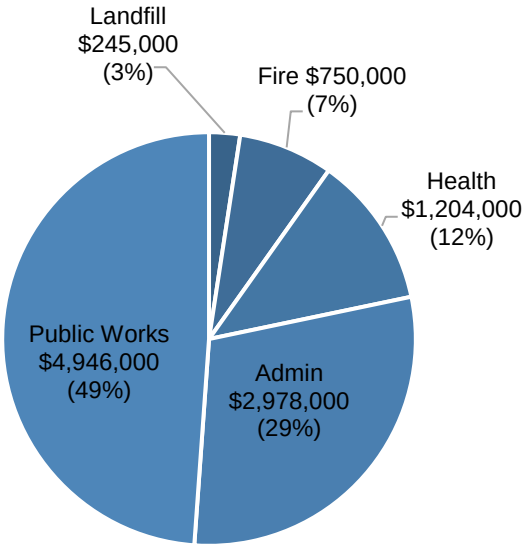
The Municipality of Ashfield-Colborne-Wawanosh owns and maintains several buildings that provide key services to the community. These include:

- Administrative buildings
- Emergency service buildings
- Recreation buildings
- Public works and landfill buildings

4.4.1 Asset Inventory & Replacement Costs

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

Segment	Quantity (Components)	Unit of Measure	Replacement Cost	Primary RC Method
Admin	1 (27)	Assets	$2,978,000	CPI
Fire	1 (11)	Assets	$750,000	User-defined
Health	5 (11)	Assets	$1,204,000	User-defined
Landfill	1 (1)	Assets	$245,000	User-defined
Public Works	1 (52)	Assets	$4,946,000	User-defined
Recreation	1 (43)	Assets	$6,714,000	CPI

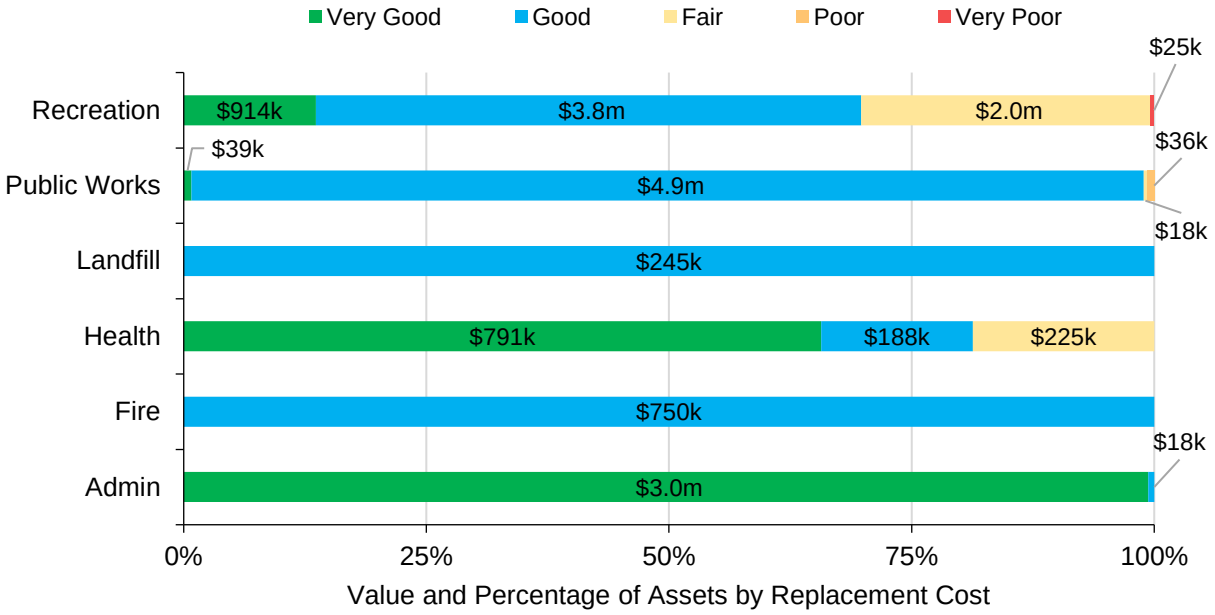


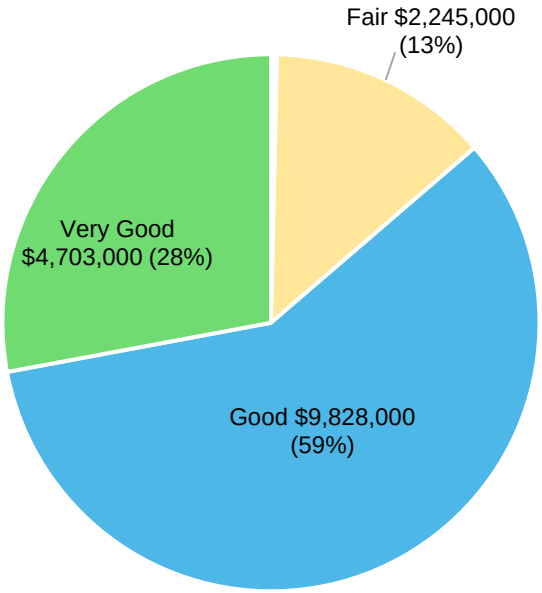
Total Current Replacement Cost: $16,836,000

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

4.4.2 Asset Condition

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





To ensure that the Municipality's buildings continue to provide an acceptable level of service, the Municipality should monitor the average condition of all assets. If the average condition declines, staff should re-evaluate their lifecycle management

strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to increase the overall condition of the buildings.

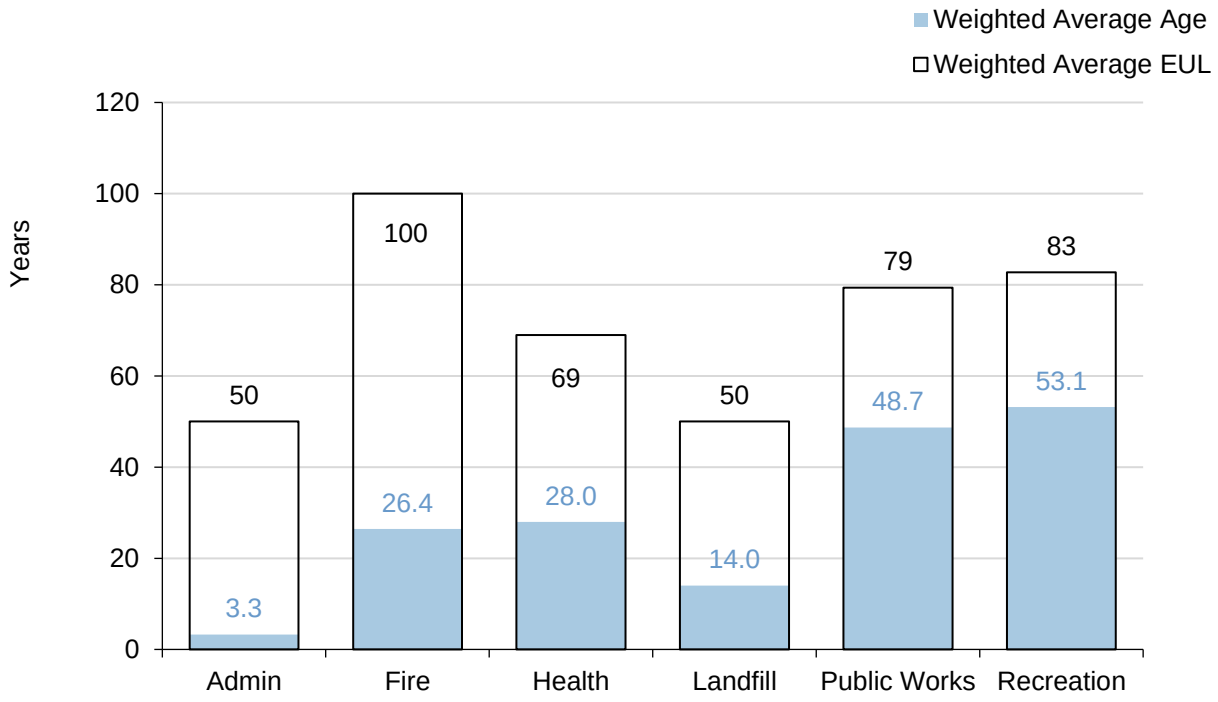
Current Approach to Condition Assessment

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

- Internal walkthroughs and annual safety assessments conducted by the Joint Health and Safety Committee, while technical inspections are carried out by professional inspectors
- Facility managers are responsible for maintaining the condition of buildings, keeping records up to date, and planning for their eventual replacement

4.4.3 Estimated Useful Life & Average Age

The Estimated Useful Life for building assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Assessed condition may increase or decrease the average service life remaining.



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

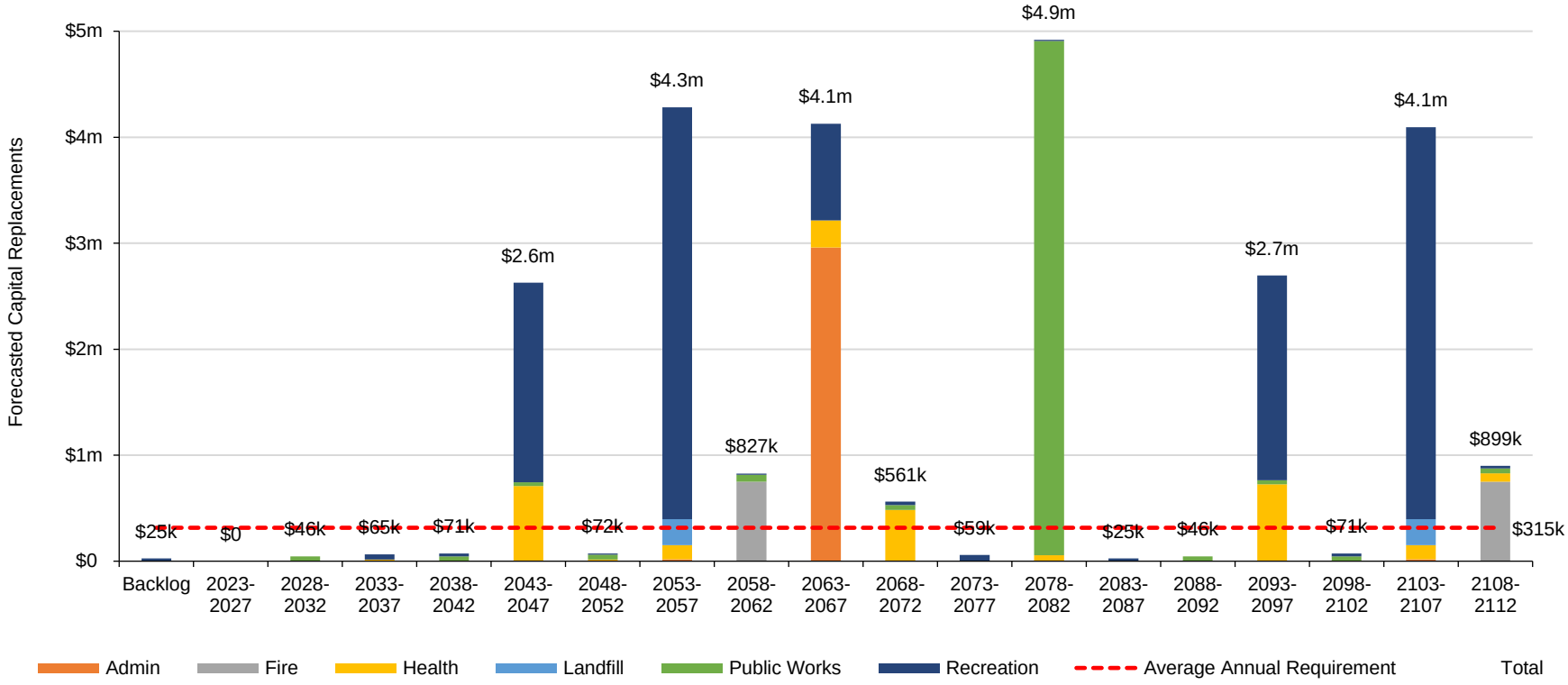
4.4.4 Lifecycle Management Strategy

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

Activity Type	Description of Current Strategy
Maintenance	Routine maintenance for buildings includes internal inspections, service calls for equipment such as garage doors, arena equipment, furnaces, and generators
	Annual and regular service and maintenance conducted for HVAC systems and generators by external staff
Rehabilitation & Replacement	Rehabilitation and replacement of major components like windows, roofs, HVAC systems, and doors are triggered by condition assessment results
	Replacement is considered when a facility has reached the end of its life and rehabilitation is no longer viable, with core facilities such as those visited by the public or housing full-time staff generally prioritized 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 Municipality should allocate towards funding rehabilitation and replacement needs. The graph identifies capital requirements over the next 90 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement.

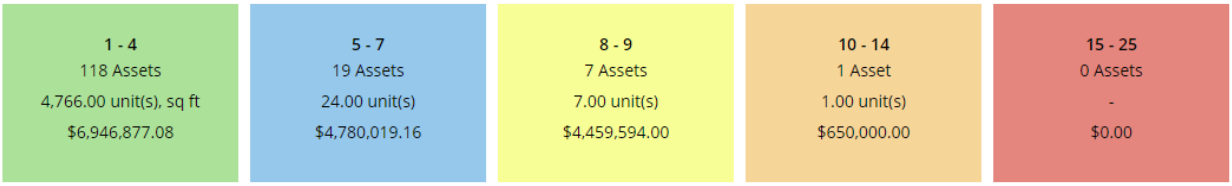


The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

4.4.5 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2022 inventory data.



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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)
	Department (Social)

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

Risks to Current Asset Management Strategies

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

Lifecycle Management Strategies

Lifecycle management strategies in the Township are generally reactive. This can lead to unforeseen failures and higher costs, as issues are often addressed only after they manifest. Furthermore, it may compromise the functionality and safety of Township buildings and affect budget planning and allocation. Implementing a more proactive strategy, which includes regular assessments and maintenance, is crucial to enhance the reliability and safety of Township buildings and to manage future costs more effectively.

4.4.6 Levels of Service

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

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description of the types of building assets that the Municipality operates and maintains	Refer to section 4.4.1
Quality	Description of criteria for rehabilitation and replacement decisions and any related long-term forecasts	Refer to section 4.4.4

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2022)
Scope	Average Condition Rating (FCI)	73 (Good)
	Average Risk Rating	5.99[2]

[2] Refer to section 4.4.5

4.4.7 Recommendations

Asset Inventory

- The Township's asset inventory should be continuously reviewed and refined to include the most up to date information.
- Gather accurate replacement costs and update on a regular basis to ensure the accuracy of capital projections.

Condition Assessment Strategies

- The Municipality should implement regular condition assessments for all buildings 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

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

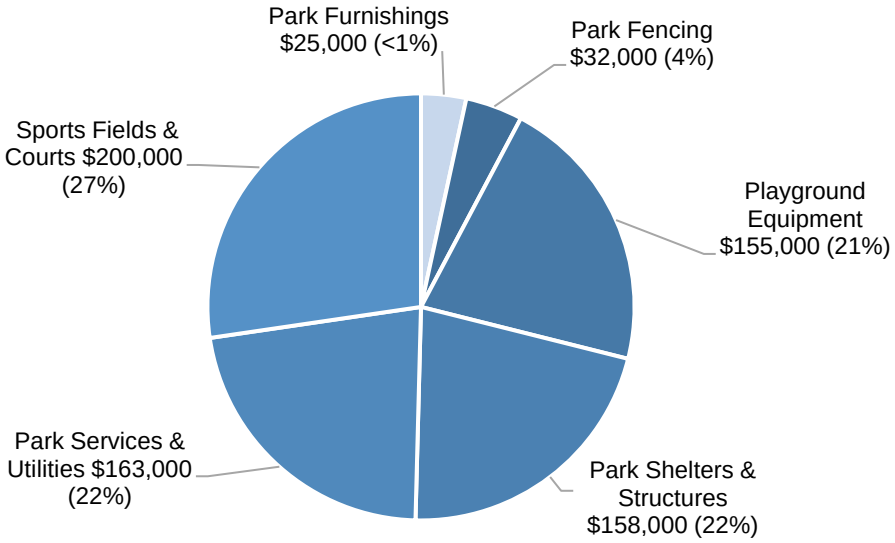
4.5 Land Improvements

The Municipality of Ashfield-Colborne-Wawanosh owns various land improvement assets including park fencing, furniture, service and utility, structures, playground equipment, and sports fields and courts.

4.5.1 Asset Inventory & Replacement Costs

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

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Park Fencing	3	Assets	$32,000	CPI
Park Furnishings	1	Assets	$25,000	User-defined
Park Services & Utilities	3	Assets	$163,000	User-defined
Park Shelters & Structures	3	Assets	$158,000	User-defined
Playground Equipment	8	Assets	$155,000	User-defined
Sports Fields & Courts	5	Assets	$200,000	User-defined

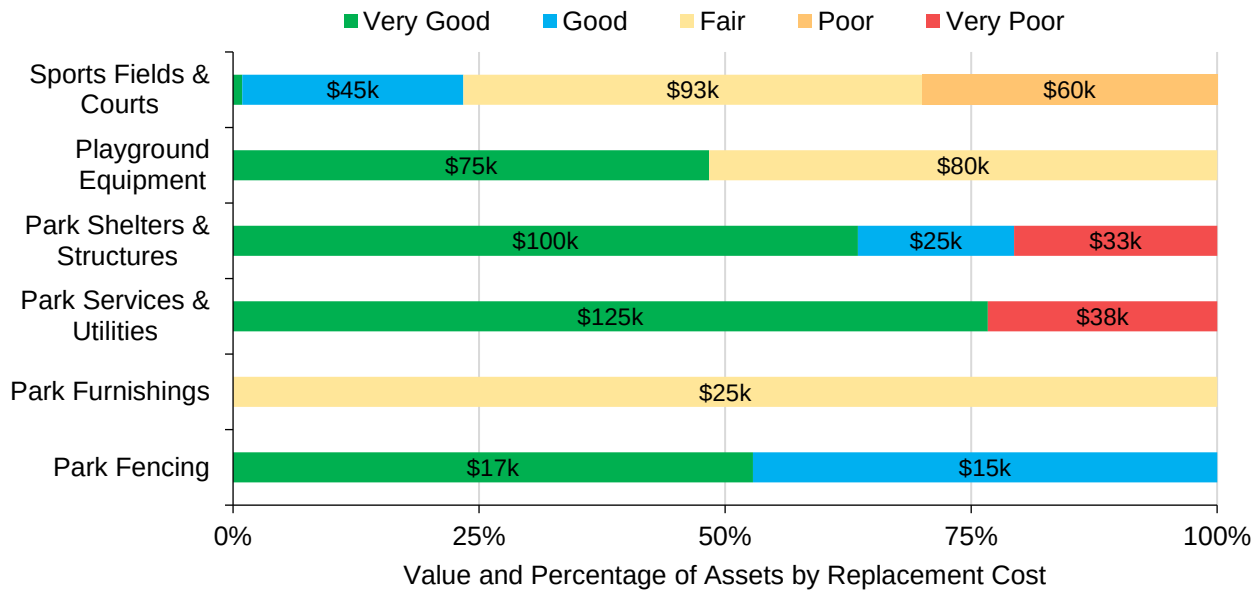


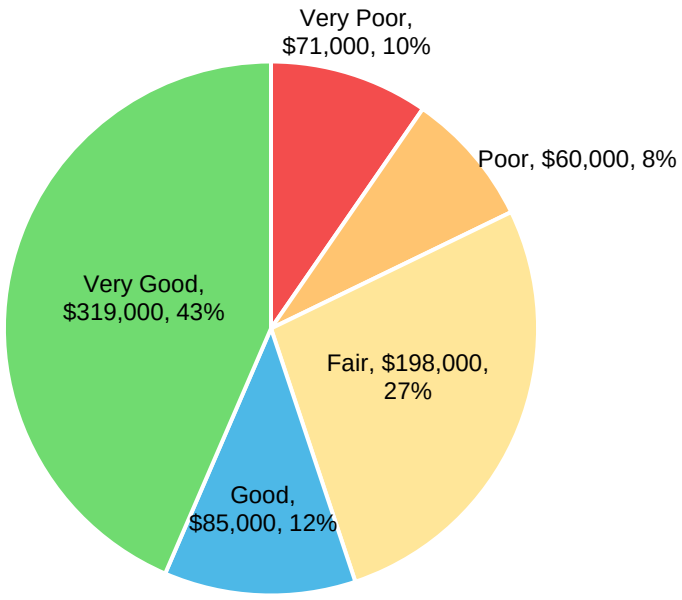
Total Current Replacement Cost: $733,000

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

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





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

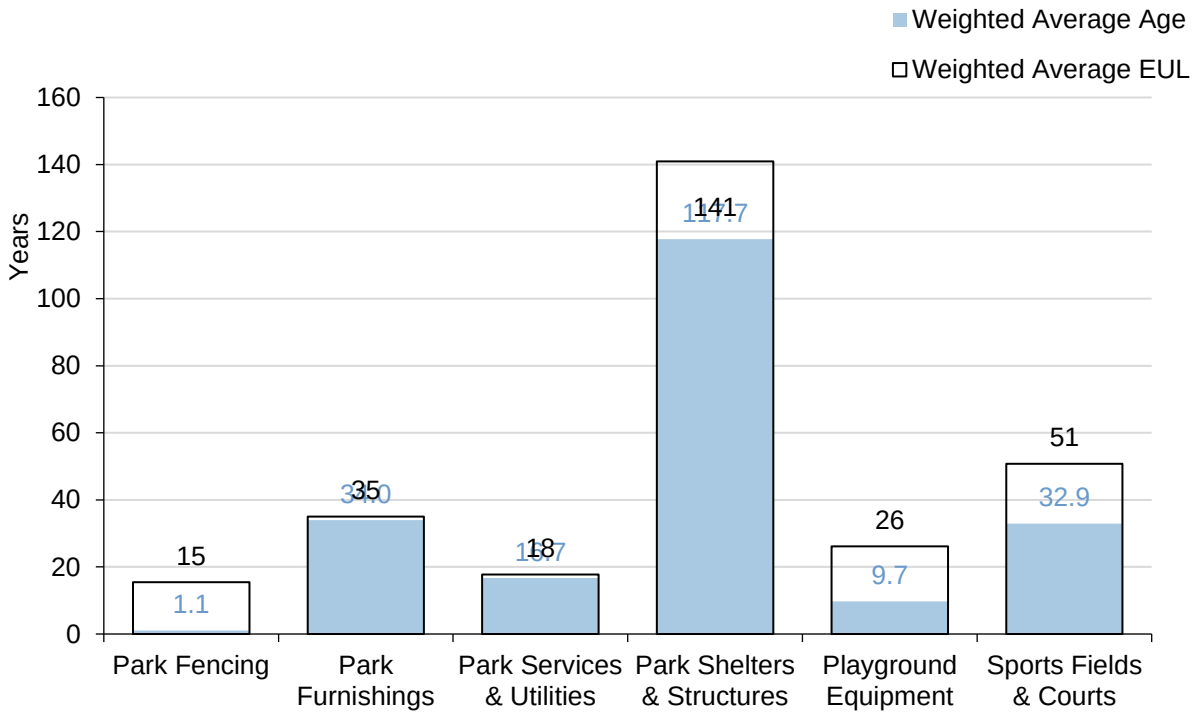
Current Approach to Condition Assessment

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

- Parks maintenance is conducted both internally and by external contractors, with the most recent assessment completed in 2023 as part of the Parks and Recreation Master Plan

4.5.3 Estimated Useful Life & Average Age

The Estimated Useful Life for land improvement assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Assessed condition may increase or decrease the average service life remaining.



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

4.5.4 Lifecycle Management Strategy

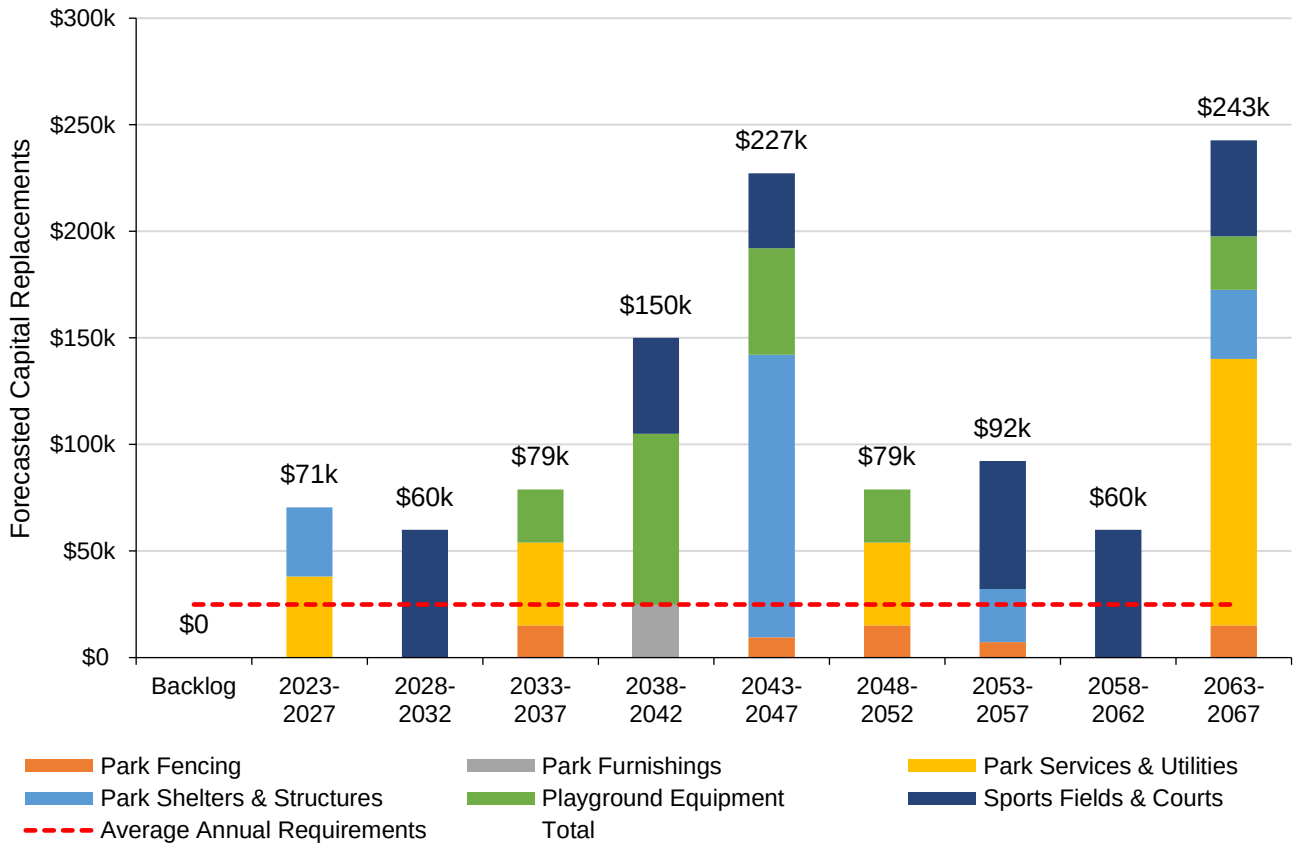
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenanace	Routine maintenance for land improvements includes inspections, cleaning, minor repairs, and vegetation management
	Visual inspections are conducted several times per month from spring to fall
Rehabilitation / Replacement	Replacement of land improvement assets is considered when an asset's condition has deteriorated or there is community demand for replacement. Assets nearing the end of their expected service life or those requiring frequent and costly repairs are prioritized 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 Municipality should allocate towards funding rehabilitation and replacement needs. The graph identifies capital requirements over the next 45 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement.

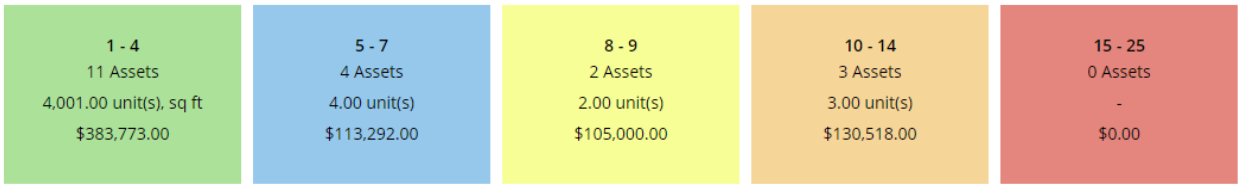


The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

4.5.5 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2022 inventory data.



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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)
	AMP Segment (Strategic)

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

Risks to Current Asset Management Strategies

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

Capital Funding Strategies

Capital funding strategies in the Township's land improvements poses a risk due to heavy reliance on grant funding for major projects. When these grants are delayed or reduced, it challenges the Township’s ability to maintain and upgrade park facilities and other land improvements effectively. This financial dependency can lead to postponed projects, potentially deteriorating the quality and safety of public spaces. Ensuring a steady and reliable funding stream is crucial to mitigate these risks and maintain the attractiveness and functionality of the Township’s land improvements.

4.5.6 Levels of Service

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

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description of the types of land improvement assets that the Municipality operates and maintains	Refer to section 4.5.1
Quality	Description of criteria for rehabilitation and replacement decisions and any related long-term forecasts	Refer to section 4.5.4

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2022)
Scope	Average Condition Rating	64 (Good)
	Average Risk Rating	6.12[3]

[3] Refer to section 4.5.5

4.5.7 Recommendations

Asset Inventory

- Replacement costs should be evaluated regularly to determine their accuracy and reliability. Replacement costs should be updated according to the best available information on the cost to replace the asset in today's value.

Condition Assessment Strategies

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

Risk Management Strategies

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

Levels of Service

- Continue measuring current levels of service in accordance with the metrics that the Municipality has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

4.6 Vehicles

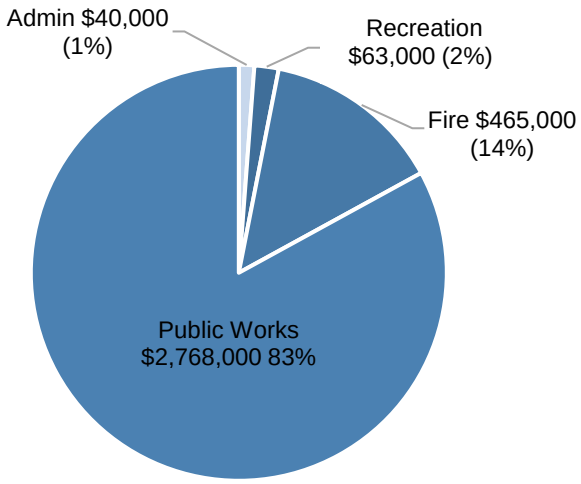
Vehicles allow staff to efficiently deliver municipal services and personnel. Municipal vehicles are used to support several service areas, including:

- Administrative vehicles for internal staff
- Fire rescue vehicles to provide emergency services
- Pick-up trucks and plow trucks to support the maintenance of the transportation network and address service requests for recreational services

4.6.1 Asset Inventory & Replacement Costs

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

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Admin	1	Assets	$40,000	User-defined
Fire	4	Assets	$465,000	CPI
Public Works	13	Assets	$2,768,000	User-defined
Recreation	2	Assets	$63,000	User-defined

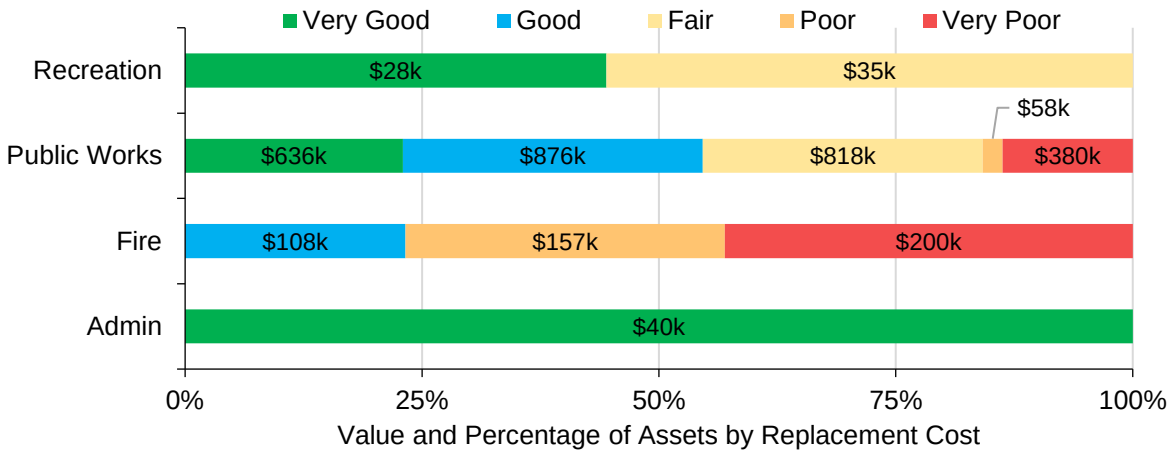


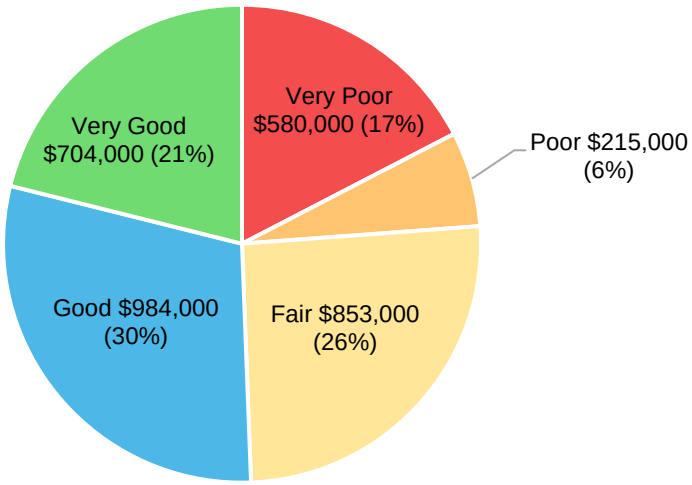
Total Current Replacement Cost: $3,336,000

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

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





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

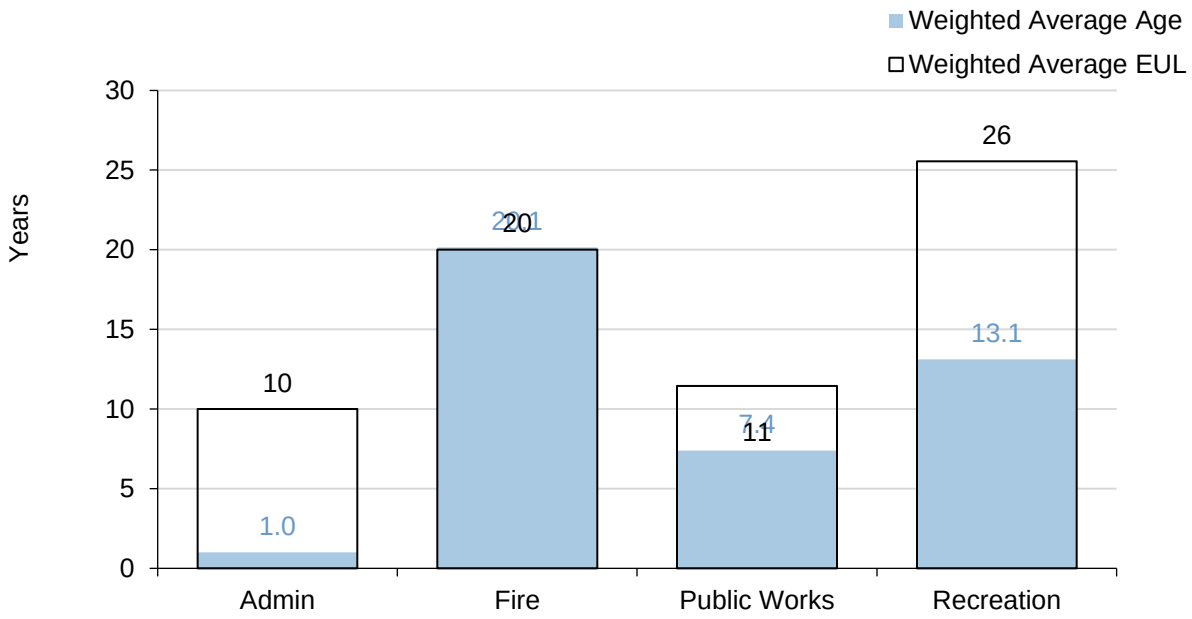
Current Approach to Condition Assessment

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

- Condition assessments are primarily carried out by internal staff, though safety and emission testing are completed externally
- Vehicles undergo annual inspections conducted by a qualified external mechanic

4.6.3 Estimated Useful Life & Average Age

The Estimated Useful Life for vehicles assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Assessed condition may increase or decrease the average service life remaining.



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

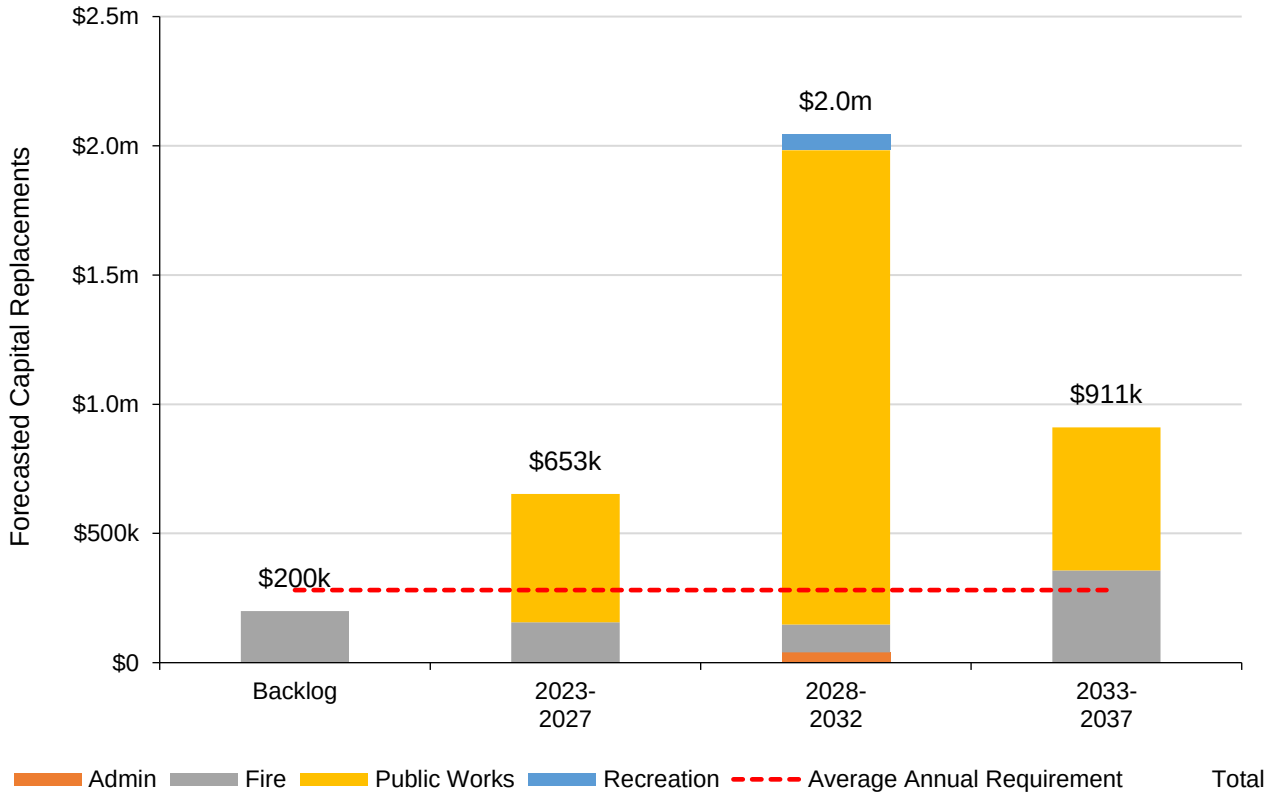
4.6.4 Lifecycle Management Strategy

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

Activity Type	Description of Current Strategy
Maintenance	Routine maintenance for vehicles includes inspections, tire rotation, minor repairs, oil changes, and undercoating. This maintenance is scheduled either based on the number of kilometers driven or is completed annually
Replacement	Rehabilitation and replacement of vehicles are typically coordinated with the Township's mechanic but are not funded through capital investments
	Replacement of vehicles is considered when an asset's condition has deteriorated significantly, making maintenance no longer cost-effective, or when the vehicle is due for replacement based on age. Vehicles nearing the end of their expected service life or those requiring frequent and costly repairs are prioritized 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 Municipality should allocate towards funding rehabilitation and replacement needs. The graph identifies capital requirements over the next 15 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement.

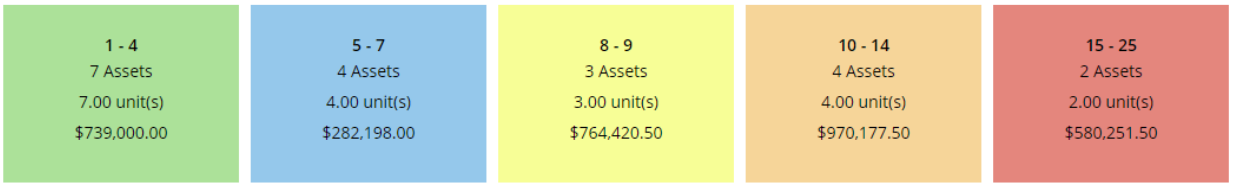


The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

4.6.5 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2022 inventory data.



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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)
	Department (Strategic)

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

Risks to Current Asset Management Strategies

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

Aging Infrastructure
Aging vehicles pose a risk within the Township. As vehicles age, they are more prone to mechanical failures and decreased efficiency, leading to increased maintenance costs and operational downtime. Older vehicles also may not meet the latest safety standards, which can compromise safety. Proactively managing the replacement and maintenance of aging vehicles is essential to ensure the fleet remains reliable and safe for operations.

4.6.6 Levels of Service

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

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description of the types of vehicles assets that the Municipality operates and maintains	Refer to section 4.6.1
Quality	Description of criteria for rehabilitation and replacement decisions and any related long-term forecasts	Refer to section 4.6.4

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2022)
Scope	Average Condition Rating	53 (Fair)
	Average Risk Rating	10.08[4]

[4] Refer to section 4.6.5

4.6.7 Recommendations

Asset Inventory

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

Risk Management Strategies

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

Levels of Service

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

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

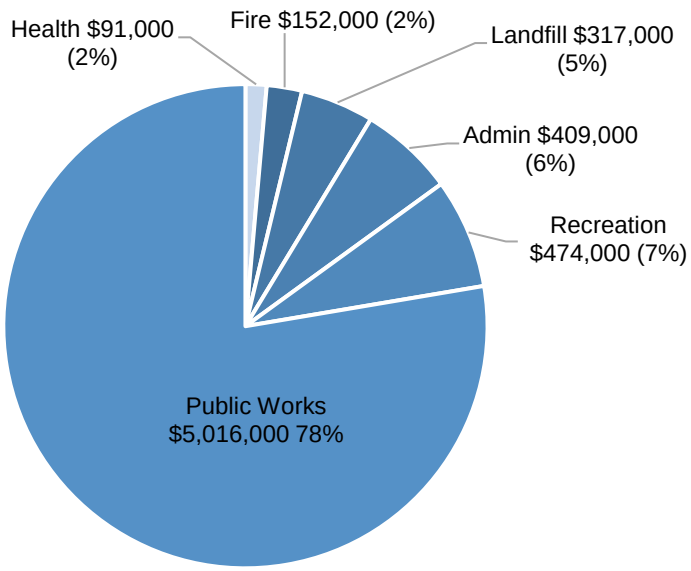
- Administrative equipment for internal staff
- Fire and health equipment to support the delivery of emergency services
- Landfill equipment
- Public works and recreation equipment to support transportation and parks and recreation services

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

4.7.1 Asset Inventory & Replacement Costs

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

Segment	Components	Unit of Measure	Replacement Cost	Primary RC Method
Admin	62	Assets	$409,000	User-defined
Fire	132	Assets	$152,000	CPI
Health	2	Assets	$91,000	User-defined
Landfill	4	Assets	$317,000	User-defined
Public Works	45	Assets	$5,016,000	User-defined
Recreation	131	Assets	$474,000	User-defined

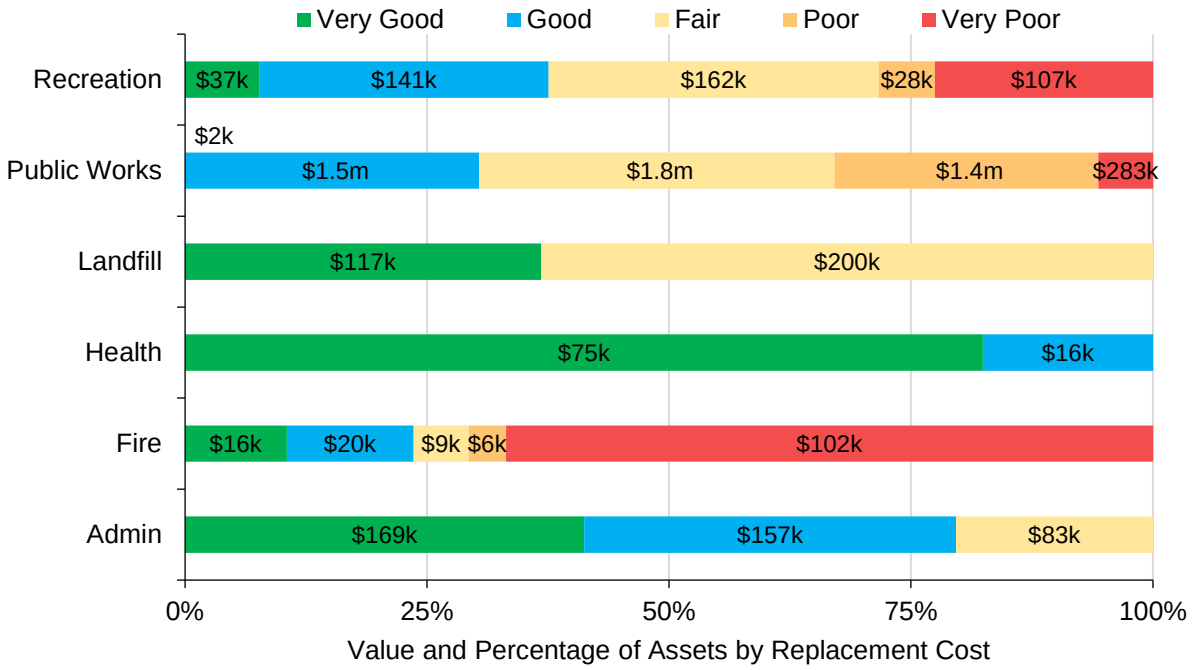


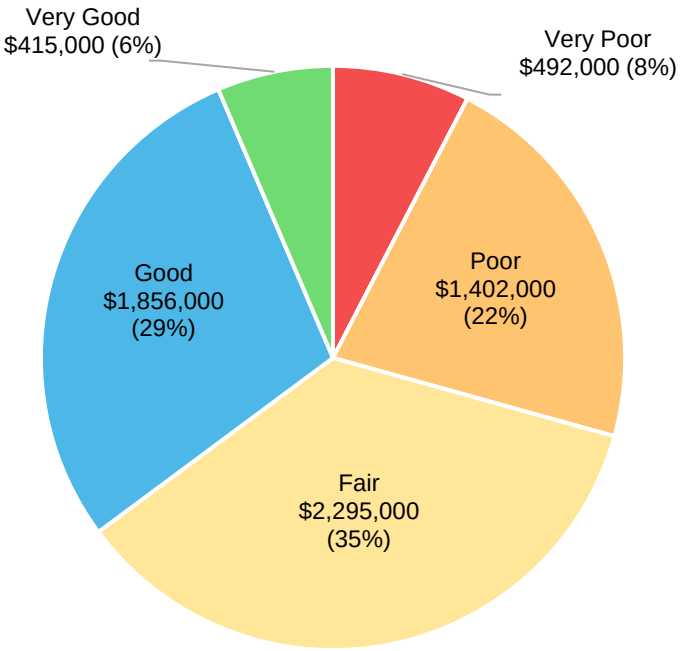
Total Current Replacement Cost: $6,459,000

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

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





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

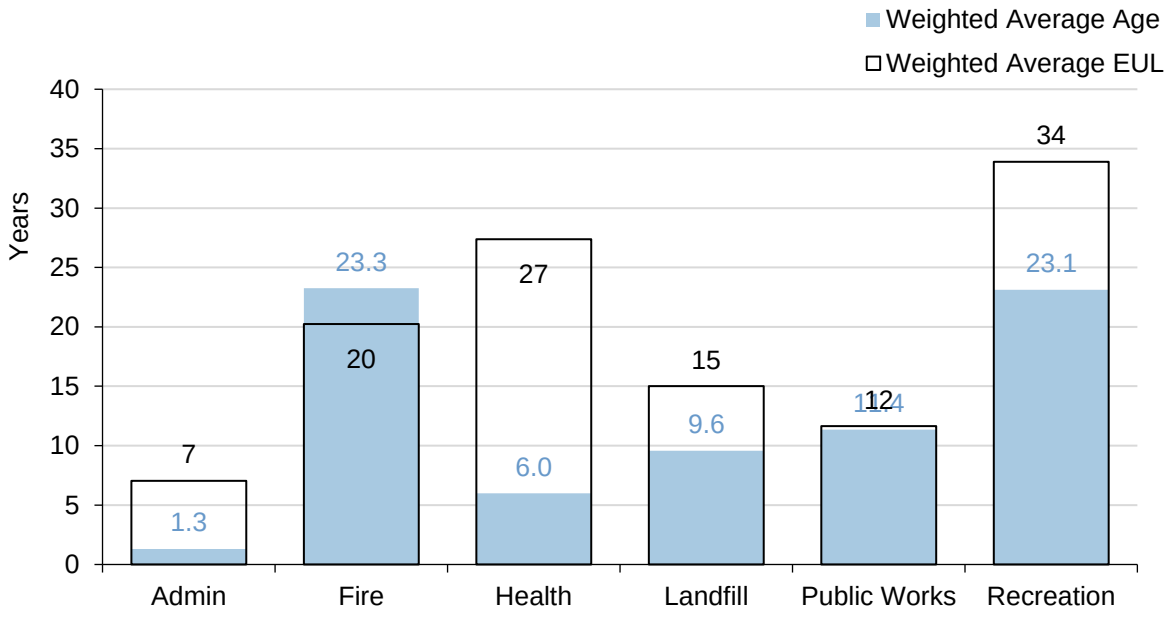
Current Approach to Condition Assessment

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

- Equipment is subject to annual assessments performed by the Township's mechanic and internal staff
- Annual safety inspections are conducted by an external contractor to ensure that all equipment meets current safety standards and regulations

4.7.3 Estimated Useful Life & Average Age

The Estimated Useful Life for equipment assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Assessed condition may increase or decrease the average service life remaining.



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

4.7.4 Lifecycle Management Strategy

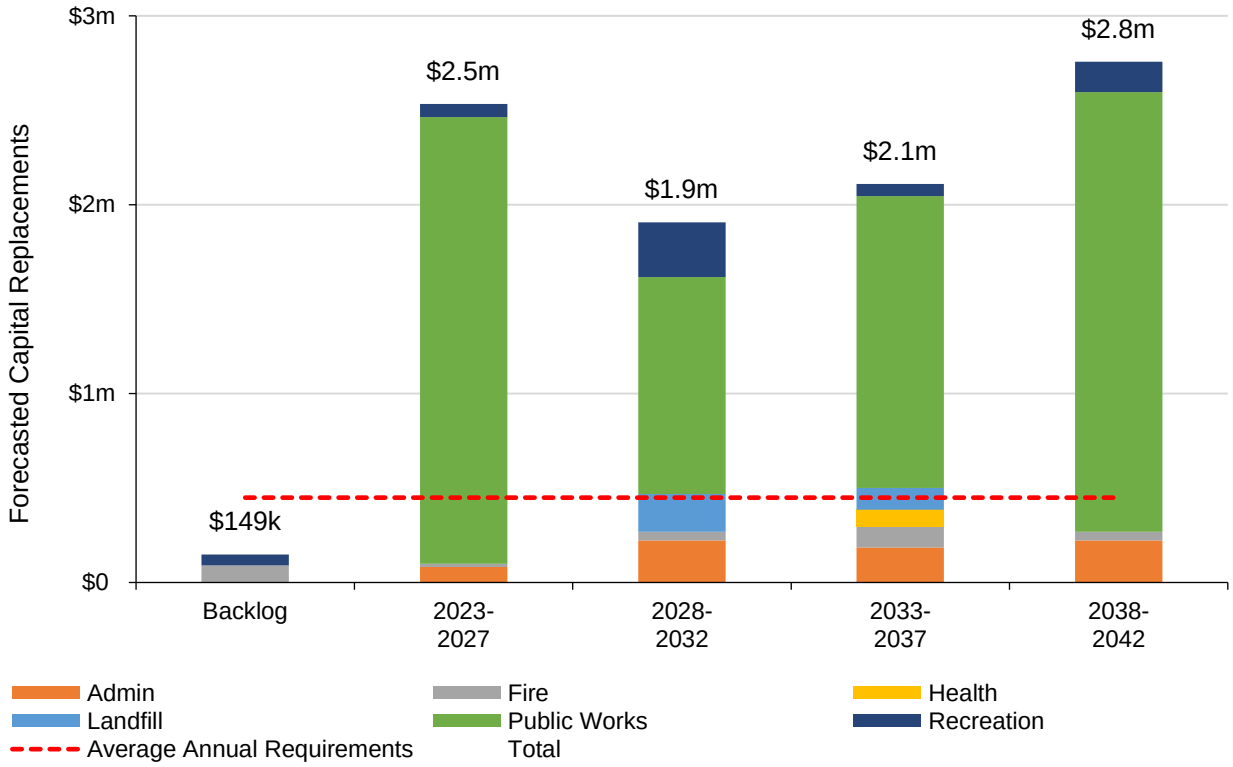
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance	Routine maintenance of the Township's equipment includes oil changes, greasing, replacing wear parts, changing hydraulic fluids, and washing as needed. These activities are conducted quarterly
	Equipment is monitored during use by staff and is brought to the Township mechanic for ongoing repairs as needed
	Rehabilitation typically involves replacing components of the equipment to extend its usable life
Rehabilitation / Replacement	Replacement of equipment is considered when an asset's condition has deteriorated significantly, and maintenance is no longer economically viable. Essential assets are prioritized for replacement following recommendations from the Township's mechanic.

Forecasted Capital Requirements

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

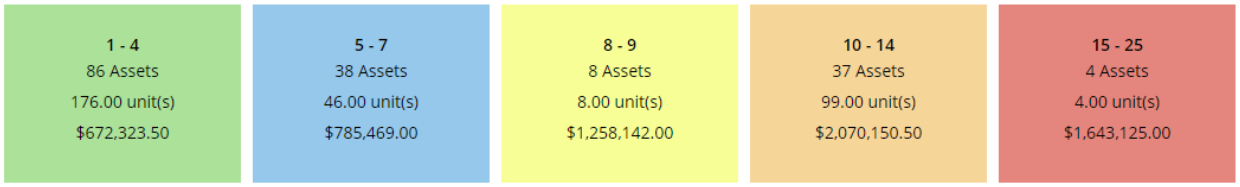


The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

4.7.5 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2022 inventory data.



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

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

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

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

Risks to Current Asset Management Strategies

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

Capital Funding Strategies
Capital funding strategies in the Township risk the effectiveness of its equipment. Many assets are approaching the end of their useful life, and current investments are not sufficient the costs to keep them in good condition. This situation could lead to more frequent breakdowns and higher costs over time, as sudden repairs or replacements become necessary. The Township needs to improve its funding approaches to handle these upcoming challenges effectively.

4.7.6 Levels of Service

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

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description of the types of equipment assets that the Municipality operates and maintains	Refer to section 4.7.1
Quality	Description of criteria for rehabilitation and replacement decisions and any related long-term forecasts	Refer to section 4.7.4

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2022)
Scope	Average Condition Rating	50 (Fair)
	Average Risk Rating	12.03[5]

[5] Refer to section 4.6.5

4.7.7 Recommendations

Asset Inventory

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

Risk Management Strategies

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

Levels of Service

- Continue measuring current levels of service in accordance with the metrics that the Municipality has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- 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 $6.1 million
- 79% 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 $146,000

5.1 Water Network

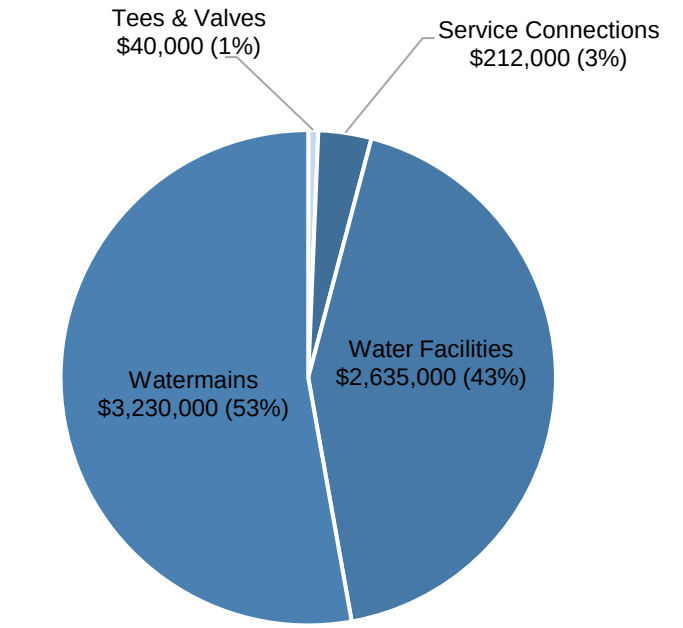
The Municipality manages an extensive water network consisting of various assets including:

- Service connections and watermains
- Water equipment such as valves and tees
- Water facilities

5.1.1 Asset Inventory & Replacement Costs

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

Segment	Components	Unit of Measure	Replacement Cost	Primary RC Method
Service Connections	1,595	Meters	$212,000	User-defined
Tees & Valves	7	Assets	$40,000	User-defined
Water Facilities	41	Assets	$2,635,000	User-defined
Watermains	13,313	Meters	$3,230,000	User-defined

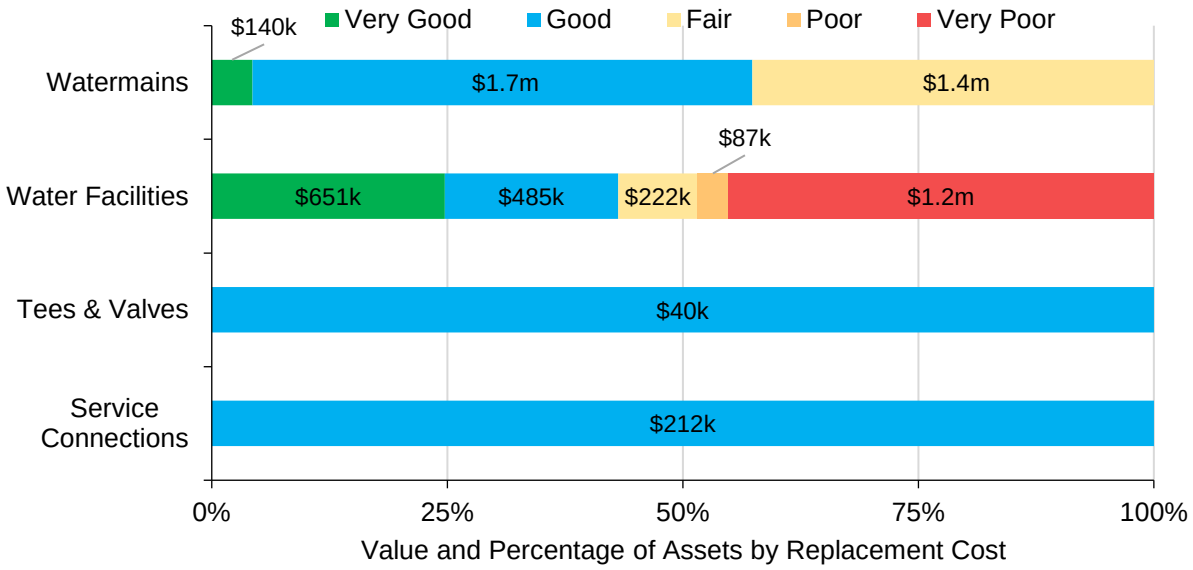


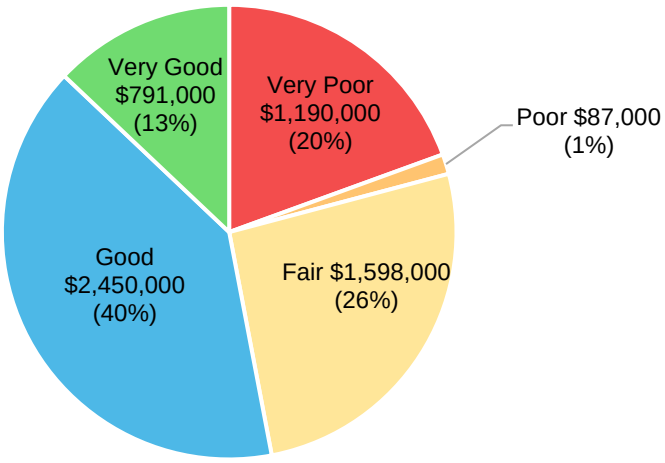
Total Current Replacement Cost: $6,116,000

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

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





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

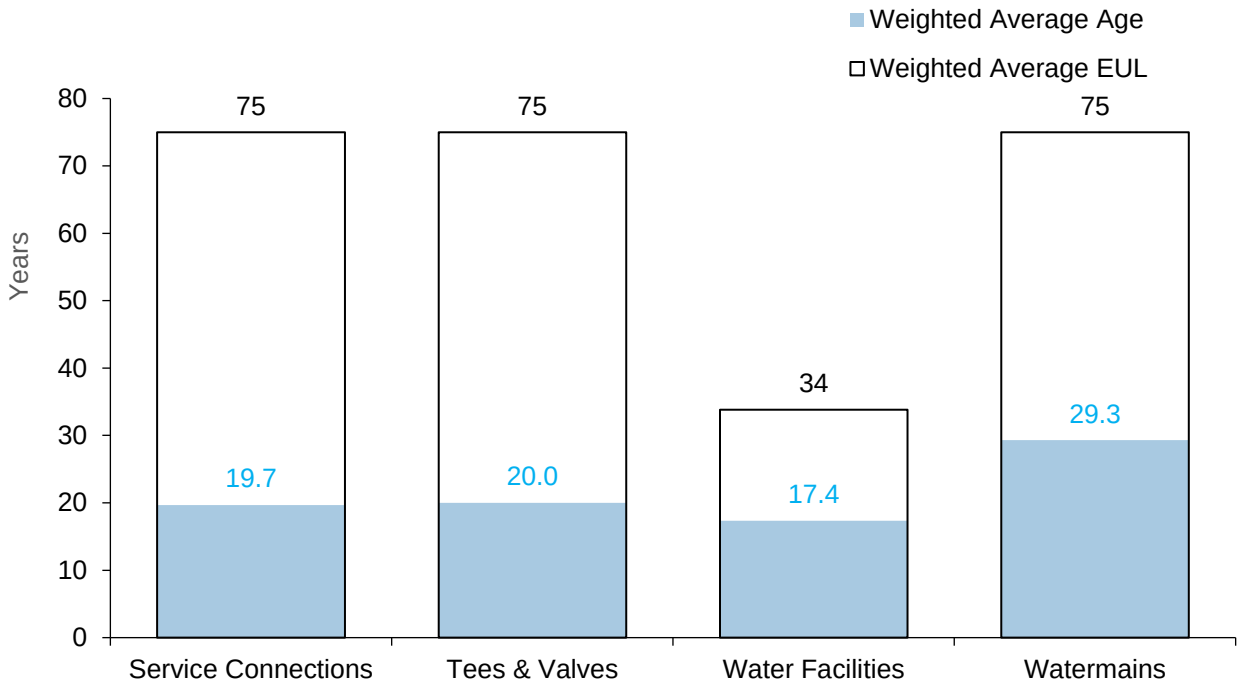
Current Approach to Condition Assessment

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

- The water operator conducts yearly audits during on-site visits, assessing the condition of supporting infrastructure through visual inspections and monitoring for leaks and pressure loss. These findings are then reported to the Township, ensuring timely maintenance and issue resolution
- There are no formal condition assessment programs in place for the water mains

5.1.3 Estimated Useful Life & Average Age

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



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

5.1.4 Lifecycle Management Strategy

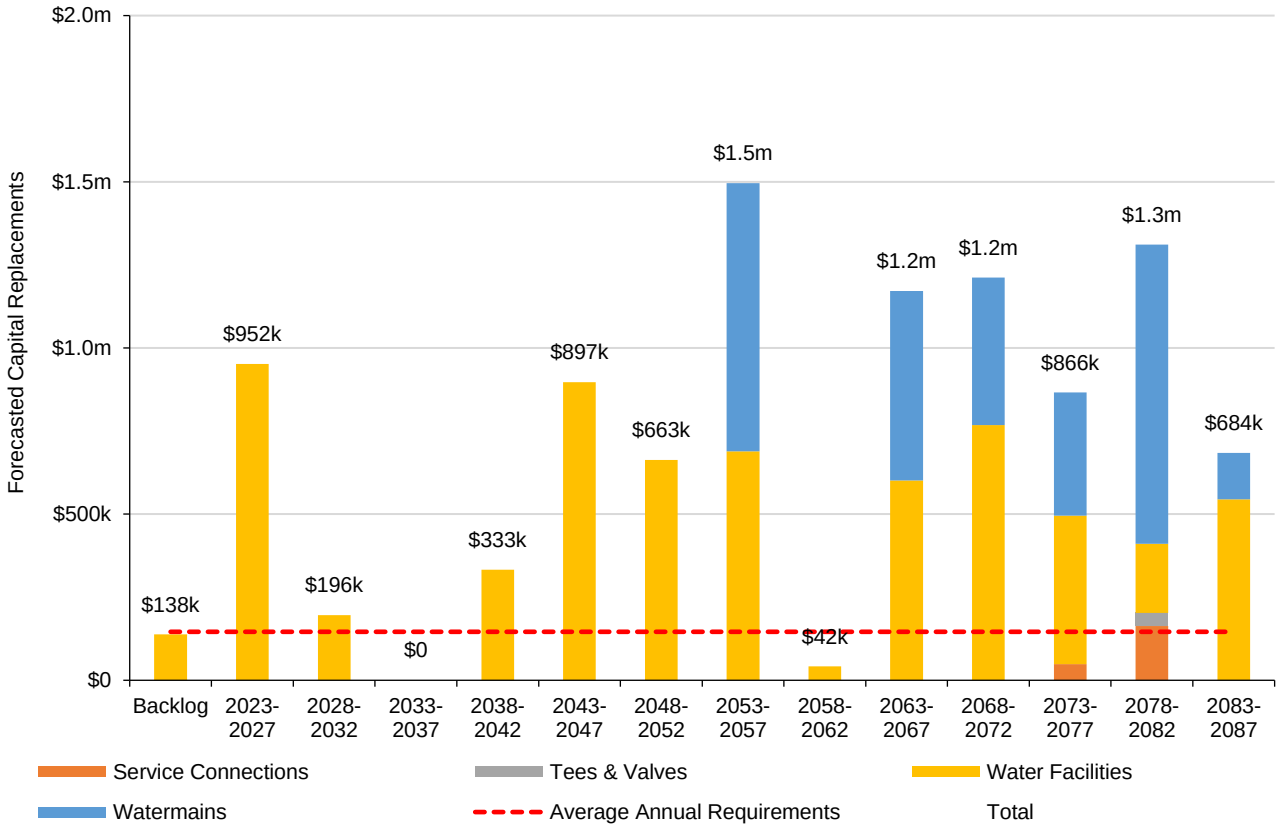
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance	Routine maintenance for the water network includes inspections, flushing, minor repairs, valve turning, and annual managerial reporting
	Water mains and supporting infrastructure are visually inspected weekly, with water usage monitored to detect potential leaks
Rehabilitation	Rehabilitation activities for the water network involve structural repairs and updating outdated systems
Replacement	Replacement of water network assets is considered when an asset's condition has significantly deteriorated, making rehabilitation cost-ineffective
	Assets nearing the end of their expected service life or those requiring frequent and costly repairs are prioritized for replacement, especially when they coincide with other projects like road reconstructions

Forecasted Capital Requirements

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

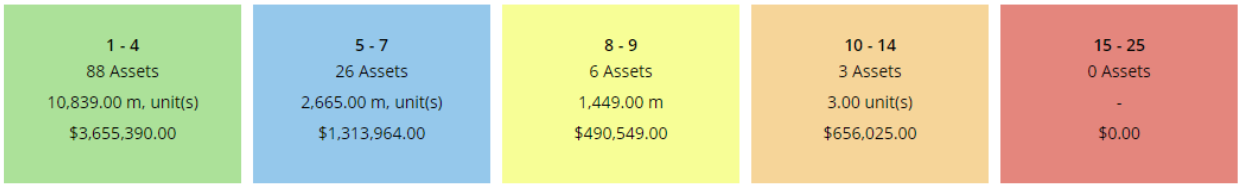


The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix A.

5.1.5 Risk & Criticality

Risk Matrix

The following risk matrix provides a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within this asset category based on 2022 inventory data.



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

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

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)
Service Life Remaining (Years)	Pipe Diameter (Social)
Material	

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

Risks to Current Asset Management Strategies

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

Climate Change & Extreme Events

Climate change and extreme weather events significantly threaten the Township's water network, especially as much of the infrastructure lies within the Lakeshore erosion hazard zone. Increased shoreline erosion from rising sea levels and severe storms can destabilize water mains and lead to service disruptions and costly repairs. It is crucial for the Township to reinforce its water network to maintain reliable service as climate conditions evolve.

Capital Funding Strategies

The Township’s reliance on grant funding for maintaining and upgrading infrastructure remains a prevalent risk. Financial uncertainty can delay essential projects, leading to potential system failures or inefficiencies. To mitigate these risks, the Township must secure more reliable funding sources to ensure the water network can meet current and future demands effectively.

5.1.6 Levels of Service

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

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system	See Appendix B
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow	See Appendix B
Reliability	Description of boil water advisories and service interruptions	There were no water boil advisories for the Municipality in 2022

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2022)
Scope	% of properties connected to the municipal water system	10%
	% of properties where fire flow is available	TBD[6]
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	18:418[7]
	# of connection-days per year where water is not available due to water main breaks compared to the total number of properties connected to the municipal water system	0

[6] This figure is not presently known. The Municipality has various water network maps which can be utilized to derive this metric. The Municipality intends on providing this metric for the 2025 iteration of the AMP.

[7] There were 6 boil water notices (PBWNs) in 2022. Calculation assumed 3 days per event. 211 connections were impacted.

5.1.7 Recommendations

Asset Inventory

- Regular refinement and proactive upkeep are essential for maintaining the Township's asset management inventory for the water network. By continuously updating and improving the inventory, the Township can ensure accurate data on asset condition, performance, and lifespan. This approach supports better planning, prioritization of maintenance, and allocation of resources, ultimately enhancing the reliability and sustainability of the water network.

Condition Assessment Strategies

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

Risk Management Strategies

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

Levels of Service

- Continue measuring current levels of service in accordance with the metrics that the Municipality has established in this AMP. Additional metrics can be established as they are determined to provide meaningful and reliable inputs into asset management planning.
- 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 more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure

- Slight 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 Municipality 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 Ashfield-Colborne-Wawanosh Official Plan (Amended 2021)

The Township of Ashfield-Colborne-Wawanosh's adopted their Official Plan in 2003 and was recently amended in 2021. The objective of this Plan is to pinpoint the assets, strengths, and limitations of the land and the community to improve the management and protection of the Township's natural environment. The Ashfield-Colborne-Wawanosh Official Plan aligns with the Huron County Official Plan and adheres to the guidelines set forth in the Provincial Policy Statement.

The vision for Ashfield-Colborne-Wawanosh, shaped by its residents and embedded in the Official Plan, aims to make the Township a leader in environmental stewardship, emphasizing agriculture, conservation, and community development. It reflects a unified commitment to enhancing environmental protection and sustainability. Key goals include reversing population decline, supporting farmers, revitalizing communities, and minimizing development impacts on nature. This vision, guiding both actions and planning, underscores a collective responsibility towards sustainable environmental management.

Settlement areas within the Township will focus on preserving their character and aesthetics, ensuring land availability for growth, directing development to designated zones, preventing non-farm development in agricultural areas, and providing necessary services. These goals also emphasize enhancing the unique qualities of each village and hamlet to support sustainable, vibrant, and healthy living environments. Despite ongoing pressure for rural non-farm residential development, the Official Plan's policies strive to safeguard agricultural lands and natural environments by funneling development into these designated settlement areas, where there is ample land for future growth.

According to the Huron County Official Plan, the population for the County is projected to increase from nearly 60,000 in 2016 to 60,800 by 2041. The following table outlines population and total private dwellings for the Township between 1996-2021 from Statistics Canada. The population growth in the Township between 2016 and 2021 aligns with the projections made by the County.

Historical Figures	1996	2001	2006	2011	2016	2021
Population	5,477	5,411	5,409	5,582	5,422	5,884
Population Change	N/A	-1.2%	0.0%	3.2	-2.9%	8.5%
Private Dwellings	N/A	2,891	2,920	3,087	3,030	3,149

6.2 Impact of Growth on Lifecycle Activities

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

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

7 Appendices

Key Insights

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

Appendix A: 10-Year Capital Requirements

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

Road Network

Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
HCB Roads	$2.2m	$0	$26k	$0	$60k	$74k	$14k	$467k	$1.2m	$3.4m	$0
Sidewalks	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$81k
Street Lighting	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$2.2m	**$0**	**$26k**	**$0**	**$60k**	**$74k**	**$14k**	**$467k**	**$1.2m**	**$3.4m**	**$81k**

Bridges & Culverts

Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Bridges	$0	$0	$2.2m	$285k	$123k	$1.8m	$0	$0	$259k	$102k	$0
Culverts	$0	$256k	$0	$0	$25k	$0	$696k	$360k	$77k	$213k	$0
	$0	**$256k**	**$2.2m**	**$285k**	**$148k**	**$1.8m**	**$696k**	**$360k**	**$336k**	**$315k**	**$0**

Storm Network

Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Catchbasins	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Manholes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Storm Sewerlines	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Stormwater Facilities	$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	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Admin	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fire	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Health	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landfill	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Public Works	$0	$0	$0	$0	$0	$0	$0	$46k	$0	$0	$0
Recreation	$25k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$25k	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$46k**	**$0**	**$0**	**$0**

Land Improvements											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Park Fencing	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Park Furnishings	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Park Services & Utilities	$0	$38k	$0	$0	$0	$0	$0	$0	$0	$0	$0
Park Shelters & Structures	$0	$0	$0	$0	$33k	$0	$0	$0	$0	$0	$0
Playground Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sports Fields & Courts	$0	$0	$0	$0	$0	$0	$0	$0	$60k	$0	$0
	$0	**$38k**	**$0**	**$0**	**$33k**	**$0**	**$0**	**$0**	**$60k**	**$0**	**$0**

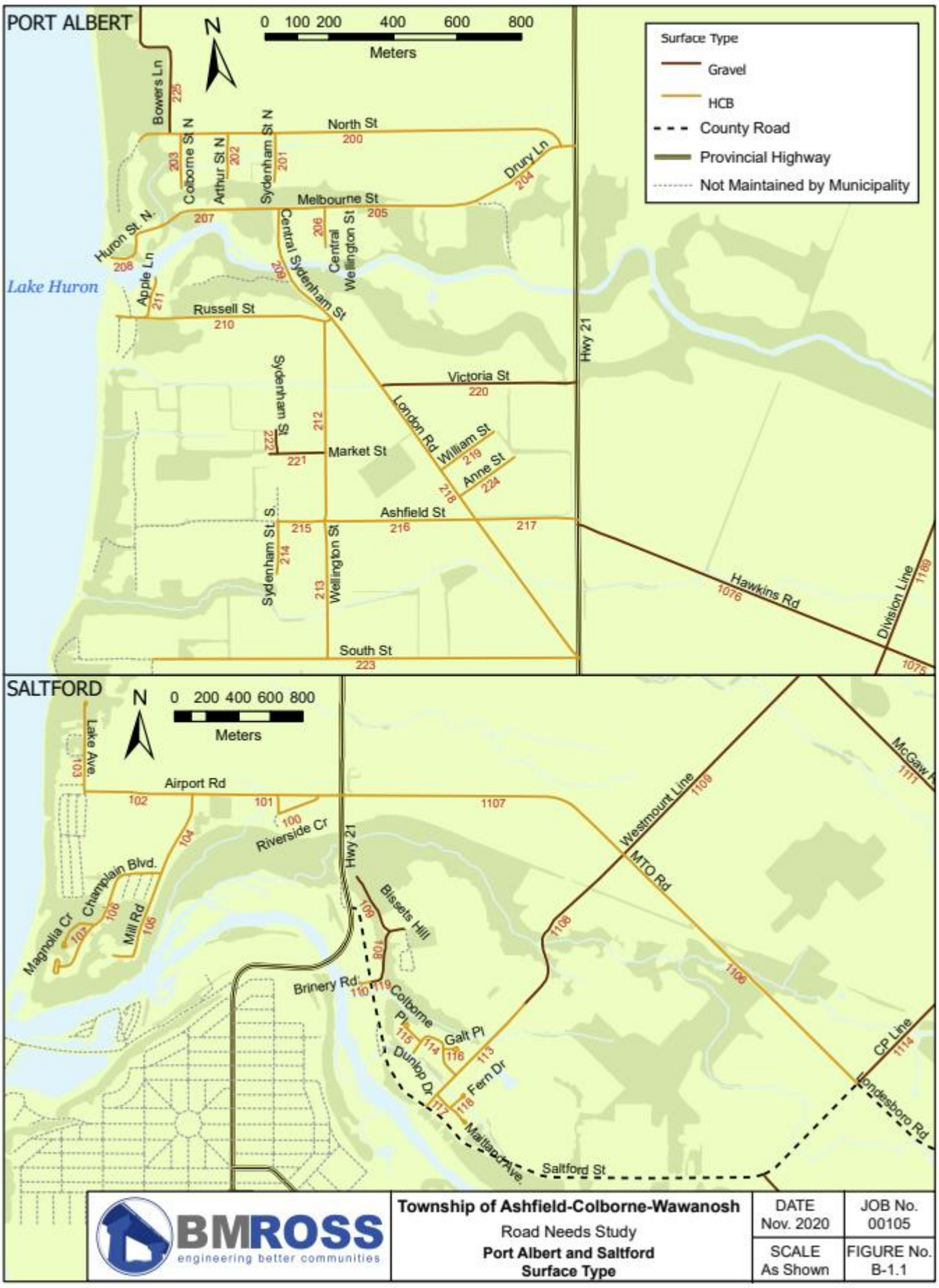
Equipment											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Admin	$0	$0	$0	$0	$0	$82k	$2k	$157k	$0	$65k	$0
Fire	$90k	$0	$12k	$6k	$0	$0	$9k	$0	$20k	$16k	$0
Health	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landfill	$0	$0	$0	$0	$0	$0	$0	$0	$200k	$0	$0
Public Works	$0	$0	$963k	$9k	$0	$1.4m	$0	$3k	$1.1m	$2k	$15k
Recreation	$59k	$44k	$0	$3k	$0	$23k	$8k	$25k	$158k	$0	$98k
	$149k	**$44k**	**$975k**	**$18k**	**$0**	**$1.5m**	**$18k**	**$185k**	**$1.5m**	**$83k**	**$113k**

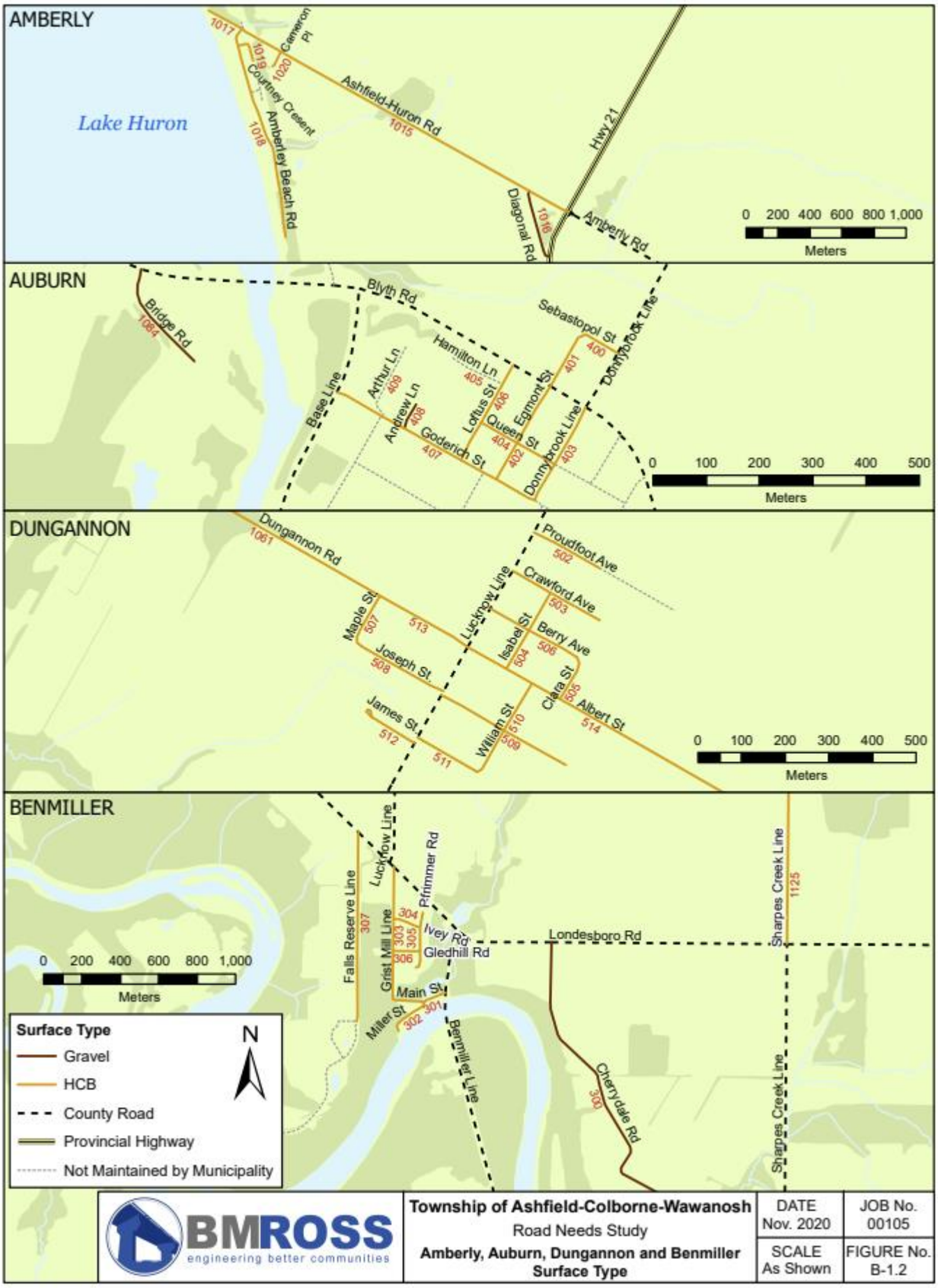
Vehicles											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Admin	$0	$0	$0	$0	$0	$0	$0	$0	$0	$40k	$0
Fire	$200k	$0	$0	$152k	$4k	$0	$0	$108k	$0	$0	$0
Public Works	$0	$0	$380k	$0	$0	$116k	$0	$438k	$818k	$578k	$0
Recreation	$0	$0	$0	$0	$0	$0	$0	$0	$35k	$0	$28k
	$200k	**$0**	**$380k**	**$152k**	**$4k**	**$116k**	**$0**	**$546k**	**$853k**	**$618k**	**$28k**

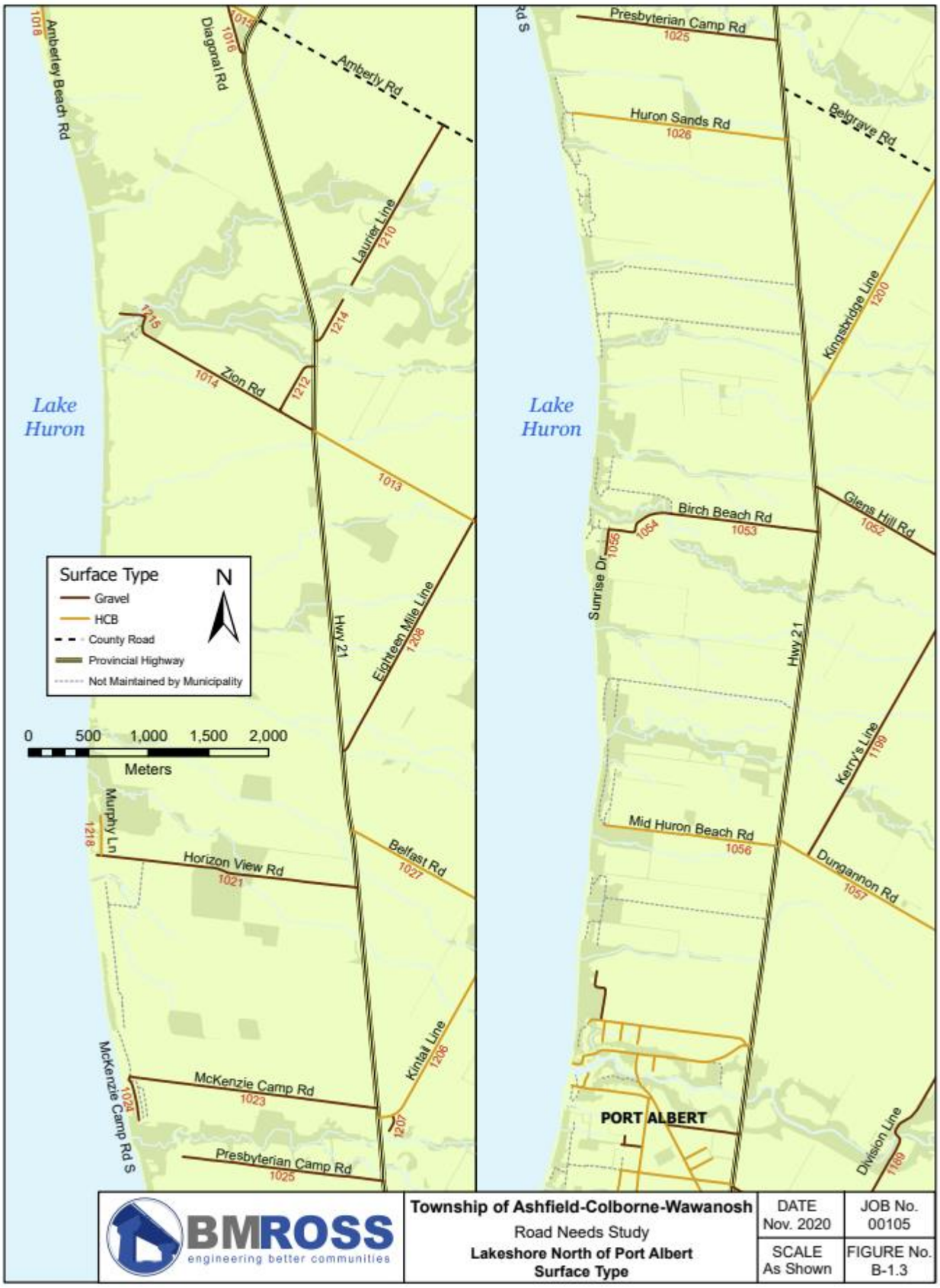
Water Network											
Asset Segment	Backlog	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Service Connections	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Tees & Valves	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water Facilities	$138k	$0	$292k	$0	$372k	$288k	$0	$87k	$100k	$9k	$0
Watermains	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
	$138k	**$0**	**$292k**	**$0**	**$372k**	**$288k**	**$0**	**$87k**	**$100k**	**$9k**	**$0**

Appendix B: Level of Service Maps

Road Network Map

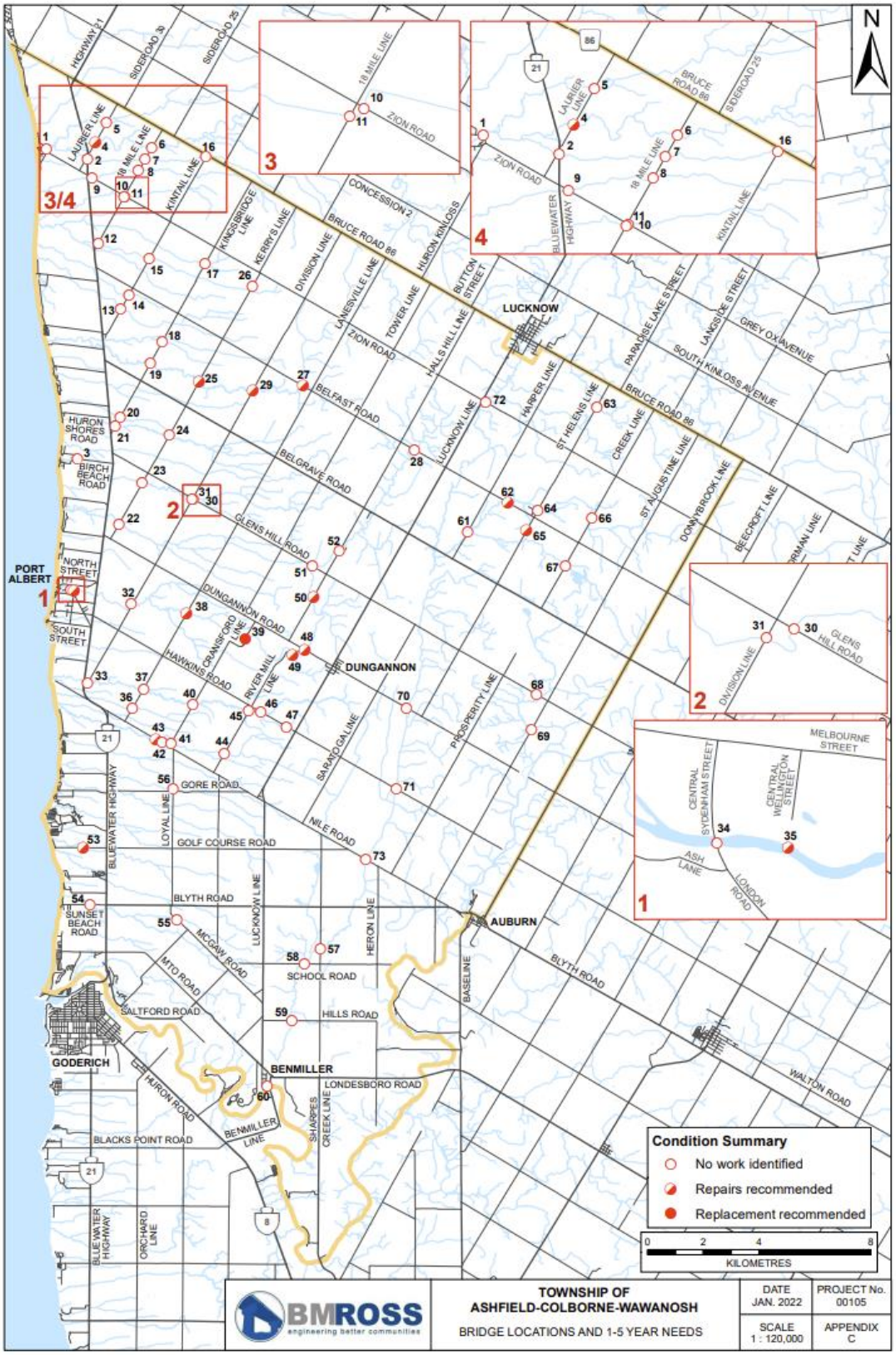

PORT ALBERT
N
0 100 200 400 600 800
Meters
Surface Type
Gravel
HCB
County Road
Provincial Highway
Not Maintained by Municipality
Bowers Ln
North St
Colborne St N
Arthur St N
Sydenham St N
Drury Ln
Melbourne St
Huron St. N.
Central Sydenham St
Central Wellington St
Lake Huron
Apple Ln
Russell St
Hwy 21
Victoria St
Sydenham St
London Rd
William St
Anne St
Market St
Ashfield St
Sydenham St. S.
Wellington St
Hawkins Rd
Division Line
South St
SALTFORD
N
0 200 400 600 800
Meters
Lake Ave.
Airport Rd
Riverside Cr
Champlain Blvd.
Magnolia Cr
Mill Rd
Hwy 21
Bissets Hill
Westmount Line
MTO Rd
McGaw Rd
Briney Rd.
Colborne Pl
Galt Pl
Dunlop Dr
Fern Dr
Maitland Ave
Saltford St
CP Line
Londesboro Rd
BMROSS
engineering better communities
Township of Ashfield-Colborne-Wawanosh
Road Needs Study
Port Albert and Saltford
Surface Type
DATE
Nov. 2020
JOB No.
00105
SCALE
As Shown
FIGURE No.
B-1.1


AMBERLY
Lake Huron
Cameron Pl
Courtney Cresent
Amberley Beach Rd
Ashfield-Huron Rd
Hwy 21
Diagonal Rd
Amberly Rd
0 200 400 600 800 1,000
Meters
AUBURN
Bridge Rd
Blyth Rd
Base Line
Arthur Ln
Andrew Ln
Hamilton Ln
Loftus St
Queen St
Egmont St
Goderich St
Sebastopol St
Donnybrook Line
0 100 200 300 400 500
Meters
DUNGANNON
Dungannon Rd
Proudfoot Ave
Crawford Ave
Berry Ave
Albert St
Maple St
Joseph St
James St
Lucknow Line
Isabel St
Clara St
William St
0 100 200 300 400 500
Meters
BENMILLER
Falls Reserve Line
Lucknow Line
Grist Mill Line
Rihmmer Rd
Ivey Rd
Gledhill Rd
Main St
Miller St
Benmiller Line
Londesboro Rd
Sharpes Creek Line
Cherrydale Rd
0 200 400 600 800 1,000
Meters
Surface Type
Gravel
HCB
County Road
Provincial Highway
Not Maintained by Municipality
N
BMROSS
engineering better communities
Township of Ashfield-Colborne-Wawanosh
Road Needs Study
Amberly, Auburn, Dungannon and Benmiller
Surface Type
DATE
Nov. 2020
JOB No.
00105
SCALE
As Shown
FIGURE No.
B-1.2

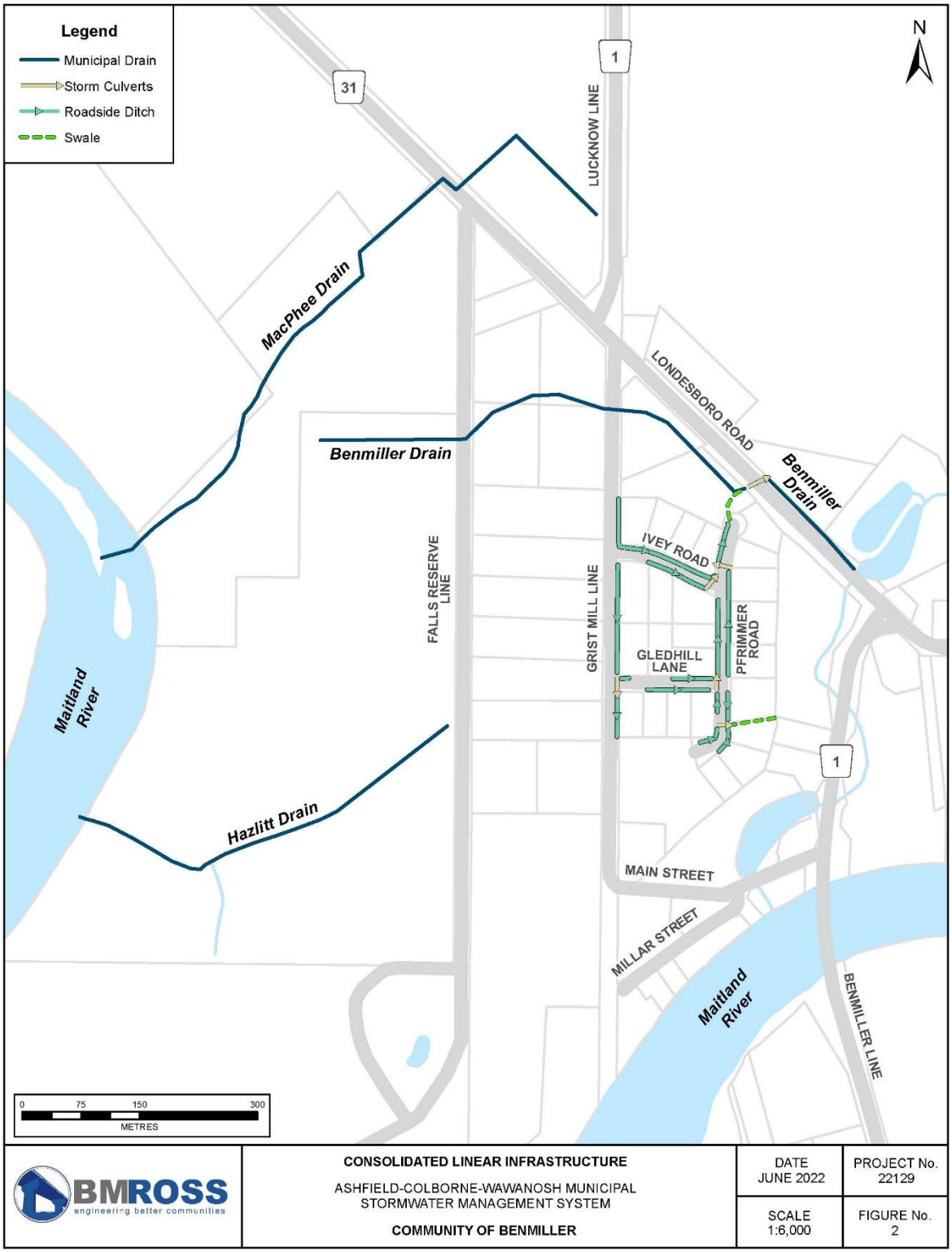

Amberley Beach Rd
1018
Diagonal Rd
1016
Amberly Rd
Laurier Line
1210
1214
1215
1014
Zion Rd
1212
Lake Huron
1013
Surface Type
Gravel
HCB
County Road
Provincial Highway
Not Maintained by Municipality
N
0 500 1,000 1,500 2,000
Meters
Hwy 21
Eighteen Mile Line
1208
Murphy Ln
1218
Horizon View Rd
1021
Belfast Rd
1027
Kintail Line
1206
McKenzie Camp Rd
1023
1024
McKenzie Camp Rd S
1207
Presbyterian Camp Rd
1025
Presbyterian Camp Rd
1025
Huron Sands Rd
1026
Belgrave Rd
Kingsbridge Line
1200
Lake Huron
Birch Beach Rd
1053
1054
1055
Sunrise Dr
Glens Hill Rd
1052
Hwy 21
Kerry's Line
1199
Mid Huron Beach Rd
1056
Dungannon Rd
1057
PORT ALBERT
Division Line
1189
BMROSS
engineering better communities
Township of Ashfield-Colborne-Wawanosh
Road Needs Study
Lakeshore North of Port Albert
Surface Type
DATE
Nov. 2020
JOB No.
00105
SCALE
As Shown
FIGURE No.
B-1.3

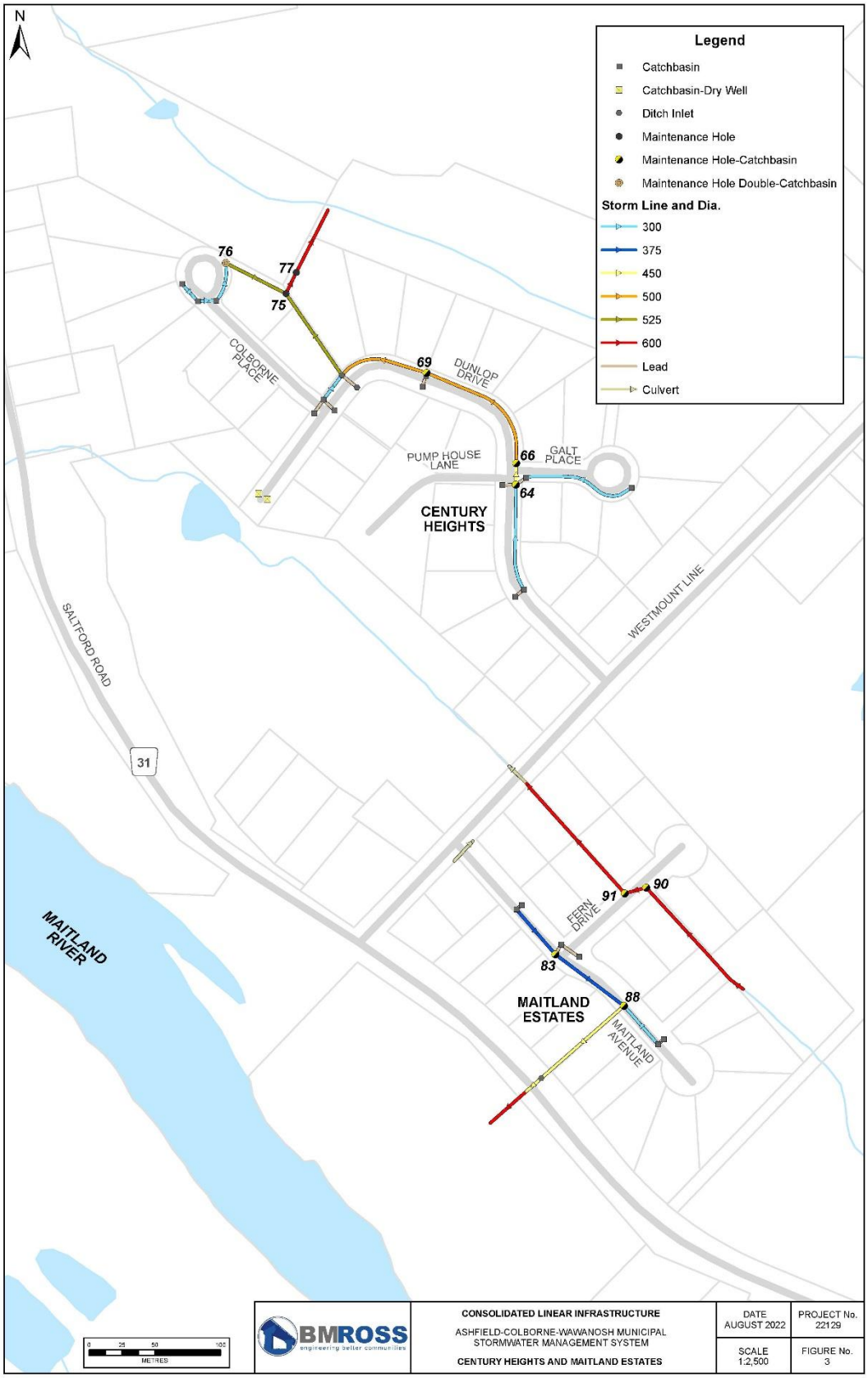

Lake Huron
Division Line
1188
Shoreline Rd
1077
Sheppardton Line
Lanesville Line
1187
Hawkins Rd
1074
1075
1186
Cransford Line
1174
Meyer Dr
1087
Brindley's Beach Rd
1086
1085
1078
Nile Rd
1079
1173
Bogies Beach Rd
1088
Gore Rd
1089
1090
Loyal Line
1172
Golf Course Rd
1098
1097
1096
1095
1171
Church Camp Rd
1099
Elm St
1101
Walnut St
1103
Sunset Beach Rd
1100
1102
Pine St
0 500 1,000 1,500 2,000
Meters
Surface Type
N
Gravel
HCB
County Road
Provincial Highway
Not Maintained by Municipality
BMROSS
engineering better communities
Township of Ashfield-Colborne-Wawanosh
Road Needs Study
Lakeshore South of Port Albert
Surface Type
DATE
Nov. 2020
JOB No.
00105
SCALE
1:40 000
FIGURE No.
B-1.4

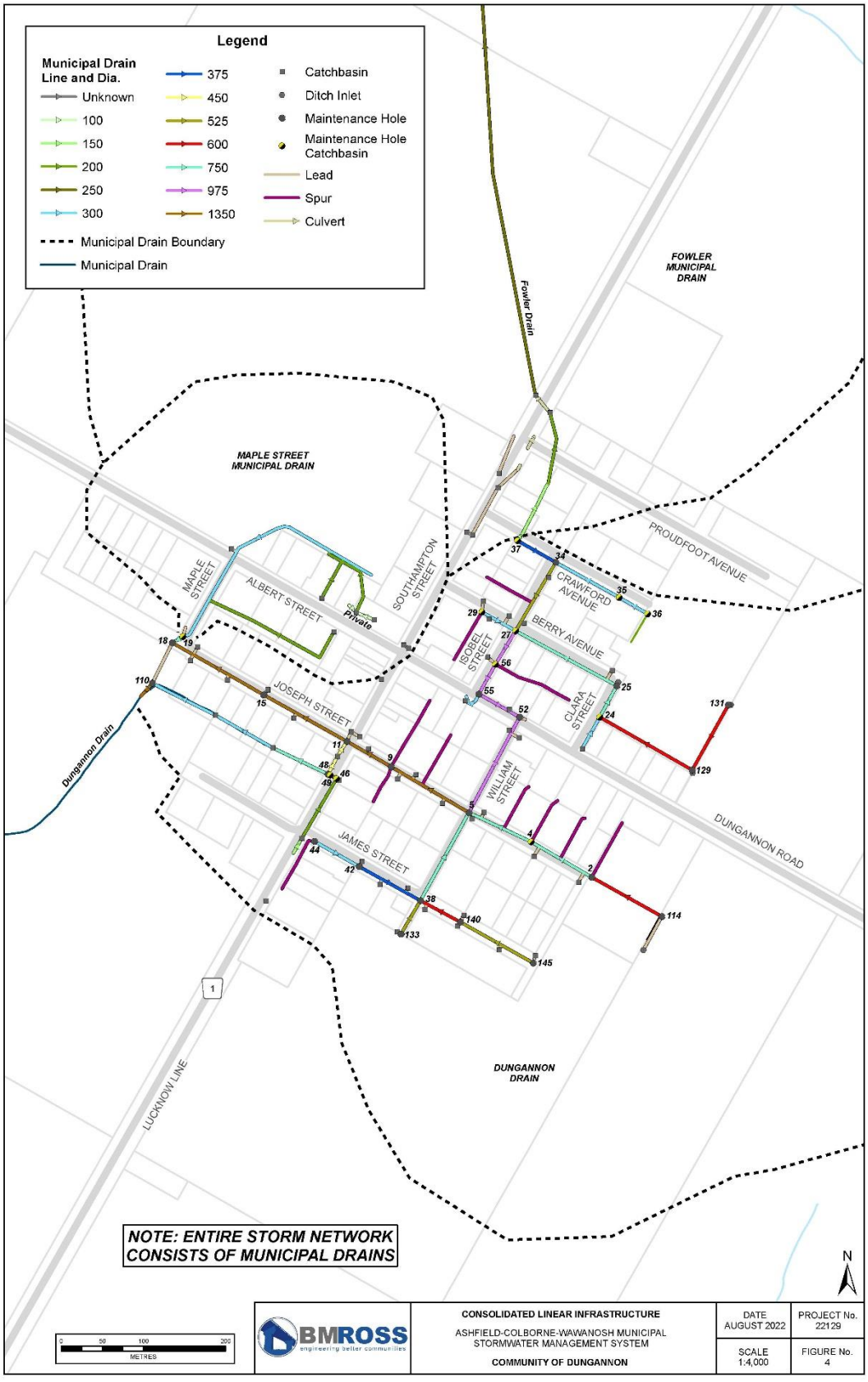
Bridges & Culverts Map

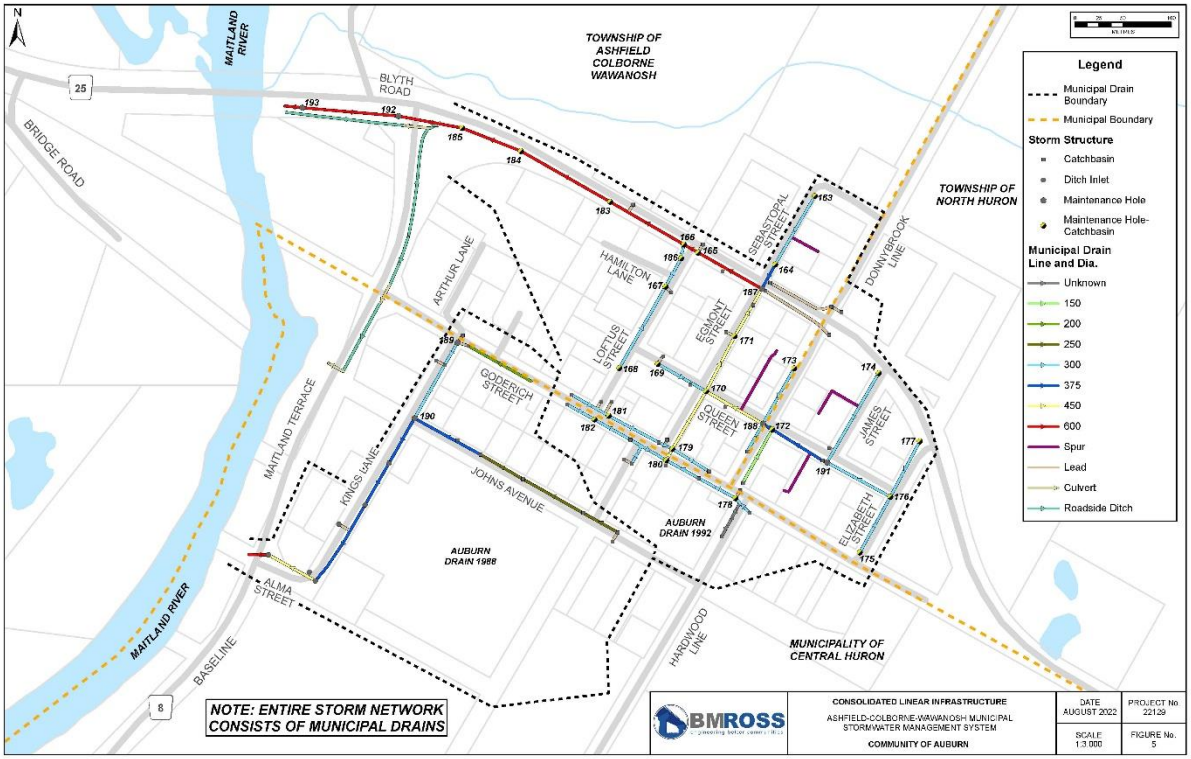


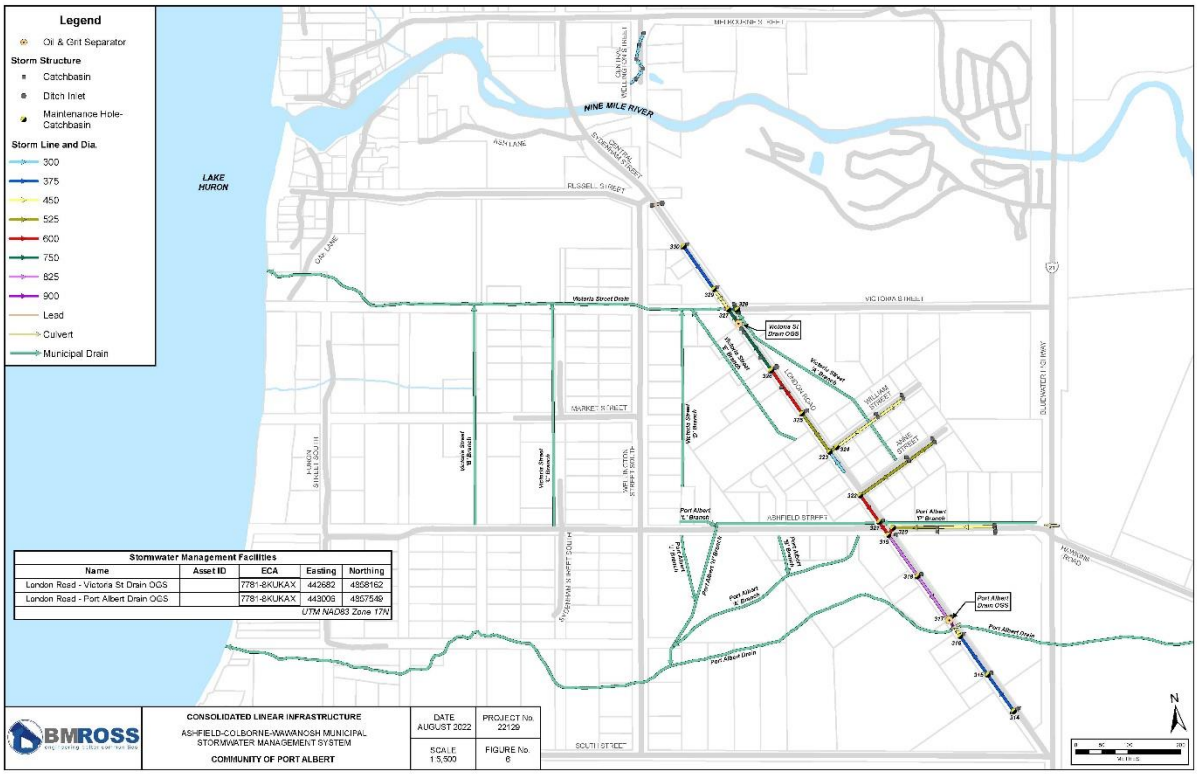
Storm Network Maps

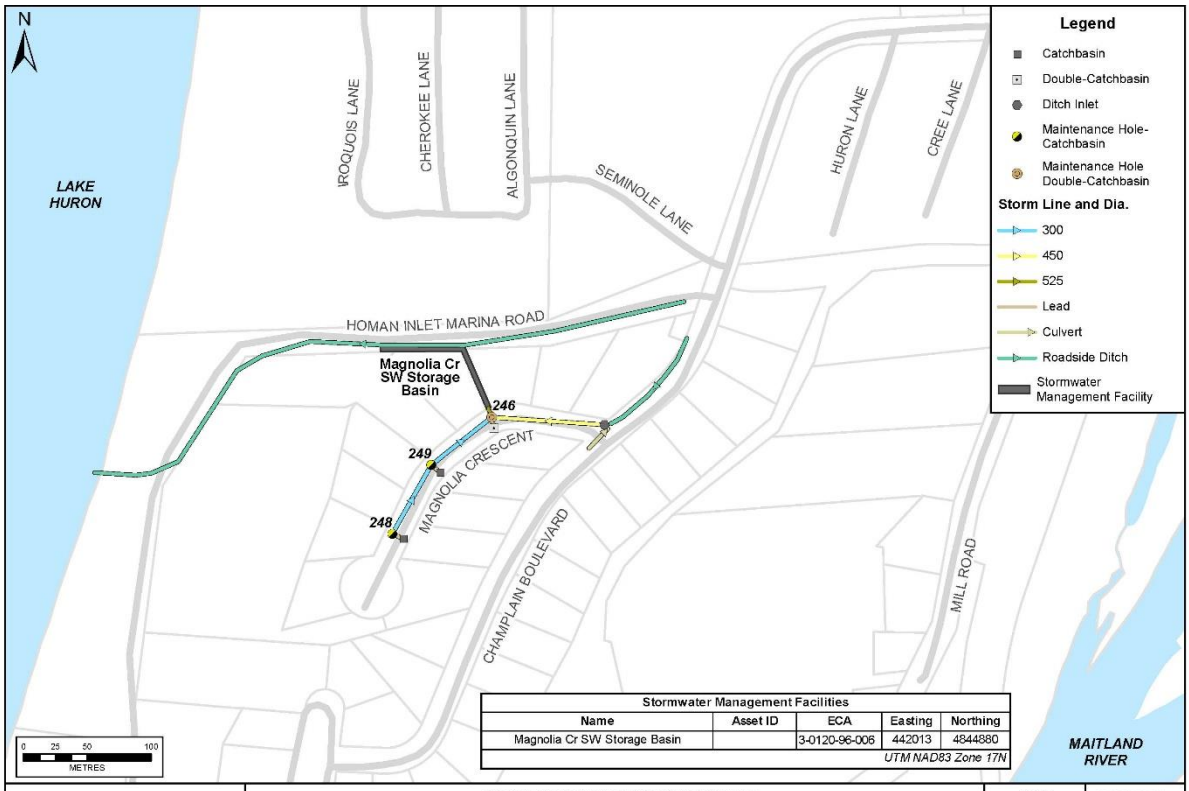



N
Legend
Catchbasin
Catchbasin-Dry Well
Ditch Inlet
Maintenance Hole
Maintenance Hole-Catchbasin
Maintenance Hole Double-Catchbasin
Storm Line and Dia.
300
375
450
500
525
600
Lead
Culvert
76
77
75
69
66
64
91
90
83
88
COLBORNE PLACE
DUNLOP DRIVE
PUMP HOUSE LANE
GALT PLACE
CENTURY HEIGHTS
WESTMOUNT LINE
SALTFORD ROAD
31
FERN DRIVE
MAITLAND ESTATES
MAITLAND AVENUE
MAITLAND RIVER
0 25 50 100
METRES
BMROSS
engineering better communities
CONSOLIDATED LINEAR INFRASTRUCTURE
ASHFIELD-COLBORNE-WAWANOSH MUNICIPAL STORMWATER MANAGEMENT SYSTEM
CENTURY HEIGHTS AND MAITLAND ESTATES
DATE AUGUST 2022
PROJECT No. 22129
SCALE 1:2,500
FIGURE No. 3


Legend
Municipal Drain Line and Dia.
Unknown
100
150
200
250
300
375
450
525
600
750
975
1350
Municipal Drain Boundary
Municipal Drain
Catchbasin
Ditch Inlet
Maintenance Hole
Maintenance Hole Catchbasin
Lead
Spur
Culvert
FOWLER MUNICIPAL DRAIN
Fowler Drain
MAPLE STREET MUNICIPAL DRAIN
PROUDFOOT AVENUE
SOUTHAMPTON STREET
MAPLE STREET
ALBERT STREET
Private
CRAWFORD AVENUE
BERRY AVENUE
ISOBEL STREET
CLARA STREET
JOSEPH STREET
WILLIAM STREET
JAMES STREET
DUNGANNON ROAD
Dungannon Drain
LUCKNOW LINE
DUNGANNON DRAIN
NOTE: ENTIRE STORM NETWORK CONSISTS OF MUNICIPAL DRAINS
N
0 50 100 200
METRES
BMROSS
engineering better communities
CONSOLIDATED LINEAR INFRASTRUCTURE
ASHFIELD-COLBORNE-WAWANOSH MUNICIPAL STORMWATER MANAGEMENT SYSTEM
COMMUNITY OF DUNGANNON
DATE AUGUST 2022
PROJECT No. 22129
SCALE 1:4,000
FIGURE No. 4


TOWNSHIP OF ASHFIELD COLBORNE WAWANOSH
TOWNSHIP OF NORTH HURON
MUNICIPALITY OF CENTRAL HURON
MAITLAND RIVER
BLYTH ROAD
BRIDGE ROAD
ARTHUR LANE
HAMILTON LANE
SEBASTOPAL STREET
DONNYBROOK LINE
LOFTUS STREET
EGMONT STREET
GODERICH STREET
QUEEN STREET
JAMES STREET
ELIZABETH STREET
MAITLAND TERRACE
KINGS LANE
JOHNS AVENUE
ALMA STREET
BASELINE
HARDWOOD LINE
AUBURN DRAIN 1988
AUBURN DRAIN 1992
NOTE: ENTIRE STORM NETWORK CONSISTS OF MUNICIPAL DRAINS
Legend
Municipal Drain Boundary
Municipal Boundary
Storm Structure
Catchbasin
Ditch Inlet
Maintenance Hole
Maintenance Hole-Catchbasin
Municipal Drain Line and Dia.
Unknown
150
200
250
300
375
450
600
Spur
Lead
Culvert
Roadside Ditch
BMROSS
CONSOLIDATED LINEAR INFRASTRUCTURE
ASHFIELD-COLBORNE-WAWANOSH MUNICIPAL STORMWATER MANAGEMENT SYSTEM
COMMUNITY OF AUBURN
DATE AUGUST 2022
PROJECT No. 22129
SCALE 1:3,000
FIGURE No. 5


Legend
Oil & Grit Separator
Storm Structure
Catchbasin
Ditch Inlet
Maintenance Hole-Catchbasin
Storm Line and Dia.
300
375
450
525
600
750
825
900
Lead
Culvert
Municipal Drain
LAKE HURON
NINE MILE RIVER
RUSSELL STREET
VICTORIA STREET
MARKET STREET
ASHFIELD STREET
SOUTH STREET
LONDON ROAD
WILLIAM STREET
JANE STREET
Victoria St Storm OGS
Port Albert Drain OGS
Stormwater Management Facilities
Name | Asset ID | ECA | Easting | Northing
London Road - Victoria St Drain OGS | | 7781-8KUKAX | 442682 | 4828162
London Road - Port Albert Drain OGS | | 7781-8KUKAX | 443009 | 4827549
UTM NAD83 Zone 17N
BMROSS
CONSOLIDATED LINEAR INFRASTRUCTURE
ASHFIELD-COLBORNE-WAWANOSH MUNICIPAL STORMWATER MANAGEMENT SYSTEM
COMMUNITY OF PORT ALBERT
DATE AUGUST 2022
PROJECT No. 22129
SCALE 1:5,500
FIGURE No. 6



Stormwater Management Facilities				
Name	Asset ID	ECA	Easting	Northing
Magnolia Cr SW Storage Basin		3-0120-96-006	442013	4844880
				UTM NAD83 Zone 17N

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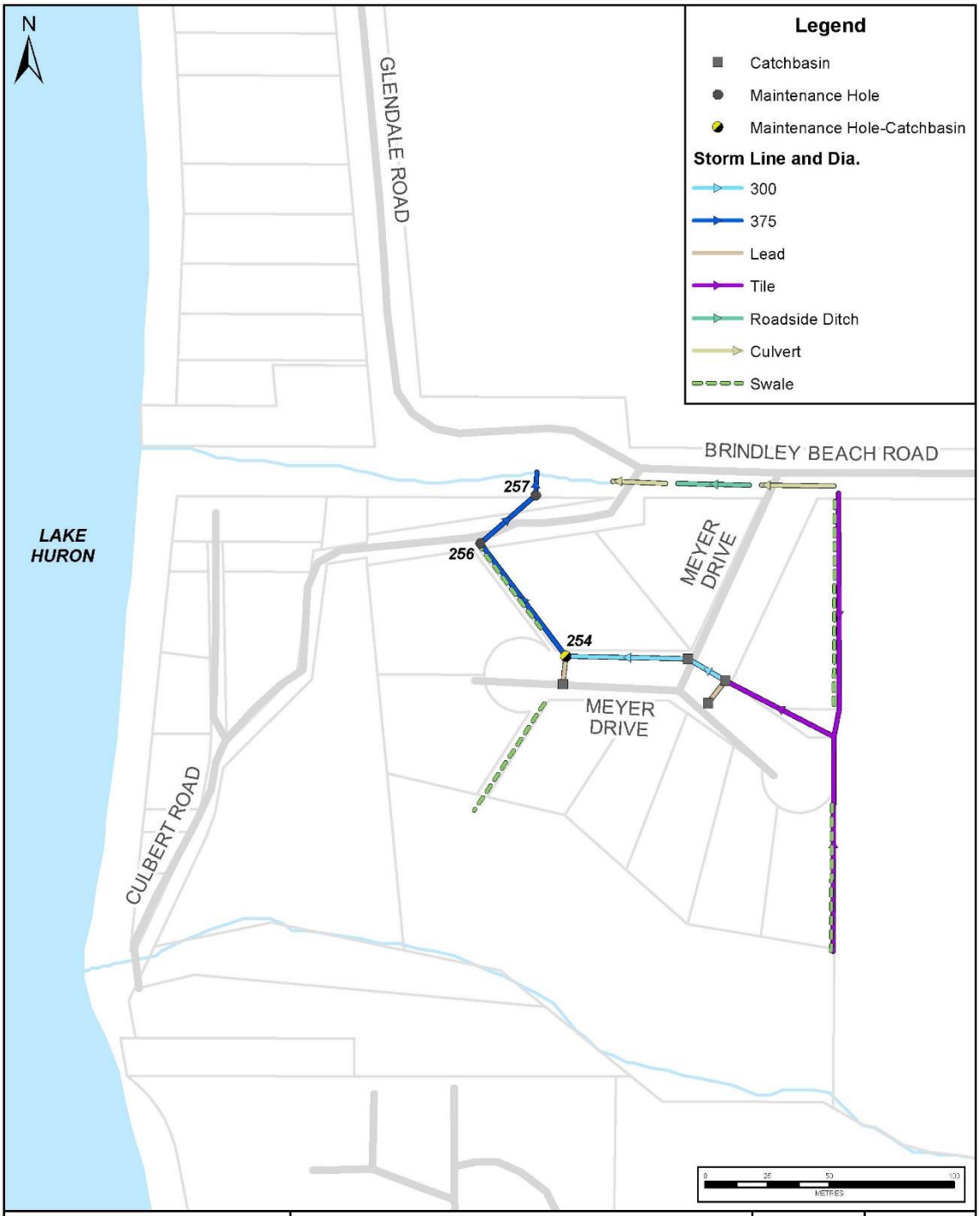
CONSOLIDATED LINEAR INFRASTRUCTURE

ASHFIELD-COLBORNE-WAWANOSH MUNICIPAL STORMWATER MANAGEMENT SYSTEM

MAGNOLIA CRESCENT

DATE	PROJECT No.
AUGUST 2022	22129
SCALE	FIGURE No.
1:3,500	7


N
Legend
Catchbasin
Maintenance Hole
Maintenance Hole-Catchbasin
Storm Line and Dia.
300
375
Lead
Tile
Roadside Ditch
Culvert
Swale
GLENDALE ROAD
BRINDLEY BEACH ROAD
LAKE HURON
257
256
254
MEYER DRIVE
MEYER DRIVE
CULBERT ROAD
METRES
BMROSS
engineering better communities
CONSOLIDATED LINEAR INFRASTRUCTURE
ASHFIELD-COLBORNE-WAWANOSH MUNICIPAL STORMWATER MANAGEMENT SYSTEM
BRINDLEY BEACH ROAD
DATE AUGUST 2022
PROJECT No. 22129
SCALE 1:2,000
FIGURE No. 8

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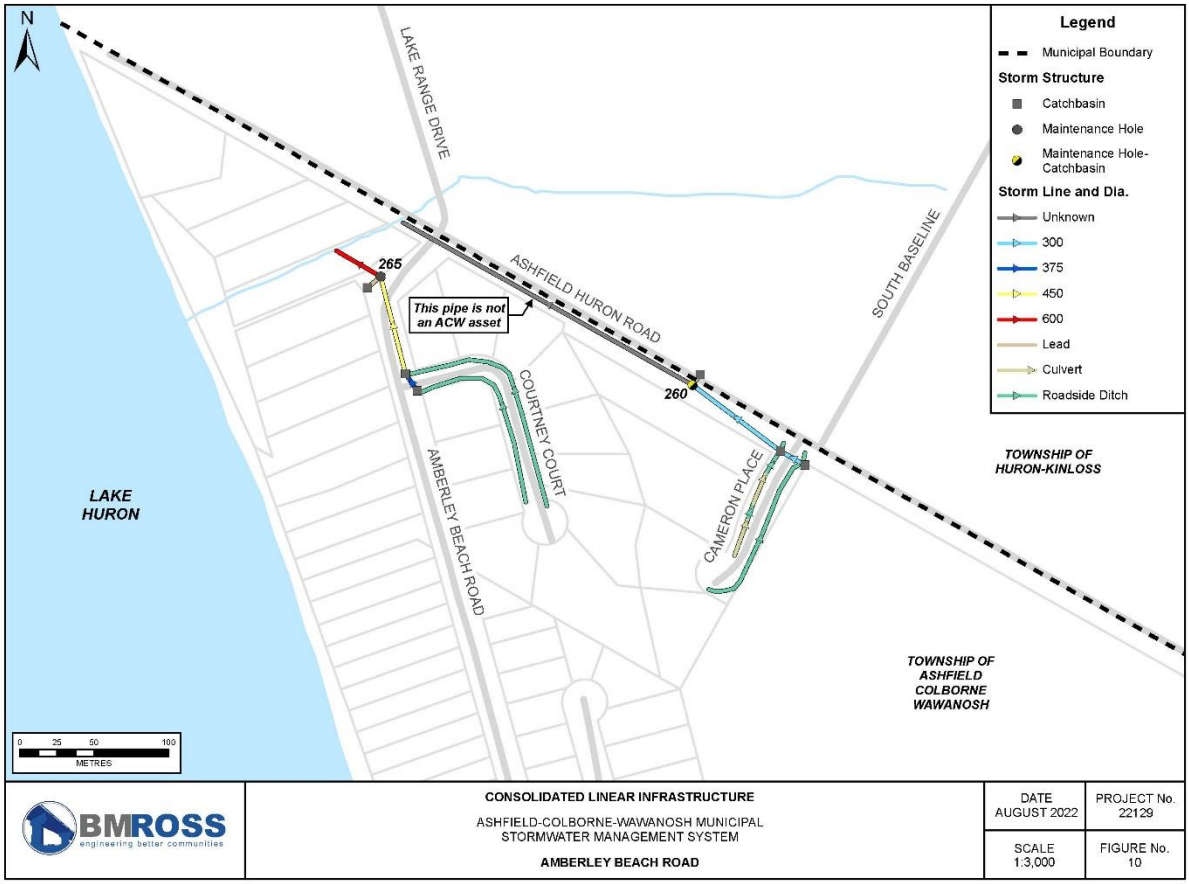
CONSOLIDATED LINEAR INFRASTRUCTURE

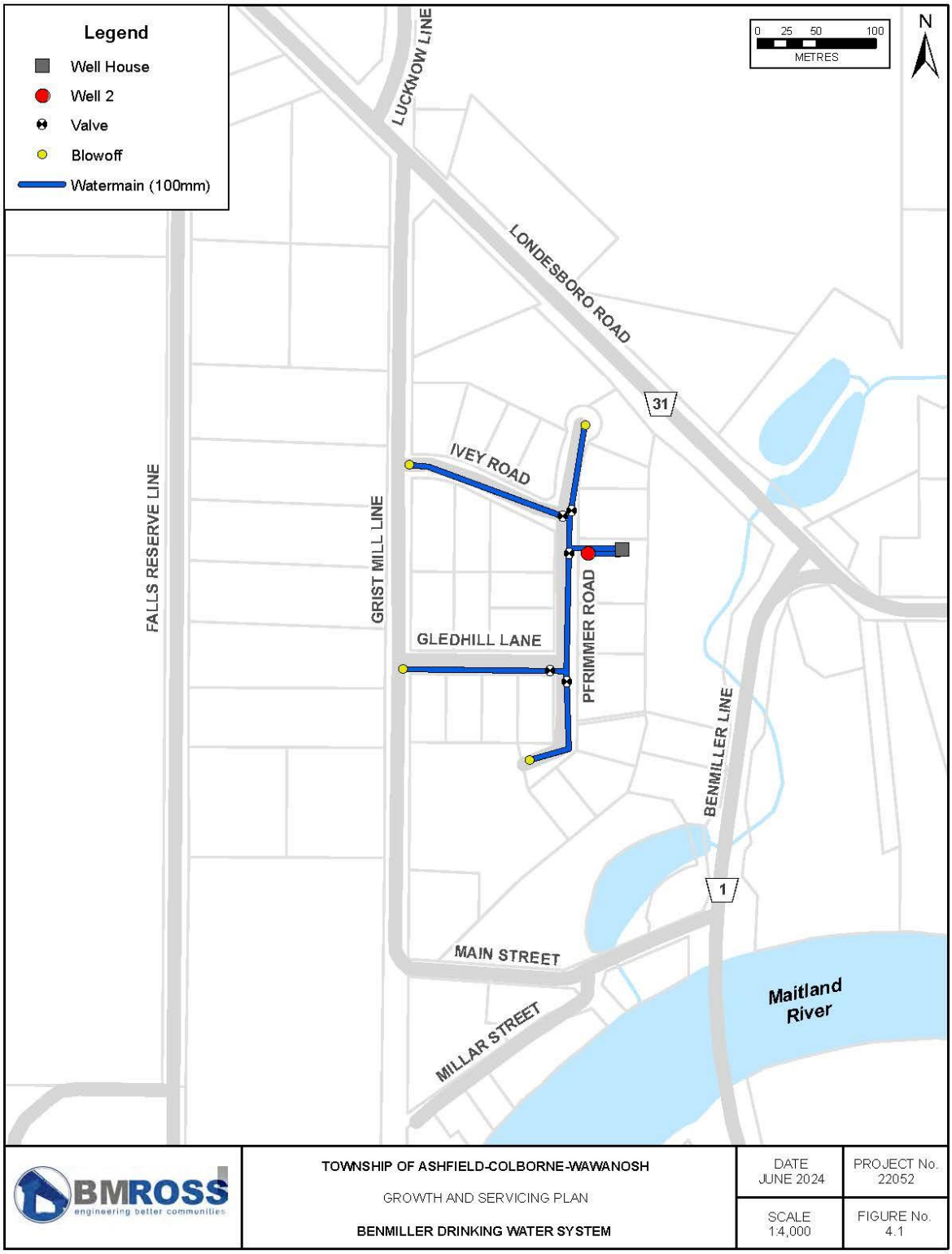
ASHFIELD-COLBORNE-WAWANOSH MUNICIPAL STORMWATER MANAGEMENT SYSTEM

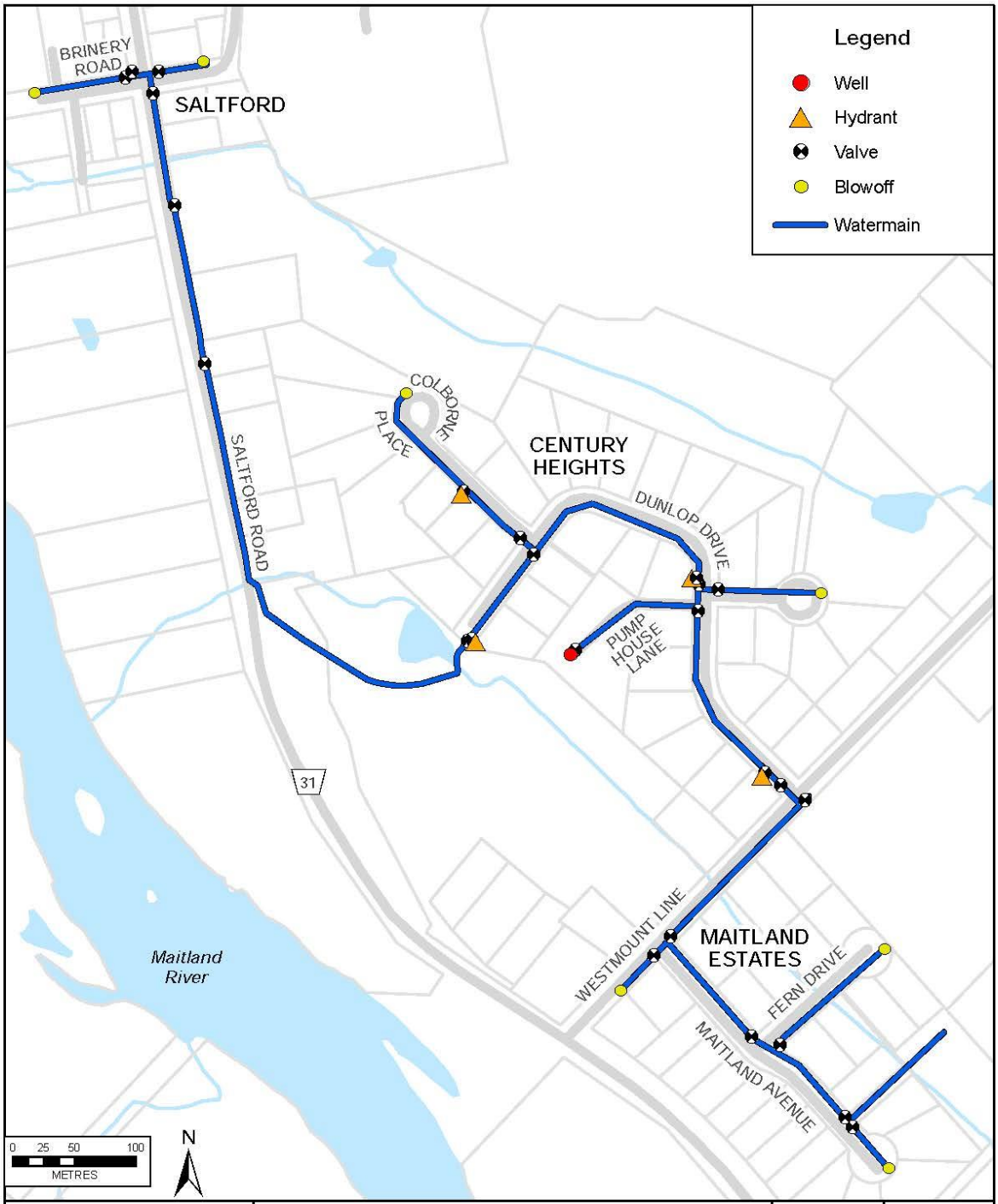
HURON SANDS ROAD

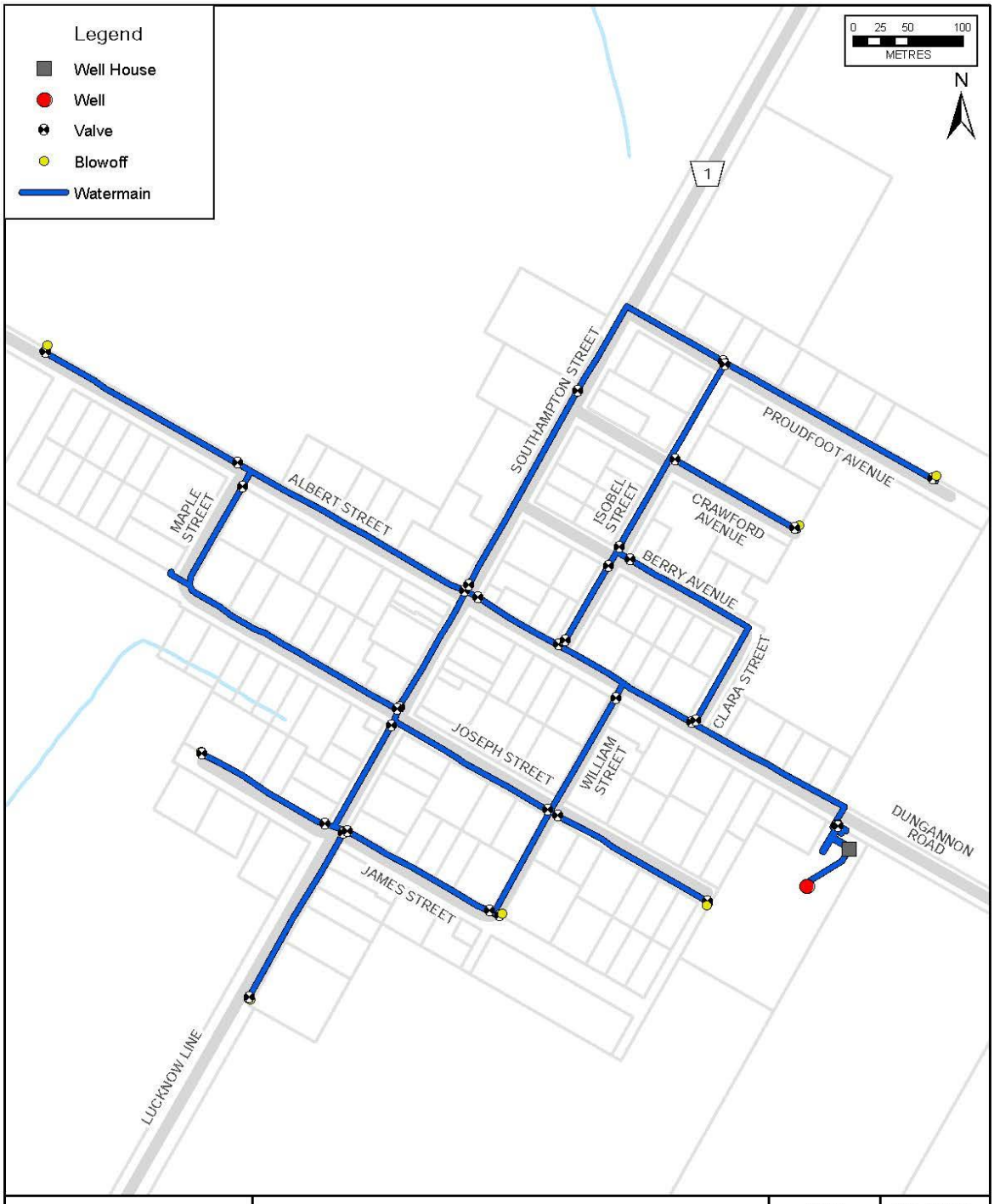
DATE	PROJECT No.
AUGUST 2022	22129
SCALE	FIGURE No.
1:4,500	9


N
LAKE RANGE DRIVE
ASHFIELD HURON ROAD
SOUTH BASELINE
265
This pipe is not an ACW asset
260
COURTNEY COURT
AMBERLEY BEACH ROAD
CAMERON PLACE
LAKE HURON
TOWNSHIP OF HURON-KINLOSS
TOWNSHIP OF ASHFIELD COLBORNE WAWANOSH
0 25 50 100
METRES
Legend
Municipal Boundary
Storm Structure
Catchbasin
Maintenance Hole
Maintenance Hole-Catchbasin
Storm Line and Dia.
Unknown
300
375
450
600
Lead
Culvert
Roadside Ditch
BMROSS
engineering better communities
CONSOLIDATED LINEAR INFRASTRUCTURE
ASHFIELD-COLBORNE-WAWANOSH MUNICIPAL STORMWATER MANAGEMENT SYSTEM
AMBERLEY BEACH ROAD
DATE AUGUST 2022
PROJECT No. 22129
SCALE 1:3,000
FIGURE No. 10

Water Network Maps

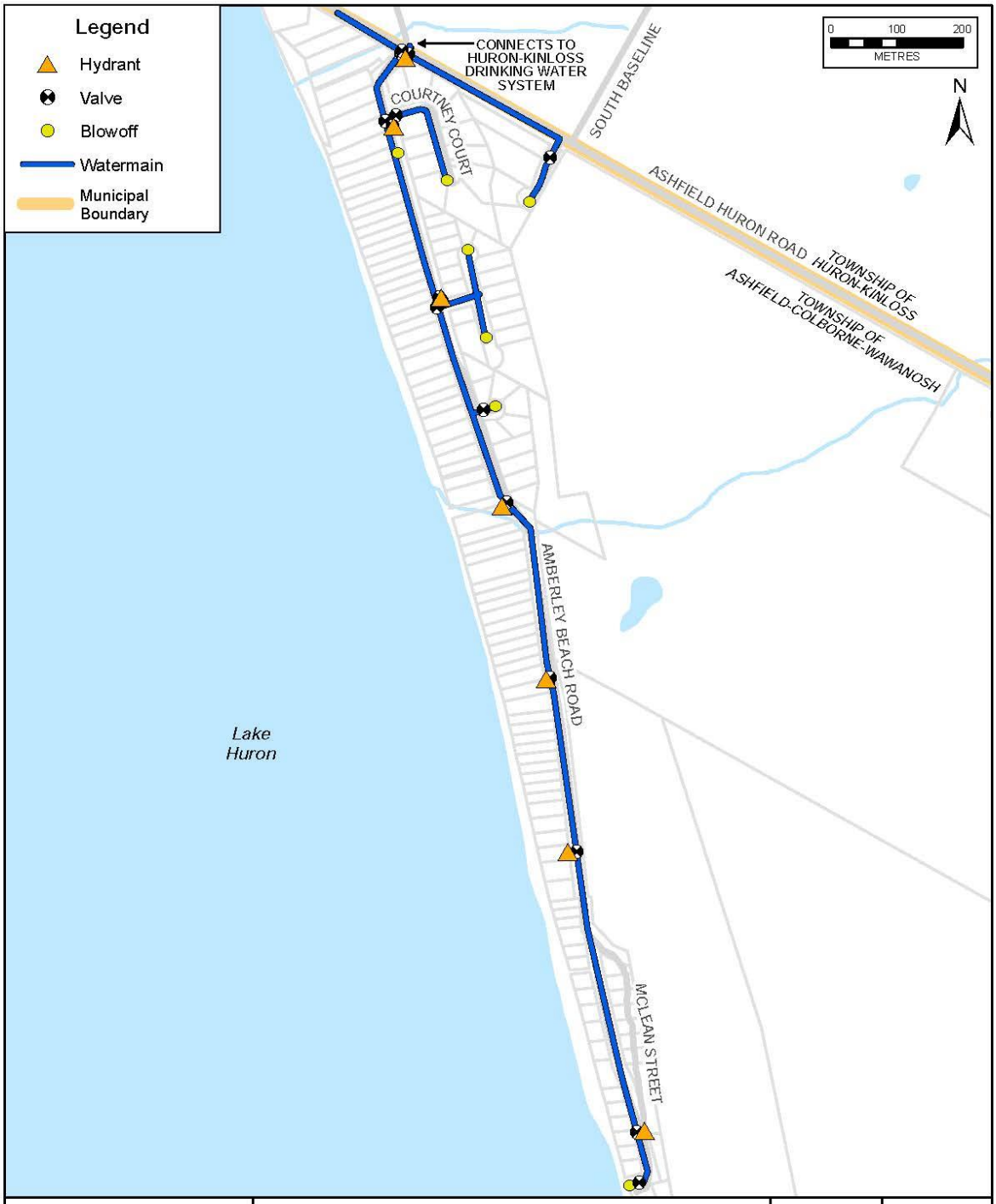


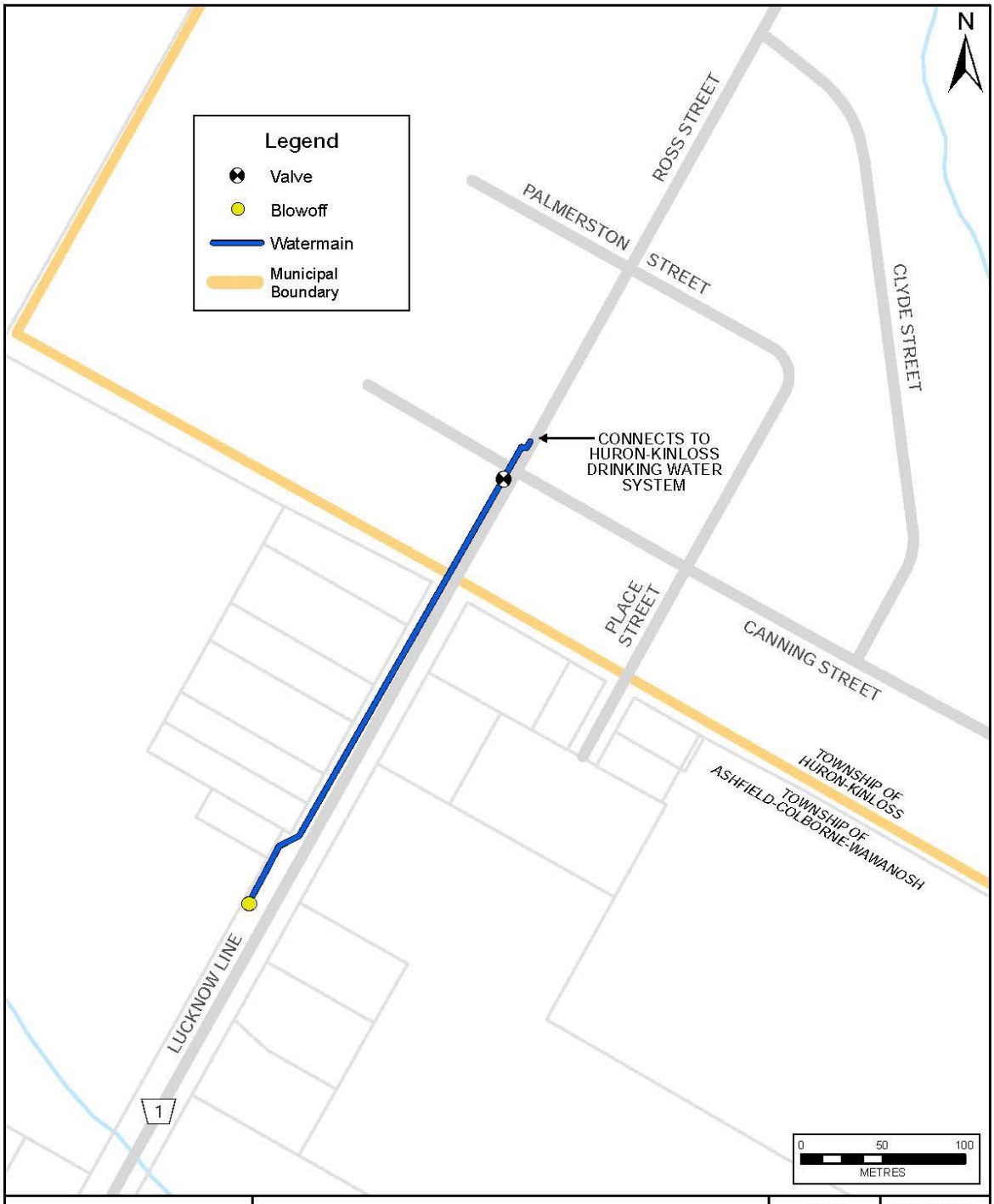

Legend
Well
Hydrant
Valve
Blowoff
Watermain
BRINERY ROAD
SALTFORD
SALTFORD ROAD
COLBORNE PLACE
CENTURY HEIGHTS
DUNLOP DRIVE
PUMP HOUSE LANE
31
Maitland River
WESTMOUNT LINE
MAITLAND ESTATES
FERN DRIVE
MAITLAND AVENUE
0 25 50 100
METRES
N
BMROSS
engineering better communities
TOWNSHIP OF ASHFIELD-COLBORNE-WAWANOSH
GROWTH AND SERVICING PLAN
CENTURY HEIGHTS DRINKING WATER SYSTEM
DATE
JUNE 2024
PROJECT No.
22052
SCALE
1:4,000
FIGURE No.
4.2



BMROSS engineering better communities	TOWNSHIP OF ASHFIELD-COLBORNE-WAWANOSH GROWTH AND SERVICING PLAN DUNGANNON DRINKING WATER SYSTEM	DATE JUNE 2024	PROJECT No. 22052
		SCALE 1:4,500	FIGURE No. 4.3


Legend
Well
Valve
Blowoff
Watermain (100mm)
0
75
150
METRES
N
SIMPSON LANE
HURON SANDS ROAD
MICHELLE STREET
LESLIE STREET
Lake
Huron
ERIN DRIVE NORTH
ERIE
DRIVE
ERIN DRIVE SOUTH
KIMBERLY DRIVE
BMROSS
engineering better communities
TOWNSHIP OF ASHFIELD-COLBORNE-WAWANOSH
GROWTH AND SERVICING PLAN
HURON SANDS DRINKING WATER SYSTEM
DATE
JUNE 2024
PROJECT No.
22052
SCALE
1:5,000
FIGURE No.
4.3


Legend
Hydrant
Valve
Blowoff
Watermain
Municipal Boundary
CONNECTS TO HURON-KINLOSS DRINKING WATER SYSTEM
COURTNEY COURT
SOUTH BASELINE
ASHFIELD HURON ROAD
TOWNSHIP OF HURON-KINLOSS
TOWNSHIP OF ASHFIELD-COLBORNE-WAWANOSH
AMBERLEY BEACH ROAD
MCLEAN STREET
Lake Huron
0 100 200
METRES
N
BMROSS
engineering better communities
TOWNSHIP OF ASHFIELD-COLBORNE-WAWANOSH
GROWTH AND SERVICING PLAN
AMBERLEY BEACH DRINKING WATER SYSTEM
DATE JUNE 2024
PROJECT No. 22052
SCALE 1:7,500
FIGURE No. 4.5



BMROSS engineering better communities	TOWNSHIP OF ASHFIELD-COLBORNE-WAWANOSH GROWTH AND SERVICING PLAN SOUTH OF LUCKNOW DRINKING WATER SYSTEM	DATE JUNE 2024	PROJECT No. 22052
		SCALE 1:3,000	FIGURE No. 4.6

Appendix C: Condition Assessment Guidelines

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

Condition data is vital to the development of data-driven asset management strategies. Without accurate and reliable asset data, there may be little confidence in asset management decision-making which can lead to premature asset failure, service disruption and suboptimal investment strategies. To prevent these outcomes, the Municipality's condition assessment strategy should outline several key considerations, including:

- The role of asset condition data in decision-making
- Guidelines for the collection of asset condition data
- A schedule for how regularly asset condition data should be collected

Role of Asset Condition Data

The goal of collecting asset condition data is to ensure that data is available to inform maintenance and renewal programs required to meet the desired level of service. Accurate and reliable condition data allows municipal staff to determine the remaining service life of assets, and identify the most cost-effective approach to deterioration, whether it involves extending the life of the asset through remedial efforts or determining that replacement is required to avoid asset failure.

In addition to the optimization of lifecycle management strategies, asset condition data also impacts the Municipality's risk management and financial strategies. Assessed condition is a key variable in the determination of an asset's probability of failure. With a strong understanding of the probability of failure across the entire asset portfolio, the Municipality can develop strategies to mitigate both the probability and consequences of asset failure and service disruption. Furthermore, with condition-based determinations of future capital expenditures, the Municipality can develop long-term financial strategies with higher accuracy and reliability.

Guidelines for Condition Assessment

Whether completed by external consultants or internal staff, condition assessments should be completed in a structured and repeatable fashion, according to consistent and objective assessment criteria. Without proper guidelines for the completion of condition assessments there can be little confidence in the validity of condition data and asset management strategies based on this data.

Condition assessments must include a quantitative or qualitative assessment of the current condition of the asset, collected according to specified condition rating criteria, in a format that can be used for asset management decision-making. As a result, it is important that staff adequately define the condition rating criteria that should be used and the assets that require a discrete condition rating. When engaging with external consultants to complete condition assessments, it is critical that these details are communicated as part of the contractual terms of the project. There are many options available to the Municipality to complete condition assessments. In some cases, external consultants may need to be engaged to complete detailed technical assessments of infrastructure. In other cases, internal staff may have sufficient expertise or training to complete condition assessments.

Developing a Condition Assessment Schedule

Condition assessments and general data collection can be both time-consuming and resource intensive. It is not necessarily an effective strategy to collect assessed condition data across the entire asset inventory. Instead, the Municipality should prioritize the collection of assessed condition data based on the anticipated value of this data in decision-making. The International Infrastructure Management Manual (IIMM) identifies four key criteria to consider when making this determination:

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