Asset Management Plan

Township of Huron-Kinloss

July 2025

This Asset Management Program was prepared by:

psdcitywide

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

Key Statistics

$302M	2023 Replacement Cost of Asset Portfolio
$73.5k	Replacement Cost of Infrastructure Per Household
81%	Percentage of Assets in Fair or Better Condition
30%	Percentage of Assets with Assessed Condition Data
$2.0M	Annual Capital Infrastructure Deficit
15 Years	Recommended Timeframe to reach Proposed Levels of Service
2.5%	Target Investment Rate to meet Proposed Levels of Service
1.8%	Actual Investment Rate

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1. Executive Summary

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

1.1. Scope

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

The AMP's categories are summarized in Figure 1.

Core Assets

- Road Network
- Bridges & Culverts
- Drinking Water Assets
- Sanitary Sewer Network
- Storm Water Network

Non-Core Assets

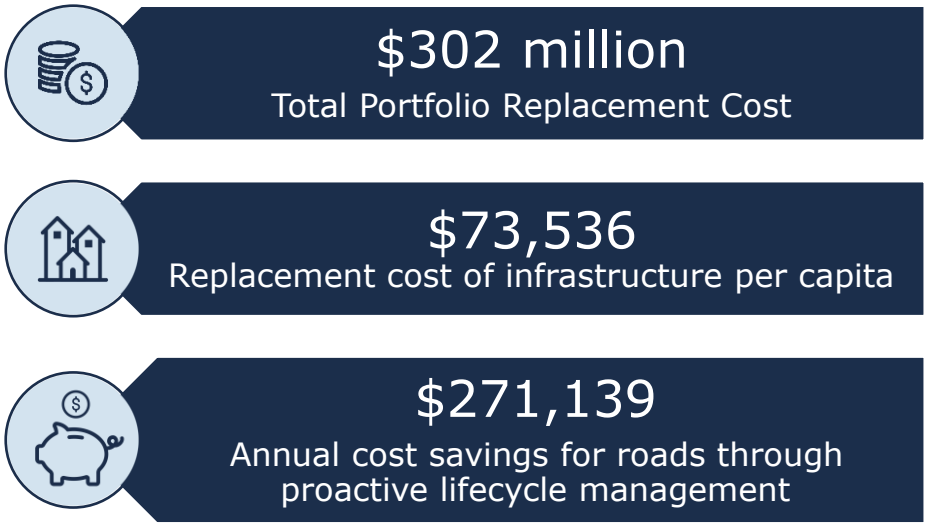
- Buildings
- Land Improvements
- Fleet
- Machinery & Equipment

Figure 1: Core and Non-Core Asset Categories

1.2. Compliance

With the development of this AMP the Township of Huron-Kinloss has achieved compliance with July 1, 2025, requirements under O. Reg. 588/17. This includes requirements for proposed levels of service and inventory reporting for all asset categories.

1.3. Findings



The overall replacement cost of the asset categories owned by Huron-Kinloss total $302 million. 81% of all assets analysed are in fair or better condition. Assessed condition data was available for bridges and culverts, road network, land improvement, and few machinery and equipment assets. For the remaining assets, assessed condition data was unavailable, and asset age was used to approximate condition.

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 $7.5 million. Based on a historical analysis of sustainable capital funding sources, Huron-Kinloss is committing approximately $5.5 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $2.0 million.

To support the proposed levels of service, the Township has selected a financial strategy aimed at achieving full funding within 15 years. This phased approach will gradually increase reinvestment levels over 15 years, enabling the Township to meet both current and future infrastructure needs while minimizing the risk of service disruptions.

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.

1.4. Limitations and Constraints

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

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

These limitations have a direct impact on most of the analysis presented, including condition summaries, age profiles, long-term replacement and rehabilitation forecasts, and shorter term, 10-year forecasts that are generated from Citywide, the municipality's primary asset management system.

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

2. Introduction and Context

2.1. Community Profile

Census Characteristic	Township of Huron-Kinloss	Ontario
Population 2021	7,723	14,223,942
Population Change 2016-2021	9.3%	5.8%
Total Private Dwellings	4,107	5,929,250
Population Density	17.5/km2	15.9/km^2
Land Area	440.73 km2	892,411.76 km^2

Table 1: The Township of Huron-Kinloss Census Information

The Township of Huron-Kinloss is a lower-tier municipality in Bruce County, Ontario, situated along the southeastern shore of Lake Huron. As of the 2021 Census, the township had a population of 7,723, maintaining its primarily rural character while benefiting from a strong sense of community. Compared to the more densely populated regions of Southern Ontario, Huron-Kinloss offers a peaceful environment, blending agricultural heritage with scenic lakefront living.

The area was first settled in the mid-19th century by Scottish families forced to leave the Isle of Lewis during the Highland Clearances. On January 1, 1999, Huron-Kinloss was officially formed through the amalgamation of the former Townships of Huron and Kinloss and the Villages of Lucknow and Ripley. This restructuring aimed to enhance local governance and service delivery while preserving the township's rural roots.

Huron-Kinloss' economy is anchored by agriculture, agricultural services, tourism, and employment in nearby urban centers. The township's fertile farmland supports a mix of family-owned farms and agribusinesses, making agriculture the backbone of the local economy. The Lake Huron shoreline, featuring beaches, nature trails, and seasonal events, attracts visitors and fuels the tourism industry.

To sustain growth and maintain a high quality of life, Huron-Kinloss continues to invest in essential services such as water, sewers, roads, and community facilities. These infrastructure improvements aim to support both the township's agricultural base and its expanding residential and tourism sectors while ensuring long-term sustainability.

2.2. Climate Change

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

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

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

2.2.1 Huron-Kinloss Climate Profile

The Township of Huron-Kinloss is located in Western Ontario within the Bruce 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 Huron-Kinloss may experience the following trends:

Higher Average Annual Temperature:

- Between the years 1971 and 2000 the annual average temperature was 6.9 ºC
- Under a high emissions scenario, the annual average temperatures are projected to increase by 4.7ºC 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, Huron-Kinloss 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 extreme weather events will occur with greater frequency and severity especially with the Great Lake winds.

2.2.2 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 km2. 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 as a result of 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 as a result of 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.

2.2.3 Integration Climate change and Asset Management

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

In order to achieve the sustainable delivery of services, climate change considerations should be incorporated into asset management practices. The integration of asset management and climate change adaptation observes industry best practices and enables the development of a holistic approach to risk management.

The Township of Huron-Kinloss adopted a Climate Change and Energy Plan which focus on enhancing the resilience and sustainability of infrastructure in response to climate change. The plan integrates climate considerations into the design, maintenance, and operation of municipal assets to mitigate greenhouse gas

emissions and adapt to climatic impacts. It emphasizes safeguarding public health, minimizing climate-induced risks, and reducing related costs, ensuring the Township's infrastructure remains robust and adaptable to evolving climate conditions.

2.3. Asset Management Overview

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 and levels of service the community receives from the asset portfolio.

Lifecycle 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 the 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 (AMP).

This industry standard, defined by the Institute of Asset Management (IAM), emphasizes the alignment between the corporate strategic plan and various asset management documents.

2.3.1 Foundational Documents

In the municipal sector, 'asset management strategy' and 'asset management plan' are often used interchangeably. Other concepts such as 'asset management framework', 'asset management system', and 'strategic asset management plan' further add to the confusion; lack of consistency in the industry on the purpose and definition of these elements offers little clarity. To make a clear distinction between the policy, strategy, and the plan see the following sections for detailed descriptions of the document types.

Strategic Plan

The strategic plan has a direct, and cascading impact on asset management planning and reporting, making it a foundational element. At the beginning of each term, Council holds strategic planning exercises and discussions to identify major initiatives and administrative improvements it wishes to achieve during its tenure. Staff then identify the scope, resources, timing & other logistical matters associated with proposed initiatives.

Asset Management Policy

An asset management policy represents a statement of the principles guiding the Township's approach to asset management activities as well as their commitment. It aligns with the organization and provides clear direction to municipal staff on their roles and responsibilities.

Asset Management Strategy

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

Asset Management Plan

The asset management plan is often identified as a key output within the strategy. The AMP has a sharp focus on the current state of the Township's asset portfolio, and its approach to managing and funding individual asset groups. It is tactical in nature and provides a snapshot in time.

2.3.2 Key Technical Concepts

Effective asset management integrates several key components, including data management, lifecycle management, risk management, and levels of service.

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. The two methodologies are:

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

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

Estimated Useful Life and Service Life Remaining

The estimated useful life (EUL) of an asset is the period over which the Township expects the asset to be available for use and remain in service before requiring replacement or disposal. The EUL for each asset was assigned according to the knowledge and expertise of municipal staff and supplemented by existing industry standards when necessary.

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

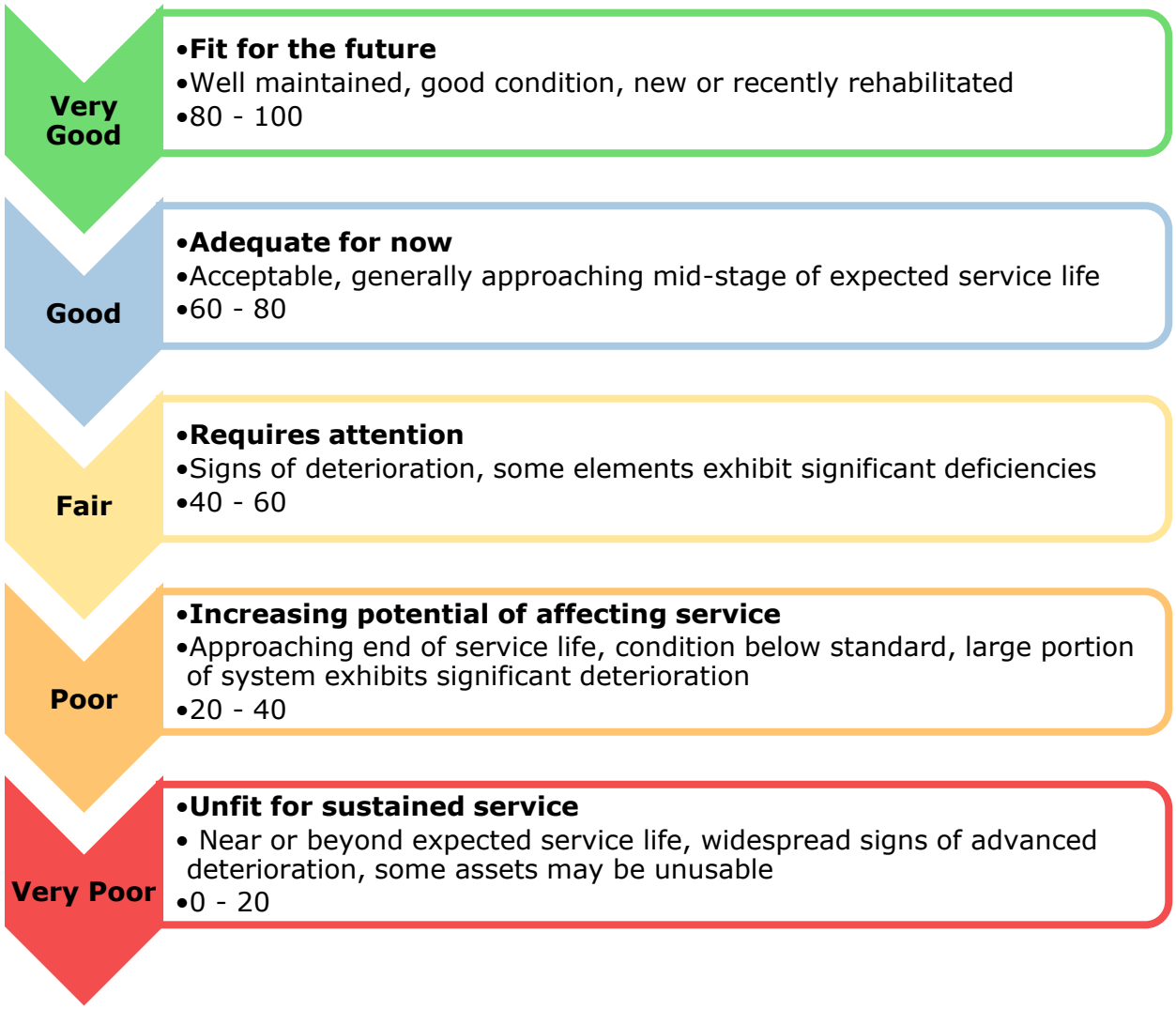
Figure 2: Service Life Remaining Calculation

Asset Condition

An incomplete or limited understanding of asset condition can mislead long-term planning and decision-making. Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life.

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the Township's asset portfolio. The figure below outlines the condition rating system used to determine asset condition for all assets in Huron-Kinloss.

Figure 3: Standard Condition Rating Scale



The analysis 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.

Lifecycle Management Strategies

The condition or performance of 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. Figure 4 provides a description of each type of activity and the general difference in cost.

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

The Township's approach to lifecycle management is described within each asset category. 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.

Figure 4: Lifecyle Management Typical Interventions

Maintenance

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

Rehabilitation / Renewal

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

Replacement

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

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. 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.

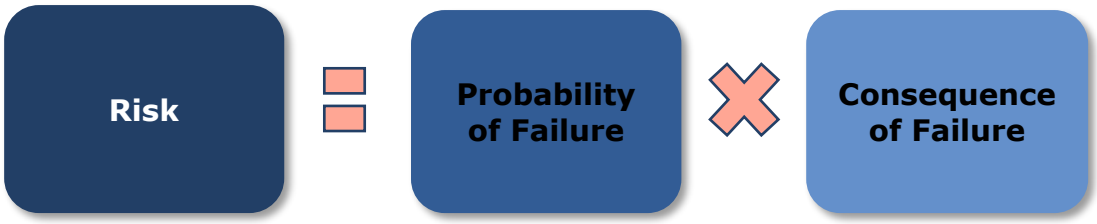
By identifying the various impacts of asset failure and the likelihood that it will fail, risk management strategies can identify critical assets, and determine where maintenance efforts, and spending, should be focused.

A high-level evaluation of asset risk and criticality was performed. 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.

Risk is a product of two variables: the probability that an asset will fail, and the resulting consequences of that failure event. It can be a qualitative measurement, (low, medium, high) or quantitative measurement (1-5), that can be used to rank

assets and projects, identify appropriate lifecycle strategies, optimize short- and long-term budgets, minimize service disruptions, and maintain public health and safety.

Figure 5: Risk Equation



Probability of Failure

Several factors can help decision-makers estimate the probability or likelihood of an asset's failure, including its condition, age, previous performance history, and exposure to extreme weather events, such as flooding and ice jams—both a growing concern for municipalities in Canada.

Consequence of Failure

Estimating criticality also requires identifying the types of consequences that the organization and community may face from an asset's failure, and the magnitude of those consequences. Consequences of asset failure will vary across the infrastructure portfolio; the failure of some assets may result primarily in high direct financial cost but may pose limited risk to the community. Other assets may have a relatively minor financial value, but any downtime may pose significant health and safety hazards to residents. See Appendix D: Risk Rating Criteria for definitions and the developed risk models.

Levels of Service

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

At this stage, three strategic levels of service are measured for every asset category, and they are:

- Financial –targeted reinvestment rate compared to the actual current reinvestment rate.
- Performance – this is the condition breakdown for the asset category.
- Risk – this is the risk profile for the asset category.

Only those LOS that are required under O. Reg for core asset categories are included in addition to the strategic LOS.

Community Levels of Service

Community LOS are a simple, plain language description or measure of the service that the community receives. For core asset categories, the Province, through O. Reg. 588/17, has provided qualitative descriptions that are required. For non-core asset categories, the Township must determine the qualitative descriptions that will

be used. The community LOS can be found in the Levels of Service subsection within each asset category section.

Technical Levels of Service

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

For core asset categories, the Province, through O. Reg. 588/17, has provided technical metrics that are required. For non-core asset categories, the Township determined the technical metrics that will be used. The metrics can be found in the LOS subsection within each asset category.

Current and Proposed Levels of Service

Huron-Kinloss is focused on measuring the current LOS provided to the community. Once current LOS have been measured and trended, the Township plans to establish their proposed LOS over a 10-year period, in accordance with O. Reg. 588/17.

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

Reinvestment Rate

As assets age and deteriorate, they require additional investment to maintain a state of good repair. The reinvestment of capital funds, through asset renewal or replacement, is necessary to sustain an adequate level of service. The reinvestment rate is a measurement of available or required funding relative to the total replacement cost. By comparing the actual vs. target reinvestment rate the Township can determine the extent of any existing funding gap.

3. Portfolio Overview

3.1. Asset Hierarchy and Data Classification

Asset hierarchy illustrates the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Key category details are summarized at the asset segment level.

Table 2 Asset Hierarchy

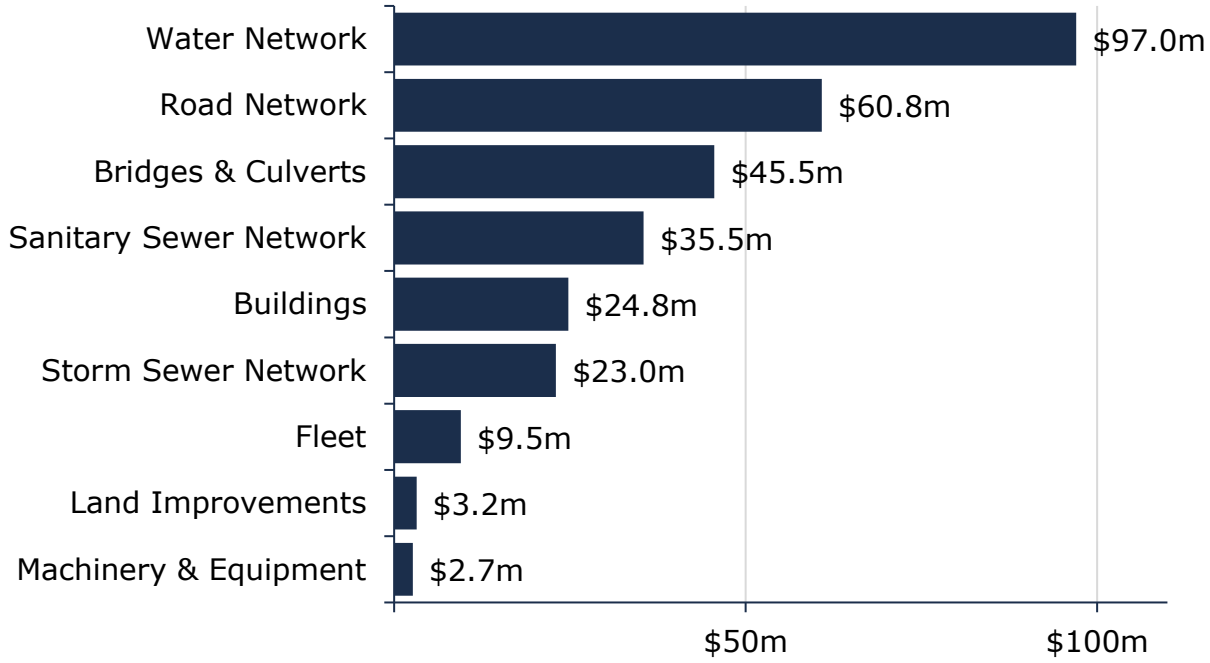
•Guiderails •HCB Roads •LCB Roads •Sidewalks •Street Lights •Street Signs **Road Network**	•Bridges •Culverts **Bridges & Culverts**	•Hydrants •SCADA •Standpipes •Water Connections •Water Mains •Water Pumphouses •Water Wells **Water Network**
•Buildings •Lagoons •Sanitary Laterals •Sanitary Sewer Mains •Sewage Pumping Stations **Sanitary Sewer Network**	•Municipal Drains •Storm Sewer Mains **Storm Sewer Network**	•Community Services •Fire & Emergency Services •Public Works **Buildings**
•Athletic Fields/Courts •Cemeteries •Landscaping •Outdoor Structures •Parking Lots •Play Structures •Trails **Land Improvement**	•Fire Vehicles •Heavy Vehicles •Light Vehicles **Fleet**	•Administration •Arena •Fire •Furnitures & Fixtures •Public Works •Recreation **Machinery & Equipment**

3.2. State of the Infrastructure

3.2.1 Replacement Cost

All Huron-Kinloss' asset categories have a total replacement cost of $302 million based on available inventory data. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.

Figure 6: Portfolio Replacement Value

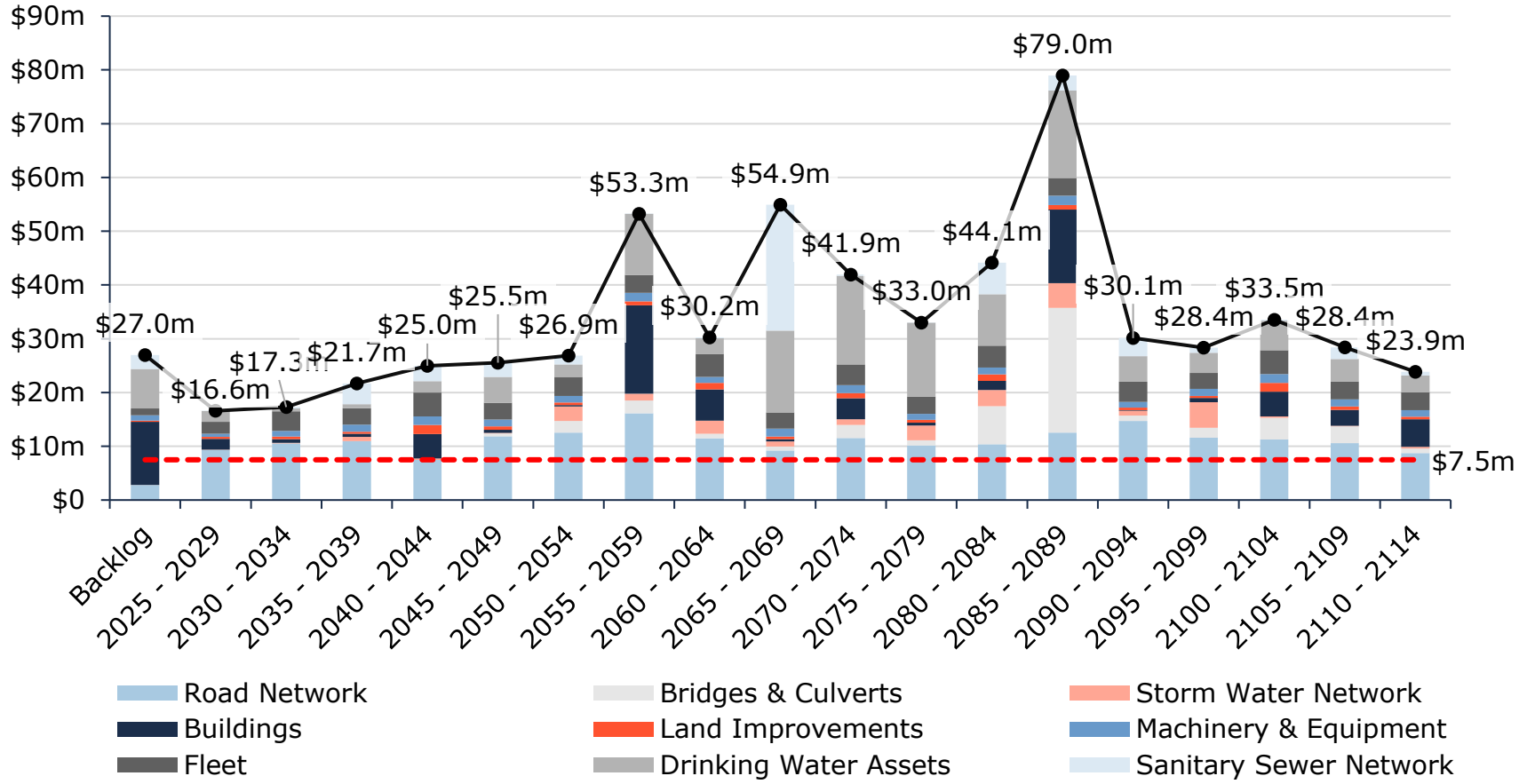


3.2.2 Forecasted Capital Requirements

Aging assets require maintenance, rehabilitation, and replacement. Figure 7 below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for all asset categories analyzed. On average, $7.5 million is required each year to remain current with capital replacement needs for Huron-Kinloss' asset portfolio (red dotted line).

Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise. This figure relies on age and available condition data. Based on the current replacement cost of the portfolio, estimated at $302 million, this represents an annual target reinvestment rate of 2.5%.

Figure 7: Forecasted Capital Requirements



The chart also illustrates a backlog of $27 million, comprising assets that remain in service beyond their estimated useful life. It is unlikely that all such assets are in a state of disrepair, requiring immediate replacements or major renewals. This makes targeted and consistent condition assessments integral.

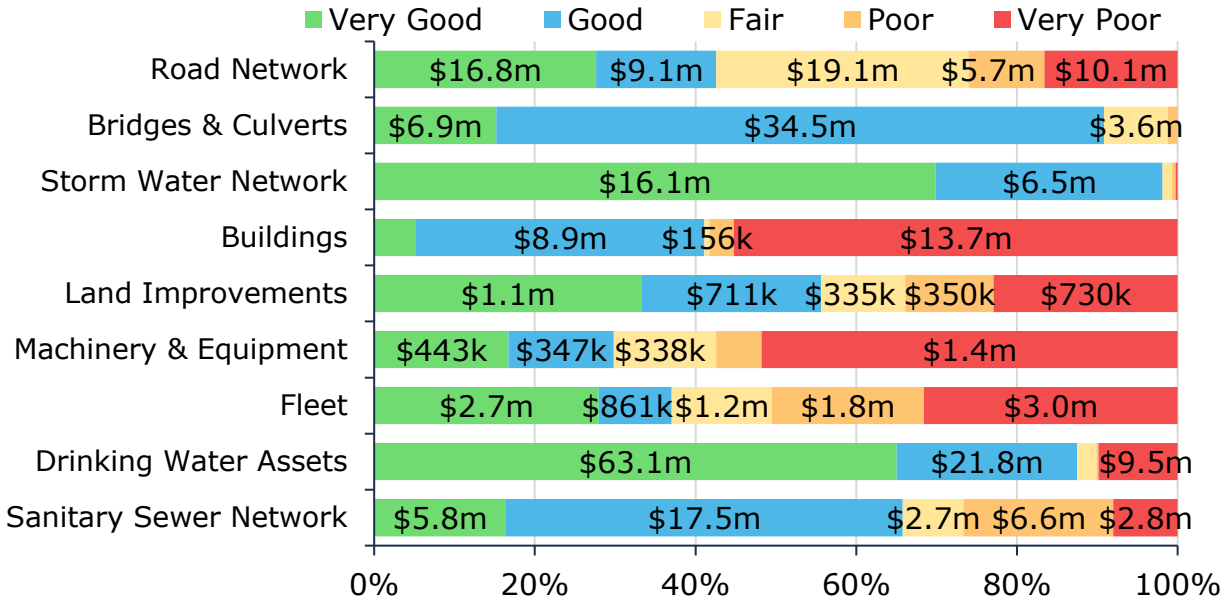
Risk frameworks, proactive lifecycle strategies, and levels of service targets can then be used to prioritize projects, continuously refine estimates for backlogs and ongoing capital needs and help select the right treatment for each asset.

3.2.3 Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 81% of assets in Huron-Kinloss are in fair or better condition. This estimate relies on both age-based and field condition data.

Assessed condition data is available for bridges and culverts, road network, land improvements and limited machinery and equipment 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.

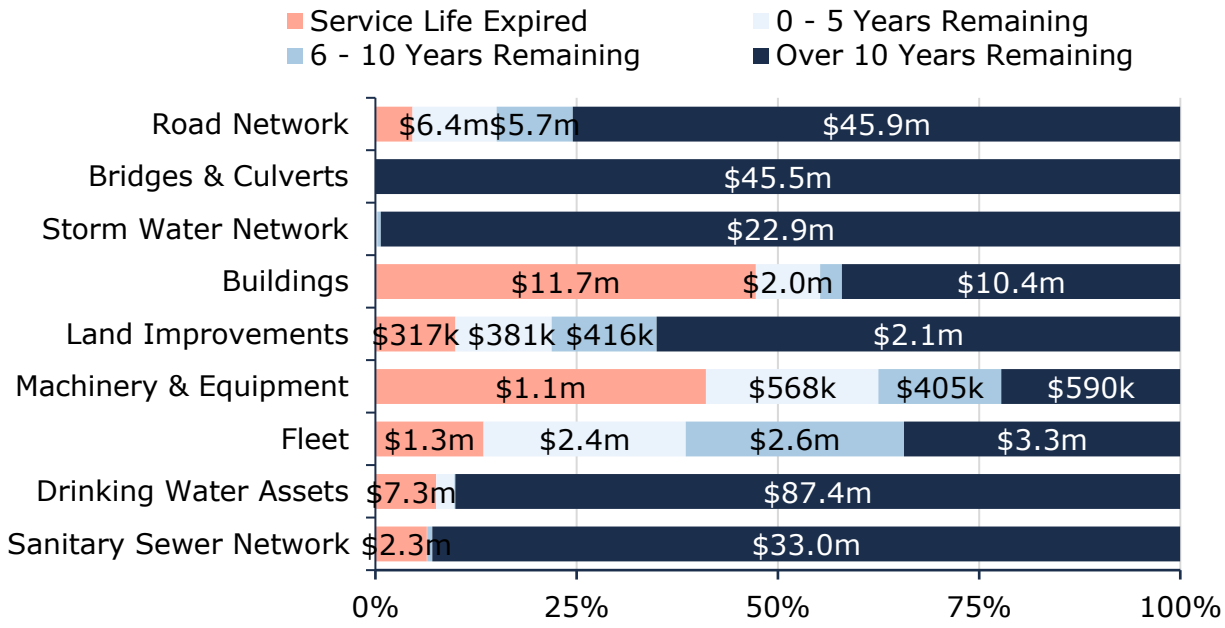
Figure 8: Asset Condition by Asset Category



3.2.4 Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 17% of the Township's assets will require rehabilitation/replacement within the next 10 years. Details of the capital requirements are identified in each asset section.

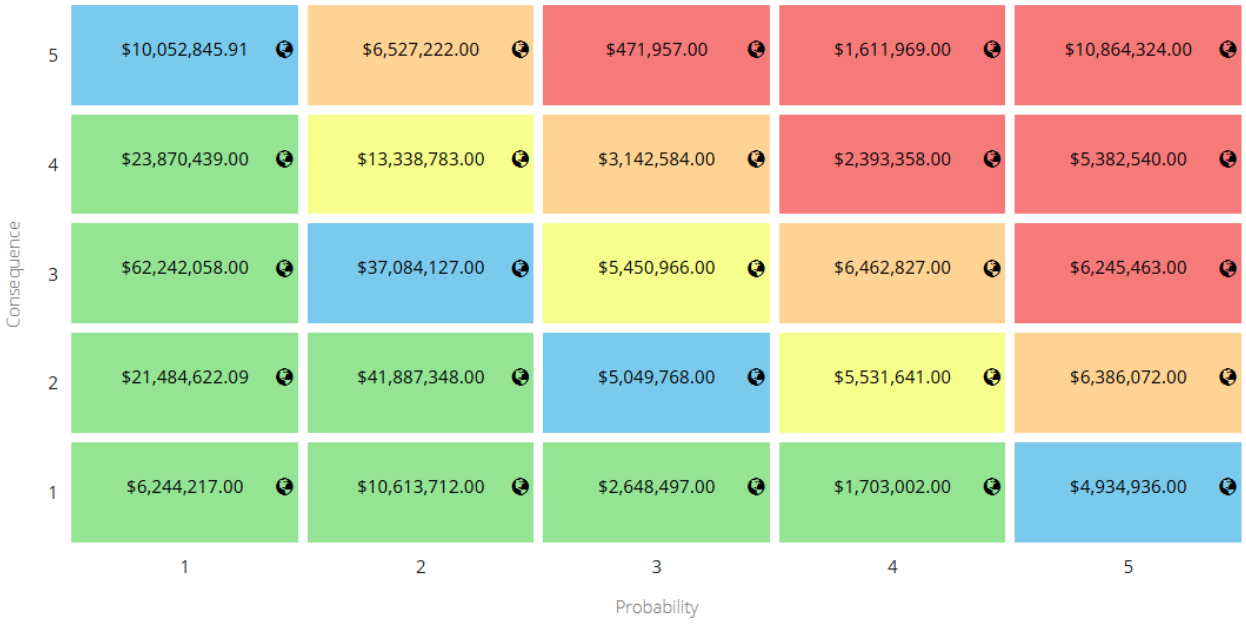
Figure 9: Service Life Remaining by Asset Category



3.2.5 Risk & Criticality

The overall asset risk breakdown for Huron-Kinloss' asset inventory is portrayed in the figure below.

Figure 10: Overall Asset Risk Breakdown

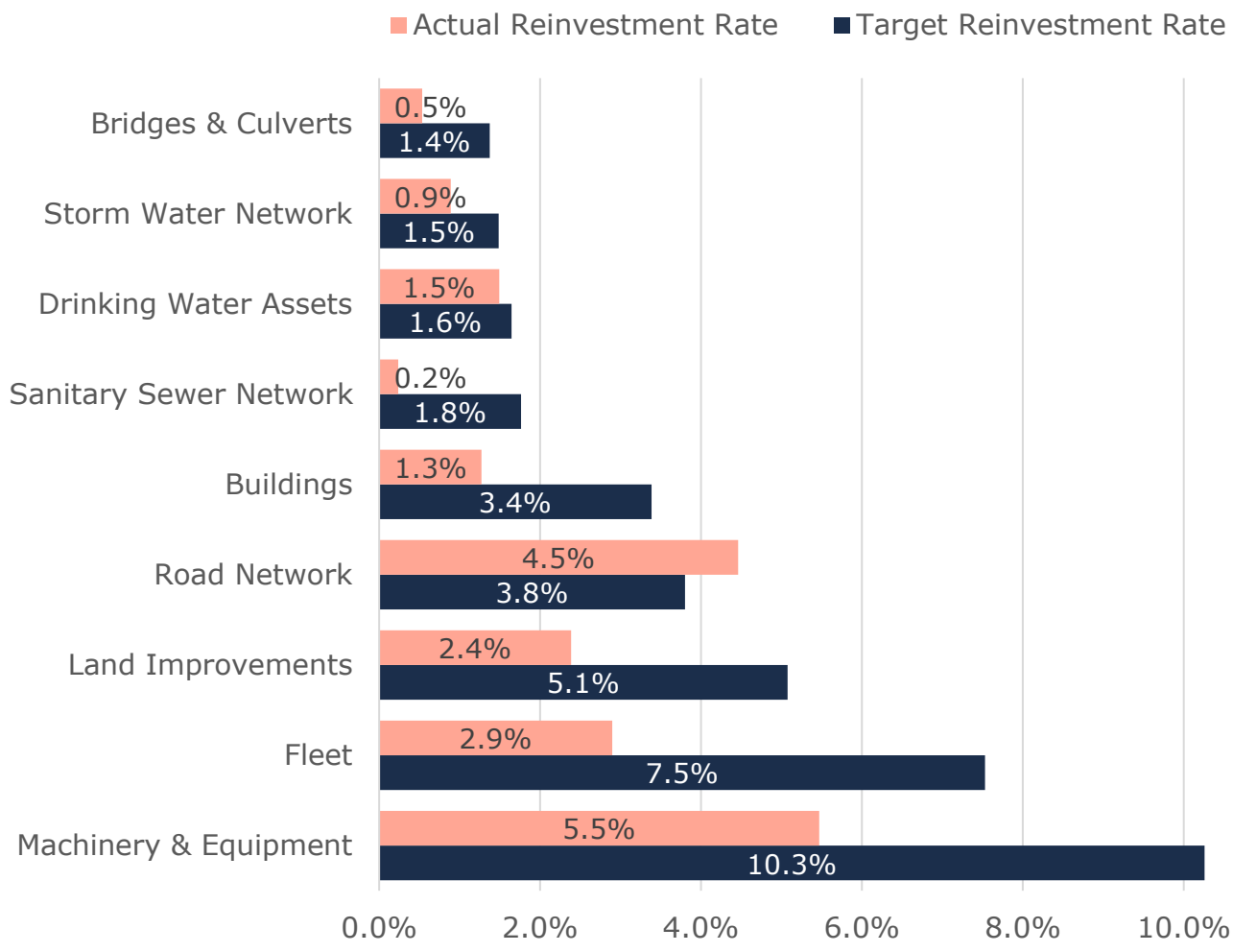


Reviewing the list of very high-risk assets to evaluate how best to mitigate the level of risk the Township is experiencing will help advance Huron-Kinloss' asset management program.

3.2.6 Reinvestment Rate

The graph below depicts funding gaps or surpluses by comparing target vs actual reinvestment rate. To meet the long-term replacement needs, the Township is recommended to be allocating approximately $7.5 million annually, for a target reinvestment rate of 2.5%. Actual annual spending on infrastructure totals approximately $5.5 million, for an actual reinvestment rate of 1.8%.

Figure 11: Target vs Actual Reinvestment Rates



Proposed Levels of Service

4. Proposed Levels of Service

4.1. Proposed Levels of Service Analysis

4.1.1 Scope

Ontario Regulation 588/17 Proposed Levels of Service

The 2025 deadline requires that proposed Levels of Service (LOS) are demonstrated to be appropriate based on an assessment of:

1. Proposed LOS options and the risks associated with these options (i.e., asset reliability, safety, affordability) when considering the long-term sustainability of the municipality.
2. How proposed LOS may differ from current LOS.
3. Whether proposed LOS are achievable.
4. The municipality's ability to afford proposed LOS.

Additionally, a lifecycle management and financial strategy to support these LOS must be identified, covering a 10-year period and including:

1. Identification of lifecycle activities needed to provide the proposed LOS with consideration for:
    - Full lifecycle of assets.
    - Lifecycle activities options available to meet proposed LOS.
    - Risks associated with the options identified in sub-paragraph B, above.
    - Identification of which lifecycle activities identified in sub-paragraph B carry the lowest cost.
2. An estimate of the annual cost of meeting proposed LOS for a period of 10 years, separated by capital and operating expense.

4.1.2 Methodology

Target levels of service for the Township have been developed through comprehensive engagement with Township staff and referencing resident satisfaction surveys. To achieve a target level of service goal, careful consideration of the following should be considered.

Financial Impact Assessment

- Assess historical expenditures/budget patterns to gauge feasibility of increasing budgets to achieve LOS targets
- Consider implications of LOS adjustments on other services, and other infrastructure programs (tradeoffs)

Infrastructure Condition Assessment

- Regularly assess the condition of critical infrastructure components.

- Use standardized condition indices or metrics to quantify the state of infrastructure.
- Identify non-critical components where maintenance can be deferred without causing severe degradation.
- Adjust condition indices or metrics to reflect the reduced maintenance budget.

Service Metrics

- Measure user satisfaction, response times, and other relevant indicators for the specific service.

Service Impact Assessment

- Evaluate potential impacts on user satisfaction and service delivery due to decreased infrastructure condition.

Risk Management

- Identify potential risks to infrastructure and service quality.
- Develop contingency plans to address unforeseen challenges without compromising service quality.
- Monitor performance closely to ensure that the target investment translates into achieving the desired infrastructure condition.

Service Improvement Metrics

- Analyze the performance of target levels of service regularly and incorporate more ambitious targets based on user satisfaction if required.

Timelines

- Although O. Reg requires identification of expenditures for a 10-year period in pursuit of LOS targets, it does not require municipalities to identify the timeframe to achieve them.
- Careful consideration should be given to setting realistic targets for when LOS targets are to be achieved.

4.1.3 General Considerations for All Scenarios

- **Stakeholder Engagement:**
  - Regularly engage with stakeholders to gather feedback and communicate changes transparently.
- **Data-Driven Decision Making:**
  - Use data analytics to inform decision-making processes and identify areas for improvement.
- **Flexibility and Adaptability:**
  - Design the methodology to be flexible, allowing for adjustments based on evolving conditions and priorities.

- **Continuous Improvement:**
    - Establish a process for continuous review and improvement of the LOS methodology itself.

4.2. Proposed Levels of Service Details

4.2.1 Scope

Through a comprehensive assessment, the following levels of service for 9 asset categories have been developed, aligning with the long-term interests of the Township. Achievability is the key consideration, with measures in place to ensure realistic targets. The Township's financial capacity was thoroughly reviewed, confirming its ability to sustain the proposed service levels. Complementing this, a detailed financial strategy was developed, delineating necessary activities for each asset category. This strategy outlines the full lifecycle of assets, presents viable options for lifecycle activities, evaluates associated risks, and prioritizes cost-effective measures to maintain the proposed service standards.

Community Engagement Survey

As part of the development of the Asset Management Plan, the Township of Huron-Kinloss conducted a community engagement survey to gather feedback on current service levels. Community input has been crucial in ensuring that the proposed Levels of Service align with both community expectations and municipal goals. The survey captured a broad range of responses, with the largest proportion of participants identifying with the rural area (39%), followed by the lakeshore area south of Concession 6 (14%).

Survey participants were asked to rate their satisfaction with a range of municipal infrastructure types in terms of availability, reliability and condition, and safety. The results show generally high satisfaction across all categories, particularly for critical services such as drinking water, bridges, and emergency services:

- Availability
    - Over 80% of respondents reported being either satisfied or somewhat satisfied with most infrastructure types. Satisfaction was highest for bridges (90%), drinking water (88%), and emergency vehicles and equipment (88%).
- Reliability and Condition
    - Respondents showed similarly high satisfaction, especially for bridges (92%), drinking water (89%), and community centres (90%).
- Safety
    - The majority of residents expressed confidence in infrastructure safety. Bridges (94%), drinking water (91%), and emergency services (91%) were rated as safest by the public.

In terms of spending priorities, residents showed the highest willingness to pay for improvements in safe and reliable water services (73%), roads and bridges (69%), and fire emergency services (63%). Conversely, there was less willingness to fund enhancements to arts, culture, and heritage programs, with only 9%

expressing strong support. This suggests a clear preference for prioritizing core infrastructure services that support public safety and essential daily needs.

When asked about service levels, most respondents preferred to either maintain or increase them across all service categories. In particular, over 95% of respondents wanted to maintain or increase service levels for transportation, water and wastewater, and public protection services. Only 2–5% of respondents supported any decrease in these areas, reinforcing the community's strong interest in preserving quality infrastructure and services.

The engagement results also show that residents place the highest importance on roads and bridges (84%), fire services (83%), and reliable water and sewer infrastructure (83%). Open space and parks (63%) and maintenance of public property (62%) also ranked high in terms of importance to households.

Overall, the community engagement survey has provided valuable insights into public satisfaction, expectations, and priorities. The findings underscore a strong preference for maintaining essential services and making strategic, sustainable investments in infrastructure. While residents are mindful of costs, there is broad support for funding improvements that protect long-term service delivery and public safety. These insights will directly inform the Township's Asset Management Plan and help guide future infrastructure decisions that reflect both financial responsibility and community values.

4.2.2 Proposed Levels of Service Scenarios

The following three scenarios have been considered for establishing target levels of service for all asset categories included in this Asset Management Plan.

Scenario 1: Maintain Existing Service Levels

Approach: This scenario reflects the continuation of current service levels and asset management practices, with no major changes to infrastructure standards or service delivery. It also continues the planned financial path toward full funding within 15 years.

This scenario assumes a phased annual tax increase of approximately 0.8%, 0.4% increase in water rates, and 4.7% for wastewater rates, achieving full funding in 15 years to maintain existing service levels.

Scenario 2: Enhance Service Levels

Approach: This scenario involves targeted service level improvements aimed at addressing emerging pressures or optimizing service delivery in key areas. It includes modest increases in maintenance frequency, better monitoring, expanded coverage of existing programs, or compliance upgrades. Enhancements are generally low-risk, lower-cost improvements that can be phased in gradually.

This scenario assumes a phased annual tax increase of approximately 1.9%, 1.4% for water rates, and 5.4% for wastewater rates, to support gradual improvements to existing services.

Scenario 3: Innovate Service Levels

Approach: This scenario represents a forward-looking strategy that leverages innovation, technology, or strategic redesign to improve long-term efficiency, resilience, or sustainability. It may include adopting predictive analytics, exploring automation, revising design standards, or investing in green infrastructure and energy-efficient systems.

This scenario assumes a phased annual tax increase of approximately 2.5%, 3.1% for water rates, and 6.0% for wastewater rates, to support the transformation and modernization of current service levels.

This methodology provides a structured approach for managing infrastructure conditions and levels of service under different budget scenarios, emphasizing adaptability and stakeholder communication.

4.2.3 Preferred Level of Service Approach and Rationale

While all three scenarios were reviewed, the Township of Huron-Kinloss selected Scenario 1 as their preferred path forward regarding proposed levels of service, which is reflected in the financial strategy and 10-year capital replacement forecasts. This decision was informed by a combination of strategic direction, community and stakeholder input, and data-driven analysis. This approach ensures that the Township plans and budgets for the entire lifecycle of its infrastructure, avoiding service disruptions, deferred maintenance, and unexpected financial pressures.

This decision reflects both community priorities and the Township's long-standing strategic direction. Through the community engagement survey, residents expressed strong satisfaction with the condition, reliability, and safety of core municipal infrastructure, particularly drinking water, roads and bridges, and emergency services. A large majority of respondents indicated a desire to maintain or improve these service levels, with over 95% supporting stable or increased LOS for transportation, water, wastewater, and public protection services. There was also broad support for continued investment in essential services, with residents showing the highest willingness to pay for improvements in safe drinking water, roads, and fire protection.

This community feedback aligns with the Township's Integrated Master Plan, which identifies "Ensuring Financial Stability by Maintaining a Balanced Budget and Forecasting for the Future" as a guiding principle. As such, the Full Funding approach complements existing financial strategies by promoting stable, predictable investment in infrastructure, while preparing for long-term needs in a responsible and sustainable manner.

While the Township has committed to the full funding approach, it also recognizes the importance of flexibility in addressing emerging priorities. Service levels may be enhanced on a case-by-case basis where feasible and justified, particularly when grant funding or other external opportunities become available. Additionally, it is important to note that water and wastewater system reserves are funded

solely by system users, and as a result, these reserves will take longer to accumulate. The Township will continue to balance infrastructure needs with affordability for users while actively pursuing opportunities to leverage external funding sources.

By adopting a full funding strategy, the Township is reinforcing its commitment to maintaining high-quality infrastructure, preserving service levels, and ensuring that today's decisions support the long-term well-being of the community.

The following sections provide a detailed analysis of all Level of Service options that were considered by the municipality. Each scenario was evaluated based on alignment with community priorities, financial feasibility, long-term sustainability, and the municipality's strategic goals. This analysis outlines the potential implications, benefits, and risks associated with each option, offering a transparent overview of the decision-making process that led to the selection of the full funding scenario.

4.3. Scenario 1: Maintain Existing Service Levels

This scenario reflects the continuation of current service levels and asset management practices, with no major changes to infrastructure standards or service delivery. It also continues the planned financial path toward full funding within 15 years, using phased tax and rate increases to close the infrastructure gap and support long-term sustainability without introducing major operational changes.

This scenario outlines a phased funding approach, with an annual tax increase of approximately 0.8%, along with 0.4% increases in water rates and 4.7% increases in sanitary rates, to reach full funding within 15 years.

The following analysis considers the affordability, achievability, and associated risks of this scenario, evaluating how the proposed funding strategy aligns with both community expectations and long-term infrastructure sustainability.

4.3.1 Sustainability and Feasibility of Proposed Service Levels

Of the three scenarios analyzed, Scenario 1 requires the lowest tax and rate increase, continuing the current financial path forward. Reaching full funding immediately would require an increase of 15.8% in tax revenue. This is not reasonable or realistic to achieve in a short period of time. With the recommended implementation timeframe of 15 years, tax revenue would be increased gradually from $10.8 million to $12.2 million, water revenue from $2.5 million to $2.6 million, and wastewater revenue from $557.5 thousand to $1.1 million.

Based on these gradual proposed increases, while maintaining existing sustainable grant funding, the available capital funding over the next 10 years for Scenario 1 is indicated in the table below:

Table 3: Scenario 1 Available Capital Funding Over Next 10 Years

Source	Available Capital Funding									
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tax Revenue	$5.1m	$5.2m	$5.3m	$5.4m	$5.5m	$5.5m	$5.6m	$5.7m	$5.8m	$5.9m
Water Rates	$1.5m	$1.5m	$1.5m	$1.5m	$1.5m	$1.5m	$1.5m	$1.5m	$1.5m	$1.5m
Waste-water Rates	$111k	$138k	$167k	$197k	$229k	$262k	$296k	$332k	$370k	$410k

The above table accounts for both current and future expenditures in order to achieve and maintain the service level option. This requires a combination of capital spending and saving (i.e. reserves) to ensure future large expenditures can be financed.

4.3.2 Risk Analysis

Evaluating the risks associated with each service level option is essential for balancing infrastructure needs, financial sustainability, and community expectations. By identifying and assessing these risks, the Township can make informed decisions that support long-term service reliability.

Scenario 1 Risks

- Deferred Investment: Gradual increases in funding may result in deferred maintenance for some assets, potentially increasing long-term lifecycle costs, reducing asset reliability, or leading to unexpected failures, especially for older or high-risk infrastructure.
- Disproportionate Funding Across Asset Types: While the Township is 74% funded overall for tax-supported assets, certain asset categories such as bridges and buildings are disproportionately underfunded. This imbalance may lead to uneven service levels or accelerated deterioration in those areas if not addressed.

4.4. Scenario 2: Enhance Service Levels

This scenario involves targeted service level improvements aimed at addressing emerging pressures or optimizing service delivery in key areas. It includes modest increases in maintenance frequency, better monitoring, expanded coverage of existing programs, or compliance upgrades. Enhancements are generally low-risk, lower-cost improvements that can be phased in gradually.

This scenario outlines a phased funding approach, with an annual tax increase of approximately 1.9%, along with 1.4% increases in water rates and 5.4% increases in sanitary rates to enhance service levels over 15 years.

The following analysis considers the affordability, achievability, and associated risks of this scenario, evaluating how the proposed funding strategy aligns with both community expectations and long-term infrastructure sustainability.

4.4.1 Sustainability and Feasibility of Proposed Service Levels

Of the three scenarios analyzed, Scenario 2 requires a moderate tax increase. Fully implementing the enhanced service levels outlined in this scenario immediately would require an increase of 24.7% in tax revenue. This is not reasonable or realistic to achieve in a short period of time. With the recommended implementation timeframe of 15 years, tax revenue would be increased gradually from $10.8 million to $14.3 million, water revenue from $2.5 million to $3.1 million, and wastewater revenue from $557.5 thousand to $1.2 million.

Based on these gradual proposed increases, while maintaining existing sustainable grant funding, the available capital funding over the next 10 years for Scenario 2 is indicated in the table below:

Table 4: Scenario 2: Available Capital Funding Over Next 10 Years

Source	Available Capital Funding									
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tax Revenue	$5.2m	$5.4m	$5.6m	$5.9m	$6.1m	$6.3m	$6.5m	$6.8m	$7.0m	$7.3m
Water Rates	$1.5m	$1.5m	$1.6m	$1.6m	$1.6m	$1.7m	$1.7m	$1.7m	$1.8m	$1.8m
Waste-water Rates	$115k	$146k	$180k	$215k	$252k	$291k	$333k	$376k	$422k	$470k

The above table accounts for both current and future expenditures in order to achieve and maintain the service level option. This requires a combination of capital spending and saving (i.e. reserves) to ensure future large expenditures can be financed.

4.4.2 Risk Analysis

Evaluating the risks associated with each service level option is essential for balancing infrastructure needs, financial sustainability, and community expectations. By identifying and assessing these risks, the Township can make informed decisions that support long-term service reliability.

Scenario 2 Risks

- Scope Creep: While enhancements are intended to be modest and targeted, there is a risk of incremental changes expanding beyond initial expectations, increasing ongoing operating or capital costs over time.
- Resource Constraints: Implementing more frequent maintenance, compliance upgrades, or expanded service coverage may place pressure on staffing, equipment, or contractor availability, especially in rural areas or during peak seasons.
- Uncertain ROI: Some enhancements such as increased monitoring or program expansion may not deliver immediate or measurable outcomes, leading to uncertainty around their long-term value if not tracked and evaluated effectively.
- Short-Term Cost Pressures: Though lower in cost than major capital investments, the cumulative impact of gradual enhancements may create short-term funding pressure, particularly if higher-than-expected inflation or asset deterioration occurs.
- Limited Willingness to Pay for Non-Core Enhancements: While there is strong support for increased investment in essential services, fewer respondents are willing to pay more for enhancements to discretionary services.

4.5. Scenario 3: Innovate Service Levels

This scenario represents a forward-looking strategy that leverages innovation, technology, or strategic redesign to improve long-term efficiency, resilience, or sustainability. It may include adopting predictive analytics, exploring automation, revising design standards, or investing in green infrastructure and energy-efficient systems.

This scenario involves a phased tax increase of approximately 2.5% annually, along with 3.1% increases in water rates and 6.0% increases in sanitary rates to innovate service levels in 15 years.

The following analysis considers the affordability, achievability, and associated risks of this scenario, evaluating how the proposed funding strategy aligns with both community expectations and long-term infrastructure sustainability.

4.5.1 Sustainability and Feasibility of Proposed Service Levels

Scenario 3 requires the highest increase of the three scenarios analyzed. Fully implementing the innovative service levels outlined in this scenario immediately would require an increase of 31.8% in tax revenue. This is not reasonable or realistic to achieve in a short period of time. With the recommended implementation timeframe of 15 years, tax revenue would be increased gradually from $10.8 million to $15.6 million, water revenue from $2.5 million to $3.9 million, and wastewater revenue from $557.5 thousand to $1.3 million.

Based on these gradual proposed increases, while maintaining existing sustainable grant funding, the available capital funding over the next 10 years for Scenario 3 is indicated in the table below:

Table 5: Scenario 3: Available Capital Funding Over Next 10 Years

Source	Available Capital Funding									
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Tax Revenue	$5.3m	$5.6m	$5.8m	$6.1m	$6.4m	$6.7m	$7.1m	$7.4m	$7.7m	$8.0m
Water Rates	$1.5m	$1.6m	$1.7m	$1.8m	$1.9m	$1.9m	$2.0m	$2.1m	$2.2m	$2.3m
Waste-water Rates	$118k	$154k	$191k	$231k	$273k	$318k	$365k	$416k	$469k	$526k

The above table accounts for both current and future expenditures in order to achieve and maintain the proposed levels of service. This requires a combination of capital spending and saving (i.e. reserves) to ensure future large expenditures can be financed.

4.5.2 Risk Analysis

Evaluating the risks associated with each service level option is essential for balancing infrastructure needs, financial sustainability, and community expectations. By identifying and assessing these risks, the Township can make informed decisions that support long-term service reliability.

Scenario 3 Risks

- Implementation: Innovative strategies often require new processes, training, or technology adoption. There is a risk that staff capacity, system readiness, or organizational change management may not keep pace with planned innovations.
- Uncertain Outcomes: Innovation inherently carries uncertainty. Some pilot projects or technologies may not perform as expected, or may take longer to realize benefits, leading to cost overruns or unmet performance targets.
- Change Management: Shifting away from traditional practices may encounter internal resistance or require a cultural change within the Township.
- Complexity in Monitoring and Evaluation: Tracking the effectiveness of innovation-based service delivery may require new metrics, data systems, or analytical capabilities that the Township will need to develop or acquire.
- Perception of Over-Investment: Community feedback emphasizes reliability and safety of core infrastructure. Investing heavily in technology, automation, or green infrastructure without clear links to core service improvement may be seen as less urgent or lower value, particularly if it requires higher rate increases.

Categorical Analysis

5. Road Network

5.1. State of the Infrastructure

Huron-Kinloss' Road Network comprises the largest share of its infrastructure portfolio, with a current replacement cost of $60.8 million, primarily for paved (HCB) roads. The Township also owns and manages other supporting infrastructure and capital assets, including streetlights, street signs and sidewalks.

The state of the infrastructure for the road network is summarized below.

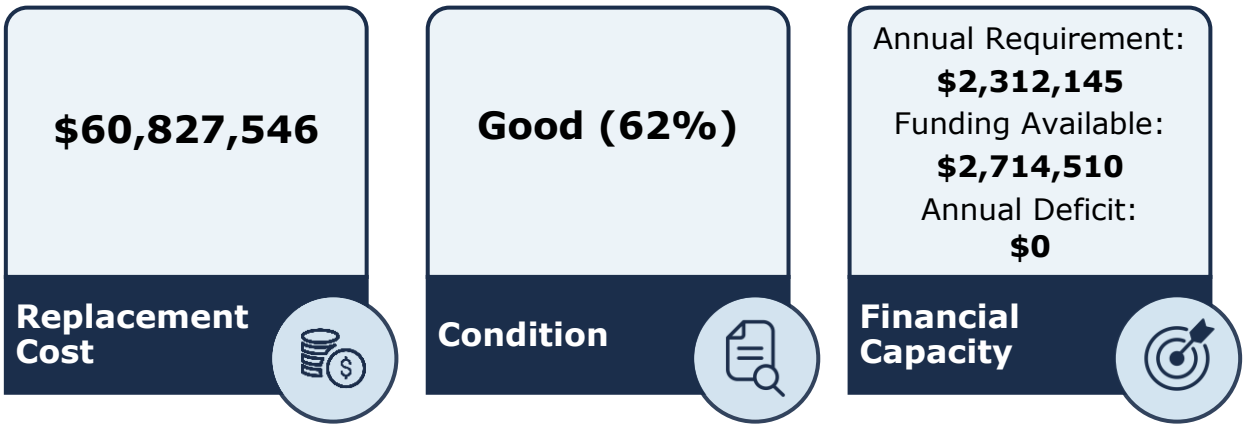


Figure 12: Road Network State of the Infrastructure

5.2. Inventory & Valuation

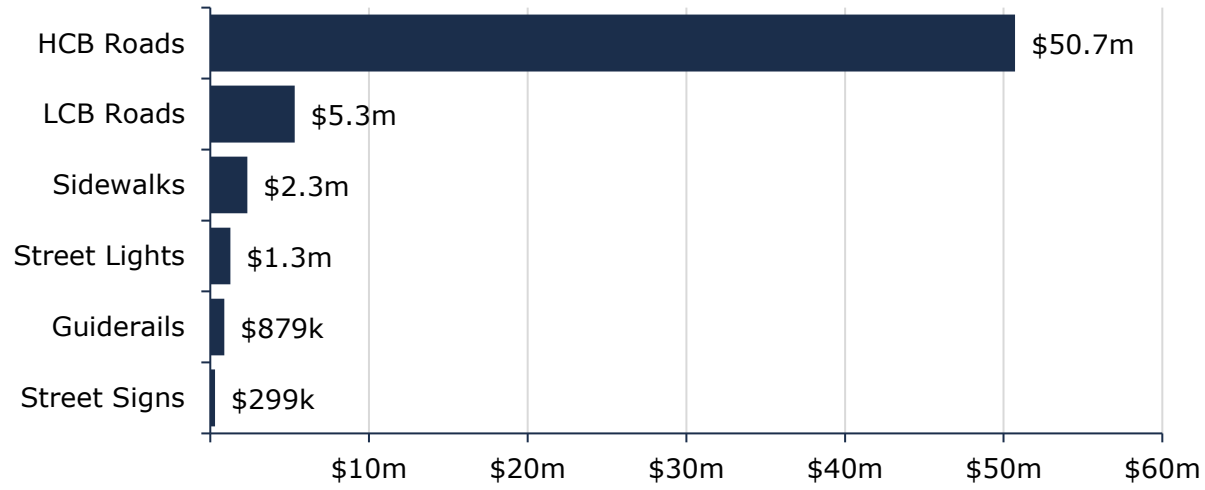
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's Road Network inventory.

Table 6: Road Network Detailed Asset Inventory

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Guiderails	9	Assets	CPI	$878,792
HCB Roads	223	Kilometers	User-Defined	$50,724,673
LCB Roads	29	Kilometers	User-Defined	$5,320,935
Sidewalks	14	Kilometers	Cost per Unit	$2,343,067
Street Lights	Pooled	Assets	CPI	$1,261,331
Street Signs	35	Assets	CPI	$298,748
Total				**$60,827,546**

The figure below displays the replacement cost of each asset segment in the Township's road inventory.

Figure 13: Road Network Replacement Value

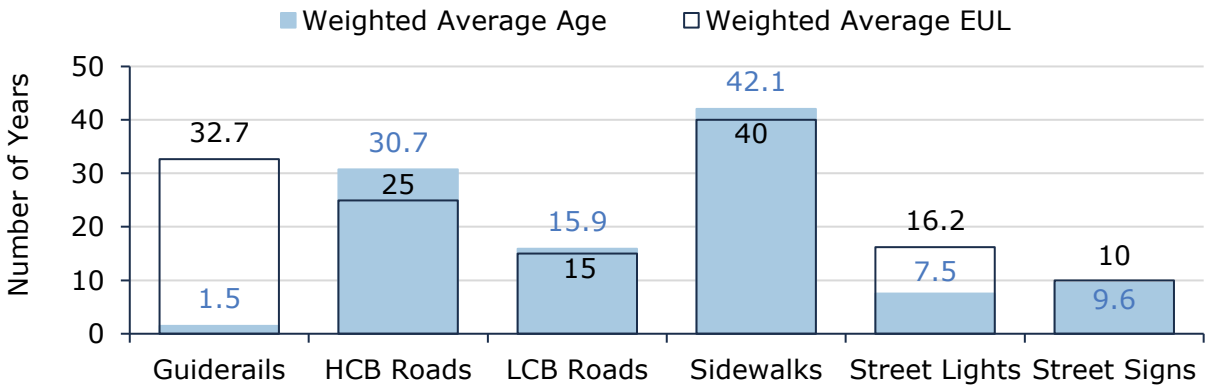


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

5.3. Asset Condition & Age

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

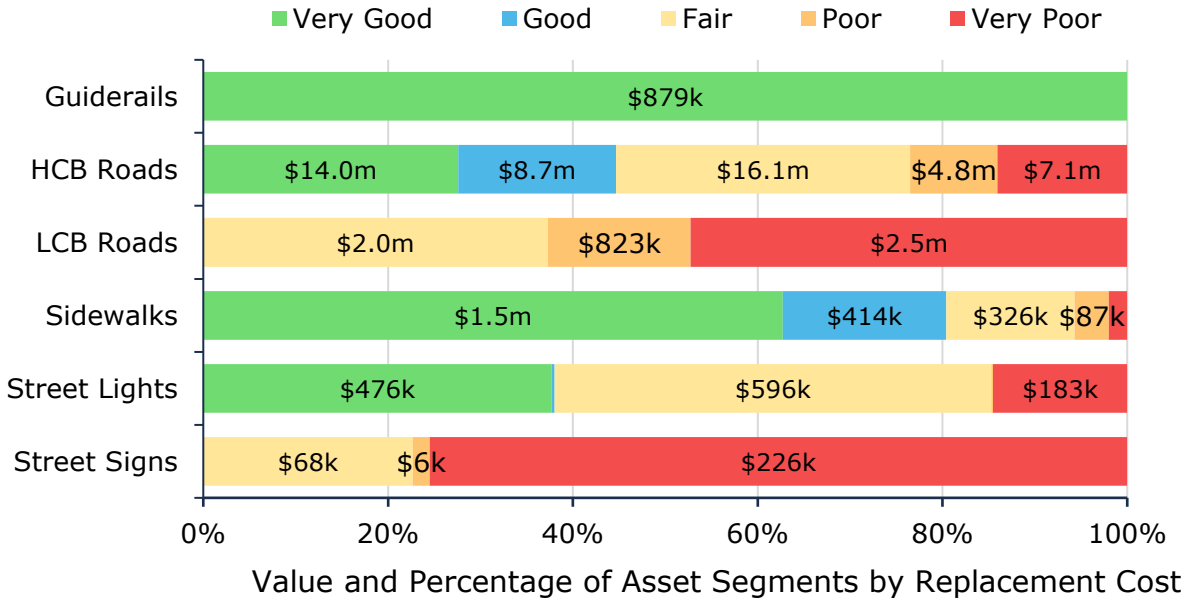
Figure 14: Road Network Average Age vs Average EUL



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

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

Figure 15: Road Network Condition Breakdown



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

5.3.1 Current Approach to Condition Assessment

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

- Paved roads were assessed in 2020, with the next assessment scheduled for 2025. Moving forward, the Township plans to assess paved roads on a three-year cycle. Assessments will be conducted by Township staff using AI camera technology, replacing previous contractor-based assessments.
- Updating the average PCI helps assess whether the current budget allocations are adequate to maintain target level of service.
- Streetlights are undergoing their initial assessment, with inspections scheduled every two years.
- Sidewalks are assessed annually, and inspections of regulatory signs are conducted once per year.

5.4. Lifecycle Management Strategy

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

The following lifecycle strategies in Figure 16 have been developed as a proactive approach to managing the lifecycle of road assets. 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.

Figure 16: Road Network Current Lifecycle Strategy

Maintenance

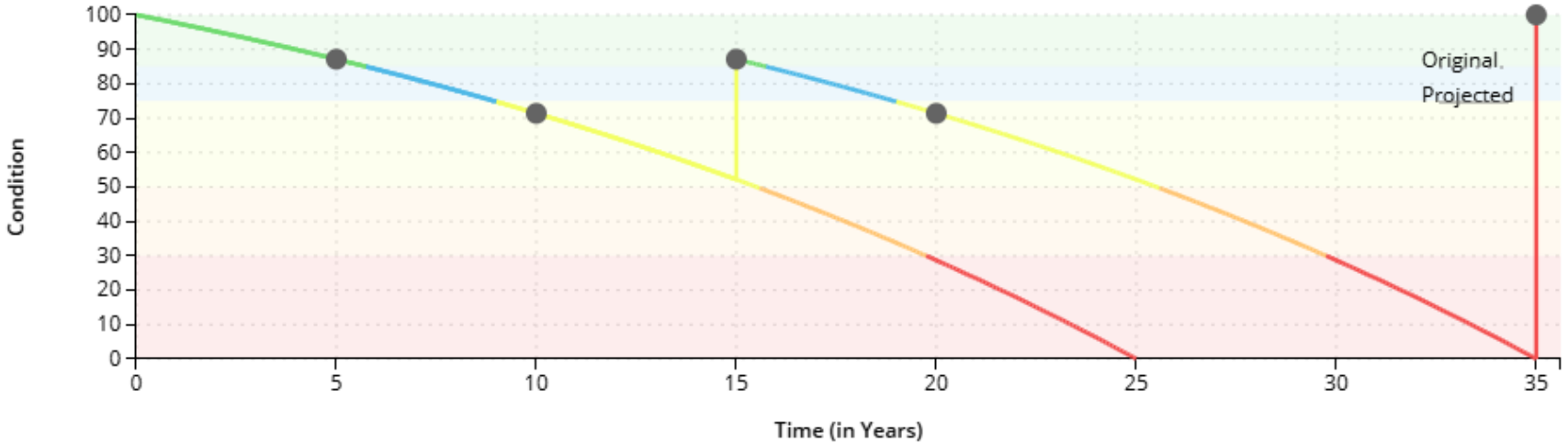
- Inspections and minor repairs are performed on a daily basis
- Gravel resurfacing is scheduled during summer months
- Maintenance activities include road cleaning, patching, grading, tree trimming, ditch clearing, snow removal, and sanding, based on the road class. Inspection results are common triggers for maintenance actions.
- Many roads experience issues with their base, which requires a case-by-case approach for intervention. Options such as pulverize and pave, microsurfacing, overlay, chip seal, or cold mix paving are considered based on contractor recommendations.

Rehabilitation / Renewal / Replacement

- Rehabilitation activities, such as crack sealing and resurfacing, are triggered by inspections and the Pavement Condition Index scores. Rehabilitation priorities are based on risk exposure.
- Where rehabilitation is not feasible, assets are maintained with the goal of replacement. The Township implemented a pavement preservation program in 2022 to extend the life of surface-treated roads.
- The Township typically aims to convert all LCB roads to HCB to improve long-term durability and performance.
- Double surface lifts are applied to gravel roads as part of the process to convert them to Tar & Chip surfaces.

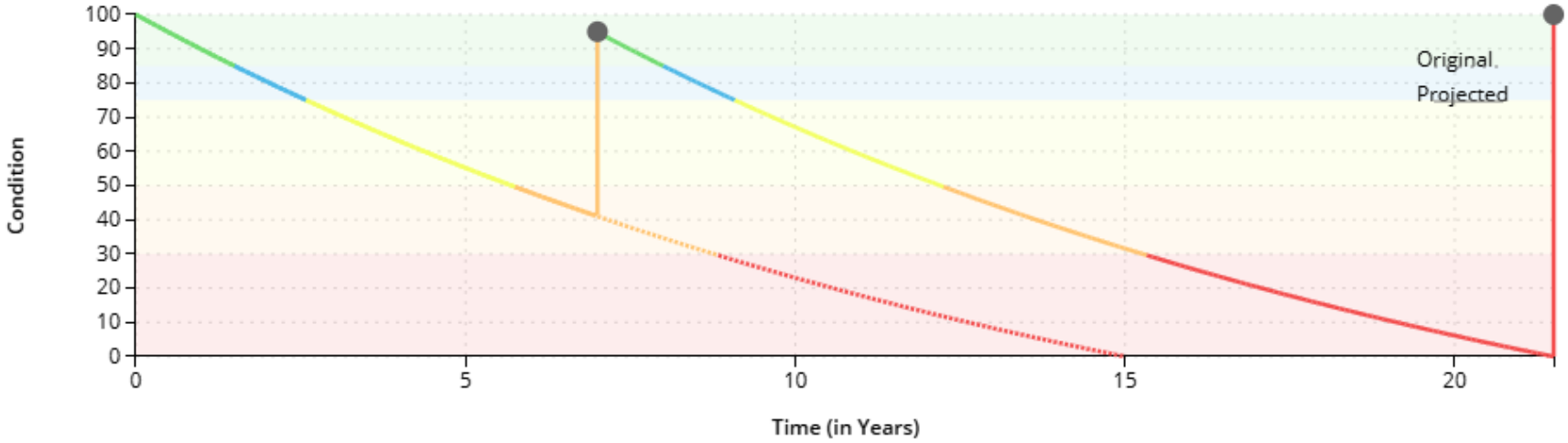
Lifecycle models used to estimate the savings to annual capital requirement are shown below in Figure 17 for Paved (HCB) roads, and Figure 18 for Paved (LCB) Roads.

Figure 17: Paved (HCB) Road Lifecycle Model



HCB Roads		
Event Name	**Event Class**	**Event Trigger**
Crack Sealing	Preventative Maintenance	5-year cycle
Overlay Treatment	Rehabilitation	At 15 years
Full Reconstruction	Replacement	Condition at 0%

Figure 18: Paved (LCB) Road Lifecycle Model



LCB Roads		
Event Name	**Event Class**	**Event Trigger**
New Surface- Single Lift	Preventative Maintenance	At 7 years
Full Reconstruction	Replacement	Condition at 0%

5.5. Forecasted Capital Requirements

Figure 19 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's road network. Assuming the end-of-life replacement of assets in this category, the following graph forecasts capital requirements for the road network. This analysis was run until 2069 to capture at least one iteration of replacement for the longest-lived asset in the asset register.

Huron-Kinloss' average annual requirements (red dotted line) total $2.3 million for all assets in the road network. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise. The chart illustrates capital needs through the forecast period in 5-year intervals.

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

Figure 19: Road Network Forecasted Capital Replacement Requirements

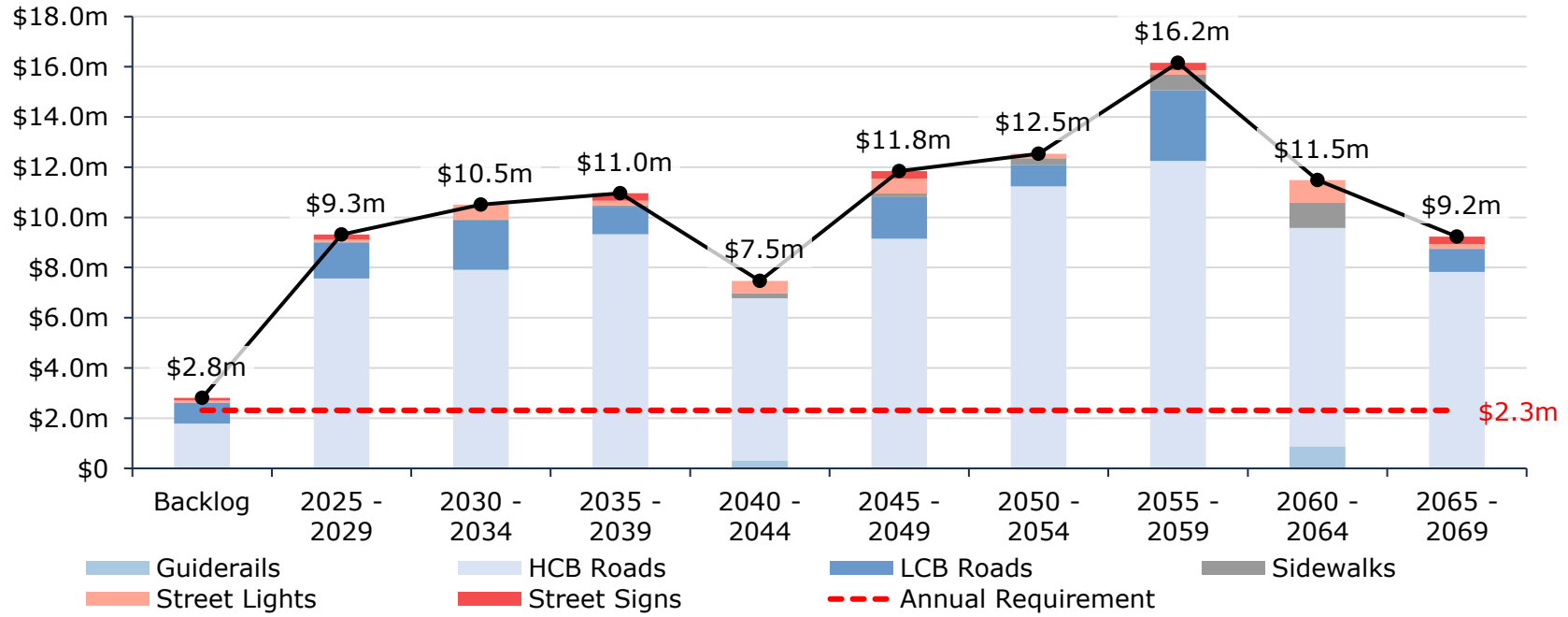


Table 7 below summarizes the projected cost of lifecycle activities (rehabilitation and replacement) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

These projections can be different from actual capital forecasts. Consistent data updates, especially condition, will improve the alignment between the system-generated expenditure requirements, and the Township's capital expenditure forecasts.

Table 7 Road Network System-generated 10-Year Capital Costs

Segment	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Guiderails	-	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
HCB Roads	$1.8m	$1.8m	$1.6m	$2.6m	$579k	$1.1m	$1.8m	$1.9m	$1.4m	$990k	$1.9m
LCB Roads	$828k	$0	$88k	$0	$1.0m	$323k	$181k	$69k	$0	$194k	$1.5m
Sidewalks	-	$0	$0	$0	$0	$17k	$0	$6k	$8k	$16k	$11k
Street Lights	$87k	$96k	$0	$0	$0	$2k	$0	$596k	$0	$0	$0
Street Signs	$104k	$0	$122k	$6k	$0	$68k	$0	$0	$0	$0	$0
Total	**$2.8m**	**$1.8m**	**$1.8m**	**$2.6m**	**$1.6m**	**$1.5m**	**$2.0m**	**$2.6m**	**$1.4m**	**$1.2m**	**$3.4m**

5.6. Risk & Criticality

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

Figure 20: Road Network Risk Matrix

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low $15,875,713 (26%)	**Low** $17,053,021 (28%)	**Moderate** $11,918,537 (20%)	**High** $13,513,272 (22%)	**Very High** $2,467,003 (4%)

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure.

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

5.7. Risks to Current Asset Management Strategies

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

Infrastructure Design

The current lifecycle management strategy for roads is heavily dependent on the design of the infrastructure, as many roads have poor road bases that lack proper drainage, compaction, or use substandard materials. This results in a reactive approach to maintenance, with decisions on interventions such as pulverize & pave, microsurface, overlay, chip seal, or cold mix paving being made on a case-by-case basis, often based on contractor recommendations. This lack of a consistent, proactive strategy creates challenges in determining the most effective and cost-efficient solutions for road repairs and rehabilitation. A more standardized, long-term approach to road base remediation and pavement treatments is needed to extend the lifecycle of road assets, reduce maintenance costs, and improve overall infrastructure performance. Sustainable annual funding and a proactive capital budget are essential to minimize the deferral of critical works and ensure timely, well-planned interventions.

Climate Change & Extreme Weather Events

The trend of climate change-induced extreme precipitation events is projected to continue. Severe rainfall and drought, or increased temperature can impact service availability and usage. Flooding can tax the existing drainage system and damage roads. The Township maintains a Road Network that could be impacted by more rapid freeze-thaw cycles, contributing to pavement deterioration. As a result, higher maintenance and rehabilitation requirements are expected to maintain the same level of service, to avoid complaints, liabilities, and larger capital spending. To improve asset resiliency, staff should identify the critical areas and improve drainage through enhanced lifecycle strategies.

Road Wear in Eastern Township Areas

Roads on the eastern side of the Township, which serve areas with a higher concentration of Mennonite communities, tend to experience increased wear and tear due to the frequent use of horse-drawn buggies. This unique mode of transportation can contribute to greater road distress in these regions.

5.8. Current Levels of Service

The following tables identify the Township's metrics to identify their current level of service for the roads. The Township will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

5.8.1 Community Levels of Service

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

Table 8 Road Network Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Cost Efficient	Description, which may include maps, of the road network in the Township and its level of connectivity	See Appendix B.
Sustainable	Description or images that illustrate the different levels of road class pavement condition	See Figure 3 for the description of road condition

5.8.2 Technical Levels of Service

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

Table 9 Road Network Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area in the municipality (km/km^2)	0 lane km/km2
	Lane-km of collector roads (MMS classes 3 and 4) per land area in the municipality (km/km^2)	0.765 lane km/km2
	Lane-km of local roads (MMS classes 5 and 6) per land area in the municipality (km/km^2)	0.241 lane km/km2
	Average Risk Rating	7.89 (Low)
Quality	Average pavement condition index for paved roads in the municipality	62%
Performance	Capital Reinvestment Rate	4.46%

5.9. Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the municipality's ability to afford the PLOS.

The tables and graphs below explain the proposed levels of service scenarios that were analyzed for the Road Network. Further PLOS analysis at the portfolio level can be found in Proposed Levels of Service Scenario Analysis.

5.9.1 PLOS Scenarios Analyzed

Table 10: Road Network PLOS Scenarios

Scenario	Description
Scenario 1: Maintain Existing Service Levels	Continues current service levels and financial strategy to reach full funding over 15 years, with annual tax increases of 0.8%.
Scenario 2: Enhance Service Levels	A phased approach to modest, low-risk service improvements, with annual tax increases of 1.9%.
Scenario 3: Innovate Service Levels	A future-focused strategy using innovation to boost efficiency and sustainability, with annual tax increases of 2.5%.

5.9.2 PLOS Analysis Results

The following table presents three proposed service level scenarios for the Road Network. These options were developed based on current municipal practices, stakeholder input, and future-oriented asset management strategies. Each scenario outlines the expected impact on service delivery, lifecycle activities, costs, resource needs, risk exposure, and alignment with municipal goals and provincial policy. This structured comparison allows Council and staff to assess trade-offs between investment levels and outcomes, ensuring informed decision-making aligned with community priorities and financial realities.

Table 11: Road Network pLOS Scenario Analysis

Criteria	Scenario 1 Maintain Service Levels	Scenario 2 Enhance Service Levels	Scenario 3 Innovate Service Levels
Service Level Impact	Maintains current condition levels, may allow for minor deterioration in some areas.	Improves surface condition and user safety with more proactive interventions.	Maximizes long-term condition through optimized treatment cycles and targeted interventions.
Lifecycle Changes Required	Continue overlays every 15 years & single	Expand microsurfacing & crack sealing to more roads	Use AI tech + performance data to adjust treatment cycles

	lift resurfacing every 7 years	Increase sidewalk assessment frequency	Explore predictive maintenance based on camera analytics
Cost	Moderate and predictable, aligns with current funding strategy.	Higher operating costs due to expanded scope of maintenance activities.	Potentially high upfront costs for technology, but long-term savings through efficiency.
Cost Breakdown (Annual)	$2,300,000	$3,500,000	$3,900,000
Risk Exposure	Moderate. Some backlogs and reactive maintenance may persist.	Reduced risk of deterioration and public complaints.	Lowest risk due to predictive maintenance and data-driven decision-making.
Resource Requirements	Minimal change to staff or operations.	Increased demand on staff time and inspection protocols.	High need for training, data management, and technology integration.
Public Perception	Generally positive if service quality remains stable.	Positive – visible improvements and safety enhancements.	Mixed – innovation may not be immediately visible to the public.
Compliance / Policy Alignment	Meets minimum regulatory requirements.	Supports evolving best practices in asset management.	Strong alignment with modernization, climate resilience, and data-driven planning goals.

6. Bridges & Culverts

6.1. State of the Infrastructure

Bridges and culverts (B&C) represent a critical portion of the transportation services provided to the community.

The state of the infrastructure for bridges and culverts is summarized below.

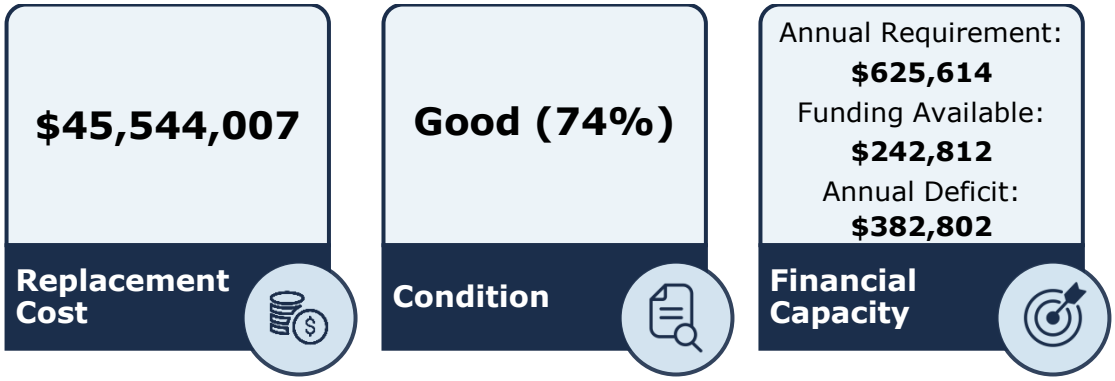


Figure 21: Bridges & Culverts State of the Infrastructure

6.2. Inventory & Valuation

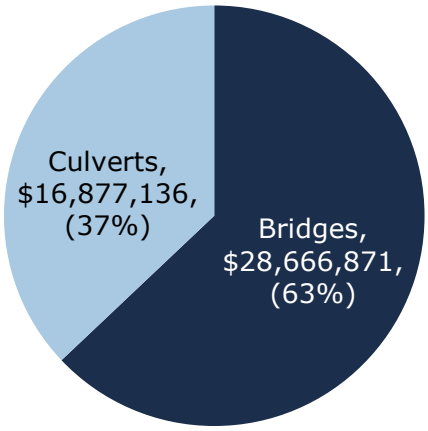
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Bridges & Culverts inventory.

Table 12: Bridges & Culverts Detailed Asset Inventory

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Bridges	42	Assets	User-Defined	$28,666,871
Culverts	49	Assets	User-Defined	$16,877,136
Total	**91**			**$45,544,007**

The figure below displays the replacement cost of each asset segment in the Township's bridges and culverts inventory.

Figure 22: Bridges & Culverts Replacement Cost

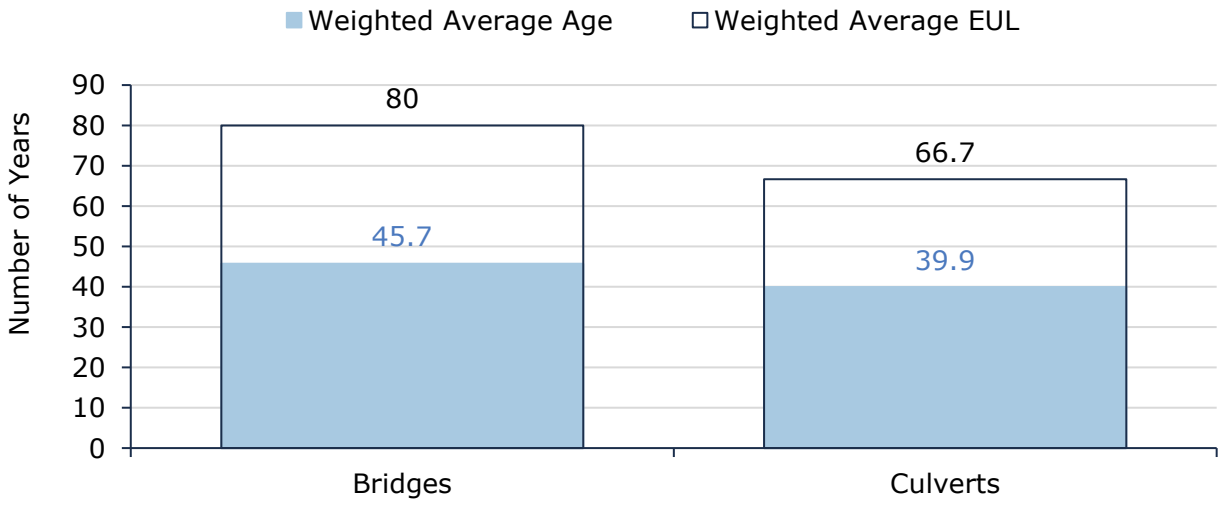


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed. This can be included in the Ontario Structures Inspection Manual (OSIM) inspections as the replacement cost is part of the calculation for the bridge condition index (BCI).

6.3. Asset Condition & Age

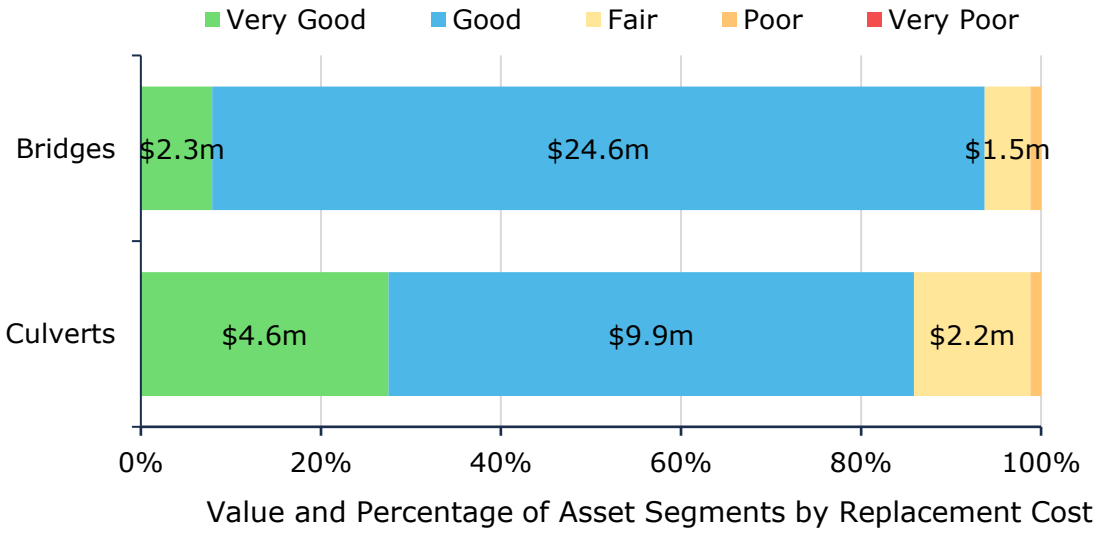
The graph below identifies the average age and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 23: B&C Average Age vs Average EUL



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

Figure 24: B&C Condition Breakdown



To ensure that the Township's bridges and culverts continue to provide an acceptable level of service, the staff should monitor the average condition of all assets. Each asset's estimated useful life should also be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

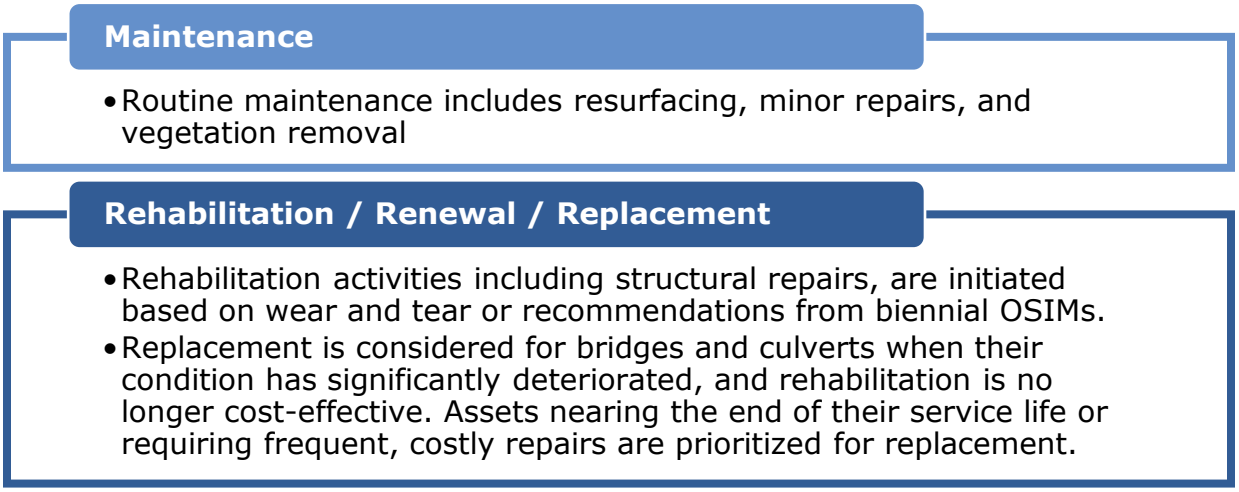
6.3.1 Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. Huron-Kinloss' current approach is to assess the bridges and structural culverts every 2 years in accordance with the Ontario Structure Inspection Manual (OSIM). The most recent assessment was completed in November 2023 by B.M Ross.

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. Figure 25 outlines Huron-Kinloss' current lifecycle management strategy.

Figure 25: B&C Current Lifecycle Strategy



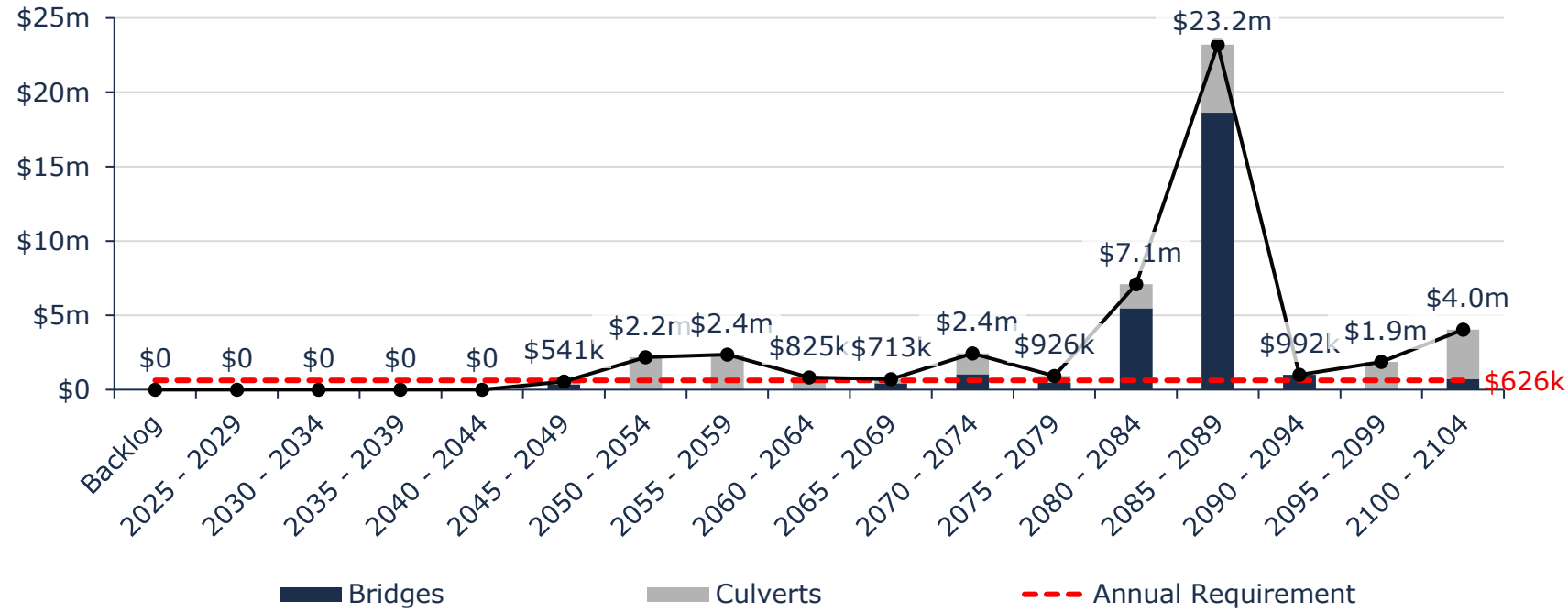
6.5. Forecasted Capital Requirements

Figure 26 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Township's bridges and culverts. These projections are based on asset replacement costs, age analysis, and condition data. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

The following analysis was run until 2104, and the resulting graph identifies capital requirements over the next 80 years. Huron-Kinloss' average annual requirements (red dotted line) for bridges and culverts total $626 thousands. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

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

Figure 26: B&C Forecasted Capital Replacement Requirements



The table below summarizes the projected cost of lifecycle activities (as previously described) that may need to be undertaken over the next 10 years to support current levels of service. These are represented at the major asset level.

Table 13 B&C System-generated 10-Year Capital Costs

Segment	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Bridges	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Culverts	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

These projections are generated in Citywide and rely on the data available in the asset register. Assessed condition data and replacement costs were used to assist in forecasting replacement needs for bridges and structural culverts.

6.6. Risk & Criticality

The 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 available inventory data. See Appendix D: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 27: B&C Risk Matrix

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$26,019,003	$17,798,319	-	$1,726,685	-
(57%)	(39%)	(0%)	(4%)	(0%)

This is a high-level model developed by municipal staff and should be reviewed and adjusted 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:

Table 14: Bridges & Culverts - Risk Attributes

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

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

6.7. Risks to Current Asset Management Strategies

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

Climate Change & Extreme Weather Events

Climate change and extreme weather events like intense flooding pose significant risks to a Township's bridges and culverts. Infrastructure will be increasingly vulnerable to damage from higher water flows and erosion. As such events become more frequent, the potential for severe damage escalates, threatening safety and transportation efficiency.

6.8. Current Levels of Service

The following tables identify the Township's metrics to identify their current level of service for the bridges and culverts.

6.8.1 Community Levels of Service

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

Table 15 B&C Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Accessible & Reliable	Description of the traffic that is supported by municipal bridges (e.g. heavy transport, motor, emergency vehicles, pedestrians, cyclists)	The municipal bridges support a diverse range of traffic, serving as crucial conduits within the Township and also for travel between communities. They accommodate a wide array of vehicles, from large agricultural equipment and heavy transport vehicles to motor and emergency vehicles, as well as cyclists and pedestrians.
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.

6.8.2 Technical Levels of Service

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

Table 16 B&C Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Accessible & Reliable	% of bridges in the Township with loading or dimensional restrictions	16%[1]
	Average Risk Rating	4.5 (Very Low)
	# of unplanned bridge closures	0
Safe & Regulatory	% of bridges inspected every two years	100%
Sustainable	Average bridge condition index value for bridges in the municipality	73%
	Average BCI value for culverts in the municipality	75%
Performance	Capital Reinvestment Rate	0.5%

6.9. Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the municipality's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for Bridges & Culverts. Further PLOS analysis at the portfolio level can be found in Proposed Levels of Service Scenario Analysis.

6.9.1 PLOS Scenarios Analyzed

Table 17: B&C PLOS Scenarios

Scenario	Description
Scenario 1: Maintain Existing Service Levels	Continues current service levels and financial strategy to reach full funding over 15 years, with annual tax increases of 0.8%.
Scenario 2: Enhance Service Levels	A phased approach to modest, low-risk service improvements, with annual tax increases of 1.9%.
Scenario 3: Innovate Service Levels	A future-focused strategy using innovation to boost efficiency and sustainability, with annual tax increases of 2.5%.

[1] There are four structures subject to load restrictions and three structures with width limitations.

6.9.2 PLOS Analysis Results

The following table presents three proposed service level scenarios for Bridges & Culverts. These options were developed based on current municipal practices, stakeholder input, and future-oriented asset management strategies. Each scenario outlines the expected impact on service delivery, lifecycle activities, costs, resource needs, risk exposure, and alignment with municipal goals and provincial policy. This structured comparison allows Council and staff to assess trade-offs between investment levels and outcomes, ensuring informed decision-making aligned with community priorities and financial realities.

Table 18: B&C pLOS Scenario Analysis

Criteria	Scenario 1 Maintain Service Levels	Scenario 2 Enhance Service Levels	Scenario 3 Innovate Service Levels
Service Level Impact	Maintains safety levels and serviceability of current infrastructure.	Increases asset lifespan and public safety through targeted improvements.	Supports broader transportation goals and multi-modal access.
Lifecycle Changes Required	Replace assets based on OSIM recommendations only; no additional enhancements.	Add routine contracted maintenance; proactive minor works and upgrades (e.g. signage, guardrails).	Redesign assets during replacement to support active transportation and climate resilience goals.
Cost	Low to moderate, focused on isolated replacements.	Moderate, due to more frequent contracted maintenance and safety retrofits.	Higher capital and design costs, but could enable long-term benefits.
Cost Breakdown	$630,000	$950,000	$1,200,000
Risk Exposure	Moderate – asset restrictions may grow without proactive investment.	Lower – regular upkeep helps prevent emergency closures.	Lowest – strategic upgrades reduce long-term structural and user risk.
Resource Requirements	No major change.	Requires staff coordination with contractors and safety inspections.	Requires engineering input for design changes and intermodal planning.
Public Perception	Neutral if no failures occur.	Positive – improvements are visible and appreciated.	Mixed – seen as progressive, but costs may raise concerns.
Compliance / Policy Alignment	Meets bridge code and inspection requirements.	Aligns with asset preservation best practices.	Aligns with long-range transportation, accessibility, and active travel goals.

7. Drinking Water Assets

7.1. State of the Infrastructure

The Township of Huron-Kinloss provides safe drinking water through four municipally operated supply and storage systems, supported by approximately 90 km of distribution pipes. Working closely with the Ontario Clean Water Agency (OCWA) as the Operating Authority, the Township ensures reliable service and high quality for residents across the area.

The state of the infrastructure for Drinking Water Assets is summarized in the following table:

Replacement Cost	Condition	Financial Capacity
$97,006,575	**Very Good (80%)**	Annual Requirement: **$1,595,475** Funding Available: **$1,446,265** Annual Deficit: **$149,210**

Figure 28: Drinking Water Assets State of the Infrastructure

7.2. Inventory & Valuation

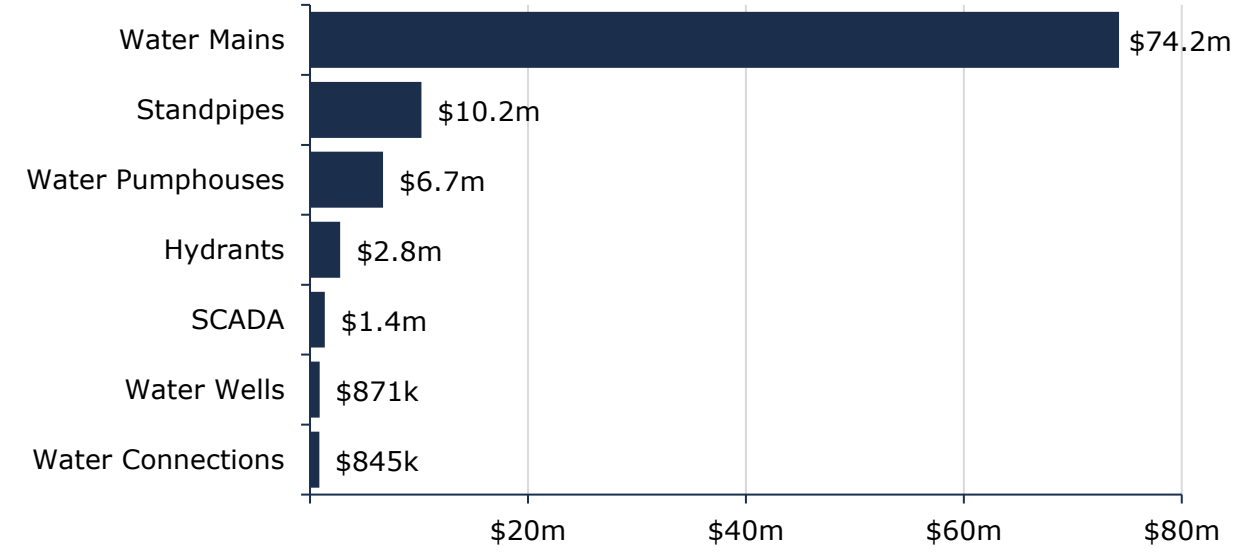
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment for the Township's Drinking Water Assets.

Table 19: Drinking Water Assets Detailed Asset Inventory

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Hydrants	444	Assets	CPI	$2,772,848
SCADA	34	Assets	CPI	$1,353,776
Standpipes	12	Components	CPI	$10,231,373
Water Connections	9	Assets	CPI	$845,214
Water Mains	90	Kilometers	Cost per Unit	$74,230,451
Water Pumphouses	62	Components	CPI	$6,701,870
Water Wells	27	Assets	CPI	$871,043
Total	**678**		**Cost per Unit**	**$97,006,575**

The graph below displays the total replacement cost of each asset segment in Huron-Kinloss' water network inventory.

Figure 29: Drinking Water Assets Replacement Cost

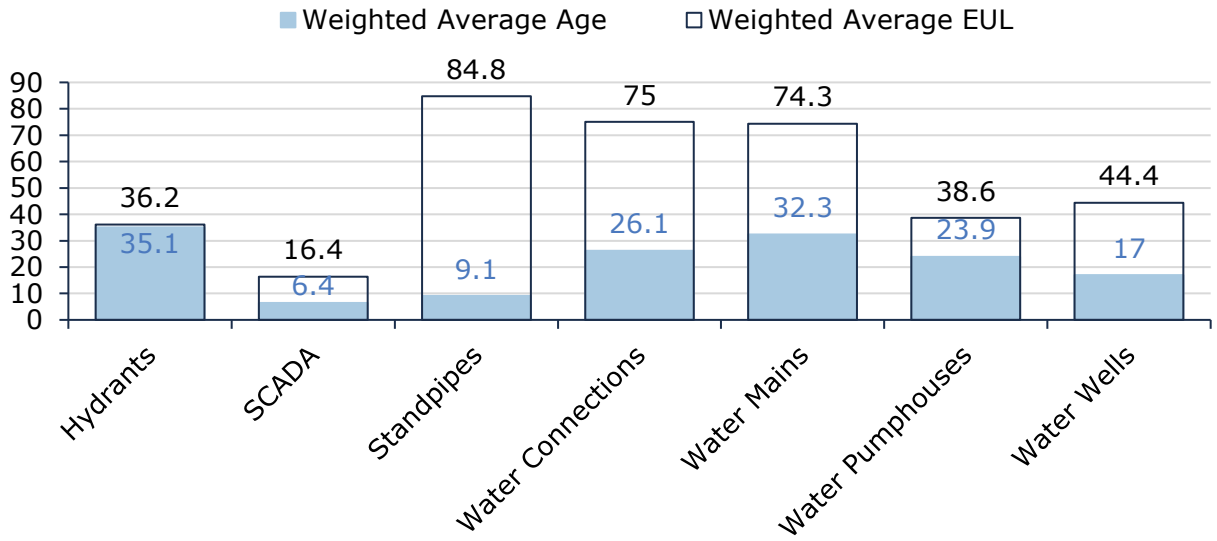


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

7.3. Asset Condition & Age

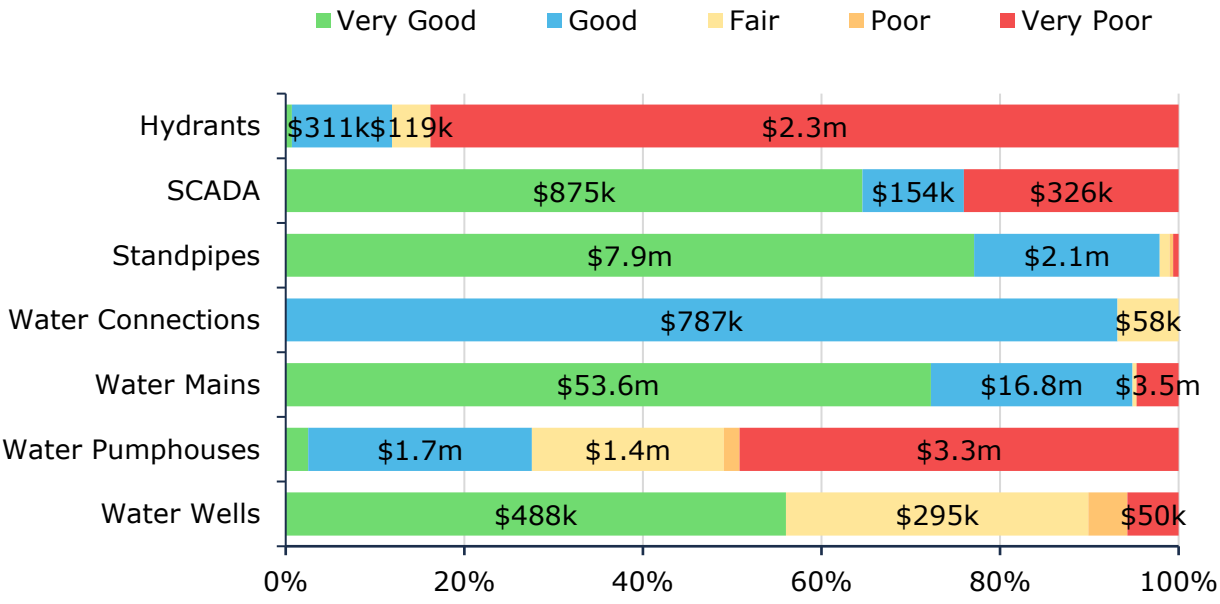
The figure below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 30: Drinking Water Assets Average Age vs Average EUL



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

Figure 31: Drinking Water Assets Condition Breakdown



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

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

7.3.1 Current Approach to Condition Assessment

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

- The Township assesses water mains to collect attribute data for pipe material, diameter, and soil conditions to project asset condition.
- Supporting infrastructure like water towers are assessed at intervals of 5 to 10 years. Valves, pumps, and hydrants are assessed annually by external contractors. Reservoir inspections are done every five years.
- Video inspections of drinking water wells are typically completed on a ten year cycle and reservoir inspections and cleaning are done every five years.
- As of 2025, Ontario Clean Water Agency will play a critical role in conducting and overseeing the condition assessments of the Water Network infrastructure. This will establish a baseline for asset conditions and help prioritize future investments.

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, the lifecycle management strategies have been developed to proactively manage asset deterioration.

Figure 32: Drinking Water Assets Current Lifecycle Strategy

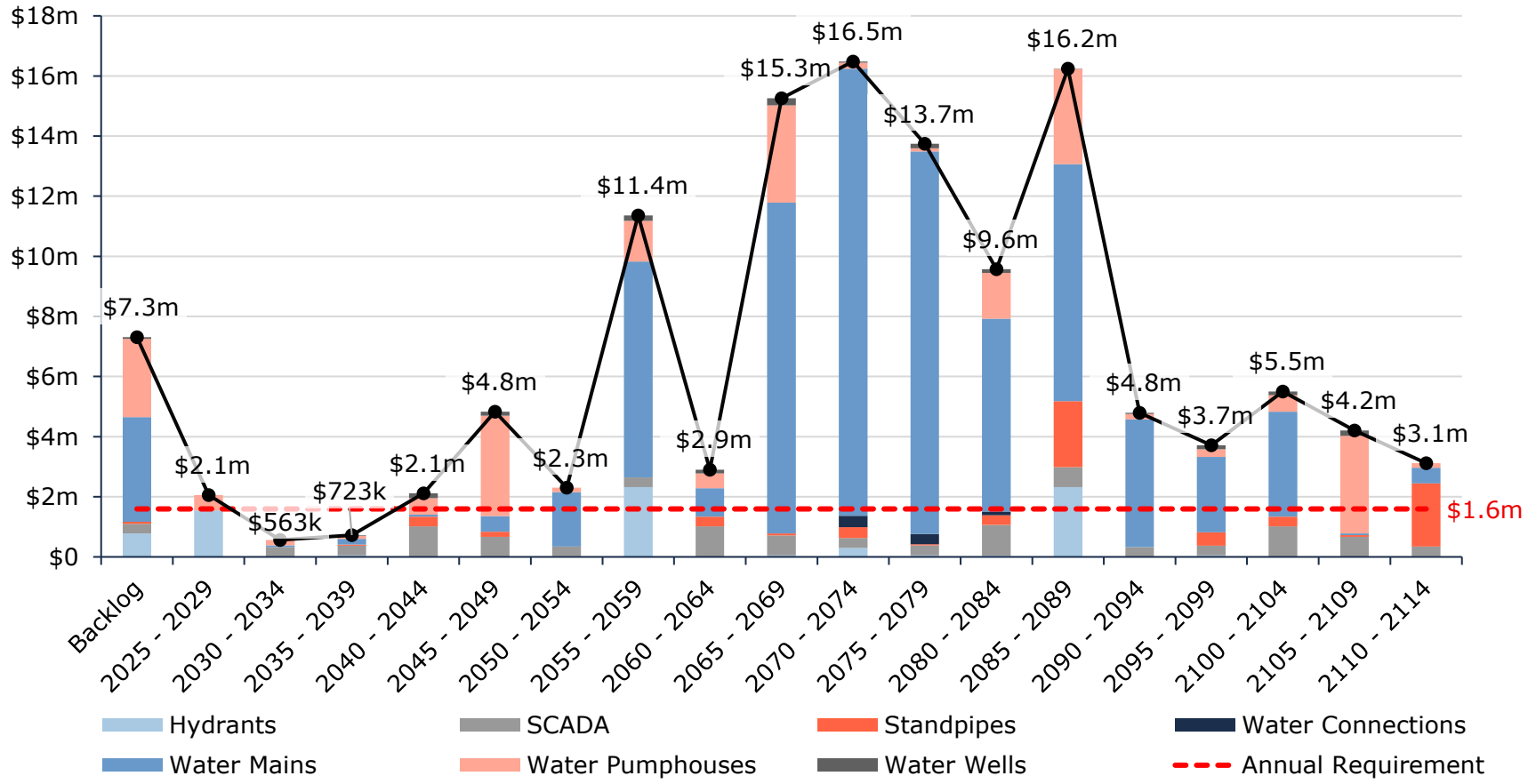
Maintenance / Rehabilitation / Replacement

- Maintenance includes annual flushing and valve turning. Reservoirs are cleaned every 5 years
- Rehabilitation activities such as well cleaning and reservoir repairs are based on inspection reports.
- Replacement is prioritized for critical infrastructure and areas in need of road improvements.

7.5. Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Huron-Kinloss should allocate towards funding rehabilitation and replacement needs. The following 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 forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirement of $1.6 million.

Figure 33: Drinking Water Assets Forecasted Capital Replacement Requirements



The table below summarizes the projected cost of lifecycle activities (capital activities only) that may need to be undertaken over the next 10 years to support current levels of service.

Table 20: Drinking Water Assets System-Generated 10-Year Capital Costs

Segment	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Hydrants	$1.5m	$0	$1.5m	$0	$0	$0	$0	$0	$0	$0	$0
SCADA	$326k	$0	$0	$0	$0	$0	$326k	$0	$0	$0	$0
Standpipes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water Connections	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water Mains	$57k	$0	$0	$0	$0	$0	$0	$0	$0	$44k	$13k
Water Pumphouses	$675k	$0	$48k	$305k	$142k	$152k	$0	$0	$0	$28k	$0
Water Wells	$21k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$21k
Total	**$2.6m**	**$0**	**$1.6m**	**$305k**	**$142k**	**$152k**	**$326k**	**$0**	**$0**	**$72k**	**$34k**

These projections are generated in Citywide and rely on the data available in the asset register. Aged-based condition data and replacement costs were used to assist in forecasting replacement needs for water network assets.

7.6. Risk & Criticality

The 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 available inventory data. See Appendix D: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 34: Drinking Water Assets Risk Matrix

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low $65,364,605 (67%)	**Low** $11,064,042 (11%)	**Moderate** $12,399,826 (13%)	**High** $4,467,225 (5%)	**Very High** $3,710,877 (4%)

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that municipal staff utilize to define and prioritize the criticality of water assets are documented below:

Table 21: Drinking Water Assets - Risk Attributes

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)
	Pipe Diameter (Economic)
	Water Pipe Material (Environmental)

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

7.7. Risks to Current Asset Management Strategies

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

Infrastructure Design/ Installation

The Township has observed that PVC Series 160 pipes, used for watermain installations until 2010, are less durable than the more robust PDC DR18 pipes used since. This material difference can result in higher maintenance needs and a shorter service life for the older PVC pipes, potentially affecting the water distribution system's reliability. To prevent this, the Township has adopted a proactive asset management strategy, prioritizing the replacement of aging PVC pipes with PDC DR18. Regular inspections and condition assessments of the existing infrastructure will help detect issues early and enable timely interventions, ensuring long-term system reliability.

Climate Change & Extreme Weather Events

The increasing frequency of extreme weather events, such as freeze-thaw cycles, heavy rainfall, and ice jams, has caused more frequent watermain breaks and infrastructure damage. These weather patterns, driven by climate change, accelerate the deterioration of watermains, with freeze-thaw cycles placing additional stress on the pipes. This leads to unexpected failures, service interruptions, and higher repair costs. The Township should integrate climate resilience into its asset management strategies, including the use of more durable materials, improved monitoring systems, and proactive replacement plans. This will help

anticipate and reduce the impact of extreme weather on the water infrastructure.

Aging Infrastructure

A significant portion of the watermains in the communities of Lucknow and Ripley are approaching the end of their expected service life. As these watermains age, their efficiency declines, which may result in more frequent maintenance, repairs, and potential service disruptions. Aging infrastructure is also more prone to failures, increasing the risk of leaks, reduced water pressure, and higher operating costs due to more intensive maintenance efforts. To mitigate this risk, the Township should prioritize the replacement of aging watermains through a phased, long-term asset management plan. Regular inspections and condition assessments will help identify weak points early, allowing for targeted repairs or replacements before failures occur.

7.8. Current Levels of Service

The following tables identify the Township's metrics to identify their current level of service for the Water Network. The Township will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

7.8.1 Community Levels of Service

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

Table 22 Drinking Water Assets Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Accessible & Reliable	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system	The Township of Huron-Kinloss owns and distributes clean, safe drinking water to residents along the Lakeshore (Amberley to Huronville), Lucknow, Ripley, and Whitechurch.
Reliability	Description of boil water advisories and service interruptions	No boil water advisory was issued in 2023.

7.8.2 Technical Levels of Service

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

Table 23 Drinking Water Assets Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Accessible & Reliable	% of properties connected to the municipal water system	3650 connections (89%)
	% of properties where fire flow is available	89%
	Average Risk Rating	5.71 (Low)
Reliability	# of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system	7:3,650
	# of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system	0:3,650
	Average Condition Rating	Very Good (80%)
Performance	Capital Reinvestment Rate	1.5%

7.9. Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the municipality's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for Land Improvement assets. Further PLOS analysis at the portfolio level can be found in Proposed Levels of Service Scenario Analysis.

7.9.1 PLOS Scenarios Analyzed

Table 24: Drinking Water Assets PLOS Scenarios

Scenario	Description
Scenario 1: Maintain Existing Service Levels	Continues current service levels and financial strategy to reach full funding over 15 years, with no annual water rate increases.
Scenario 2: Enhance Service Levels	A phased approach to modest, low-risk service improvements, with annual water rate increases of 0.2%.
Scenario 3: Innovate Service Levels	A future-focused strategy using innovation to boost efficiency and sustainability, with annual water rate increases of 1.4%.

7.9.2 PLOS Analysis Results

The following table presents three proposed service level scenarios for the Water Network. These options were developed based on current municipal practices, stakeholder input, and future-oriented asset management strategies. Each scenario outlines the expected impact on service delivery, lifecycle activities, costs, resource needs, risk exposure, and alignment with municipal goals and provincial policy. This structured comparison allows Council and staff to assess trade-offs between investment levels and outcomes, ensuring informed decision-making aligned with community priorities and financial realities.

Table 25: Water Network pLOS Scenario Analysis

Criteria	Scenario 1 Maintain Service Levels	Scenario 2 Enhance Service Levels	Scenario 3 Innovate Service Levels
Service Level Impact	Meets existing needs for serviced areas.	Improves reliability and supports modest future growth.	Increases operational efficiency and system resilience.
Lifecycle Changes Required	Routine replacement only for existing lines.	Integrate major upgrades and new technologies into asset schedules.	Adopt VFDs, SCADA, and timed operations in long-term asset planning.
Cost	Moderate – maintenance-focused.	Higher capital cost for upgrades.	High initial investment; increased replacement costs.
Cost Breakdown	$1,000,000	$1,500,000	$2,000,000
Risk Exposure	Moderate	Reduced system failure risk.	Significantly reduced operational and system failure risks.
Resource Requirements	Minimal.	Additional monitoring, reporting, and infrastructure work.	Higher technical and SCADA system demands.
Public Perception	Neutral if no major disruptions.	Positive – visible upgrades and better reliability.	Mixed – benefits are technical and may not be widely visible.
Compliance / Policy Alignment	Meets current regulatory standards.	Supports drinking water quality and capacity planning goals.	Strong alignment with MOECP best practices and energy efficiency goals.

8. Sanitary Sewer Network

8.1. State of the Infrastructure

The Township of Huron-Kinloss has two sanitary sewer systems servicing the communities of Lucknow and Ripley. Both systems treat waste with stabilization ponds, aerated lagoons and rapid infiltration basins, which are managed and maintained through a partnership with the Ontario Clean Water Agency (OCWA).

The state of the infrastructure for the Sanitary Sewer Network is summarized in the following table:

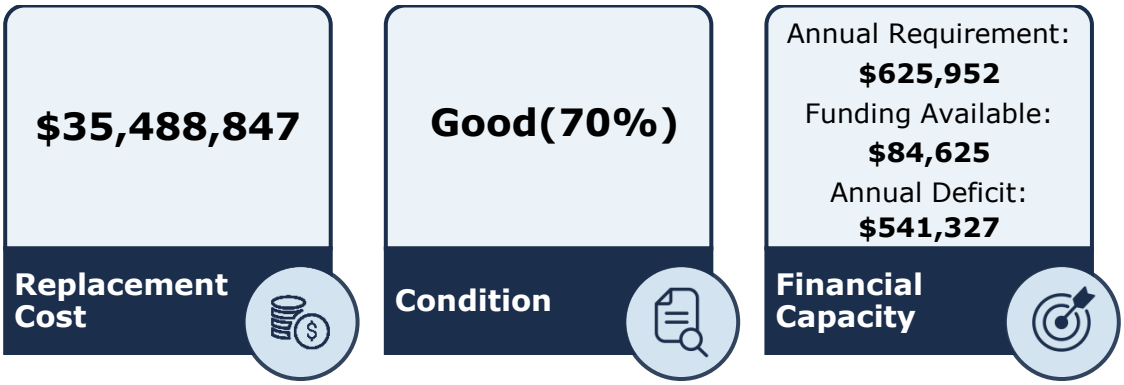


Figure 35: Sanitary Sewer Network State of the Infrastructure

8.2. Inventory & Valuation

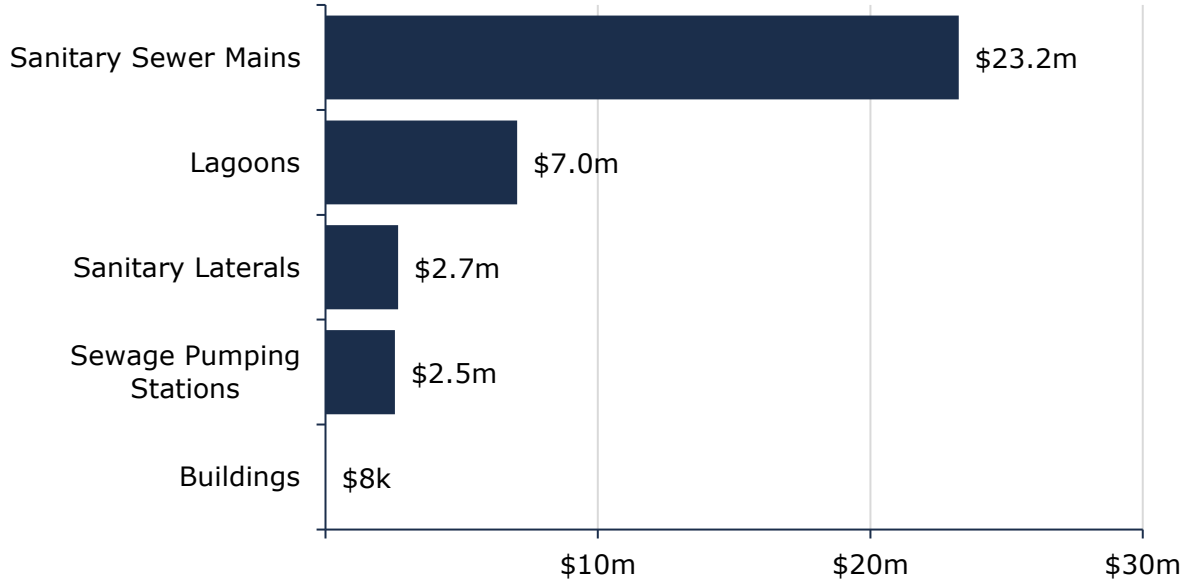
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment for the Township's Sanitary Network.

Table 26: Sanitary Sewer Network Detailed Asset Inventory

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Buildings	1	Assets	CPI	$8,110
Lagoons	24	Assets	CPI	$7,031,114
Sanitary Laterals	1	Kilometers	CPI	$2,661,565
Sanitary Sewer Mains	25	Kilometers	CPI	$23,241,909
Sewage Pumping Stations	13	Assets	CPI	$2,546,149
Total	**64**			**$35,488,847**

The graph below displays the total replacement cost of each asset segment in Huron-Kinloss' Sanitary Sewer Network inventory.

Figure 36: Sanitary Sewer Network Replacement Cost

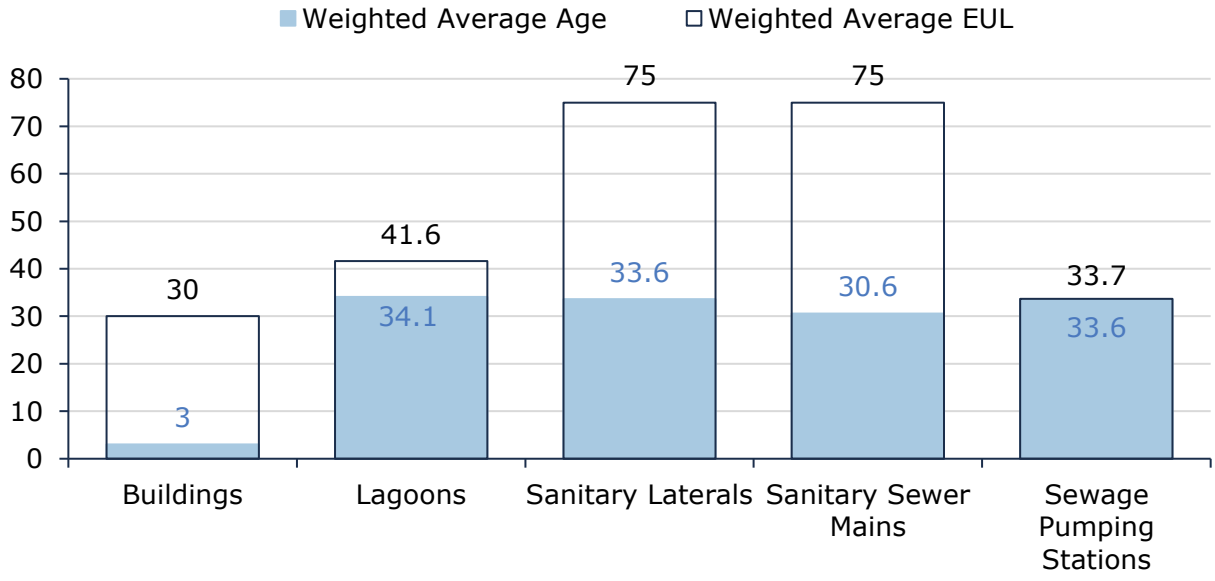


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

8.3. Asset Condition & Age

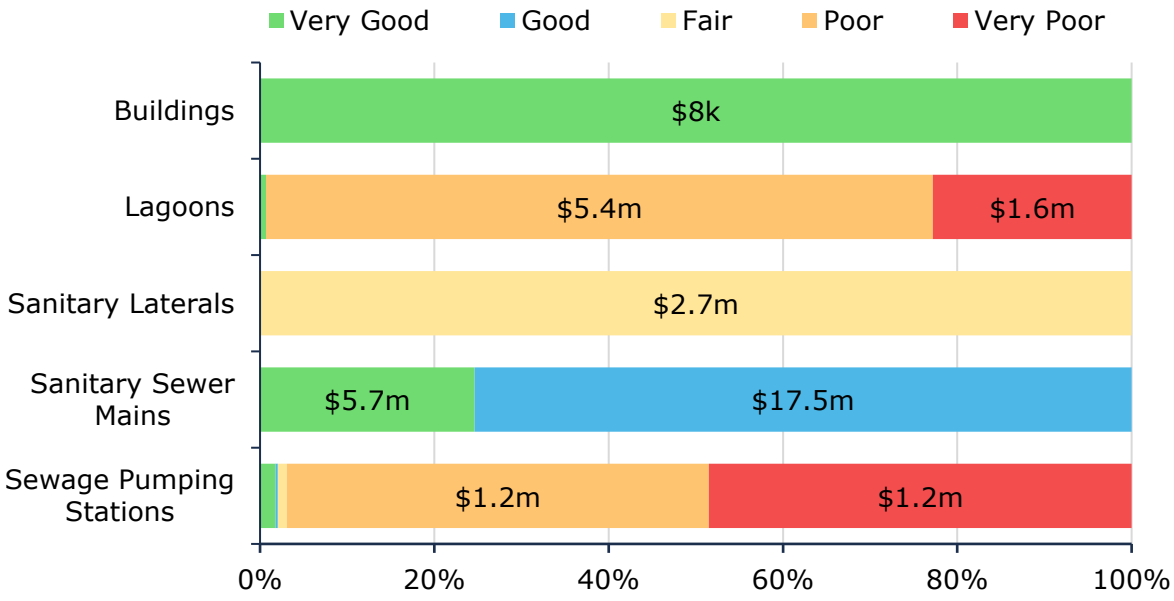
The figure below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 37: Sanitary Sewer Network Average Age vs Average EUL



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

Figure 38: Sanitary Sewer Network Condition Breakdown



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

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

8.3.1 Current Approach to Condition Assessment

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

The Township performs external inspections of sanitary sewers prior to road projects. Manholes are inspected every three years by the water and wastewater operating contractor. Since all manholes were installed after 1990, age is not a primary concern; the focus of these inspections is to identify sources of inflow and infiltration.

As of 2025, Ontario Clean Water Agency will play a critical role in conducting and overseeing the condition assessments of the Sanitary Network infrastructure. This will establish a baseline for asset conditions and help prioritize future investments.

8.4. Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, the lifecycle management strategies have been developed to proactively manage asset deterioration.

Figure 39: Sanitary Sewer Network Current Lifecycle Strategy

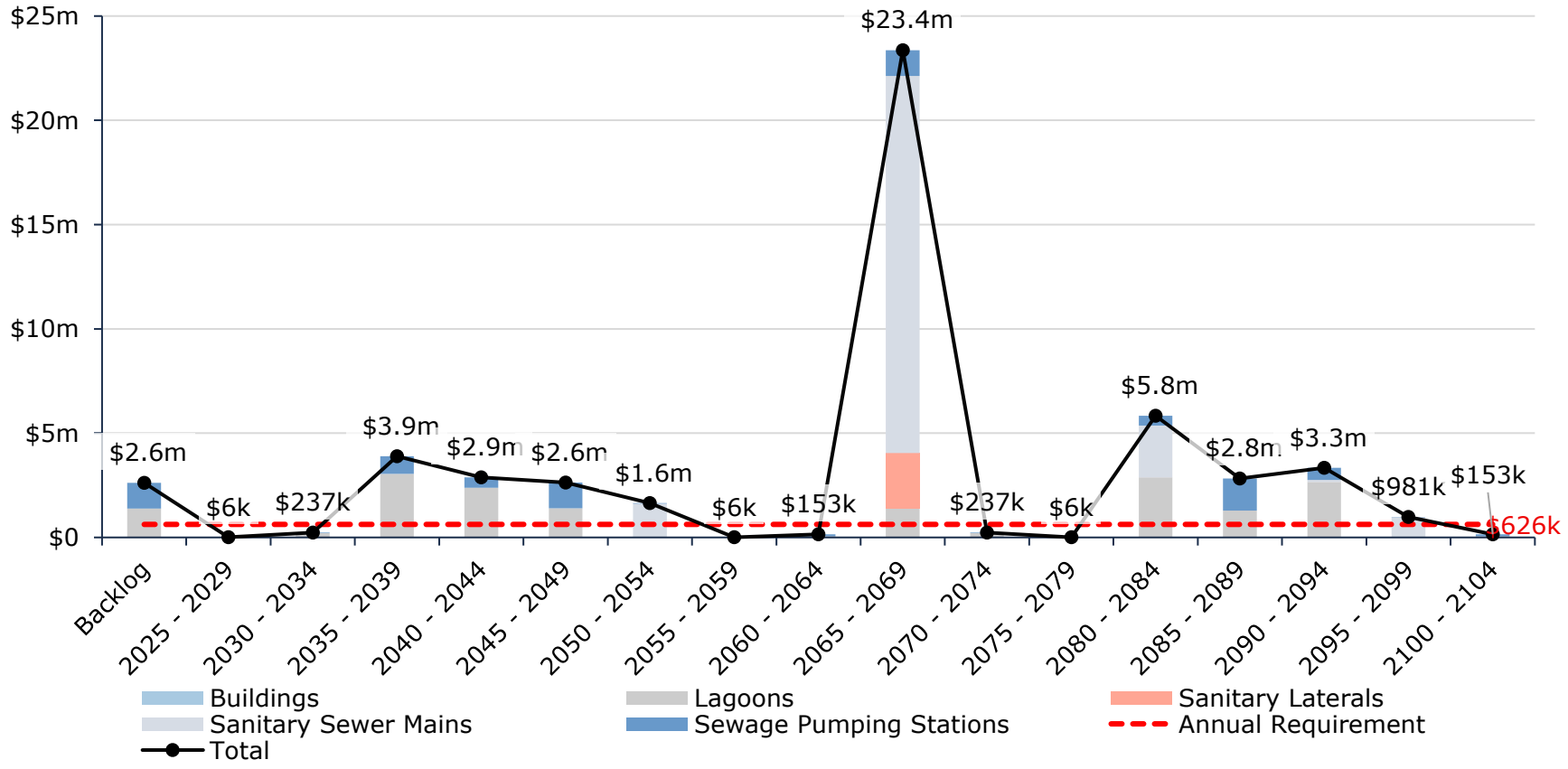
Maintenance / Rehabilitation / Replacement

- Routine maintenance includes inspections, flushing, and repairs based on staff judgment and ratepayer complaints.
- Rehabilitation includes manhole repairs and pump replacements as needed.

8.5. Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Huron-Kinloss should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 80 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirements at $626 thousands.

Figure 40: Sanitary Sewer Network Forecasted Capital Replacement Requirements



The Table below summarizes the projected cost of lifecycle activities (capital activities only) that may need to be undertaken over the next 10 years to support current levels of service.

Table 27 Sanitary Sewer Network System-Generated 10-Year Capital Costs

Segment	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Lagoons	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pumphouse	$217k	$0	$0	$0	$0	$6k	$0	$168k	$43k	$0	$0
Sewage Lift Station	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sewer Equipment	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sewer Mains	$18k	$0	$0	$0	$0	$0	$0	$0	$0	$0	$18k
Total	**$236k**	**$0**	**$0**	**$0**	**$0**	**$6k**	**$0**	**$168k**	**$43k**	**$0**	**$18k**

These projections are generated in Citywide and rely on the data available in the asset register. Age-based condition data and replacement costs were used to assist in forecasting replacement needs for sanitary network assets.

8.6. Risk & Criticality

The 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 available inventory data. See Appendix D: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 41: Sanitary Sewer Network Risk Matrix

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low $6,655,477 (19%)	**Low** $18,886,099 (53%)	**Moderate** $3,384,010 (10%)	**High** $3,289,840 (9%)	**Very High** $3,273,421 (9%)

This is a high-level model that has been developed based on information currently available and should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that municipal staff utilize to define and prioritize the criticality of water assets are documented below:

Table 28: Sanitary Sewer Network - Risk Attributes

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)
	Pipe Diameter (Economic)
	Line Type (Economic)
	Sanitary Pipe Material (Operational)
	Pipe Diameter (Social)

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

8.7. Risks to Current Asset Management Strategies

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

Inflow & Infiltration

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

8.8. Current Levels of Service

The following tables identify the Township's metrics to identify their current level of service for the Water Network. The Township will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

8.8.1 Community Levels of Service

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

Table 29 Sanitary Sewer Network Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Accessible & Reliable	Description, which may include maps, areas of the municipality that are	The Township of Huron-Kinloss has two sanitary sewer systems servicing the communities of Lucknow and Ripley. Both systems treat waste with stabilization

	connected to the municipal wastewater system	ponds, aerated lagoons and rapid infiltration basins.
Reliability	Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes.	The Township does not own any combined sewers.
	Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches.	
	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes.	Stormwater can enter into sanitary sewers due to cracks in sanitary mains or through indirect connections (e.g. weeping tiles). In the case of heavy rainfall events, sanitary sewers may experience a volume of water and sewage that exceeds its capacity. In some cases, this can cause water and/or sewage to overflow backup into homes. The disconnection of weeping tiles from sanitary mains and the use of sump pumps and pits directing stormwater to the storm drain system help to reduce the chance of overflow.
	Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid stormwater infiltration	The municipality adheres to design standards that incorporate appropriate overflows when constructing or replacing sanitary sewers. These standards have been determined with consideration of the minimization of sewage overflows and backups.
	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system.	Effluent refers to water pollution that is discharged from a wastewater treatment plant, and may include suspended solids, total phosphorous and biological oxygen demand. The Environmental Compliance Approval (ECA) identifies the effluent criteria for municipal wastewater treatment plants.

8.8.2 Technical Levels of Service

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

Table 30 Sanitary Sewer Network Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Accessible & Reliable	% of properties connected to the municipal wastewater systems	1209 connections (29%)
Safe & Regulatory	# of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system	1 sanitary overflow in Ripley on April 5, 2023.[2]
	# of connection-days per year with sanitary main backups compared to the total number of properties connected to the municipal wastewater system	2[3]
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	N/A[4]
	Average Risk Rating	6.84 (Low)
Reliable	Average Condition Rating	Good (70%)
Performance	Capital Reinvestment Rate	0.2%

[2] 1 sanitary by-pass on Huron St. in Ripley on April 5, 2023, due to rain event. 54m^3 of sewage hauled away to stop the by-pass. The Township was alerted to the issue at 16:09 and the by-pass ended at 19:24

[3] Cracked manholes and private storm drains are the source for inflow and infiltration connected to sanitary sewers. 2 sewage backups occurred in 2023, of which only 1 was a result of high flows.

[4] Effluent from wastewater treatment sites were within MECP requirements. All sanitary sewers are made from PVC and have water-tight connections.

8.9. Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the municipality's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for Land Improvement assets. Further PLOS analysis at the portfolio level can be found in Proposed Levels of Service Scenario Analysis.

8.9.1 PLOS Scenarios Analyzed

Table 31: Sanitary Sewer Network PLOS Scenarios

Scenario	Description
Scenario 1: Maintain Existing Service Levels	Continues current service levels and financial strategy to reach full funding over 15 years, with annual wastewater rate increases of 4.4%.
Scenario 2: Enhance Service Levels	A phased approach to modest, low-risk service improvements, with annual wastewater rate increases of 4.8%.
Scenario 3: Innovate Service Levels	A future-focused strategy using innovation to boost efficiency and sustainability, with annual wastewater rate increases of 5.7%.

8.9.2 PLOS Analysis Results

The following table presents three proposed service level scenarios for the Sanitary Network. These options were developed based on current municipal practices, stakeholder input, and future-oriented asset management strategies. Each scenario outlines the expected impact on service delivery, lifecycle activities, costs, resource needs, risk exposure, and alignment with municipal goals and provincial policy. This structured comparison allows Council and staff to assess trade-offs between investment levels and outcomes, ensuring informed decision-making aligned with community priorities and financial realities.

Table 32: Sanitary Network pLOS Scenario Analysis

Criteria	Scenario 1 Maintain Service Levels	Scenario 2 Enhance Service Levels	Scenario 3 Innovate Service Levels
Service Level Impact	Continues meeting core public health requirements.	Reduces I&I impacts and enhances system performance.	Addresses root causes of I&I with long-term strategies.
Lifecycle Changes Required	Replace critical infrastructure as needed.	Introduce design standards into earlier lifecycle replacements.	Shift lifecycle planning toward infiltration reduction programs and shared infrastructure strategies.
Cost	Low	Moderate increase due to added standards for new development.	High – long-term I&I management programs.
Cost Breakdown	$600,000	$650,000	$800,000
Risk Exposure	Moderate – high during extreme weather.	Reduced – proactive measures reduce overflow risk.	Low – systemic solutions provide climate resilience.
Resource Requirements	Minimal.	Staff time for reviews and enforcing new standards.	High – long-term monitoring and inter-municipal collaboration.
Public Perception	Neutral unless overflows occur.	Positive – visible improvement during storms.	Mixed – high cost but reduced flooding is beneficial.
Compliance / Policy Alignment	Meets basic regulatory compliance.	Aligns with provincial I&I reduction goals.	Strong alignment with watershed and long-range wastewater goals.

9. Storm Water Network

9.1. State of the Infrastructure

The Township is responsible for owning and maintaining a storm network consisting of drains and sewer mains.

The state of the infrastructure for the Storm Water Network is summarized below:

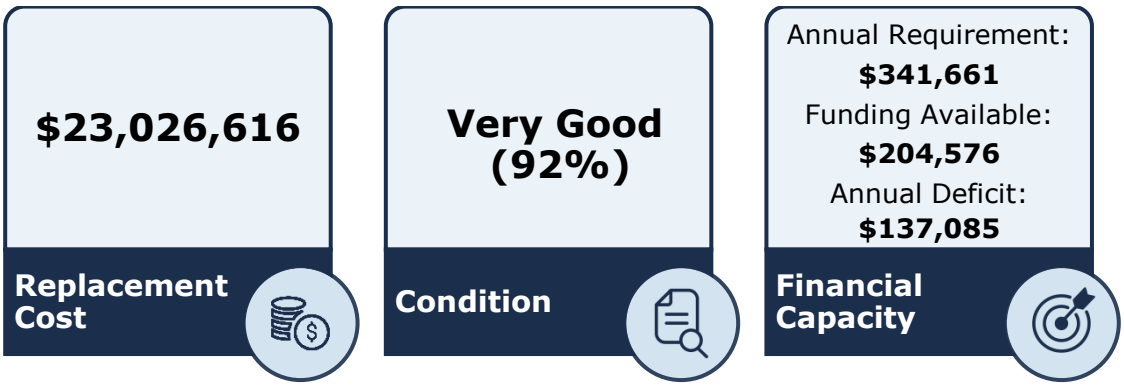


Figure 42: Storm Water Network State of the Infrastructure

9.2. Inventory & Valuation

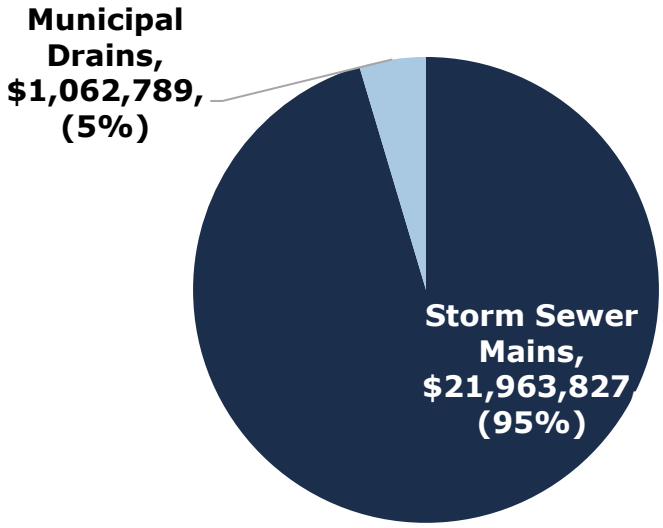
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment for the Township's Storm Water Network.

Table 33: Storm Water Network Detailed Asset Inventory

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Municipal Drains	15	Assets	CPI	$1,062,789
Storm Sewer Mains	21	Kilometers	CPI	$21,963,827
Total				**$23,026,616**

The graph below displays the total replacement cost of each asset segment in Huron-Kinloss' Storm Network inventory.

Figure 43: Storm Water Network Replacement Cost

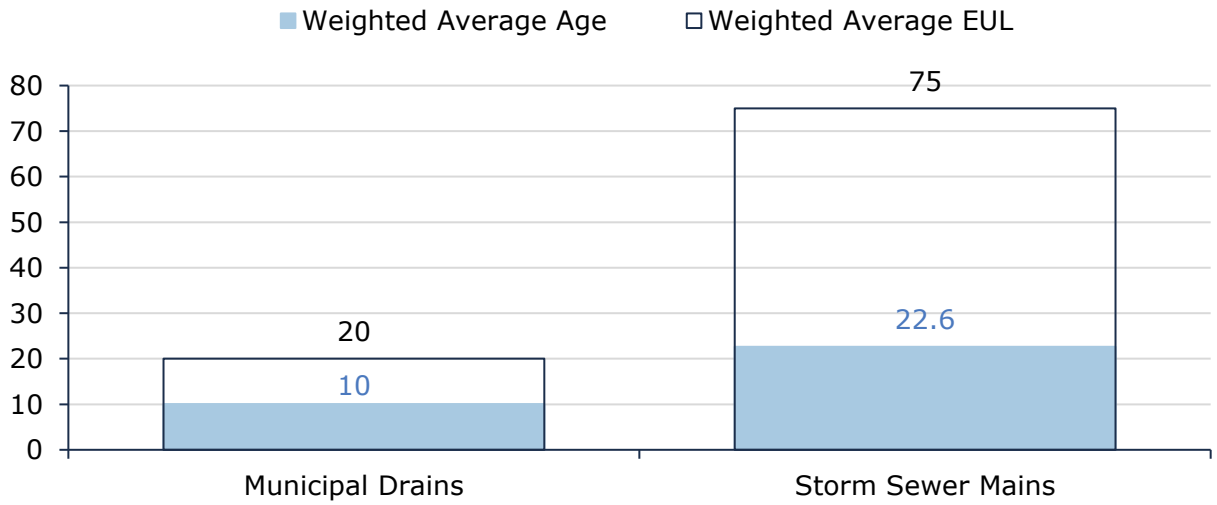


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

9.3. Asset Condition & Age

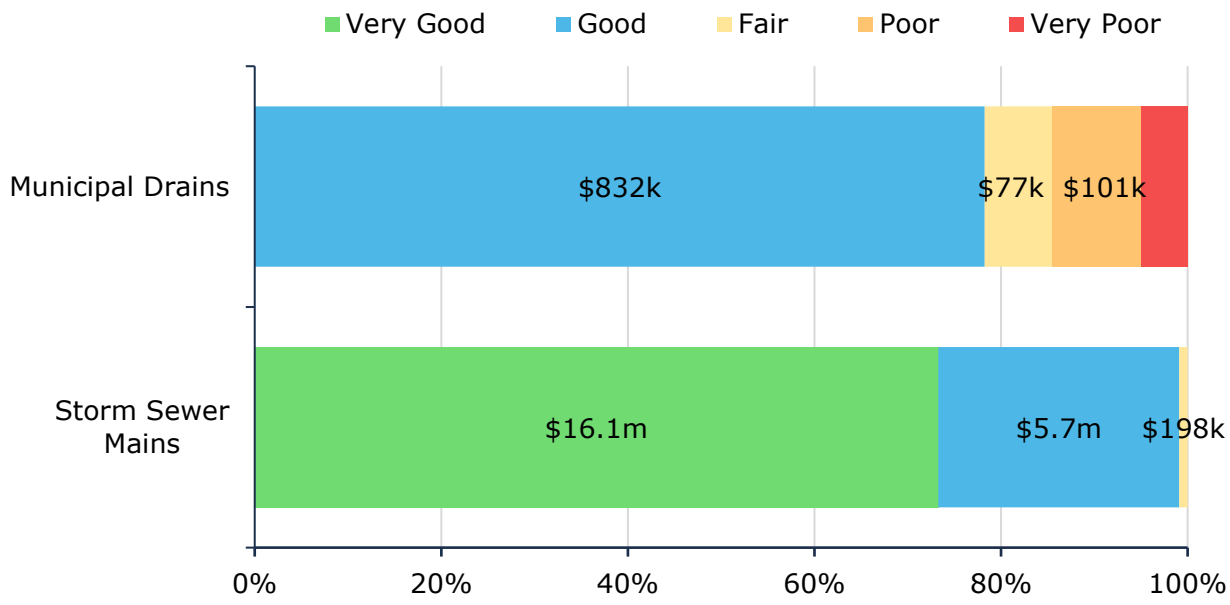
The graph below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 44: Storm Water Network Average Age vs Average EUL



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

Figure 45: Storm Water Network Condition Breakdown



To ensure that the municipal Storm Network continues to provide an acceptable level of service, the Township should monitor the average condition of all assets. If the average condition declines, staff 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.

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

9.3.1 Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. Storm sewers are inspected based on system performance or prior to road reconstruction, using CCTV videos reviewed by staff.

9.4. Lifecycle Management Strategy

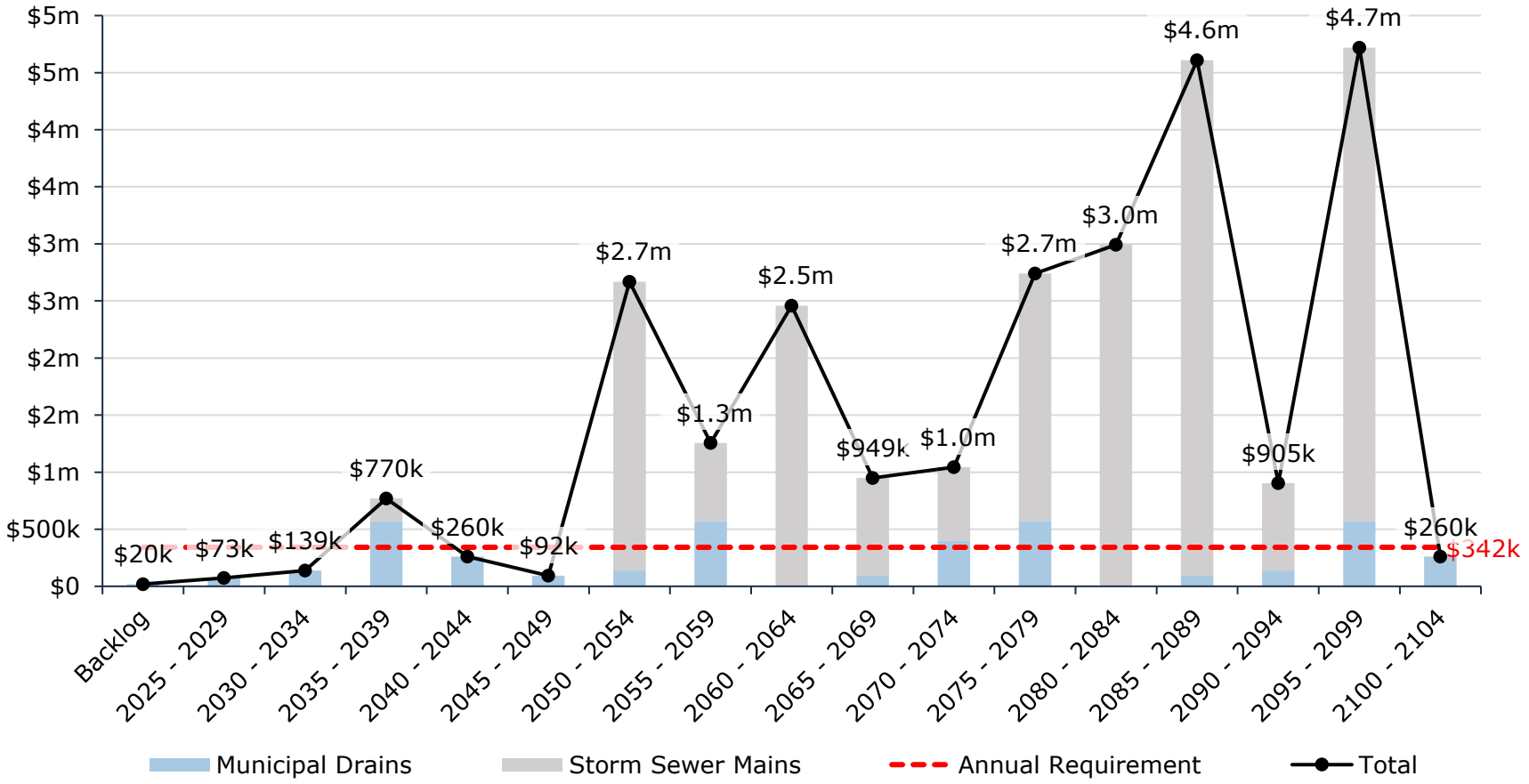
The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history and environment.

Cleaning occurs annually, with reactive maintenance based on reported blockages. There is currently no formal rehabilitation strategy.

9.5. Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Huron-Kinloss should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 80 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirements at $342 thousands.

Figure 46: Storm Water Network Forecasted Capital Replacement Requirements



The Table below summarizes the projected cost of lifecycle activities (capital activities only) that may need to be undertaken over the next 10 years to support current levels of service.

Table 34 Storm Water Network System-Generated 10-Year Capital Costs

Segment	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Municipal Drains	$134k	$0	$34k	$0	$0	$0	$39k	$54k	$7k	$0	$0
Storm Sewer Mains	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$134k**	**$0**	**$34k**	**$0**	**$0**	**$0**	**$39k**	**$54k**	**$7k**	**$0**	**$0**

These projections are generated in Citywide and rely on the data available in the asset register. Age-based condition data and replacement costs were used to assist in forecasting replacement needs for storm sewer lines assets.

9.6. Risk & Criticality

The 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 available inventory data. See Appendix D: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 47: Storm Water Network Risk Matrix

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$16,070,187 (70%)	$6,956,429 (30%)	- (0%)	- (0%)	- (0%)

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that Township staff utilize to define and prioritize the criticality of the storm network are documented below:

Table 35: Storm Water Network - Risk Attributes

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Economic)
	Pipe Diameter (Economic)

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

9.7. Risks to Current Asset Management Strategies

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

Climate Change & Extreme Weather Events

The design criteria are constantly increasing, so storm sewers designed 20 years ago are no longer up to standard even though they are not close to the end of their lifespan. Staff need a better sense of the impacts of climate change on the stormwater network to inform retrofitting and replacement planning. Additional data will help address concerns with system capacity and the ability of the stormwater network to handle any potential increase in the intensity, frequency, and duration of rainfall events. Incorporating a monitoring and maintenance program for all stormwater infrastructure into the asset management plan can further support infrastructure resiliency and reduce risk.

Spatial Constraints

The natural topography and the limited width of municipal right of ways present significant challenges to the design and implementation of drainage systems. In areas such as the Lakeshore, the shape and elevation of the land can complicate the design and implementation of drainage systems, while narrow or constrained public spaces hinder the installation and maintenance of necessary infrastructure. These physical constraints may impact the ability to adequately address stormwater management needs, particularly during system upgrades or when planning for future capacity improvements. Addressing these limitations is essential to ensure the long-term functionality and resilience of the stormwater network.

9.8. Current Levels of Service

The following tables identify the Township's metrics to identify their current level of service for the Storm Network. The Township will use this data to set a target level of service and determine proposed levels for the regulation by 2025.

9.8.1 Community Levels of Service

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

Table 36 Storm Water Network Community Levels of Service

Service Attribute	Qualitative Description	Current LOS
Sustainable	Description, which may include map, of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater system	At present, the Township has not completed formal stormwater or flood risk studies to quantify the level of protection provided against flooding. Detailed information on the user groups or areas currently protected by the municipal stormwater system is not yet available. However, storm system mapping and catch basin service areas have been referenced in Appendix B, which provides a general overview of the existing infrastructure layout.

9.8.2 Technical Levels of Service

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

Table 37 Storm Water Network Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Safe & Regulatory	% of properties in municipality resilient to a 100-year storm.	TBD[5]
	% of the municipal stormwater management system resilient to a 5-year storm	TBD[5]

[5] *Through funding announced in November 2022, the Township of Huron-Kinloss authorized Saugeen Valley Conservation Authority to proceed with a Flood Hazard Identification and Mapping Program of 6 Watercourses and provisionally Clark Creek and the entire Pine River in May of 2023. Estimated to start in 2025. Flood hazard maps will be produced for a minimum of four flood events, including the 1:25 year event, 1:100-year event, Hurricane Hazel Flood Event, and proxy scenario (equal to or higher than a 1:200-year event). Climate change scenarios will also be displayed on the 1:25 and 1:100-year event maps.*

	Average Risk Rating	3.86 (Very Low)
Sustainable	Average Condition Rating	Very Good (92%)
Performance	Capital Reinvestment Rate	0.9%

9.9. Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the municipality's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for Land Improvement assets. Further PLOS analysis at the portfolio level can be found in Proposed Levels of Service Scenario Analysis.

9.9.1 PLOS Scenarios Analyzed

Table 38: Storm Water Network PLOS Scenarios

Scenario	Description
Scenario 1: Maintain Existing Service Levels	Continues current service levels and financial strategy to reach full funding over 15 years, with annual tax increases of 0.8%.
Scenario 2: Enhance Service Levels	A phased approach to modest, low-risk service improvements, with annual tax increases of 1.9%.
Scenario 3: Innovate Service Levels	A future-focused strategy using innovation to boost efficiency and sustainability, with annual tax increases of 2.5%.

9.9.2 PLOS Analysis Results

The following table presents three proposed service level scenarios for the Storm Network. These options were developed based on current municipal practices, stakeholder input, and future-oriented asset management strategies. Each scenario outlines the expected impact on service delivery, lifecycle activities, costs, resource needs, risk exposure, and alignment with municipal goals and provincial policy. This structured comparison allows Council and staff to assess trade-offs between investment levels and outcomes, ensuring informed decision-making aligned with community priorities and financial realities.

Table 39: Stormwater Network pLOS Scenario Analysis

Criteria	Scenario 1 Maintain Service Levels	Scenario 2 Enhance Service Levels	Scenario 3 Innovate Service Levels
Service Level Impact	Meets minimum drainage needs.	Better flood mapping and new builds protect against localized flooding.	Addresses root causes of watershed issues.
Lifecycle Changes Required	Replace aging infrastructure when it fails.	Integrate updated flood mapping into capital planning.	Introduce green infrastructure and diversion strategies into capital lifecycle.
Cost	Low – maintenance-only.	Moderate – mapping and standards development.	High – infrastructure upgrades and land coordination needed.
Cost Breakdown	$300,000	$350,000	$450,000
Risk Exposure	Moderate – increased flood risk in vulnerable areas.	Reduced – improved planning reduces future damage.	Low – adaptive approach mitigates long-term flood risk.
Resource Requirements	Minimal.	Requires staff coordination with conservation authorities.	High – inter-agency planning and engineering input.
Public Perception	Neutral unless flooding occurs.	Positive – visible improvements in drainage.	Mixed – proactive, but costly and slow to implement.
Compliance / Policy Alignment	Meets minimum drainage regulations.	Aligns with provincial stormwater guidance.	Strong alignment with watershed and climate-resilient policies.

10. Buildings

10.1. State of the Infrastructure

Huron-Kinloss owns and maintains several facilities that provide key services to the community. These include:

- Community Services buildings such as libraries, medical centre, municipal offices, community centre, mausoleum, washroom, and town hall
- Fire and Emergency services buildings such as fire hall
- Public Works buildings such as sheds, and garage

The state of the infrastructure for municipal Buildings is summarized below:

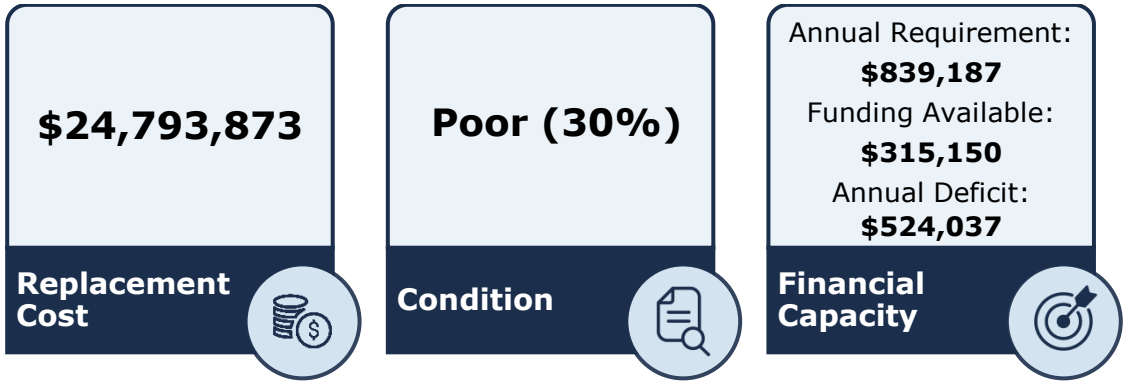


Figure 48: Buildings State of the Infrastructure

10.2. Inventory & Valuation

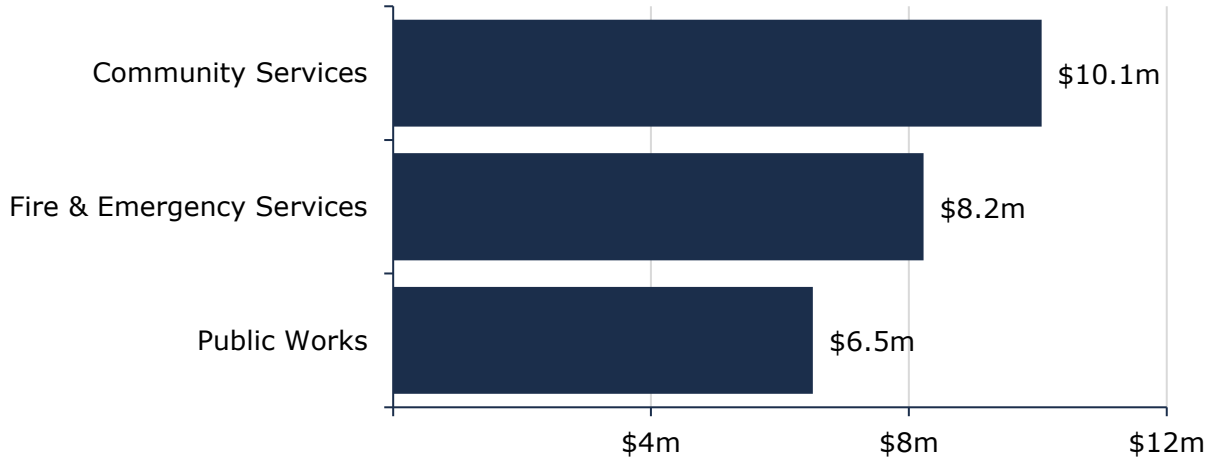
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's Buildings inventory.

Table 40: Buildings Detailed Asset Inventory

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Community Services	124	Quantity	CPI	$10,057,596
Fire & Emergency Services	14	Quantity	User-defined	$8,225,166
Public Works	11	Quantity	User-defined	$6,511,111
Total	**149**	**Quantity**	User-defined	**$24,793,873**

The graph below displays the total replacement cost of each asset segment in Huron-Kinloss' buildings inventory.

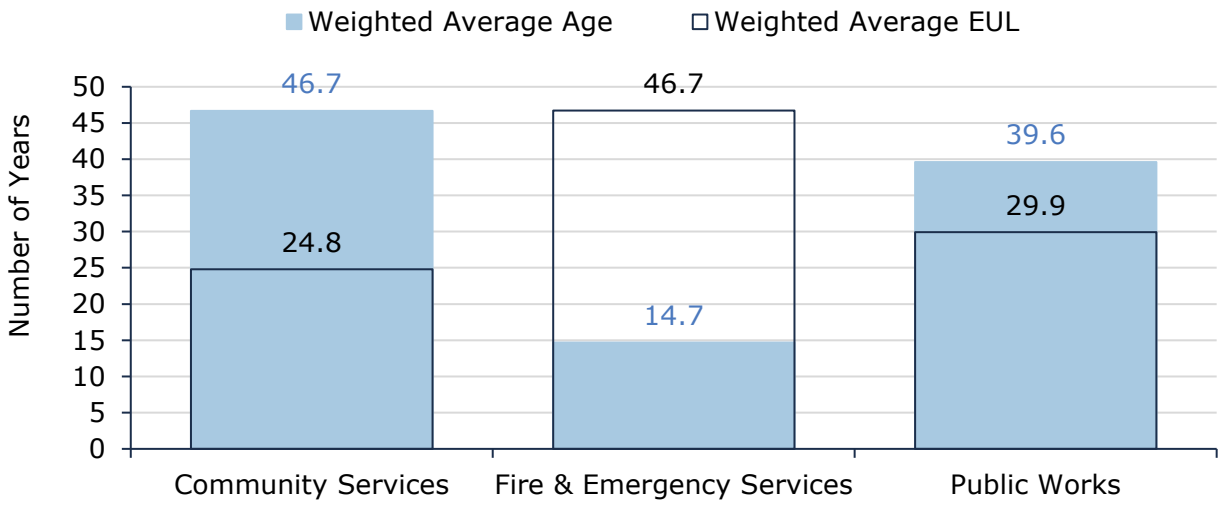
Figure 49: Buildings Replacement Cost



10.3. Asset Condition & Age

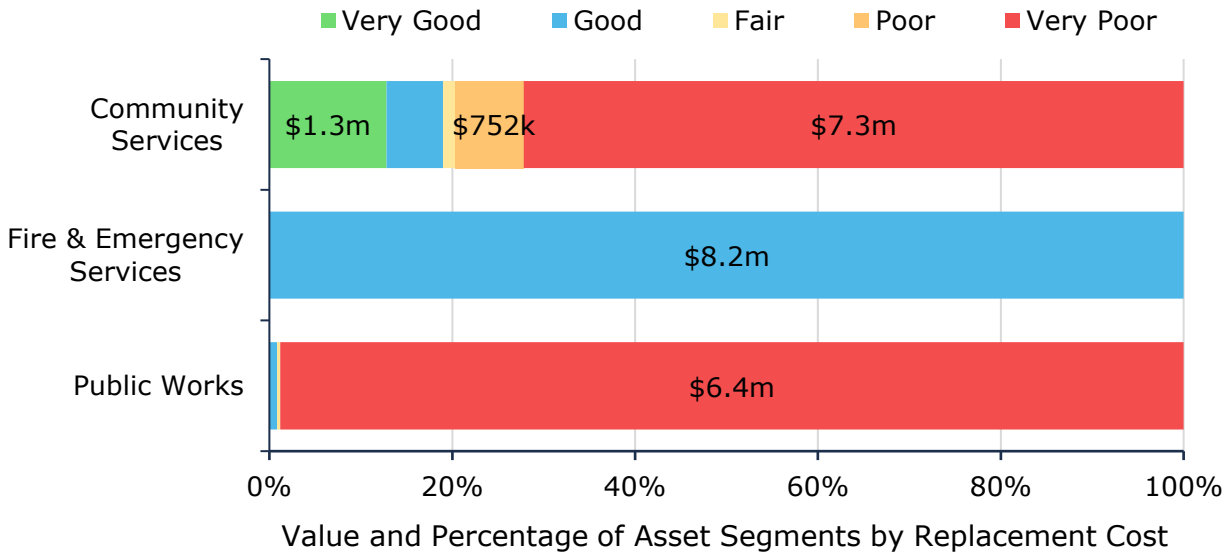
The graph below identifies the average age, and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 50: Buildings Average Age vs Average EUL



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

Figure 51: Buildings Condition Breakdown



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

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

10.3.1 Current Approach to Condition Assessment

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

- The Ripley Arena is inspected every three years by engineers, while all other buildings are assessed quarterly by staff.
- Monthly health and safety inspections are also conducted.

10.4. 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 describes the Township's current lifecycle management strategy.

Figure 52: Buildings Current Lifecycle Strategy

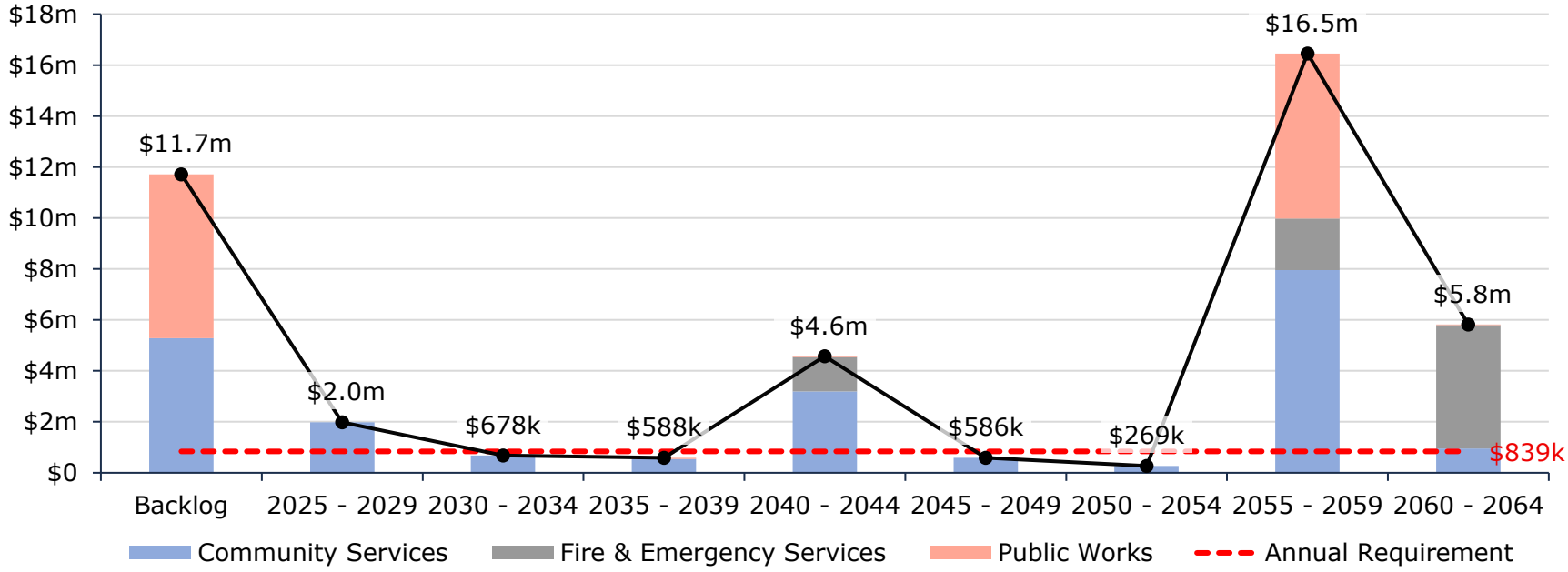
Maintenance / Rehabilitation / Replacement

- Routine maintenance includes HVAC, plumbing, electrical, roof, siding, and eavestrough repairs. Cleaning staff monitor deficiencies weekly.
- Rehabilitation is determined by inspections, operating conditions, and user group feedback, and includes evaluating HVAC systems (every 15-20 years) and roofs (every 30 years).
- Replacement is based on industry-standard lifecycle estimates or recommendations from the Ontario Recreation Facilities Association (ORFA).

10.5. Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Huron-Kinloss should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 40 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirements at $839 thousands.

Figure 53: Buildings Forecasted Capital Replacement Requirements



The table below summarizes the projected cost of lifecycle activities (capital activities only) that may need to be undertaken over the next 10 years to support current levels of service.

Table 41 Buildings System-Generated 10-Year Capital Costs

Segment	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Community Services	$2.7m	$1.2m	$16k	$205k	$579k	$0	$13k	$0	$37k	$576k	$52k
Fire & Emergency Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Public Works	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$2.7m**	**$1.2m**	**$16k**	**$205k**	**$579k**	**$0**	**$13k**	**$0**	**$37k**	**$576k**	**$52k**

These projections are generated in Citywide and rely on the data available in the asset register, which was limited to asset age, replacement cost, and useful life.

10.6. Risk & Criticality

The 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 available inventory data. See Appendix D: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 54: Buildings Risk Matrix

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low $3,279,542 (13%)	**Low** $769,929 (3%)	**Moderate** $2,062,694 (8%)	**High** $5,547,332 (22%)	**Very High** $13,134,376 (53%)

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that Township staff utilize to define and prioritize the criticality of buildings are documented below:

Table 42: Buildings - Risk Attributes

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

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

10.7. Risks to Current Asset Management Strategies

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

Staff Capacity

Inadequate staffing levels for building inspections present a significant risk considering potential legislative or liability changes. As building codes and regulations evolve, the demand for thorough and timely inspections increases. Without sufficient personnel to conduct these inspections, there may be delays in compliance, increased vulnerability to regulatory fines, and greater liability exposure. To mitigate this, the Township should ensure adequate staffing levels and consider training or outsourcing options to maintain timely inspections and compliance with evolving regulations. This will help reduce the likelihood of non-compliance and safety hazards.

10.8. Current Levels of Service

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

10.8.1 Community Levels of Service

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

Table 43 Buildings Community Levels of Service

Service Attribute	Technical Metric	Current LOS
Sustainable	Description of the current condition of municipal buildings and the plans that are in place to maintain or improve the provided level of service	Municipal buildings are rated in poor condition based on age. Routine maintenance such as HVAC, plumbing, electrical, roof, and siding repairs, is ongoing, with deficiencies monitored weekly. Rehabilitation is based on inspections and user feedback, with key systems like HVAC and roofs evaluated every 15–30 years.

10.8.2 Technical Levels of Service

The quantitative metrics that determine the technical level of service provided by the buildings in Huron-Kinloss are going to be the analysis of reinvestment rates, asset performance and asset risk levels.

Table 44 Buildings Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Scope	Average Condition Rating	Poor (30%)
	Average Risk Rating	Very High (15.95)
Performance	Capital Reinvestment Rate	1.3%

10.9. Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the municipality's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for municipal Buildings. Further PLOS analysis at the portfolio level can be found in Proposed Levels of Service Scenario Analysis.

10.9.1 PLOS Scenarios Analyzed

Table 45: Buildings PLOS Scenarios

Scenario	Description
Scenario 1: Maintain Existing Service Levels	Continues current service levels and financial strategy to reach full funding over 15 years, with annual tax increases of 0.8%.
Scenario 2: Enhance Service Levels	A phased approach to modest, low-risk service improvements, with annual tax increases of 1.9%.
Scenario 3: Innovate Service Levels	A future-focused strategy using innovation to boost efficiency and sustainability, with annual tax increases of 2.5%.

10.9.2 PLOS Analysis Results

The following table presents three proposed service level scenarios for municipal Buildings. These options were developed based on current municipal practices, stakeholder input, and future-oriented asset management strategies. Each scenario outlines the expected impact on service delivery, lifecycle activities, costs, resource needs, risk exposure, and alignment with municipal goals and provincial policy. This structured comparison allows Council and staff to assess trade-offs between investment levels and outcomes, ensuring informed decision-making aligned with community priorities and financial realities.

Table 46: Buildings pLOS Scenario Analysis

Criteria	Scenario 1 Maintain Service Levels	Scenario 2 Enhance Service Levels	Scenario 3 Innovate Service Levels
Service Level Impact	Maintains essential services, no proactive upgrades.	Improves performance and safety through better reporting and minor upgrades.	Leverages technology and funding to modernize and optimize building operations.
Lifecycle Changes Required	Run-to-fail approach; minimal lifecycle planning.	Establish building assessment schedules and target upgrades.	Adopt Building Management Systems (BMS); integrate lifecycle costing.
Cost	Low to moderate; reactive maintenance only.	Moderate – increased spending on reporting and efficiency upgrades.	High upfront costs with potential for future operational savings.
Cost Breakdown	$840,000	$1,100,000	$1,300,000
Risk Exposure	Higher – limited monitoring may lead to unexpected failures.	Reduced risk through better data and targeted investments.	Lowest risk – BMS and grants reduce vulnerability and extend asset life.
Resource Requirements	Minimal change to operations.	Requires better reporting processes and minor retrofits.	Significant investment in systems, training, and funding applications.
Public Perception	Stable – facilities remain functional.	Positive – visible energy savings and facility improvements.	Mixed to positive – depends on visibility of energy/sustainability investments.
Compliance / Policy Alignment	Meets minimum standards.	Supports AODA and energy benchmarks.	Aligns with climate goals and accessibility mandates.

11. Land Improvements

11.1. State of the Infrastructure

The Township of Huron-Kinloss maintains a variety of land improvements that support recreation, community use, and public events. These include parks, athletic fields, trails, playgrounds, and outdoor structures across the Township, with key facilities located in Lucknow, Ripley, and Point Clark. These areas feature splash pads, skateparks, ball diamonds, tennis and basketball courts, and pavilions

The state of the infrastructure for the land improvements is summarized below:

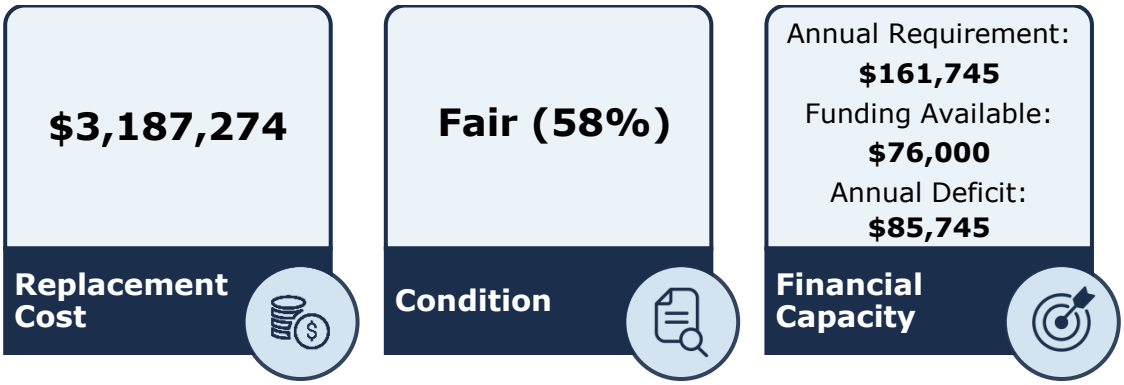


Figure 55: Land Improvements State of the Infrastructure

11.2. Asset Inventory & Valuation

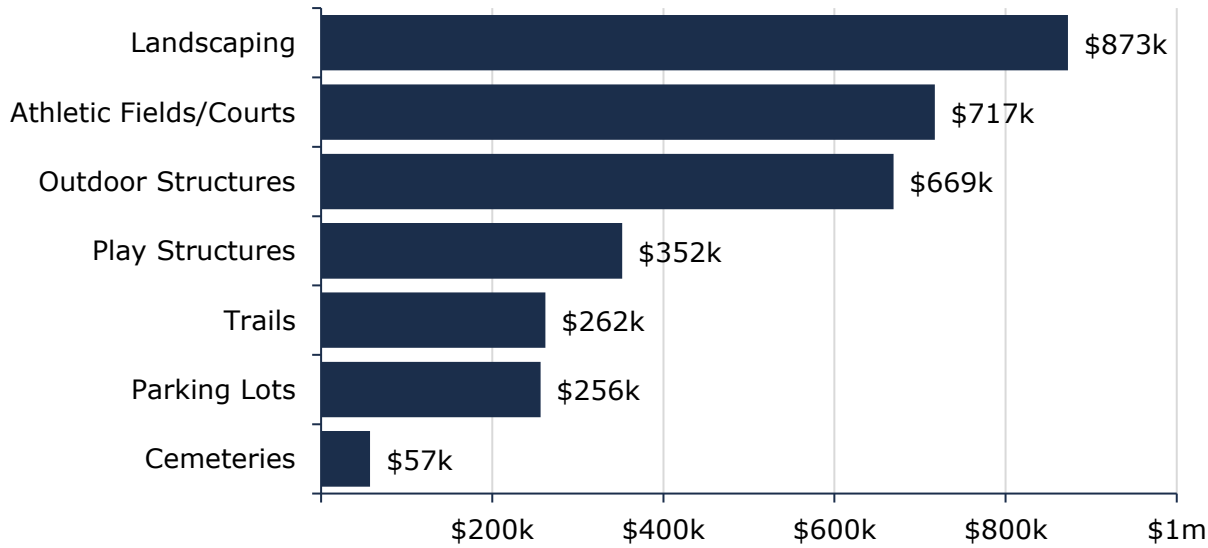
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment for the Township's Land Improvements.

Table 47: Land Improvements Detailed Asset Inventory

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Athletic Fields/Courts	35	Components	CPI	$717,281
Cemeteries	1	Assets	CPI	$57,379
Landscaping	23	Assets	CPI	$872,947
Outdoor Structures	26	Assets	CPI	$669,049
Parking Lots	6	Assets	CPI	$256,424
Play Structures	23	Assets	CPI	$351,962
Trails	22	Assets	CPI	$262,232
Total	**136**	**Assets**		**$3,187,274**

The graph below displays the replacement cost of each asset segment in the Township's land improvement inventory.

Figure 56: Land Improvements Replacement Cost

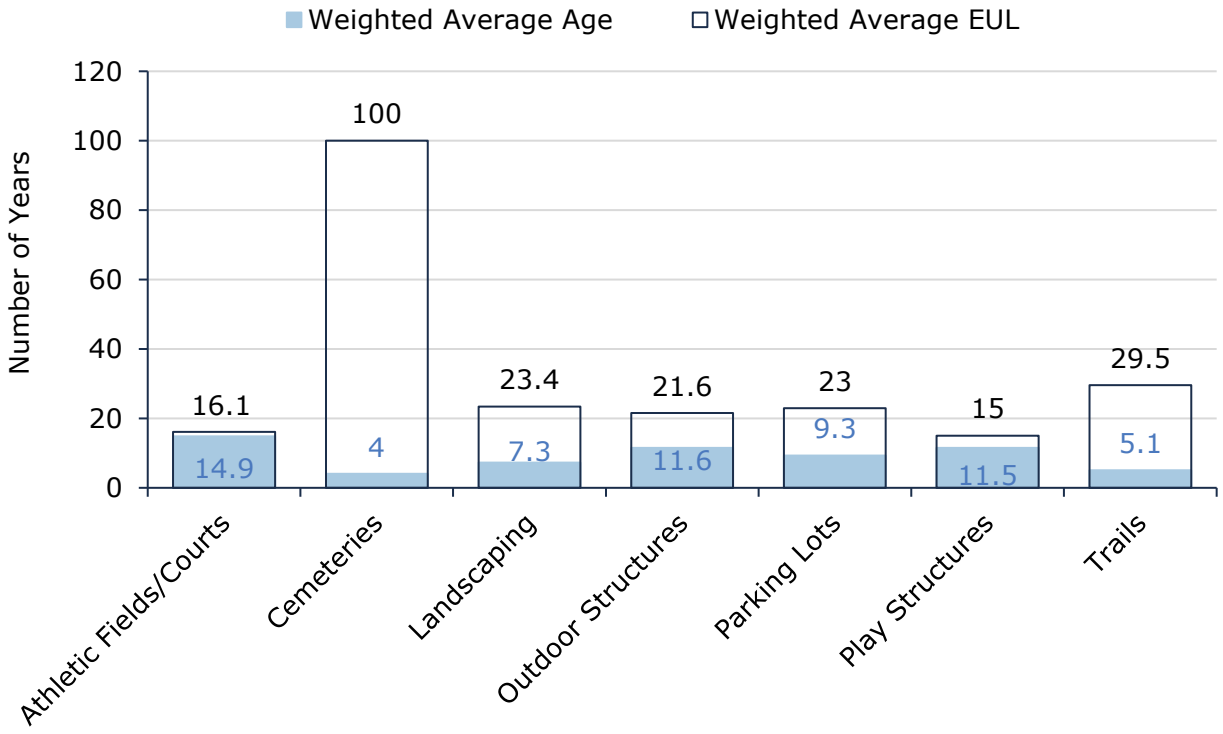


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

11.3. Asset Condition & Age

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

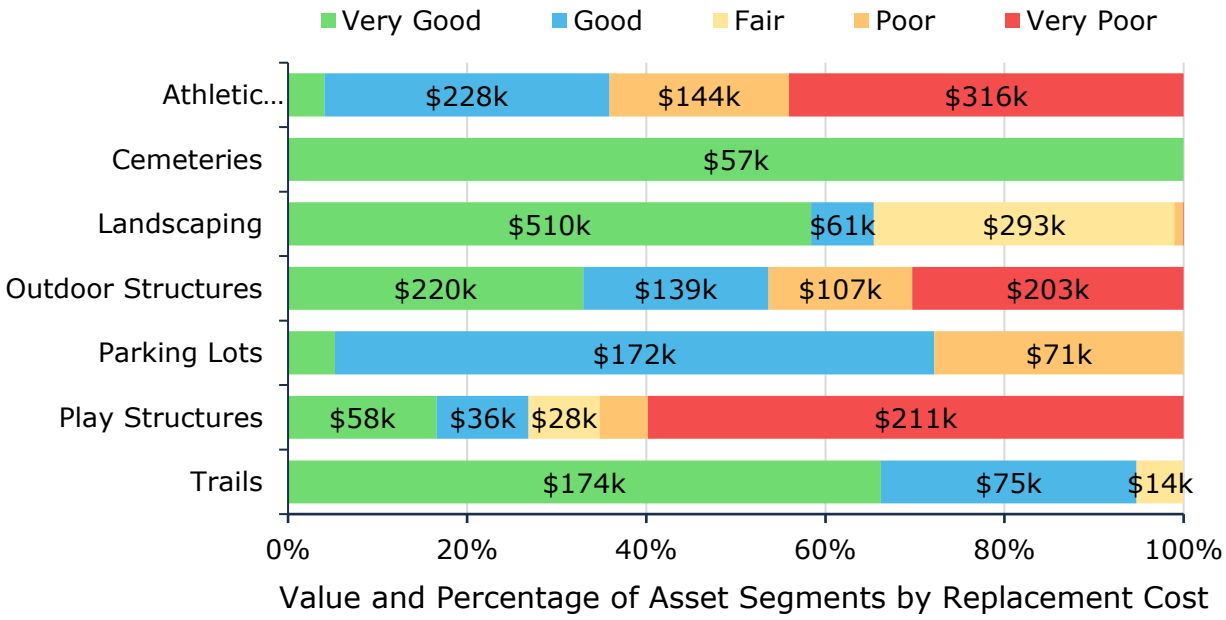
Figure 57: Land Improvements Average Age vs Average EUL



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

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

Figure 58: Land Improvement Condition Breakdown



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

11.3.1 Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. Land Improvements are assessed monthly by internal staff, with play equipment assessed every two years by a contractor.

11.4. Lifecycle Management Strategy

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

Figure 59: Land Improvements Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

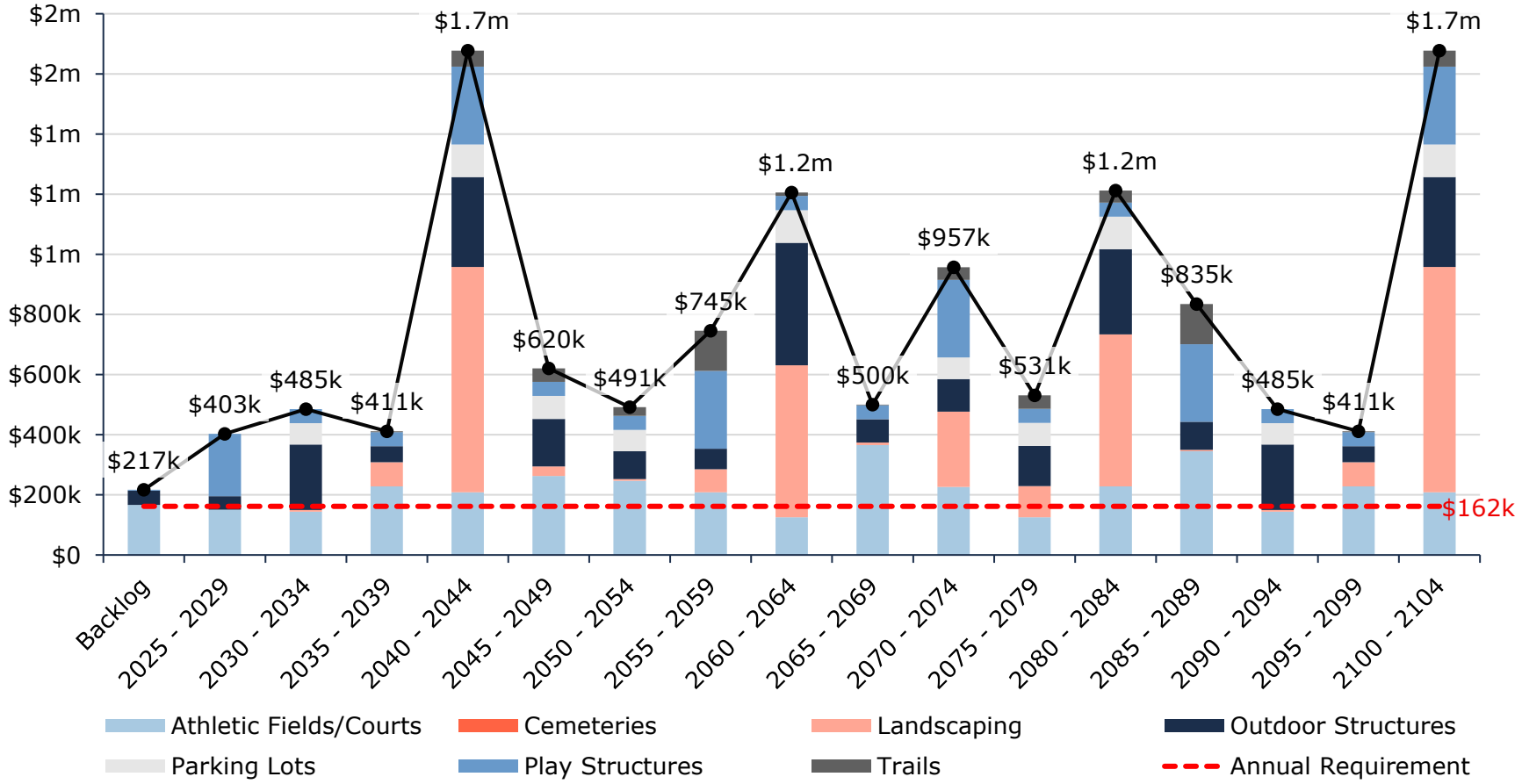
- Routine maintenance includes inspections, cleaning, repairs, and vegetation management.
- Rehabilitation of play equipment is performed as needed, with trails groomed annually. Triggers for rehabilitation include inspections, equipment age, and safety concerns.
- Replacement is prioritized for assets approaching the end of their service life or those requiring frequent, costly repairs, based on factors such as age, safety, and available budget. Trigger points are reviewed periodically to ensure they align with asset conditions and best practices.

11.5. Forecasted Capital Requirements

Figure 59 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Township's land improvement infrastructure. This analysis was run until 2103 to capture at least one iteration of replacement for the longest-lived asset in the asset register. Huron-Kinloss' average annual requirements (red dotted line) total $162 thousands for all land improvement assets. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

These projections and estimates are based on asset replacement costs and age analysis. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

Figure 60: Land Improvements Forecasted Capital Replacement Requirements



It is unlikely that all land improvements will need to be replaced as forecasted. Coordinated projects may help drive replacements and rehabilitations.

Table 48 below summarizes the projected cost of lifecycle activities (capital replacement only) that will need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register, which was limited to asset age, replacement cost, and useful life.

Table 48 Land Improvements System-Generated 10-Year Capital Costs

Segment	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Athletic Fields/Courts	$242k	$0	$0	$99k	$0	$0	$144k	$0	$0	$0	$0
Cemeteries	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Landscaping	$6k	$0	$0	$0	$0	$0	$0	$0	$0	$6k	$0
Outdoor Structures	$240k	$0	$0	$19k	$0	$7k	$161k	$49k	$0	$0	$4k
Parking Lots	$71k	$0	$0	$0	$0	$71k	$0	$0	$0	$0	$0
Play Structures	$237k	$0	$0	$185k	$0	$0	$19k	$18k	$0	$10k	$5k
Trails	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$797k**	**$0**	**$0**	**$303k**	**$0**	**$78k**	**$324k**	**$67k**	**$0**	**$16k**	**$9k**

Consistent data updates, especially condition, will improve the alignment between the system-generated expenditure requirements, and the Township's capital expenditure forecasts.

11.6. Risk & Criticality

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

Figure 61: Land Improvement Risk Matrix

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low $1,379,816 (43%)	**Low** $1,050,182 (33%)	**Moderate** $147,259 (5%)	**High** $413,647 (13%)	**Very High** $196,370 (6%)

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that Township staff utilize to define and prioritize the criticality of land improvements are documented below:

Table 49: Land Improvements - Detailed Asset Inventory

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

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

11.7. Risks to Current Asset Management Strategies

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

Climate Change & Extreme Weather Events

Climate change and extreme weather events present a risk to a Township's land improvement assets. The increasing frequency and intensity of storms and fluctuating water levels can rapidly age and deteriorate outdoor structures. These weather conditions not only accelerate the wear and tear on these assets but also pose safety risks to the public and increase maintenance costs. As a result, the Township must consider these impacts and consider upgrades and replacements which mitigate the impacts of these environmental changes on its infrastructure.

11.8. Current Levels of Service

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

11.8.1 Community Levels of Service

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

Table 50 Land Improvements Community Levels of Service

Service Attribute	Technical Metric	Current LOS
Scope	Description of the current condition of land improvement assets and the plans that are in place to maintain or improve the provided level of service	Land Improvements are currently in Fair condition. Routine maintenance includes inspections, cleaning, repairs, and vegetation management. Rehabilitation, such as play equipment updates and annual trail grooming, is based on inspections, age, and safety. Replacements are prioritized for aging or high-maintenance assets, with trigger points reviewed regularly to reflect condition and best practices.

11.8.2 Technical Levels of Service

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

Table 51 Land Improvements Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Sustainable	Average Condition Rating	Fair (58%)
	Average Risk Rating	Low (5.79)
Performance	Capital Reinvestment Rate	2.4%

11.9. Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the municipality's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for Land Improvement assets. Further PLOS analysis at the portfolio level can be found in Proposed Levels of Service Scenario Analysis.

11.9.1 PLOS Scenarios Analyzed

Table 52: Land Improvements PLOS Scenarios

Scenario	Description
Scenario 1: Maintain Existing Service Levels	Continues current service levels and financial strategy to reach full funding over 15 years, with annual tax increases of 0.8%.
Scenario 2: Enhance Service Levels	A phased approach to modest, low-risk service improvements, with annual tax increases of 1.9%.
Scenario 3: Innovate Service Levels	A future-focused strategy using innovation to boost efficiency and sustainability, with annual tax increases of 2.5%.

11.9.2 PLOS Analysis Results

The following table presents three proposed service level scenarios for Land Improvement assets. These options were developed based on current municipal practices, stakeholder input, and future-oriented asset management strategies. Each scenario outlines the expected impact on service delivery, lifecycle activities, costs, resource needs, risk exposure, and alignment with municipal goals and provincial policy. This structured comparison allows Council and staff to assess trade-offs between investment levels and outcomes, ensuring informed decision-making aligned with community priorities and financial realities.

Table 53: Land Improvements pLOS Scenario Analysis

Criteria	Scenario 1 Maintain Service Levels	Scenario 2 Enhance Service Levels	Scenario 3 Innovate Service Levels
Service Level Impact	Maintains current parkland per capita with no expansion or accessibility upgrades.	Improves accessibility and usability through targeted upgrades.	Maximizes equity and efficiency with a data-informed prioritization model.
Lifecycle Changes Required	Reactive replacement only; limited planning.	Scheduled retrofits and accessibility upgrades.	Implement condition-based prioritization tied to usage and equity.
Cost	Low; aligns with current maintenance and service scope.	Moderate; reflects ongoing upgrades and retrofits.	Higher initial cost to develop and implement prioritization tools.
Cost Breakdown	$160,000	$175,000	$200,000
Risk Exposure	Moderate – aging infrastructure may impact accessibility and safety.	Reduced risk of non-compliance with accessibility standards.	Low – decisions based on usage, need, and condition reduce service gaps.
Resource Requirements	Minimal staff/time investment.	More planning and maintenance coordination.	Requires data collection, public engagement, and analysis capacity.
Public Perception	Stable	Positive – visible improvements and inclusivity.	Very positive over time – aligns with inclusive and modern park planning.
Compliance / Policy Alignment	Meets existing minimum requirements.	Supports AODA and recreation goals.	Aligns with inclusive, data-driven planning.

12. Machinery & Equipment

12.1. State of the Infrastructure

To maintain the quality stewardship of Huron-Kinloss' infrastructure and support the delivery of services, municipal staff own and employ various types of equipment. This includes:

- Administration assets to support municipal services
- Arena equipment
- Fire assets for the fire department to effectively respond to emergencies
- Furniture and fixtures equipment in municipal buildings
- Public works to maintain and improve municipal services
- Recreation for delivery of programs and services in the community

The state of the infrastructure for municipal Machinery & Equipment is summarized below:

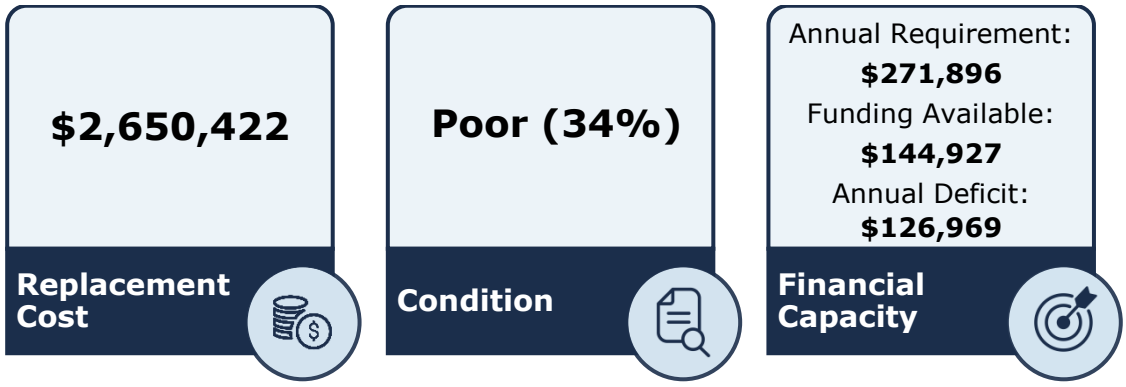


Figure 62: Machinery & Equipment State of the Infrastructure

12.2. Inventory & Valuation

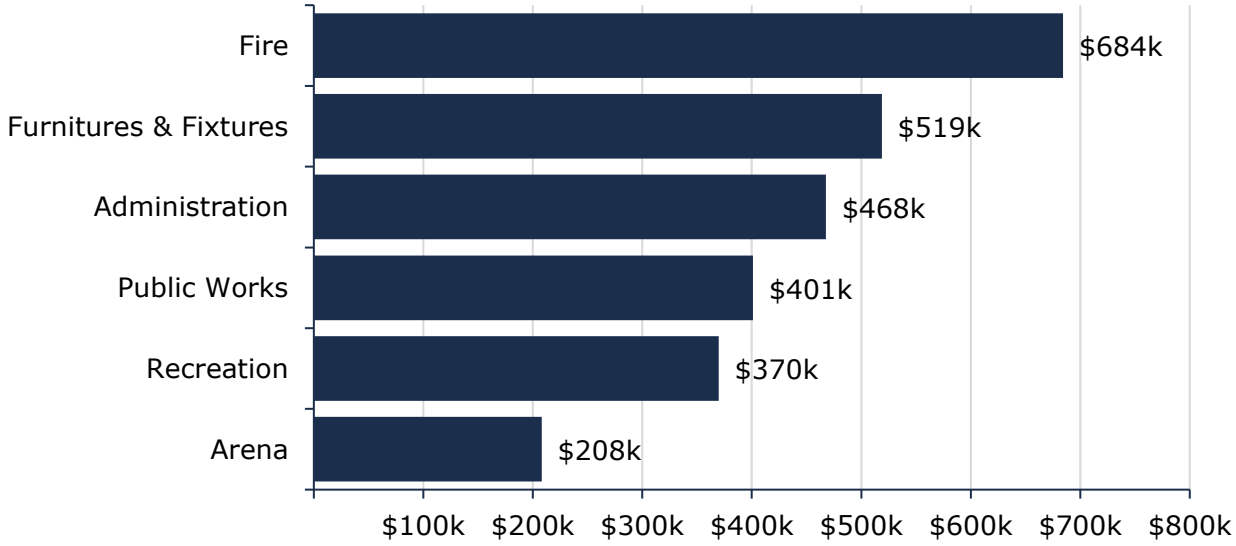
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's Machinery & Equipment inventory.

Table 54: Machinery & Equipment Detailed Asset Inventory

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Administration	66	Assets	CPI	$467,825
Arena	5	Assets	CPI	$208,307
Fire	367	Assets	CPI	$684,346
Furniture & Fixtures	68	Assets	CPI	$518,846
Public Works	22	Assets	CPI	$401,160
Recreation	41	Assets	CPI	$369,938
Total	**569**	**Assets**	**CPI**	**$2,650,422**

The graph below displays the total replacement cost of each asset segment in the Huron-Kinloss' Machinery & Equipment inventory.

Figure 63: Machinery & Equipment Replacement Costs

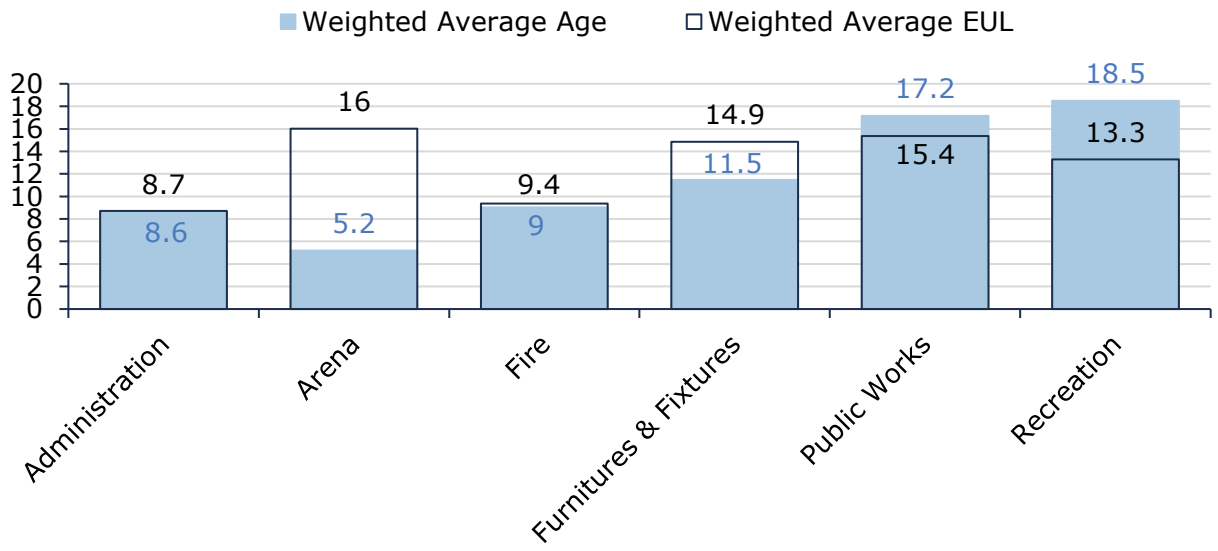


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent capital requirements.

12.3. Asset Condition & Age

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

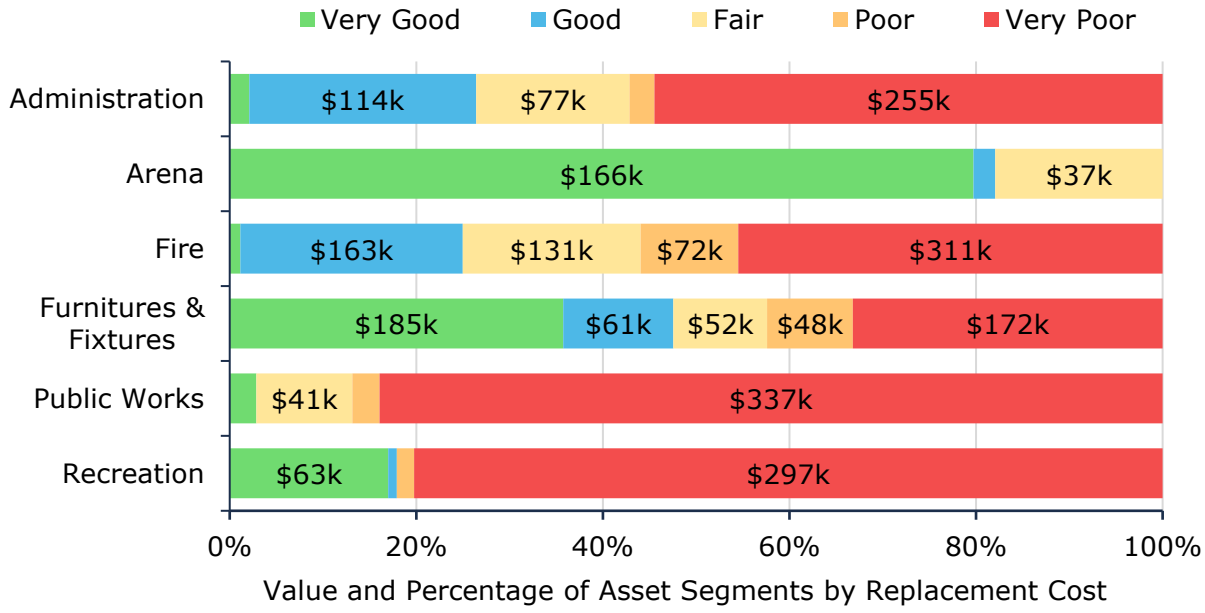
Figure 64: Machinery & Equipment Average Age vs Average EUL



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

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

Figure 65: Machinery & Equipment Condition Breakdown



To ensure that the Township's equipment continues to provide an acceptable level of service, Huron-Kinloss should continue to monitor the average condition. 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.

12.3.1 Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The current approach is having regular inspection and maintenance by staff and third-party contractor.

12.4. Lifecycle Management Strategy

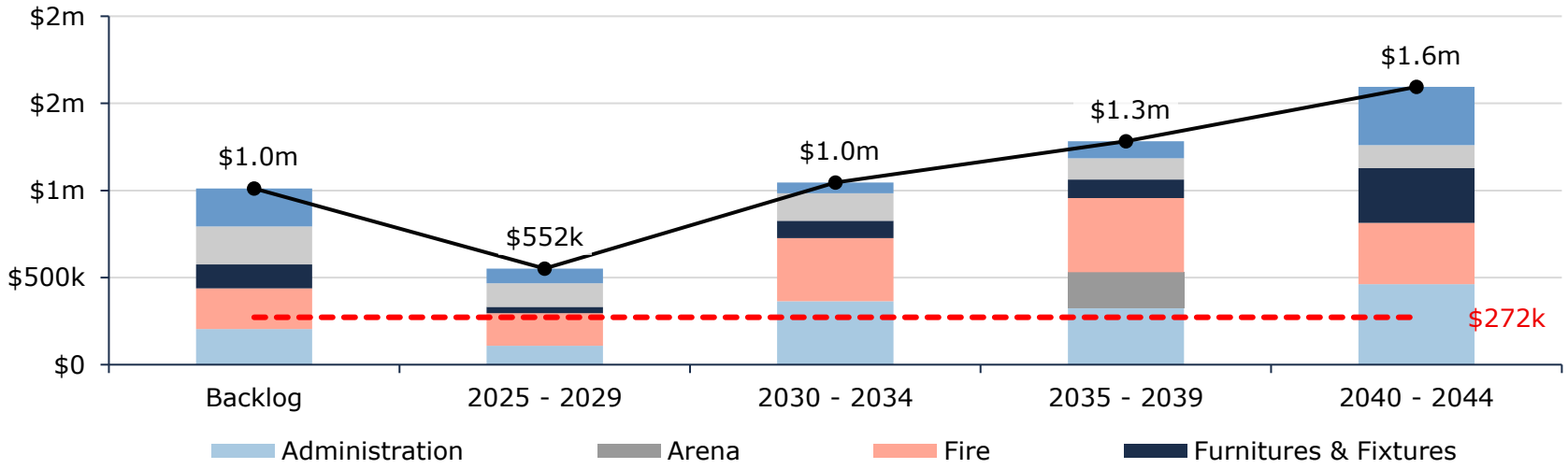
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

Generally, maintenance is triggered by performance issues or manufacturer recommendations, with replacement is planned based on estimated useful life.

12.5. Forecasted Capital Requirements

The following graph identifies capital requirements over the next 20 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average annual capital requirements at $272 thousands.

Figure 66: Machinery & Equipment Forecasted Capital Replacement Requirements



The table below summarizes the projected cost of lifecycle activities (capital replacement only) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

Table 55 Machinery & Equipment System-Generated 10-Year Capital Costs

Segment	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Administration	$465k	$25k	$20k	$31k	$15k	$5k	$293k	$20k	$31k	$15k	$10k
Arena	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fire	$530k	$29k	$29k	$40k	$64k	$58k	$101k	$53k	$132k	$17k	$7k
Furnitures & Fixtures	$153k	$10k	$0	$0	$0	$28k	$19k	$17k	$22k	$13k	$42k
Public Works	$286k	$12k	$13k	$5k	$97k	$0	$103k	$12k	$13k	$29k	$0
Recreation	$147k	$20k	$0	$57k	$7k	$0	$63k	$0	$0	$0	$0
Total	**$1.6m**	**$97k**	**$62k**	**$133k**	**$183k**	**$92k**	**$581k**	**$102k**	**$197k**	**$74k**	**$60k**

As assessed condition data was available for few equipment, age based condition was mostly used to determine forthcoming replacement needs. These projections can be different from actual capital forecasts. Consistent data updates, especially condition, will improve the alignment between the system-generated expenditure requirements, and the Township's capital expenditure forecasts.

12.6. Risk & Criticality

The 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 available inventory data. See Appendix D: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 67: Machinery & Equipment Risk Matrix

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low	**Low**	**Moderate**	**High**	**Very High**
$1,192,436	$922,906	-	$275,153	$259,927
(45%)	(35%)	(0%)	(10%)	(10%)

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that Township staff utilize to define and prioritize the criticality of machinery and equipment are documented below:

Table 56: Machinery & Equipment - Risk Attributes

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

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

12.7. Risks to Current Asset Management Strategies

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

Climate Change & Extreme Weather Events

As climate change intensifies and extreme weather events become more frequent, the Township's machinery and equipment are required to operate for extended hours. This increased usage accelerates wear and tear, leading to more frequent breakdowns and higher maintenance costs. Additionally, the prolonged use of machinery and equipment can reduce their lifespan, leading to earlier replacements and increased costs for the Township. This highlights the importance of thorough maintenance practices and the need to invest in durable equipment that can withstand extreme weather conditions.

12.8. Current Levels of Service

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

12.8.1 Community Levels of Service

The following table outlines the qualitative metrics that determine the community level of service provided by equipment.

Table 57 Machinery & Equipment Community Levels of Service

Service Attribute	Technical Metric	Current LOS
Scope	Description of the current condition of municipal machinery & equipment and the plans that are in place to maintain or improve the provided level of service	The overall condition of machinery & equipment in the Township is poor. Township staff work to follow a replacement schedule and prioritize maintenance to ensure assets remain in a safe and functional state.

12.8.2 Technical Levels of Service

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

Table 58 Machinery & Equipment Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Sustainable	Average Condition Rating	Poor (34%)
	Average Risk Rating	Low (5.55)
Performance	Capital Reinvestment Rate	5.5%

12.9. Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the municipality's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for Machinery & Equipment. Further PLOS analysis at the portfolio level can be found in Proposed Levels of Service Scenario Analysis.

12.9.1 PLOS Scenarios Analyzed

Table 59: Machinery & Equipment PLOS Scenarios

Scenario	Description
Scenario 1: Maintain Existing Service Levels	Continues current service levels and financial strategy to reach full funding over 15 years, with annual tax increases of 0.8%.
Scenario 2: Enhance Service Levels	A phased approach to modest, low-risk service improvements, with annual tax increases of 1.9%.
Scenario 3: Innovate Service Levels	A future-focused strategy using innovation to boost efficiency and sustainability, with annual tax increases of 2.5%.

12.9.2 PLOS Analysis Results

The following table presents three proposed service level scenarios for Machinery & Equipment. These options were developed based on current municipal practices, stakeholder input, and future-oriented asset management strategies. Each scenario outlines the expected impact on service delivery, lifecycle activities, costs, resource needs, risk exposure, and alignment with municipal goals and provincial policy. This structured comparison allows Council and staff to assess trade-offs between investment levels and outcomes, ensuring informed decision-making aligned with community priorities and financial realities.

Table 60: Machinery & Equipment pLOS Scenario Analysis

Criteria	Scenario 1 Maintain Service Levels	Scenario 2 Enhance Service Levels	Scenario 3 Innovate Service Levels
Service Level Impact	Maintains operational continuity but limits efficiency.	Enhances service reliability and staff productivity.	Optimizes internal operations and planning through lifecycle strategy.
Lifecycle Changes Required	Replace on failure or basic timelines.	Introduce condition tracking and usage-based planning.	Create equipment lifecycle strategies based on operations and use.
Cost	Predictable replacement budget.	Moderate increase from expanded self-sufficiency.	High – investment in planning tools and internalization.
Cost Breakdown	$270,000	$350,000	$500,000
Risk Exposure	Higher – older equipment may fail unexpectedly.	Moderate – better capability improves reliability.	Low – strategic planning reduces failure risks and improves uptime.
Resource Requirements	Minimal – reactive maintenance approach.	Increased operator and maintenance training.	Requires strategic planning, asset tracking, and procurement systems.
Public Perception	Low – internal assets not visible to public.	Neutral – improved internal efficiency.	Positive over time – better service delivery outcomes.
Compliance / Policy Alignment	Meets minimum operational standards.	Enhances resilience and internal performance.	Strong alignment with risk-based asset management and service delivery goals.

13. Fleet

13.1. State of the Infrastructure

Fleet allow staff to efficiently deliver municipal services and personnel. Municipal fleet includes light vehicles, heavy vehicles and fire vehicles.

The state of the infrastructure for municipal Fleet is summarized below:

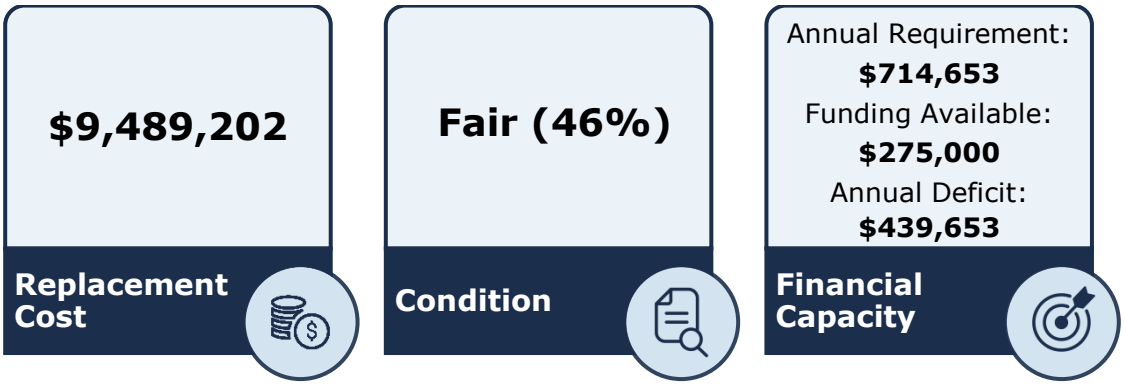


Figure 68: Fleet State of the Infrastructure

13.2. Inventory & Valuation

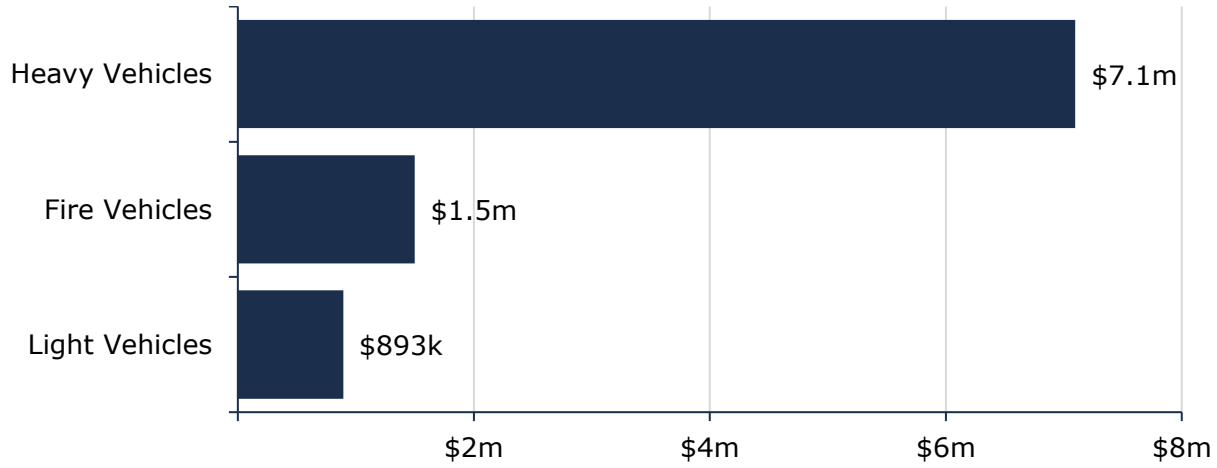
The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's Fleet inventory.

Table 61: Detailed Asset Inventory - Fleet

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Fire Vehicles	8	Quantity	CPI	$1,499,904
Heavy Vehicles	49	Quantity	CPI	$7,096,145
Light Vehicles	26	Quantity	CPI	$893,153
Total	**83**	**Assets**		**$9,489,202**

The graph below displays the total replacement cost of each asset segment in the Fleet inventory.

Figure 69: Fleet Replacement Costs

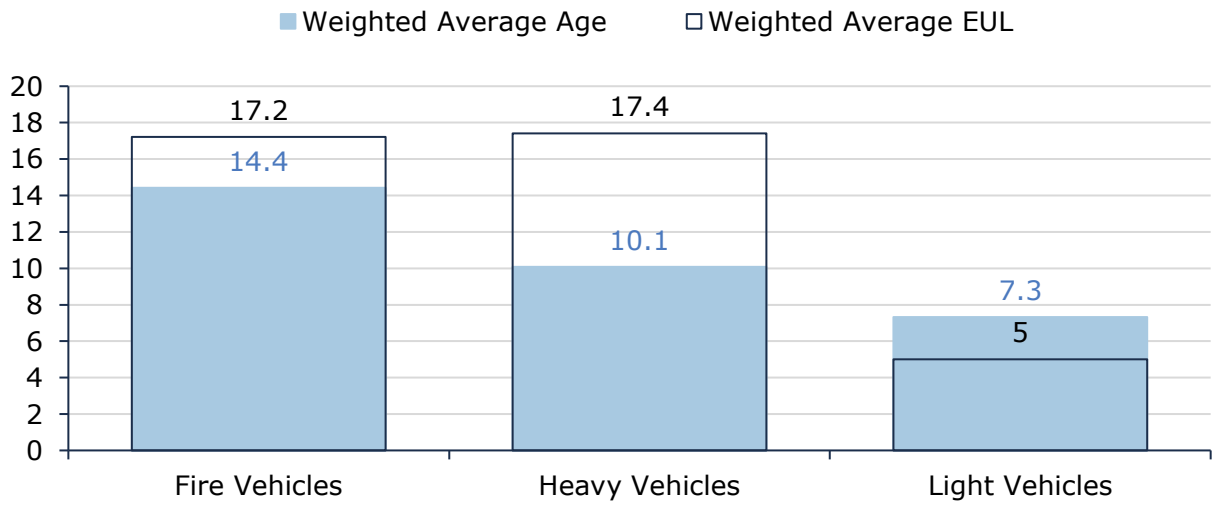


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

13.3. Asset Condition & Age

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

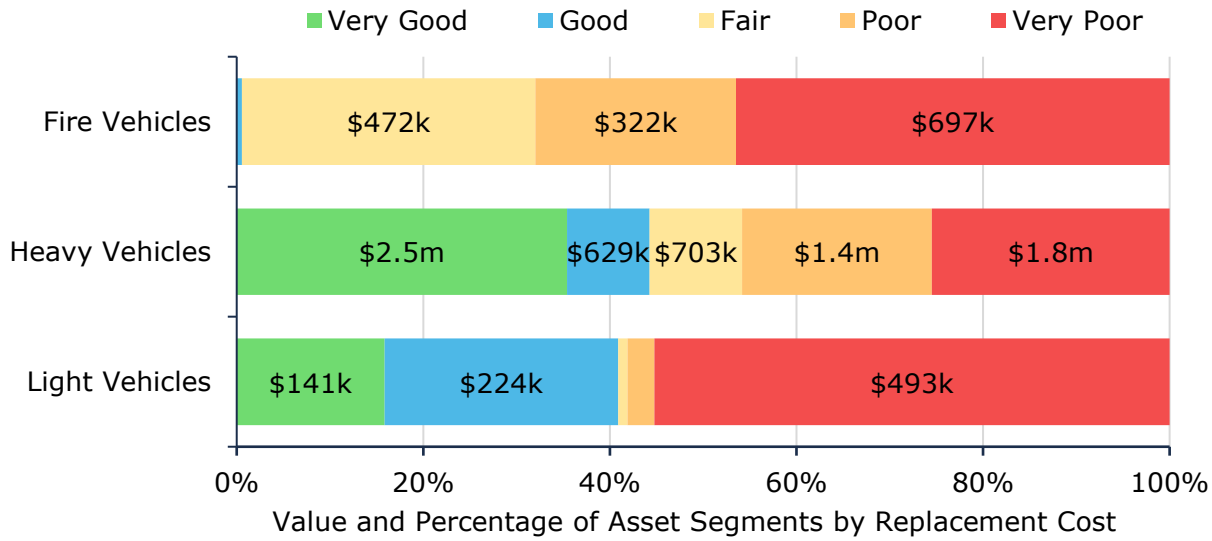
Figure 70: Fleet Average Age vs Average EUL



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

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

Figure 71: Fleet Condition Breakdown



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

13.3.1 Current Approach to Condition Assessment

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

Circle checks are conducted before each trip by internal staff, with annual safety inspections performed by external contractors

13.4. 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 describes the Township's current lifecycle management strategy.

Figure 61: Fleet Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Regular maintenance includes greasing, oil changes, and refurbishing large equipment.
- Equipment and machinery are replaced when refurbishment is no longer cost-effective.

13.5. Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 20 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average annual capital requirements at $715 thousands.

Figure 72: Fleet Forecasted Capital Replacement Requirements

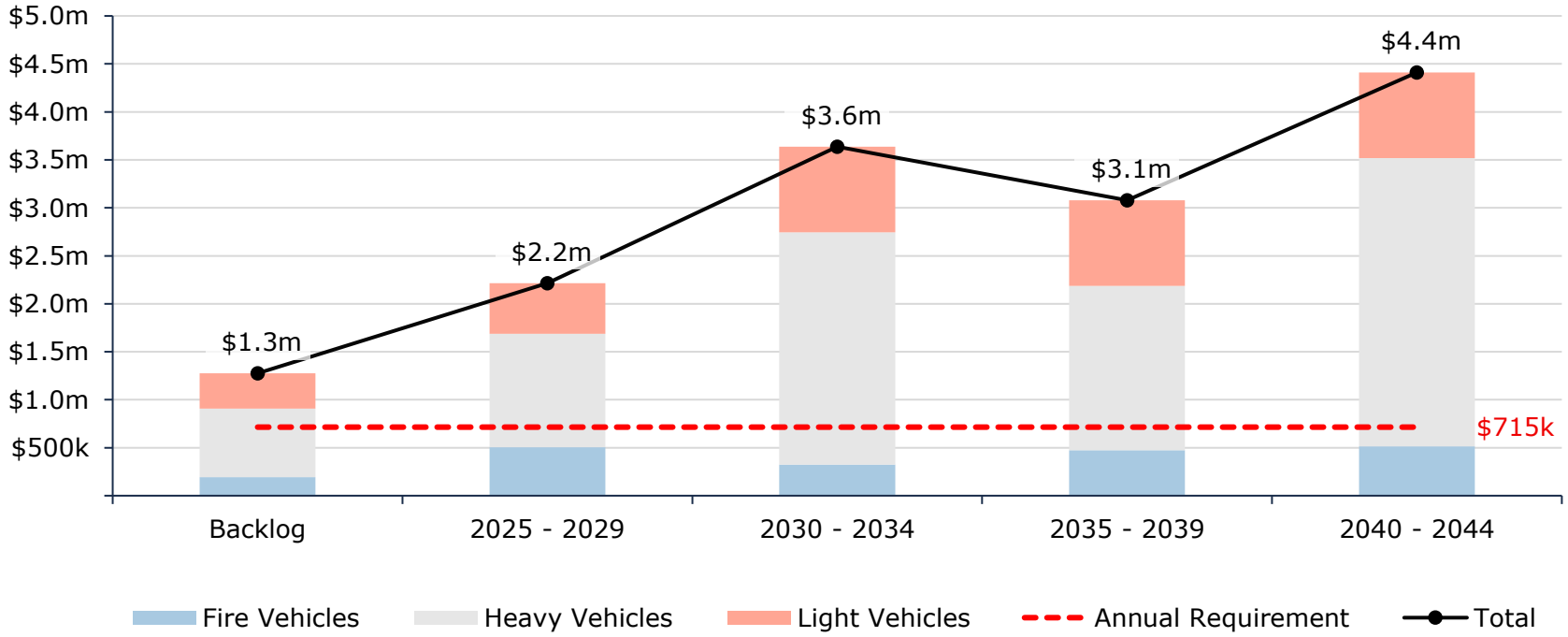


Table 62 below summarizes the projected cost of lifecycle activities (capital replacement only) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

Table 62 Fleet System-Generated 10-Year Capital Costs

Segment	Total	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Fire Vehicles	$830k	$504k	$0	$0	$0	$0	$326k	$0	$0	$0	$0
Heavy Vehicles	$3.6m	$370k	$424k	$278k	$72k	$40k	$817k	$0	$871k	$52k	$679k
Light Vehicles	$1.4m	$125k	$26k	$9k	$224k	$141k	$493k	$26k	$9k	$224k	$141k
Total	**$5.9m**	**$999k**	**$450k**	**$287k**	**$296k**	**$182k**	**$1.6m**	**$26k**	**$880k**	**$275k**	**$821k**

As no assessed condition data was available for the vehicles, only age was used to determine forthcoming replacement needs. These projections can be different from actual capital forecasts. Consistent data updates, especially condition, will improve the alignment between the system-generated expenditure requirements, and the Township's capital expenditure forecasts.

13.6. Risk & Criticality

The 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 available inventory data. See Appendix D: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 73: Fleet Risk Matrix

1 - 4	5 - 7	8 - 9	10 - 14	15 - 25
Very Low $1,958,398 (21%)	**Low** $2,134,828 (22%)	**Moderate** $216,396 (2%)	**High** $982,399 (10%)	**Very High** $4,197,181 (44%)

This is a high-level model developed by Township staff and it should be reviewed and adjusted to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that Township staff utilize to define and prioritize the criticality of vehicles are documented below:

Table 63: Fleet - Risk Attributes

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

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

13.7. Risks to Current Asset Management Strategies

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

Climate Change & Extreme Weather Events

As extreme weather events become more frequent, vehicles like graders and snowplows in a Township are pushed to operate longer hours. This increased workload accelerates wear and tear, leading to more frequent maintenance and shorter lifespans for these essential vehicles. The rising operational costs and need for early replacements highlight the importance of durable, well-maintained vehicle assets to handle the challenges posed by changing weather patterns effectively.

13.8. Current Levels of Service

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

13.8.1 Community Levels of Service

The qualitative descriptions that determine the community levels of service provided by municipal Fleet is based on the service usage outlined below:

Table 64 Fleet Community Levels of Service

Service Attribute	Technical Metric	Current LOS
Scope	Description of the current condition of municipal vehicles and the plans that are in place to maintain or improve the provided level of service	The overall condition of the Township's vehicles is fair. Regular inspections help identify maintenance and rehabilitation needs, while a replacement schedule is followed to ensure vehicles remain in safe and reliable operating condition.

13.8.2 Technical Levels of Service

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

Table 65 Fleet Technical Levels of Service

Service Attribute	Technical Metric	Current LOS
Sustainable	Average Condition Rating	Fair (46%)
	Average Risk Rating	High (11.48)
Performance	Capital Reinvestment Rate	2.9%

13.9. Proposed Levels of Service

As per O. Reg. 588/17, by July 1, 2025, municipalities are required to consider proposed levels of service (PLOS), discuss the associated risks and long-term sustainability of these service levels, and explain the municipality's ability to afford the PLOS.

The below tables and graphs explain the proposed levels of service scenarios that were analyzed for municipal vehicles. Further PLOS analysis at the portfolio level can be found in Proposed Levels of Service Scenario Analysis.

13.9.1 PLOS Scenarios Analyzed

Table 66: Fleet PLOS Scenarios

Scenario	Description
Scenario 1: Maintain Existing Service Levels	Continues current service levels and financial strategy to reach full funding over 15 years, with annual tax increases of 0.8%.
Scenario 2: Enhance Service Levels	A phased approach to modest, low-risk service improvements, with annual tax increases of 1.9%.
Scenario 3: Innovate Service Levels	A future-focused strategy using innovation to boost efficiency and sustainability, with annual tax increases of 2.5%.

13.9.2 PLOS Analysis Results

The following table presents three proposed service level scenarios for municipal Vehicles. These options were developed based on current municipal practices, stakeholder input, and future-oriented asset management strategies. Each scenario outlines the expected impact on service delivery, lifecycle activities, costs, resource needs, risk exposure, and alignment with municipal goals and provincial policy. This structured comparison allows Council and staff to assess trade-offs between investment levels and outcomes, ensuring informed decision-making aligned with community priorities and financial realities.

Table 67: Fleet pLOS Scenario Analysis

Criteria	Scenario 1 Maintain Service Levels	Scenario 2 Enhance Service Levels	Scenario 3 Innovate Service Levels
Service Level Impact	Maintains basic service delivery with core fleet.	Improves reliability and service quality with planned renewals.	Transforms fleet operations toward sustainability and efficiency.
Lifecycle Changes Required	Replace vehicles on failure or basic cycle.	Implement staggered replacement and condition monitoring.	Develop EV/alt-fuel replacement strategy; total lifecycle costing.
Cost	Predictable, aligned with historical budget.	Higher costs due to renewals and seasonal staffing investments.	High up-front costs for EV or alt-fuel fleet.
Cost Breakdown	$700,000	$900,000	$1,000,000
Risk Exposure	Higher – older vehicles increase breakdown and service delays.	Lower – new vehicles improve reliability.	Lowest – optimized fleet reduces breakdowns and operating costs.
Resource Requirements	Minimal – continue with current operations.	Increased HR and maintenance oversight.	Significant changes to procurement, training, and infrastructure.
Public Perception	Neutral to positive if delays are minimal.	Positive – newer, more reliable service.	Very positive – supports green initiatives and modern image.
Compliance / Policy Alignment	Meets minimum vehicle safety and emissions standards.	Improves fleet safety and operational compliance.	Aligns with zero-emission targets and fleet modernization policies.

Strategies

14. Financial Strategy

14.1. Financial Strategy Overview

Each year, the Township of Huron-Kinloss makes important investments in its infrastructure's maintenance, renewal, rehabilitation, and replacement to ensure assets remain in a state of good repair. However, spending needs typically exceed fiscal capacity. In fact, most municipalities continue to struggle with annual infrastructure deficits. Achieving the proposed levels of service for infrastructure programs will take many years and should be phased-in gradually to reduce burden on the community.

This plan identifies the financial requirements necessary to meet the identified proposed levels of service. These requirements are based on the financial requirements for existing assets as of December 31, 2023. However, the required funding is based on meeting the proposed levels of service, with consideration for any additional financial impacts from economic and population growth. The financial plan considers and accounts for traditional and non-traditional sources of municipal funding.

The annual funding typically available is determined by averaging historical capital expenditures on infrastructure, inclusive of any allocations to reserves for capital purposes. For Huron-Kinloss, an average of capital allocations for 2022-2024 was used to project available funding.

Only reliable and predictable sources of capital funding are used to benchmark funds that may be available on any given year. The funding sources include:

- Revenue from taxation allocated for capital purposes
- Revenue from water and wastewater rates allocated to capital reserves
- The Canada Community Benefits Fund (CCBF), formerly the Federal Gas Tax Fund
- The Ontario Community Infrastructure Fund (OCIF)

Although provincial and federal infrastructure programs can change with evolving policy, CCBF and OCIF are considered as permanent and predictable.

14.1.1 Annual Capital Requirements

The annual requirements represent the amount the Township should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs, and achieve long-term sustainability. For most asset categories the annual requirement has been calculated based on a "replacement only" scenario, in which capital costs are only incurred at the construction and replacement of each asset.

However, for the road network, lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal. The development of these strategies allows for a comparison of potential cost avoidance if the strategies were to be implemented.

The following table compares two scenarios for the road network:

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

Table 68 Annual Requirement Comparison

Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Road Network	$2,583,284	$2,312,145	$271,139

The implementation of a proactive lifecycle strategy for paved roads leads to a potential annual cost avoidance of approximately $271 thousand for the road network. This represents an overall reduction of the annual requirements by 10%.

As the lifecycle strategy scenario represents the lowest cost option available to the Township, we have used this annual requirement in the development of the financial strategy.

The table below presents the system-generated average annual capital requirements for existing assets across each asset category. These figures are based on a total replacement value of $302 million, resulting in an estimated annual capital need of approximately $7.5 million for all analyzed assets.

Table 69 Average Annual Capital Requirements

Asset Category	Replacement Cost	Annual Capital Requirements	Target Reinvestment Rate
Road Network	$60,827,546	$2,312,145	3.8%
Bridges & Culverts	$45,544,007	$625,614	1.4%
Storm Sewer Network	$23,026,616	$341,661	1.5%
Buildings	$24,793,873	$839,187	3.4%
Land Improvements	$3,187,274	$161,745	5.1%
Machinery & Equipment	$2,650,422	$271,896	10.3%
Fleet	$9,489,202	$714,653	7.5%
Water Network	$97,006,575	$1,595,475	1.6%
Sanitary Sewer Network	$35,488,847	$625,952	1.8%
Total	**$302,014,362**	**$7,488,328**	**2.5%**

Although there is no industry standard guide on optimal annual investment in infrastructure, the TRRs above provide a useful benchmark for organizations. In 2016, the Canadian Infrastructure Report Card (CIRC) produced an assessment of the health of municipal infrastructure as reported by cities and communities across Canada. The CIRC remains a joint project produced by several organizations, including the Federation of Canadian Municipalities (FCM), the Canadian Society of

Civil Engineers (CSCE), the Canadian Network of Asset Managers (CNAM), and the Canadian Public Works Association (CPWA).

The 2016 version of the report card also contained recommended reinvestment rates that can also serve as benchmarks for municipalities. The CIRC suggest that, if increased, these reinvestment rates can "stop the deterioration of municipal infrastructure." The report card contains both a range for reinvestment rates that outlines the lower and upper recommended levels, as well as current municipal averages.

14.2. Financial Profile: Tax Funded Assets

14.2.1 Current Funding Levels

The table below outlines how current funding levels compare to the investment required to achieve the proposed levels of service for each asset category. Under existing funding, the Township is meeting approximately 75.4% of the annual capital investment needed to maintain the proposed service levels, resulting in an estimated annual funding shortfall of $1.3 million.

Table 70 Current Funding Levels

Asset Category	Annual Capital Requirements	Annual Funding Available	Annual Infrastructure Deficit	Funding Level
Road Network	$2,312,145	$2,714,510	$(402,365)	117.4%
Bridges & Culverts	625,614	242,812	$382,802	38.8%
Storm Sewer Network	341,661	204,576	$137,085	59.9%
Buildings	$839,187	$315,150	$524,037	37.6%
Land Improvements	$161,745	$76,000	$85,745	47%
Machinery & Equipment	$271,896	$144,927	$126,969	53.3%
Fleet	$714,653	$275,000	$439,653	38.5%
Total	**$5,266,901**	**$3,972,974**	**$1,293,927**	**75.4%**

Table 71: Taxes: Required Funding vs Current Funding Position

Asset Category	Avg. Annual Requirement	Annual Funding Available				Annual Deficit
		Taxes	CCBF	OCIF	Total Available	
Road Network	$2,312,145	$1,915,528		$798,982	$2,714,510	$(402,365)
Bridges & Culverts	$625,614		$242,812		$242,812	$382,802
Storm Sewer Network	$341,661	$204,576			$204,576	$137,085
Buildings	$839,187	$315,150			$315,150	$524,037
Land Improvements	$161,745	$76,000			$76,000	$85,745
Machinery & Equipment	$271,896	$144,927			$144,927	$126,969
Fleet	$714,653	$275,000			$275,000	$439,653
	$5,266,901	**$2,931,180**	**$242,812**	**$798,982**	**$3,972,974**	**$1,293,927**

The average annual investment requirement for the proposed levels of service is $5,266,901. Annual revenue currently allocated to these assets for capital purposes is $3,972,974 leaving an annual deficit of $1,293,927. Put differently, these infrastructure categories are currently funded at 75.4% of their long-term requirements.

Closing the Gap

Eliminating annual infrastructure funding shortfalls is a difficult and long-term endeavor for municipalities. Achieving recommended funding levels to support the proposed levels of service, while maintaining affordability for residents, will require time and deliberate financial planning.

This section outlines how Huron-Kinloss can gradually work toward closing the annual capital funding shortfall using its own-source revenues, such as property taxes and utility rates. This approach avoids the use of additional debt for existing assets and supports the Township's goal of sustainably increasing investment to maintain service delivery at the chosen targets. By phasing in additional funding as financial capacity allows, Huron-Kinloss can begin to align infrastructure spending with service level expectations and the priorities identified through community and stakeholder engagement.

Funding Requirements Tax Revenues

In 2024, Huron-Kinloss had annual tax revenues of $10,803,422. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, achieving the target levels of service would require a 15.8% tax change over time.

To achieve this increase, several scenarios have been developed using phase-in periods ranging from five to twenty years. Shorter phase-in periods may place too high a burden on taxpayers, whereas a phase-in period beyond 20 years may see a continued deterioration of infrastructure, leading to larger backlogs.

Table 72 Phasing in Annual Tax Increases

Asset Category	Tax Change Required
Road Network	No increase required
Bridges & Culverts	3.5%
Storm Sewer Network	1.3%
Buildings	4.9%
Land Improvements	1.2%
Machinery & Equipment	0.8%
Fleet	4.1%

The selected full funding strategy is designed to fully close the annual capital funding gap over time, ensuring that all infrastructure needs are met as they arise. This approach enables the Township to proactively invest in asset rehabilitation and replacement, supporting long-term service reliability and sustainability. By aligning funding with actual capital requirements, the strategy reduces reliance on deferrals, minimizes long-term risk, and enhances the ability to plan and deliver infrastructure projects on schedule. While reserves and external grants will continue to play a supportive role, this approach prioritizes financial self-sufficiency and provides a stable foundation for maintaining asset performance and managing service expectations into the future.

Our recommendations include capturing the above changes and allocating them to the infrastructure deficit outlined above.

	Phase-in Period			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	$1,293,927	$1,293,927	$1,293,927	$1,293,927
Change in Debt Costs	N/A	N/A	N/A	N/A
Resulting Infrastructure Deficit:	$1,293,927	$1,293,927	$1,293,927	$1,293,927
Tax Increase Required	12.0%	12.0%	12.0%	12.0%
Annually:	**2.3%**	**1.2%**	**0.8%**	**0.6%**

Table 73: Phase-in Period for proposed LOS

Proposed levels of service play a role in the development of the Annual Average Requirement discussed above. For comparison, the taxation impact for achieving each service level option is provided below:

Annual Impact on Taxation				
Change in Levels of Service	**5 Year**	**10 Year**	**15 Year**	**20 Year**
Maintain Service Levels	2.3%	1.2%	0.8%	0.6%
Enhance Service Levels	5.8%	2.9%	1.9%	1.4%
Innovate Service Levels	7.4%	3.7%	2.5%	1.8%
Recommended	2.3%	1.2%	0.8%	0.6%

Table 74: Scenarios Annual Impact on Taxation

Financial Strategy Recommendations

Considering all the above information, we recommend the 15-year option to achieve the proposed levels of service:

a) Increasing tax revenues by 0.8% each year for the next 15 years to gradually implement the funding strategy outlined in the selected scenario for the asset categories covered in this section of the AMP.
b) Allocating the current Canada Community-Building Fund (Formerly known as Gas Tax Fund) and OCIF revenue as outlined previously.
c) Reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
d) Increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.
e) Leveraging additional, non-sustainable revenue sources such as one-time grants, surpluses, and reserves, as supplementary funding to advance asset management goals.

Notes:

1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. By Provincial AMP rules, this periodic funding cannot be incorporated into an AMP unless there are firm commitments in place. We have included OCIF formula-based funding, if applicable, since this funding is a multi-year commitment[6].
2. We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

Although this option achieves the proposed levels of service and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows a pent-up investment demand of $2.8m for the Road Network, $11.7m for Buildings, $20 thousand for the Storm Network, $217 thousand for Land Improvements, $1.0m for Machinery & Equipment, and $1.3m for Fleet.

14.3. Financial Profile: Rate Funded Assets

14.3.1 Current Funding Levels

The table below summarizes how current funding levels compare with funding required for the proposed levels of service. At existing levels, the Township is meeting approximately 68.9% of the annual capital needs associated with these service levels, resulting in an annual funding shortfall of $691 thousand.

Table 9: Rates - Required Funding vs Current Funding Position

Asset Category	Avg. Annual Requirement	Annual Funding Available			Annual Deficit
		Rates	OCIF	Total Available	
Water Network	$1,595,475	$1,446,265		$1,446,265	$149,210
Sanitary Sewer Network	$625,952	$84,625		$84,625	$541,327
	$2,221,427	**$1,530,890**		**$1,530,890**	**$690,537**

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

The average annual investment requirement for the above categories is $2,221,427. Annual revenue currently allocated to these assets for capital purposes is $1,530,890 leaving an annual deficit of $690,537. Put differently, these infrastructure categories are currently funded at 68.9% of their long-term requirements.

Closing the Gap

Eliminating annual infrastructure funding shortfalls is a difficult and long-term endeavor for municipalities. Considering the Township's current funding position, it will require many years to achieve the proposed levels of service.

This section outlines how the Township of Huron-Kinloss can close the annual funding deficits using own-source revenue streams, i.e., property taxation and utility rates, and without the use of additional debt for existing assets.

Funding Requirements Rate Revenues

In 2024, Huron-Kinloss had annual water revenues of $2,515,895, and annual wastewater revenues of $557,500. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, achieving the target levels of service would require a 22.5% rate change over time.

Table 10: Phasing in Annual Rate Increases

Asset Category	Rate Change Required
Water Network	5.9%
Sanitary Sewer Network	97.1%

The selected full funding strategy for rate-supported assets is designed to fully address the annual capital requirements necessary to sustain system performance and service levels over the long term. By aligning user rates with the actual cost of maintaining and replacing infrastructure, the strategy ensures the continued reliability, safety, and compliance of essential services. This proactive approach reduces reliance on deferred investment, lowers long-term risk, and allows for more predictable capital planning. While reserves and external funding (such as grants) will continue to supplement where available, the strategy emphasizes financial self-reliance within the rate base, ensuring the utility systems remain sustainable, resilient, and responsive to community needs.

Our recommendations include capturing the above changes and allocating them to the infrastructure deficit outlined above.

Table 75: Phasing in Annual Water and Wastewater Rates

	Water Network				Sanitary Sewer Network			
	5 Years	10 Years	15 Years	20 Years	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit:	149,210	149,210	149,210	149,210	541,327	541,327	541,327	541,327

Rate Increase Required	5.9%	5.9%	5.9%	5.9%	97.1%	97.1%	97.1%	97.1%
Annually:	**1.2%**	**0.6%**	**0.4%**	**0.3%**	**14.6%**	**7.1%**	**4.7%**	**3.5%**

Similarly to the Tax Funded asset, the proposed levels of service play a role in the development of the Annual Average Requirement discussed above. For comparison, the taxation impact for achieving each service level option is provided below:

Table 76: Scenarios Annual Impact on Rates

Annual Impact on Rates					
	Changes in Levels of Service	**5 year**	**10 Year**	**15 Year**	**20 Year**
Water	Maintain Service Levels	1.2%	0.6%	0.4%	0.3%
	Enhance Service Levels	4.1%	2.1%	1.4%	1.1%
	Innovate Service Levels	9.4%	4.6%	3.1%	2.3%
	Recommended	1.2%	0.6%	0.4%	0.3%
	Changes in Levels of Service	**5 year**	**10 Year**	**15 Year**	**20 Year**
Waste-water	Maintain Service Levels	14.6%	7.1%	4.7%	3.5%
	Enhance Service Levels	17.1%	8.2%	5.4%	4.1%
	Innovate Service Levels	18.9%	9.1%	6.0%	4.5%
	Recommended	14.6%	7.1%	4.7%	3.5%

Financial Strategy Recommendations

Considering all the above information, we recommend the 15-year option to achieve the proposed levels of service:

a) increasing rate revenues by 0.4% for water services and 4.7% for sanitary services each year for the next 15 years to gradually implement the funding strategy outlined in the selected scenario for the asset categories covered in this section of the AMP.
b) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

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

Although this option achieves the proposed levels of service and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows a pent-up investment demand of $2.6 million for Sanitary Sewer Network assets, and $7.3 million for Water Network assets.

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

14.4. Use of Reserves

14.4.1 Available Reserves

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

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

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

Asset Category	Balance at December 31, 2024
Road Network	$895,784
Bridges & Culverts	$1,260,795
Storm Sewer Network	$339,104
Buildings	$418,250
Land Improvements	$477,983
Machinery & Equipment	$743,712
Fleet	$1,078,027
Total Tax Funded:	**$5,213,655**
Water Network	$7,007,128
Sanitary Sewer Network	$1,369,672

Total Rate Funded:	**$8,376,800**

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

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

These reserves are available for use by applicable asset categories during the phase-in period to achieve proposed levels of service. This allows the scenarios to assume that, if required, available reserves and debt capacity can be used for high priority and emergency infrastructure investments in the short- to medium-term.

15. Growth

Description of Growth Assumptions

The demand for infrastructure and services in Huron-Kinloss will change over time due to internal and external factors including population trends, economic shifts, environmental considerations and policy changes. A thorough understanding of these key drivers of growth and demand will allow the Township to more effectively plan for new infrastructure investments, upgrades and decommissioning of existing assets. Fluctuations in demand can influence what assets are needed and what level of service meets the needs of the community.

Huron-Kinloss Official Plan (2016)

The Township adopted its Official Plan in August 2016, with modifications approved by the County of Bruce in November 2016. The plan governs growth and land use within the designated settlement areas of Lucknow, Ripley, Lakeshore, Amberley, Holyrood, Kinloss, Kinlough, Pine River, and Whitechurch. It serves as a guide for municipal decision-making regarding public facilities, water, wastewater and storm services, fleet services, road infrastructure, parks, and community spaces while emphasizing the preservation of agricultural lands, and historical sites.

Growth Distribution & Land Use Planning

- Lucknow and Ripley are designated as the primary growth areas due to their existing infrastructure, economic activity, and potential for residential and commercial expansion.
- Lakeshore will experience controlled growth through infill development and minor expansions within established settlement boundaries, ensuring efficient land use and environmental protection.
- Rural and Hamlet Communities (such as Amberley, Holyrood, Kinloss, Kinlough, Pine River, and Whitechurch) will experience limited growth, mainly to support the agricultural sector and associated rural industries. The focus in these areas is on preserving the rural character while allowing for necessary community services.
- Lands outside designated settlements are subject to the broader County of Bruce Official Plan regulations.

Economic Pillars & Growth Drivers

Huron-Kinloss's economy is built on three key sectors:

- Agriculture – The Township boasts productive agricultural lands, with policies supporting agriculture, and dedicated agricultural zones.
- Tourism – The region's proximity to Lake Huron makes tourism a vital economic driver.
- Nuclear Industry – The Bruce Nuclear Generating Station, located north of the Township, provides significant employment opportunities for residents and stimulates local businesses. The Township continues to leverage its proximity to

the station to attract related industries, skilled labor, and infrastructure investments.

Development Charges Background Study (2024)

The 2024 Development Charges Background Study for the Township of Huron-Kinloss provides a 20-year forecast of population and residential growth based on census data, building permits, and local development trends. The Township has seen steady population increases, particularly in the Lakeshore Area, which has outpaced provincial growth rates in recent years.

Key growth-related capital projects identified in the study include:

- Environmental Assessments for the expansion of the Ripley and Lucknow Wastewater Treatment Plants ($125,000 each).
- A $10 million water storage facility for the Lakeshore Water System.
- Fire services investments such as decontamination rooms, SCBA compressors, and shared equipment.
- New parks and recreation facilities, including dog parks and a multi-use court.
- A proposed septage receiving facility to support wastewater needs.

The study also estimates the lifecycle costs of growth-related assets at $14.4 million and notes that sustainable funding will require an additional $158,000 annually over 75 years, not accounting for potential grants or external contributions. Population forecasts and residential building permit trends were used to allocate growth expectations across various service areas, ensuring that development charges reflect future service needs across the Township.

Water and Wastewater Servicing Master Plan (2022)

The Township's 2022 Growth, Water and Wastewater Servicing Master Plan provides a framework to align infrastructure capacity with anticipated growth over a 25-year horizon. The plan evaluates servicing needs and reserve capacities for water and wastewater systems in the primary settlement areas of Lucknow, Ripley, and the Lakeshore Area, and is an important input to asset planning and lifecycle investment decisions.

As of the 2021 Census, the Township's population was 7,723, with the most significant recent growth occurring in the Lakeshore Area. A total of 803 committed residential development units were identified across the Township, with future growth projections expressed in Equivalent Residential Units (ERUs) used to evaluate servicing capacity requirements.

The plan confirmed that existing water and wastewater infrastructure in Lucknow and Ripley is currently adequate to support projected growth, though capacity constraints are expected in the long term:

- In Lucknow, both the water system (supplied by groundwater wells) and the lagoon-based wastewater system have sufficient capacity. However, the

wastewater treatment facility is expected to reach its limit by 2047 under high growth scenarios.
- In Ripley, water system capacity exceeds current demand, but wastewater capacity is considered over-committed based on development commitments. While current usage remains well below limits, monitoring and timely planning will be critical.
- The Lakeshore Area is serviced by a multi-well water system with two pressure zones. While capacity is adequate, additional water storage has been recommended. Most wastewater servicing in this area remains private, with limited municipal service via Kincardine in Inverlyn/Huronville.

The Master Plan also assessed the need for additional residential land, particularly in the Lakeshore Area, to accommodate growth. Up to 12.4 hectares may be required under high-growth forecasts.

This growth and servicing information informs the Township's asset management strategy by identifying where infrastructure investment may be required to support new development and maintain service levels over time.

Bruce County Draft Official Plan (2024-2046)

The Bruce County Official Plan serves as a long-term strategic framework guiding growth, land use, and development across the county, including Huron-Kinloss. This plan outlines policies to balance economic development, environmental sustainability, and community well-being. Key objectives include promoting responsible urban expansion, enhancing agricultural viability, supporting economic diversification, and ensuring resilient infrastructure.

For Huron-Kinloss, the plan represents an opportunity to align with broader county-wide goals while addressing its unique challenges and growth potential. The policies focus on fostering sustainable growth, protecting natural heritage, and supporting a vibrant local economy.

<u>Key Features of the Bruce County Official Plan:</u>

- Environmental Protection: The County is home to unique natural features such as the Niagara Escarpment (a UNESCO World Biosphere Reserve) and the Greenock Swamp, Southern Ontario's largest forested wetland. The Official Plan emphasizes preserving these valuable ecosystems while enabling sustainable development.
- Seasonal Residential Growth: By 2046, approximately 1,590 seasonal dwellings are forecast, predominantly along the shoreline in municipalities like Huron-Kinloss, Kincardine, and Northern Bruce Peninsula. This growth will be managed to ensure environmental sustainability and efficient land use.
- Economic Drivers: Bruce County's economy relies on agriculture, tourism, and the nuclear industry. Policies will support the continued growth of these sectors while safeguarding the natural environment.

- Harbour Development: The County plans to enhance recreational and commercial harbour facilities along the Lake Huron and Georgian Bay shorelines, supporting tourism and local economies.

Table 77: Population Projections for Huron Kinloss and Bruce County to 2046

Area / Year	2021	2026	2031	2036	2041	2046
Huron Kinloss	8,000	8,700	9,200	9,800	10,300	10,600
Bruce County	73,500	78,400	82,900	87,000	90,700	93,600

The population growth in Huron-Kinloss, projected to reach 10,600 by 2046. As the population increases, the demand for municipal infrastructure, such as roads, water and wastewater systems, parks, and community facilities, will rise.

Impact of Growth on Lifecycle Activities

The Township of Huron-Kinloss is experiencing steady population growth, with projections increasing from 8,000 residents in 2021 to 10,600 by 2046, as outlined in the Bruce County Draft Official Plan. Growth is primarily concentrated in the settlement areas of Lucknow, Ripley, and the Lakeshore, which together account for the majority of the 803 committed residential development units identified across the Township.

According to the 2022 Water and Wastewater Servicing Master Plan, existing water and wastewater infrastructure is sufficient for current needs but will face pressure over the long term. Lucknow's lagoon-based wastewater system is projected to reach capacity by 2047 under high-growth conditions. In Ripley, the wastewater system is already over-committed based on approved development, despite current flows being below capacity. The Lakeshore area, while adequately supplied by a multi-well water system, requires additional water storage to meet anticipated demands.

The 2024 Development Charges Background Study further supports infrastructure planning with a 20-year forecast of growth-related capital needs. Key projects include environmental assessments for wastewater expansion, a $10 million Lakeshore water storage facility, and targeted investments in fire, parks, and recreation services.

As new residential and servicing developments are brought online, they will be integrated into the Township's Asset Management Plan. Growth-related infrastructure will be incorporated into the Township's lifecycle management strategies, including regular condition assessments, rehabilitation planning, and capital renewal forecasting. These activities will ensure that new assets are managed proactively alongside existing infrastructure, maintaining consistent service levels across the community.

Lifecycle strategies will distinguish between existing assets and growth-related assets to ensure both are sustainably funded and maintained without compromising

service delivery. The Township will monitor changes in demand and infrastructure performance to refine lifecycle planning and update capital strategies accordingly. As the timing and scale of development may vary, asset management planning will remain adaptive, using updated growth forecasts to inform decision-making and budget adjustments.

The 2024 Development Charges Study estimates the lifecycle costs of growth-related assets at $14.4 million over 75 years. To sustainably maintain these assets, an estimated $158,000 in additional annual funding will be required. This figure does not account for potential external grants or developer contributions and is intended to inform long-range financial planning.

In alignment with the Township's commitment to sustainable development, the Asset Management Plan considers how projected growth may influence infrastructure demand and future lifecycle needs. This supports long-term financial planning and ensures the Township can plan for growth responsibly without compromising the sustainability of existing infrastructure.

By adapting lifecycle strategies to accommodate anticipated demand, Huron-Kinloss will ensure reliable, efficient services for both current and future residents, while proactively managing financial and environmental sustainability.

16. Recommendations

16.1. Financial Strategies

- Review the feasibility of adopting the funding required to meet the proposed levels of service for the asset categories analyzed. This includes:
    a. Increasing taxes by 0.8% per year over a period of 15 years;
    b. Increasing water rates by 0.4% per year over a period of 15 years; and
    c. Increasing wastewater rates by 4.7% per year over a period of 15 years.
- Continued allocation of OCIF and CCBF funding as previously outlined.
- Increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.
- Continue to apply for project specific grant funding to supplement sustainable funding sources

16.2. Asset Data

- Continuously review, refine, and calibrate lifecycle and risk profiles to better reflect actual practices and improve capital projections. In particular:
    - the timing of various lifecycle events, the triggers for treatment, anticipated impacts of each treatment, and costs
    - the various attributes used to estimate the likelihood and consequence of asset failures, and their respective weightings
- Asset management planning is highly sensitive to replacement costs. Periodically update replacement costs based on recent projects, invoices, or estimates, as well as condition assessments, or any other technical reports and studies. Material and labour costs can fluctuate due to local, regional, and broader market trends, and substantially so during major world events. Accurately estimating the replacement cost of like-for-like assets can be challenging. Ideally, several recent projects over multiple years should be used. Staff judgement and historical data can help attenuate extreme and temporary fluctuations in cost estimates and keep them realistic.
- Like replacement costs, an asset's established serviceable life can have dramatic impacts on all projections and analyses, including condition, long-range forecasting, and financial recommendations. Periodically reviewing and updating these values to better reflect infield performance and staff judgement is recommended.

16.3. Risk & Levels of Service

- Risk models and matrices can play an important role in identifying high-value assets, and developing an action plan which may include repair, rehabilitation, replacement, or further evaluation through condition assessments. As a result, project selection and the development of multi-year capital plans can become more strategic and objective. Initial models have been built into Citywide for all asset groups. These models reflect current data, which was limited. As the data evolves and new attribute information is obtained, these models should also be refined and updated.
- Available data on current performance should be centralized and tracked to support any calibration of service levels for long-term tracking of O. Reg. 588's requirements on proposed levels of service.
- Staff should monitor evolving local, regional, and environmental trends to identify factors that may shape the demand and delivery of infrastructure programs. These can include population growth, and the nature of population growth; climate change and extreme weather events; and economic conditions and the local tax base. This data can also be used to review service level targets.

Appendices

Appendix A: Proposed LOS 10-Year Capital Requirements

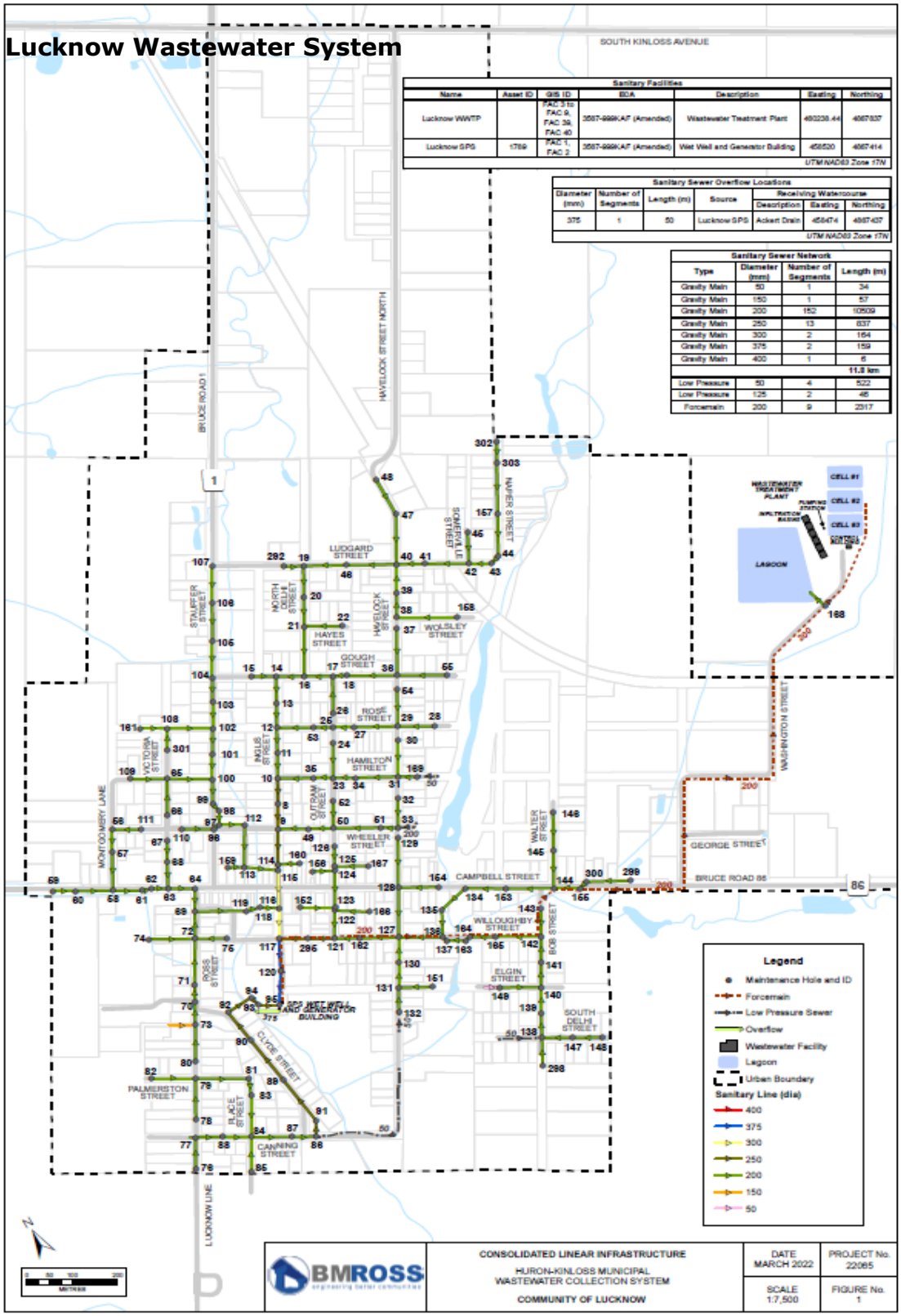
The table below outlines the capital cost requirements for recommended lifecycle activities, as determined through the Township's asset management software. These projections are based on annual budgets starting at current funding levels, with a gradual increase over a 15-year period to achieve full recommended funding for all assets. This strategy follows Scenario 1, as outlined in Section 4, to ensure the Township can sustain current service levels over the long term. For further details, please refer to the Financial Strategy.

Asset Category	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Road Network	$1.8m	$1.8m	$2.6m	$1.6m	$1.5m	$2.0m	$2.6m	$1.4m	$1.2m	$3.4m
Bridges & Culverts	-	-	-	-	-	-	-	-	-	-
Buildings	$1.2m	$16k	$205k	$579k	-	$13k	-	$37k	$576k	$52k
Land Improvements	-	-	$303k	-	$78k	$324k	$67k	-	$16k	$9k
Machinery & Equipment	$97k	$62k	$133k	$183k	$92k	$581k	$102k	$197k	$74k	$60k
Fleet	$999k	$450k	$287k	$296k	$182k	$1.6m	$26k	$880k	$275k	$821k
Storm Water Network	-	$34k	-	-	-	$39k	$54k	$7k	-	-
Drinking Water Assets	-	$1.6m	$305k	$142k	$152k	$326k	-	-	$72k	$34k
Sanitary Sewer Network	-	-	-	-	$6k	-	$168k	$43k	-	$18k
TOTAL	**$4.1m**	**$3.9m**	**$3.8m**	**$2.8m**	**$2.0m**	**$4.9m**	**$3.0m**	**$2.5m**	**$2.2m**	**$4.4m**

Table 78: System-Generated 10-Year Capital Requirements - All Asset Categories

Appendix B: Levels of Service Maps

Wastewater Network Maps



Sanitary Facilities

Name	Asset ID	GIS ID	ECA	Description	Easting	Northing
Lucknow WWTP		FAC-3 to FAC-9, FAC-39, FAC-40	3587-999KAF (Amended)	Wastewater Treatment Plant	460238.44	4867837
Lucknow SPS	1789	FAC-1, FAC-2	3587-999KAF (Amended)	Wet Well and Generator Building	458520	4867414

UTM NAD83 Zone 17N

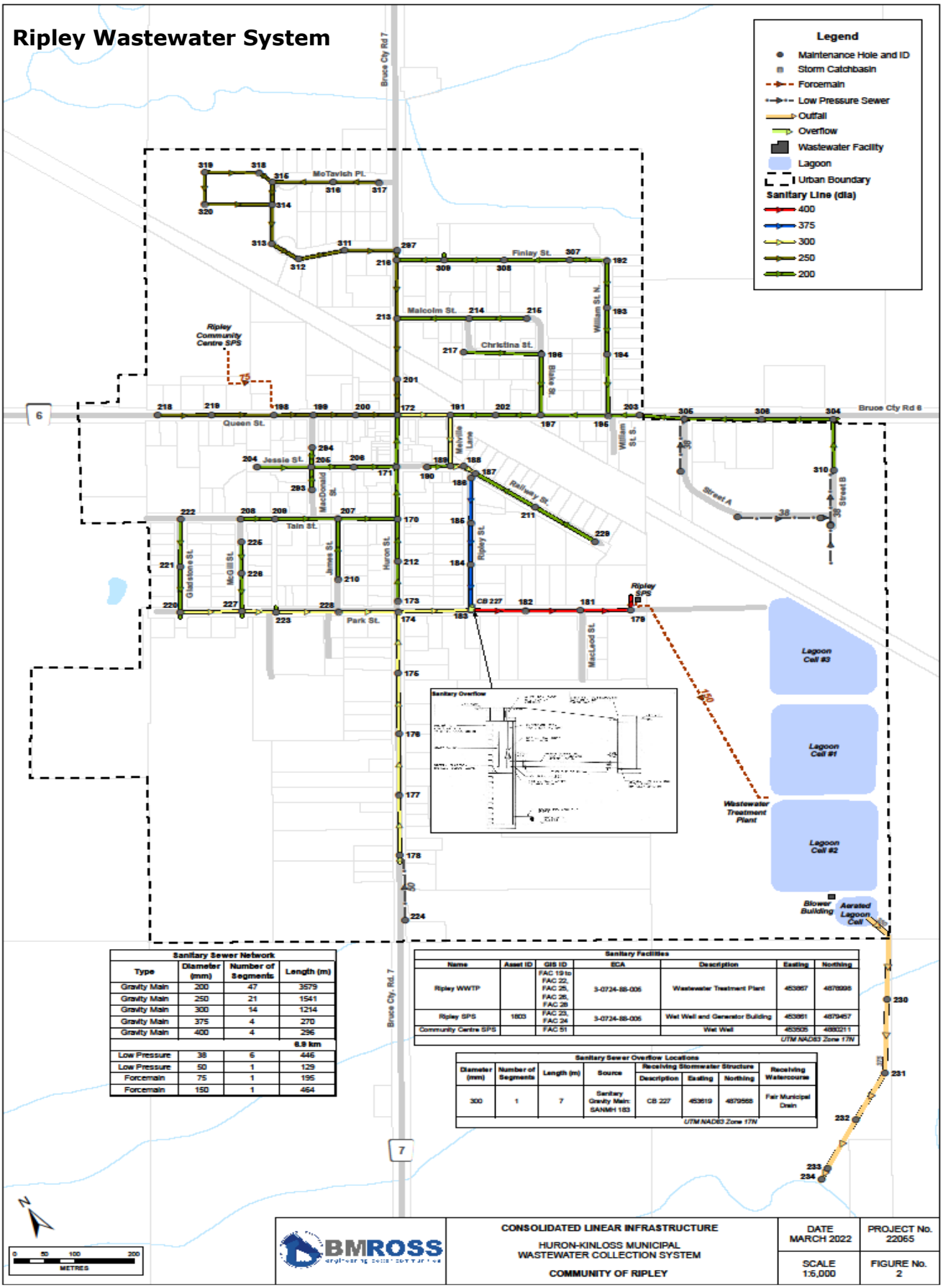
Sanitary Sewer Overflow Locations

Diameter (mm)	Number of Segments	Length (m)	Source	Receiving Watercourse		
				Description	Easting	Northing
375	1	50	Lucknow SPS	Ackert Drain	458474	4867437

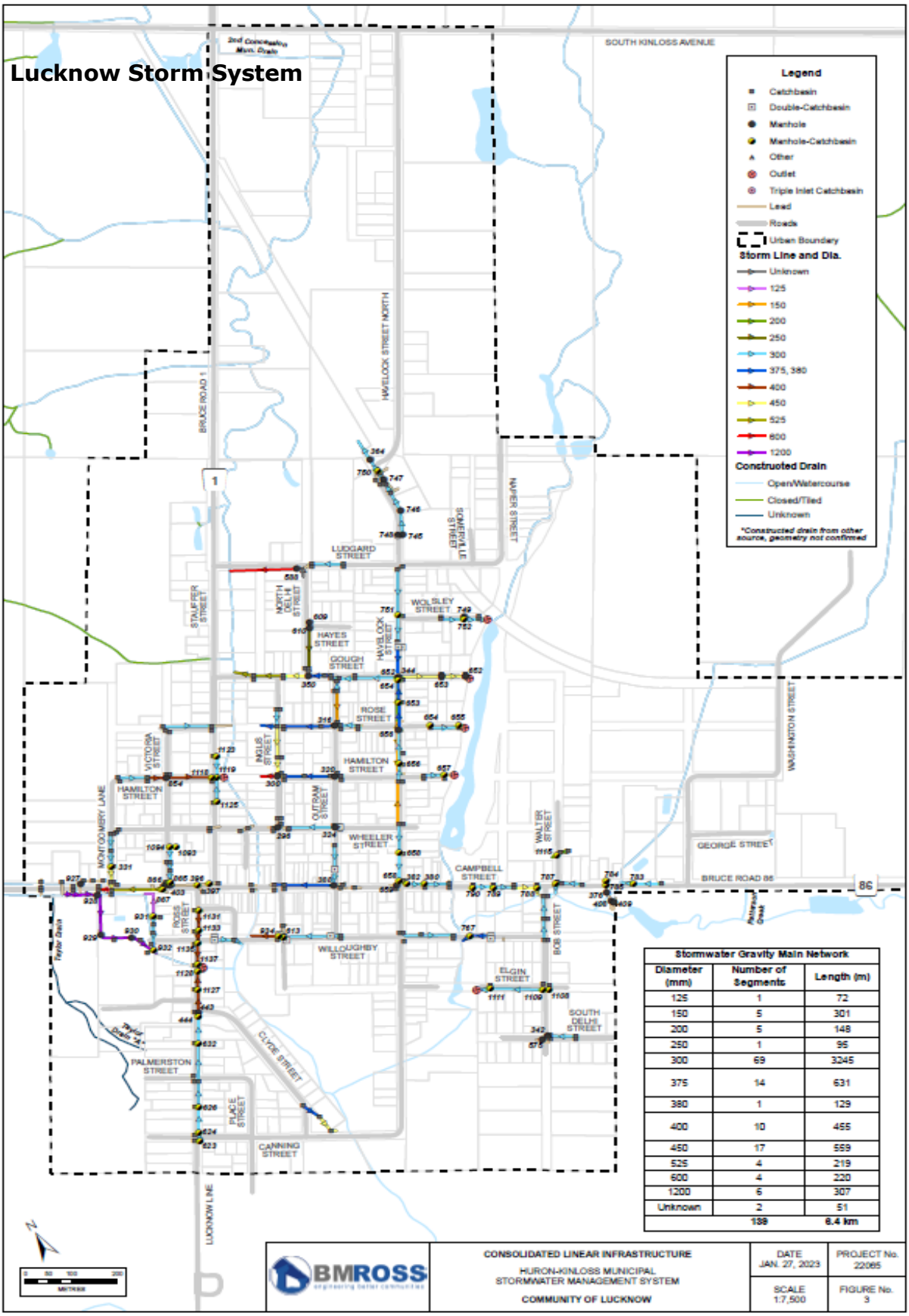
UTM NAD83 Zone 17N

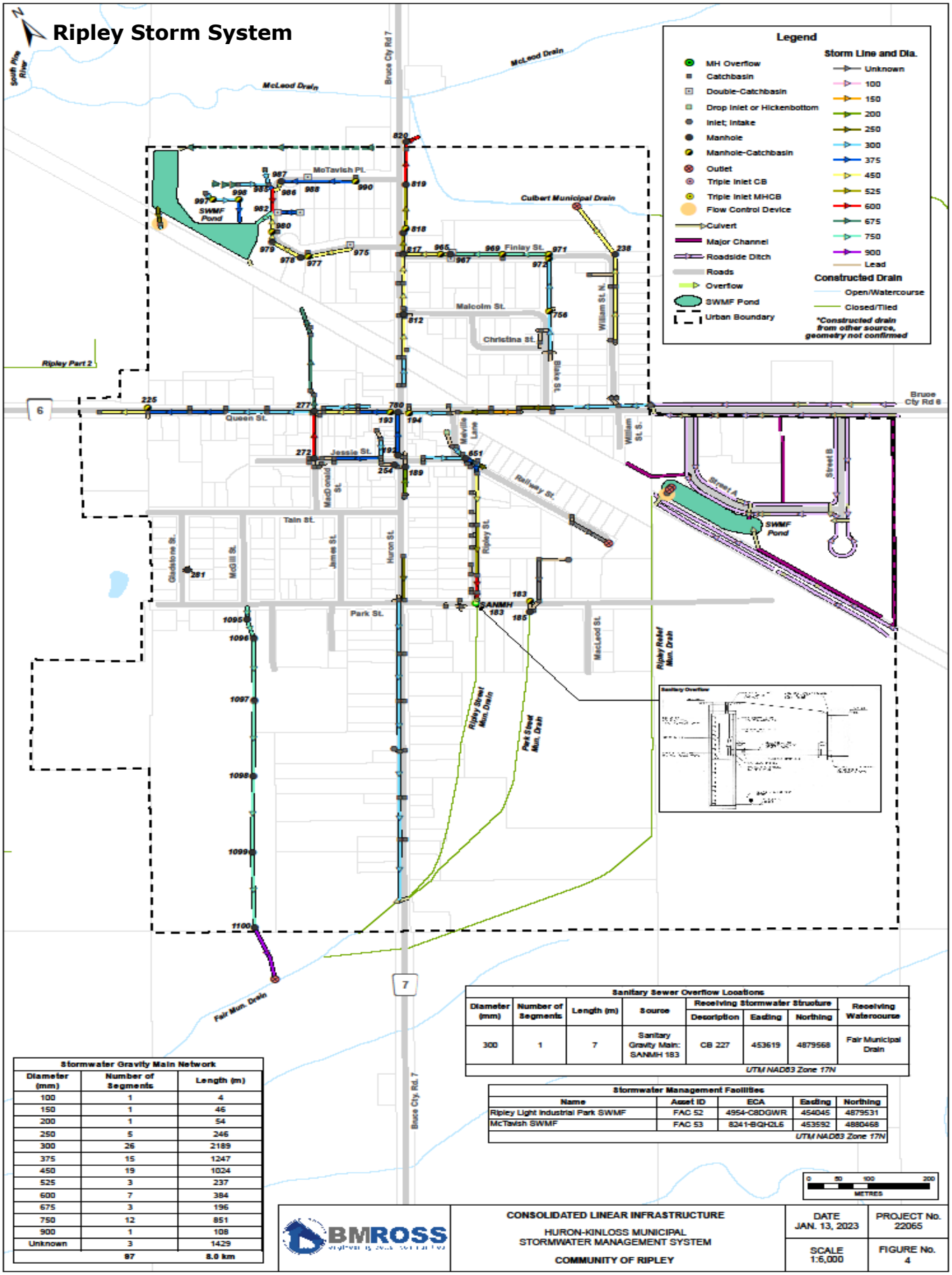
Sanitary Sewer Network

Type	Diameter (mm)	Number of Segments	Length (m)
Gravity Main	50	1	34
Gravity Main	150	1	57
Gravity Main	200	152	10509
Gravity Main	250	13	837
Gravity Main	300	2	164
Gravity Main	375	2	159
Gravity Main	400	1	6
			11.8 km
Low Pressure	50	4	522
Low Pressure	125	2	46
Forcemain	200	9	2317


Ripley Wastewater System
Legend
Maintenance Hole and ID
Storm Catchbasin
Forcemain
Low Pressure Sewer
Outfall
Overflow
Wastewater Facility
Lagoon
Urban Boundary
Sanitary Line (dia)
400
375
300
250
200
Bruce Cty Rd 7
Bruce Cty Rd 6
Queen St.
Park St.
Tain St.
Jessie St.
Finlay St.
Malcolm St.
Christina St.
Railway St.
Ripley St.
Huron St.
James St.
Gladstone St.
McGill St.
MacDonald St.
Melville Lane
William St. N.
William St. S.
Blake St.
McTavish Pl.
MacLeod St.
Street A
Street B
Ripley Community Centre SPS
Ripley SPS
Sanitary Overflow
Wastewater Treatment Plant
Lagoon Cell #3
Lagoon Cell #1
Lagoon Cell #2
Blower Building
Aerated Lagoon Cell
Sanitary Sewer Network
Type | Diameter (mm) | Number of Segments | Length (m)
Gravity Main | 200 | 47 | 3579
Gravity Main | 250 | 21 | 1541
Gravity Main | 300 | 14 | 1214
Gravity Main | 375 | 4 | 270
Gravity Main | 400 | 4 | 296
6.9 km
Low Pressure | 38 | 6 | 446
Low Pressure | 50 | 1 | 129
Forcemain | 75 | 1 | 195
Forcemain | 150 | 1 | 464
Sanitary Facilities
Name | Asset ID | GIS ID | ECA | Description | Easting | Northing
Ripley WWTP | | FAC 19 to FAC 22, FAC 25, FAC 26, FAC 28 | 3-0724-88-006 | Wastewater Treatment Plant | 453957 | 4878998
Ripley SPS | 1603 | FAC 23, FAC 24 | 3-0724-88-006 | Wet Well and Generator Building | 453861 | 4879457
Community Centre SPS | | FAC 51 | | Wet Well | 453505 | 4880211
UTM NAD83 Zone 17N
Sanitary Sewer Overflow Locations
Diameter (mm) | Number of Segments | Length (m) | Source | Receiving Stormwater Structure: Description | Easting | Northing | Receiving Watercourse
300 | 1 | 7 | Sanitary Gravity Main: SANMH 183 | CB 227 | 453619 | 4879568 | Fair Municipal Drain
UTM NAD83 Zone 17N
N
0 50 100 200
METRES
BMROSS
CONSOLIDATED LINEAR INFRASTRUCTURE
HURON-KINLOSS MUNICIPAL WASTEWATER COLLECTION SYSTEM
COMMUNITY OF RIPLEY
DATE MARCH 2022
PROJECT No. 22065
SCALE 1:5,000
FIGURE No. 2

Storm Network Maps



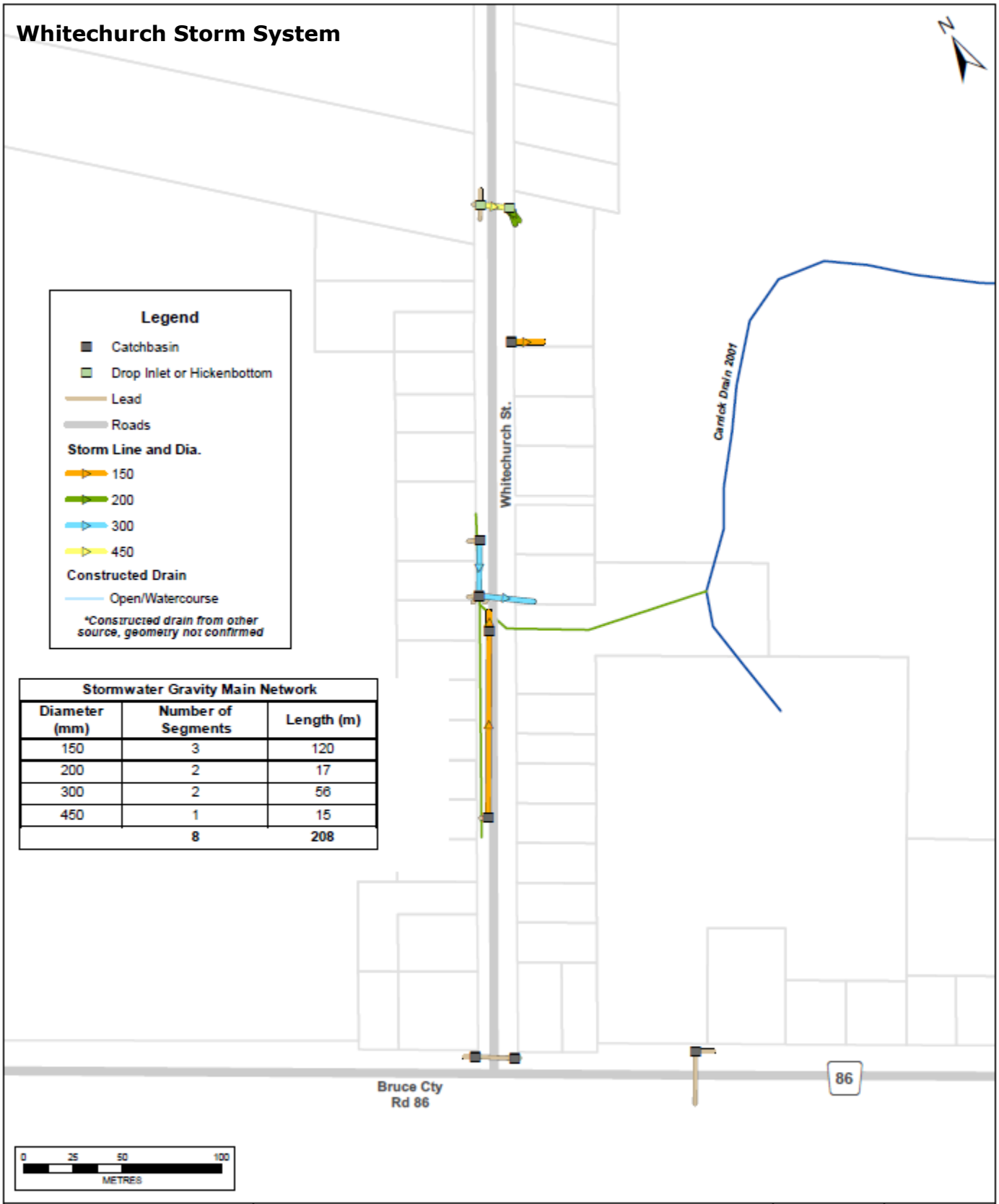


Stormwater Gravity Main Network		
Diameter (mm)	Number of Segments	Length (m)
100	1	4
150	1	46
200	1	54
250	5	246
300	26	2189
375	15	1247
450	19	1024
525	3	237
600	7	384
675	3	196
750	12	851
900	1	108
Unknown	3	1429
	97	8.0 km

Sanitary Sewer Overflow Locations						
Diameter (mm)	Number of Segments	Length (m)	Source	Receiving Stormwater Structure		Receiving Watercourse
				Description	Easting	Northing
300	1	7	Sanitary Gravity Main: SANMH 183	CB 227	453619	4879568	Fair Municipal Drain
UTM NAD83 Zone 17N						

Stormwater Management Facilities				
Name	Asset ID	ECA	Easting	Northing
Ripley Light Industrial Park SWMF	FAC 52	4954-C8DGWR	454045	4879531
McTavish SWMF	FAC 53	8241-BQH2L6	453592	4880468
UTM NAD83 Zone 17N				

Whitechurch Storm System



Stormwater Gravity Main Network		
Diameter (mm)	Number of Segments	Length (m)
150	3	120
200	2	17
300	2	56
450	1	15
	8	**208**

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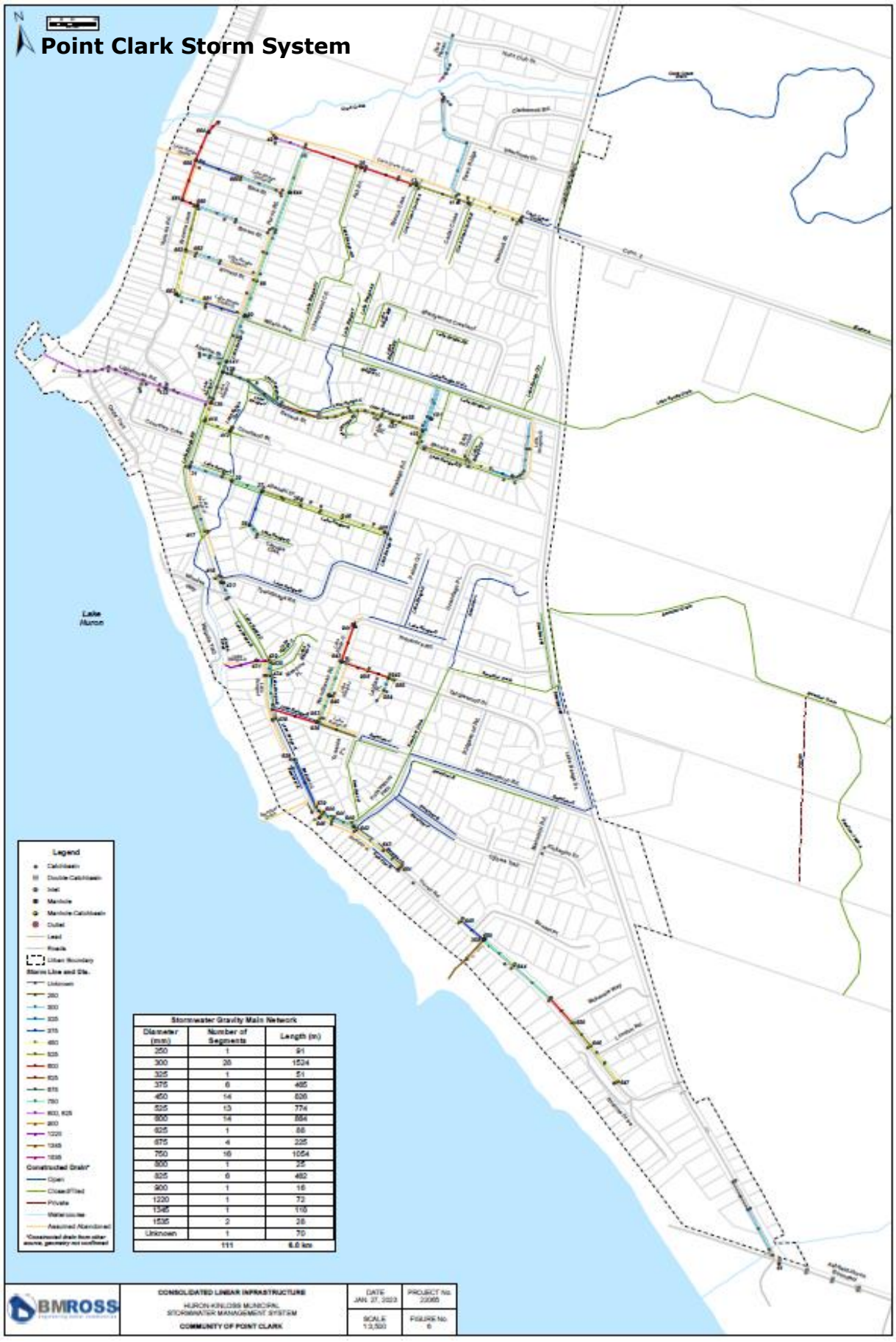
CONSOLIDATED LINEAR INFRASTRUCTURE

HURON-KINLOSS MUNICIPAL STORMWATER MANAGEMENT SYSTEM

COMMUNITY OF WHITECHURCH

DATE	PROJECT No.
JAN. 13, 2023	22065
SCALE	FIGURE No.
1:2,500	5


Point Clark Storm System
Lake Huron
Legend
Stormwater Gravity Main Network
Diameter (mm) | Number of Segments | Length (m)
250 | 1 | 91
300 | 28 | 1524
325 | 1 | 51
375 | 6 | 485
450 | 14 | 826
525 | 13 | 774
600 | 14 | 884
625 | 1 | 66
675 | 4 | 235
750 | 16 | 1054
800 | 1 | 25
825 | 6 | 482
900 | 1 | 16
1220 | 1 | 72
1345 | 1 | 110
1535 | 2 | 38
Unknown | 1 | 70
111 | 6.0 km
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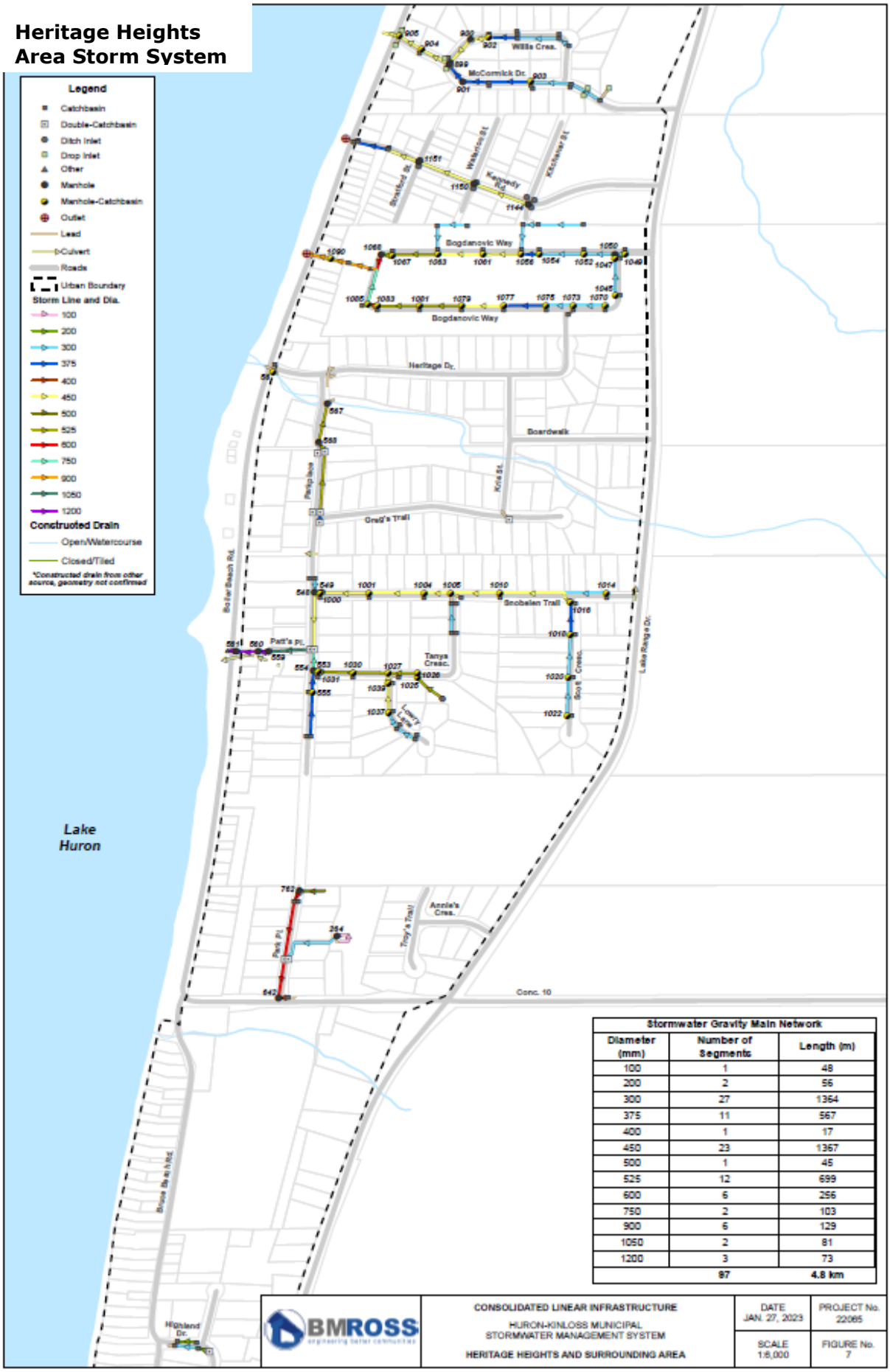
CONSOLIDATED LINEAR INFRASTRUCTURE
HURON-KINLOSS MUNICIPAL STORMWATER MANAGEMENT SYSTEM
COMMUNITY OF POINT CLARK
DATE JAN. 27, 2023
PROJECT No. 22065
SCALE 1:3,500
FIGURE No. 6

Heritage Heights Area Storm System



Stormwater Gravity Main Network		
Diameter (mm)	Number of Segments	Length (m)
100	1	48
200	2	56
300	27	1364
375	11	567
400	1	17
450	23	1367
500	1	45
525	12	699
600	6	256
750	2	103
900	6	129
1050	2	81
1200	3	73
	97	4.8 km

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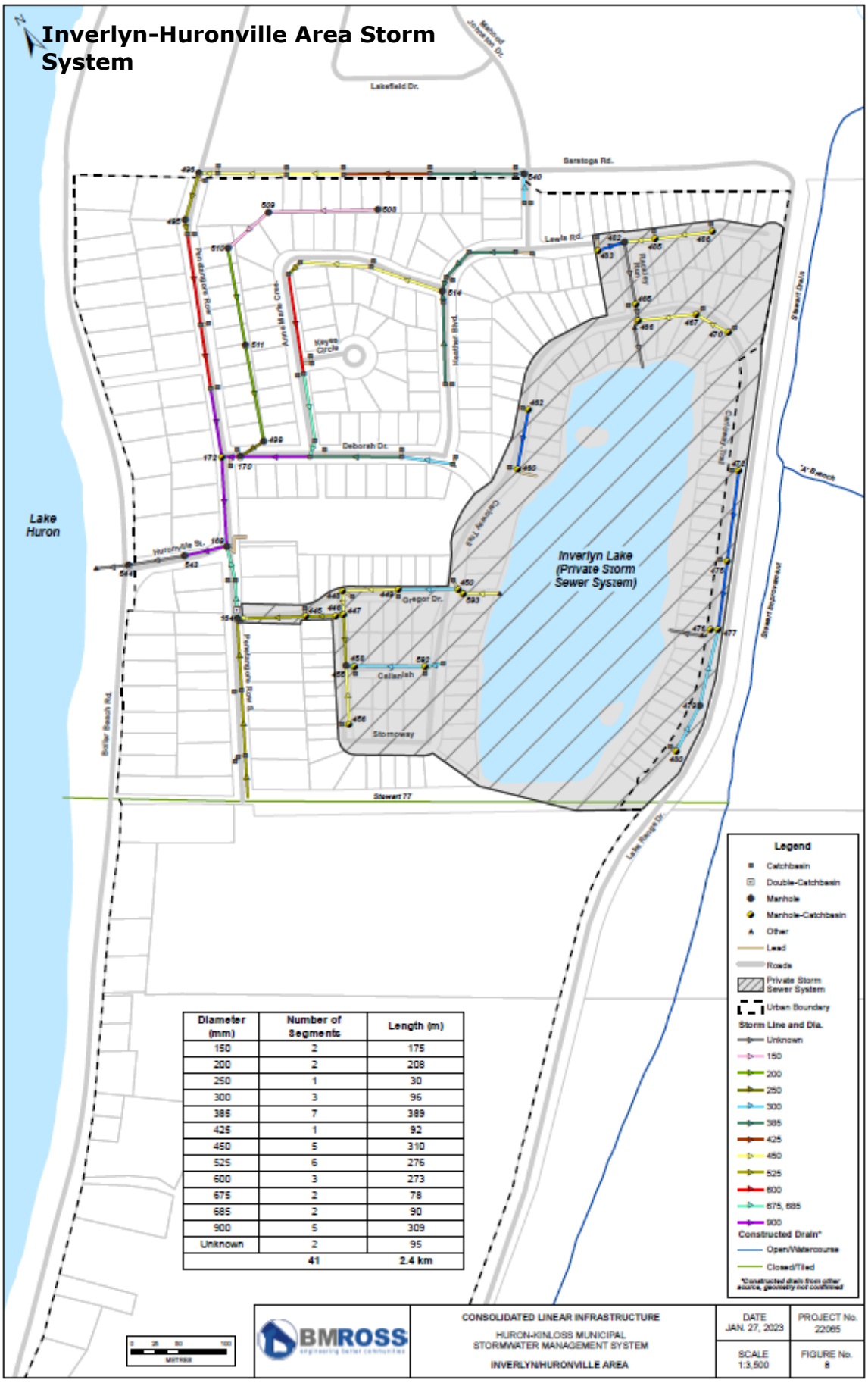
CONSOLIDATED LINEAR INFRASTRUCTURE
HURON-KINLOSS MUNICIPAL STORMWATER MANAGEMENT SYSTEM
HERITAGE HEIGHTS AND SURROUNDING AREA

DATE JAN. 27, 2023 | PROJECT No. 22065
SCALE 1:6,000 | FIGURE No. 7



Diameter (mm)	Number of Segments	Length (m)
150	2	175
200	2	208
250	1	30
300	3	96
385	7	389
425	1	92
450	5	310
525	6	276
600	3	273
675	2	78
685	2	90
900	5	309
Unknown	2	95
	41	2.4 km

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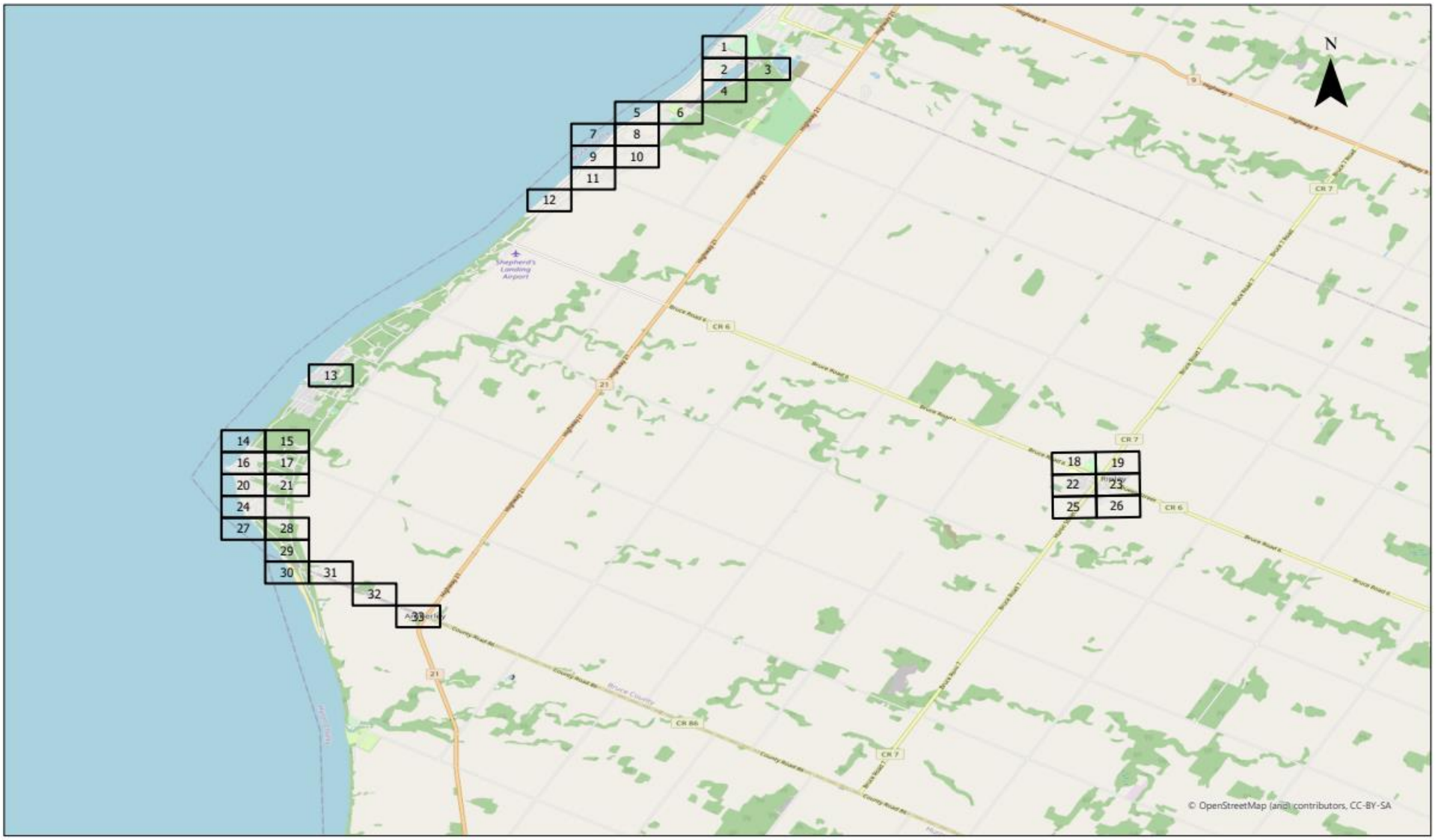
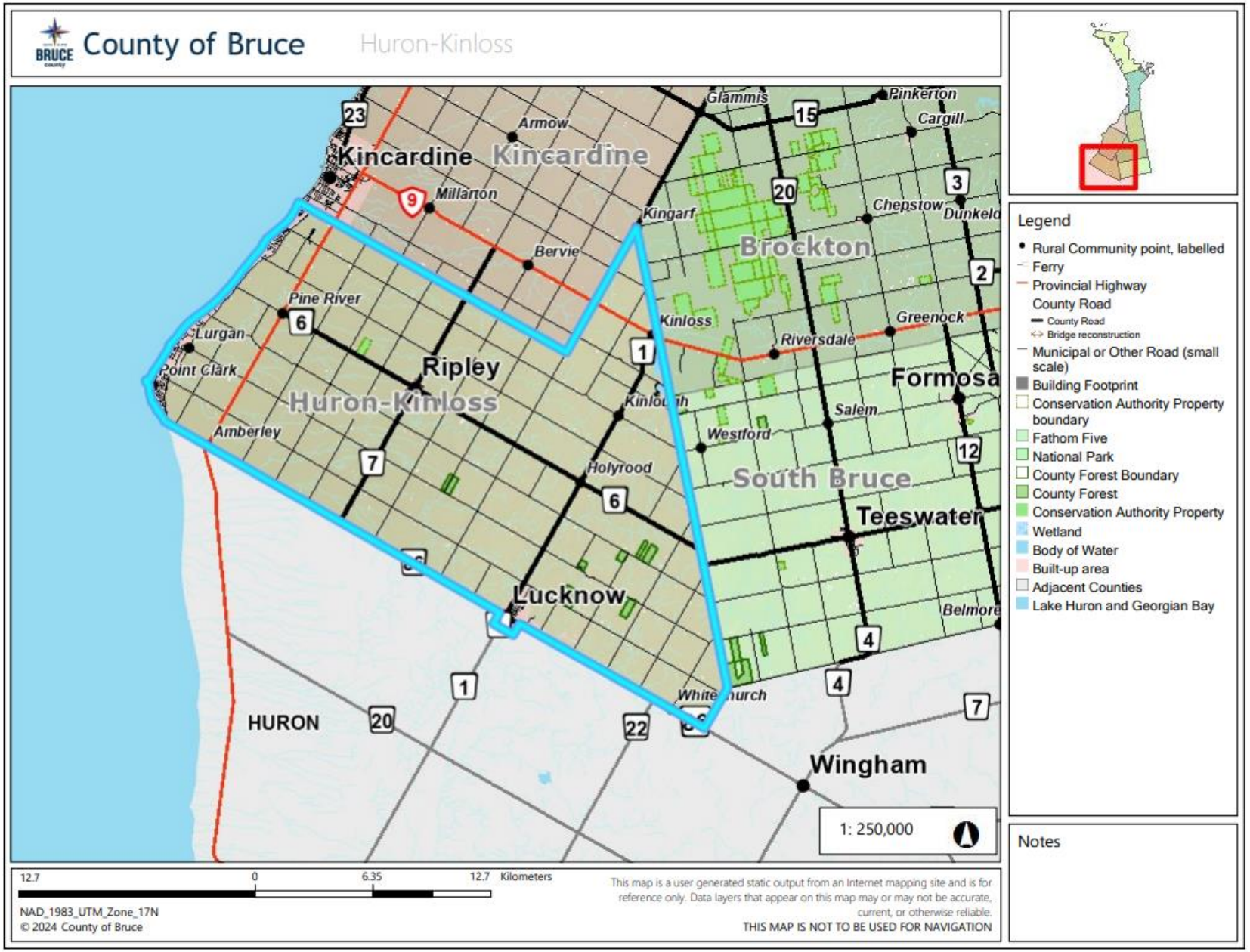
CONSOLIDATED LINEAR INFRASTRUCTURE
HURON-KINLOSS MUNICIPAL STORMWATER MANAGEMENT SYSTEM
INVERLYN/HURONVILLE AREA

DATE JAN. 27, 2023 | PROJECT No. 22065
SCALE 1:3,500 | FIGURE No. 8

Lakeshore and Ripley Catch Basins



Road Network Map



Bridges & Culverts Images

The condition scale for bridges & culverts utilized is from 0 to 100 from Very Poor to Very Good. See the following images as examples of a bridge and a structural culvert in Very Good condition, as well as a bridge in Good condition.

Nanson Bridge (BCI = 92.6 Very Good)

H71 Sideroad 20 (BCI = 57- Fair)

P1 West Side of Sideroad 10 (BCI = 44- Fair)

H29 Concession 10 Bridge (BCI = 72- Good)

H37 Concession 6 Bridge (BCI =75- Good)

H24 Sideroad 25 Bridge (BCI =75- Good)

P2 East of County Road 1 Bridge (BCI =57-Fair)

H27 Concession 6 Bridge (BCI =74-Good)

Appendix C: Condition Assessment Guidelines

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

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

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

Role of Asset Condition Data

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

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

Guidelines for Condition Assessment

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

Condition assessments must include a quantitative or qualitative assessment of the current condition of the asset, collected according to specified condition rating criteria, in a format that can be used for asset management decision-making. As a result, it is important that staff adequately define the condition rating criteria that should be used and the assets that require a discrete condition rating. When

engaging with external consultants to complete condition assessments, it is critical that these details are communicated as part of the contractual terms of the project.

There are many options available to the Township to complete condition assessments. In some cases, external consultants may need to be engaged to complete detailed technical assessments of infrastructure. In other cases, internal staff may have sufficient expertise or training to complete condition assessments.

Developing a Condition Assessment Schedule

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

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

Appendix D: Risk Rating Criteria

Risk Definitions

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