Asset Management Plan

Municipality of Hastings Highlands

June 2025

Hastings Highlands
Beautiful By Nature

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This Asset Management Program was prepared by:

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1. Executive Summary

Municipal infrastructure delivers critical services that are foundational to the economic, social, and environmental health and growth of a community. The goal of asset management is to enable infrastructure to deliver an adequate level of service in the most cost-effective manner. This involves the ongoing review and update of infrastructure information and data alongside the development and implementation of asset management strategies and long-term financial planning.

1.1. Scope

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

This AMP includes the following asset categories:

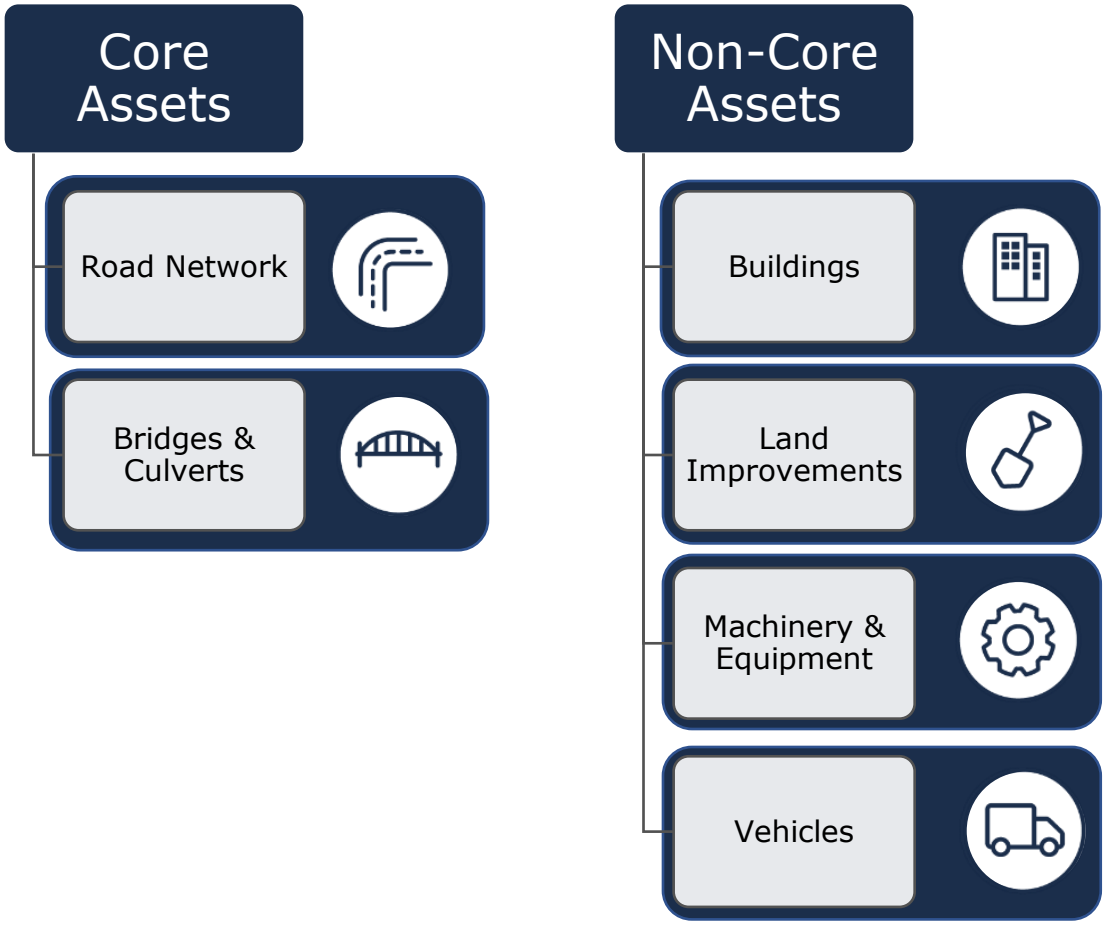


Figure 1: Core and Non-core Asset Categories

1.2. Compliance

With the development of this AMP the Municipality of Hastings Highlands 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 included in this AMP totals $160.3 million. 63% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 85% of assets. For the remaining 15% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (paved roads, bridges and culverts and buildings) and replacement only strategies (all other assets) to determine the lowest cost option to maintain the current level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Municipality's average annual capital requirement totals $6.6 million. Based on a historical analysis of sustainable capital funding sources, the Municipality is committing approximately $2.2 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $4.4 million.

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

Hastings Highlands' previous Plan included the total closure and post-closure liability costs for the landfill sites. However, this plan excludes these landfill-related costs for the following reasons:

1. **Nature of Landfill Assets**: The AMP primarily addresses assets that involve capital costs and replacement, such as buildings and machinery. Landfills, being land-based and lacking physical structures that require replacement, do not align with the typical scope of capital asset management.
2. **Specialized Management Needs**: The management of landfills involves distinct operational, environmental, and regulatory requirements that are not focused on capital replacement. Instead, they are centered on long-term environmental management, compliance, and monitoring.

3. **Lifecycle and Cost Structure**: The lifecycle costs of landfills, including closure and post-closure liability, are managed through separate financial structures and regulatory frameworks, distinct from the capital costs and replacement planning covered in this AMP.

The current AMP therefore excludes the costs associated with the total closure and post-closure liabilities for the 9 landfill sites, comprising 6 landfills and 3 transfer stations. These costs are addressed through separate financial plans and environmental management strategies.

Annual Reports for each waste location are submitted to the Ministry of the Environment, Conservation and Parks each year to meet the reporting requirements of the Environmental Compliance Approval (ECA). These reports are prepared in accordance with the *Groundwater and Surface Water: Technical Guidance Document*, also known as the 'WDS Technical Guidance.'

For detailed information on Hastings Highlands' waste disposal sites, please refer to these annual reports.

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

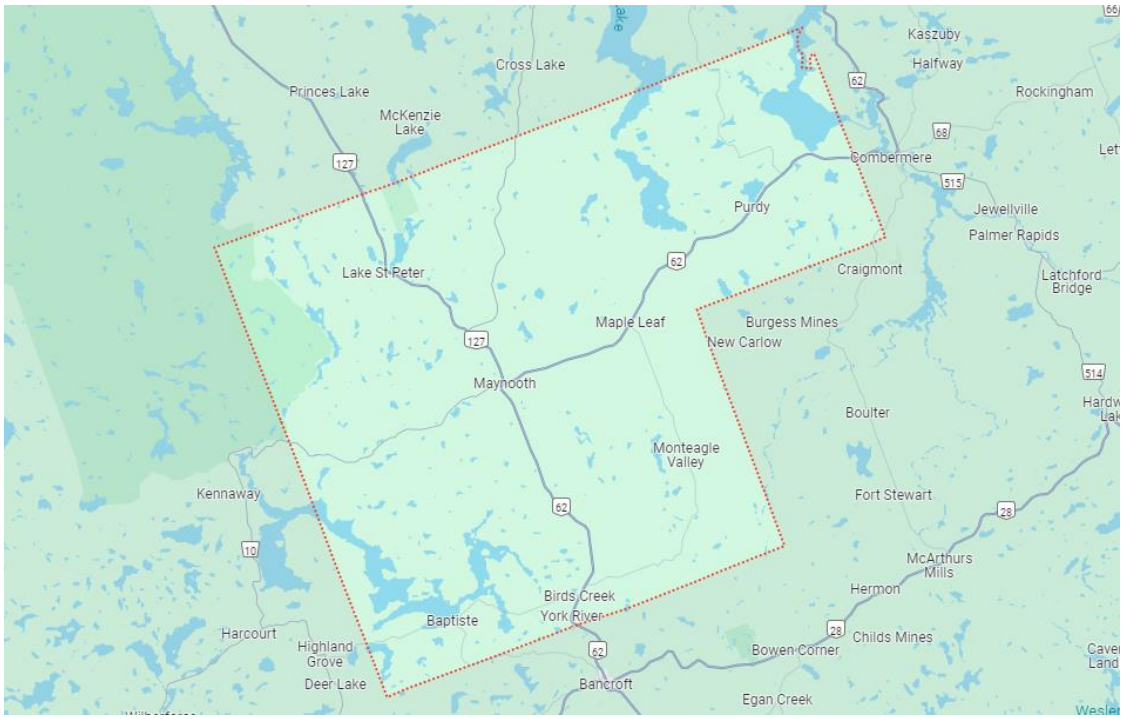
forecasts, and shorter term, 10-year forecasts that are generated from Citywide, the Municipality's primary asset management system.

The Municipality has taken important steps in building its asset management program, including developing a more complete and accurate asset register—a substantial initiative. Continuous improvement to this inventory will be essential in maintaining momentum, supporting long-term financial planning, and delivering affordable service levels to the community

2. Introduction and Context

2.1. Community Profile

Hastings Highlands is located East of Algonquin Park and West of the City of Ottawa, in Hastings County. The Municipality consists predominantly of rural areas, along with several semi-urban settlements scattered throughout its territory.



The natural landscapes of forests, lakes, and rivers in Hastings Highlands provide plentiful opportunities for outdoor activities like hiking, fishing, camping, and boating. Various communities and hamlets across the county boast unique character and a strong sense of community. Local festivals and events throughout the year celebrate the area's rich cultural heritage. Economically, Hastings Highlands thrives as a lake-based economy and relies on industries such as forestry, tourism, agriculture, and small businesses, which play a vital role in preserving the area's local character and supporting a lively community life.

The current municipality of Hastings Highlands was incorporated on January 1, 2001, by amalgamating the former Municipalities of Bangor, Wicklow and McClure, Herschel and Monteagle.

Located in the northernmost portion of Hastings County, the Municipality comprises the communities of Baptiste, Bell Rapids, Birds Creek, Centreview, Graphite, Greenview, Hickey Settlement, Hughes, Hybla, Lake St. Peter, Maple Leaf, Maynooth Station, McAlpine Corners, McGarry Flats, Monteagle Valley, Musclow, Purdy, Scotch Bush, Scott Settlement and York River.

In the 2021 Census of Population conducted by Statistics Canada, the demographics for Hastings Highlands are as follows:

Census Characteristic	Hastings Highlands	Hastings County	Ontario
Population 2021	4,385	145,746	14,223,942
Population Change 2016-2021	+7.5%	+6.8%	5.8%
Total Private Dwellings	3,529	68,518	5,929,250
Population Density	4.5/ km2	24.2/ km2	15.9/km^2
Land Area	966.58 km2	6,013.35 km2	892,411.76 km^2

Table 1: Hastings Highlands & Ontario Census Information

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. Hastings Highlands Climate Profile

The Municipality is expected to experience notable effects of climate change which include higher average annual temperatures, and an increase in total annual precipitation. According to Climatedata.ca, a collaboration supported by Environment and Climate Change Canada (ECCC), the Municipality may experience the following trends:

Higher Average Annual Temperature:

- Between the years 1971 and 2000 the annual average temperature was 4.2ºC
- Under a high emissions scenario, the annual average temperatures are projected to be 6.9ºC by the year 2050, 8.9ºC for the 2051-2080 period, and 10.7ºC by the end of this century.

Increase in Total Annual Precipitation:

- Under a high emissions scenario, Hastings Highlands is projected to experience a 13% increase in precipitation by the year 2080 and a 18% increase by the end of the century.

Increase in Frequency of Extreme Weather Events:

- It is expected that the frequency and severity of extreme weather events will increase.

2.2.2. Consideration of Climate Change with Asset Management Strategies

Asset management practices aim to deliver sustainable service delivery - providing 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 assets and increasing the risk of asset failure. Achieving desired levels of service can become more challenging due to climate change impacts such as flooding, high heat, drought, and more frequent and intense storms.

To achieve sustainable service delivery, climate change considerations should be incorporated into asset management practices. Integrating asset management and climate change adaptation adheres to industry best practices and enables the development of a holistic approach to risk management.

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 ratepayers receive from the asset portfolio.

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

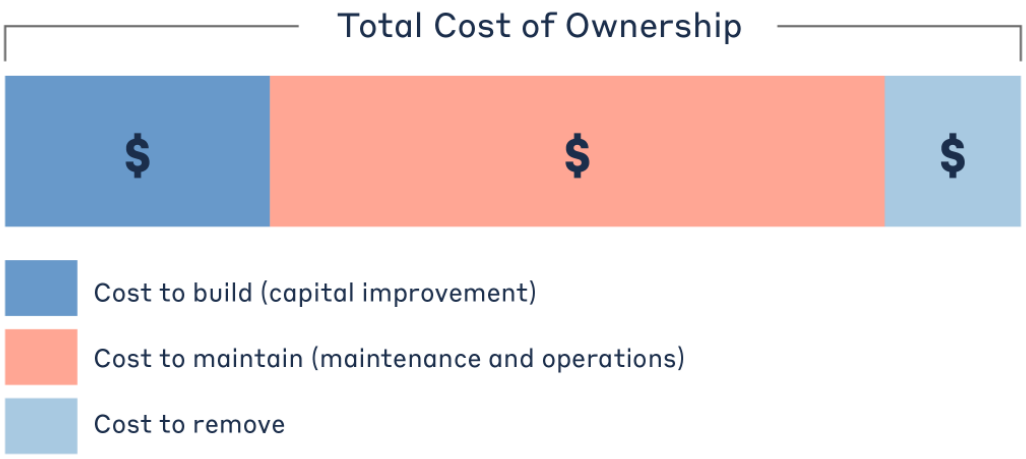


Figure 2: Total Cost of Asset Ownership

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

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

2.3.1. Foundational Documents

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.

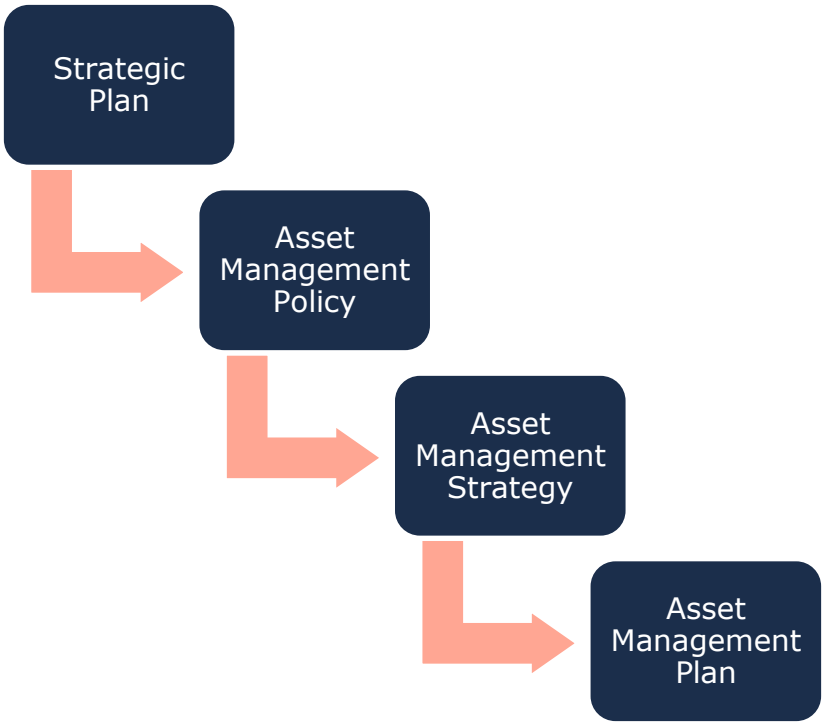


Figure 3: Foundational Asset Management Documents

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.

As part of the Strategic Plan, Council is committed to regularly updating and implementing its Asset Management Plan. Council plans to achieve this by maintaining long-term capital and asset management strategies, future operating and capital budgets will be effectively planned and managed.

Asset Management Policy

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

Hastings Highlands approved policy FIN-09 "Finance Policy – Strategic Asset Management Policy" on June 26th, 2019, in accordance with Ontario Regulation 588/17.

The stated objectives of the policy are to:

- Develop and maintain inventories of its Municipal Infrastructure;
- Maintain and manage Municipal Infrastructure to support public safety, community well-being and community goals;
- Monitor standards and service levels to ensure that they meet and support the Municipality's goals, plans and policies;
- Establish asset replacement strategies using full-life cycle costing principles;
- Plan financially for the appropriate level of maintenance of assets to deliver service levels and extend the useful life of assets while meeting all statutory requirements; and
- Plan for and provide stable long term funding to replace and/or renew and/or decommission Municipal Infrastructure.

The policy provides a foundation for the development of an asset management program within the Municipality. It covers key components that define a comprehensive asset management policy:

- The policy's objectives dictate the use of asset management and data management practices to ensure all assets meet the expected levels and provide the desired levels of service in the most efficient and effective manner;
- The policy commits to, where appropriate, incorporating asset management in the Municipality's other plans;
- There are formally defined roles and responsibilities of internal staff;
- The key principles include the use of a cost/benefit analysis in the management of risk; and
- The policy statements are well defined.
- An asset management policy represents a statement of the principles guiding the Municipality'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 Municipality plans to achieve asset management objectives through planned activities and decision-making criteria.

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

Asset Management Plan

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

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

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

2.3.2. Key Concepts in Asset Management

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

Lifecycle Management Strategies

The condition or performance of 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.

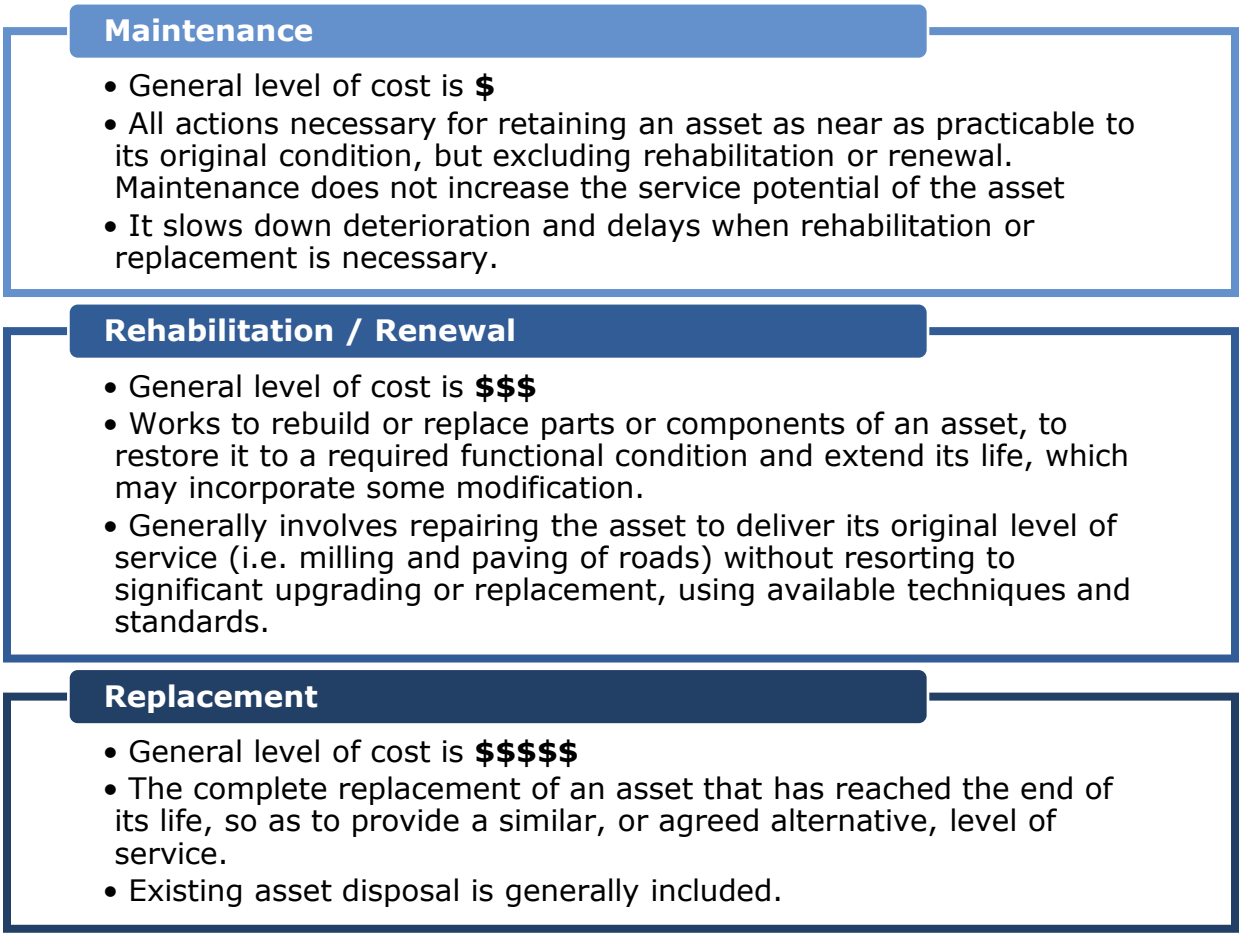


Figure 4: Lifecycle Management Typical Lifecycle Interventions

The Municipality'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.

Risk and Criticality

Asset risk and criticality are essential building blocks of asset management, integral in prioritizing projects and distributing funds where they are needed most based on a variety of factors. Assets in disrepair may fail to perform their intended function, pose substantial risk to the community, lead to unplanned expenditures, and create liability for the municipality. In addition, some assets are simply more important to the community than others, based on their financial significance, their role in delivering essential services, the impact of their failure on public health and safety, and the extent to which they support a high quality of life for community stakeholders.

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,

(i.e. low, medium, high) or quantitative measurement (i.e. 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.

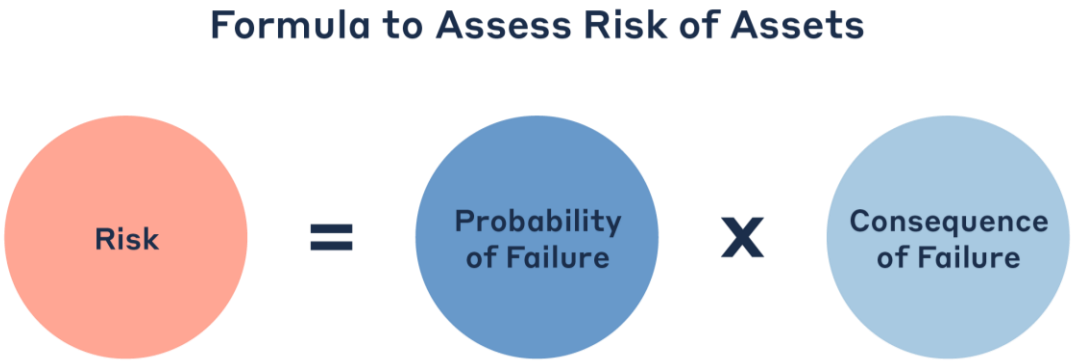


Figure 5: Risk Equations

The approach used in this AMP relies on a quantitative measurement of risk associated with each asset. The probability and consequence of failure are each scored from 1 to 5, producing a minimum risk index of 1 for the lowest risk assets, and a maximum risk index of 25 for the highest risk assets.

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.

Table 2 illustrates the various types of consequences that can be integrated in developing risk and criticality models for each asset category and segments within. We note that these consequences are common, but not exhaustive.

Type of Consequence	Description
Direct Financial	Direct financial consequences are typically measured as the replacement costs of the asset(s) affected by the failure event, including interdependent infrastructure.
Economic	Economic impacts of asset failure may include disruption to local economic activity and commerce, business closures, service disruptions, etc. Whereas direct financial impacts can be seen immediately or estimated within hours or days, economic impacts can take weeks, months and years to emerge, and may persist for even longer.
Socio-political	Socio-political impacts are more difficult to quantify and may include inconvenience to the public and key community stakeholders, adverse media coverage, and reputational damage to the community and the Municipality.
Environmental	Environmental consequences can include pollution, erosion, sedimentation, habitat damage, etc.
Public Health and Safety	Adverse health and safety impacts may include injury or death, or impeded access to critical services.
Strategic	These include the effects of an asset's failure on the community's long-term strategic objectives, including economic development, business attraction, etc.

Table 2: Risk Analysis - Types of Consequences of Failure

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

These models have been built in Citywide for continued review, updates, and refinements.

Levels of Service

A level of service (LOS) is a measure of the services that Hastings Highlands 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.

Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories, the Province, through O. Reg. 588/17, has provided qualitative descriptions that are required. For non-core asset categories, the Municipality has determined the qualitative descriptions that will be used. The metrics can be found in the levels of service subsection within each asset category.

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 Municipality'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 Municipality determined the technical metrics that will be used. The metrics can be found in the levels of service subsection within each asset category.

Current and Proposed Levels of Service

Current LOS are the past performance metrics of an asset category up until present day. In contrast, Proposed LOS looks toward the municipality's goal for asset performance by a defined future date.

It is important to note that O. Reg 588/17 does not dictate which proposed LOS metrics municipality's need to strive for. A proposed LOS will be very specific to each community's resident desires, political goals, and financial capacity. This can range from increasing service levels and costs, to maintaining or even reducing current performance in order to mitigate future cost increases. Regardless of the proposed LOS chosen, O. Reg 588/17 requires municipalities to demonstrate the achievability of their selected metrics.

2.4. Scope and Methodology

2.4.1. Asset Categories for this AMP

This asset management plan for the Municipality of Hastings Highlands is produced in compliance with O. Reg. 588/17. The AMP summarizes the state of the infrastructure for Hastings Highlands's asset portfolio, establishes current levels of service and the associated technical and customer-oriented key metrics, outlines lifecycle strategies for optimal asset management and performance, and provides financial strategies to reach sustainability for the asset categories listed below.

Tax Funded Assets
•Road Network •Bridges & Culverts •Buildings •Land Improvements •Vehicles •Machinery & Equipment

Table 3: Tax-Funded Assets

2.4.2. Data Effective Date

It is important to note that this plan is based on data as of December 31, 2023; therefore, it represents a snapshot in time using the best available processes, data, and information at the Municipality. Strategic asset management planning is an ongoing and dynamic process that requires continuous data updates and dedicated data management resources.

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 Municipality 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 Municipality 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 Municipality can determine the service life remaining (SLR) for each asset. Using condition data and the asset's

SLR, the Municipality can more accurately forecast when it will require replacement. The SLR is calculated as follows:

Figure 6: Service Life Remaining Calculation

Reinvestment Rate

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

Figure 7: Target Reinvestment Rate Calculation

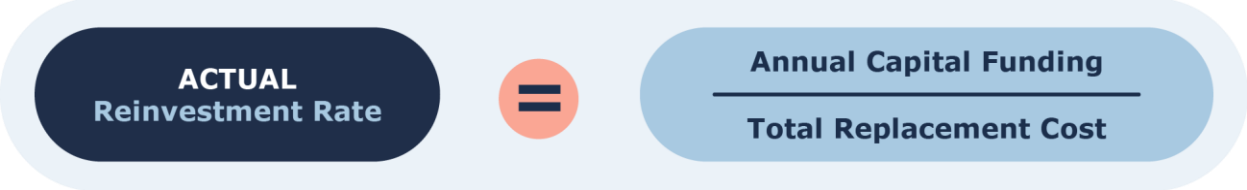


Figure 8: Actual Reinvestment Rate Calculation

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

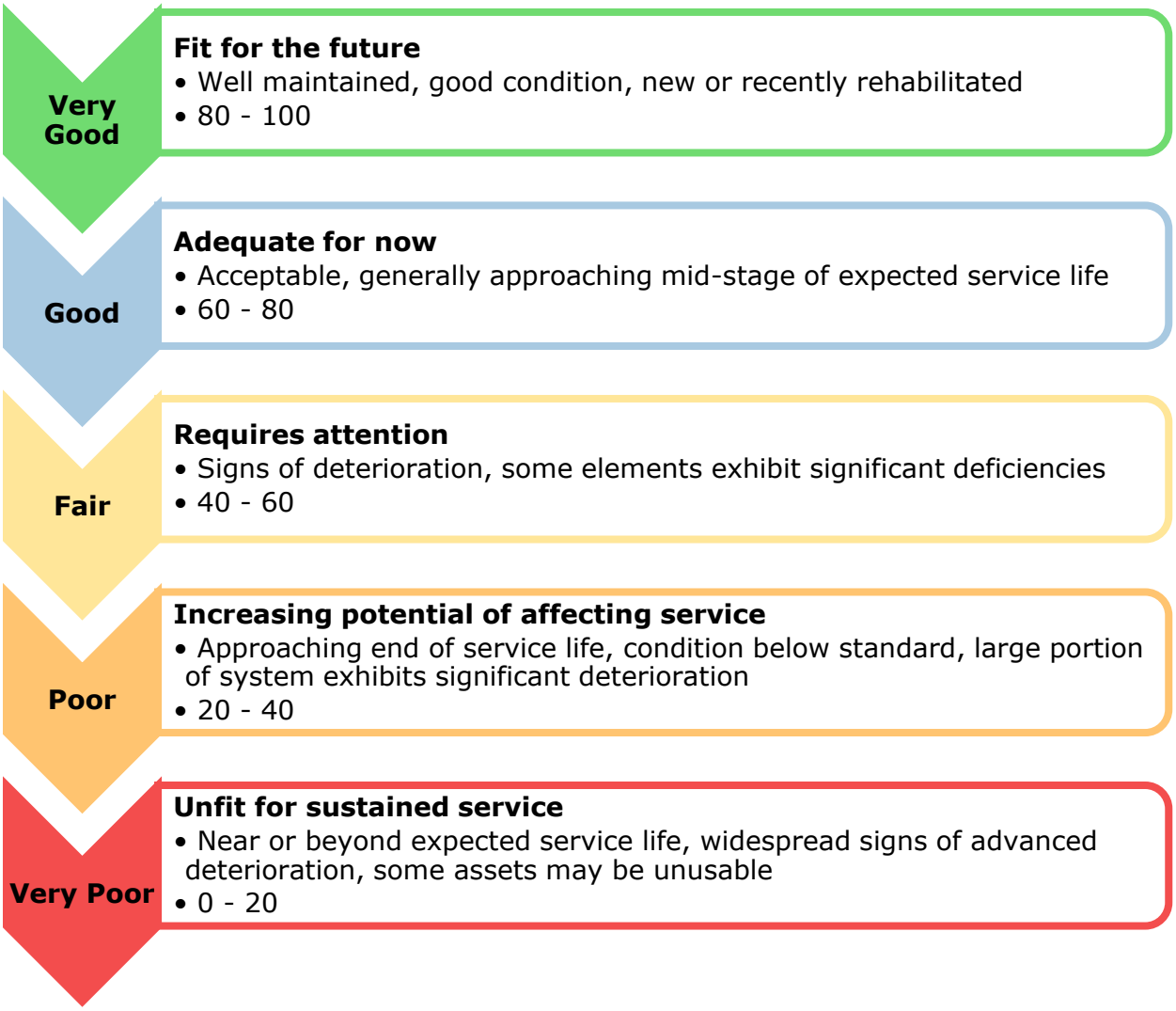


Figure 9: Standard Condition Rating Scale

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: Condition Assessment Guidelines includes additional information on the role of asset condition data and provides basic guidelines for the development of a condition assessment program.

2.5. Ontario Regulation 588/17

As part of the Infrastructure for Jobs and Prosperity Act, 2015, the Ontario government introduced Regulation 588/17 - Asset Management Planning for

Municipal Infrastructure (O. Reg 588/17)[1]. Along with creating better performing organizations, more liveable and sustainable communities, the regulation is a key, mandated driver of asset management planning and reporting. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them.

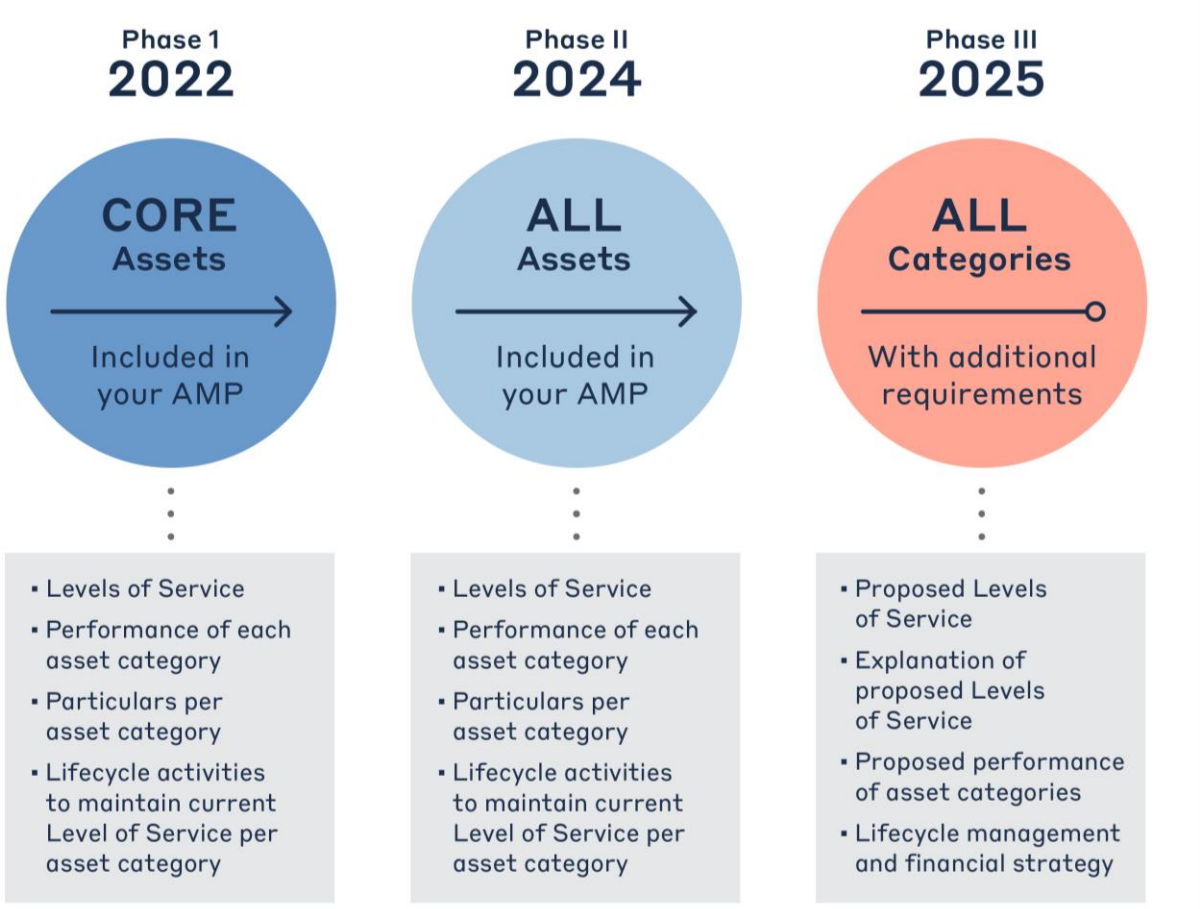


Figure 10: O. Reg. 588/17 Requirements and Reporting Deadlines

2.5.1. O. Reg. 588/17 Compliance Review

Requirement	O. Reg. 588/17 Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	5.1 – 10.1	Complete

[1] O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure https://www.ontario.ca/laws/regulation/170588

Requirement	O. Reg. 588/17 Section	AMP Section Reference	Status
Replacement cost of assets in each category	S.5(2), 3(ii)	5.1 – 10.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	5.3 – 10.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	5.3 – 10.3	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	5.3.1 – 10.3.1	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	5.7 – 10.7	Complete
Current performance measures in each category	S.5(2), 2	5.7 – 10.7	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	5.4 – 10.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	5.5 – 10.5	Complete
Growth considerations	S.6(1), 5	12.2	Complete
Proposed levels of service for each category for next 10 years	S.6(1), 1(i-ii)	5.8 – 10.8	Complete
Explanation of appropriateness of proposed levels of service	S.6(1), 2(i-iv)	4.2.1	Complete
Lifecycle management activities for proposed levels of service	S.6(1), 4(i)	4.2	Complete
10-year capital costs for proposed levels of service	S.6(1), 4(ii)	Appendix B	Complete
Annual funding availability projections	S.6(1), 4(iii)	4.2	Complete

Figure 11: O. Reg. 588/17 Compliance Review

Portfolio Overview

3. State of the Infrastructure

The state of the infrastructure (SOTI) summarizes the inventory, condition, age profiles, and other key performance indicators for the Municipality's infrastructure portfolio. These details are presented for all core and non-core asset categories.

3.1. Asset Hierarchy/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.

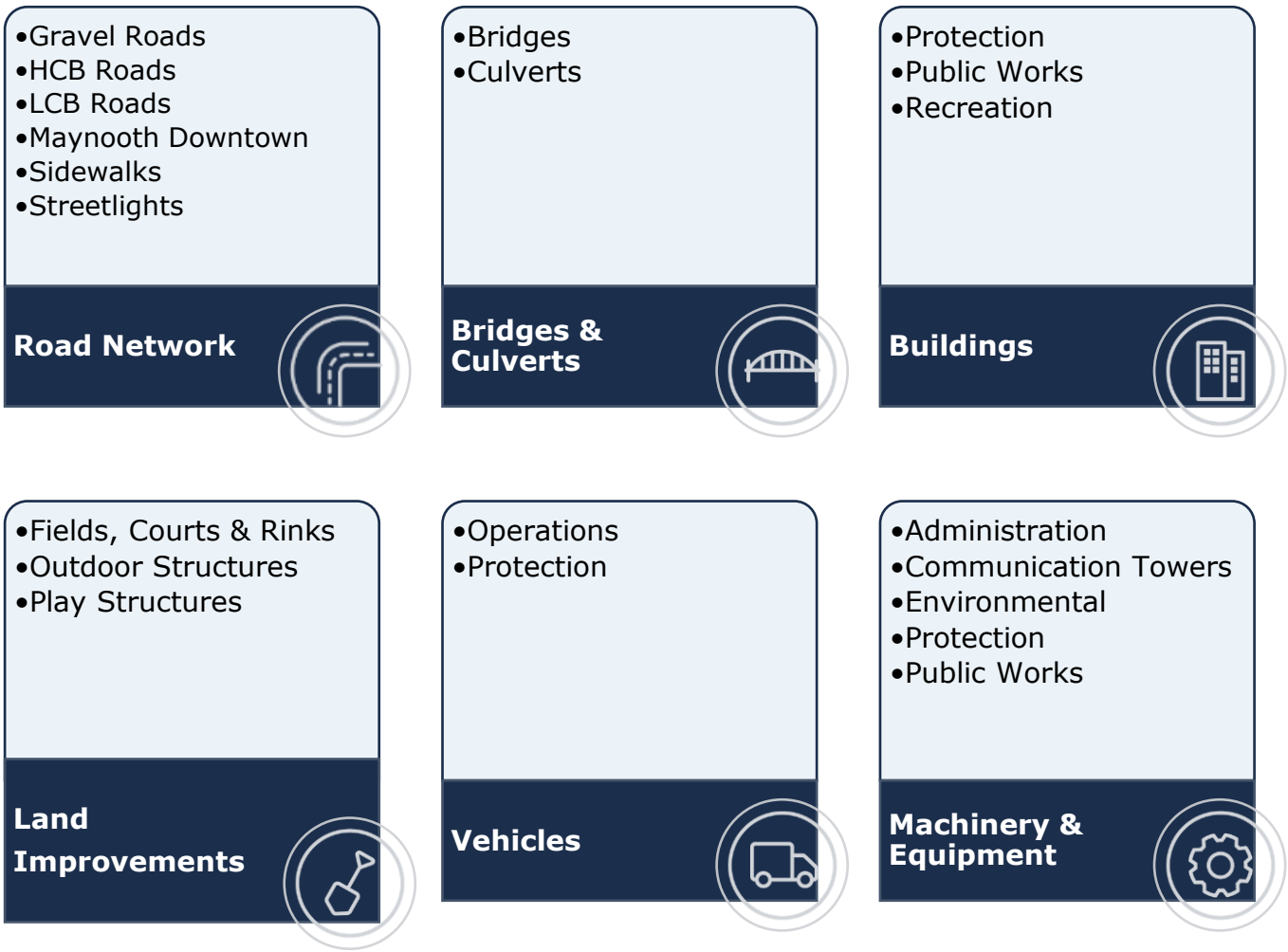


Figure 12: Asset Hierarchy and Data Classification

3.2. Portfolio Overview

3.2.1. Replacement Cost

All Hastings Highlands's asset categories have a total replacement cost of $160.3 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 the replacement of historical assets with similar, not necessarily identical, assets available for procurement today.

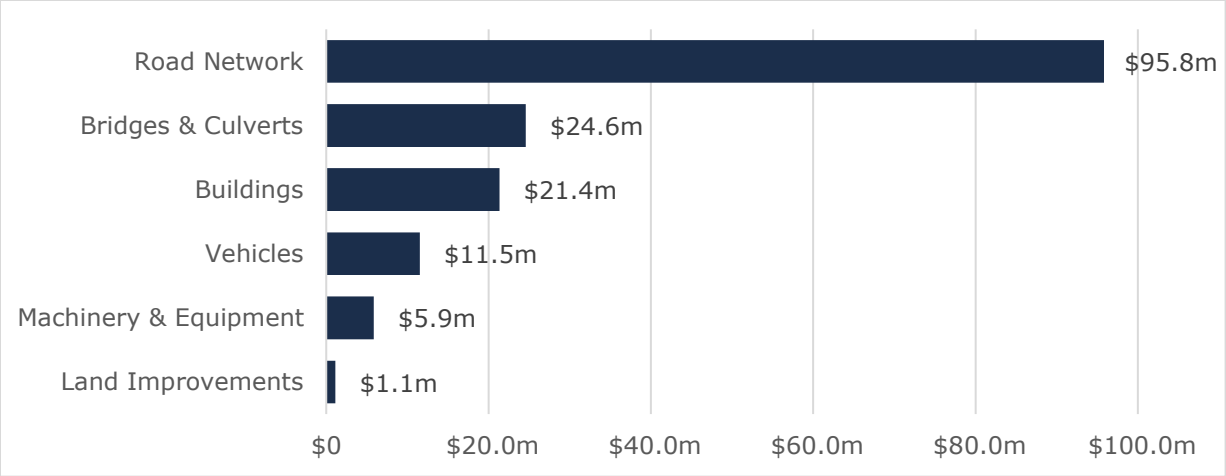


Figure 13: Current Replacement Cost by Asset Category

3.2.2. Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps or surpluses by comparing target vs actual reinvestment rate. To meet the long-term replacement needs, the Municipality is recommended to be allocating approximately $6.6 million annually, for a target reinvestment rate of 4.1%. Actual annual spending on infrastructure totals approximately $2.2 million, for an actual reinvestment rate of 1.4%.

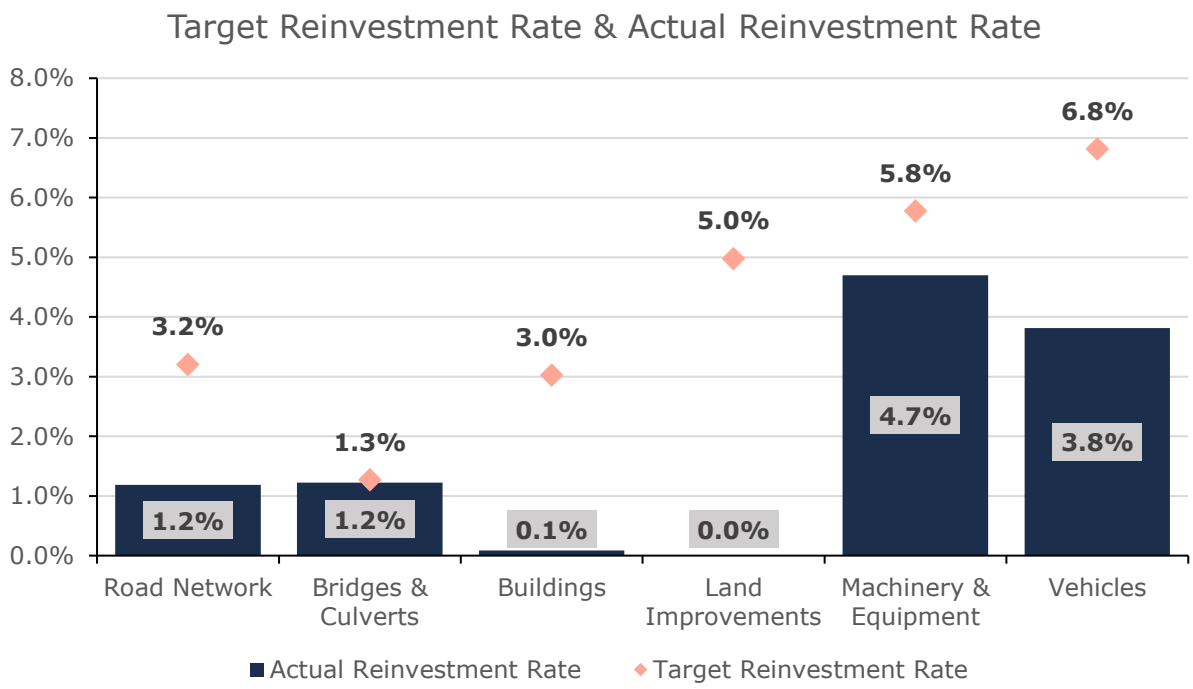


Figure 14: Target vs Actual Reinvestment Rates

3.2.3. Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 63% of assets in Hastings Highlands 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, buildings, land improvements, and machinery and equipment. 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.

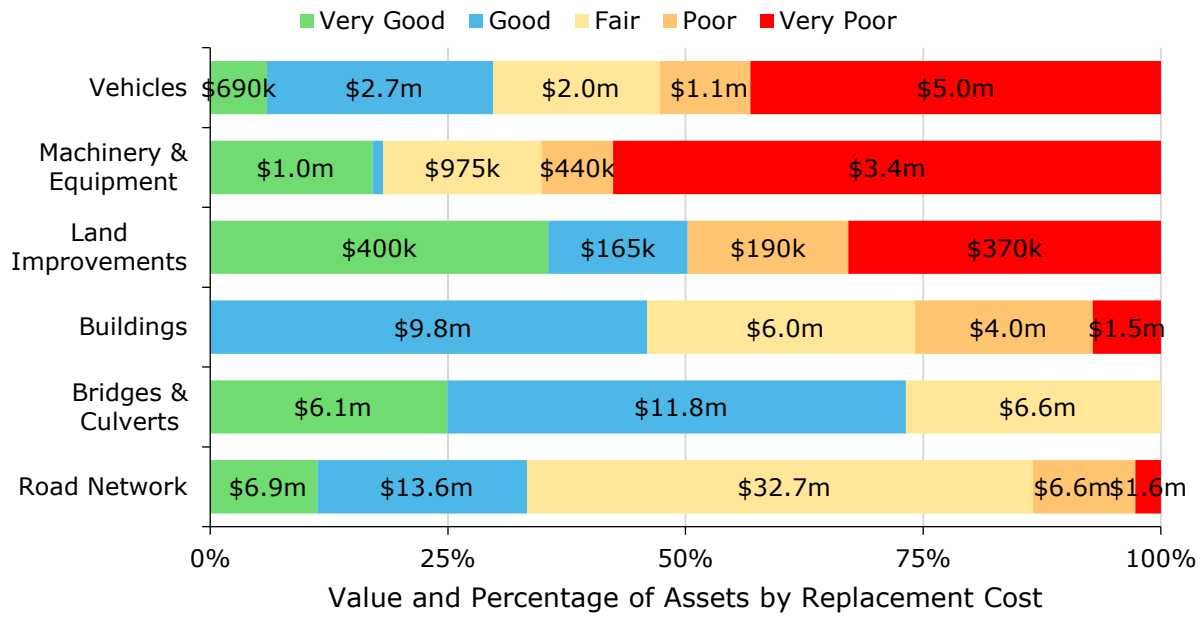


Figure 15: Asset Condition by Asset Category

Source of Condition Data

This AMP relies on assessed condition for 85% of assets, based on and weighted by replacement cost. For the remaining assets, 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 16 below identifies the source of condition data used throughout this AMP.

Asset Category	Asset Segment(s)	% of Assets with Assessed Conditions	Source of Condition Data
Road Network	Gravel roads HCB roads LCB roads	96%	2021-2022 RNS
Bridges & Culverts	All	91%	OSIM 2023
Buildings	All	96%	BCA 2024
Land Improvements	Fields, Courts & Rinks	33%	Staff Assessment

Machinery & Equipment	Communication Towers Public Works	13%	Staff Assessment
Vehicles	All	0%	

Figure 16: Source of Condition Data

3.2.4. Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 38% of the Municipality's assets will require replacement within the next 10 years.

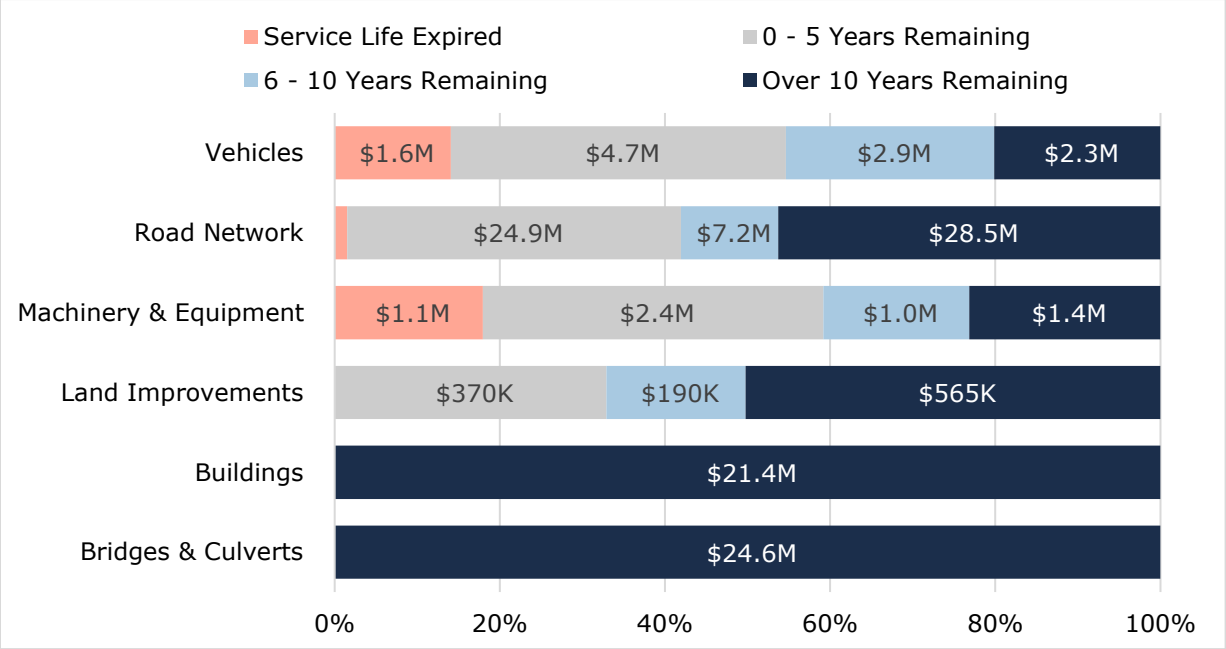


Figure 17: Service Life Remaining by Asset Category

3.2.5. Risk Matrix

Using the risk equation and preliminary risk models, the overall asset risk breakdown for Hastings Highlands's asset inventory is portrayed in the figure below.

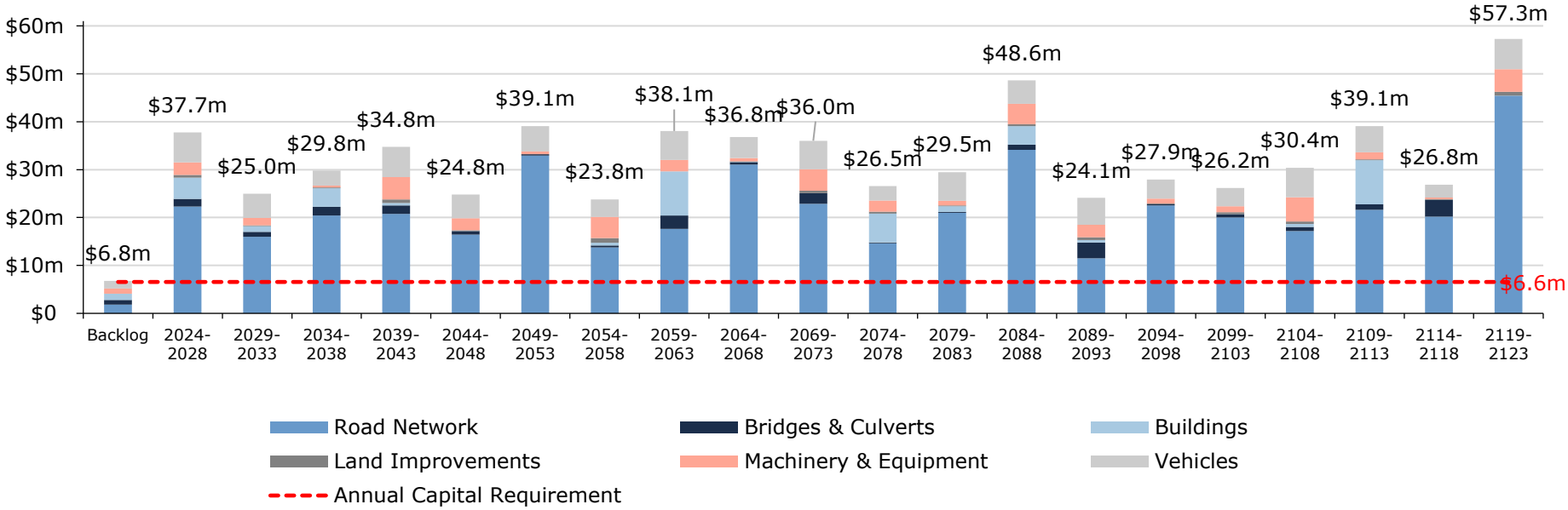
Figure 18: Risk Matrix: All assets

Reviewing the list of very high-risk assets to evaluate how best to mitigate the level of risk the Municipality is experiencing will help advance Hastings Highlands's asset management program.

3.2.6. Forecasted Capital Requirements

Aging assets require maintenance, rehabilitation, and replacement. Figure 19 below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for all asset categories analyzed in this AMP over a 98-year time horizon. On average, $6.6 million is required each year to remain current with capital replacement needs for the Municipality's 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.

Figure 19: Forecasted Capital Replacement Requirements



The chart also illustrates a backlog of $6.8 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. This makes continued and expanded 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 both backlogs and ongoing capital needs and help select the right treatment for each asset. In addition, more effective componentization of buildings will improve these projections, including backlog estimates.

Proposed Levels of Service

4. Proposed Levels of Service

4.1. Scope

4.1.1. 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.
    - Identification of which lifecycle activities identified 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 Municipality have been developed through comprehensive engagement with Municipality 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 (trade-offs)

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 588/17 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.

4.1.4. Community Engagement Survey

As part of the development of the 2025 Asset Management Plan, Hastings Highlands 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 results of the survey indicate that most respondents feel municipal services generally meet expectations across all asset categories, with some areas identified for potential improvement.

Community engagement efforts provided valuable insight into resident priorities, ensuring that asset management strategies align with public expectations. Environmental protection emerged as the highest priority, followed by limiting cost increases for residents, supporting the local economy, attracting new businesses, and assisting the aging population. In terms of infrastructure services, roads and bridges were identified as the most important, followed by outdoor open spaces such as parks and trails, and then recreational facilities. When asked about tax rates, 75% of respondents indicated that maintaining moderate tax levels was important, while 21% considered it somewhat important, and only 2% did not prioritize it. These findings highlight the community's desire for balanced investment, maintaining essential services while managing costs effectively.

The community engagement survey has provided valuable insights into public satisfaction with municipal services, highlighting areas of strength and opportunities for improvement. The feedback highlights a strong preference for balancing service levels with moderate tax rates, as most respondents prioritized cost management while still valuing essential infrastructure investments. While limiting tax increases is important, strategic investments may still be necessary to support key community priorities, such as environmental protection, economic growth, and infrastructure maintenance. These insights will help shape the Asset Management Plan, ensuring future decisions align with both financial sustainability and community needs.

4.2. Proposed Levels of Service Analysis

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: Achieving Full Funding in 15 Years

Approach: This scenario assumes a phased tax increase of approximately 2.7% annually, reaching full funding within 15 years.

Scenario 2: Achieving 75% Funding in 15 Years

Approach: This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 75% of full funding within 15 years.

Scenario 3: Achieving 50% Funding in 15 Years

Approach: This scenario assumes a phased tax increase of approximately 0.7% annually, reaching 50% of full funding within 15 years.

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

4.2.1. Preferred Level of Service Approach and Rationale

While all three scenarios were reviewed, the Municipality of Hastings Highlands 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. Hastings Highlands' Strategic Plan prioritizes financial stability and outlines a commitment to a "pay-as-you-go" principle, with actions to preserve and grow reserves and refresh key financial policies such as the Reserves Policy. Adopting a full funding approach aligns with these objectives by ensuring that lifecycle costs are proactively planned and funded, reducing long-term financial risk and supporting sustainable service delivery.

Community input has further supported this direction. The recent survey results indicate that most residents feel current service levels generally meet

expectations, with roads and bridges ranked as the highest infrastructure priority. Importantly, 75% of respondents emphasized the importance of maintaining moderate tax levels, suggesting a clear desire for cost-conscious yet reliable municipal services. A full funding model enables the municipality to maintain essential services and infrastructure without resorting to reactive or emergency spending, helping to balance financial responsibility with long-term investment in community priorities such as environmental protection, infrastructure maintenance, and economic resilience.

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: Achieving Full Funding in 15 Years

This scenario involves a phased tax increase of approximately 2.7% annually, aimed at reaching full funding within 15 years. The approach focuses on ensuring the municipality can fully fund its infrastructure needs over a set period. 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. Lifecycle Changes Required

Increasing capital investment to achieve full funding over 15 years would significantly improve the municipality's ability to manage its infrastructure assets. This phased approach would allow for incremental funding increases, enabling proactive maintenance, timely upgrades, and early replacements, which would reduce the need for emergency repairs and extend asset lifecycles. The following lifecycle activities would be undertaken:

- Paved Roads
  - Accelerate the conversion of Low-Class Bituminous (LCB) roads to High-Class Bituminous (HCB) by completing more conversions annually.
  - Reduce reliance on converting roads to gravel once they deteriorate, shortening the current 15-year conversion timeframe.
- Bridges & Culverts:
  - Reduce loading restrictions on the bridge from 8% to 0%, improving accessibility and safety.
- Buildings:

- Capacity to implement all recommendations from Building Condition Assessments promptly, ensuring critical infrastructure components are preserved and avoiding costly deferrals.

- Land Improvements
  - Reduce reliance on grant funding by enabling timely replacements and upgrades of recreational assets.
- Addressing the Backlog
  - Begin addressing the backlog, reducing it gradually over the 15-year period.

4.3.2. Sustainability and Feasibility of Proposed Service Levels

Of the three scenarios analyzed, Scenario 1 requires the highest tax increase. Reaching full funding immediately would require an increase of 50.9% 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 $8.1 million to $12.1 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 4: 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	$1.9m	$2.1m	$2.4m	$2.6m	$2.9m	$3.1m	$3.4m	$3.7m	$4.0m	$4.3m

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.

4.3.3. 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 municipality can make informed decisions that support long-term service reliability.

Scenario 1 Risks

- Delayed Improvement: The municipality will not see significant improvements in asset conditions or service levels until full funding is reached after 15 years. However, gradual improvements will be made over time as funding increases.
- Infrastructure Backlog: Without immediate funding, there is a risk that the existing infrastructure backlog could continue to grow, potentially leading to higher long-term costs and service disruptions.
- Resource Constraints: Implementing and maintaining this service level option may stretch the municipality's operational capacity, particularly if there are limited resources or capacity to handle the expanded scope of work over the long term.
- Taxation Increase: While a 2.7% annual tax increase is technically achievable, there's a possibility that residents may not fully support sustained increases over the long term, especially given the preference for moderate tax rates and the general satisfaction with current services.

4.4. Scenario 2: Achieving 75% Funding in 15 Years

This scenario involves a phased tax increase of approximately 1.8% annually, with the goal of achieving 75% funding within 15 years. The approach represents a more moderate level of funding while still addressing infrastructure needs. 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. Lifecycle Changes Required

Increasing capital investment to achieve 75% funding would improve the municipality's ability to manage infrastructure, extending asset lifecycles and reducing the need for major repairs. For all asset categories, more funding would enable proactive maintenance, timely upgrades, and early replacements. This scenario would contribute to gradual improvements in infrastructure conditions and help reduce the existing backlog. Increased funding could also support reducing loading restrictions on bridges, helping ensure transportation networks remain accessible and functional. These improvements would support the municipality's goal of enhancing infrastructure reliability and service delivery over the long term.

- Paved Roads
  - Accelerate the conversion of LCB roads to HCB by completing more conversions annually. However, some conversions may still be deferred or postponed due to budget constraints.
- Bridges & Culverts

    - Implement most OSIM report recommendations in a timely manner, potentially deferring some lower-priority repairs and upgrades.
- Buildings
    - Complete annual BCAs, with slightly slower implementation of the recommendations, with some deferred actions due to funding limitations.
- Land Improvements
    - Reduce reliance on grant funding but potentially face delays in replacing or upgrading recreational assets depending on available resources, with some projects deferred until funding allows.
- Addressing the Backlog
    - Begin addressing the backlog but at a slower pace compared to the full funding scenario, reducing it gradually over the 15-year period.

4.4.2. Sustainability and Feasibility of Proposed Service Levels

Of the three scenarios analyzed, Scenario 2 requires a moderate tax increase. Reaching 75% of full funding 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 $8.1 million to $10.7 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 5: 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	$1.8m	$2.0m	$2.3m	$2.5m	$2.6m	$2.8m	$3.0m	$3.2m	$3.3m	$3.5m

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.

4.4.3. 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 municipality can make informed decisions that support long-term service reliability.

Scenario 2 Risks

- Delayed Improvement: The municipality will not see significant improvements in asset conditions or service levels until 75% funding is reached after 15 years. While some improvements will occur, they may not be as rapid as those seen with a higher funding approach.
- Infrastructure Backlog: This scenario would help address the infrastructure backlog but will leave some backlog unresolved. The growing demand for infrastructure, particularly aging assets, poses a risk that may lead to higher long-term costs and operational challenges.
- Resource Constraints: Implementing and maintaining this service level option may stretch the municipality's operational capacity, particularly if there are limited resources or capacity to handle the expanded scope of work over the long term.

4.5. Scenario 3: Achieving 50% Funding in 15 Years

This scenario involves a phased tax increase of approximately 0.7% annually, with the goal of achieving 50% funding within 15 years. The goal is to provide a lower tax burden while making incremental progress toward meeting the municipality's infrastructure funding needs. 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. Lifecycle Changes Required

Increasing capital investment to achieve 50% funding would lead to gradual improvements in managing infrastructure assets. This level of investment would support some proactive maintenance and early replacements but may not fully address aging infrastructure or reduce the backlog as effectively as higher funding scenarios. While asset lifecycles would extend, repairs and replacements may remain suboptimal. Reducing loading restrictions on bridges may take longer to accomplish. Overall, this scenario would maintain infrastructure reliability, but service delivery improvements would be less significant.

- Paved Roads
  - Accelerate the conversion of LCB roads to HCB by completing more conversions annually. However, some conversions may still be deferred or postponed due to budget constraints.
- Bridges & Culverts
  - Implement some OSIM report recommendations, potentially deferring some lower-priority repairs and upgrades.
- Buildings

- Complete annual BCAs, with slightly slower implementation of the recommendations, with some deferred actions due to funding limitations.

- Land Improvements
  - Reduce reliance on grant funding but potentially face delays in replacing or upgrading recreational assets depending on available resources, with some projects deferred until funding allows.

4.5.2. Sustainability and Feasibility of Proposed Service Levels

Scenario 3 requires a conservative tax increase, requiring the lowest tax increase of the three scenarios. The 15-year phased approach requires annual tax increases of approximately 0.7% to achieve the target.

Scenario 1 requires a conservative tax increase, requiring the lowest increase of the three scenarios analyzed. Reaching 50% of full funding immediately would require an increase of 13.0% 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 $8.1 million to $9.0 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 6: 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	$1.7m	$1.8m	$2.0m	$2.1m	$2.1m	$2.2m	$2.2m	$2.3m	$2.4m	$2.4m

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.

4.5.3. 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 municipality can make informed decisions that support long-term service reliability.

Scenario 3 Risks

- Slow Improvement: While this investment level will address some maintenance needs, progress may be limited, leading to ongoing challenges in infrastructure management.
- Infrastructure Backlog: This investment level will likely leave a considerable backlog in infrastructure repairs and replacements. While it helps maintain some asset lifecycles, the backlog will continue to grow, leading to increased risks of service disruptions and higher costs over time.
- Taxation Increase: While a 0.7% annual increase is the most manageable, it may not provide enough funding to meet future service demands. This scenario may be more acceptable in the short term, but could become unsustainable in the long run if infrastructure needs continue to rise.

Categorical Analysis

5. Road Network

5.1. State of the Infrastructure

Hastings Highland's Road Network comprises the largest share of its infrastructure portfolio, with a current replacement cost of $95.8 million, distributed among Asphalt (HCB), Surface-Treated (LCB), Gravel roads, and the Maynooth Downtown revitalization. The Municipality also owns and manages other supporting infrastructure and capital assets, including streetlights and sidewalks.

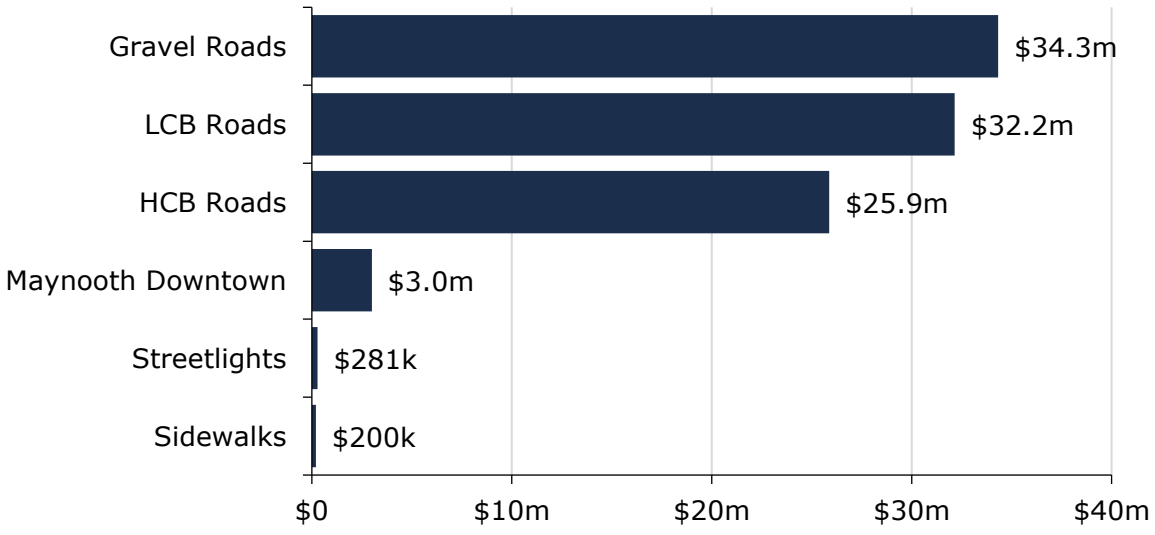
The state of the infrastructure for the road network is summarized below.

Replacement Cost	Condition	Financial Capacity	
		Annual Requirement:	$4,333,788
$95,840,000	Good (68%)	Funding Available:	$1,134,096
		Annual Deficit:	$3,199,904

5.2. Inventory & Valuation

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

Figure 20: Road Network Replacement Value

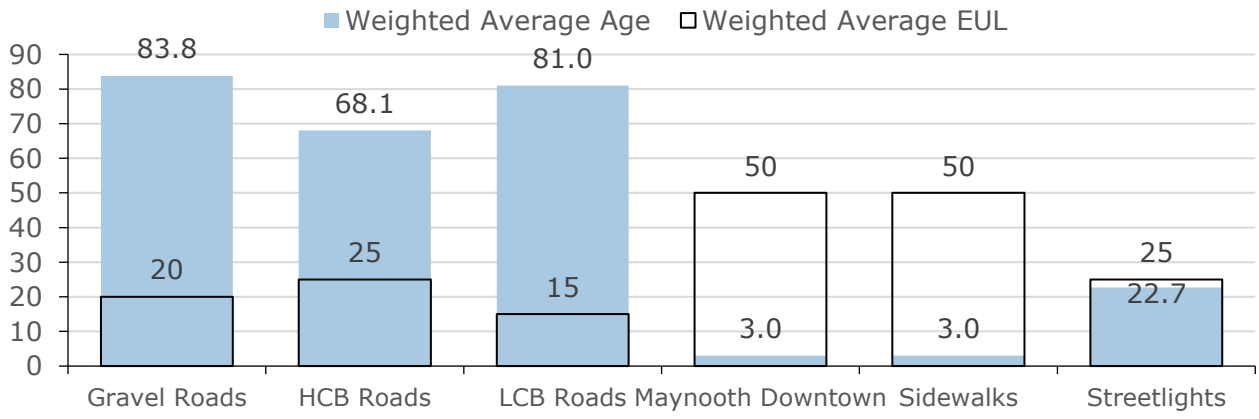


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

5.3. Asset Condition & Age

The graph below identifies the average age, and the estimated useful life for each asset segment[2]. The values are weighted based on replacement cost.

Figure 21: Road Network Average Age vs Average EUL

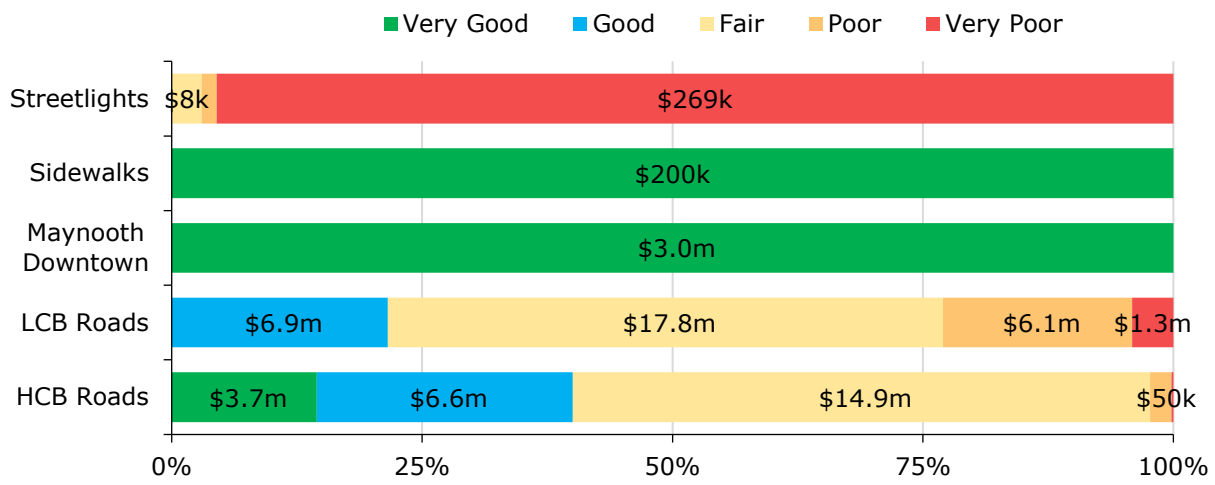


The analysis shows that, based on in-service dates, roads continue to remain in operation beyond their expected useful life. This is due to the life cycle management strategies currently being utilized.

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

Figure 22: Road Network Condition Breakdown

[2] Gravel roads undergo perpetual operating and maintenance activities. If maintained properly, they can theoretically have a limitless service life



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 determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The Municipality conducts comprehensive road needs assessments every 5-10 years that serve to evaluate the current condition of road infrastructure, identify areas requiring maintenance or rehabilitation, and inform future investment decisions. The last roads needs assessment was completed in 2022 by D.M. Wills Associates Limited. Roads needs assessments aid the Municipality in efficiently allocating resources, optimizing maintenance schedules, developing a 5-year plan for rehabilitation/replacement, and ensuring the continued safety and functionality of the transportation network.

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 shown in Figure 23 have been developed as a proactive approach to managing the lifecycle of municipally owned roads. Instead of allowing the roads to deteriorate until replacement is required, strategic rehabilitation is expected to extend the service life of roads at a lower total cost.

In addition to these strategies, the municipality is conducting gravel crushing, ditching, brushing, and culvert installations in-house to further reduce total costs of maintenance and rehabilitation activities.

Figure 23: Road Network Current Lifecycle Strategy

Maintenance

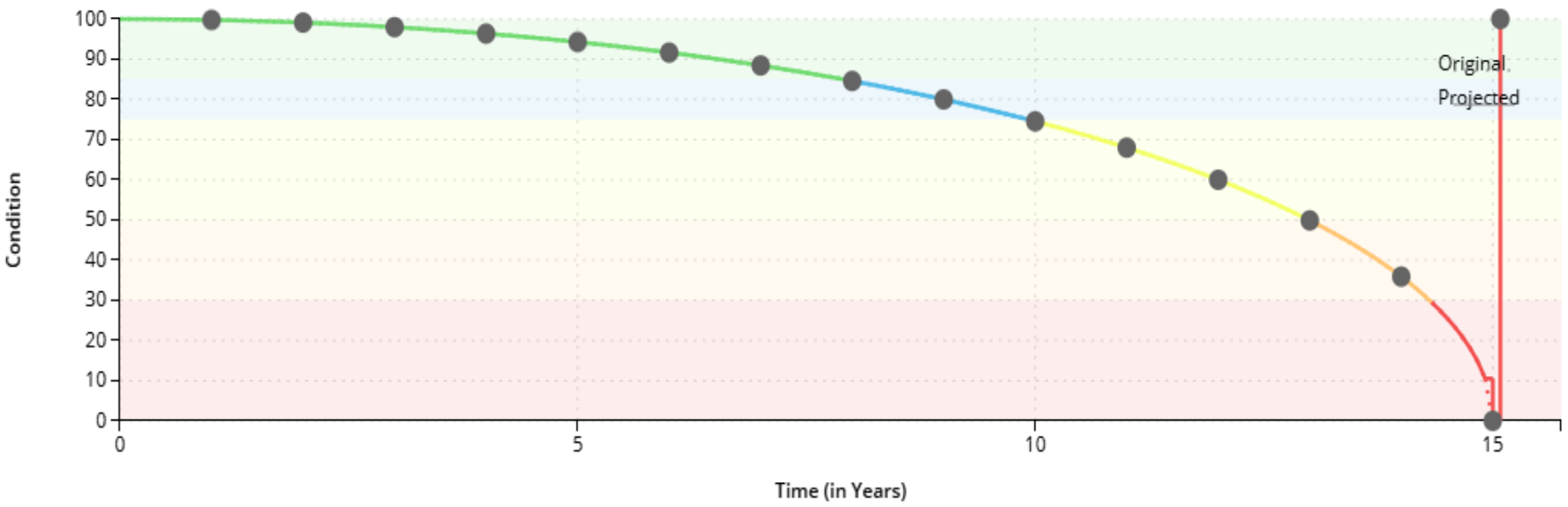
- Deficiency repairs as required from patrols for minimum maintenance standards such as patching, shoulder grading, etc.
- Winter control activities such as 24 hrs monitoring on highways, salt and sand, and snowplow

Rehabilitation / Renewal / Replacement

- Road rehabilitation projects are planned and executed in alignment with the Roads Needs Study
- Gradual convert all LCB roads to HCB surfaces over time, contingent upon available funding, to improve durability and reduce long-term maintenance costs.
- Council-approved five-year road plans are formulated using the Roads Needs Study, available traffic count data, current road surface conditions, maintenance program costs for preserving surface quality, and considerations of risk and liability.

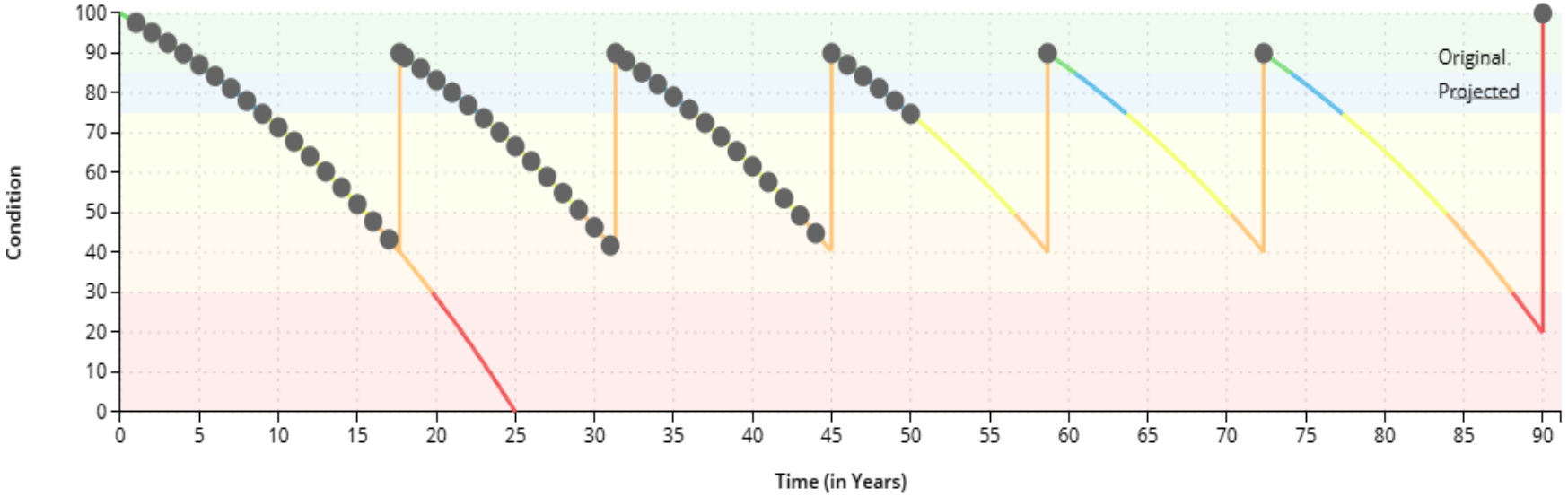
Pavement Condition Index scores, staff judgment, traffic loads, and opportunity to bundle projects help inform the optimal lifecycle intervention, ranging from pothole repairs to overlays and potential replacements. Lifecycle models used to estimate the savings to annual capital requirement are shown below in Figure 24 for Paved (LCB) roads, and Figure 25 for Asphalt (HCB) Roads.

Figure 24: Paved Roads (LCB) Road Lifecycle Model



LCB Roads		
Event Name	**Event Class**	**Event Trigger**
Patching	Maintenance	Annual event
Full Reconstruction	Replacement	Condition at 0%

Figure 25: Asphalt Roads (HCB) Road Lifecycle Model



HCB Roads		
Event Name	**Event Class**	**Event Trigger**
Patching	Maintenance	Annual event
Hot mix resurfacing	Rehabilitation	Condition at 40%
Full Reconstruction	Replacement	Condition at 0%

5.5. Forecasted Capital Requirements

Figure 26 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Municipality's road network. Based on the lifecycle strategies identified previously for HCB and LCB roads, and assuming the end-of-life replacement of all other assets in this category, the following graph forecasts capital requirements for the road network. This analysis was run until 2083 to capture at least one iteration of replacement for the longest-lived asset in the asset register.

Hastings Highlands's average annual requirements (red dotted line) total $4.3 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 26: Road Network Forecasted Capital Replacement Requirements

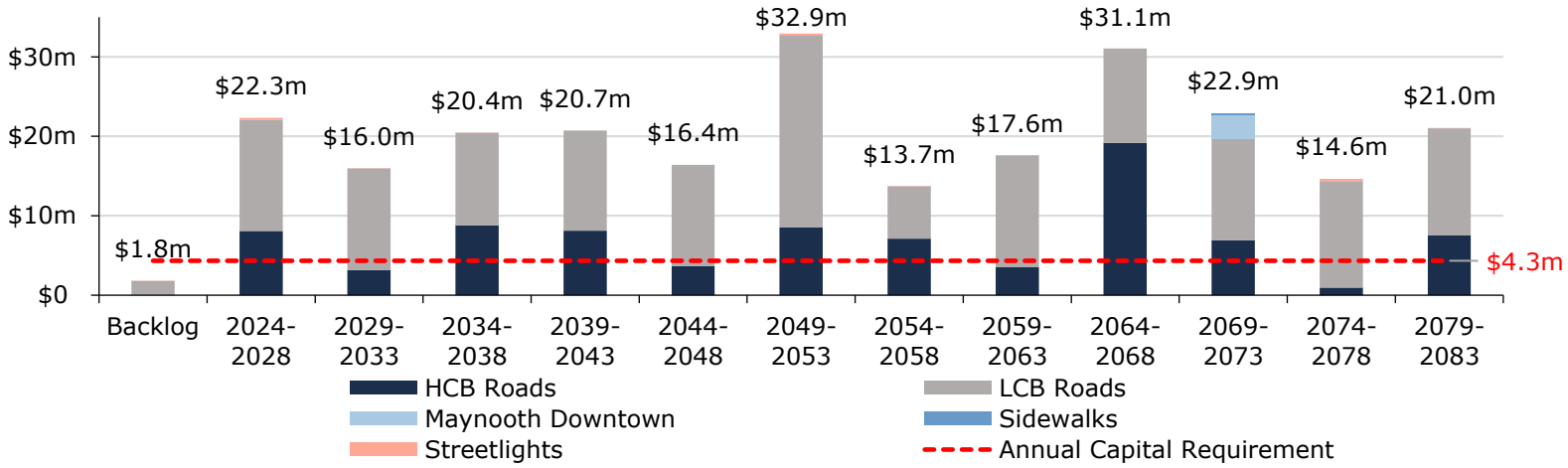


Table 7 below summarizes the projected cost of lifecycle activities (rehabilitation and replacement) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

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 Municipality's capital expenditure forecasts.

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

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
HCB Roads	$323k	$0	$0	$0	$1.5m	$39k	$3.1m	$1.2m	$1.4m	$4.8m
LCB Roads	$4.2m	$4.2m	$8.9m	$750k	$2.1m	$3.8m	$0	$614k	$686k	$2.6m
Maynooth Downtown	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sidewalks	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Streetlights	$0	$244k	$0	$0	$0	$0	$0	$0	$4k	$0
Total	**$4.5m**	**$4.4m**	**$8.9m**	**$750k**	**$3.6m**	**$3.9m**	**$3.1m**	**$1.8m**	**$2.1m**	**$7.4m**

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 27: Road Network Risk Matrix

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

5.6.1. Risks to Current Asset Management Strategies

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

Asset Data Confidence

There is a lack of confidence in the available inventory data, specifically in the accuracy of the Average Annual Daily Traffic (AADT) data captured in the Roads Needs Study. To mitigate these risks, the municipality should regularly review and update AADT data. Staff plan to prioritize data refinement efforts to increase the accuracy and reliability of asset data and information. Once completed, staff can confidently develop data-driven strategies to address infrastructure needs.

Climate Change & Extreme Weather Events

Climate change introduces significant impacts through rising temperatures, which can further accelerate the deterioration of road surfaces and weaken their foundations. Flooding and extreme weather events, including increased freeze and thaw cycles, can cause substantial damage to the municipality's roads. For instance, freezing rain followed by rapid freezing can cause ice to expand within cracks and potholes in the pavement, worsening existing pavement issues and increasing the need for repairs or resurfacing. This ongoing cycle of damage and repair can ultimately strain municipal resources and elevate maintenance costs.

Hastings Highlands HH Road 62

The Municipality has assumed approximately 30 kilometers of HH Road 62, previously known as Provincial Highway 62. According to Ministry of Transportation specifications, the cost to fully rehabilitate this road is estimated at $25.5 million as of 2025. Currently, this estimated cost far exceeds the municipality's funding capacity. The substantial funding gap affects the road's condition and its ability to serve its intended purpose effectively. Despite exploring various financial resources, the municipality has determined that it cannot secure the necessary funds for this project on its own. As a result, the Municipality is actively seeking external financial support to bridge this funding gap and achieve the required road rehabilitation.

5.7. Levels of Service

The following tables identify the Municipality's metrics to identify their current level of service for the Road Network. By comparing the cost, performance (average condition) and risk year-over-year, Hastings Highlands will be able to evaluate how their services/assets are trending.

5.7.1. 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

Values	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of the road network in the Municipality and its level of connectivity	See Appendix A.
Quality	Description or images that illustrate the different levels of road class pavement condition	See Figure 9 for the description of road condition.

5.7.2. 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	Curent LOS (2023)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area in the municipality (km/km^2)	0 lane km/km^2
	Lane-km of collector roads (MMS classes 3 and 4) per land area in the municipality (km/km^2)	0.44 lane km/km^2
	Lane-km of local roads (MMS classes 5 and 6) per land area in the municipality (km/km^2)	0.57 lane km/km^2
Quality	Average pavement condition index for paved roads in the municipality	67
	Average surface condition for unpaved roads in the municipality	54
Performance	Actual Capital Reinvestment Rate (Annual) – Target Reinvestment Rate (Annual)	1.2% - 4.5%

5.8. 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 *Section 4 Proposed Levels of Service*.

PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased tax increase of approximately 2.7% annually, reaching full funding within 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 0.7% annually, reaching 50% funding within 15 years

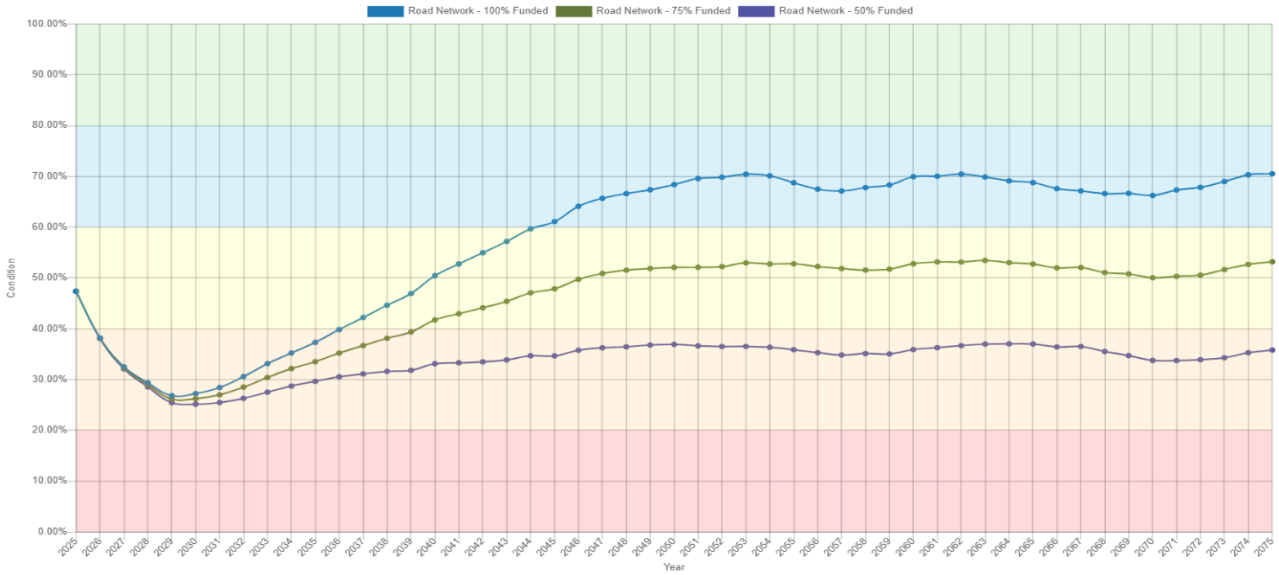
PLOS Analysis Results

The following table presents the outcomes for three investment scenarios, illustrating how varying levels of capital investment influence asset condition, risk, and required investment over time.

Table 10: Road Network pLOS Scenario Analysis

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	47.37%	37.32%	68.39%	57.36%
	Average Asset Risk	12.47	12.66	9.49	10.48
	Average Annual Investment		$4,333,788		
	Capital re-investment rate		4.5%		
Scenario 2	Average Condition	47.37%	33.51%	52.08%	45.66%
	Average Asset Risk	12.47	13.23	11.08	11.92
	Average Annual Investment		$3,279,578		
	Capital re-investment rate		3.4%		
Scenario 3	Average Condition	47.37%	29.66%	36.92%	34.06%
	Average Asset Risk	12.47	13.65	13.05	13.52
	Average Annual Investment		$2,065,646		
	Capital re-investment rate		2.2%		

Figure 28: Road Network Scenario Comparison



6. Bridges & Culverts

6.1. State of the Infrastructure

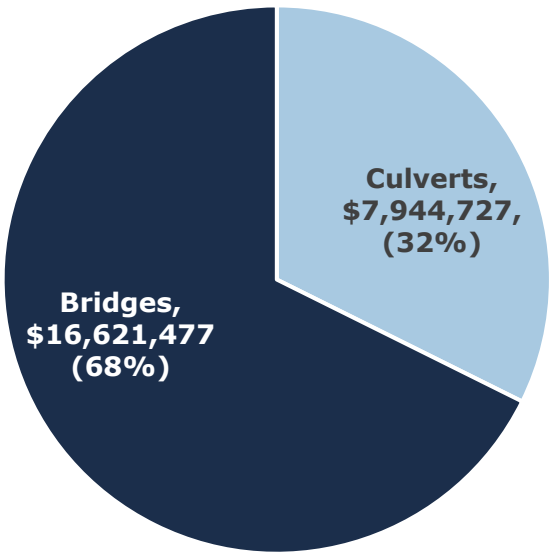
Bridges and culverts (B&C) represent a critical portion of the transportation services provided to the community. The state of the infrastructure for bridges and culverts is summarized in the following table.

Replacement Cost	Condition	Financial Capacity	
$24,566,000	Fair (71%)	Annual Requirement:	$610,063
		Funding Available:	$300,000
		Annual Deficit:	$ 310,063

6.2. Inventory & Valuation

Figure 29 below displays the replacement cost of each asset segment in the Municipality's bridges and culverts inventory.

Figure 29 Bridges & Culverts Replacement Cost

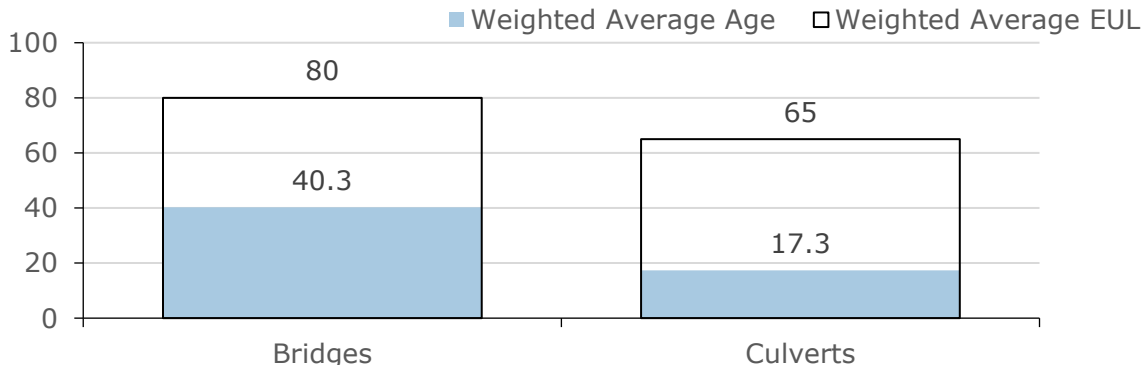


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed. This can be included in the Ontario Structures Inspection Manual (OSIM) inspections as the replacement cost is part of the calculation for the bridge condition index (BCI).

6.3. Asset Condition & Age

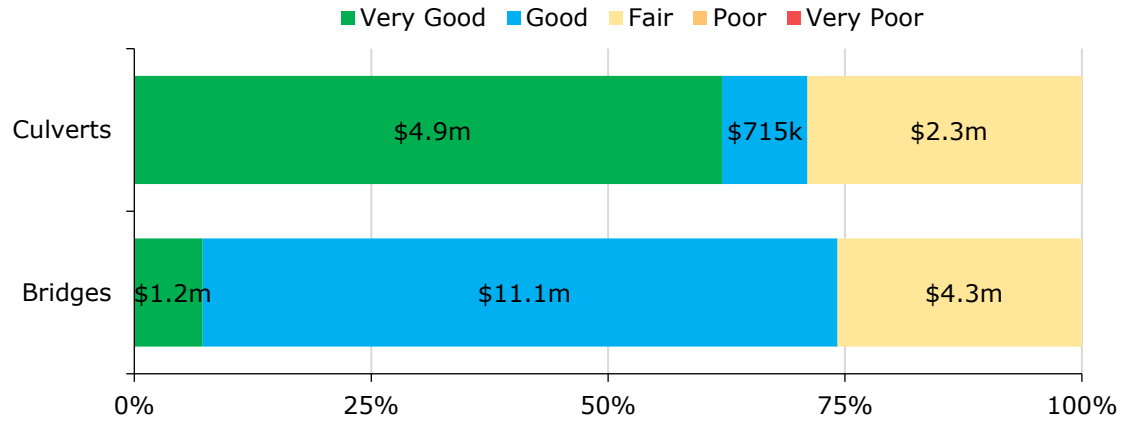
The graph below identifies the average age and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 30: 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 31: B&C Condition Breakdown



To ensure that the Municipality'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. In Hastings Highlands, the current practice involves inspecting the 12 bridges and 11

culverts every two years, following the Ontario Structure Inspection Manual (OSIM). The latest inspection was carried out in 2023 by Ainley Group, with the next round scheduled for fall 2025.

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 32 outlines Hastings Highlands' current lifecycle management strategy.

Figure 32: B&C Current Lifecycle Strategy

Maintenance

- All maintenance and repair activities are driven by the results of inspections competed according to the Ontario Structure Inspection Manual (OSIM)
- OSIM recommendations are taken into consideration during the development of the 5-year plan, and are dependent on available funding

Rehabilitation / Renewal / Replacement

- Replacement activities are incorporated into 5-year plan occurs upon OSIM recommendation, and are subjected to the availability of funding

6.5. Forecasted Capital Requirements

Figure 33 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Municipality'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 2103, and the resulting graph identifies capital requirements over the next 79 years. Hastings Highlands's average annual requirements (red dotted line) for bridges and culverts total $610 thousand. 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 33: B&C Forecasted Capital Replacement Requirements

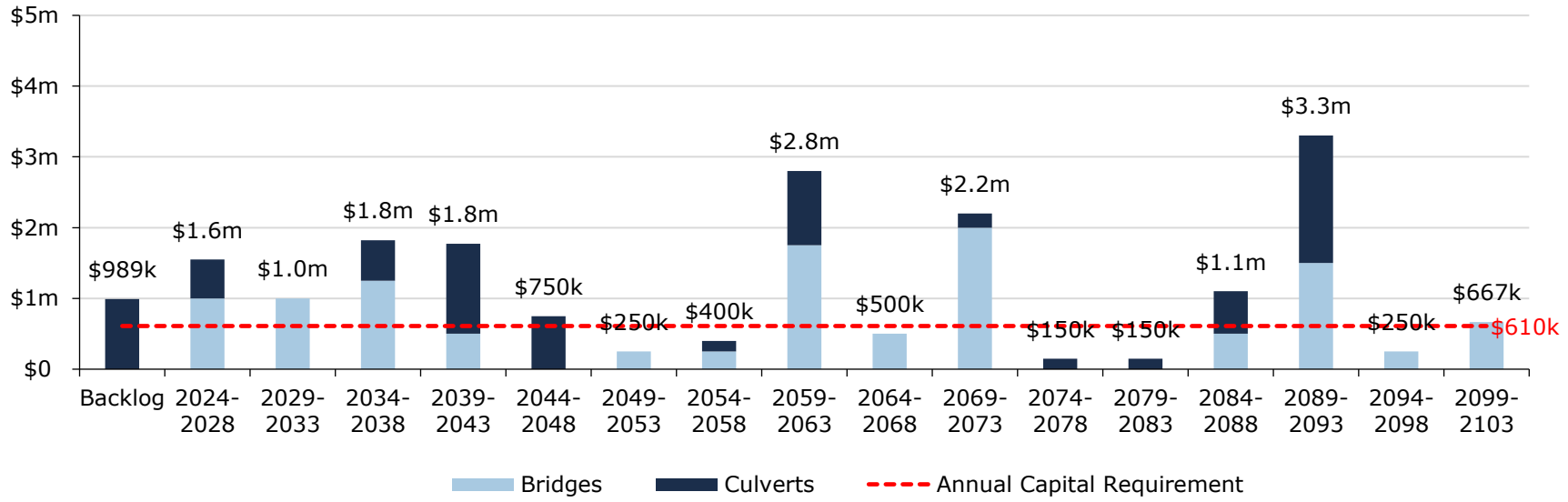


Table 11 below summarizes the projected cost of lifecycle activities (as previously described) that may need to be undertaken over the next 10 years to support current levels of service. These projections, outlined in the municipality's 5-year plan, are derived from the OSIM recommendations and are represented at the major asset level.

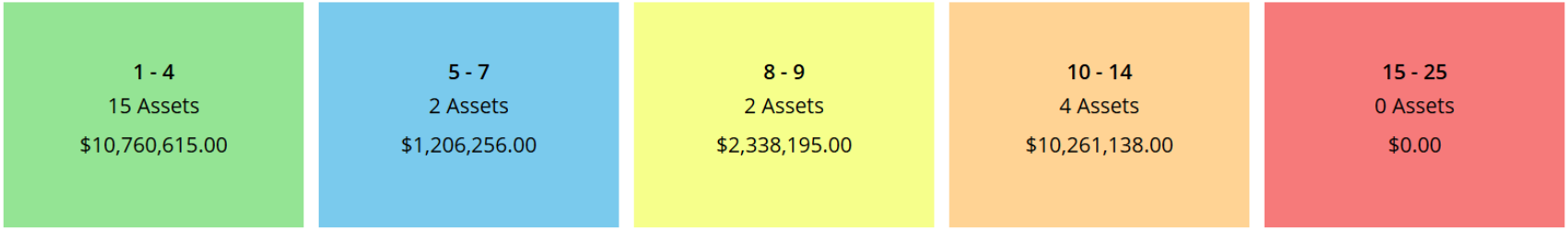
Table 11 B&C System-generated 10-Year Capital Costs

Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Bridges	$0	$550k	$425k	$550k	$0	$0	$0	$0	$0	$0
Structural Culverts	$150k	$0	$200k	$0	$0	$0	$0	$0	$0	$0
Total	**$150k**	**$550k**	**$625k**	**$550k**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

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 34: B&C Risk Matrix



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

Risks to Current Asset Management Strategies

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

Climate Change & Extreme Weather Events

Various bridges and Culverts were severely damaged during the major flooding in 2019. Following that, the municipality was partially reimbursed for the restoration of bridges and culverts impacted by the flood by the Municipal Disaster Recovery Assistance Program. Flooding and extreme weather causes damage to multiple components of the Municipality's bridges including the deck, superstructure, substructure, and approaches. The rising levels of freshwater and the increased frequency and intensity of precipitation events are likely to increase the deterioration of bridge components. Staff should identify and monitor effected bridges and culverts. The Municipality also should prioritize infrastructure maintenance, rehabilitation, and replacement based on susceptibility to climate impacts.

6.7. Levels of Service

The following tables identify the Municipality's metrics to identify their current level of service for the Bridges & Culverts.

6.7.1. Community Levels of Service

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

Table 12 B&C Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description of the traffic that is supported by municipal bridges (e.g. heavy transport, motor, emergency vehicles, pedestrians, cyclists)	The bridges within the Municipality accomodate a variety of traffic, acting as essential connections both within Hastings Highlands and for travel between other municipalities. They support a broad spectrum of vehicles, including large agricultural machinery, heavy transport trucks, motor vehicles, 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 A.

6.7.2. Technical Levels of Service

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

Table 13 B&C Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of bridges in the municipality with loading or dimensional restrictions	8%
Quality	Average bridge condition index value for bridges in the municipality	68%
	Average bridge condition index value for structural culverts in the municipality	73%
Performance	Actual Capital Reinvestment Rate (Annual) – Target Reinvestment Rate (Annual)	2.5% - 1.2%

6.8. 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 *Section 4 Proposed Levels of Service*.

PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased tax increase of approximately 2.7% annually, reaching full funding within 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 0.7% annually, reaching 50% funding within 15 years

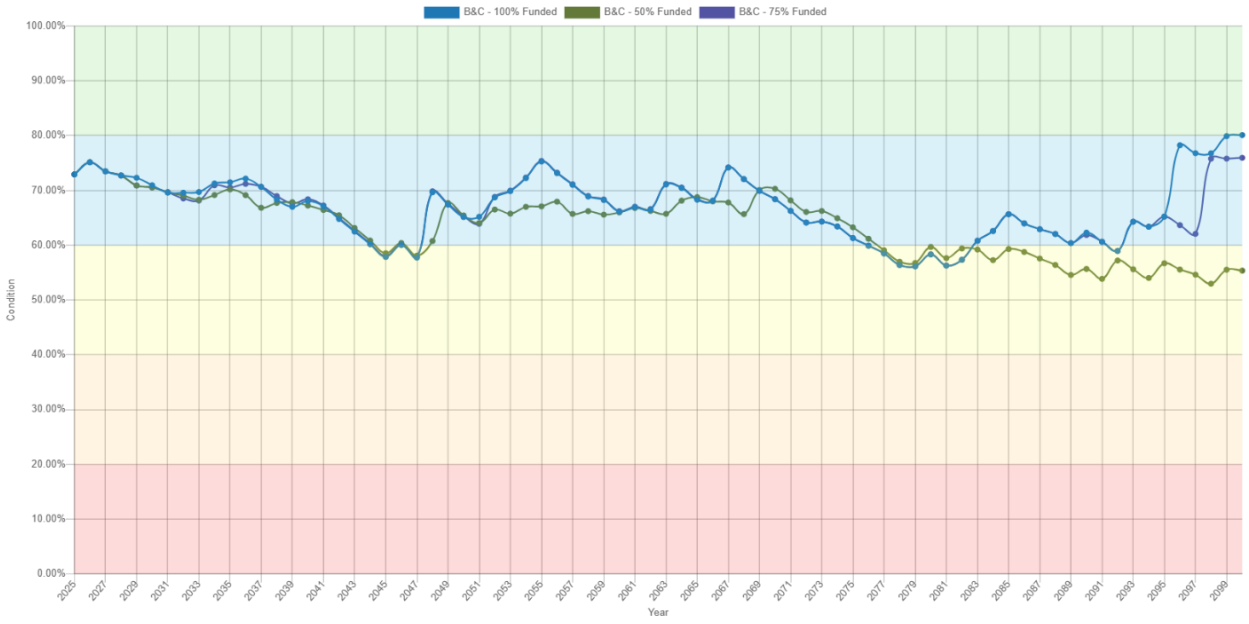
PLOS Analysis Results

The following table presents the outcomes for three investment scenarios, illustrating how varying levels of capital investment influence asset condition, risk, and required investment over time.

Table 14: Bridges & Culverts pLOS Scenario Analysis

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	72.92%	71.49%	65.14%	66.97%
	Average Asset Risk	5.66	5.59	5.34	6.71
	Average Annual Investment		$610,063		
	Capital re-investment rate		2.5%		
Scenario 2	Average Condition	72.92%	70.18%	65.44%	63.64%
	Average Asset Risk	5.66	5.79	5.28	7.29
	Average Annual Investment		$478,120		
	Capital re-investment rate		2.0%		
Scenario 3	Average Condition	72.92%	70.54%	65.31%	66.42%
	Average Asset Risk	5.66	5.71	5.34	6.84
	Average Annual Investment		$377,338		
	Capital re-investment rate		1.5%		

Figure 35: B&C Scenario Comparison



7. Buildings

7.1. State of the Infrastructure

Hastings Highlands owns and maintains several facilities that provide key services to the community. These include:

- Protection buildings such as 3 fire stations throughout Hastings Highlands, strategically located in Birds Creek, Monteagle Valley and Maynooth.
- Public Works buildings such as the Operations yard and attached administration building
- Recreation facilities such as the Lake St. Peter Community Centre, Herschel Community Centre, Birds Creek Community Centre, Maynooth Rink Building and Bangor Community Centre

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

Replacement Cost	Condition	Financial Capacity	
$21,350,000	Fair (67%)	Annual Requirement:	$428,300
		Funding Available:	$18,200
		Annual Deficit:	$410,100

7.2. Inventory & Valuation

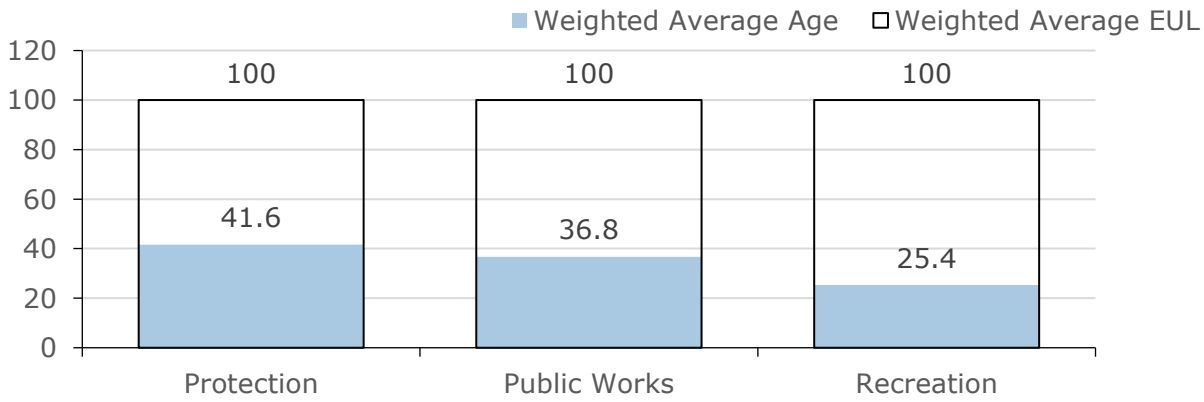
The graph below displays the total replacement cost of each asset segment in Hastings Highlands's buildings inventory. As the Municipality has not had a complete componentization of their buildings their inventory tracks buildings as a main asset with some small as replaced componentization.

Figure 36: Buildings Replacement Cost

7.3. Asset Condition & Age

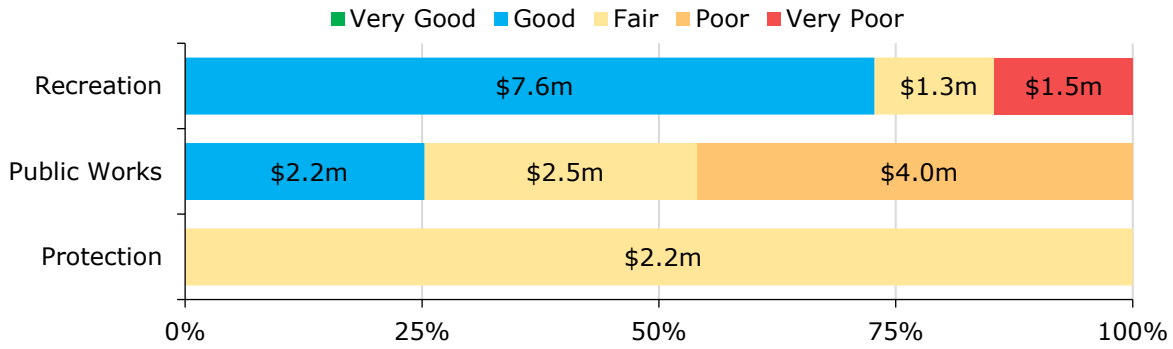
The graph below identifies the average age, and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 37: 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 38: Buildings Condition Breakdown



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

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 determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The municipality had 15 of their key facilities assessed in 2024. Based on the results, the municipality is planning to conduct these Building Condition Assessments every 5-10 years. These condition assessment strategies will also be included in the municipality's 5-year planning horizon.

Fire Halls are subject to mandated inspections to ensure compliance with safety regulations and standards, as well as for ensuring that the facilities are equipped to effectively respond to emergencies.

Other facilities are subjected to regular inspections of health & safety requirements as well as structural deficiencies that require additional attention.

7.4. Lifecycle Management Strategy

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

Figure 39: Buildings Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Buildings are repaired as needed, addressing deficiencies identified by experts, staff, or residents, contingent on available funding. Immediate attention is given to urgent issues. The Municipality will also be reviewing BCA data to help develop a plan for strategically investing in building repairs and maintenance.
- Heating systems and other component systems are repaired or replaced promptly on an as-needed basis
- Building rehabilitation and replacement is facilitated through grant funding

7.5. Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Hastings Highlands 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 requirements at $428 thousand.

Figure 40: Buildings Forecasted Capital Replacement Requirements

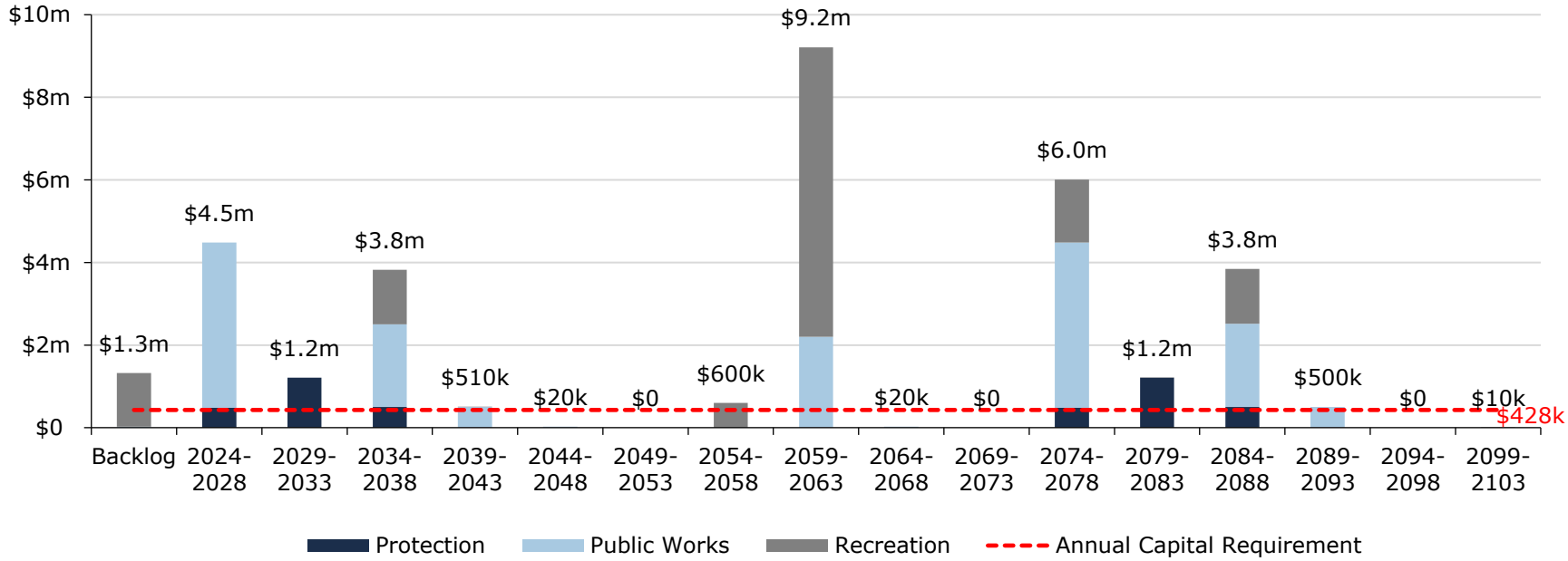


Table 15 below summarizes the projected cost of lifecycle activities (capital activities only) that may need to be undertaken over the next 10 years to support current levels of service.

Table 15 Buildings System-Generated 10-Year Capital Costs

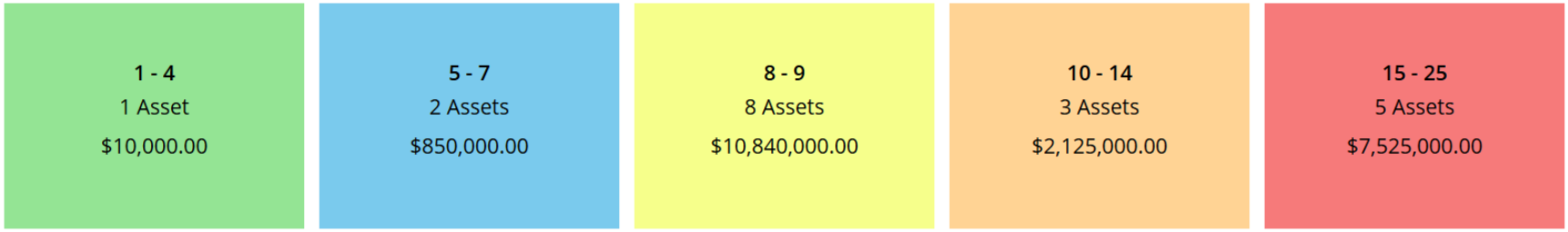
Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Protection	$42k	$80k	$188k	$71k	$158k	$221k	$185k	$70k	$129k	$201k
Public Works	$67k	$265k	$346k	$468k	$242k	$226k	$187k	$231k	$172k	$319k
Recreation	$33k	$411k	$392k	$321k	$861k	$174k	$581k	$311k	$335k	$437k
Total	**$142k**	**$757k**	**$926k**	**$859k**	**$1.3m**	**$621k**	**$953k**	**$612k**	**$636k**	**$957k**

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.

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 41: Buildings Risk Matrix



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 identification of critical assets allows the Municipality to determine 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 municipal building service delivery that the Municipality is currently facing:

Lifecycle Management Strategies

The lack of condition assessments poses a challenge in planning the lifecycle activities. Therefore, the nature of lifecycle activities is reactive. However, to address that, the municipality is in the process of getting their facilities assessed in 2024 and plan to incorporate periodic condition assessments into their asset management practice.

7.8. Levels of Service

The following tables identify the Municipality's metrics to identify their current level of service for municipal Buildings. By comparing the cost, performance (average condition) and risk year-over-year, Hastings Highlands will be able to evaluate how their services/assets are trending.

7.8.1. Community Levels of Service

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

Values	Technical Metric	Current LOS (2023)
Scope	Description of the current condition of municipal buildings and the plans that are in place to maintain or improve the provided level of service	The overall condition of the buildings in the Municipality are good. Municipality staff have had formal building condition assessments done to identify required maintenance and rehabilitation activities to ensure the state of the buildings remains in adequate condition

7.8.2. Technical Levels of Service

The quantitative metrics that determine the technical level of service provided by the buildings in Hastings Highlands are going to be the analysis of reinvestment rates, asset performance (condition breakdown) and asset risk levels.

Table 16 Buildings Technical Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Average Condition Rating	Good (67%)
	Average Risk Rating	High (12.66)
Performance	Actual Capital Reinvestment Rate (Annual) – Target Reinvestment Rate (Annual)	0.1% - 2.0%

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 municipal Buildings. Further PLOS analysis at the portfolio level can be found in *Section 4 Proposed Levels of Service*.

PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased tax increase of approximately 2.7% annually, reaching full funding within 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 0.7% annually, reaching 50% funding within 15 years

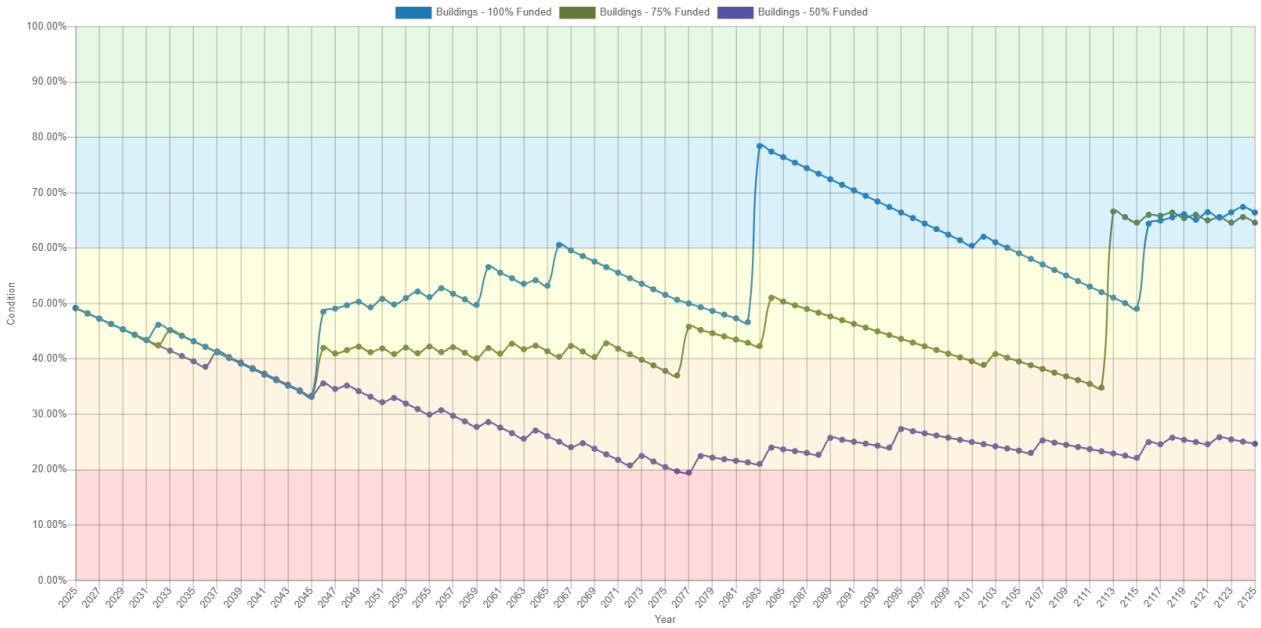
PLOS Analysis Results

The following table presents the outcomes for three investment scenarios, illustrating how varying levels of capital investment influence asset condition, risk, and required investment over time.

Table 17: Buildings & Facilities pLOS Scenario Analysis

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	50.15%	43.16%	49.32%	55.16%
	Average Asset Risk	17.68	17	16.47	14.33
	Average Annual Investment	$428,300			
	Capital re-investment rate	2.0%			
Scenario 2	Average Condition	50.15%	43.20%	41.22%	45.00%
	Average Asset Risk	17.68	17	18.31	16.09
	Average Annual Investment	$321,225			
	Capital re-investment rate	1.5%			
Scenario 3	Average Condition	50.15%	39.56%	33.18%	28.74%
	Average Asset Risk	17.68	17.68	20.47	18.95
	Average Annual Investment	$214,150			
	Capital re-investment rate	1.0%			

Figure 42: Buildings Scenario Comparison



8. Land Improvements

8.1. State of the Infrastructure

Hastings Highlands's land improvement infrastructure is made up of playground equipment, outdoor ice rinks in Birds Creek, Maynooth and Lake St Peter, a ball diamond in Birds Creek including lighting, pergolas and picnic shelters, as well as general improvements such as fencing.

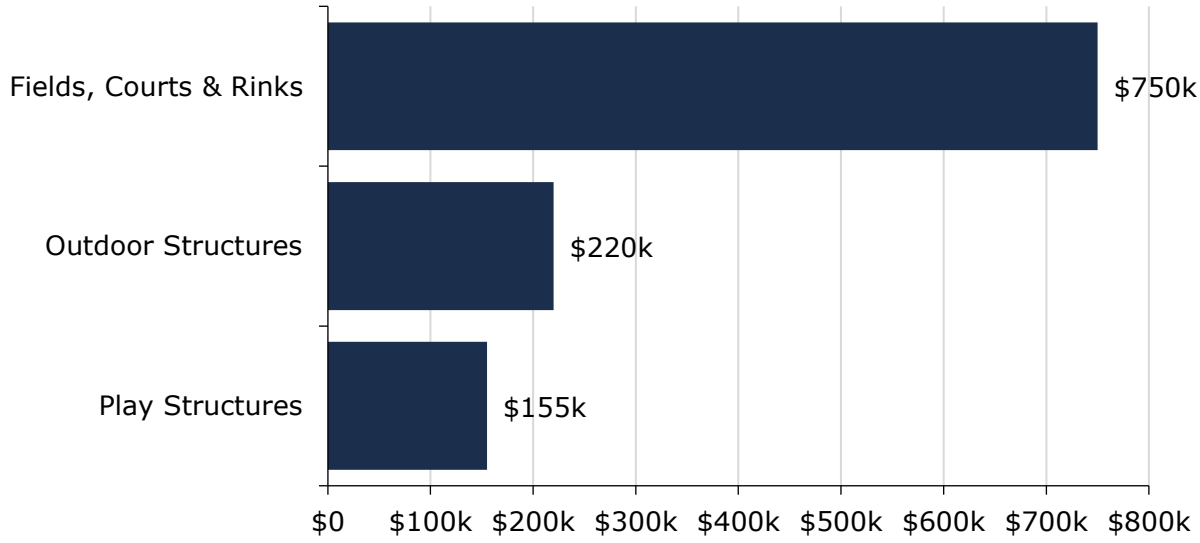
The state of the infrastructure for the land improvements is summarized in the following table.

Replacement Cost	Condition	Financial Capacity	
$1,125,000	Fair (50%)	Annual Requirement:	$56,250
		Funding Available:	$0
		Annual Deficit:	$56,250

8.2. Asset Inventory & Valuation

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

Figure 43: Land Improvements Replacement Cost

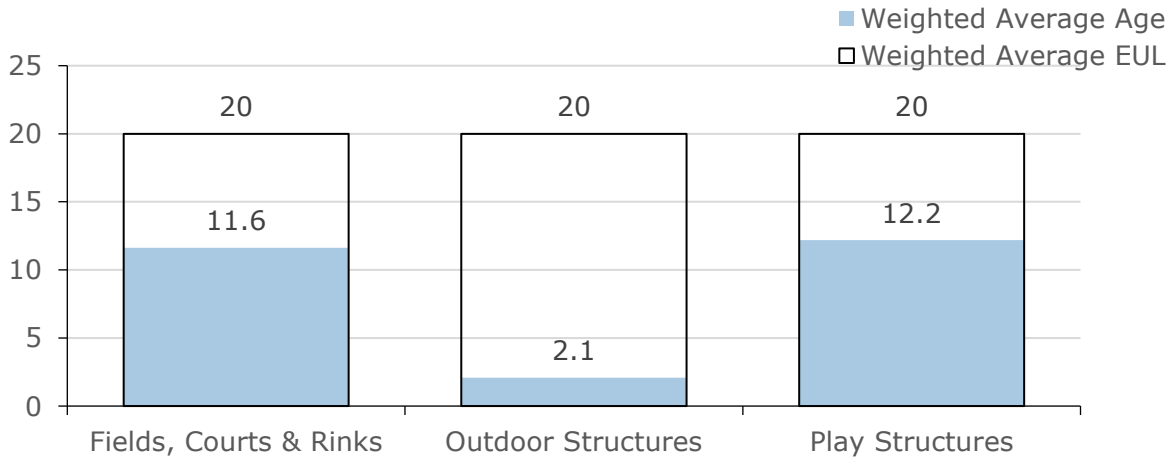


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

8.3. 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.

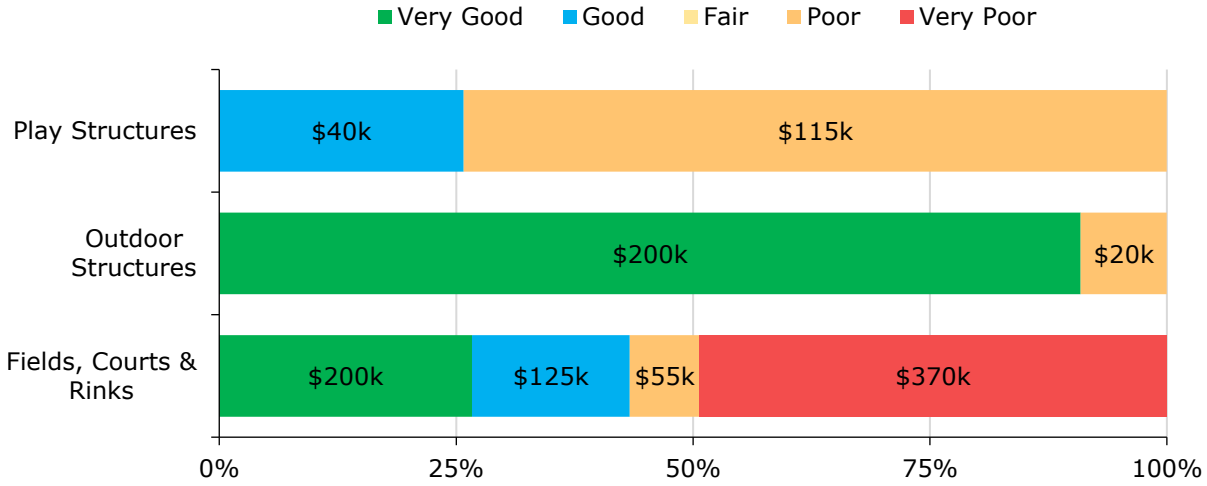
Figure 44: Land Improvements Average Age vs Average EUL



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 45: Land Improvement Condition Breakdown



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

8.3.1. 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. Due to the varied nature of the asset category the assets are managed individually. The Municipality employs an external contractor to conduct thorough inspections for its playground structures in accordance with CAN/CSA Z614 standards. Internal staff conducts visual inspections and routine maintenance based on resident complaints. This approach ensures the safety, functionality, and accessibility of Municipality playgrounds and parks, promoting enjoyable recreational experiences for residents and visitors alike.

8.4. Lifecycle Management Strategy

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 figures outline Hastings Highlands's current lifecycle management strategy.

Figure 46: Land Improvements Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

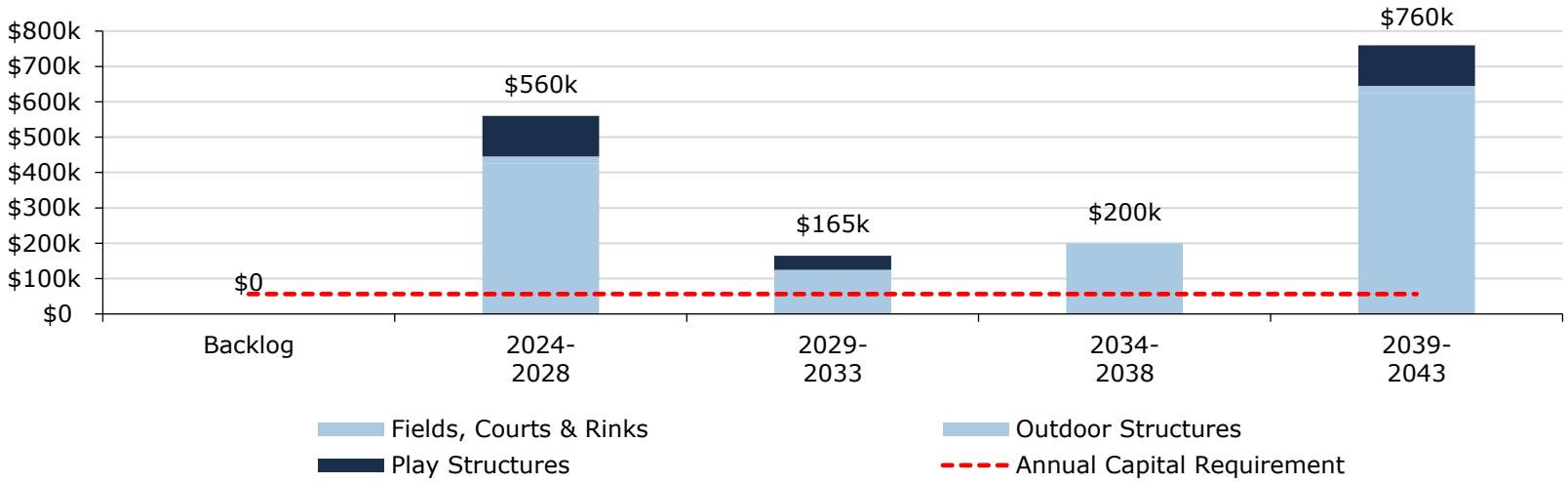
- This asset category's lifecycle requirements are dealt with on a case-by-case basis.
- Rehabilitation and replacement of land improvement assets are facilitated through grant funding

8.5. Forecasted Capital Requirements

Figure 47 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Municipality's land improvement infrastructure. This analysis was run until 2043 to capture at least one iteration of replacement for the longest-lived asset in the asset register. Hastings Highlands's average annual requirements (red dotted line) total $56 thousand 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 47: Land Improvements Forecasted Capital Replacement Requirements



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

Table 18 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 18 Land Improvements System-Generated 10-Year Capital Costs

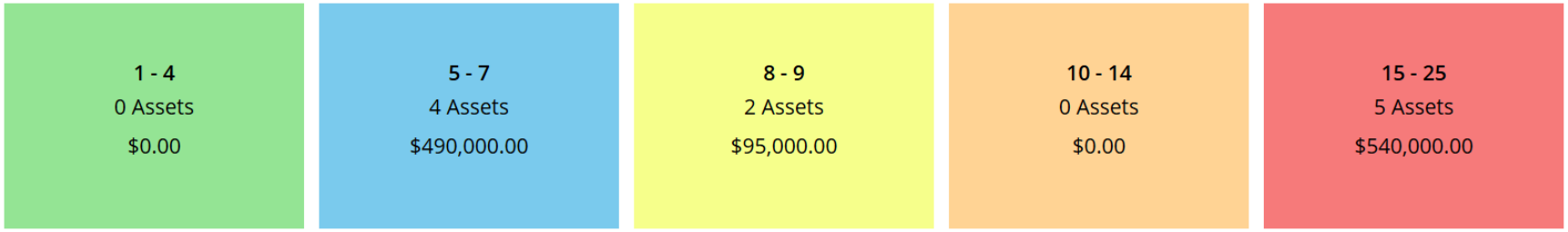
Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Fields, Courts & Rinks	$0	$425k	$0	$0	$0	$0	$0	$125k	$0	$0
Outdoor Structures	$0	$20k	$0	$0	$0	$0	$0	$0	$0	$0
Play Structures	$115k	$0	$0	$0	$0	$0	$0	$40k	$0	$0
Total	**$115k**	**$445k**	**$0**	**$0**	**$0**	**$0**	**$0**	**$165k**	**$0**	**$0**

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

8.6. 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 48: Land Improvement Risk Matrix



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 identification of critical assets allows the Municipality to determine 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 land improvements service delivery that the Municipality is currently facing:

Organizational Capacity

Both short- and long-term planning requires the regular collection of infrastructure data to support asset management decision-making. Staff find it a continuous challenge to dedicate resources and time towards conducting condition assessments to ensure that asset attribute data is regularly reviewed and updated. A standardized approach to data gathering and condition assessments with achievable goals may help to enable the Municipality to regularly update their asset data and information.

8.8. Levels of Service

The following tables identify the Municipality's metrics to identify their current level of service for Land Improvement assets. By comparing the cost, performance (average condition) and risk year-over-year, Hastings Highlands will be able to evaluate how their services/assets are trending.

8.8.1. Community Levels of Service

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

Values	Technical Metric	Current LOS (2023)
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	The overall condition of the asset category is Fair. The Municipality is focused on maintaining its land improvement assets with a clear plan for future development. Staff are preparing to integrate these assets into their 5-year planning strategy. Efforts will also continue to secure grant funding for upgrades to amenities including playgrounds, fields, and rinks, to ensure these community assets remain high-quality and beneficial for residents.

8.8.2. 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 19 Land Improvements Technical Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Average Condition Rating	Fair (50%)
	Average Risk Rating	High (13.13)
Performance	Actual Capital Reinvestment Rate (Annual) – Target Reinvestment Rate (Annual)	0% - 5.0%

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 *Section 4 Proposed Levels of Service*.

PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased tax increase of approximately 2.7% annually, reaching full funding within 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 0.7% annually, reaching 50% funding within 15 years

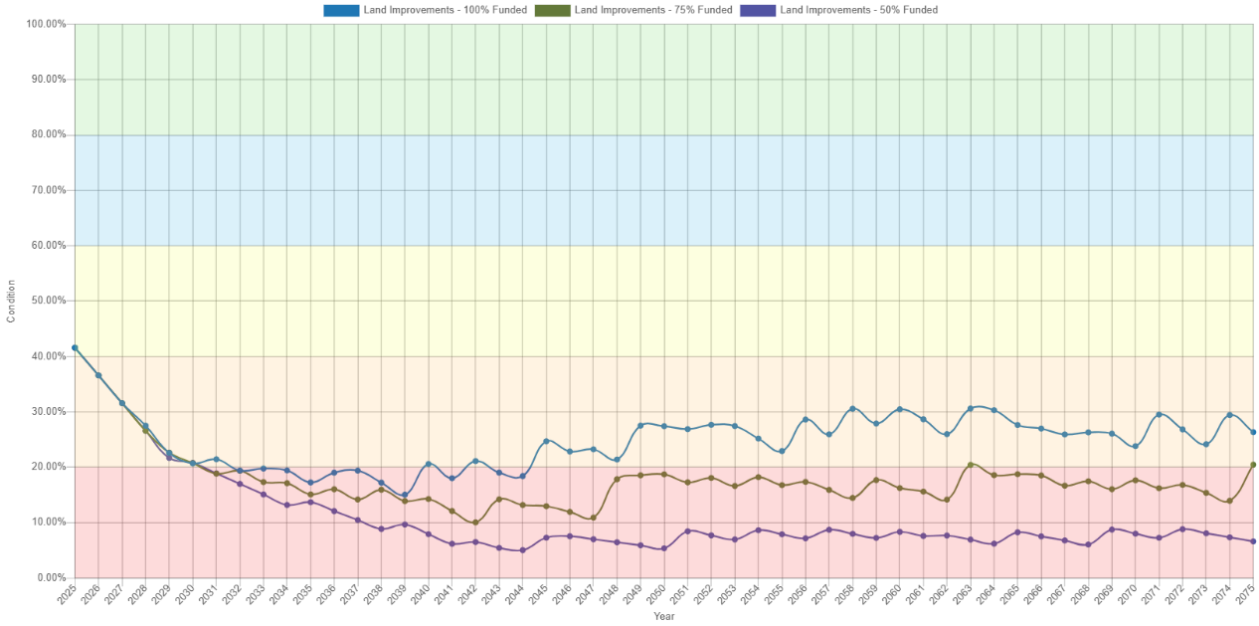
PLOS Analysis Results

The following table presents the outcomes for three investment scenarios, illustrating how varying levels of capital investment influence asset condition, risk, and required investment over time.

Table 20: Land Improvements pLOS Scenario Analysis

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	41.58%	17.25%	27.41%	24.99%
	Average Asset Risk	17.2	21.14	18.3	19.1
	Average Annual Investment		$64,250		
	Capital re-investment rate		5.0%		
Scenario 2	Average Condition	41.58%	15.08%	18.72%	17.79%
	Average Asset Risk	17.2	21.47	20.11	20.58
	Average Annual Investment		$36,773		
	Capital re-investment rate		2.9%		
Scenario 3	Average Condition	41.58%	13.69%	5.36%	10.96%
	Average Asset Risk	17.2	21.72	22.85	21.86
	Average Annual Investment		$15,967		
	Capital re-investment rate		1.2%		

Figure 49: Land Improvements Scenario Comparison



9. Machinery & Equipment

9.1. State of the Infrastructure

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

- Computers, servers, and phone systems to support municipal services
- Loaders, graders and steamers to support roadway maintenance
- Equipment for the fire department to effectively respond to emergencies, such as SCBA equipment, radios, harnesses, and fire hoses
- Landfill compactor and other equipment for solid waste disposal
- Communication Towers for wireless communication within the Municipality

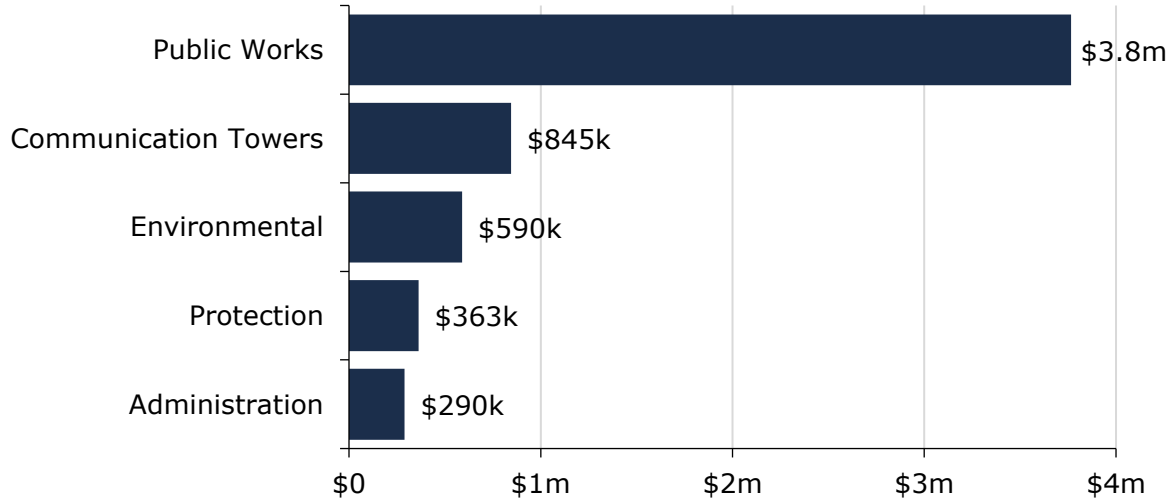
The state of the infrastructure for equipment is summarized in the following table.

Replacement Cost	Condition	Financial Capacity	
$5,853,000	Poor (28%)	Annual Requirement:	$338,350
		Funding Available:	$275,000
		Annual Deficit:	$63,350

9.2. Inventory & Valuation

The graph below displays the total replacement cost of each asset segment in the Hastings Highlands's equipment inventory.

Figure 50: Machinery & Equipment Replacement Costs

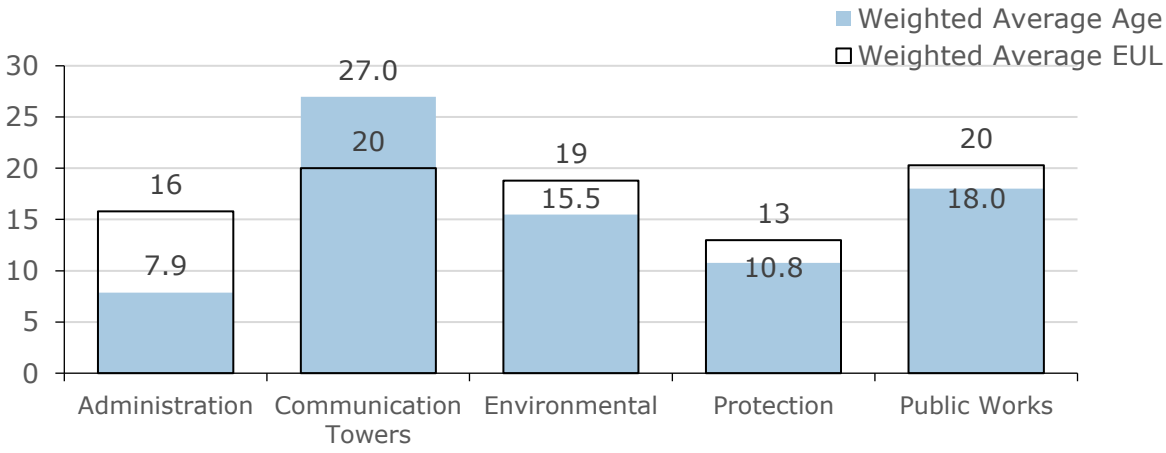


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent capital requirements.

9.3. 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.

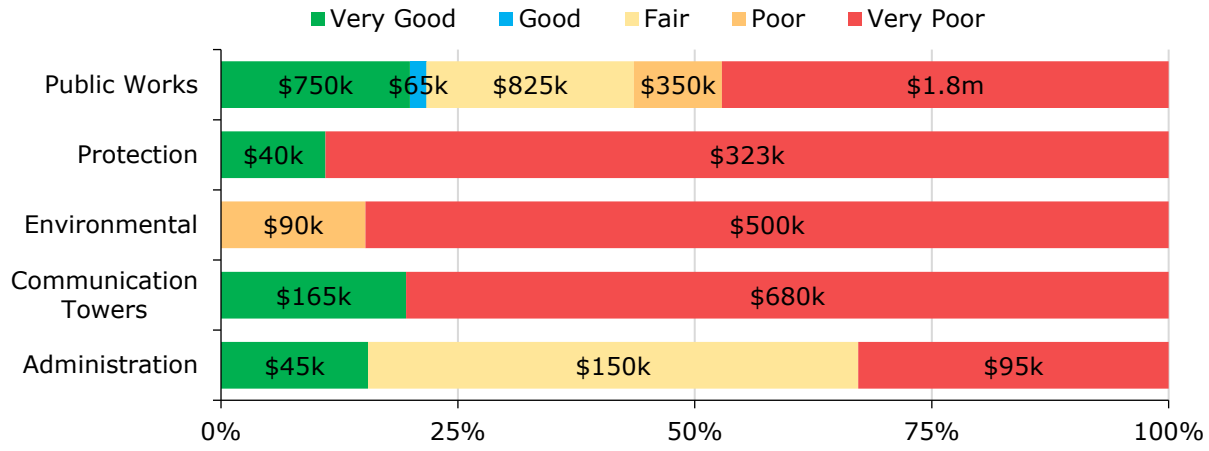
Figure 51: Machinery & Equipment Average Age vs Average EUL



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 52: Machinery & Equipment Condition Breakdown



To ensure that the Municipality's equipment continues to provide an acceptable level of service, Hastings Highlands 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.

9.3.1. 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. The current approach is varied because of the broad range of types of equipment included in this category. Assets are evaluated on a case-by-case basis, with inspections tailored to each asset type and conducted in accordance with OEM recommendations as necessary. Additionally, SCBA equipment is subject to monthly testing.

9.4. Lifecycle Management Strategy

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meet the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. Council endorses the municipality staff's cost-effective strategy of acquiring pre-owned graders and other equipment for rehabilitation by in-house mechanics. This initiative will enable the municipality to procure equipment that is otherwise challenging and costly to obtain.

Figure 53: Machinery & Equipment Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Equipment maintenance adheres to manufacturer recommendations and is supplemented by staff expertise when necessary.
- Fire station equipment undergoes regular maintenance as per manufacturer guidelines.
- SCBA equipment is replaced either at the end of its useful life as mandated by standards, or earlier based on staff recommendations following monthly inspections.

9.5. Forecasted Capital Requirements

The following graph identifies capital requirements over the next 25 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average annual capital requirements at $338 thousand.

Figure 54: Machinery & Equipment Forecasted Capital Replacement Requirements

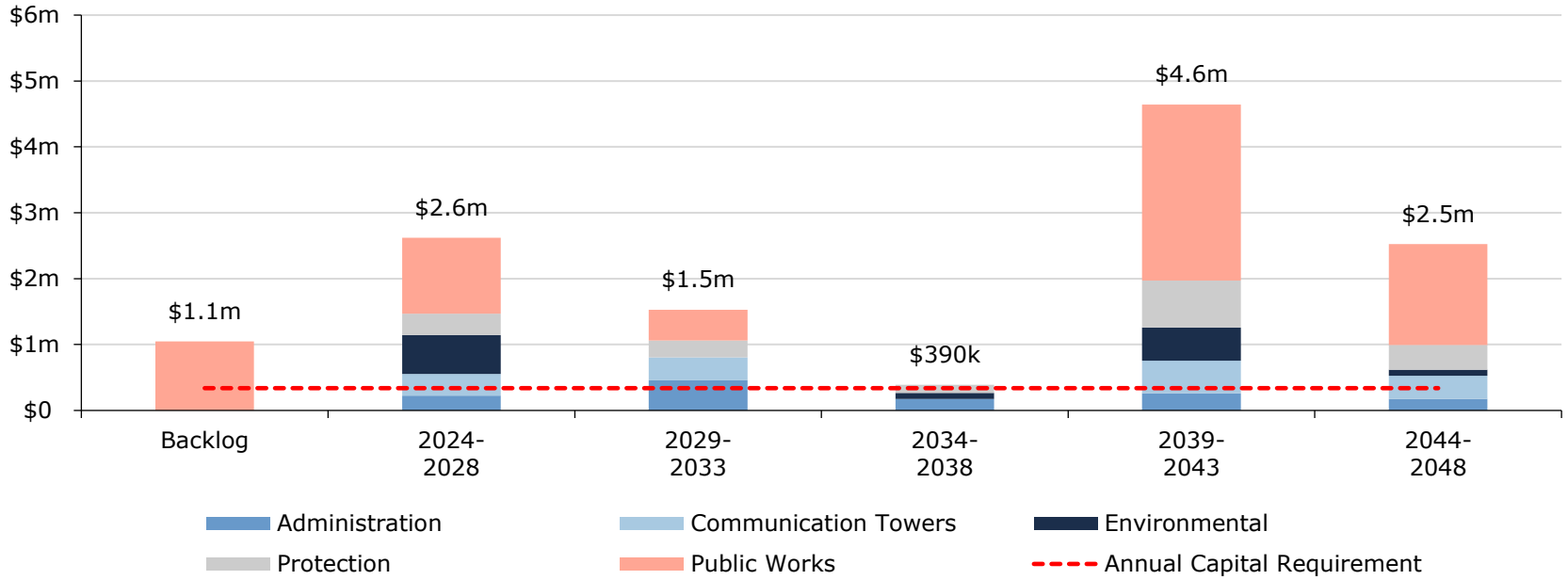


Table 21 below summarizes the projected cost of lifecycle activities (capital replacement only) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

Table 21 Machinery & Equipment System-Generated 10-Year Capital Costs

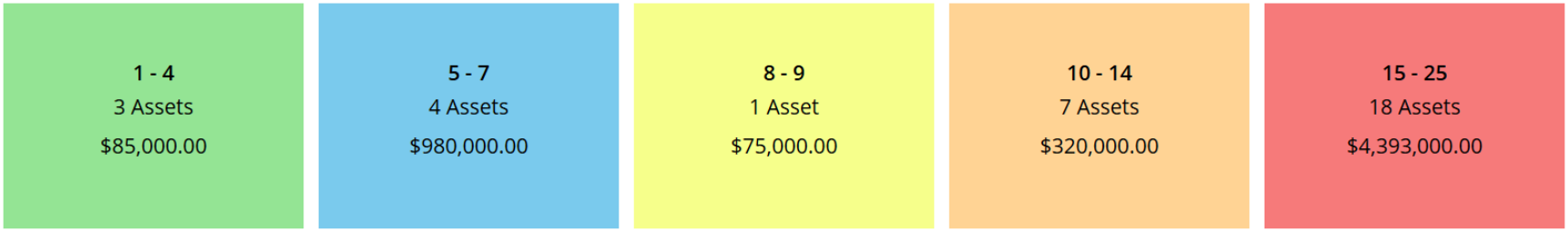
Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Administration	$0	$0	$131k	$0	$0	$326k	$0	$0	$131k	$0
Communication Towers	$0	$330k	$0	$0	$350k	$0	$0	$0	$0	$0
Environmental	$90k	$0	$0	$0	$0	$0	$0	$0	$0	$0
Protection	$0	$0	$0	$0	$0	$0	$40k	$215k	$0	$0
Public Works	$0	$0	$220k	$630k	$125k	$0	$225k	$50k	$65k	$0
Total	**$90k**	**$330k**	**$351k**	**$630k**	**$475k**	**$326k**	**$265k**	**$265k**	**$196k**	**$0**

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

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 55: Machinery & Equipment Risk Matrix



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.

9.7. Levels of Service

The following tables identify the Municipality's metrics to identify their current level of service for Machinery & Equipment. By comparing the cost, performance (average condition) and risk year-over-year, Hastings Highlands will be able to evaluate how their services/assets are trending.

9.7.1. Community Levels of Service

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

Values	Technical Metric	Current LOS (2023)
Scope	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on municipal equipment and machinery	The Municipality employs a cost-effective strategy for managing its equipment and machinery lifecycle, focusing on maintenance, rehabilitation, and replacement. A key aspect of this strategy involves purchasing used graders and other equipment, which are then rehabilitated by in-house mechanics. This approach not only conserves capital funds but also addresses the challenges of procuring new equipment.

9.7.2. Technical Levels of Service

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

Table 22 Machinery & Equipment Technical Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Average Condition Rating	Poor (28%)
	Average Risk Rating	Very High (18.3)
Performance	Actual Capital Reinvestment Rate (Annual) – Target Reinvestment Rate (Annual)	4.7% - 5.8%

9.8. 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 *Section 4 Proposed Levels of Service*.

PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased tax increase of approximately 2.7% annually, reaching full funding within 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 0.7% annually, reaching 50% funding within 15 years

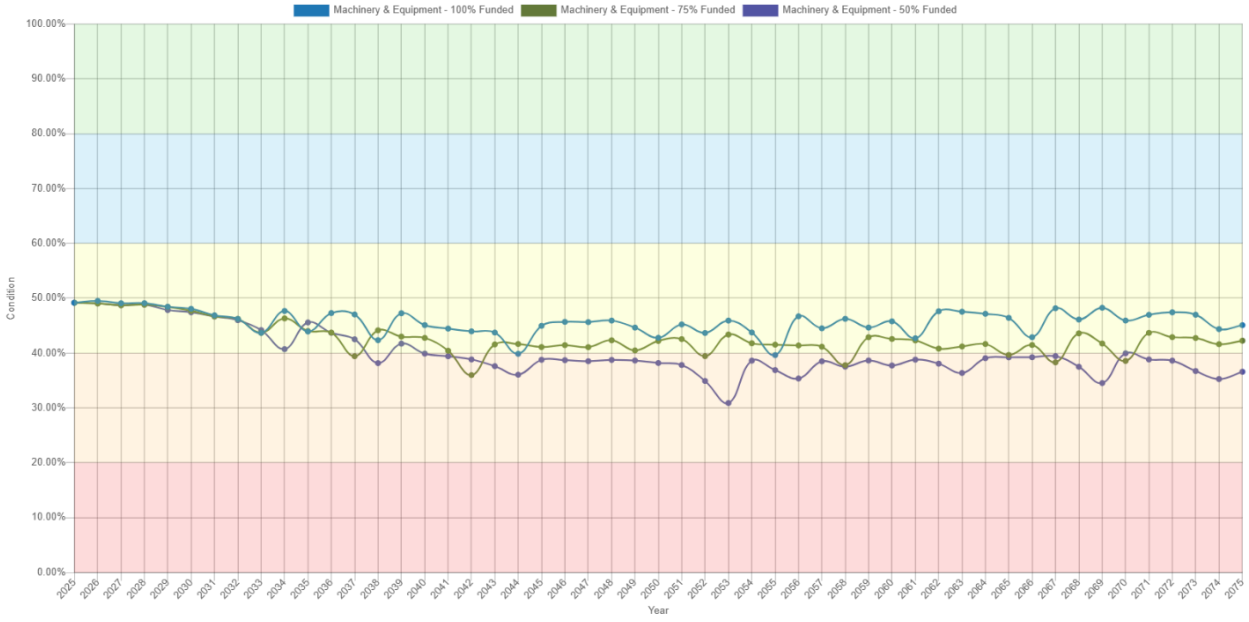
PLOS Analysis Results

The following table presents the outcomes for three investment scenarios, illustrating how varying levels of capital investment influence asset condition, risk, and required investment over time.

Table 23: Machinery & Equipment pLOS Scenario Analysis

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	49.18%	43.93%	42.79%	45.73%
	Average Asset Risk	13.45	14.8	15.47	14.6
	Average Annual Investment		$338,350		
	Capital re-investment rate		5.8%		
Scenario 2	Average Condition	49.18%	44.02%	42.21%	42.69%
	Average Asset Risk	13.45	14.79	15.34	15.22
	Average Annual Investment		$253,763		
	Capital re-investment rate		5.0%		
Scenario 3	Average Condition	49.18%	45.59%	38.19%	39.98%
	Average Asset Risk	13.45	14.4	16.56	15.82
	Average Annual Investment		$169,175		
	Capital re-investment rate		4.6%		

Figure 56: Machinery & Equipment Scenario Comparison



10. Vehicles

10.1. State of the Infrastructure

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

- Public Works vehicles for road maintenance and winter control activities
- Protection vehicles for emergency fire services

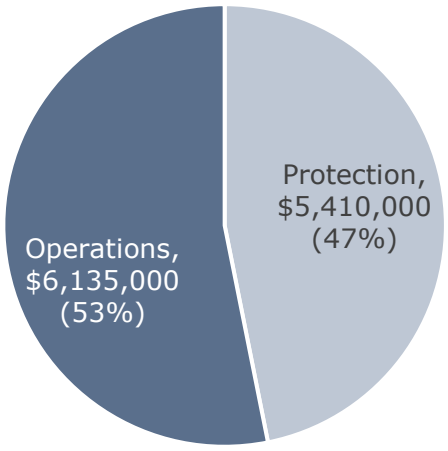
The state of the infrastructure for the vehicles is summarized in the following table.

Replacement Cost	Condition	Financial Capacity	
$11,545,000	Poor (35%)	Annual Requirement:	$787,317
		Funding Available:	$440,000
		Annual Deficit:	$347,317

10.2. Inventory & Valuation

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

Figure 57: Vehicle Replacement Costs

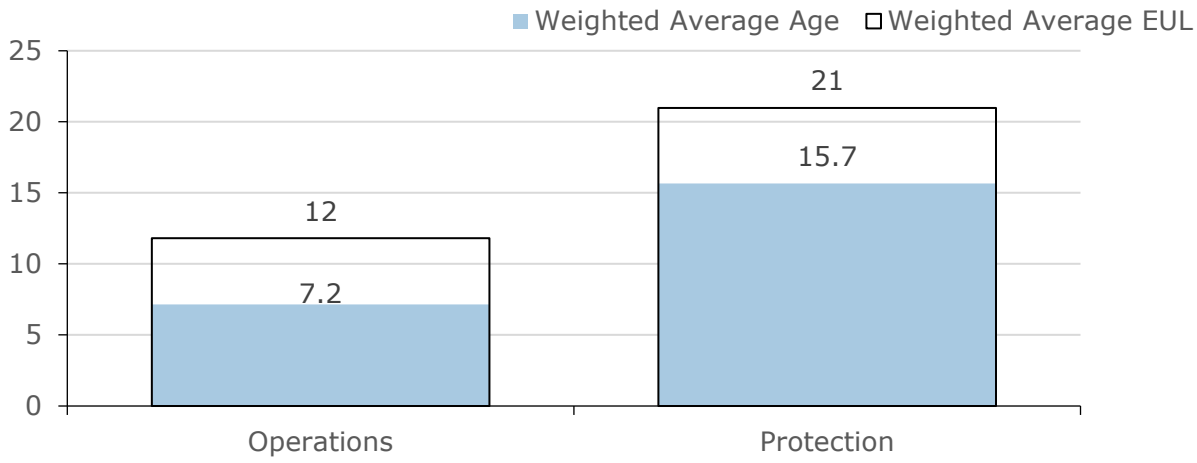


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

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.

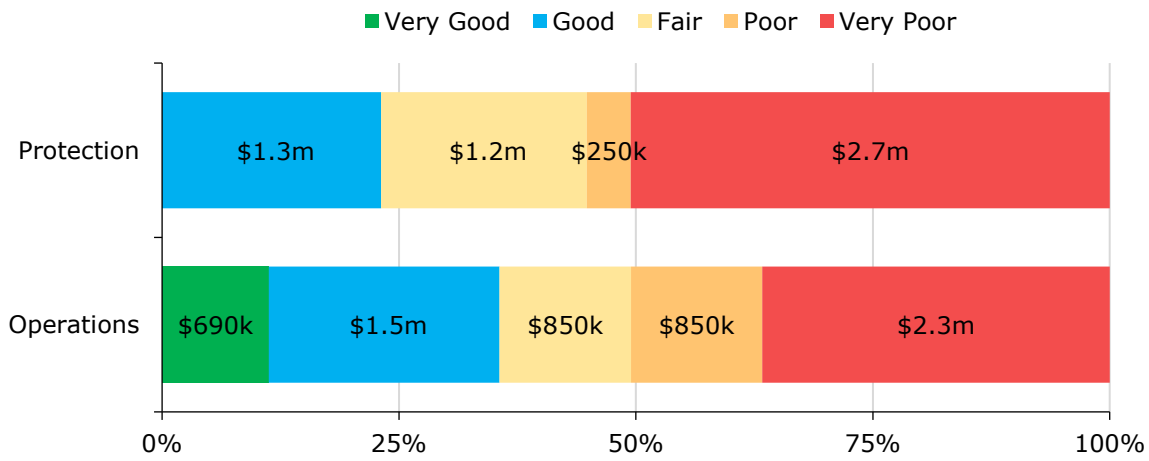
Figure 58: Vehicles Average Age vs Average EUL



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 59: Vehicles Condition Breakdown



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

10.3.1. 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. An example of the municipality's current approach is to conduct daily circle checks prior to each use.

10.4. Lifecycle Management Strategy

The condition or performance of assets will deteriorate over time. To ensure vehicles are performing as expected, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

Figure 60: Vehicles Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Licensed mechanics conduct servicing in-house and major repairs are undertaken by a third party subcontractor
- The maintenance of fire vehicles, including Fire Station pumpers and tankers, adheres to regulatory requirements and best practices. These essential vehicles are replaced every 20 years and are serviced annually to ensure they meet performance standards.
- Vehicles are replaced according to age, condition, and staff recommendations, subject to Council approval.

10.5. Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that the Municipality should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 15 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average annual capital requirements at $787 thousand.

Figure 61: Vehicle Forecasted Capital Replacement Requirements

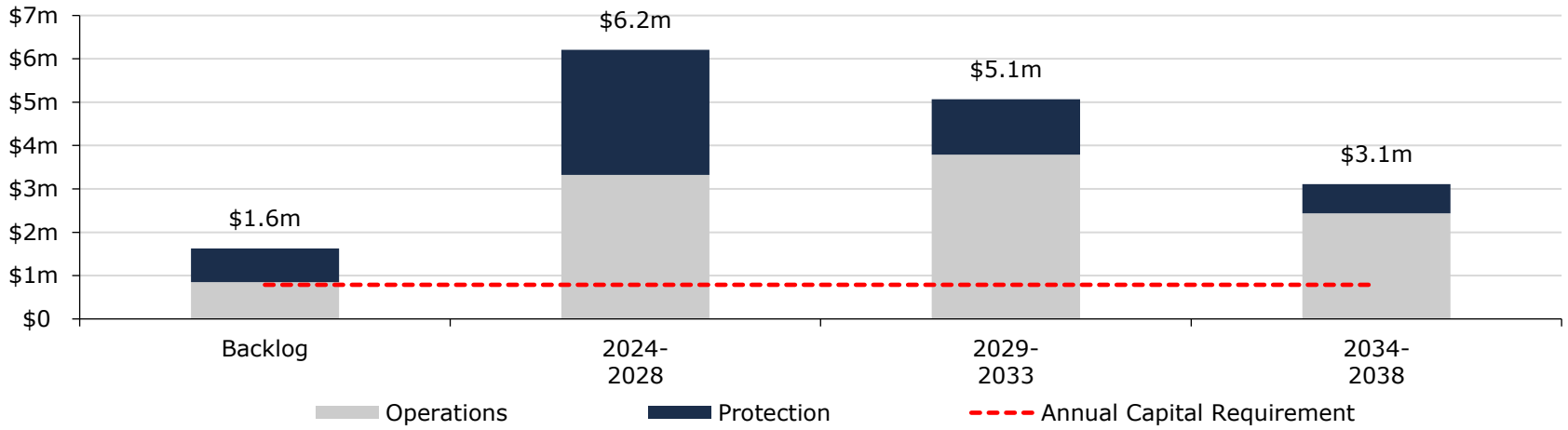


Table 24 below summarizes the projected cost of lifecycle activities (capital replacement only) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

Table 24 Vehicles System-Generated 10-Year Capital Costs

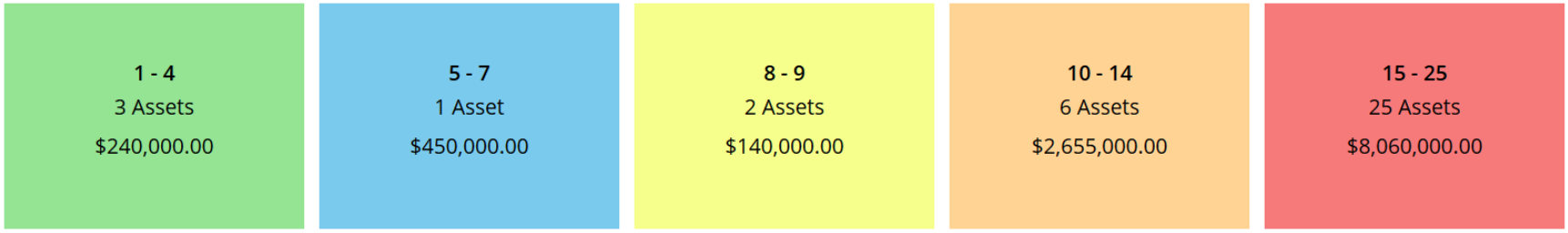
Segment	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Operations	$575k	$425k	$425k	$220k	$425k	$515k	$575k	$0	$2.3m	$850k
Protection	$365k	$665k	$625k	$365k	$500k	$0	$625k	$150k	$0	$675k
Total	**$940k**	**$1.1m**	**$1.1m**	**$585k**	**$925k**	**$515k**	**$1.2m**	**$150k**	**$2.3m**	**$1.5m**

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 Municipality's capital expenditure forecasts.

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 62: Vehicles Risk Matrix



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 identification of critical assets allows the Municipality to determine 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. Levels of Service

The following tables identify the Municipality's metrics to identify their current level of service for municipal Vehicles. By comparing the cost, performance (average condition) and risk year-over-year, Hastings Highlands will be able to evaluate how their services/assets are trending.

10.7.1. Community Levels of Service

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

Values	Technical Metric	Current LOS (2023)
Scope	Description of the lifecycle activities (maintenance, rehabilitation and replacement) performed on municipal vehicles	The Municipality's vehicle replacement strategy has shifted from replacing the oldest asset first to prioritizing the oldest asset in the worst condition, ensuring timely replacements to maintain reliability and safety. Efforts are made to budget for annual replacements to sustain vehicle performance. For specialized vehicles, such as fire trucks, the Municipality endeavors regulatory requirements and best practices, replacing them every 20 years and performing annual servicing to uphold performance and safety standards.

10.7.2. Technical Levels of Service

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

Table 25 Vehicles Technical Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Average Condition Rating	Poor (35%)
	Average Risk Rating	Very High (17.7)
Performance	Actual Capital Reinvestment Rate (Annual) – Target Reinvestment Rate (Annual)	3.8% - 6.8%

10.8. 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 *Section 4 Proposed Levels of Service*.

PLOS Scenarios Analyzed

Scenario	Description
Scenario 1: Achieving Full Funding in 15 Years	This scenario assumes a phased tax increase of approximately 2.7% annually, reaching full funding within 15 years
Scenario 2: Achieving 75% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 1.8% annually, reaching 75% funding within 15 years
Scenario 3: Achieving 50% Funding in 15 Years	This scenario assumes a phased tax increase of approximately 0.7% annually, reaching 50% funding within 15 years

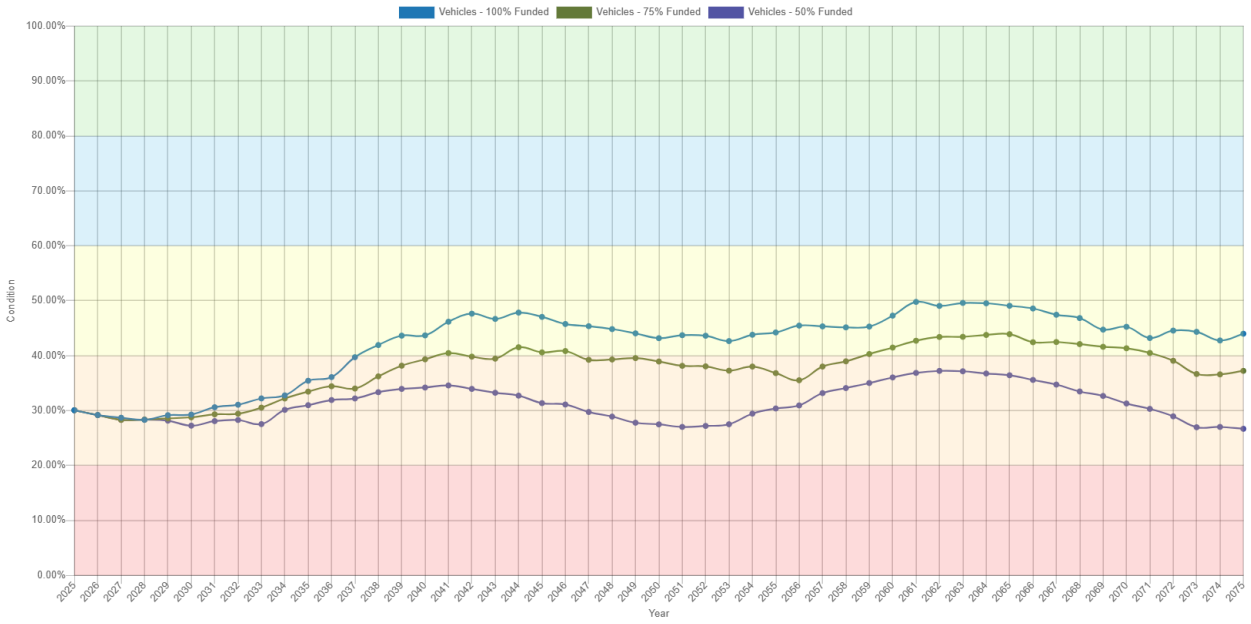
PLOS Analysis Results

The following table presents the outcomes for three investment scenarios, illustrating how varying levels of capital investment influence asset condition, risk, and required investment over time.

Table 26: Vehicles pLOS Scenario Analysis

Scenario	Technical LOS Outcomes	Initial Value (2025)	10 Year Projection (2035)	25 Year Projection (2050)	Scenario Average
Scenario 1	Average Condition	30.06%	35.43%	43.18%	42.07%
	Average Asset Risk	18.82	17.17	16.27	16.15
	Average Annual Investment		$787,317		
	Capital re-investment rate		6.8%		
Scenario 2	Average Condition	30.06%	33.45%	38.93%	37.45%
	Average Asset Risk	18.82	17.65	16.98	17.11
	Average Annual Investment		$590,488		
	Capital re-investment rate		5.1%		
Scenario 3	Average Condition	30.06%	30.98%	27.49%	31.29%
	Average Asset Risk	18.82	18.22	19.47	18.4
	Average Annual Investment		$393,658		
	Capital re-investment rate		3.4%		

Figure 63: Vehicles Scenario Comparison



Strategies

11. Financial Strategy

11.1. Financial Strategy Overview

Each year, the Municipality of Hastings Highlands 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 full-funding 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, 2024. 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.

This financial strategy is designed around two key elements: the average annual capital requirement, and the average annual capital funding currently available. The annual requirement is calculated based on the replacement cost and service life of each asset, and, where possible, includes lifecycle modeling. These values are then aggregated to determine category-level funding needs.

Available capital funding is based on an average of historical capital expenditure, including contributions to capital reserves. For Hastings Highlands, spending from 2023 was used to establish a baseline projection of available capital 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 to reserves for capital purposes
- 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.

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

11.2. Annual Capital Requirements

The annual requirements represent the amount the Municipality should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs, and achieve long-term sustainability. 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:

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

Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Road Network	$5,016,000	$4,334,000	$682,063

Table 27: Road Network Annual Capital Requirement Comparison

The implementation of a proactive lifecycle strategy for roads leads to a potential annual cost avoidance of $682,063 for the Road Network. This represents an overall reduction of the annual requirements for the category by 14%. As the lifecycle strategy scenario represents the lowest cost option available to the Municipality, we have used these annual requirements in the development of the financial strategy.

The table also illustrates the system-generated, equivalent target reinvestment rate (TRR), calculated by dividing the annual capital requirements by the total replacement cost of each category. The cumulative target reinvestment for these categories is estimated at 4.1%.

Asset Category	Replacement Cost	Annual Capital Requirements	Target Reinvestment Rate	Current Reinvestment Rate
Road Network	$95,840,173	$4,333,788	4.5%	1.2%
Bridges & Culverts	$24,566,204	$610,063	2.5%	1.2%
Buildings	$21,370,000	$428,300	2.0%	0.1%
Land Improvements	$1,285,000	$56,250	5.0%	0%

Machinery & Equipment	$5,853,000	$338,350	5.8%	4.7%
Vehicles	$11,545,000	$787,317	6.8%	3.8%
Total	**$160,279,377**	**$6,554,280**	**4.1%**	**1.4%**

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.

11.3. Financial Profile: Tax Funded Assets

11.3.1. Current Funding Position

The table below summarizes how current funding levels compare with funding required for each asset category. At existing levels, the Municipality is funding 33.1% of its annual capital requirements for all infrastructure analyzed. This creates a total annual funding deficit of almost $4.4 million.

Asset Category	Annual Capital Requirements	Annual Funding Available	Annual Infrastructure Deficit	Funding Level
Road Network	$4,333,788	$1,134,096	$3,199,904	26.2%
Bridges & Culverts	$610,063	$300,000	$310,063	49.2%
Buildings & Facilities	$428,300	$18,200	$410,100	4.2%
Land Improvements	$56,250	$0	$56,250	0.0%
Machinery & Equipment	$338,350	$275,000	$63,350	81.3%
Vehicles	$787,317	$440,000	$347,317	55.9%
Total	**$6,554,280**	**$2,167,296**	**$4,386,984**	**33.1%**

Asset Category	Avg. Annual Requirement	Annual Funding Available					Annual Deficit
		Taxes	CCBF	OCIF	Reserve Allocation	Total Available	
Road Network	$4,333,788	$300,000	$268,120	$265,975	$300,000	$1,134,096	$3,199,904
Bridges & Culverts	$610,063				$300,000	$300,000	$310,063
Buildings	$428,300				$18,200	$18,200	$410,100
Land Improvements	$56,250						$56,250
Machinery & Equipment	$338,350				$275,000	$275,000	$63,350
Vehicles	$787,317				$440,000	$440,000	$347,317
	$6,554,280	**$300,000**	**$268,120**	**$265,975**	**$440,000**	**$2,167,296**	**$4,386,984**

The average annual investment requirement for the above categories is $6,554,280. Annual revenue currently allocated to these assets for capital purposes is $2,167,296 leaving an annual deficit of $4,386,984. Put differently, these infrastructure categories are currently funded at 33.1% of their long-term requirements.

11.3.2. Closing the Gap

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

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

Full Funding Requirements

In 2024, the Municipality of Hastings Highlands had annual tax revenues of $8,625,296. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding would require the following tax change over time:

Asset Category	Tax Change Required for Full Funding
Road Network	37.1%
Bridges & Culverts	3.6%
Buildings	4.8%
Land Improvements	0.7%
Machinery & Equipment	0.7%
Vehicles	4.0%
	50.9%

Table 28: Tax Change Required for Full Funding

Funding 100% of annual capital requirements ensures that major capital events, including replacements, are completed as required. Under this scenario, projects are unlikely to be deferred to future years. This delivers the highest asset performance and customer levels of service.

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

- Hastings Highlands's formula-based Ontario Community Infrastructure Fund (OCIF) grant is scheduled to decrease by $39,980 in 2024.[3]
- Hastings Highlands's debt payments for these asset categories will be decreasing by $209,996 by 2027.

	Phase-in Period for full funding			
	5 Years	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	4,386,984	4,386,984	4,386,984	4,386,984
Change in Debt Costs	-209,996	-209,996	-209,996	-209,996
OCIF Grant changes	39,980	39,980	39,980	39,980

[3] Hastings Highlands formula-based OCIF grant is scheduled to decrease further by $33,899 in 2025.

Resulting Infrastructure Deficit:	**4,216,968**	**4,216,968**	**4,216,968**	**4,216,968**
Tax Increase Required	52.6%	52.6%	52.6%	52.6%
Annually:	**8.3%**	**4.1%**	**2.7%**	**2.1%**

Table 29: Phasing in Annual Tax Changes

Proposed levels of service play a role in the development of the Annual Average Requirement discussed above. For comparison, the tax rate impact for achieving full funding, 75% funding and 50% funding are provided below:

Annual Impact on Taxation				
Change in Levels of Service	**5 Year**	**10 Year**	**15 Year**	**20 Year**
Fully Funded	8.3%	4.1%	2.7%	2.1%
75% Funded	5.4%	2.7%	1.8%	1.4%
50% Funded	2.1%	1.1%	0.7%	0.6%
Recommended	8.3%	4.1%	2.7%	2.1%

Table 30: Scenarios Annual Impact on Taxation

Financial Strategy Recommendations

Considering all the above information, we recommend the 15-year option that includes capturing changes from reallocating debt costs to the infrastructure deficit. This involves full funding being achieved over 15 years by:

a) when realized, reallocating the debt cost reductions of $209,996 to the infrastructure deficit as outlined above.
b) increasing tax revenues by 2.7% each year for the next 15 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
c) allocating the current Canada Community-Building Fund (Formerly known as Gas Tax Fund) and OCIF revenue as outlined previously.
d) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. By Provincial AMP rules, this periodic funding cannot be incorporated into an AMP unless there are firm commitments in place. We have included OCIF formula-based funding, if applicable, since this funding is a multi-year commitment[4].
2. We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

Although this option achieves full funding on an annual basis in 20 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows a pent-up investment demand of $140,000 for the Road Network, $26,000 for the Storm Water Network, $6,400,000 for Buildings, $557,000 for Machinery & Equipment, and $6,200,000 for Vehicles.

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.

[4] 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.

11.4. Use of Debt

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

a) the ability to stabilize tax & user rates when dealing with variable and sometimes uncontrollable factors

b) equitable distribution of the cost/benefits of infrastructure over its useful life

c) a secure source of funding

d) flexibility in cash flow management

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

The following tables outline how Hastings Highlands has historically used debt for investing in the asset categories as listed. As of December 31, 2024, there is currently $306,567 of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of $209,996, well within its provincially prescribed maximum of $2,151,906.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2019	2020	2021	2022	2023
Road Network	$98,226					
Bridges & Culverts						
Buildings	$208,341					
Machinery & Equipment						
Land Improvements						
Vehicles						
Total Tax Funded:	**$306,567**	**0**	**0**	**0**	**0**	**0**

Asset Category	Principal & Interest Payments in the Next Ten Years							
	2024	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2034**
Road Network	$100,672	$100,672						
Bridges & Culverts								
Buildings & Facilities	$109,324	$109,324	$109,324					
Machinery & Equipment								
Land Improvements								
Vehicles								
Total Tax Funded:	**$209,996**	**$209,996**	**$109,324**	**0**	**0**	**0**	**0**	

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

11.5. Use of Reserves

Available Reserves

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

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

By asset category, the table below outlines the details of the reserves currently available to Hastings Highlands.

Asset Category	Balance at December 31, 2023
Road Network	$462,870
Bridges & Culverts	$812,617
Buildings	$441,935
Land Improvements	$372,638
Machinery & Equipment	$1,520,379
Vehicles	$30,902
Total Tax Funded:	**$3,641,340**

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

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

These reserves are available for use by applicable asset categories during the phase-in period to full funding. This coupled with Hastings Highlands's judicious use

of debt in the past, allows the scenarios to assume that, if required, available reserves and debt capacity can be used for high priority and emergency infrastructure investments in the short- to medium-term.

12. Impacts of Growth

12.1. Description of Growth Assumptions

Hastings Highlands' goals and objectives for future growth are informed by Hastings County's Official Plan.

Understanding the key drivers of growth and demand will allow the Municipality to more effectively plan for new infrastructure, as well as the upgrade or disposal of existing infrastructure. The costs of growth should be considered in long-term funding strategies designed to maintain the current level of service.

The 2018 Official Plan – Hastings County

The county's most recent plan, adopted in December 2017, implements the provincial policy statement by considering and balancing numerous factors and interests in the management of land uses, infrastructure, and natural resources within the county. This approach aims to provide economic opportunities and prosperity for its residents.

Under a medium growth scenario, the 2011-2036 forecasts for Hastings Highlands as outlined in Hastings County's official plan are as follows:

	2011	2036
Permanent Population	4450	4690
Permanent Households	1830	2080
Seasonal Population	5675	6490
Seasonal Dwellings	1550	1775
Employment	385	465
Employment Activity Rate	8.7%	9.9%

The recent growth within the Municipality does not align with the forecasts from the Official Plan or the most recent 2021 census data. There has been a significant increase in new building activity since the Covid-19 pandemic. During this period, many seasonal residents opted to extend their stays or transitioned to becoming permanent year-round residents. Consequently, there has been an increased demand for municipal services supported by the municipality's infrastructure assets.

The 2024 – 2027 Strategic Plan – the Municipality of Hastings Highlands

The Municipality’s 2024 – 2027 strategic plan outlines the following strategic priorities to guide their development over the next several years.

- Ensure Financial Stability
- Rationalize Infrastructure
    - Goal: Safeguard the Municipality’s Assets

    - Action: Regularly update and implement the municipal asset management plan
- Build Our Community, and
- Cultivate Exceptional Service and Governance

To achieve these goals, the municipality will leverage asset management practices, enabling data-driven decisions to prioritize infrastructure planning and maintenance.

Hastings County Strategic Plan (2024–2026)

On November 30, 2023, Hastings County Council adopted a new Strategic Plan for 2024–2026. This plan establishes a regional vision to foster vibrant, economically resilient, and environmentally responsible communities across the 14 member municipalities, including Hastings Highlands. Two growth-related goals indicated within the Plan include:

- Goal 2: Foster Vibrant Communities
    - Support the growth of local municipalities, businesses, and tourism.
    - Streamline the development process via the SPARC (Streamlined Planning Approach & Resource Centralization) initiative.
    - Improve employment opportunities by supporting business retention and transformation of Ontario Works into a Life Stabilization model.
- Goal 4: Promote Sustainable Communities
    - Expand the County-wide asset management plan to support long-term capital planning.
    - Encourage sustainable infrastructure and financial resilience through updated policies and funding opportunities.

Additionally, a SMART goal for 2024–2027 includes the development of a Regional Incentives Program to support economic growth by revitalizing vacant properties, encouraging commercial investment, and aligning with Community Improvement Plan (CIP) policies under the Planning Act.

12.2. Impact of Growth on Lifecycle Activities

Hastings Highlands' asset management practices have been shaped by a combination of historical low growth, recent post-pandemic demographic shifts, and broader regional planning objectives. While long-term population and economic growth projections remain modest, the municipality has experienced a recent increase in building activity and a notable trend of seasonal residents converting to year-round occupancy. These changes have led to increased demand on key municipal services, including roads, waste management, winter control, fire services, and other core infrastructure.

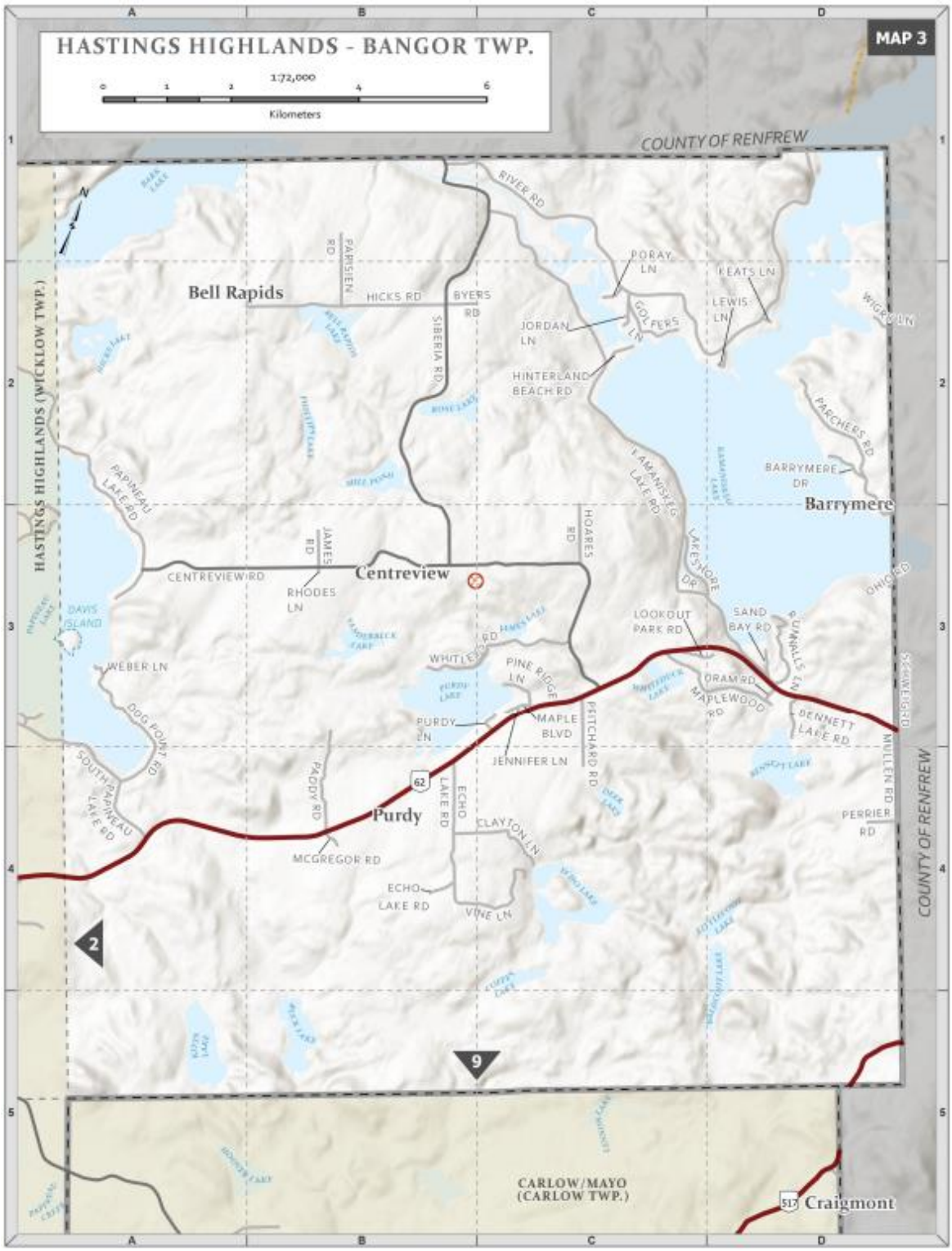
In response, the Municipality has incorporated growth considerations into its lifecycle management strategy by evaluating short- to medium-term service pressures and adjusting rehabilitation timelines for assets in areas experiencing more intensive use. These considerations are directly tied to the Municipality's financial strategy, which emphasizes long-term fiscal stability through capital forecasting and reserve planning. This ensures that infrastructure remains sustainable and responsive, particularly in zones impacted by population shifts.

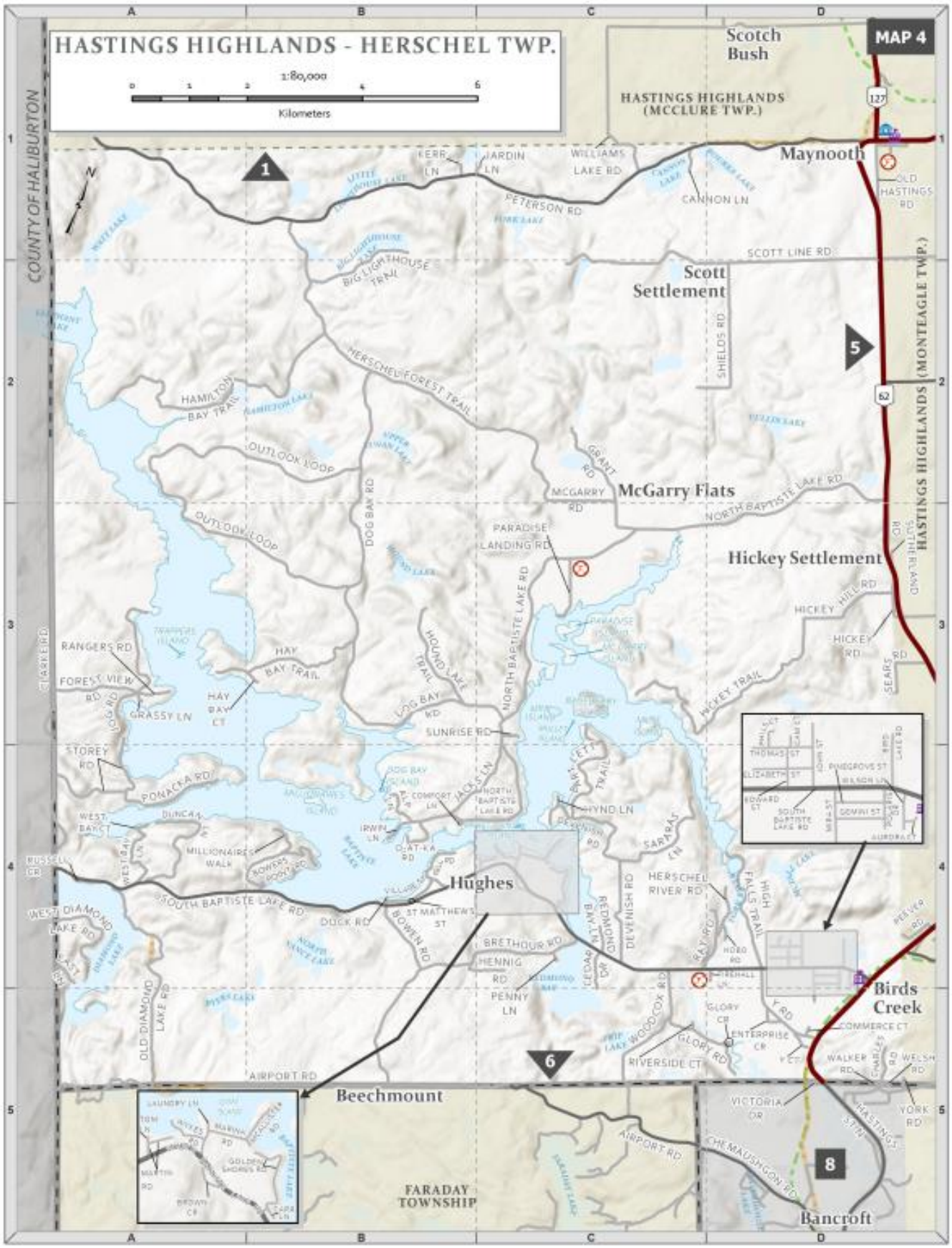
Although overall service levels are expected to remain consistent, localized growth may necessitate incremental service enhancements in higher-demand areas. Ongoing asset performance monitoring will support timely and data-driven adjustments to levels of service where needed. Recognizing the unpredictability of recent demographic changes, the Municipality will continue to monitor development trends, integrate new census and permitting data, and revise lifecycle and financial strategies accordingly in future updates to the Asset Management Plan.

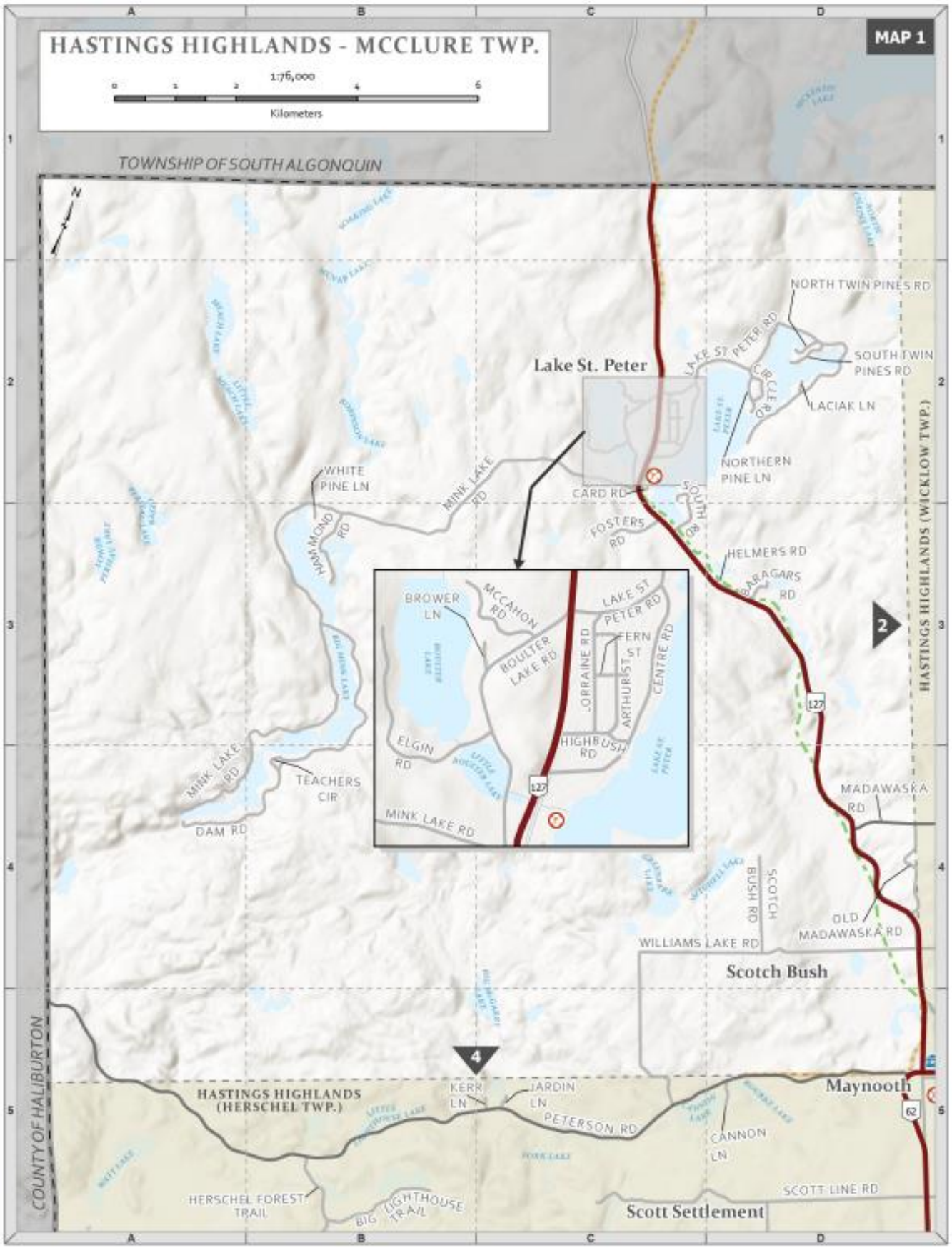
In accordance with O. Reg. 588/17, Section 5(2)(iv), this Plan acknowledges that sustained, system-wide growth is not anticipated; however, localized and emerging growth patterns are already shaping infrastructure needs. As such, asset management and financial planning are informed by both historical data and current indicators to ensure the Municipality can continue to meet evolving service demands effectively and sustainably.

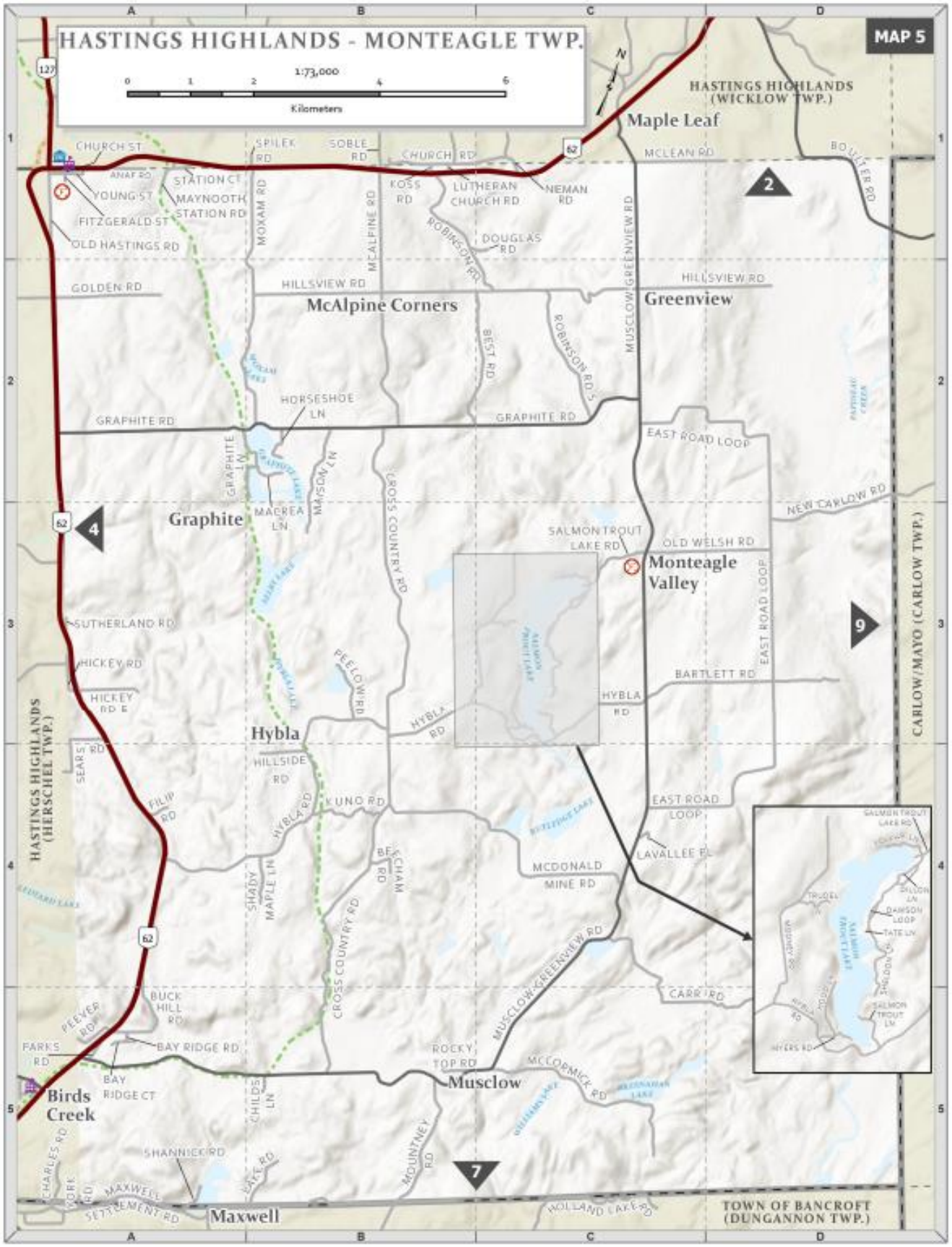
Appendix A: Levels of Service Maps & Images

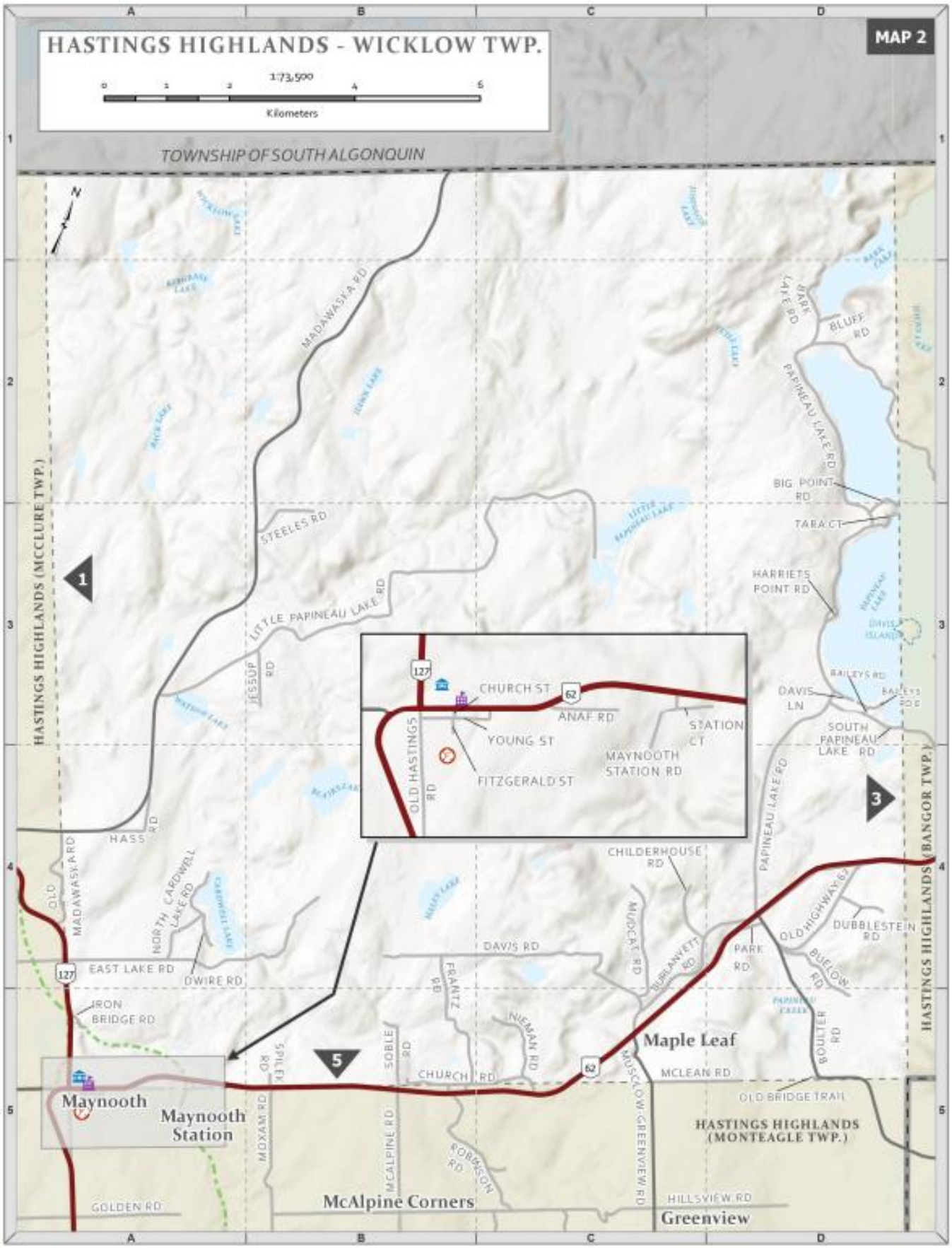
Road Network Maps




HASTINGS HIGHLANDS - HERSCHEL TWP.
1:80,000
Kilometers
MAP 4
COUNTY OF HALIBURTON
HASTINGS HIGHLANDS (MONTEAGLE TWP.)
HASTINGS HIGHLANDS (MCCLURE TWP.)
Scotch Bush
Maynooth
Scott Settlement
McGarry Flats
Hickey Settlement
Hughes
Beechmount
Birds Creek
FARADAY TOWNSHIP
Bancroft
PETERSON RD
SCOTT LINE RD
HERSCHEL FOREST TRAIL
OUTLOOK LOOP
NORTH BAPTISTE LAKE RD
SOUTH BAPTISTE LAKE RD
AIRPORT RD
HERSCHEL RIVER RD
CHEMAUSHGON RD
1
5
6
8


HASTINGS HIGHLANDS - MCCLURE TWP.
1:76,000
0 1 2 4 6
Kilometers
MAP 1
TOWNSHIP OF SOUTH ALGONQUIN
COUNTY OF HALIBURTON
HASTINGS HIGHLANDS (WICKLOW TWP.)
HASTINGS HIGHLANDS (HERSCHEL TWP.)
Lake St. Peter
Scotch Bush
Maynooth
Scott Settlement
NORTH TWIN PINES RD
SOUTH TWIN PINES RD
LAKE ST PETER RD
CIRCLE RD
LACIAK LN
NORTHERN PINE LN
CARD RD
SOUTH RD
FOSTERS RD
HELMERS RD
BARAGARS RD
WHITE PINE LN
MINK LAKE RD
HAMMOND RD
BROWER LN
MCCAHON RD
BOULTER LAKE RD
LAKE ST PETER RD
FERN ST
LORRAINE RD
ARTHURST
CENTRE RD
HIGHBUSH RD
ELGIN RD
TEACHERS CIR
DAM RD
MADAWASKA RD
SCOTCH BUSH RD
OLD MADAWASKA RD
WILLIAMS LAKE RD
KERR LN
JARDIN LN
PETERSON RD
CANNON LN
SCOTT LINE RD
HERSCHEL FOREST TRAIL
BIG LIGHTHOUSE TRAIL
127
62
2
4


HASTINGS HIGHLANDS - MONTEAGLE TWP.
MAP 5
1:73,000
Kilometers
HASTINGS HIGHLANDS (WICKLOW TWP.)
Maple Leaf
McAlpine Corners
Greenview
Graphite
Hybla
Monteagle Valley
Musclow
Birds Creek
Maxwell
HASTINGS HIGHLANDS (HERSCHEL TWP.)
CARLOW/MAYO (CARLOW TWP.)
TOWN OF BANCROFT (DUNGANNON TWP.)
CHURCH ST
YOUNG ST
FITZGERALD ST
OLD HASTINGS RD
STATION CT
MAYNOOTH STATION RD
ANAF RD
SPILEK RD
SOBLE RD
CHURCH RD
KOSS RD
LUTHERAN CHURCH RD
NEMAN RD
MCLEAN RD
BOULTER RD
MOKAM RD
MCALPINE RD
ROBINSON RD
DOUGLAS RD
GOLDEN RD
HILLSVIEW RD
BEST RD
ROBINSON RD S
MUSCLOW GREENVIEW RD
HORSESHOE LN
GRAPHITE RD
GRAPHITE LN
MACREA LN
MAYSON LN
CROSS COUNTRY RD
EAST ROAD LOOP
NEW CARLOW RD
SALMON TROUT LAKE RD
OLD WELSH RD
SUTHERLAND RD
HICKEY RD
HICKEY RD E
PEELOW RD
HYBLA RD
BARTLETT RD
SEARS RD
FILIP RD
HILLSIDE RD
KUNO RD
LAVALLEE PL
MCDONALD MINE RD
SHADY MAPLE LN
BEECHAM RD
CARR RD
PEEVER RD
BUCK HILL RD
PARKS RD
BAY RIDGE RD
BAY RIDGE CT
ROCKY TOP RD
MCCORMICK RD
CHILDS LN
SHANNICK RD
MOUNTNEY RD
CHARLES RD
MOORE RD
MAXWELL SETTLEMENT RD
HOLLAND LAKE RD
DILLON LN
DAWSON LOOP
TATE LN
HYERS RD
2
4
7
9
62
127


HASTINGS HIGHLANDS - WICKLOW TWP.
MAP 2
1:73,500
0 1 2 4 6
Kilometers
TOWNSHIP OF SOUTH ALGONQUIN
HASTINGS HIGHLANDS (MCCLURE TWP.)
HASTINGS HIGHLANDS (BANGOR TWP.)
HASTINGS HIGHLANDS (MONTEAGLE TWP.)
MADAWASKA RD
STEELES RD
LITTLE PAPINEAU LAKE RD
JESSUP RD
HASS RD
OLD MADAWASKA RD
NORTH CARDWELL LAKE RD
EAST LAKE RD
DWIRE RD
IRON BRIDGE RD
MARK LAKE RD
BLUFF RD
PAPINEAU LAKE RD
BIG POINT RD
TARA CT
HARRIETS POINT RD
DAVIS LN
BAILEYS RD
SOUTH PAPINEAU LAKE RD
CHURCH ST
ANAF RD
STATION CT
YOUNG ST
FITZGERALD ST
OLD HASTINGS RD
MAYNOOTH STATION RD
CHILDERHOUSE RD
DAVIS RD
MUSCAT RD
BURLANKETT RD
PARK RD
OLD HIGHWAY 62
DUBBLESTEIN RD
BLUELOW RD
BOULTER RD
FRANTZ RD
NIEMAN RD
SOBLE RD
CHURCH RD
MCLEAN RD
OLD BRIDGE TRAIL
MUSCLOW GREENVIEW RD
MOXAM RD
MCALPINE RD
ROBINSON RD
GOLDEN RD
HILLSVIEW RD
Maple Leaf
Maynooth
Maynooth Station
McAlpine Corners
Greenview
1
3
5
62
127

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 structural culvert in Good condition, as well as a bridge and structural culvert in Fair condition.

Siberia Road Bridge (BCI = 73.5 Good)

William Lake Road Culvert (BCI = 94.6 Very Good)

Papineau Lake Road Bridge (BCI = 43.8 Fair)

South Papineau Lake Road Culvert (BCI = 45.3 Fair)

Appendix B: 10-Year Capital Requirements

Capital Requirements for Proposed Levels of Service

The following table identifies the capital cost requirements of recommended lifecycle events, as generated by the Municipality's asset management software, while considering annuals budgets beginning at current funding levels and gradually increasing over 15 years to reach full recommended funding (Scenario 1 of the analyzed levels of service options). Refer to the Financial Strategy for more details.

Asset Category	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Road Network	$932k	$273k	$1.0m	$1.1m	$427k	$1.7m	$1.0m	$2.6m	$1.9m	$2.6m
Bridges & Culverts	$250k	$250k	$150k	$500k	$500k	$400k	$150k	$650k	$450k	$400k
Buildings	$18k	$10k	$54k	$62k	$92k	$103k	$78k	$158k	$0	$250k
Land Improvements	$0	$0	$0	$20k	$0	$0	$55k	$0	$50k	$40k
Machinery & Equipment	$240k	$313k	$261k	$310k	$285k	$305k	$261k	$275k	$145k	$551k
Vehicles	$425k	$455k	$490k	$440k	$590k	$470k	$625k	$550k	$560k	$515k
TOTAL	**$1.9m**	**$1.3m**	**$2.0m**	**$2.4m**	**$1.9m**	**$3.0m**	**$2.2m**	**$4.2m**	**$3.1m**	**$4.4m**

Appendix C: Condition Assessment Guidelines

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

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

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

Role of Asset Condition Data

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

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

Guidelines for Condition Assessment

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

Condition assessments must include a quantitative or qualitative assessment of the current condition of the asset, collected according to specified condition rating criteria, in a format that can be used for asset management decision-making. As a

result, it is important that staff adequately define the condition rating criteria that should be used and the assets that require a discrete condition rating. When engaging with external consultants to complete condition assessments, it is critical that these details are communicated as part of the contractual terms of the project.

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

Developing a Condition Assessment Schedule

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

- 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 Municipality'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**

Risk Frameworks

Road Network – Paved (HCB/LCB) Roads

Probability of Failure			
Criteria	**Sub-Criteria**	**Value/ Range**	**Score**
Performance	Asset Condition	0-29	5 - Almost Certain
		30-49	4 - Likely
		50-74	3 - Possible
		75-84	2 - Unlikely
		85-100	1 - Rare

Consequence of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Financial (60%)	Replacement Cost	>$5,000,000	5 – Severe
		$1,000,000	4 – Major
		$500,000	3 - Moderate
		$250,000	2 – Minor
		<$50,000	1 – Insignificant
Social (20%)	AADT – 50%	>2000	5 – Severe
		600	4 – Major
		400	3 – Moderate
		200	2 – Minor
		<50	1 – Insignificant
	Road Class - 50%	Arterial	5 – Severe
		Collector	3 – Moderate
		Local	2 – Minor
Health & Safety (20%)	Speed Limit	>80	5 – Severe
		70	4 – Major
		60	3 – Moderate
		50	2 – Minor
		<40	1 – Insignificant

Bridges & Culverts

Probability of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Performance	Asset Condition	0	5 - Almost Certain
		20	4 - Likely
		40	3 - Possible
		60	2 - Unlikely
		80	1 - Rare

Consequence of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Financial	Replacement Cost	>$4,500,000	5 - Severe
		$1,000,000	4 - Major
		$500,000	3 - Moderate
		$250,000	2 - Minor
		<$100,000	1 - Insignificant

Buildings

Probability of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Performance	Asset Condition	0	5 - Almost Certain
		1.6	4 - Likely
		2.6	3 - Possible
		3.5	2 - Unlikely
		4.6 to 5	1 - Rare

Consequence of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Financial 80%	Replacement Cost	>$1,000,000	5 - Severe
		$750,000	4 - Major
		$500,000	3 - Moderate
		$250,000	2 - Minor
		<$100,000	1 - Insignificant
Social 20%	Asset Segment	Operations	5 - Severe
		Fire Halls	4 - Major

		Halls & Community Centers	3 - Moderate
		Storage	2 - Minor

Land Improvements

Probability of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Performance	Asset Condition	0	5 - Almost Certain
		20	4 - Likely
		40	3 - Possible
		60	2 - Unlikely
		80	1 - Rare

Consequence of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Financial	Replacement Cost	$1,000,000	5 - Severe
		$150,000	4 - Major
		$50,000	3 - Moderate
		$25,000	2 - Minor
		$10,000	1 - Insignificant

Machinery & Equipment

Probability of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Performance	Asset Condition	0	5 - Almost Certain
		20	4 - Likely
		40	3 - Possible
		60	2 - Unlikely
		80	1 - Rare

Consequence of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Financial	Replacement Cost	$500,000	5 - Severe
		$125,000	4 - Major
		$75,000	3 - Moderate
		$25,000	2 - Minor
		$0	1 - Insignificant

Vehicles

Probability of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Performance	Asset Condition	0	5 - Almost Certain
		20	4 - Likely
		40	3 - Possible
		60	2 - Unlikely
		80	1 - Rare

Consequence of Failure			
Criteria	**Sub-Criteria**	**Value/Range**	**Score**
Financial 80%	Replacement Cost	$750,000	5 - Severe
		$125,000	4 - Major
		$75,000	3 - Moderate
		$25,000	2 - Minor
		$0	1 - Insignificant
Social 20%	Department	Operations	5 - Severe
		Protection	3 - Possible