Asset Management Plan

Village of Oil Springs

May 2025

psdcitywide

This Asset Management Program was prepared by:

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

Key Statistics

$14.0M	2023 Replacement Cost of Asset Portfolio
$49.3K	Replacement Cost of Infrastructure Per Household
90%	Percentage of Assets in Fair or Better Condition
83%	Percentage of Assets with Assessed Condition Data
2.23%	Target Investment Rate

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Executive Summary

Municipal infrastructure supports the economic, social, and environmental well-being of the community by enabling essential services. Asset management aims to deliver these services cost-effectively through strategic planning and long-term financial forecasting.

Oil Springs owns $14.0 million in infrastructure assets, with 90% in fair or better condition. Assessed condition data was available for key categories, including roads, bridges, stormwater, parks, water, and wastewater. For the remaining assets, assessed condition data was unavailable, and asset age was used to approximate condition. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning.

A sustainable financial plan was developed by analyzing lifecycle costs, combining proactive strategies (e.g., roads) with replacement-only approaches for other assets to maintain current service levels at the lowest cost.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent future infrastructure backlogs, and achieve long-term sustainability, the Village's average annual capital requirement totals $311 thousand. Based on a historical analysis of sustainable capital funding sources, the Village is committing approximately $203 thousand towards capital projects per year. As a result, the Village is funding 65.3% of its annual capital requirements. This creates a total annual funding deficit of $108 thousand.

Addressing annual infrastructure funding shortfalls is a difficult and long-term endeavour for municipalities. To close annual deficits for capital contributions from tax revenues for asset needs, it is recommended the Village review the feasibility of implementing a 0.8% annual increase in revenues over a 10-year phase-in period.

To close annual deficits in water and sanitary capital contributions, it is recommended that the Village to review the feasibility of a 1.0% annual increase in water revenues over 10 years, and a 2.3% increase in sanitary revenues over 20 years.

In addition to annual needs, the Village faces an infrastructure backlog of $388,000 from assets that have exceeded their useful life. While not all require immediate replacement, regular condition assessments are essential to refine these estimates and support timely interventions. Risk frameworks and service level targets help prioritize projects and choose the appropriate lifecycle strategies.

The Village has begun integrating preliminary risk models into its asset register, enabling risk-based prioritization. Like many municipalities, it continues to face long-term infrastructure challenges built over decades, requiring sustained efforts to address. To this end, several recommendations should be considered, including:

- Ongoing improvement of asset data to support accurate forecasting.
- Refining risk and lifecycle models as better data becomes available.
- Continuing system-wide condition assessments.

The Village has made strong progress by enhancing its asset inventory. Maintaining this momentum will be critical to supporting financial sustainability and consistent service delivery.

About this Document

The Oil Springs Asset Management Plan was developed in accordance with Ontario Regulation 588/17 ("O. Reg 588/17"). It contains a comprehensive analysis of Oil Springs's infrastructure portfolio. This is a living document that should be updated regularly as additional asset and financial data becomes available.

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. Along with creating better performing organizations, more livable 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.

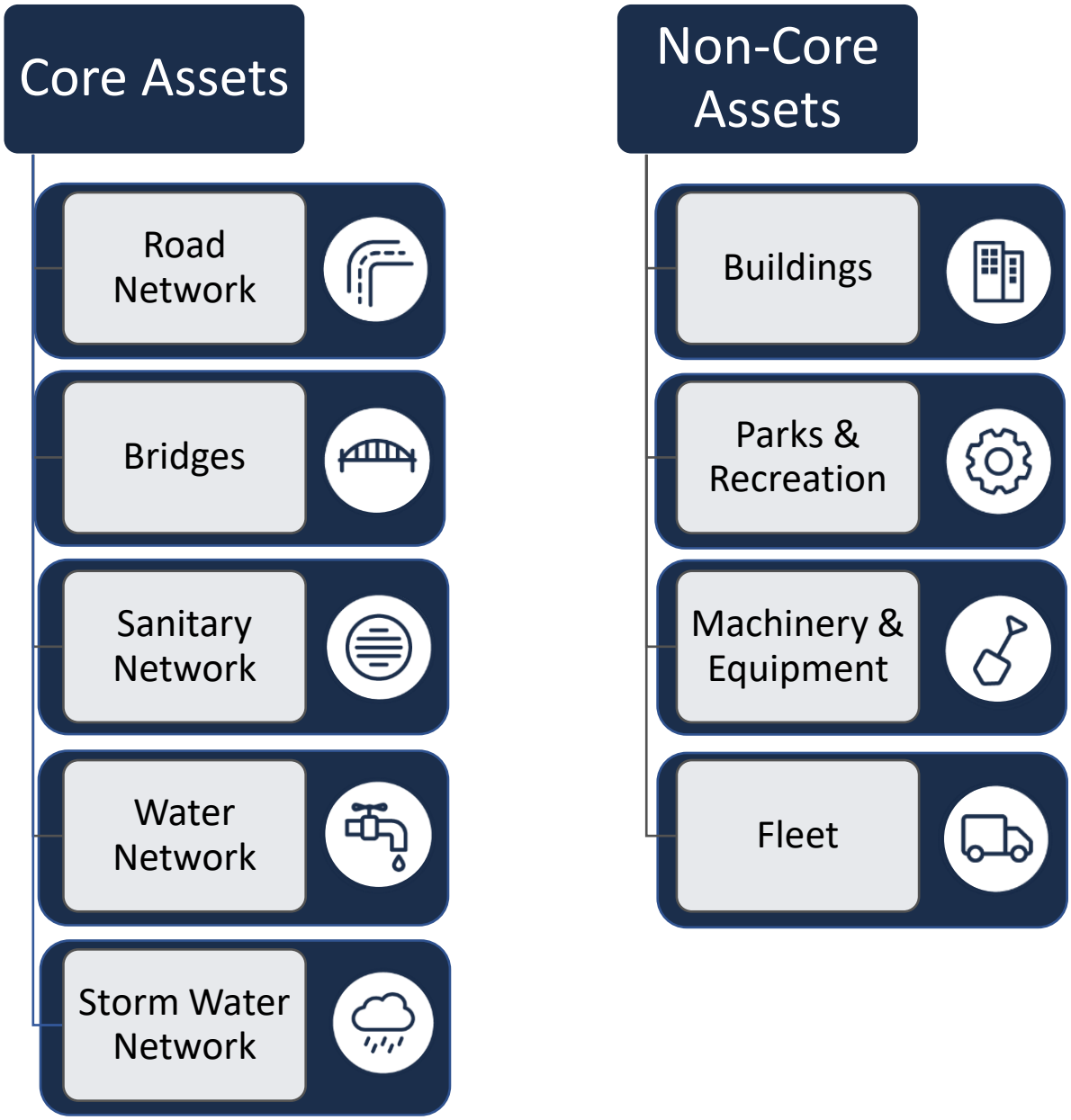
Table 1 Ontario Regulation 588/17 Requirements and Reporting Deadlines

Requirement	2019	2022	2024	2025
Asset Management Policy	●		●	
Asset Management Plans		●	●	●
State of infrastructure for core assets		●		
State of infrastructure for all assets			●	●
Current levels of service for core assets		●		
Current levels of service for all assets			●	
Proposed levels of service for all assets				●
Lifecycle costs associated with current levels of service		●	●	
Lifecycle costs associated with proposed levels of service				●
Growth impacts		●	●	●
Financial strategy				●

Scope

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

The following asset categories are addressed in further detail in the Appendix.



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 Village's primary asset management system.

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

An Overview of Asset Management

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

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

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

Foundational Documents

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

Strategic Plan

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

Asset Management Policy

An asset management policy represents a statement of the principles guiding the Village'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 Village plans to achieve its asset management objectives through planned activities and decision-making criteria.

Asset Management Plan

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

Key Technical Concepts

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

Asset Hierarchy and Data Classification

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

Table 2 Asset Hierarchy

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 Village 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 Village 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 Village can determine the service life remaining (SLR) for each asset. Using condition data and the asset's SLR, the Village can more accurately forecast when it will require replacement. The SLR is calculated as follows:

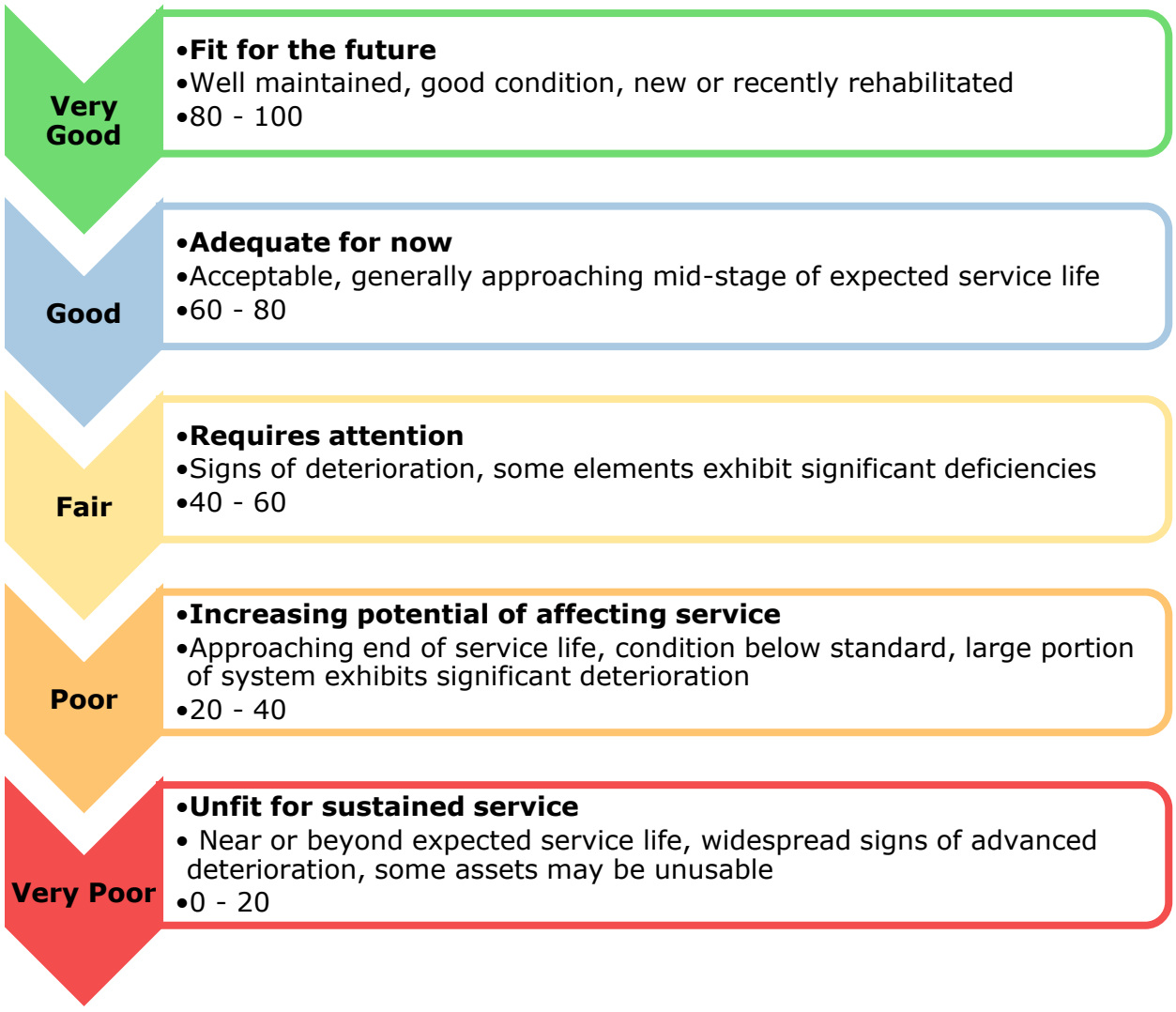
Figure 1: Service Life Remaining Calculation

Asset Condition

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

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

Figure 2: 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 L: 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.

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 3 provides a description of each type of activity and the general difference in cost.

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

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

Figure 3: Lifecyle Management Typical Interventions

Maintenance

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

Rehabilitation / Renewal

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

Replacement

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

Risk Management Strategies

Municipalities generally take a 'worst-first' approach to infrastructure spending. Rather than prioritizing assets based on their importance to service delivery, assets in the worst condition are fixed first, regardless of their criticality. However, not all assets are created equal. Some are more important than others, and their failure or disrepair poses more risk to the community. For example, a road with a high

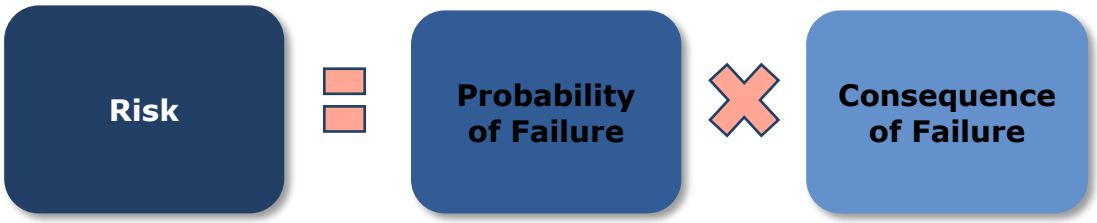
volume of traffic that provides access to critical services poses a higher risk than a low volume rural road. These high-value assets should receive funding before others.

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

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

Risk is a product of two variables: the probability that an asset will fail, and the resulting consequences of that failure event. It can be a qualitative measurement, (low, medium, high) or quantitative measurement (1-5), that can be used to rank assets and projects, identify appropriate lifecycle strategies, optimize short- and long-term budgets, minimize service disruptions, and maintain public health and safety.

Figure 4: Risk Equation



Probability of Failure

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

Consequence of Failure

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

Levels of Service

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

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

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

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

Community Levels of Service

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

Technical Levels of Service

Technical LOS are a measure of key technical attributes of the service being provided to the community. These include mostly quantitative measures and tend to reflect the impact of the Village'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 Village determined the technical metrics that will be used. The metrics can be found in the LOS subsection within each asset category.

Current and Proposed Levels of Service

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

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

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.

Oil Springs Climate Profile

The Village of Oil Springs is a village in Lambton County, Ontario, Canada. The Village is expected to experience notable effects of climate change which include higher average annual temperatures, an increase in total annual precipitation, and an increase in the frequency and severity of extreme events. According to Climatedata.ca – a collaboration supported by Environment and Climate Change Canada (ECCC) – the Village of Oil Springs may experience the following trends:

Higher Average Annual Temperature:

- Between the years 1971 and 2000 the annual average temperature was 8.6 ºC
- Under a high emissions scenario, the annual average temperatures are projected to increase by 3.0ºC by the year 2050 and over 5.2 ºC by 2080.

Increase in Total Annual Precipitation:

- Under a high emissions scenario, Oil Springs is projected to experience an 12% increase in precipitation by the year 2051 and a 16% increase by 2080.

Increase in Frequency of Extreme Weather Events:

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

Integration Climate change and Asset Management

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

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

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 Village can determine the extent of any existing funding gap.

Portfolio Overview

Community Profile

The Village of Oil Springs is in Lambton County, Ontario which was incorporated in 1865. The village is an enclave within Enniskillen Township. Oil Springs is located approximately 90 kilometres southwest of London and approximately 30 kilometres east of the American border.

Census Characteristic	Village of Oil Springs	Lambton County	Ontario
Population 2021	647	128,154	14,223,942
Population 2016	648	126,638	13,448,494
Total Private Dwellings	283	60,322	5,929,250
Population Density	79.5/km2	42.7/km2	15.9/km2
Land Area	8.14 km2	2,999.93 km2	892,411.76 km2

Oil Springs holds a pivotal place in Canadian history, as the birthplace of North America's first commercial oil well. In 1858, James Miller Williams, an asphalt producer, inadvertently discovered free oil while attempting to dig a water well in what was then known as Black Creek. This discovery triggered Canada's first oil rush, leading to a rapid transformation of the village and the surrounding region.

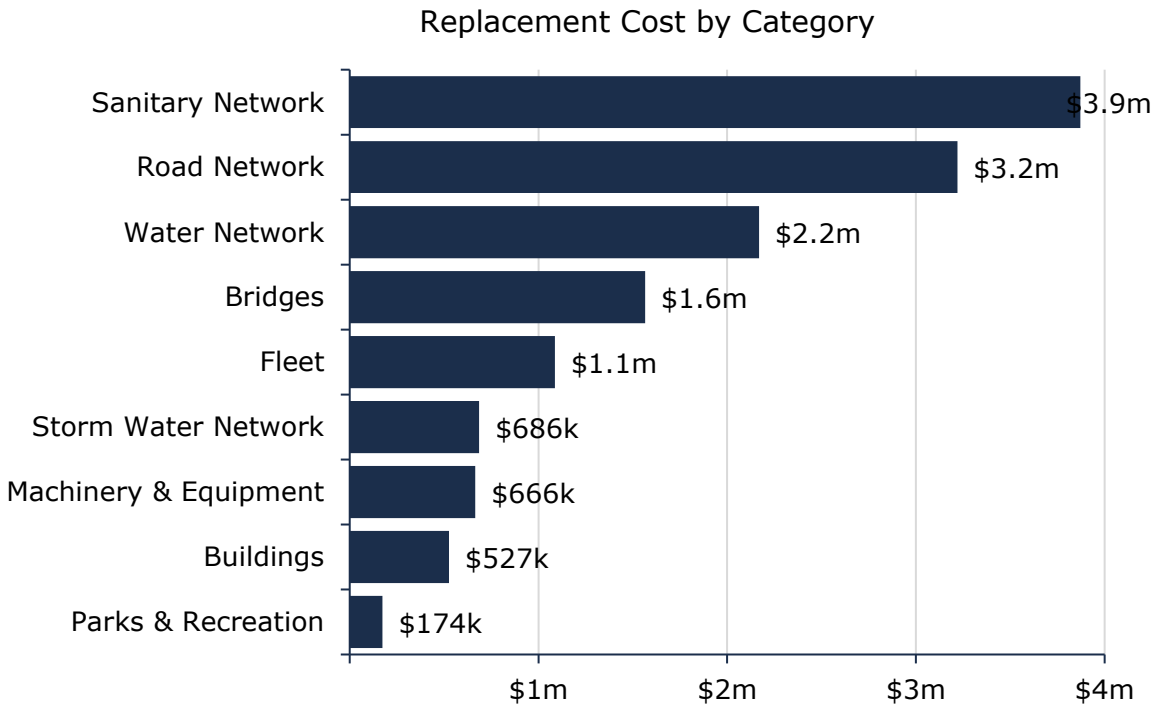
The Village was subsequently renamed Oil Springs, reflecting its newfound identity as a hub for petroleum production. Today, the village proudly preserves its rich heritage through attractions like the Oil Museum of Canada and the Fairbanks Oil Fields.

The Village of Oil springs represents an ideal mix of a small-town feel with access to urban centres such as London. Although the village has seen a slight population decline from 2016 to 2021, it maintains a stable residential base with 283 private dwellings and a population density of 79.5 people per square kilometer - significantly higher than the county and provincial averages. The Township generates a total revenue of $800 thousands from taxes and rates and spends an average of $349 thousands annually on capital projects.

Replacement Cost

All Oil Springs's asset categories have a total replacement cost of $14.0 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 5: Portfolio Replacement Value

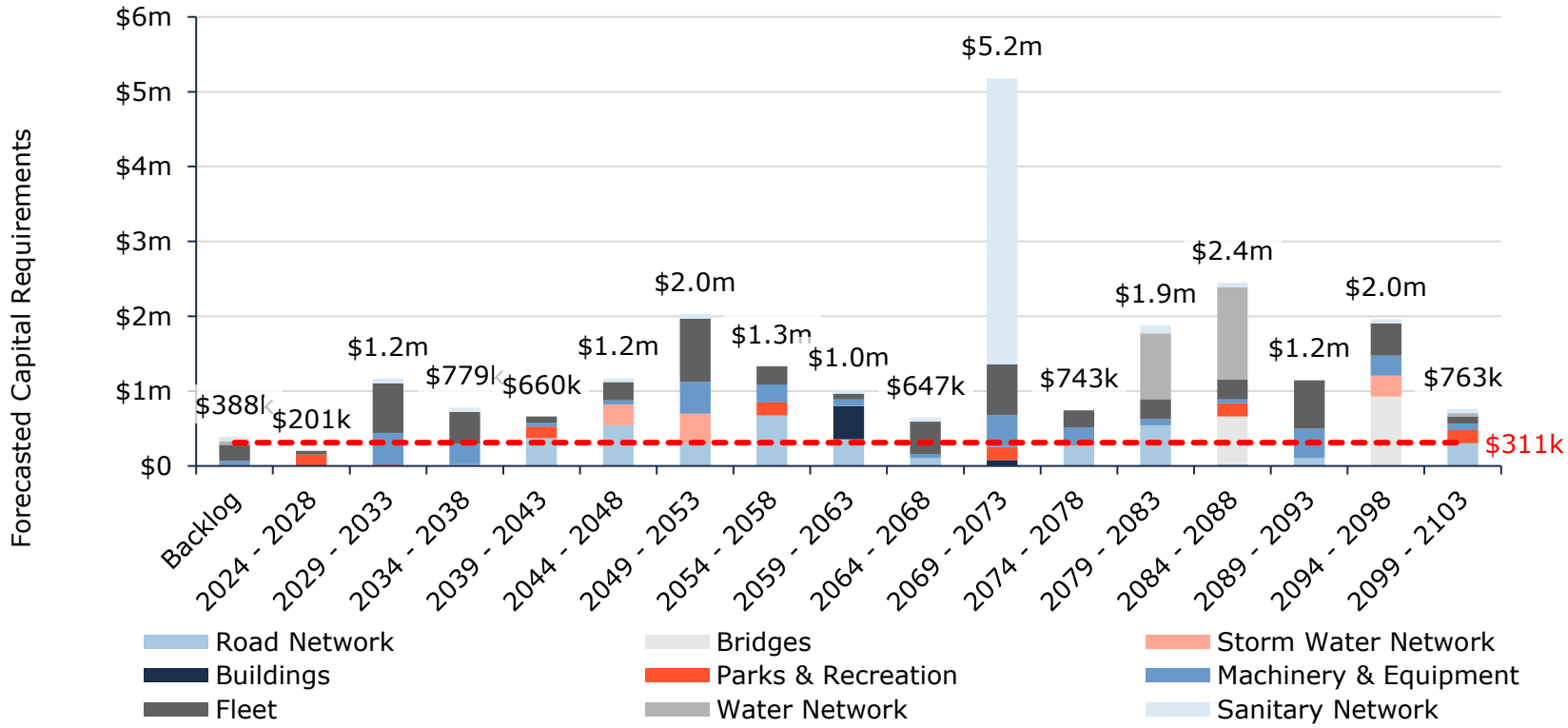


Forecasted Capital Requirements

Aging assets require maintenance, rehabilitation, and replacement. Figure 6 below illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for all asset categories analyzed. On average, $311 thousand is required each year to remain current with capital replacement needs for Oil Springs'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. Based on the current replacement cost of the portfolio, estimated at $14.0 million, this represents an annual target reinvestment rate of 2.23%.

Figure 6: Forecasted Capital Requirements

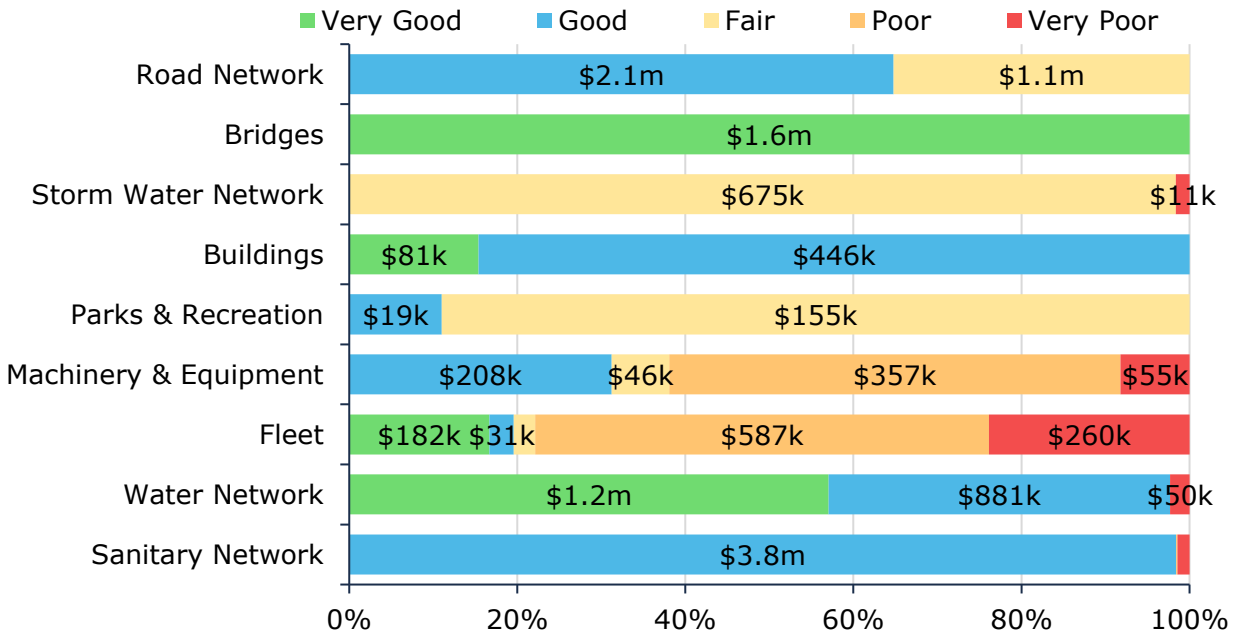


The chart also illustrates a backlog of $388 thousand, comprising assets that remain in service beyond their estimated useful life. It is unlikely that all such assets are in a state of disrepair, requiring immediate replacements or major renewals. This makes targeted and consistent condition assessments integral.

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

Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 90% of assets in Oil Springs are in fair or better condition. This estimate relies on both age-based and field condition data.

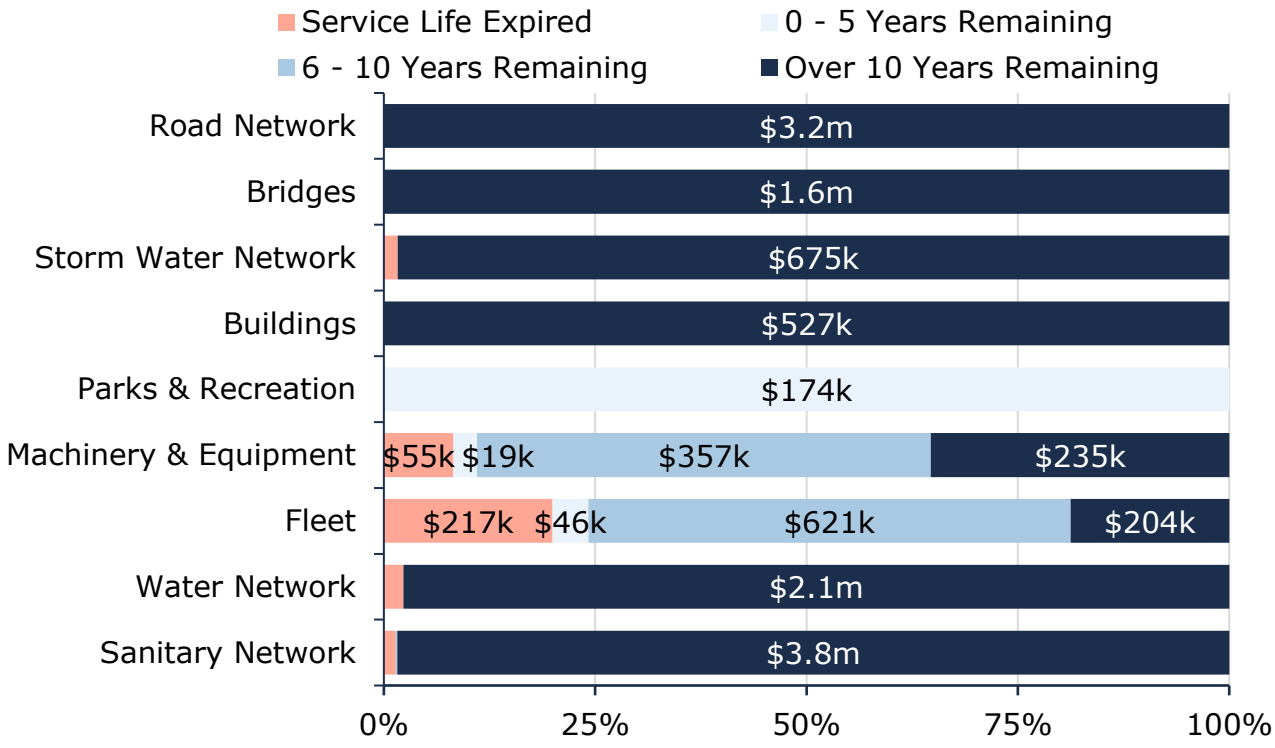


Assessed condition data is available for road network, bridges and culverts, storm water network, parks and recreation, water network and sanitary network; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions.

Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 12% of the Village's assets will require rehabilitation/replacement within the next 10 years. Details of the capital requirements are identified in each asset section.

Figure 7: Asset Portfolio Service Life Remaining



Risk & Criticality

The overall asset risk breakdown for Oil Springs's asset inventory is portrayed in the figure below.

Figure 8: Overall Asset Risk Breakdown

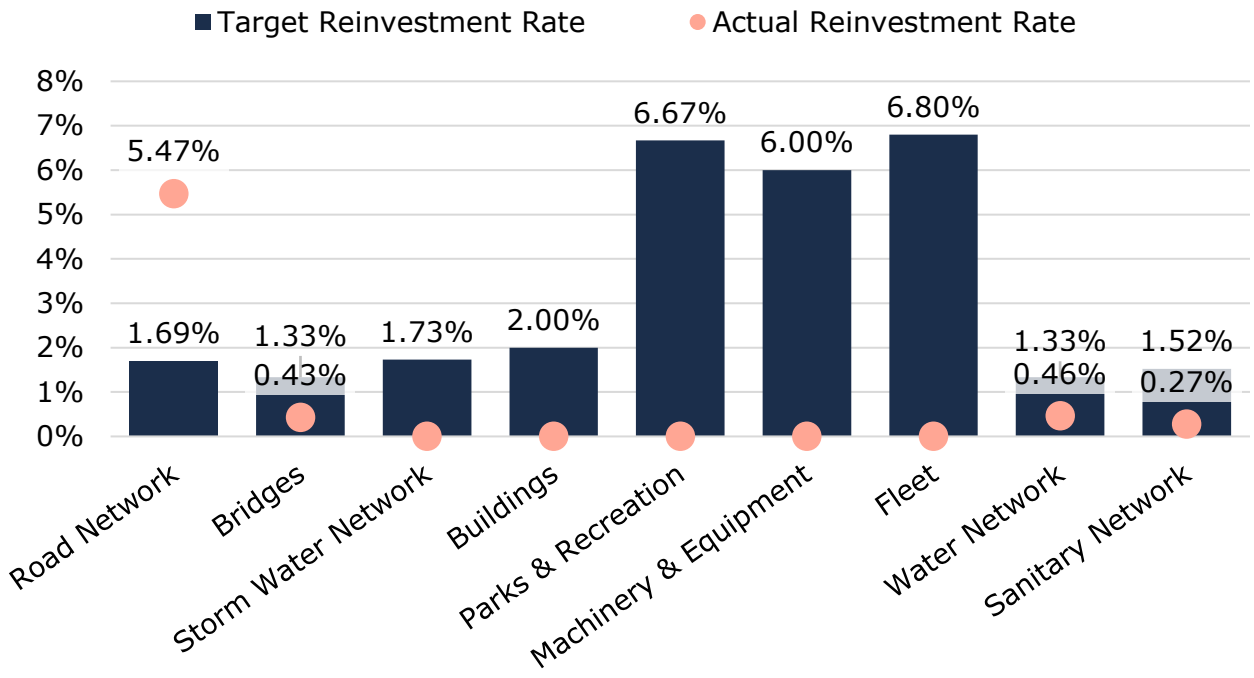
1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$4,221,953 (30%)	$4,407,614 (32%)	$3,462,686 (25%)	$654,980 (5%)	$1,217,539 (9%)

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

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 Village is recommended to be allocating approximately $311 thousand annually, for a target reinvestment rate of 2.23%. Actual annual spending on infrastructure totals approximately $203 thousand, for an actual reinvestment rate of 1.45%.

Figure 9: Target vs Actual Reinvestment Rates



Financial Strategy

Financial Strategy Overview

For an asset management plan to be effective and meaningful, it must be integrated with financial planning and long-term budgeting. The development of a comprehensive financial plan will allow Village of Oil Springs to identify the financial resources required for sustainable asset management based on existing asset inventories, desired levels of service, and projected growth requirements.

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

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

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

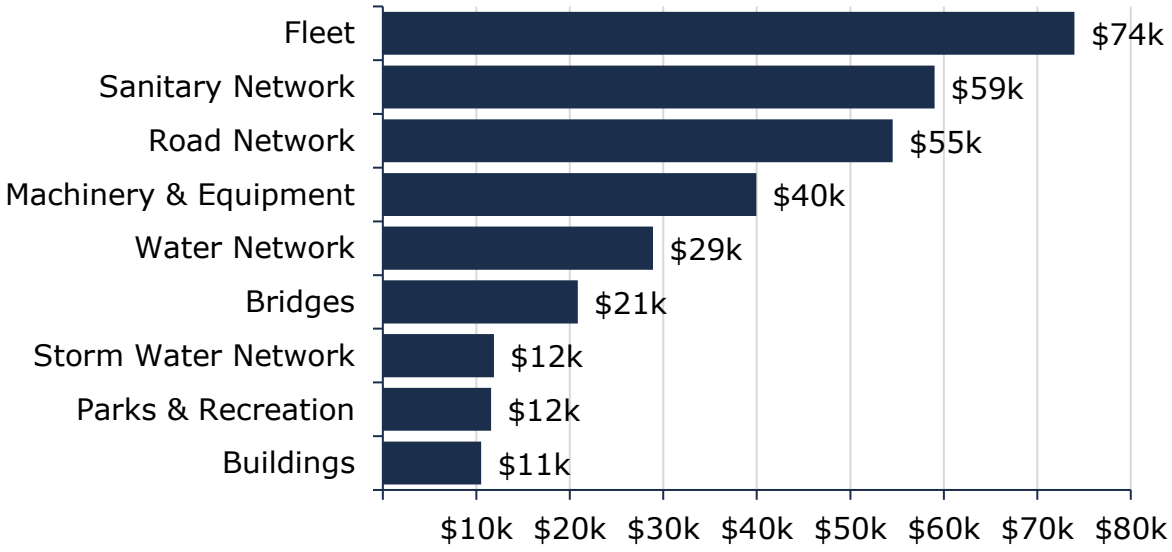
If the financial plan component results in a funding shortfall, the Province requires the inclusion of a specific plan as to how the impact of the shortfall will be managed. In determining the legitimacy of a funding shortfall, the Province may evaluate a Village's approach to the following:

1. In order to reduce financial requirements, consideration has been given to revising service levels downward.

2. All asset management and financial strategies have been considered. For example:
    a. If a zero-debt policy is in place, is it warranted? If not the use of debt should be considered.
    b. Do user fees reflect the cost of the applicable service? If not, increased user fees should be considered.

Annual Requirements & Capital Funding

The annual requirements represent the amount the Village should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs and achieve long-term sustainability. In total, the Village must allocate approximately $311 thousand annually to address capital requirements for the assets included in this AMP.



For all 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.

Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Village is committing approximately $203 thousand towards capital projects per year. Given the annual capital requirement of $311 thousand, there is currently a funding gap of $108 thousand annually.

Funding Objective

We have developed a scenario that would enable The Village of Oil Springs to achieve full funding within 1 to 20 years for the following assets:

- **Tax Funded Assets:** Road Network, Storm Network, Bridges & Culverts, Buildings, Machinery & Equipment, Land Improvements, Vehicles
- **Rate-Funded Assets:** Water Network, Sanitary Network

Note: For the purposes of this AMP, we have excluded gravel roads since they are a perpetual maintenance asset and end of life replacement calculations do not normally apply. If gravel roads are maintained properly, they can theoretically have a limitless service life.

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

Financial Profile: Tax Funded Assets

Current Funding Position

The following tables show, by asset category, Oil Springs' average annual asset investment requirements, current funding positions, and funding increases required to achieve full funding on assets funded by taxes.

Table 3: Taxes - Required Funding vs Current Funding Position

Asset Category	Avg. Annual Requirement	Annual Funding Available				Annual Deficit
		Taxes	CCBF	OCIF	Total Available	
Road Network	$54,525	$39,563	$21,445	$115,000	$176,008	($121,483)
Stormwater Network	$11,884					$11,884
Bridges & Culverts	$20,870	$6,667			$6,667	$14,203
Buildings	$10,535					$10,535
Machinery & Equipment	$39,942					$39,942
Land Improvements	$11,578					$11,578
Vehicles	$73,991					$73,991
	$223,325	**$46,230**	**$21,445**	**$115,000**	**$182,675**	**$40,650**

The average annual investment requirement for the above categories is $223.3 thousand. Annual revenue currently allocated to these assets for capital purposes is $182.7 thousand leaving an annual deficit of $40.6 thousand. Put differently, these

infrastructure categories are currently funded at 81.8% of their long-term requirements.

Full Funding Requirements

In 2024, The Village of Oil Springs had budgeted tax revenues of $540 thousand. 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	No increase required
Storm Water Network	2.2%
Bridges & Culverts	2.6%
Buildings	1.9%
Machinery & Equipment	7.4%
Land Improvements	2.1%
Vehicles	13.7%

We've developed a scenario that outlines how the Village of Oil Springs could achieve full funding for the following asset categories within a 1 to 20-year timeframe. The table below illustrates this approach and presents several funding options to consider:

	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	40,650	40,650	40,650	40,650
Tax Increase Required	7.5%	7.5%	7.5%	7.5%
Annually:	**1.5%**	**0.8%**	**0.5%**	**0.4%**

Financial Strategy Recommendations

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

a) Increasing tax revenues by 0.8% each year for the next 10 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
b) Allocating the current Canada Community-Building Fund (Formerly known as Gas Tax Fund) and OCIF revenue as outlined previously.
c) Allocating the scheduled OCIF grant increases to the infrastructure deficit as they occur.
d) Reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
e) Increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

1. Any increase in property tax rates required for future operations would be in addition to the above recommendations.
2. 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[1].
3. The Village has also been a beneficiary of Ontario Municipal Partnership Fund grants. Similar to the note above, these grants cannot be incorporated into an AMP and should therefore be used to address the existing infrastructure backlog.

Although this option achieves full funding on an annual basis and provides financial sustainability over the next ten years, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows a pent-up investment demand of $11k for the Stormwater Network, $55k for Machinery & Equipment, and $217k for Vehicles.

[1] The Village 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.

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.

Financial Profile: Rate Funded Assets

Current Funding Position

The following tables show, by asset category, Oil Springs' average annual asset investment requirements, current funding positions, and funding increases required to achieve full funding on assets funded by rates.

Table 4: Rates: Required Funding vs Current Funding Position

Asset Category	Avg. Annual Requirement	Annual Funding Available				Annual Deficit
		Rates	To Operations	OCIF	Total Available	
Water Network	$28,911	$181,731	($171,731)		$10,000	$18,911
Sanitary Network	$59,008	$84,943	($74,437)		$10,506	$48,503
	$87,919	**$266,674**	**($246,168)**	**0**	**$20,506**	**$67,413**

The average annual investment requirement for the above categories is $87,919. Annual revenue currently allocated to these assets for capital purposes is $20,506, leaving an annual deficit of $67,413. Put differently, these infrastructure categories are currently funded at 23.3% of their long-term requirements.

Full Funding Requirements

In 2024, The Village of Oil Springs had budgeted water revenues of $181,731 and annual sanitary revenues of $84,943. As illustrated in the table below, without consideration of any other sources of revenue, full funding would require the following changes over time:

Asset Category	Rate Change Required for Full Funding
Water Network	10.4%
Sanitary Sewer Network	57.1%

In the following tables, we have expanded the above scenario to present multiple options. Due to the significant increases required, we have provided phase-in options of up to 20 years:

Table 5: Phasing in Annual Rate Increases

	Water Network				Sanitary Sewer Network			
	5 Years	**10 Years**	**15 Years**	**20 Years**	**5 Years**	**10 Years**	**15 Years**	**20 Years**
Infrastructure Deficit	18,911	18,911	18,911	18,911	48,503	48,503	48,503	48,503
Decrease in Debt Payments	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Resulting Infrastructure Deficit:	18,911	18,911	18,911	18,911	48,503	48,503	48,503	48,503
Rate Increase Required	10.4%	10.4%	10.4%	10.4%	57.1%	57.1%	57.1%	57.1%
Annually:	**2.0%**	**1.0%**	**0.7%**	**0.5%**	**9.5%**	**4.7%**	**3.1%**	**2.3%**

Financial Strategy Recommendations

Considering all of the above information, we recommend the 10-year option for the Water network and the 20-year option for the Sanitary network. This involves full funding being achieved over 10 and 20 years, respectively, by:

a) increasing rate revenues by 1.0% for water services each year for the next 10 years and 2.3% for sanitary services each year for the next 20 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
b) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

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

Although this option achieves full funding on an annual basis in 20 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows a pent-up investment demand of $50,000 for the Water Network and $55,000 for the Sanitary Network.

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.

Use of Debt

The following tables outline how Oil Springs has historically used debt for investing in the asset categories as listed. There is currently $955,477 of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of $98,664, well within its provincially prescribed maximum of $178,095.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2019	2020	2021	2022	2023
Road Network	$711K	$850K				
Stormwater Network						
Bridges & Culverts						
Buildings & Facilities						
Machinery & Equipment						
Land Improvements						
Vehicles						
Total Tax Funded:	**$711K**	**$850K**	**0**	**0**	**0**	**0**
Water Network	$244K					
Sanitary Network						
Total Rate Funded:	**244K**	**$850K**	**0**	**0**	**0**	**0**

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2024	**2025**	**2026**	**2027**	**2028**	**2029**	**2034**
Road Network	53,913	53,913	53,913	53,913	53,913	53,913	53,913
Stormwater Network							
Bridges & Culverts							
Buildings							
Machinery & Equipment							
Land Improvements							
Vehicles							
Total Tax Funded:	**53,913**	**53,913**	**53,913**	**53,913**	**53,913**	**53,913**	**53,913**
Water Network	44,351	44,351	44,351	44,351	32,163	18,234	
Sanitary Network							
Total Rate Funded:	**44,351**	**44,351**	**44,351**	**44,351**	**32,163**	**18,234**	**0**

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:

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

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.

The Village of Oil Springs allocates funds to reserves, which can be drawn upon during the phase-in period toward full funding. These reserve allocations, along with historically conservative use of debt, provide the Village with some flexibility to address high-priority or emergency infrastructure needs in the short- to medium-term.

Recommendation

In 2025, Ontario Regulation 588/17 will require The Village of Oil Springs to integrate proposed levels of service for all asset categories in its asset management plan update. We recommend that future planning should reflect adjustments to service levels and their impacts on reserve balances.

Recommendations

Asset Data

- Asset management planning is highly sensitive to replacement costs. Periodically update replacement costs based on recent projects, invoices, or estimates, or any other technical reports and studies. Material and labour costs can fluctuate due to local, regional, and broader market trends, and substantially so during major world events. Accurately estimating the replacement cost of like-for-like assets can be challenging. Ideally, several recent projects over multiple years should be used.

Condition Assessment Strategies

- Implement condition assessments for additional asset categories to ensure that condition information remains reliable. Regular evaluations are crucial for maintaining an effective asset management plan, as they provide essential insights into the health and performance of various assets over time. By expanding condition assessments to more asset categories, the Village can better prioritize maintenance and repair efforts, optimize resource allocation, and extend the lifespan of its infrastructure and equipment.

Lifecycle Management Strategies

- Evaluate the efficacy of the Village's current lifecycle management strategies at regular intervals to determine the impact cost, condition, and risk. Currently, the Village conducts maintenance on an as-needed basis without extensive lifecycle interventions. It is recommended that the Village consider adopting a formal lifecycle management strategy to ensure systematic maintenance and optimal resource use for its paved roads.

Risk Management Strategies

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

Levels of Service

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

Appendix A: Road Network

State of the Infrastructure

Oil Springs's Road Network comprises the second largest share of its infrastructure portfolio, with a current replacement cost of $3.2 million, primarily asphalt roads.

The Village also owns and manages other supporting infrastructure and capital assets, including curb and sidewalk.

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

Replacement Cost	Condition	Financial Capacity	
$3,220,276	Good (70%)	Annual Requirement:	$54,525
		Funding Available:	$201,808
		Annual Deficit:	$(147,283)

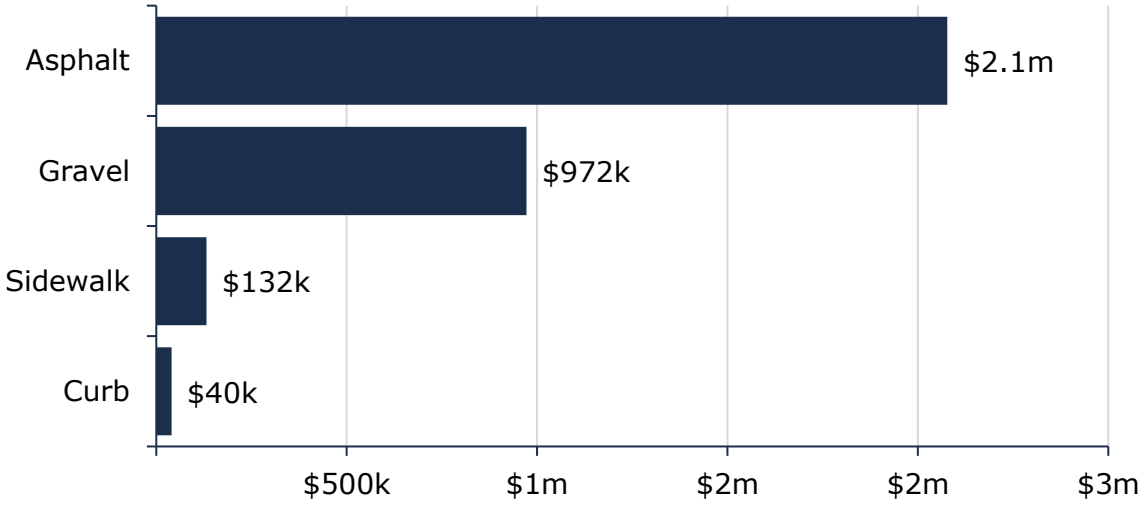
Inventory & Valuation

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

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Asphalt	10,714	Length (m)	CPI	$2,076,993
Curb	861	Length (m)	CPI	$39,928
Gravel	4,948	Length (m)	CPI	$971,703
Sidewalk	2,271	Length (m)	CPI	$131,652
Total	**18,813**	**Meters**		**$3,220,276**

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

Figure 10: Road Network Replacement Value

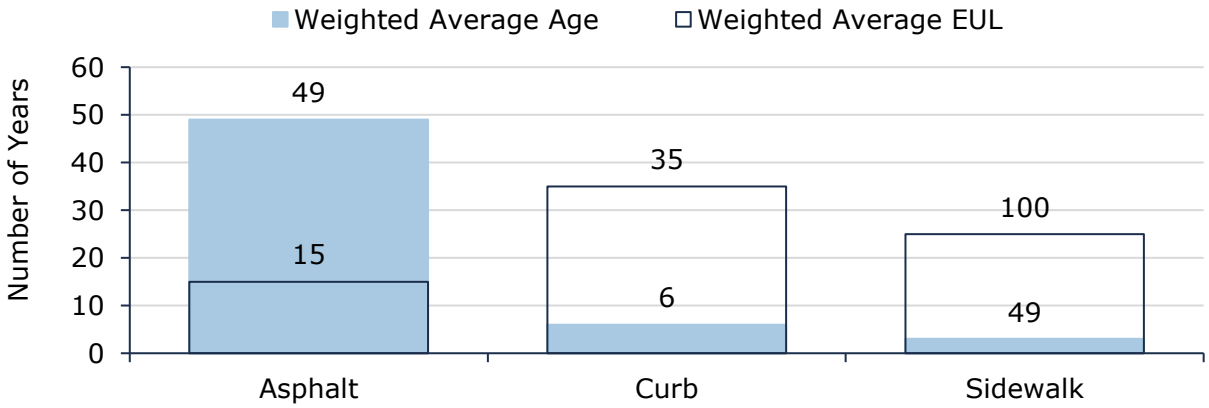


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

Asset Condition & Age

The graph below identifies the average age, and the estimated useful life for each asset segment[2]. It is all weighted by replacement cost.

Figure 11: Road Network Average Age vs Average EUL

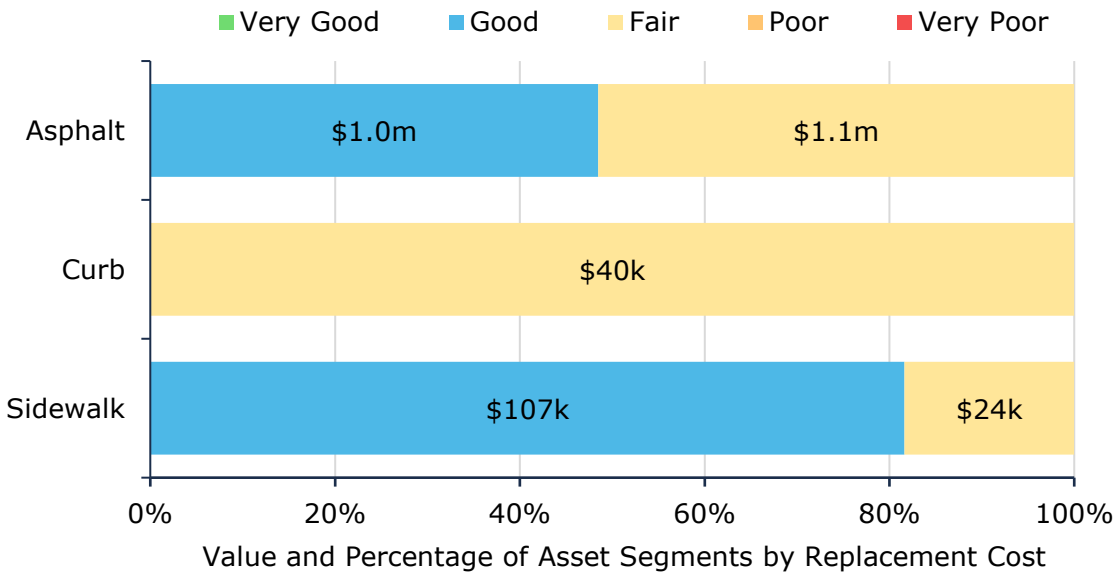


The analysis shows that, based on in-service dates, roads continue to remain in operation beyond their expected useful life. This is due to the life cycle management strategies currently being utilized.

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

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

Figure 12: Road Network Condition Breakdown



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

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 Village performs external annual assessments of its road network assets with the most recent completed in 2023. Internal annual assessment for streetlights and sidewalks, and signage is evaluated during road patrols. These assessment ensures timely maintenance, effective resource allocation and grant applications.

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 12 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.

Figure 13: Road Network Current Lifecycle Strategy

Maintenance

- Routine maintenance includes frequent inspections, street sweeping, spray patching and crack sealing for roads.
- Annual inspections, marking, and grinding spots are done for sidewalks
- Road patrols are conducted regularly to meet safety requirements

Rehabilitation / Renewal / Replacement

- Road rehabilitation activities including double surface treatment occurs when roads are at poor (PCI of 20) conditions.
- Replacement is considered for road assets when they are nearing the end of their expected service life causing safety concerns or if their condition has significantly deteriorated and repairs or rehabilitation are no longer cost-effective

Forecasted Capital Requirements

Figure 13 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Village's road network. Assuming the end-of-life replacement of assets in this category, the following graph forecasts capital requirements for the road network. This analysis was run until 2053 to capture at least one iteration of replacement for the longest-lived asset in the asset register.

Oil Springs's average annual requirements (red dotted line) total $55 thousands 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 14: Road Network Forecasted Capital Replacement Requirements

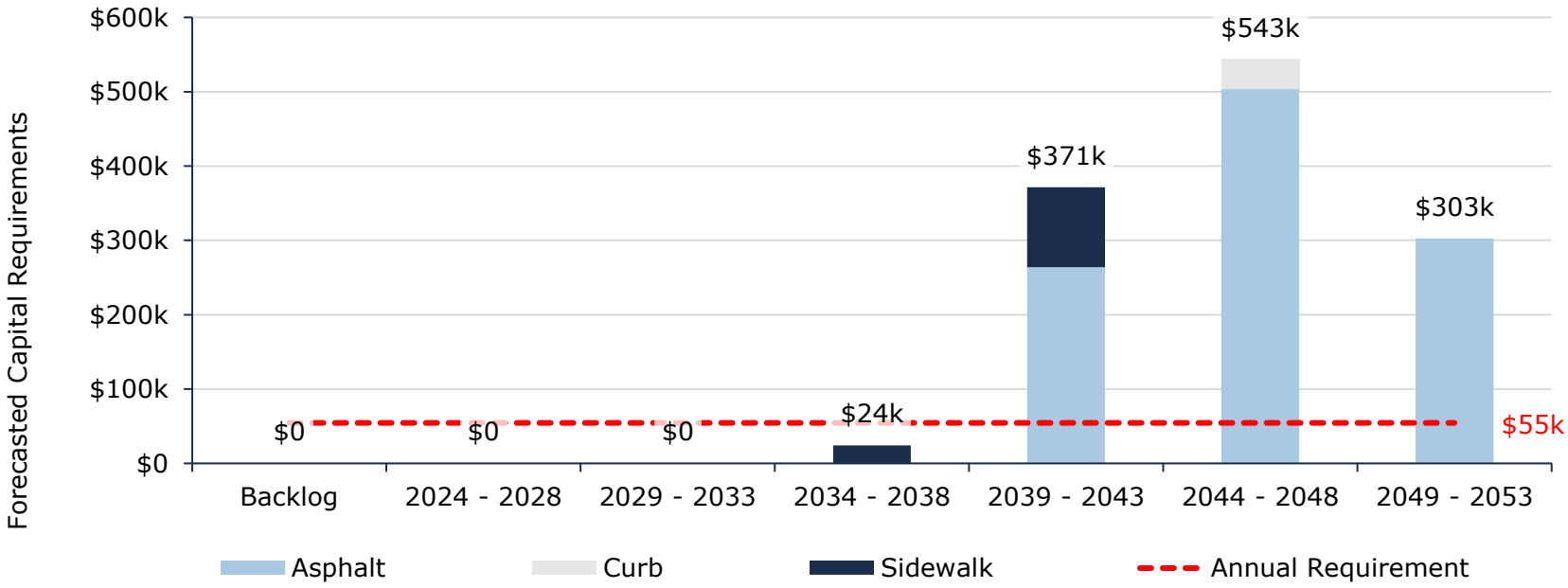


Table 7 below summarizes the projected cost of lifecycle activities (rehabilitation and replacement) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

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 Village's capital expenditure forecasts.

Table 6 Road Network System-generated 10-Year Capital Costs

Segment	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Asphalt	$418k	-	-	$81k	$290k	$47k	-	-	-	-	-
Curb	-	-	-	-	-	-	-	-	-	-	-
Sidewalk	-	-	-	-	-	-	-	-	-	-	-
Total	**$418k**	**-**	**-**	**$81k**	**$290k**	**$47k**	**-**	**-**	**-**	**-**	**-**

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 M: Risk Rating Criteria. for the criteria used to determine the risk rating of each asset.

Figure 15: Road Network Risk Matrix

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$528,263 (16%)	$874,175 (27%)	$1,333,195 (41%)	$484,643 (15%)	- (0%)

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

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

Climate Change & Extreme Weather Events

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

Levels of Service

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

Community Levels of Service

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

Table 7 Road Network Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of the road network in the Village and its level of connectivity	The Village's road network includes 11 km of asphalt and 5 km of gravel roads. Asphalt roads serve as the main transportation routes, providing reliable access to homes, businesses, and community facilities. Gravel roads support lower-density and seasonal areas. The network offers sufficient local connectivity, with most properties accessible year-round, though some gravel roads may be affected by seasonal conditions.
Performance	Description or images that illustrate the different levels of road class pavement condition	See Figure 2 for the description of road condition

Technical Levels of Service

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

Table 8 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 of collector roads (MMS classes 3 and 4) per land area in the municipality (km/km^2)	0.45
	Lane-km of local roads (MMS classes 5 and 6) per land area in the municipality (km/km^2)	3.25

	Average Risk Rating	13.67 (High)
Quality	Average pavement condition index for paved roads in the municipality	70%
	Average surface condition for unpaved roads in the municipality	71%
Performance	Target Reinvestment Rate (Annual)	1.69%

Appendix B: Bridges

State of the Infrastructure

Bridges 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	
$1,565,217	Very Good (94%)	Annual Requirement:	$20,870
		Funding Available:	$0
		Annual Deficit:	$20,870

Inventory & Valuation

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

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Bridges	2	Assets	CPI	$1,565,217
Total	**2**	**Assets**	**CPI**	**$1,565,217**

Figure 15 below displays the replacement cost of each asset segment in the Village's bridges inventory.

Figure 16: Bridges Replacement Cost

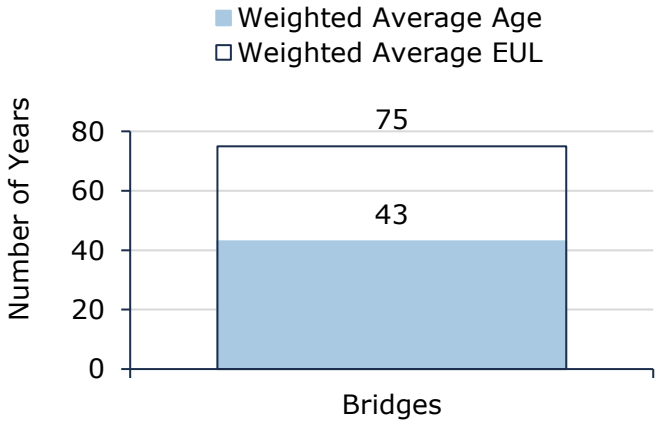
Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed. This can be included in the Ontario Structures Inspection

Manual (OSIM) inspections as the replacement cost is part of the calculation for the bridge condition index (BCI).

Asset Condition & Age

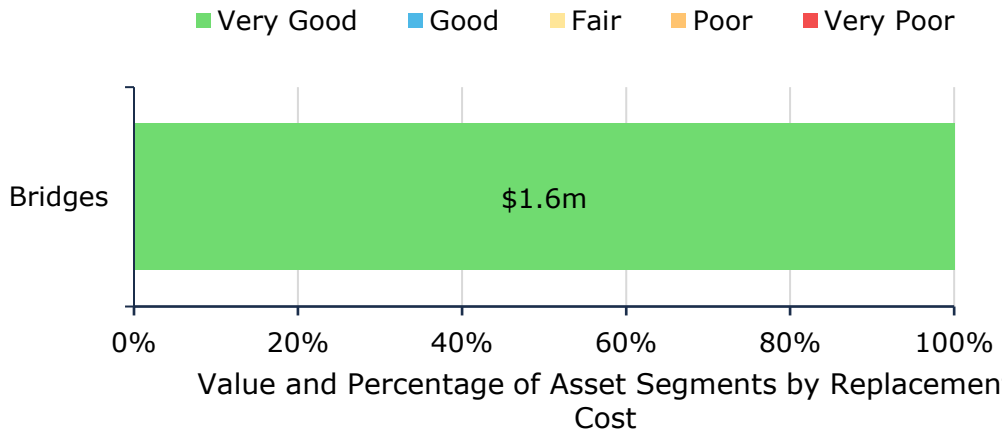
The graph below identifies the average age and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 17: Bridges 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 18: Bridges Condition Breakdown



To ensure that the Village's bridges 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.

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. Oil Springs's current approach is to assess the bridges and structural culverts every 2

years in accordance with the Ontario Structure Inspection Manual (OSIM). The most recent assessment was scheduled in October 2024.

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 18 outlines Oil Springs's current lifecycle management strategy.

Figure 19: Bridges Current Lifecycle Strategy

Maintenance

- Routine maintenance of bridges including quarterly inspections are done as per recommendations of OSIM reports.

Rehabilitation / Renewal / Replacement

- Rehabilitation activities are based on recommendations from biennial OSIMs.
- Replacement is considered for bridges when their condition has significantly deteriorated and rehabilitation is no longer cost-effective.

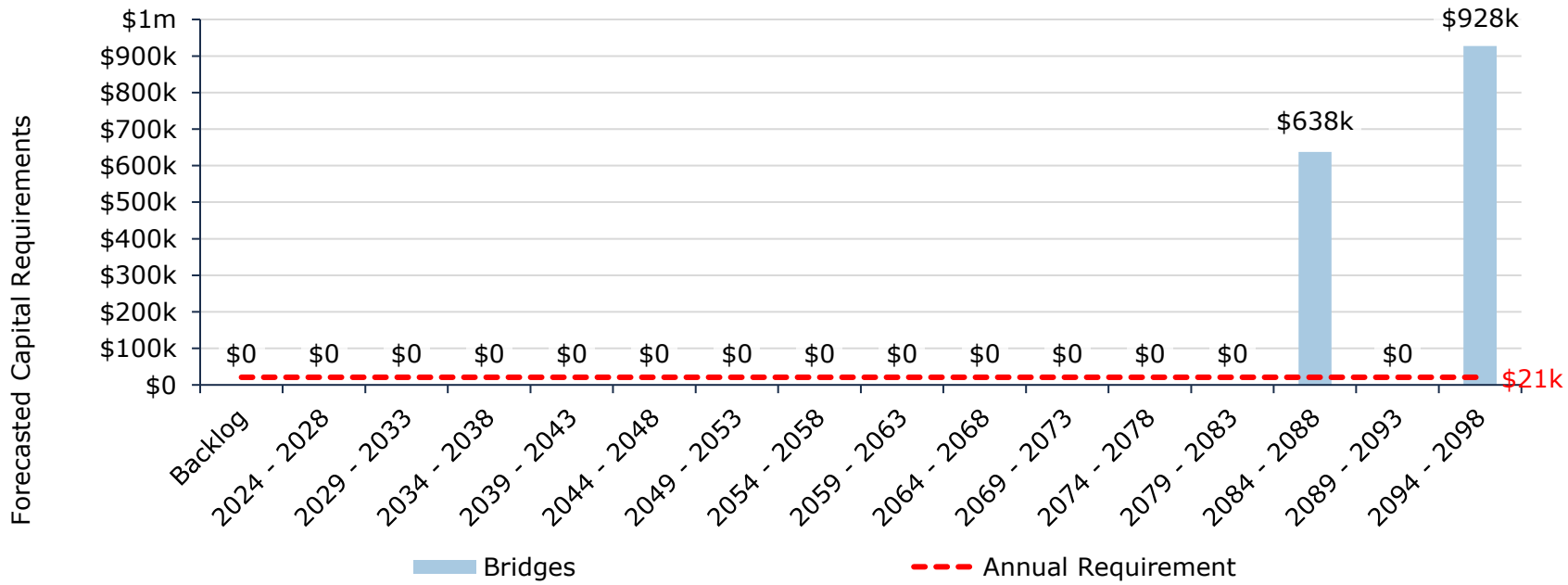
Forecasted Capital Requirements

Figure 19 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the Village's bridges. 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 2098, and the resulting graph identifies capital requirements over the next 75 years. Oil Springs's average annual requirements (red dotted line) for bridges total $21 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 20: Bridges Forecasted Capital Replacement Requirements



These are represented at the major asset level.

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

Table 9 Bridges System-generated 10-Year Capital Costs

Segment	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Bridges	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

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

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 M: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 21: Bridges Risk Matrix

1 - 4 Very Low - (0%)	5 - 7 Low $1,565,217 (100%)	8 - 9 Moderate - (0%)	10 - 14 High - (0%)	15 - 25 Very High - (0%)

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

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

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

Climate Change & Extreme Weather Events

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

Capital Funding Strategies

Financial constraints present a significant challenge for the Village particularly when there are insufficient funds to replace or upgrade key infrastructure. At present, the Village lacks a dedicated reserve for Bridges and will need to allocate specific funding in the future for the replacement of two essential bridges.

Levels of Service

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

Community Levels of Service

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

Table 10 Bridges 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)	Two municipal bridges support a diverse range of traffic, serving as crucial conduits within the Village and also for travel between communities. They accommodate a wide array of vehicles, from heavy transport vehicles such as snowplows to motor and emergency vehicles.
Quality & Performance	Description or images of the condition of bridges and culverts and how this would affect use of the bridges and culverts	See Appendix J.

Technical Levels of Service

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

Table 11 Bridges Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of bridges in the Village with loading or dimensional restrictions	0
	Average Risk Rating	5.0 (Low)
Quality	Average bridge condition index value for bridges in the municipality	94%
Performance	Target Reinvestment Rate (Annual)	1.33%

Appendix C: Water Network

State of the Infrastructure

The Oil Springs distribution system is connected to the Village of Enniskillen Water Distribution System. The Village water system is managed and maintained through a partnership with Jacobs/OMI, and includes a network of water mains, fire hydrants, isolation valves, and residential services.

The state of the infrastructure for the water network is summarized in the following table:

Replacement Cost	Condition	Financial Capacity	
$2,168,306	Very Good (86%)	Annual Requirement:	$28,911
		Funding Available:	$2,298
		Annual Deficit:	$26,613

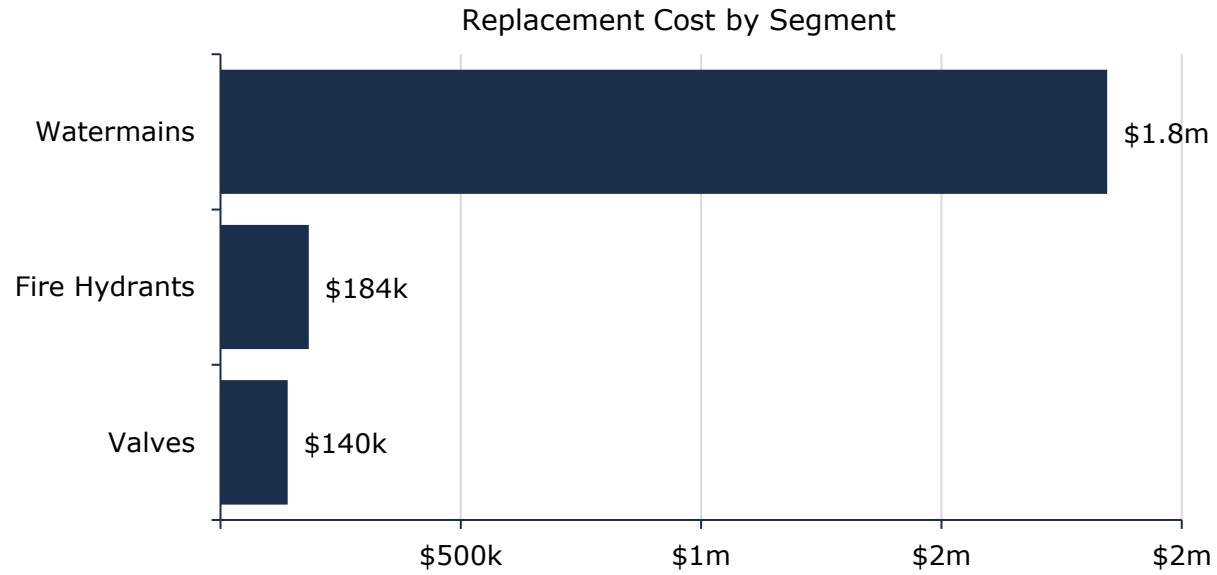
Inventory & Valuation

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

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Fire Hydrants	33	Assets	CPI	$183,646
Valves	67	Assets	CPI	$139,829
Watermains	12,375	Meters	CPI	$1,844,831
Total	**12,475**			**$2,168,306**

The graph below displays the total replacement cost of each asset segment in Oil Springs's water network inventory.

Figure 22: Water Network Replacement Cost

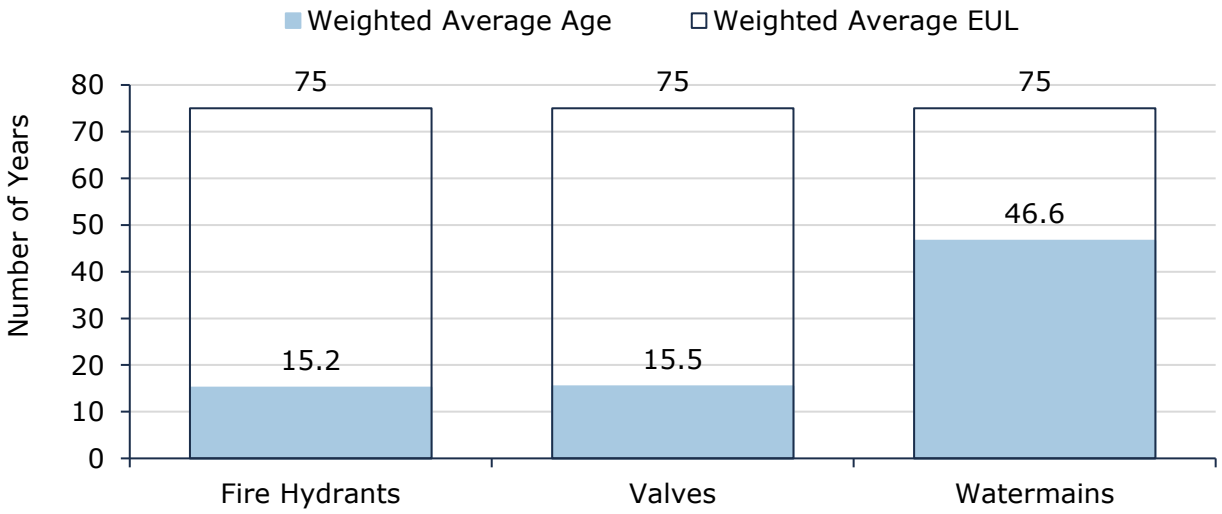


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

Asset Condition & Age

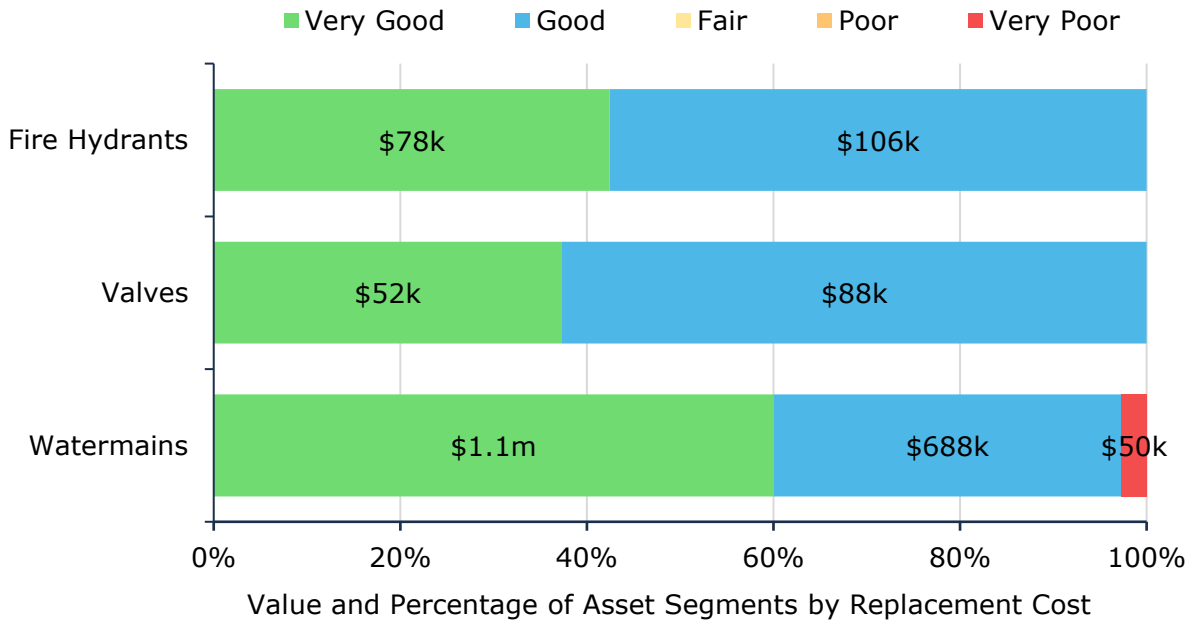
The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 23: Water Network Average Age vs Average EUL



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

Figure 24: Water Network Condition Breakdown



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

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

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 last external assessment of the water network was performed in 2023. OMI/Jacobs, the Operating Authority (OA) maintains a comprehensive water distribution maintenance program. Oil Springs' staff are kept informed of upcoming schedules and repairs to the water network and they perceive monthly operating reports summarizing the repairs and maintenance activities.[3]

[3] *Village of Oil Springs Drinking Water Quality Management Standard (DWQMS) Operational Plan, 2024. Retrieved from https://www.oilsprings.ca/media/l3ob430j/o-s-dwqms-operational-plan-2024.pdf*

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 Village's current lifecycle management strategy.

Figure 25: Water Network Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Routine maintenance activities includes inspections, flushing, minor repairs, turning valves and replacement of old water meters.
- Hydrants are tested annually while valves are turned once a year and hydrants are turned twice a year.
- At least once a year, the Operating Authority provides a long term forecast of major infrastructure maintenance, rehabilitation and renewal activities.
- Replacement is considered when an asset has significantly deteriorated or failed, and when continued rehabilitation is no longer cost-effective.

Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Oil Springs should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 80 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirement of $29 thousands.

Figure 26: Water Network Forecasted Capital Replacement Requirements

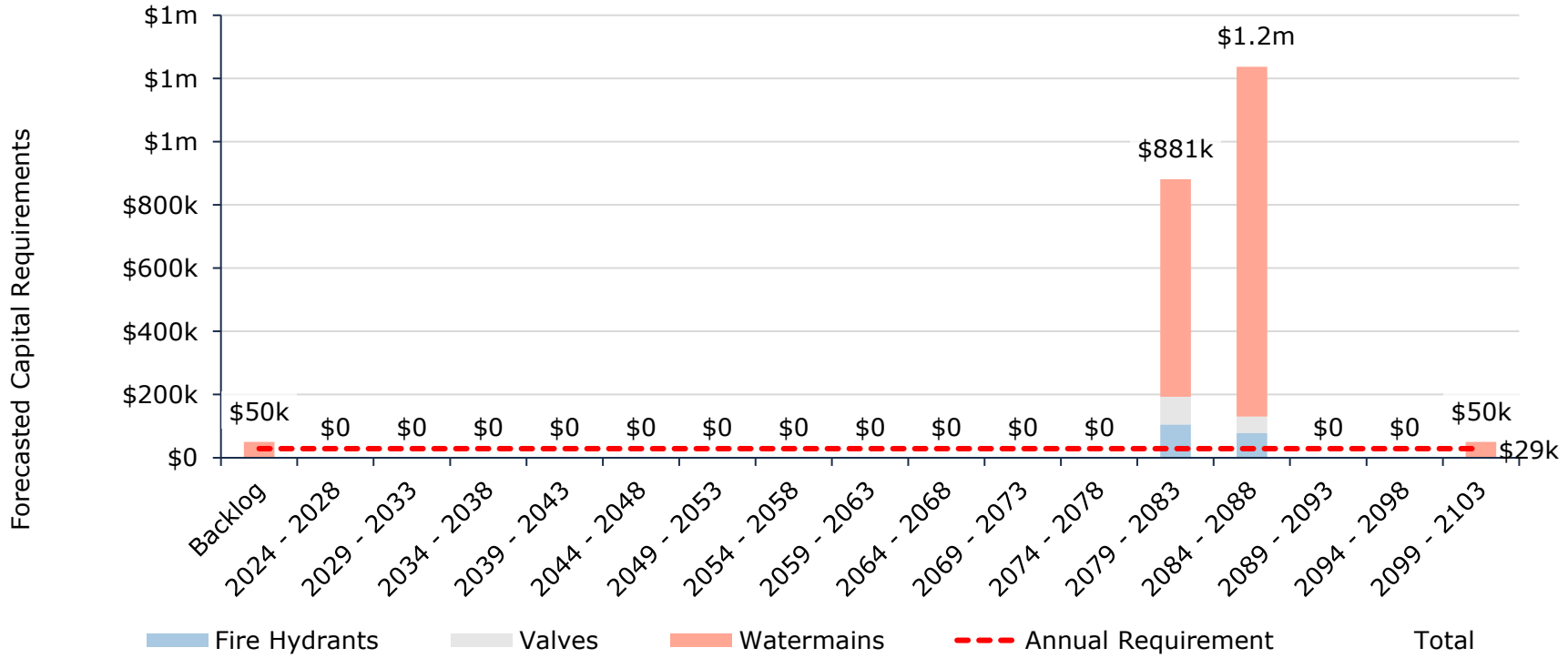


Table 13 Water Network System-Generated 10-Year Capital Costs below summarizes the projected cost of lifecycle activities (capital activities only) that may need to be undertaken over the next 10 years to support current levels of service.

Table 12 Water Network System-Generated 10-Year Capital Costs

Segment	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Fire Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Valves	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Watermains	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

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

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 M: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 27: Water Network Risk Matrix

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$1,853,443 (85%)	$264,776 (12%)	$50,087 (2%)	- (0%)	- (0%)

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

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

The identification of critical assets allows the Village 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 water system that the Municipality is currently facing:

Capital Funding Strategies

Financial constraints present a significant challenge for the Village particularly when there are insufficient funds to replace or upgrade key infrastructure. At present, there is a funding gap to implement all lifecycle activities as needed. This gap can result in underfunded major projects leading to delays and deterioration of the water network, increasing the risk of failure during severe weather events and leading to safety hazards.

Levels of Service

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

Community Levels of Service

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

Table 13 Water Network Community Levels of Service

Service Attribute	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system	In the Village of Oil Springs, the water system provides service to around 698 residents through 298 connections, covering approximately 98% of the Village's population.
Reliability	Description of boil water advisories and service interruptions	No Boil Water Advisory notice was issued in 2023

Technical Levels of Service

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

Table 14 Water Network Technical Levels of Service

Service Attribute	Technical Metric	Current LOS (2023)
Scope	% of properties connected to the municipal water system	98%[4]
	% of properties where fire flow is available	98%[4]
Reliability	# of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system	0
	# of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system	0
Performance	Target Reinvestment Rate (Annual)	1.33%

283 households are connected to the municipal water system and fire flow.

Appendix D: Sanitary Sewer Network

State of the Infrastructure

The Village sewer distribution system is managed and maintained through a partnership with Jacobs/OMI. The Lagoon collection system consists of two pumping stations and two facultative lagoons

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

Replacement Cost	Condition	Financial Capacity	
$3,871,175	Good (68%)	Annual Requirement:	$59,008
		Funding Available:	$20,308
		Annual Deficit:	$38,700

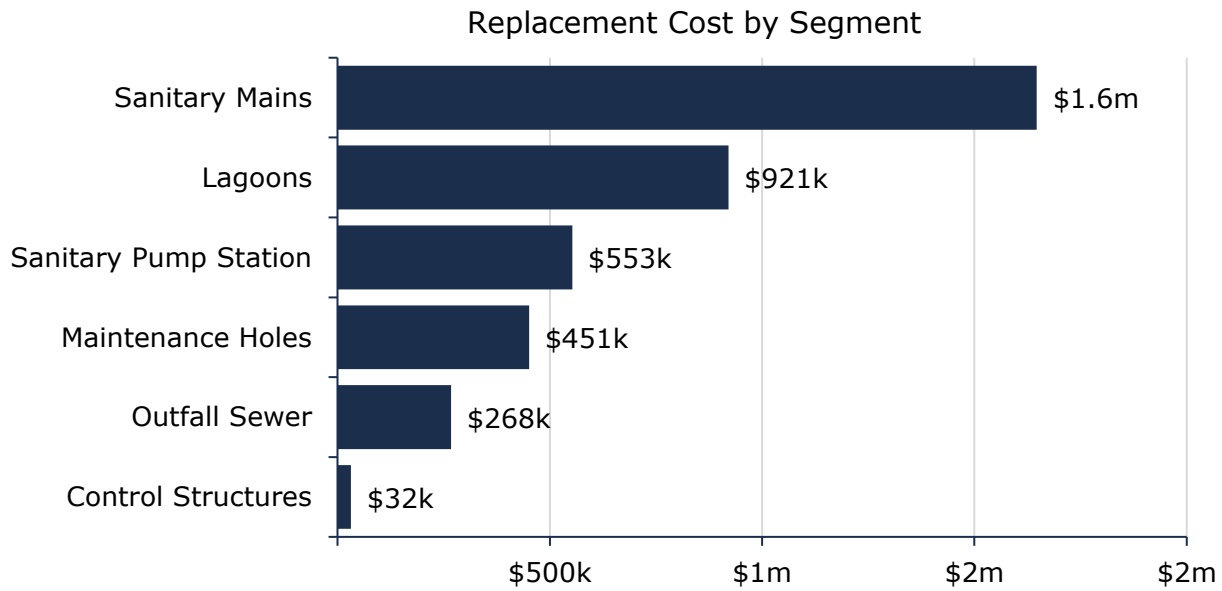
Inventory & Valuation

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

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Control Structures	2	Assets	CPI	$31,884
Lagoons	2	Assets	CPI	$920,758
Maintenance Holes	76	Assets	CPI	$451,011
Outfall Sewer	807	Meters	CPI	$267,726
Sanitary Mains	7,835	Meters	CPI	$1,646,864
Sanitary Pump Station	9	Assets	CPI	$552,932
Total	**8,731**			**$3,871,175**

The graph below displays the total replacement cost of each asset segment in Oil Springs's Sanitary Sewer Network inventory.

Figure 28: Sanitary Sewer Network Replacement Cost

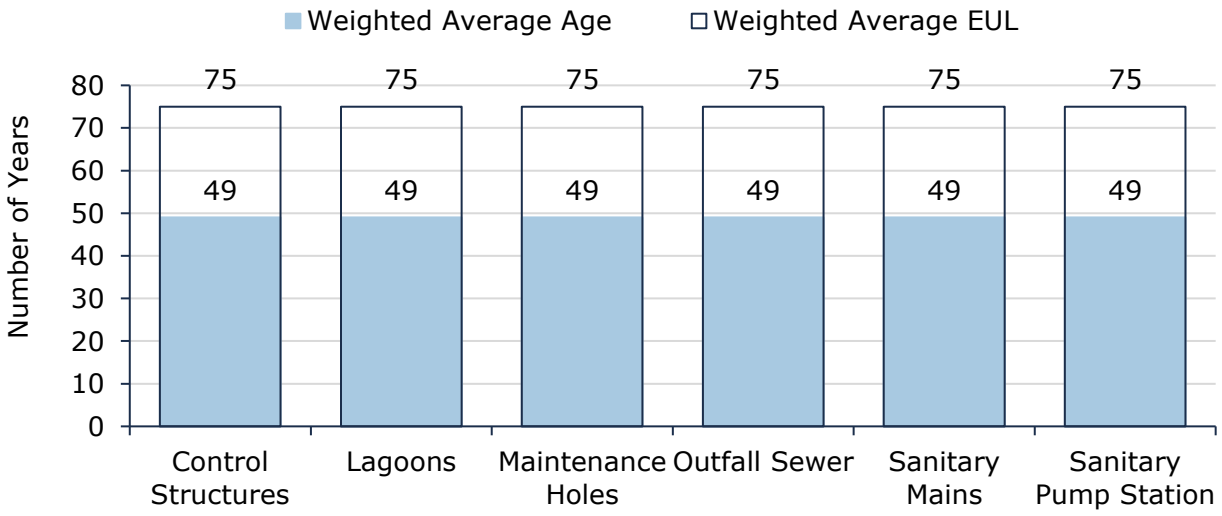


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

Asset Condition & Age

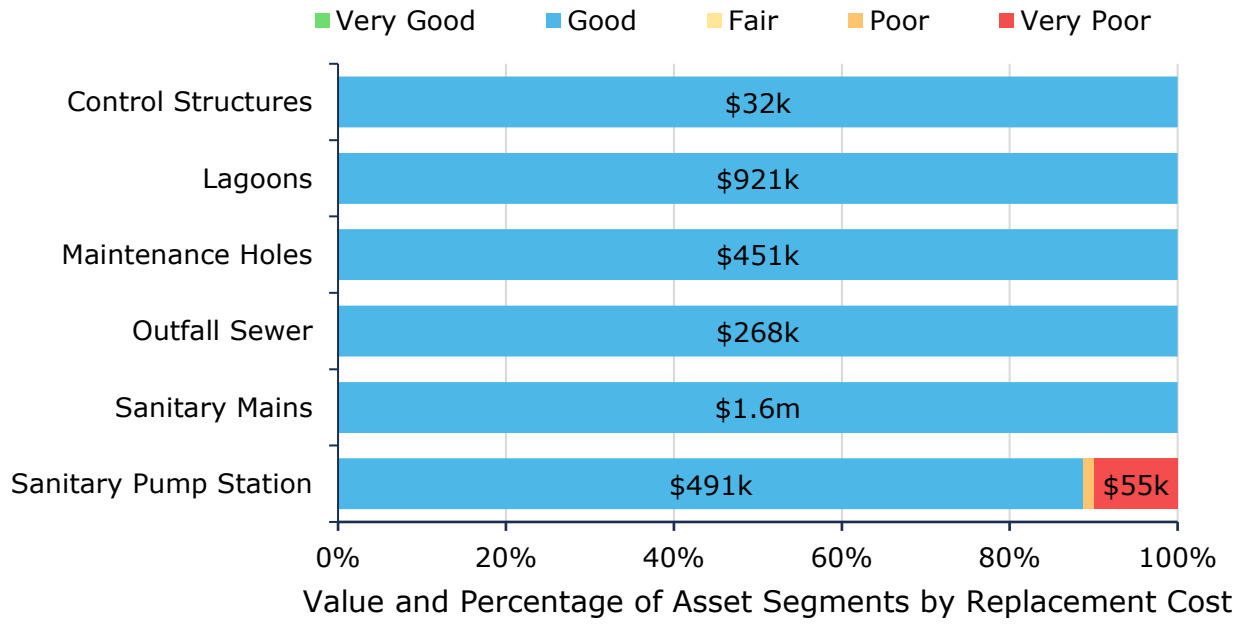
The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 29: Sanitary Sewer Network Average Age vs Average EUL



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

Figure 30: Sanitary Sewer Network Condition Breakdown



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

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

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.

Jacobs/OMI are the operators of the wastewater system and conducted an external assessment in 2023. The assessment results help inform budgetary decisions for repairs, maintenance and replacement of sanitary sewer assets. The operators provide monthly reports to Oil Spring on the operation of the wastewater treatment system summarizing the repairs and maintenance activities.[5]

[5] *Wastewater Treatment System – Monthly Report of Operations, April 2024. Village of Oil Springs. Retrieved from https://oilsprings.diligent.community/home/public/document/12222*

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 Village's current lifecycle management strategy.

Figure 31: Sanitary Sewer Network Current Lifecycle Strategy

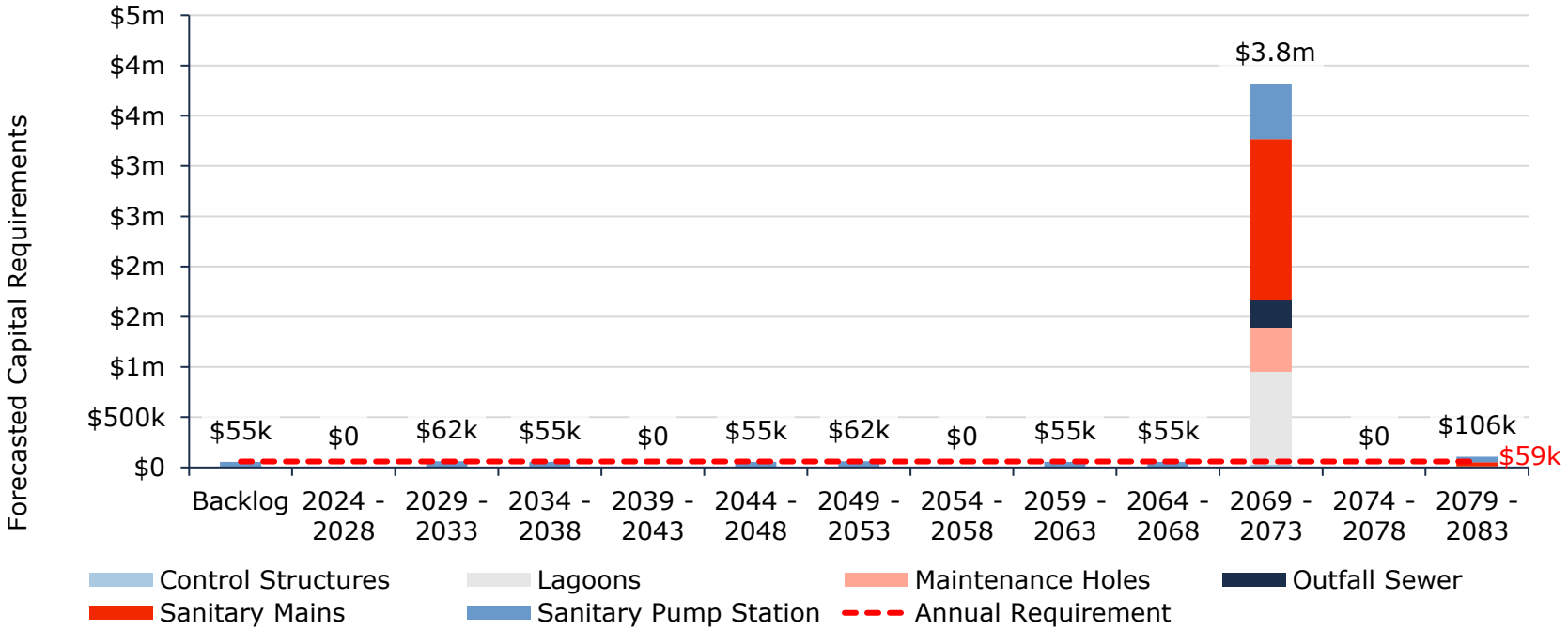
Maintenance / Rehabilitation / Replacement

- Routine maintenance activities includes annual inspection, and repairs are scheduled as per recommendations of the inspection reports
- Manholes are annually inspected. Flushing is performed once a year.
- Replacement is considered when an asset has significantly deteriorated or failed, and when continued rehabilitation is no longer cost-effective. Assets that require frequent and costly repairs are prioritized for replacement to ensure efficiency and reliability of the sanitary sewer network.

Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Oil Springs should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 60 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average capital requirements at $59 thousands.

Figure 32: Sanitary Sewer Network Forecasted Capital Replacement Requirements



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

Table 15 Sanitary Sewer Network System-Generated 10-Year Capital Costs

Segment	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Control Structures	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Lagoons	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maintenance Holes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Outfall Sewer	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sanitary Mains	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sanitary Pump Station	$62k	$0	$0	$0	$0	$0	$0	$0	$62k	$0	$0
Total	**$62k**	$0	$0	$0	$0	$0	$0	$0	**$62k**	$0	$0

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

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 M: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 33: Sanitary Sewer Network Risk Matrix

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$988,623 (26%)	$1,149,424 (30%)	$1,690,323 (44%)	$42,805 (1%)	- (0%)

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

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

The identification of critical assets allows the Village 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 sanitary service delivery that the Municipality is currently facing:

Capital Funding Strategies

Major capital projects for rehabilitation and replacement of the Sanitary Sewer Network are heavily dependent on grant funding. When grants are unavailable, these critical projects may be deferred, leading to aging infrastructure and increased repair costs. Developing an annual capital funding strategy would reduce reliance on grants and help ensure timely investment in asset renewal, minimizing the risk of deferred maintenance and service disruptions.

Climate Change & Extreme Weather Events

Climate change and extreme weather events like intense flooding pose significant risks to the Village's sanitary sewer system. These events can overwhelm the system, leading to potential blockages, backflows, and increased risk of contamination. The infrastructure will become more vulnerable to damage from higher water volumes, erosion, and stress on aging systems. As such events become more frequent, the likelihood of system failure and costly repairs escalates, potentially compromising public health and environmental safety.

Levels of Service

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

Community Levels of Service

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

Table 16 Sanitary Sewer Network Community Levels of Service

Values	Qualitative Description	Current LOS (2023)
Scope	Description, which may include maps, areas of the municipality that are connected to the municipal wastewater system	In the Village of Oil Springs, the sanitary system serves approximately 698 residents through a network of sewer connections, covering around 98% of the Village's population.
Reliability	Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes.	Not Applicable
	Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches.	
	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes.	Stormwater can enter into sanitary sewers due to cracks in sanitary mains or through indirect connections (e.g. weeping tiles). In the case of heavy rainfall events, sanitary sewers may experience a volume of water and sewage that exceeds its capacity. In some cases, this can cause water and/or sewage to overflow backup into homes. The disconnection of weeping tiles from sanitary mains and the use of sump pumps and pits directing stormwater to

		the storm drain system help to reduce the chance of overflow.
	Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid stormwater infiltration	The municipality adheres to design standards that incorporate appropriate overflows when constructing or replacing sanitary sewers. These standards have been determined with consideration of the minimization of sewage overflows and backups.
Performance	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system.	Effluent refers to water pollution that is discharged from a wastewater treatment plant, and may include suspended solids, total phosphorous and biological oxygen demand. The Environmental Compliance Approval (ECA) identifies the effluent criteria for municipal wastewater treatment plants.

Technical Levels of Service

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

Table 17 Sanitary Sewer Network Technical Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	% of properties connected to the municipal wastewater systems	98%[6]
Reliability	# of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system	Not Applicable
	# of connection-days per year with sanitary main backups compared to the total number of properties connected to the municipal wastewater system	1
	# of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	1
Performance	Target Reinvestment Rate (Annual)	1.52%

[6] 283 private dwellings total according to 2021 Statcan

Appendix E: Storm Network

State of the Infrastructure

The Village is responsible for owning and maintaining a storm network consisting of storm mains, maintenance holes and catch basins.

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

Replacement Cost	Condition	Financial Capacity	
$685,880	Fair (49%)	Annual Requirement:	$11,884
		Funding Available:	$0
		Annual Deficit:	$11,884

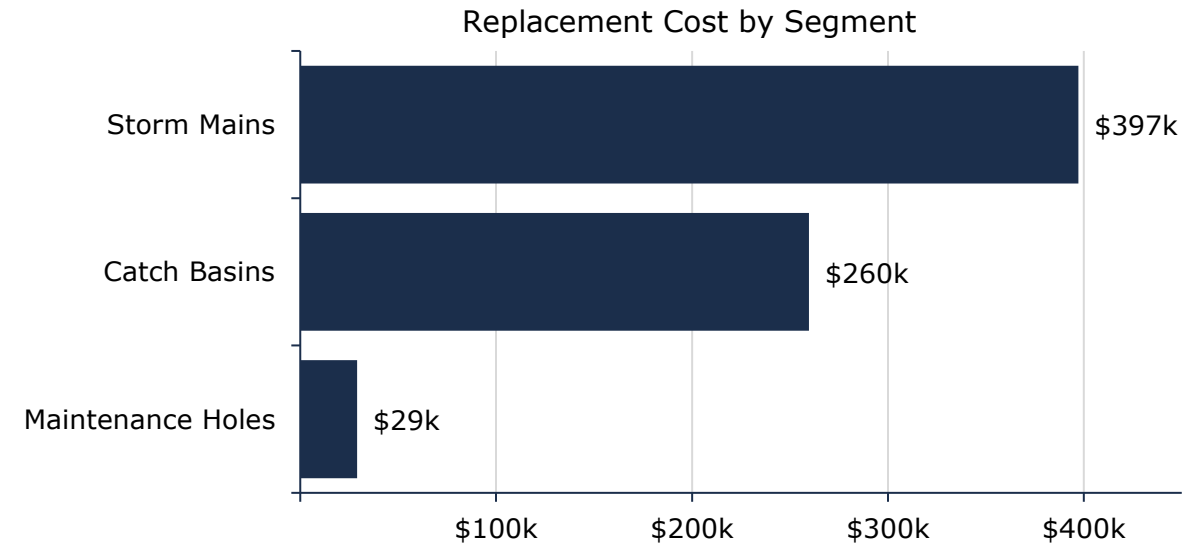
Inventory & Valuation

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

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Catch Basins	134	Assets	CPI	$259,708
Maintenance	5	Assets	CPI	$28,985
Storm Mains	4,574	Length	CPI	$397,187
Total				**$685,880**

The graph below displays the total replacement cost of each asset segment in Oil Springs's Storm Network inventory.

Figure 34: Storm Network Replacement Cost

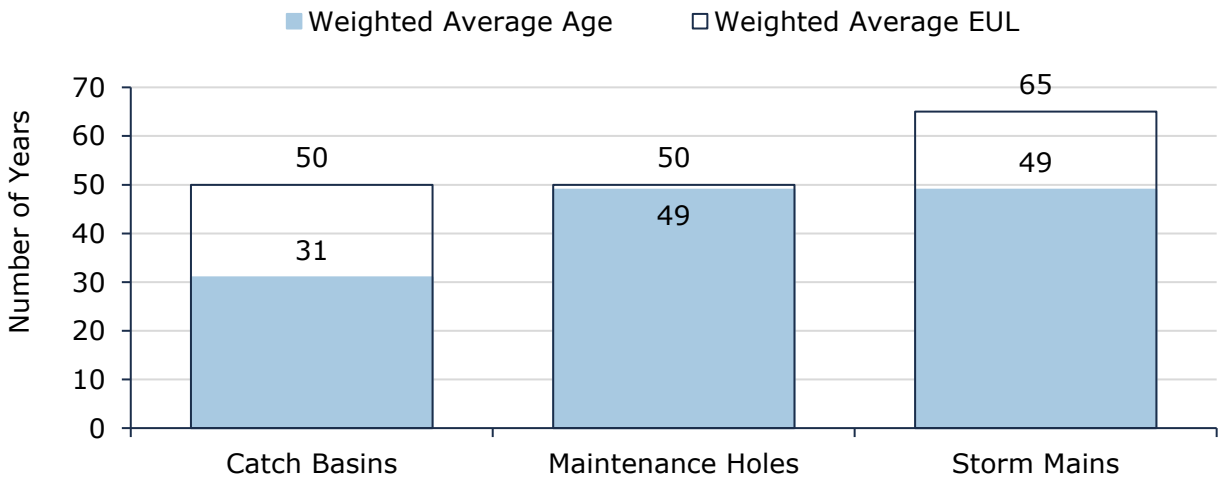


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent realistic capital requirements.

Asset Condition & Age

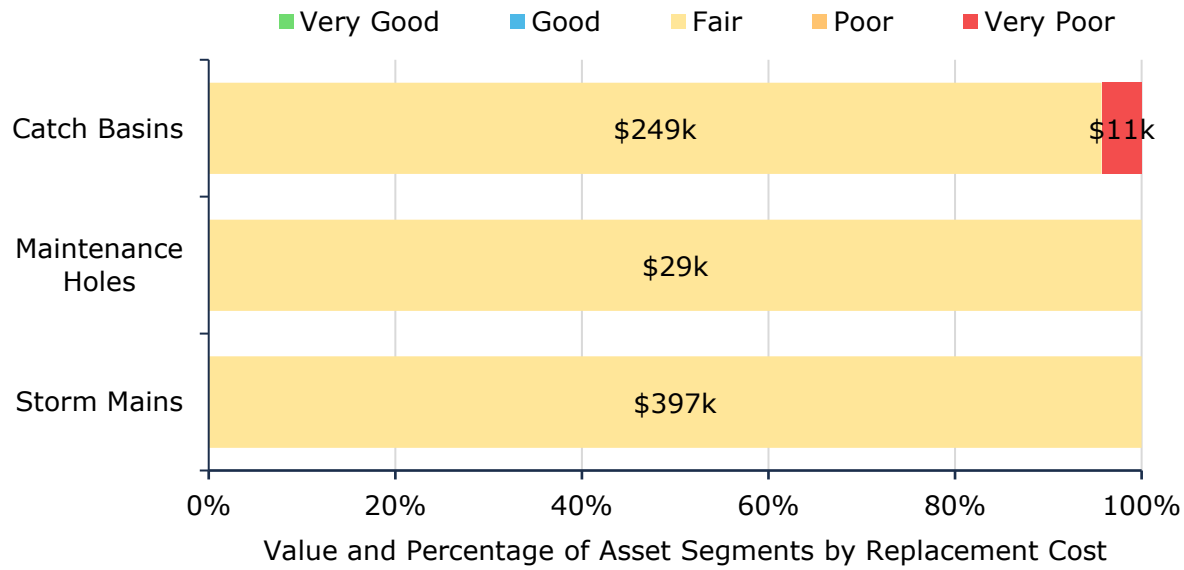
The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 35: Storm Network Average Age vs Average EUL



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

Figure 36: Storm Network Condition Breakdown



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

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

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. Jacobs/OMI conducts the assessment of the stormwater system with the last one completed in 2016.

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 Village's current lifecycle management strategy.

Figure 37: Storm Network Current Lifecycle Strategy

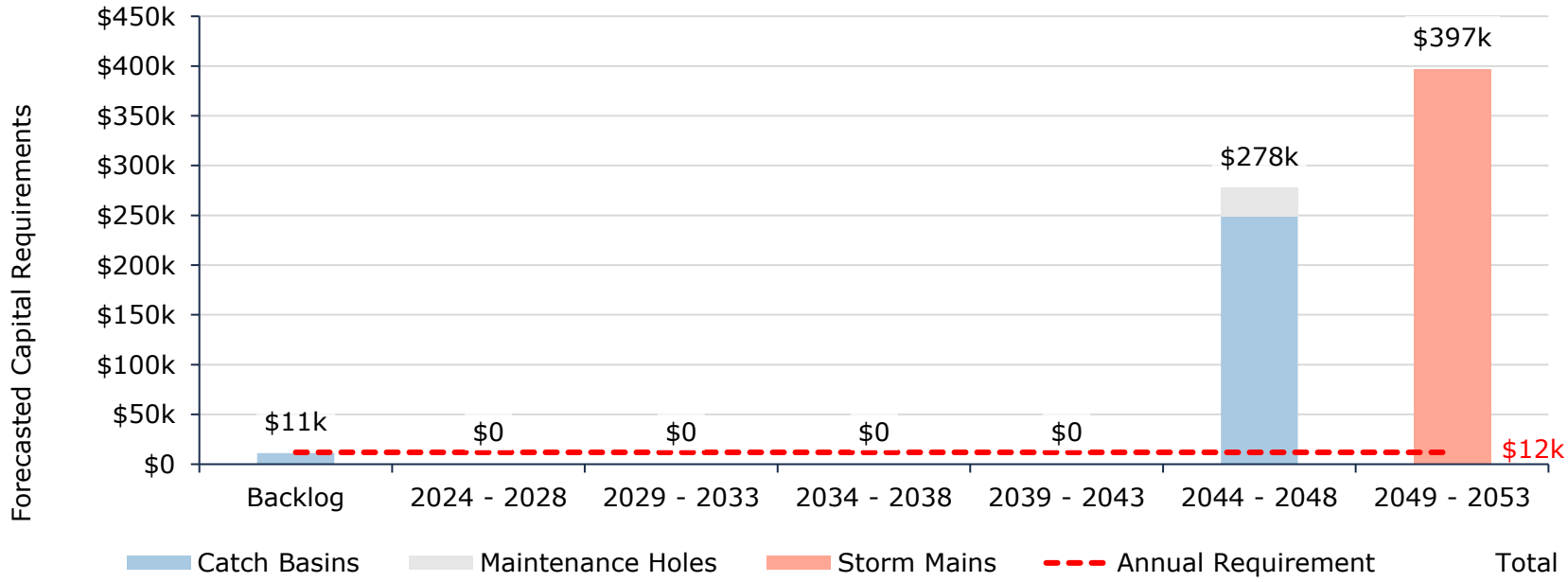
Maintenance / Rehabilitation / Replacement

- Inspections are done on a yearly basis.
- Routine maintenance includes minor repairs which are initiated based on yearly inspections and visual observations
- Rehabilitation activities include repairing catch basins, CCTV inspection of storm sewers and flushing.
- Replacement is considered when an asset has significantly deteriorated or failed, and when continued rehabilitation is no longer cost-effective. Assets that require frequent and costly repairs are prioritized for replacement to ensure efficiency and reliability of the storm network

Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Oil Springs should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 30 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 $12 thousands.

Figure 38: Storm Network Forecasted Capital Replacement Requirements



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

Table 18 Storm Network System-Generated 10-Year Capital Costs

Segment	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Catch Basins	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Maintenance Holes	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Storm Mains	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

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

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 M: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 39: Storm Network Risk Matrix

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$342,805 (50%)	$292,988 (43%)	$50,087 (7%)	- (0%)	- (0%)

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

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

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

Climate Change & Extreme Weather Events

Climate change and extreme weather events significantly strain a Village's storm network by intensifying storm severity, leading to issues such as washouts around maintenance holes. These conditions compromise the system's integrity, increasing the likelihood of failures and overwhelming its capacity. Consequently, this can result in flooding and substantial property damage, highlighting the need for reinforcing the network's infrastructure to better manage these environmental challenges.

Infrastructure Reinvestment

With the increasing impact of climate change, lifecycle maintenance activities have to be more frequently performed. The lack reinvestment in the Village's storm network can lead to risks, though there has been recent effort in setting up reserve funds. The current funding gap can result in underfunded major projects, such as expansions to new subdivisions, which would require additional funding to complete. This can lead to delayed replacements and a deteriorating storm network, increasing the risk of failure during severe weather events and leading to potential safety hazards and escalated emergency repair costs.

Levels of Service

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

Community Levels of Service

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

Table 19 Storm Network Community Levels of Service

Values	Qualitative Description	Current LOS (2023)
Sustainable	Description, which may include map, of the user groups or areas of the municipality that are protected from flooding, including the extent of protection provided by the municipal stormwater system	The stormwater management system protects properties from flooding caused by rainfall and snowmelt. It ensures safe conveyance of stormwater away from roadways, mitigates pollution from runoff, controls discharge volume to reduce erosion and sedimentation, and addresses climate change impacts

Technical Levels of Service

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

Table 20 Storm Network Technical Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	% of properties in municipality resilient to a 100-year storm.	TBD[7]
	% of the municipal stormwater management system resilient to a 5-year storm	TBD[8]
Performance	Target Reinvestment Rate (Annual)	1.73%

[7] *While data is not currently available for this metric, the percentage of properties resilient to a 100-year storm event is expected to be low, based on system capacity and historical performance.*

[8] *While data is not currently available for this metric is not currently available, the system is expected to demonstrate high resilience to 5-year storm events given existing performance and capacity.*

Appendix F: Buildings

State of the Infrastructure

Oil Springs owns and maintains several facilities that provide key services to the community.

- Administration Buildings including a municipal office, community hall, post office and shop
- Fire services buildings
- Covered Salt storage facility

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

Replacement Cost	Condition	Financial Capacity	
$526,732	Good (75%)	Annual Requirement:	$10,535
		Funding Available:	$0
		Annual Deficit:	$10,535

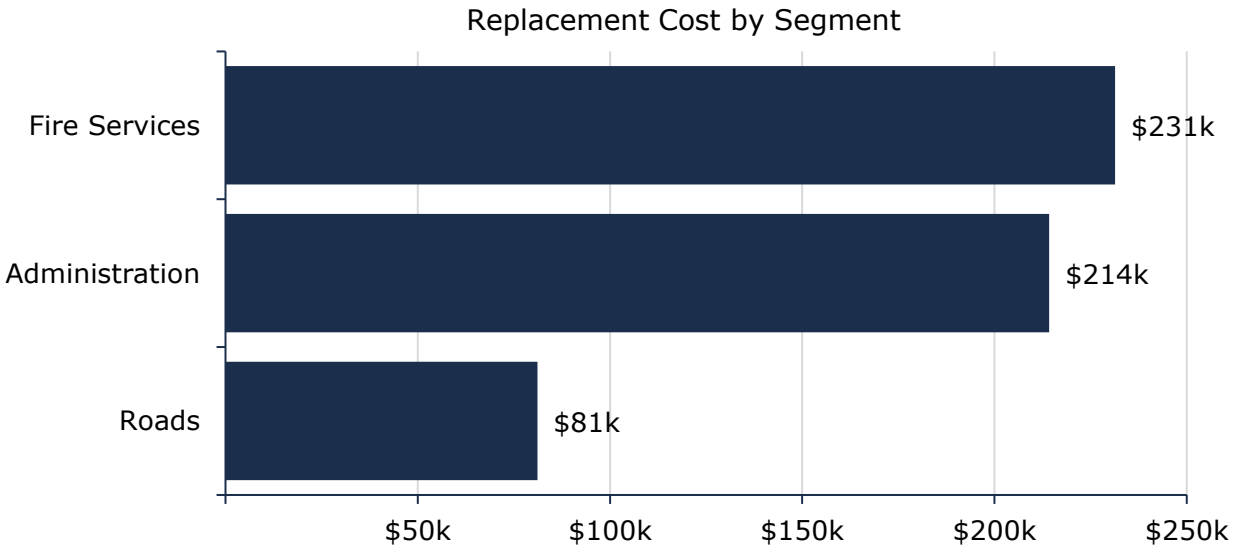
Inventory & Valuation

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

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Administration	3	Assets	CPI	$214,251
Fire Services	1	Assets	CPI	$231,356
Roads	1	Assets	CPI	$81,125
Total	**5**	**Assets**		**$526,732**

The graph below displays the total replacement cost of each asset segment in Oil Springs's buildings inventory.

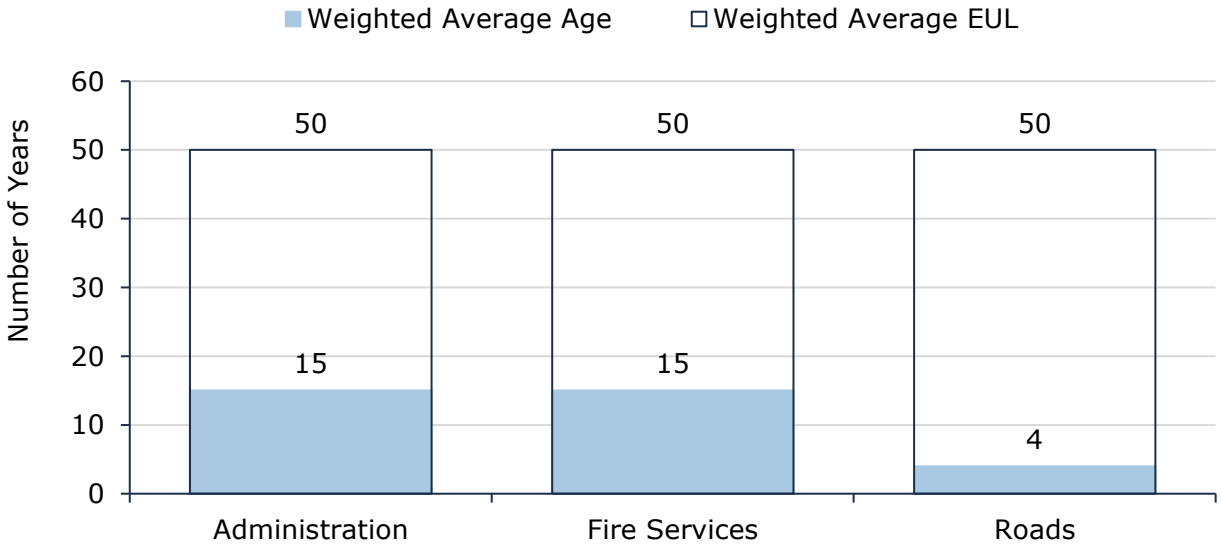
Figure 40: Buildings Replacement Cost



Asset Condition & Age

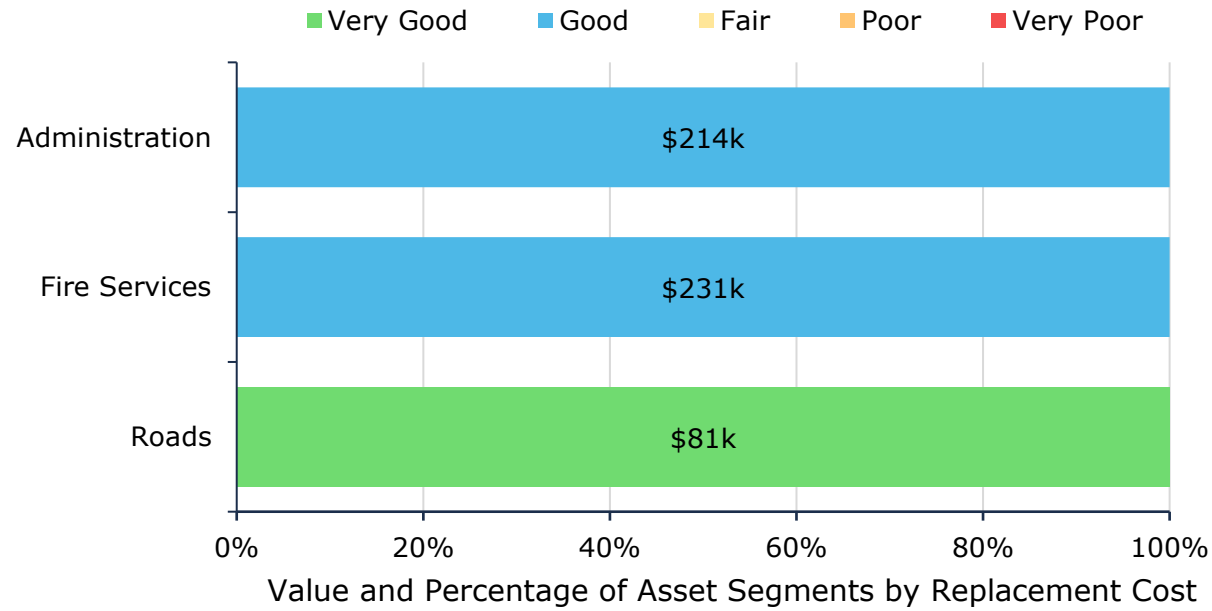
The graph below identifies the average age, and the estimated useful life for each asset segment. The values are weighted based on replacement cost.

Figure 41: 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 42: Buildings Condition Breakdown



To ensure that the municipal buildings continue to provide an acceptable level of service, the Village 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.

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.

Municipal Buildings undergo monthly inspections to ensure compliance with health and safety standards. More detailed assessments are carried out by external consultants to provide an in-depth evaluation of the building's condition and safety.

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 Village's current lifecycle management strategy.

Figure 43: Buildings Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Routine maintenance include monthly inspections to identify and address safety, accessibility, and structural issues. HVAC are inspected twice a year. Minor maintenance and repairs are done as needed.
- Rehabilitation activities for buildings involve replacement of air conditioner, furnace and vinyl cladding of buildings.
- Replacement is considered when a building's condition has significantly deteriorated, and when maintenance and rehabilitation efforts are no longer cost-effective. Buildings nearing the end of their expected service life or those requiring frequent and costly repairs are prioritized for replacemen

Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that Oil Springs should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 50 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 $11 thousands.

Figure 44: Buildings Forecasted Capital Replacement Requirements

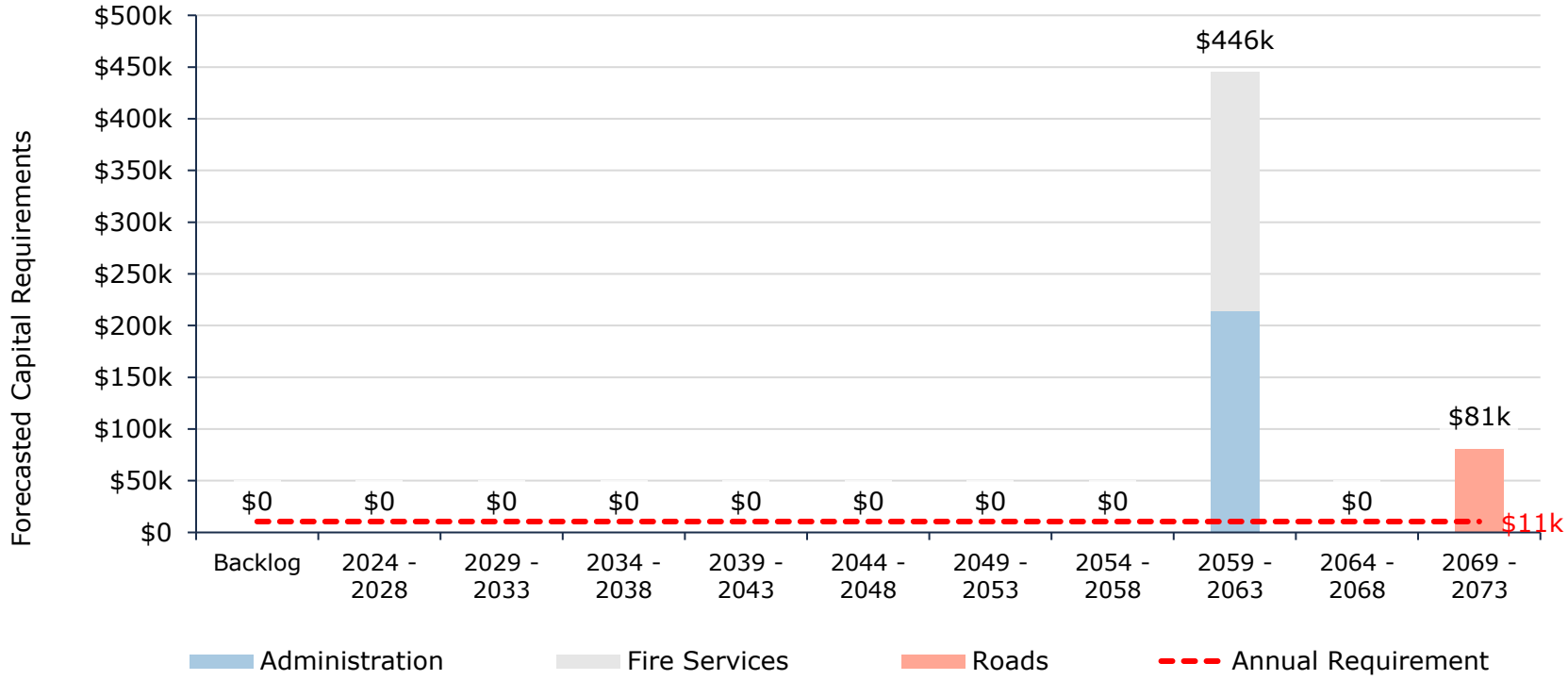


Table 22 below summarizes the projected cost of lifecycle activities (capital activities only) that may need to be undertaken over the next 10 years to support current levels of service.

Table 21 Buildings System-Generated 10-Year Capital Costs

Segment	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Administration	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fire Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Roads	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0

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

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 M: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 45: Buildings Risk Matrix

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$102,448 (19%)	$192,928 (37%)	$231,356 (44%)	- (0%)	- (0%)

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

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

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

Data Confidence for Planning

The Village faces a significant risk due to the lack of comprehensive asset data for its municipal buildings. Without accurate and up-to-date information on building conditions, maintenance history, and structural components, effective asset management planning becomes challenging. This data gap may result in inadequate maintenance schedules, unanticipated repair costs, and a lack of strategic investment in building upgrades.

Climate Change & Extreme Weather

The Village recognizes that climate change presents growing risks to municipal buildings, particularly through extreme weather events like flooding and heavy rainfall. These conditions can strain the structural integrity of public buildings, disrupt essential services, and increase maintenance costs. As climate patterns shift, the Village faces challenges in ensuring the long-term safety and functionality of its buildings, which are vulnerable to these unpredictable environmental changes.

Levels of Service

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

Community Levels of Service

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

Table 22 Buildings Community Levels of Service

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 Village is good. Village staff are looking to have a formal building condition assessments to identify required maintenance and rehabilitation activities to ensure the state of the buildings remains in adequate condition

Technical Levels of Service

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

Table 23 Buildings Technical Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Average Condition Rating	Good (75%)
	Average Risk Rating	Low (6.69)
Performance	Target Reinvestment Rate (Annual)	2.0%

Appendix G: Parks and Recreation

State of the Infrastructure

Oil Springs's Parks and Recreation infrastructure consists of equipment and signs in Ward Park, East End Park, and Hart Park.

The state of the infrastructure for the parks and recreations is summarized in the following table.

Replacement Cost	Condition	Financial Capacity	
$173,670	Fair (59%)	Annual Requirement:	$11,578
		Funding Available:	$11,093
		Annual Deficit:	$485

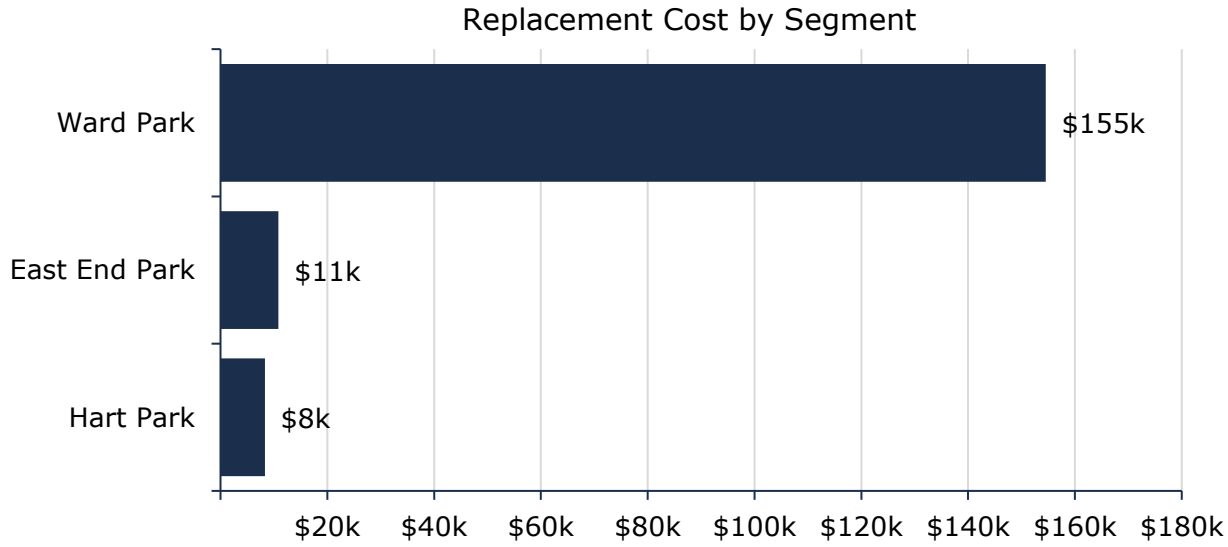
Asset Inventory & Valuation

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment for the Village's Parks and Recreation assets.

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
East End Park	1	Assets	CPI	$10,814
Hart Park	1	Assets	CPI	$8,324
Ward Park	2	Assets	CPI	$154,532
Total	**4**	**Assets**		**$173,670**

The graph below displays the replacement cost of each asset segment in the Village's parks and recreation inventory.

Figure 46: Parks and Recreation Replacement Cost

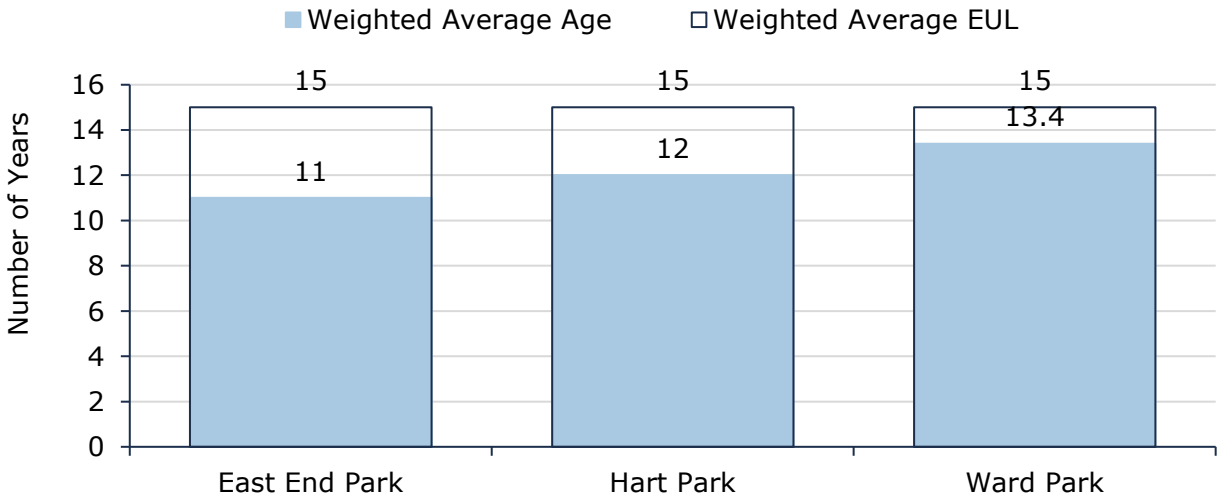


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

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.

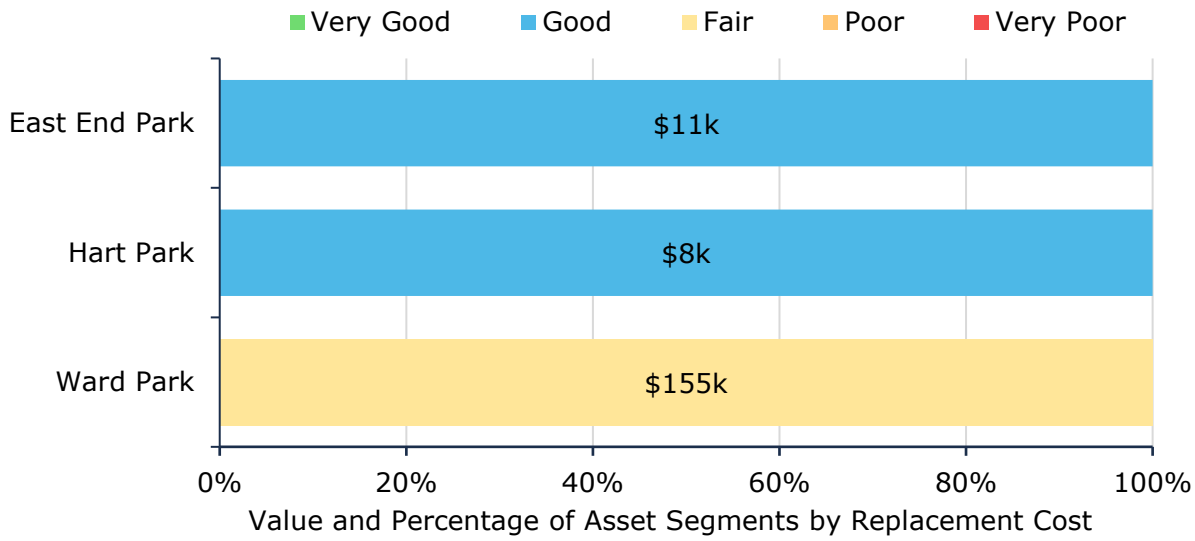
Figure 47: Parks and Recreation Average Age vs Average EUL



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 48: Parks and Recreation Condition Breakdown



To ensure that the Village's Parks and Recreation assets continue to provide an acceptable level of service, the Village 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 parks and recreations.

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 external assessment of Parks and Recreation assets was conducted in 2023 to confirm compliance with safety and maintenance standards.

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 Oil Springs's current lifecycle management strategy.

Figure 49: Parks and Recreation Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

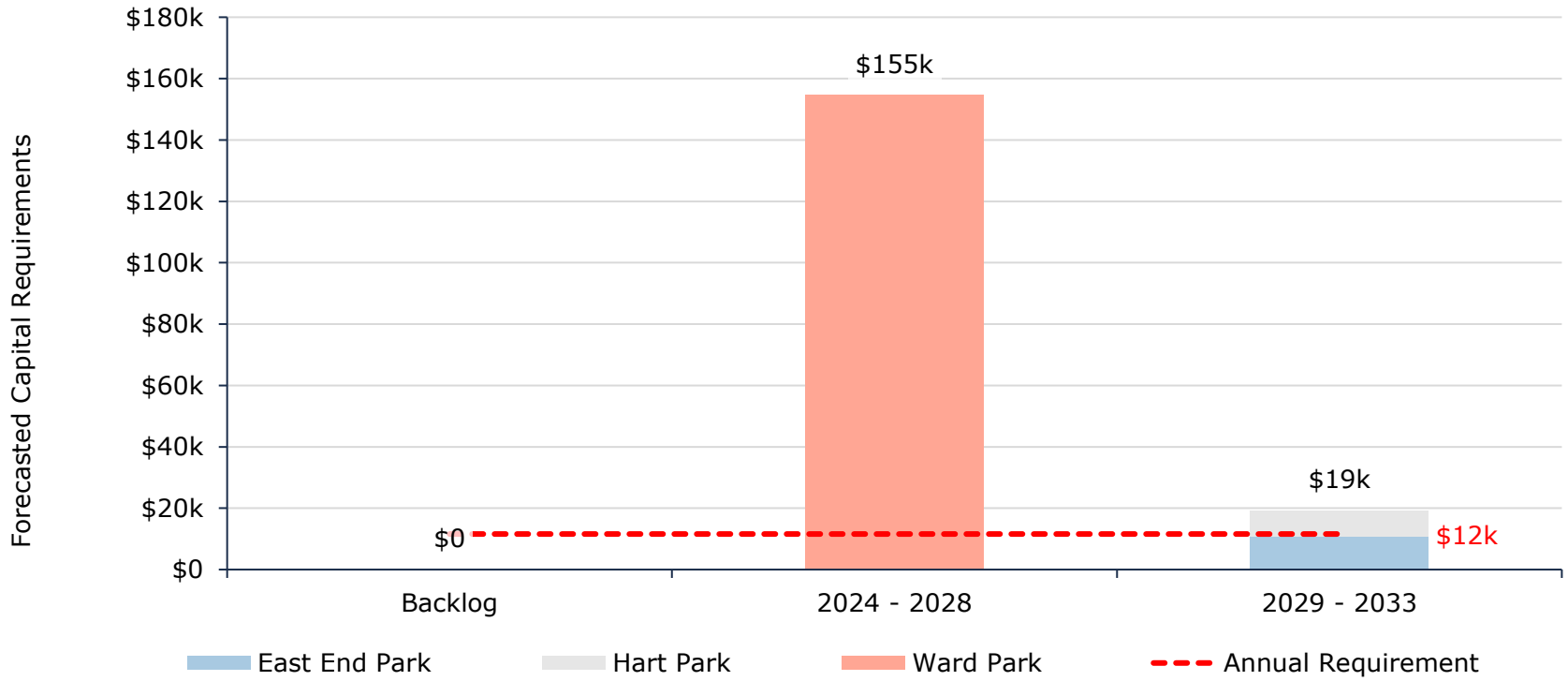
- Routine maintenance of parks and recreation assets includes inspections, minor repairs, vegetation and ground maintenance
- Insurance inspections and safety concerns are the trigger points to have maintenance activities.
- Replacement is considered when the equipment are unsafe for children's use and when an asset's condition has significantly deteriorated, and ongoing maintenance is no longer cost-effective. Assets nearing the end of their expected service life or requiring frequent and costly repairs are prioritized for replacement

Forecasted Capital Requirements

Figure 51 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the Village's Parks and Recreation infrastructure. This analysis was run until 2033 to capture at least one iteration of replacement for the longest-lived asset in the asset register. Oil Springs's average annual requirements (red dotted line) total $12 thousands for all parks and recreation 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 50: Parks and Recreation Forecasted Capital Replacement Requirements



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

Table 25 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 24 Parks and Recreation System-Generated 10-Year Capital Costs

Segment	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
East End Park	$11k	$0	$0	$0	$0	$0	$11k	$0	$0	$0	$0
Hart Park	$8k	$0	$0	$0	$0	$0	$8k	$0	$0	$0	$0
Ward Park	$154	$30k	$0	$124k	$0	$0	$0	$0	$0	$0	$0
Total	**$174k**	$30k	$0	$124k	$0	$0	$19k	$0	$0	$0	$0

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

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 M: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 51: Parks and Recreation Risk Matrix

1 - 4 Very Low - (0%)	5 - 7 Low $19,138 (11%)	8 - 9 Moderate - (0%)	10 - 14 High $30,413 (18%)	15 - 25 Very High $124,119 (71%)

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

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

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

Climate Change & Extreme Weather Events

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

Levels of Service

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

Community Levels of Service

The following table outlines the quantitative metrics that determine the community level of service provided by the municipal Parks and recreations.

Table 25 Parks and recreations Community Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Description of the current condition of parks and recreation assets and the plans that are in place to maintain or improve the provided level of service	The overall condition of parks and recreation assets in the Village is fair. A significant budget has been allocated to parks and recreation for the year 2024 to improve and maintain the assets.

Technical Levels of Service

The following table outlines the quantitative metrics that determine the technical level of service provided by the municipal Parks and recreations.

Table 26 Parks and recreations Technical Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Average Condition Rating	Fair (59%)
	Average Risk Rating	Moderate (9.85)
Performance	Target Reinvestment Rate (Annual)	6.67%

Appendix H: Machinery & Equipment

State of the Infrastructure

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

- Administration equipment to support municipal services
- Equipment for the fire department to effectively respond to emergencies
- Parks and Recreation equipment including a refrigerator
- Transportation equipment including a mower

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

Replacement Cost	Condition	Financial Capacity	
$665,517	Fair (42%)	Annual Requirement:	$39,942
		Funding Available:	$0
		Annual Deficit:	$39,942

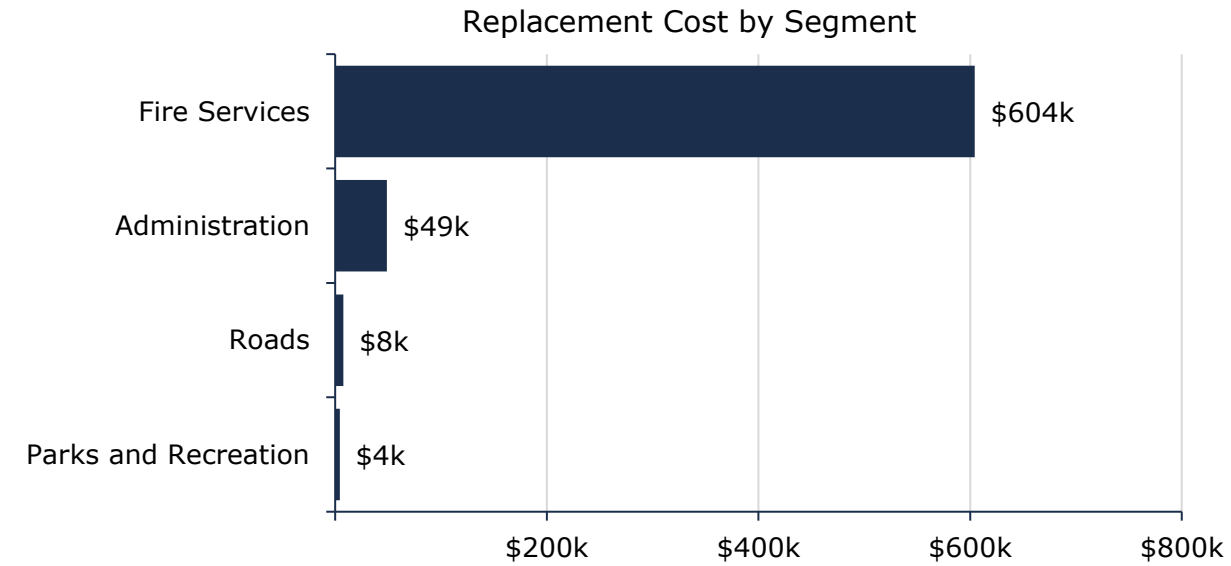
Inventory & Valuation

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

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Administration	4	Assets	CPI	$48,913
Fire Services	64	Assets	CPI	$604,414
Parks and Recreation	1	Assets	CPI	$4,424
Roads	1	Assets	CPI	$7,766
Total	**70**	**Assets**		**$665,517**

The graph below displays the total replacement cost of each asset segment in the Oil Springs's Machinery & Equipment inventory.

Figure 52: Machinery & Equipment Replacement Costs

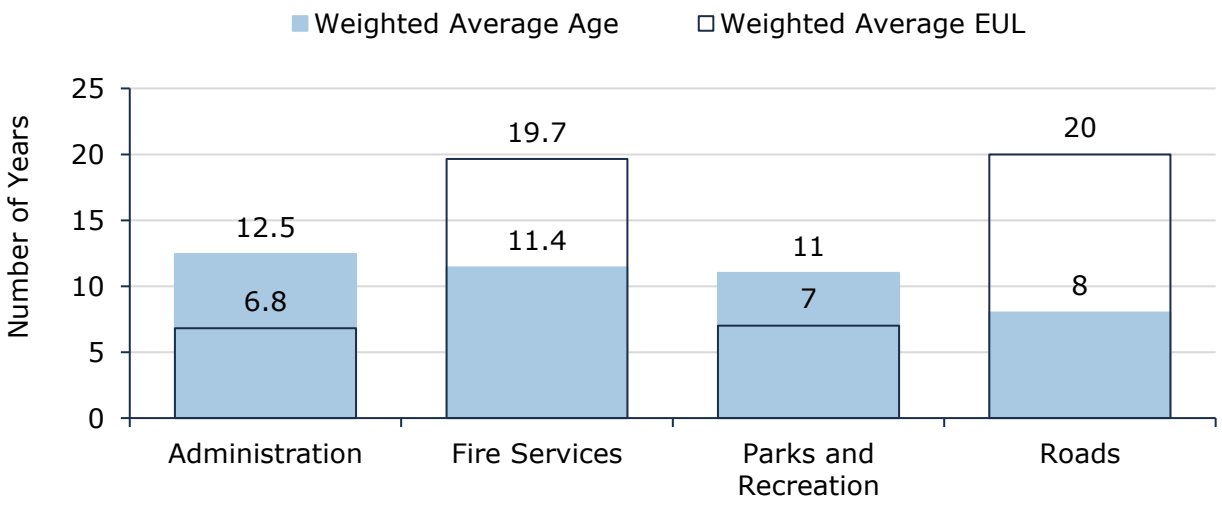


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurate represent capital requirements.

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.

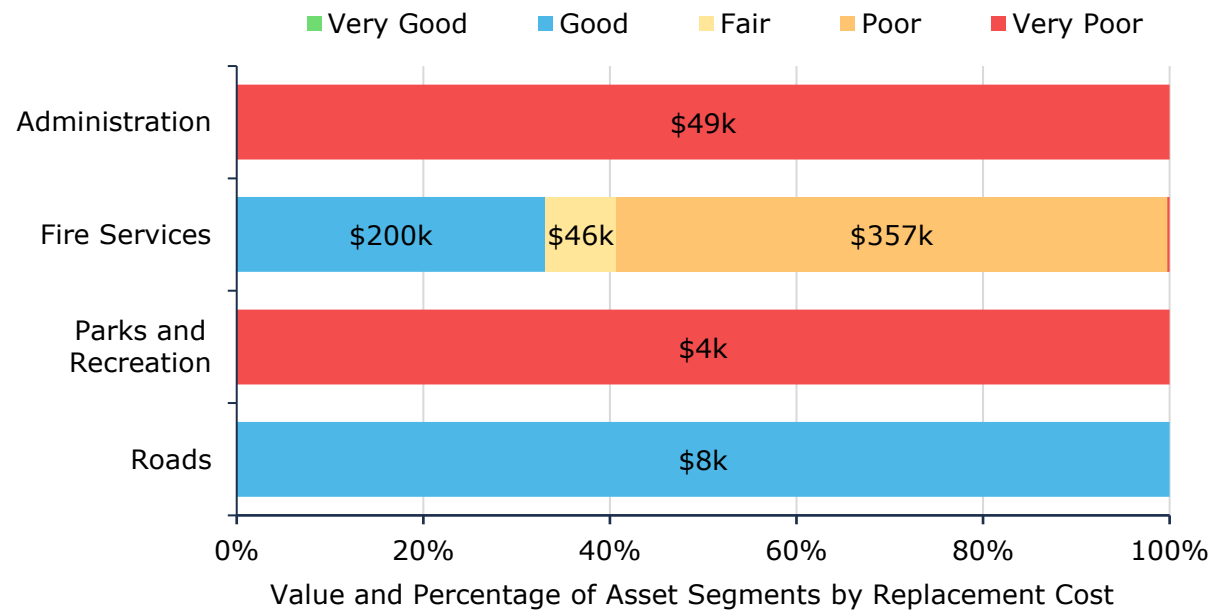
Figure 53: Machinery & Equipment Average Age vs Average EUL



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 54: Machinery & Equipment Condition Breakdown



To ensure that the Village's equipment continues to provide an acceptable level of service, Oil Springs 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.

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 consists of annual condition assessments by municipal staff to ensure they remain in optimal working condition.

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.

Figure 55: Machinery & Equipment Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Routine maintenance for machinery and equipment includes inspections, repairs and oil changes as needed. These activities are initiated based on findings from inspections completed by internal staff that identify safety or structural issues
- Replacement of machinery and equipment is considered when an asset's condition has significantly deteriorated and maintenance is no longer cost-effective. Assets nearing the end of their expected service life or those requiring frequent and costly repairs are prioritized for replacement.

Forecasted Capital Requirements

The following graph identifies capital requirements over the next 20 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average annual capital requirements at $40 thousand.

Figure 56: Machinery & Equipment Forecasted Capital Replacement Requirements

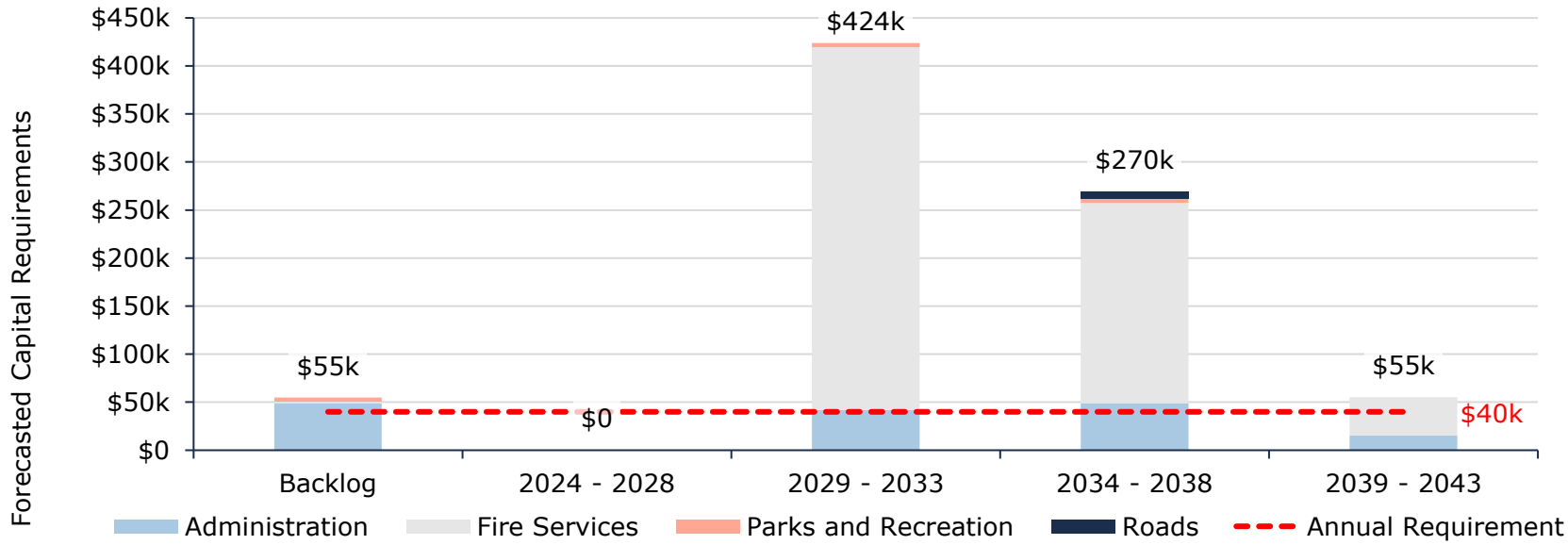


Table 29 below summarizes the projected cost of lifecycle activities (capital replacement only) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

Table 27 Machinery & Equipment System-Generated 10-Year Capital Costs

Segment	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Administration	$42k	$0	$0	$0	$0	$0	$15k	$0	$27k	$0	$0
Fire Services	$377k	$0	$0	$0	$0	$0	$361k	$0	$16k	$0	$0
Parks and Recreation	$4k	$0	$0	$0	$0	$0	$0	$0	$4k	$0	$0
Roads	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total	**$424k**	$0	$0	$0	$0	$0	$376k	$0	$47k	$0	$0

As no assessed condition data was available for the equipment, 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 Village's capital expenditure forecasts.

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 M: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 57: Machinery & Equipment Risk Matrix

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$161,864 (24%)	$27,942 (4%)	$107,638 (16%)	$26,826 (4%)	$341,247 (51%)

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

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

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

Climate Change & Extreme Weather Events

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

Levels of Service

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

Community Levels of Service

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

Table 28 Machinery & Equipment Community Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Description of the current condition of municipal machinery & equipment and the plans that are in place to maintain or improve the provided level of service	The overall condition of machinery & equipment in the Village is fair. Village staff work to ensure all machinery & equipment assets remain in an adequate state of repair, with particular emphasis on safety.

Technical Levels of Service

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

Table 29 Machinery & Equipment Technical Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Average Condition Rating	Fair (42%)
	Average Risk Rating	High (10.72)
Performance	Target Reinvestment Rate (Annual)	6.0%

Appendix I: Vehicles

State of the Infrastructure

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

- Transportation vehicles for road maintenance and winter control activities
- Protection vehicles for emergency services

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

Replacement Cost	Condition	Financial Capacity	
$1,087,999	Poor (35%)	Annual Requirement:	$73,991
		Funding Available:	$0
		Annual Deficit:	$73,991

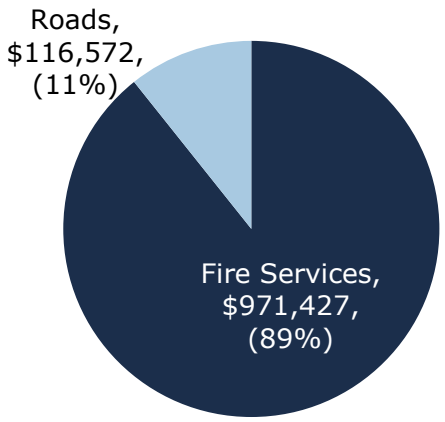
Inventory & Valuation

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

Segment	Quantity	Unit of Measure	Primary Replacement Cost Method	Replacement Cost
Fire Services	4	Assets	CPI	$971,427
Roads	12	Assets	CPI	$116,572
Total	**12**	**Assets**		**$1,087,999**

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

Figure 58: Fleet Replacement Costs

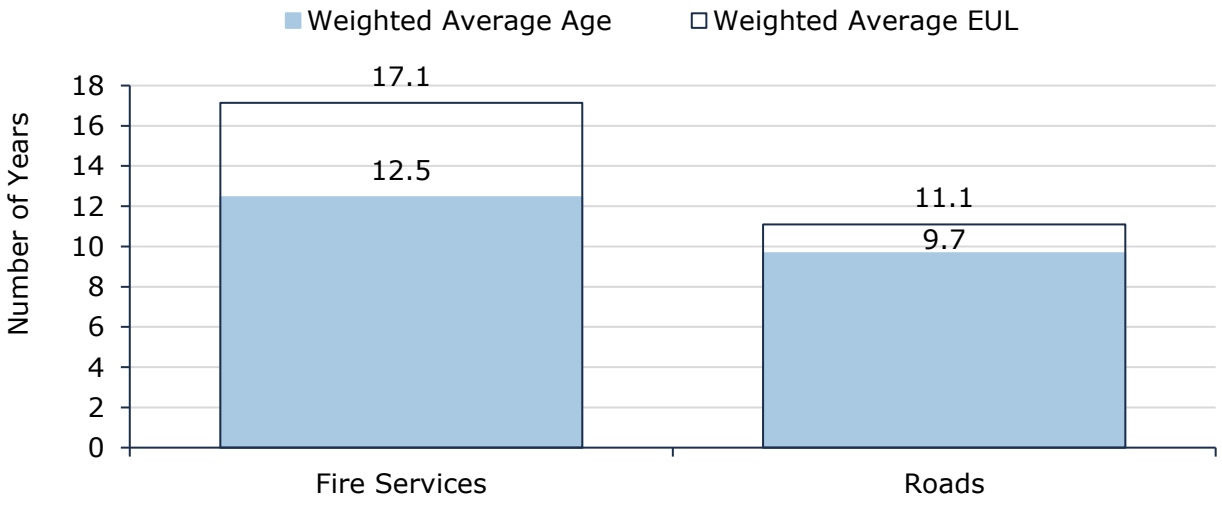


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to represent capital requirements more accurately.

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.

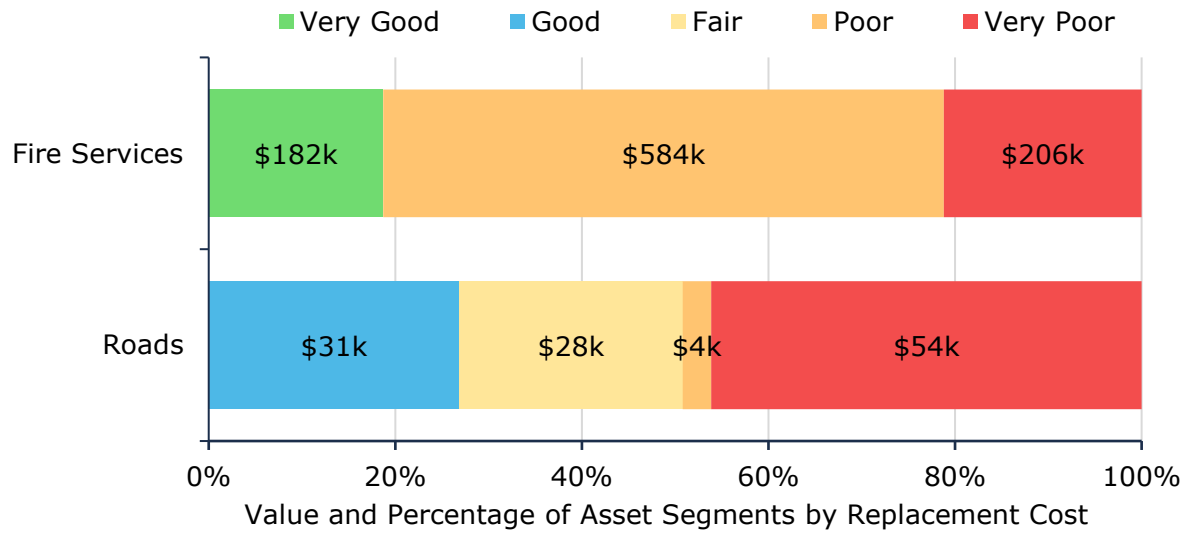
Figure 59: Vehicles Average Age vs Average EUL



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 60: Vehicles Condition Breakdown



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

Current Approach to Condition Assessment

Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets. Vehicles within the Village undergo annual inspections which informs the replacement schedule of the assets. These assessments ensure compliance with safety standards, operational reliability, and alignment with lifecycle plans.

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 61: Vehicles Current Lifecycle Strategy

Maintenance / Rehabilitation / Replacement

- Routine maintenance for vehicle assets includes inspections, minor repairs as needed, and oil changes.
- Replacement of vehicle assets is considered when their condition has significantly deteriorated, making ongoing maintenance no longer cost-effective. Vehicles nearing the end of their expected service life or those requiring frequent and costly repairs are prioritized for replacement.

Forecasted Capital Requirements

The annual capital requirement represents the average amount per year that the Village 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 $74 thousand.

Figure 61: Vehicle Forecasted Capital Replacement Requirements

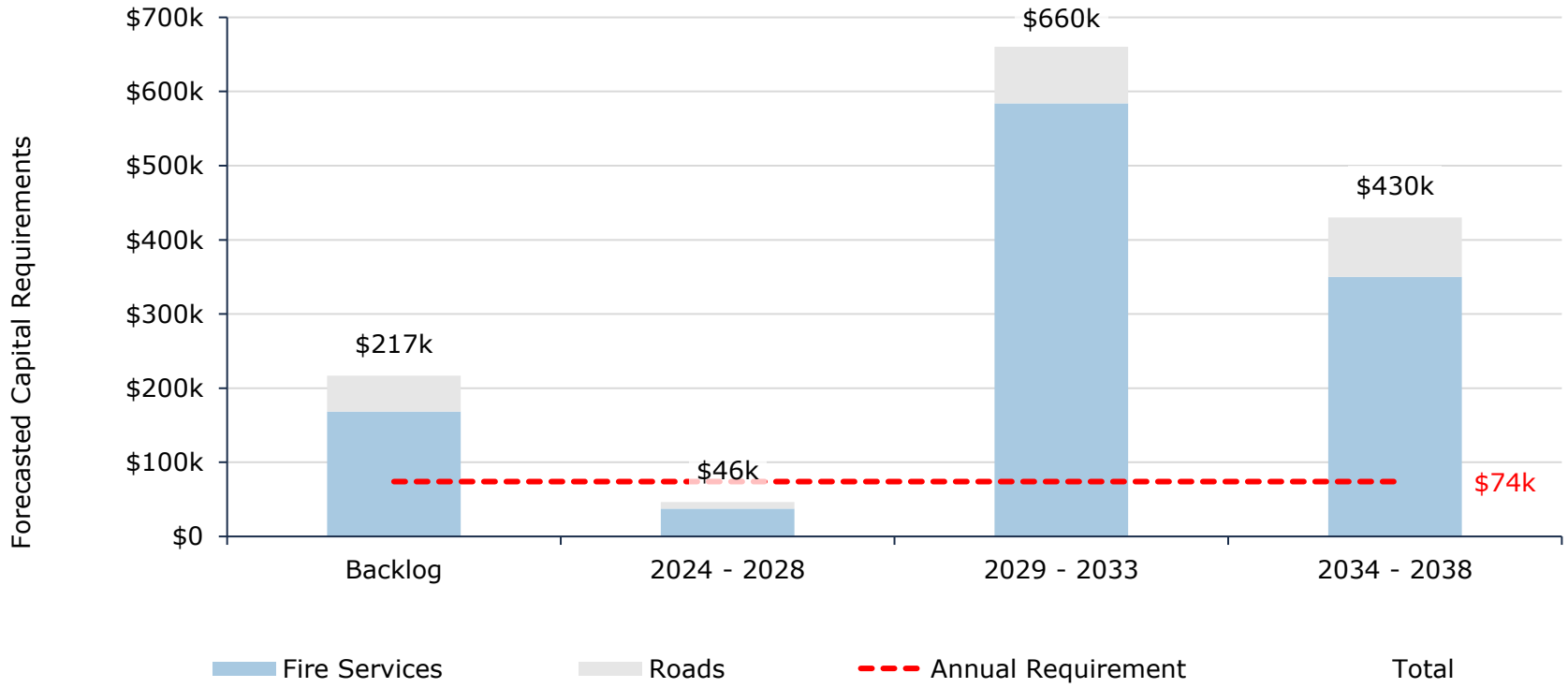


Table 31 below summarizes the projected cost of lifecycle activities (capital replacement only) that may need to be undertaken over the next 10 years to support current levels of service. These projections are generated in Citywide and rely on the data available in the asset register.

Table 30 Vehicles System-Generated 10-Year Capital Costs

Segment	Total	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Fire Services	$621k	$0	$0	$0	$38k	$0	$584k	$0	$0	$0	$0
Roads	$85k	$5k	$0	$0	$0	$4k	$33k	$8k	$16k	$20k	$0
Total	**$707k**	$5k	$0	$0	$38k	$4k	$617k	$8k	$16k	$20k	$0

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 Village's capital expenditure forecasts.

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 M: Risk Rating Criteria for the criteria used to determine the risk rating of each asset.

Figure 62: Vehicles Risk Matrix

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$244,507 (22%)	$21,026 (2%)	- (0%)	$70,293 (6%)	$752,173 (69%)

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

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

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

Climate Change & Extreme Weather Events

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

Levels of Service

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

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:

Table 31 Vehicles Community Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Description of the current condition of municipal vehicles and the plans that are in place to maintain or improve the provided level of service	The overall condition of the vehicles in the Village is poor. The fleet supports municipal operations such as fire services, road maintenance (snow clearing and salting) and general transportation needs.

Technical Levels of Service

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

Table 32 Vehicles Technical Levels of Service

Values	Technical Metric	Current LOS (2023)
Scope	Average Condition Rating	Poor (35%)
	Average Risk Rating	Very High (15.82)
Performance	Target Reinvestment Rate (Annual)	6.80%

Appendix J: Levels of Service Images

Bridge Images

The condition scale for bridges utilized is from 0 to 100 from Very Poor to Very Good. See the following images for the Village's 2 bridges in Very Good conditions.

18/19 Side Road Bridge (BCI = 86.6 Very Good)

Main Street Bridge (BCI = 98.8 Very Good)

Appendix K: Impacts of Growth

Description of Growth Assumptions

The demand for infrastructure and services will change over time based on a combination of internal and external factors. Understanding the key drivers of growth and demand will allow the Town to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure. Increases or decreases in demand can affect what assets are needed and what level of service meets the needs of the community.

Oil Springs Official Plan (2006)

The Village of Oil Springs Official Plan provides a framework for managing growth and development while aligning with provincial policies and Lambton County planning guidelines. It aims to address local needs by promoting efficient land use patterns that respect the municipality's historic development while ensuring cost-effective service delivery.

The plan emphasizes balanced residential, commercial, and industrial growth while protecting natural features and agricultural lands. Residential expansion is limited to areas where municipal services such as water supply, sewage systems, roads, and community facilities can be provided economically. Growth will only occur where there is a demonstrated need to accommodate future population increases.

Environmental protection is a cornerstone of the plan. Development is restricted in areas of significant ecological value, including wetlands, habitats for endangered or threatened species, and other sensitive natural features. The plan also supports sustainable practices to preserve these areas for future generations.

Additionally, the plan addresses rural area policies by supporting agricultural practices and mixed-use developments within designated zones.

Lambton County Official Plan (Consolidated 2020)

The Lambton County Official Plan, adopted on September 17, 2017, and updated as of September 18, 2020, provides a strategic framework for guiding growth and development across the County, including Oil Springs. It emphasizes efficient land use, environmental protection, and sustainable resource allocation.

Oil Springs is projected to grow modestly during the planning period to 2031, with an estimated increase of 5 dwellings per year. By 2031, its population is expected to range between 549 and 808, reflecting stable trends and limited demand for expansion. Growth is directed to urban areas like Oil Springs to optimize existing infrastructure such as water systems, roads, and parks. Residential development is encouraged only where services can be provided economically, ensuring efficient resource use while maintaining the village's rural character. Additionally, Oil Springs is encouraged to leverage its historical significance in the petroleum industry for economic development and tourism.

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Impact of Growth on Lifecycle Activities

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

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

Appendix L: 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 Village'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 Village'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 Village 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 Village 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 Village 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 Village 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 M: Risk Rating Criteria

Risk Definitions

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