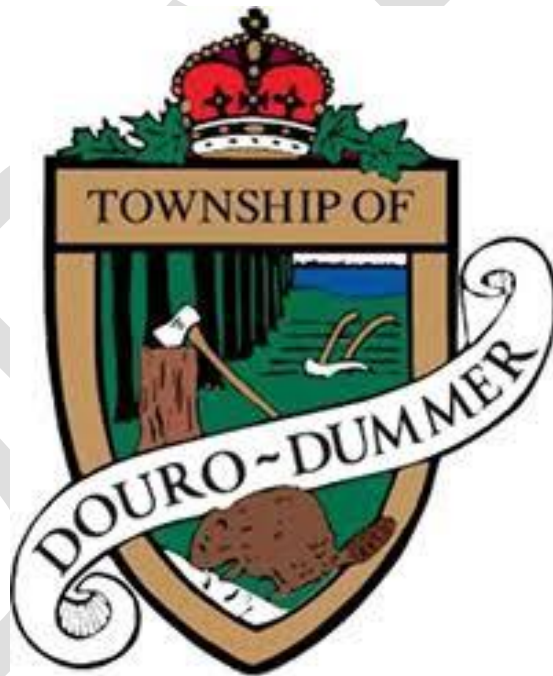


Township of Douro-Dummer | **Asset Management Plan - DRAFT**

2024



DRAFT

This Asset Management Plan was prepared by:



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

Key Statistics

\$63.5m 2023 Replacement Cost of Asset Portfolio

\$18k Replacement Cost of Infrastructure Per Household

42% Percentage of Assets in Fair or Better Condition

38% Percentage of Assets with Assessed Condition Data

\$1.6m Annual Capital Infrastructure Deficit

10 Years Recommended Timeframe for Eliminating Annual Infrastructure Deficit

4.5% Target Reinvestment Rate

2.1% Actual Reinvestment Rate

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Executive Summary

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

Scope

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

This AMP include the following asset categories: roads, bridges & culverts, buildings, machinery & equipment, vehicles, land improvements and furniture & fixtures.

As this Asset Management Plan (AMP) primarily addresses funding for existing infrastructure within the municipality, it's crucial to understand that the new fire hall project is not included in the current financial strategy or inventory of this iteration of the plan.

The new fire hall project will have a significant long-term impact on the Township's financial position, it's important to note that this project represents a departure from the Township's historical financial practices as the municipality has traditionally operated without debt. The fire hall will require additional funding beyond what's outlined in this AMP in addition to any tax increases mentioned within this plan, which could result in a more substantial overall increase in taxes or other financial obligations for the Township. The full financial impact of the fire hall, including principal and interest payments on the debt incurred will be recognized and incorporated into future iterations of the AMP once the asset is in service.

We recommend that stakeholders and residents consider this significant change in the Township's financial approach for viewing the current AMP and future financial projections

O. Reg. 588/17 Compliance

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

Findings

The overall replacement cost of the asset categories included in this AMP totals \$63.5 million. 42% of all assets analyzed in this AMP are in fair or better condition and assessed condition data was available for 38% of assets. For the remaining 62% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Generally, age misstates the true condition of assets, making assessments essential to accurate asset management planning, and a recurring recommendation in this AMP.

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

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Township's average annual capital requirement totals \$2.9 million. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately \$1.3 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of \$1.6 million.

The Township's new fire hall, which is not yet included in the current asset inventory, is a strategic investment aimed at enhancing emergency response capabilities and improving service levels for the community and will be a significant addition to the Township's building asset portfolio. While not reflected in the current replacement cost and condition assessments of this plan, the fire hall will impact future capital planning asset management strategies and service levels for emergency services.

The planned fire hall project aims to enhance emergency response capabilities within the community. Strategically located to optimize coverage, the new facility will house firefighting equipment and provide space for training and operations. Construction is scheduled to be completed the upcoming year with the expectation of significantly improving emergency response times and service levels across the municipality. Once operational, the fire hall will be integrated into the municipalities asset management

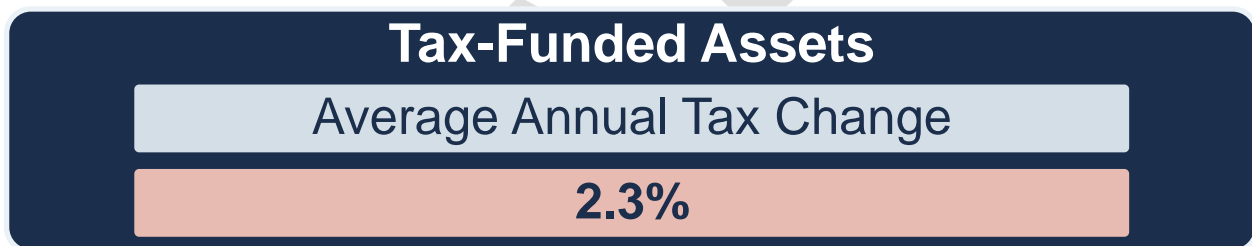
framework including plans for routine maintenance and lifecycle management. This fire hall project underscores the municipality's commitment to public safety and community well-being on sharing the facility remains in optimal conditions to support long term service goals.

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

Recommendations

A financial strategy was developed to address the annual capital funding gap. The following annual tax/rate change required to eliminate the Township's infrastructure deficit based on a 10-year plan:

Figure 1: Proposed Tax/Rate Changes



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

- Review data to update and maintain a complete and accurate dataset
- Develop a condition assessment strategy with a regular schedule
- Review and update lifecycle management strategies
- Development and regularly review short- and long-term plans to meet capital requirements
- Measure current levels of service and identify sustainable proposed levels of service
- Incorporate the new fire hall into the Township's asset management inventory ensuring that it is adequately funded and included in future capital planning to enhance emergency response capabilities and service delivery.

1. Introduction & Context

Key Insights

- The Township of Douro-Dummer is a small Township in central-eastern Ontario and has identified the buildings and facilities as an infrastructure priority
- The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value ratepayers receive from the asset portfolio
- The Township's asset management policy provides clear direction to staff on their roles and responsibilities regarding asset management
- An asset management plan is a living document that should be updated regularly to inform long-term planning
- Ontario Regulation 588/17 outlines several key milestone and requirements for asset management plans in Ontario between July 1, 2022, and 2025

Douro-Dummer Community Profile

Table 1 Douro-Dummer Census Characteristic Comparison to Province of Ontario

Census Characteristic	Township of Douro-Dummer	Ontario
Population 2021	7,632	14,223,942
Population Change 2016-2021	13.8	5.8
Total Private Dwellings	3,601	5,929,250
Population Density	16.6/km ²	15.9/km ²
Land Area	459.46 km ²	892,411.76 km ²

The Township of Douro-Dummer is located within central-eastern Ontario. The Township is surrounded by several small lakes and is north of Lake Ontario.

Dummer Townships were settled by a colony of immigrants in the early 1800s. The Township of Douro-Dummer was established after an amalgamation of Douro and Dummer Townships in 1998.

The Township is recognized for its seasonal population and its tourist attractions such as the Warsaw Caves Conservation Area and Campground. The popular conservation area consists of 15 km of hiking trails, 52 campground sites, a beach and swimming area. Summer attractions within the Township consist of exploring the caves, camping, hiking, and fishing. There are a variety of parks, hiking trails, and sports facilities accessible to the public as well.

Douro-Dummer has experienced minor increases and decreases in population over the past 20 years but has seen a significant growth in population in 2021. The township has aging population above the provincial average.

The Township generates a total revenue of \$6.4M from taxes and has an annual capital budget of \$1.8M as of 2023. The Township’s infrastructure priorities consist of analyzing and developing services for facilities, sustainability of infrastructure, utilization of parks and trails, and preservation of natural heritage of the Township.

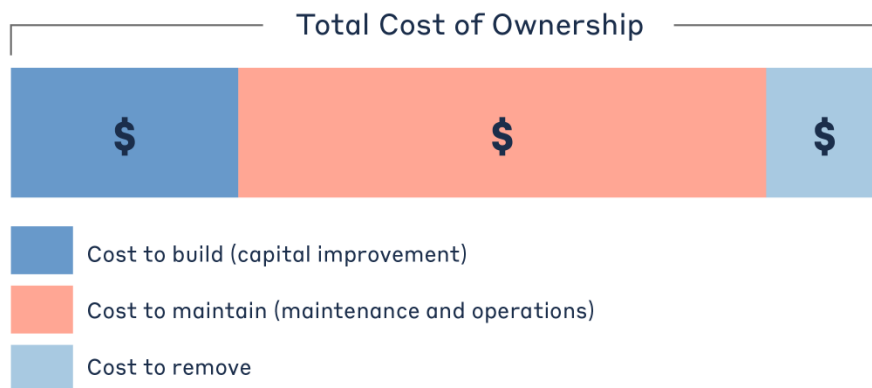
An Overview of Asset Management

Municipalities are responsible for managing and maintaining a broad portfolio of infrastructure assets to deliver services to the community. The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services,

manage the associated risks, while maximizing the value ratepayers receive from the asset portfolio.

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

Figure 2 Total cost of Asset Ownership



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

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

Asset Management Policy

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

The Township adopted Policy No. – F8, A policy that describes the asset management principles and roles and responsibilities for the Township of Douro-Dummer on June 27th, 2019 in accordance with Ontario Regulation 588/17.

The principles of the policy include:

- Long-term view investment
- Clearly identifying infrastructure priorities
- Promotion of economic competitiveness, productivity, and job creation
- Minimizing the impact of infrastructure on the environment

Asset Management Strategy

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

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

Asset Management Plan

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

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

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

Key Concepts in Asset Management

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

Lifecycle Management Strategies

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

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

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

Table 2 Lifecycle Management: Typical Lifecycle Interventions

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

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

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

Risk Management Strategies

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

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

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

Levels of Service

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

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

Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories (roads, bridges and culverts, water, wastewater, stormwater) the Province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP. For non-core asset categories, the Township has determined the qualitative descriptions that will be used to determine the community level of service provided. These descriptions can be found in the Levels of Service subsection within each asset category.

Technical Levels of Service

Technical levels of service are a measure of key technical attributes of the service being provided to the community. These include mostly quantitative measures and tend to

reflect the impact of the Township's asset management strategies on the physical condition of assets or the quality/capacity of the services they provide.

For core asset categories (roads, bridges and culverts, water, wastewater, stormwater) the Province, through O. Reg. 588/17, has provided technical metrics that are required to be included in this AMP. For non-core asset categories, the Township has determined the technical metrics that will be used to determine the technical level of service provided. These metrics can be found in the Levels of Service subsection within each asset category.

Current and Proposed Levels of Service

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

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

Douro-Dummer Climate Profile

The Township of Douro-Dummer is located in central-eastern Ontario. Ontario north of Lake Ontario. The Township is expected to experience notable effects of climate change which include higher average annual temperatures, an increase in total annual precipitation, and an increase in the frequency and severity of extreme events. According to Climatedata.ca – a collaboration supported by Environment and Climate Change Canada (ECCC) – the Township of Douro-Dummer may experience the following trends:

Higher Average Annual Temperature:

1. Between the years 1971 and 2000 the annual average temperature was 6.3 °C
2. Under a high emissions scenario, the annual average temperatures are projected to increase by 2.5 °C by the year 2050 and over 6.4 °C by the end of the century.

Increase in Total Annual Precipitation:

3. Under a high emissions scenario, Douro-Dummer is projected to experience an 13% increase in precipitation by the year 2050 and a 17% increase by the end of the century.

Increase in Frequency of Extreme Weather Events:

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

Integration Climate Change and Asset Management

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

In order to achieve the sustainable delivery of services, climate change considerations should be incorporated into asset management practices. The integration of asset management and climate change adaptation observes industry best practices and enables the development of a holistic approach to risk management. The Township has developed a number of documents to inform climate change adaptation and mitigation strategies. The Township developed the Sustainable Develop Guidelines in 2020 and the Greater Peterborough Area Climate Change Action Plan. These document along with others will further advance the Township’s capacity to develop asset management strategies that incorporate climate change mitigation and adaptation considerations.

Ontario Regulation 588/17

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

Table 3 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				●

2. Scope and Methodology

Key Insights

- This asset management plan includes 7 asset categories and are tax-funded only
- The source and recency of replacement costs impacts the accuracy and reliability of asset portfolio valuation
- Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life

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Asset Categories Included in this AMP

This asset management plan for the Township of Douro-Dummer is produced in compliance with Ontario Regulation 588/17. The July 2024 deadline under the regulation—the second of three AMPs—requires analysis of core assets (roads and bridges and culverts) and non-core assets (buildings, vehicles, machinery & equipment, land improvements, and furniture & fixtures).

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

Table 4 Township Douro-Dummer Asset Categories Funding Sources

Asset Category	Source of Funding
Road Network	Tax Levy
Bridges & Culverts	
Buildings	
Vehicles	
Machinery & Equipment	
Land Improvements	
Furniture & Fixtures	

Deriving Replacement Costs

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

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

User-defined costs based on reliable sources are a reasonably accurate and reliable way to determine asset replacement costs. Cost inflation is typically used in the absence of reliable replacement cost data. It is a reliable method for recently purchased and/or constructed assets where the total cost is reflective of the actual costs that the

Township incurred. As assets age, and new products and technologies become available, cost inflation becomes a less reliable method.

Estimated Useful Life & Service Life Remaining

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

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

Figure 3 Service Life Remaining Calculation



Reinvestment Rate

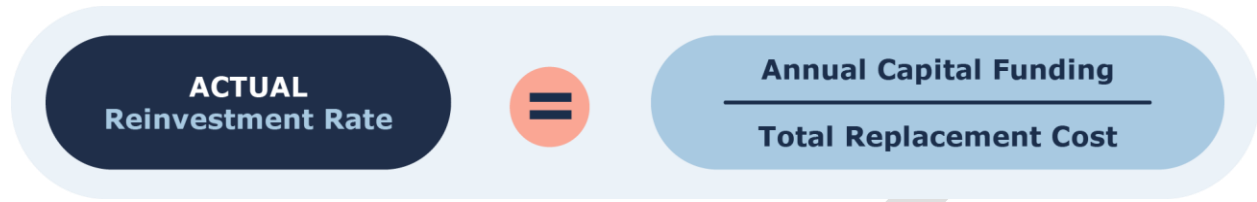
As assets age and deteriorate, they require additional investment to maintain a state of good repair. The reinvestment of capital funds, through asset renewal or replacement, is necessary to sustain an adequate level of service. The reinvestment rate is a measurement of available or required funding relative to the total replacement cost.

By comparing the actual vs. target reinvestment rate the Township can determine the extent of any existing funding gap. The reinvestment rate is calculated as follows:

Figure 4 Target Reinvestment Rate Calculation



Figure 5 Actual Reinvestment Rate Calculation



Deriving Asset Condition

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

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the Township's asset portfolio. The table below outlines the condition rating system used in this AMP to determine asset condition. This rating system is aligned with the Canadian Core Public Infrastructure Survey which is used to develop the Canadian Infrastructure Report Card. When assessed condition data is not available, service life remaining is used to approximate asset condition.

Table 5 Standard Condition Rating Scale

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

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

3. Portfolio Overview

Key Insights

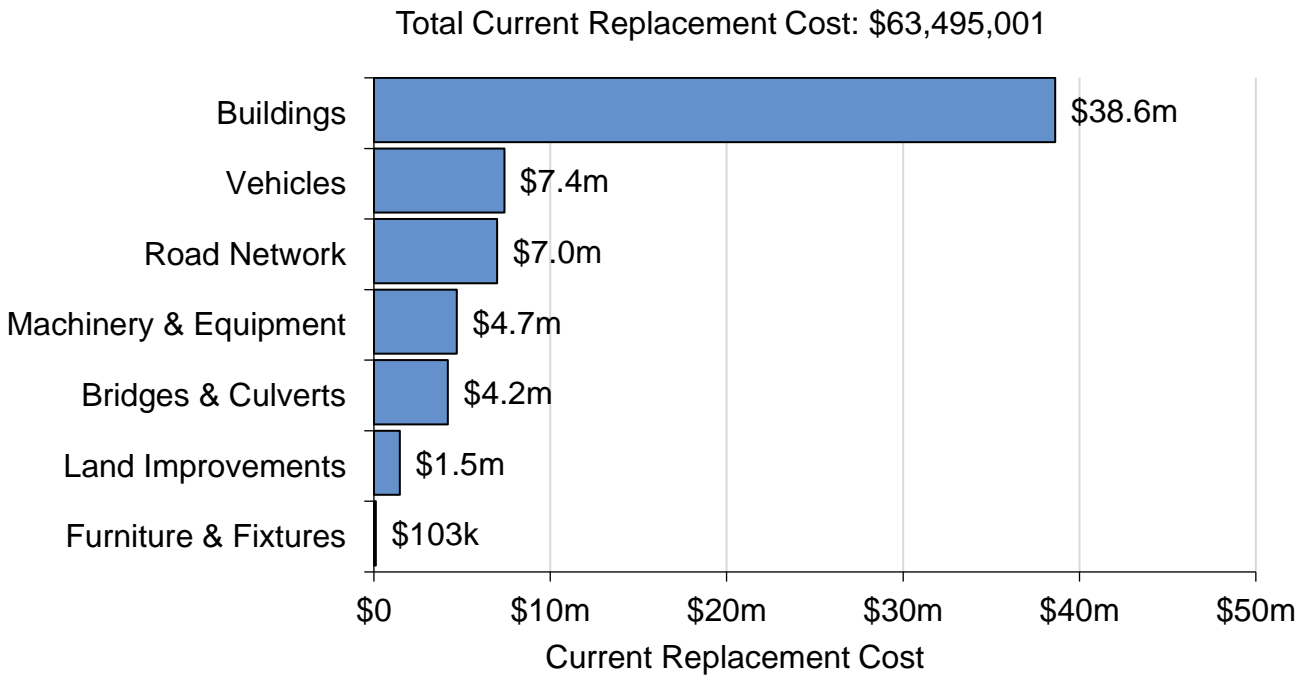
- The total replacement cost of the Township's asset portfolio is \$63.5 million
- The Township's target re-investment rate is 4.5%, and the actual re-investment rate is 2.1%, contributing to an expanding infrastructure deficit
- 42% of all assets are in fair or better condition
- 60% of assets are projected to require replacement in the next 10 years
- Average annual capital requirements total \$2.9 million per year across all assets

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Total Replacement Cost of Asset Portfolio

The asset categories analyzed in this AMP have a total replacement cost of \$63.5 million based on inventory data from 2022. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.

Figure 6 Current Replacement Cost by Asset Category



The following table identifies the methods employed to determine replacement costs across each asset category:

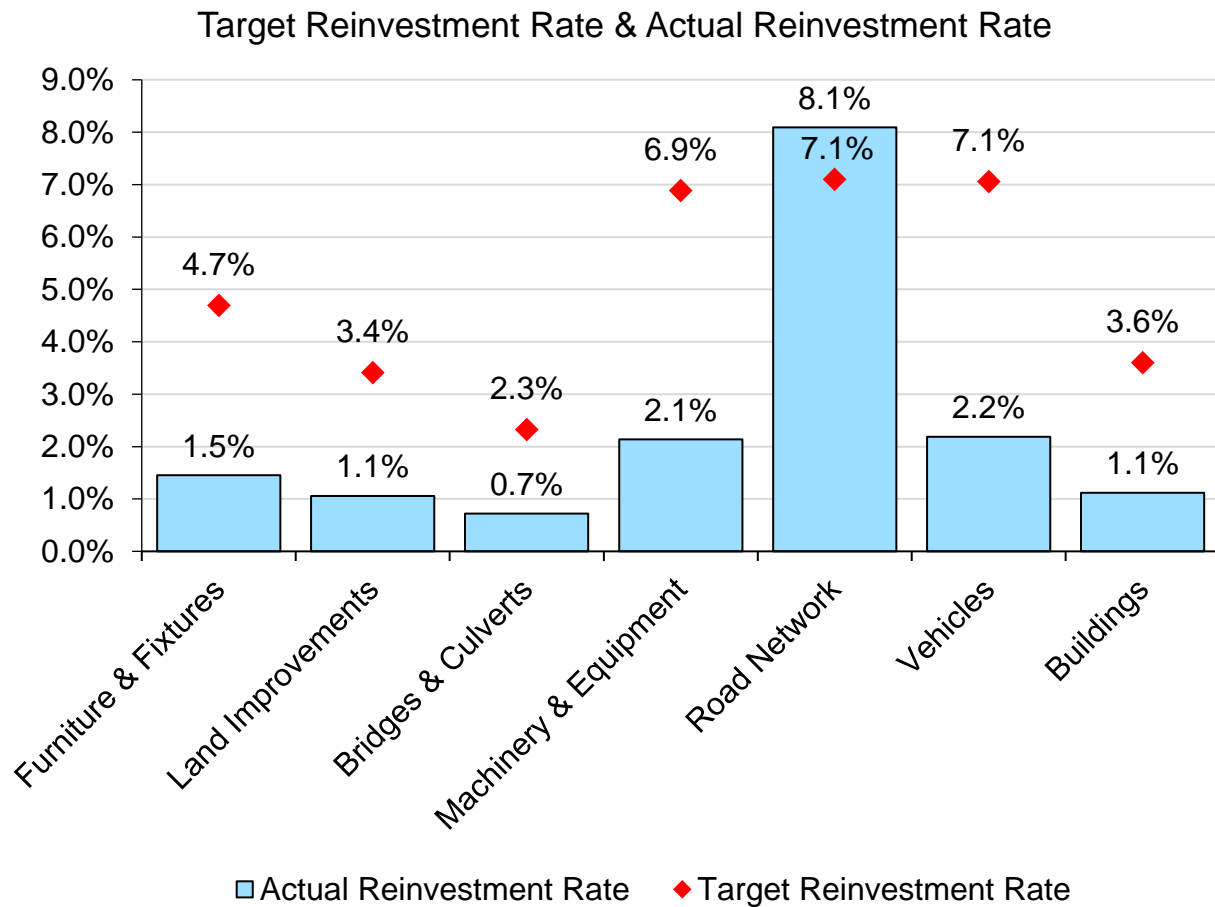
Table 6 Replacement Cost Methods for Asset Categories

Asset Category	Replacement Cost Method	
	User-Defined	Notes
Road Network	71.6%	HCB, LCB roads have user-defined costs.
Bridges & Culverts	96.3%	Majority of bridges and culverts have user-defined costs. One culvert asset has CPI costing.
Buildings	99.9%	Majority of buildings have user-defined costs. There are 3 assets with CPI costing.
Vehicles	81.1%	Majority of vehicles have user-defined costs. The remaining assets have CPI costing which consist of Fire vehicles.
Machinery & Equipment	47.6%	Machinery and equipment segments have a mix of user-defined costs and CPI table replacement cost methods
Land Improvements	0%	N/A
Furniture & Fixtures	0%	N/A
Overall	86.8%	

Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps or surpluses by comparing target vs actual reinvestment rate. To meet the long-term replacement needs, the Township should be allocating approximately \$2.9 million annually, for a target reinvestment rate of 4.5%. Actual annual spending on infrastructure totals approximately \$1.3 million, for an actual reinvestment rate of 2.1%.

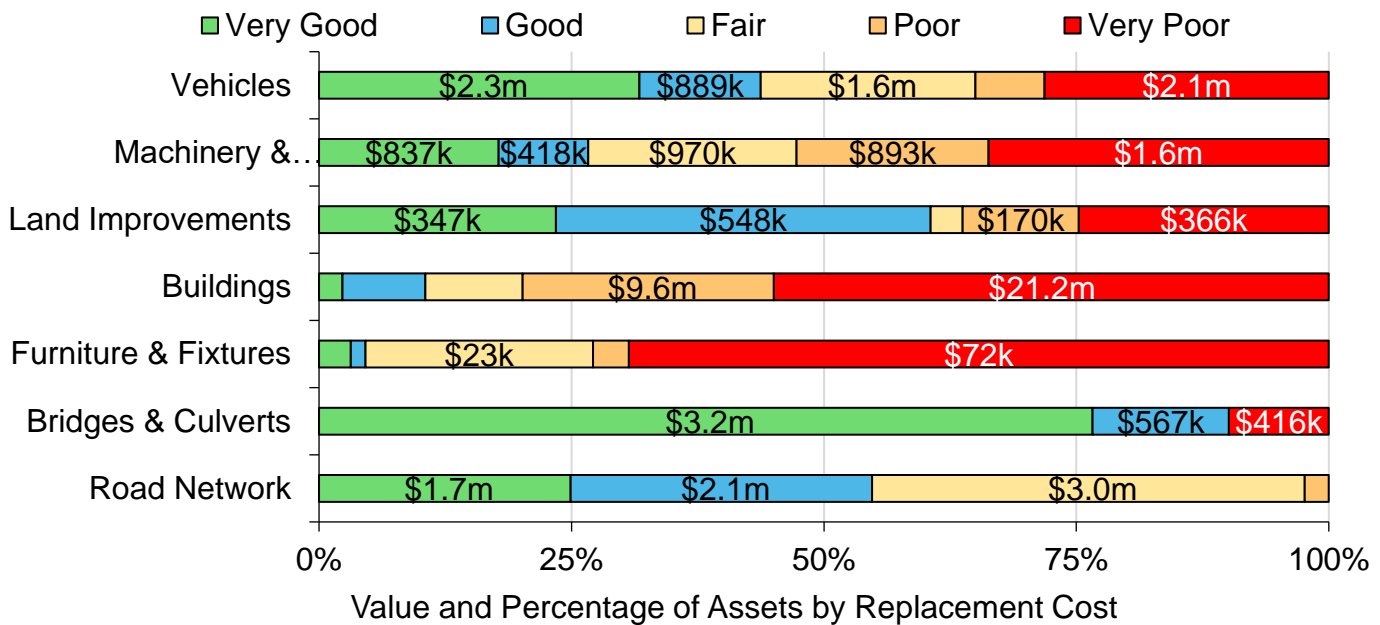
Figure 7 Current Vs. Target Reinvestment Rate



Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 42% of assets in Douro-Dummer are in fair or better condition. This estimate relies on both age-based and field condition date

Figure 8 Asset Condition – By Asset Category



This AMP relies on assessed condition data for 38% of assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

Table 7 Sources of Condition Data

Asset Category	% of Assets with Assessed Condition	Source of Condition Data
Road Network	100%	Roads Needs Study, Staff Assessments
Bridges & Culverts	100%	GHD
Buildings	31%	Greenview, Staff assessments
Vehicles	8%	Staff Assessments
Machinery & Equipment	10%	Staff Assessments
Land Improvements	1%	N/A
Furniture & Fixtures	6%	Staff Assessments

Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 60% of the Township's assets will require replacement within the next 10 years. Capital requirements over the next 10 years are identified in Appendix B.

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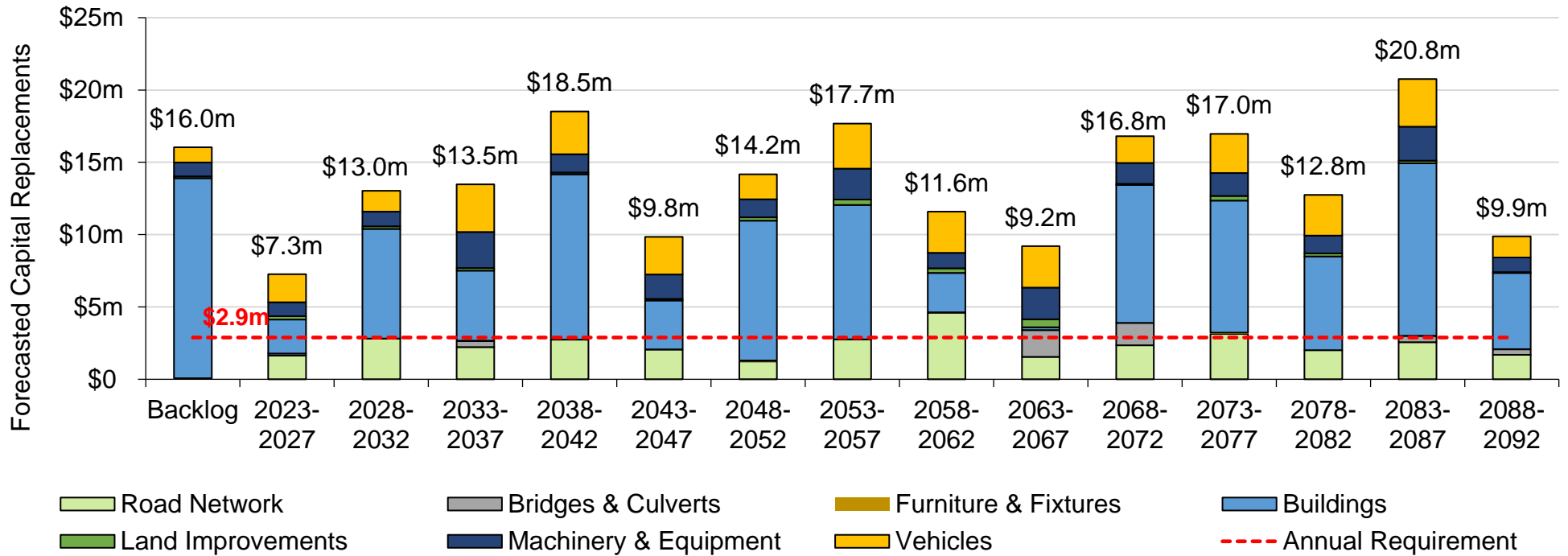
Forecasted Capital Requirements

The development of a long-term capital forecast should include both asset rehabilitation and replacement requirements. With the development of asset-specific lifecycle strategies that include the timing and cost of future capital events, the Township can produce an accurate long-term capital forecast. The following graph identifies capital requirements over the next 70 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 5-year capital requirements.

On average, \$2.9 million is required each year to remain current with capital replacement needs for the Township's asset portfolio, represented by the 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.

The chart also illustrates a backlog of approximately \$16 million, comprising assets that remain in service beyond their estimated useful life. It is unlikely that all such assets are in a state of disrepair, requiring immediate replacements. This makes continued and expanded targeted and consistent condition assessments integral. Risk frameworks, proactive lifecycle strategies, and levels of service targets can then be used to prioritize projects, continuously refine estimates for both backlogs and ongoing capital needs and help select the right treatment for each asset. In addition, more effective componentization of buildings will improve these

Figure 9 Capital Replacement Needs – Portfolio Overview 2023-2092



4. Road Network

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

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

Table 8 Replacement Cost for Road Network

Replacement Cost	Condition	Financial Capacity	
\$6.99 million	Fair (96%)	Annual Requirement:	\$496,000
		Funding Available:	\$566,000
		Annual Deficit:	(\$70,000)

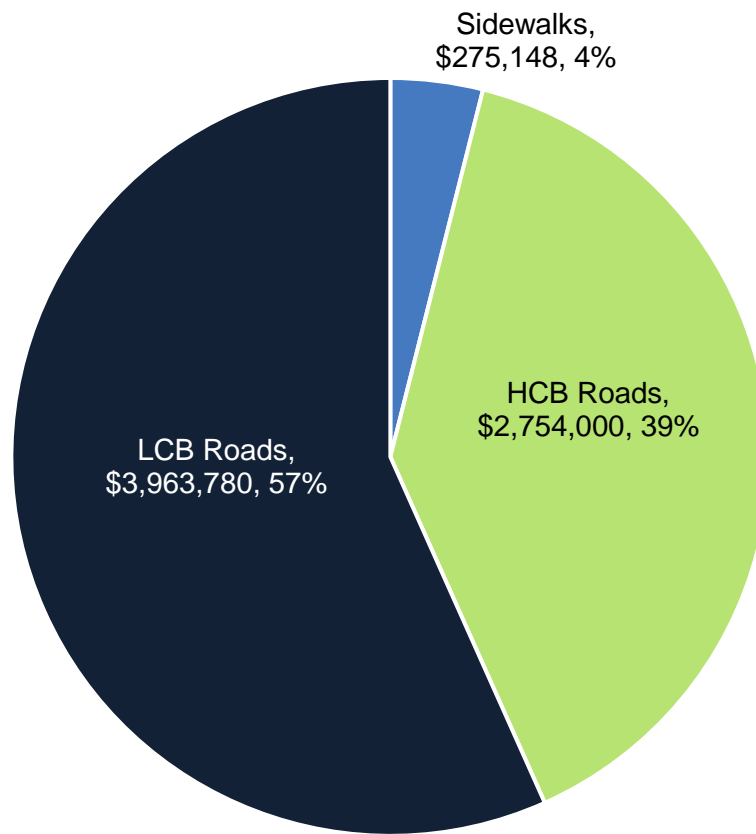
Asset Inventory & Costs

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

Table 9 Asset Inventory – Road Network

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
HCB Roads	6,120 m	\$2,754,000	\$80,000
LCB Roads	104,310 m	\$3,964,000	\$410,000
Sidewalks	44 m	\$275,000	\$7,000
Gravel Roads	143,900 m		Not Planned for Replacement
Total		\$6,993,000	\$497,000

Figure 10 Portfolio Valuation – Road Network



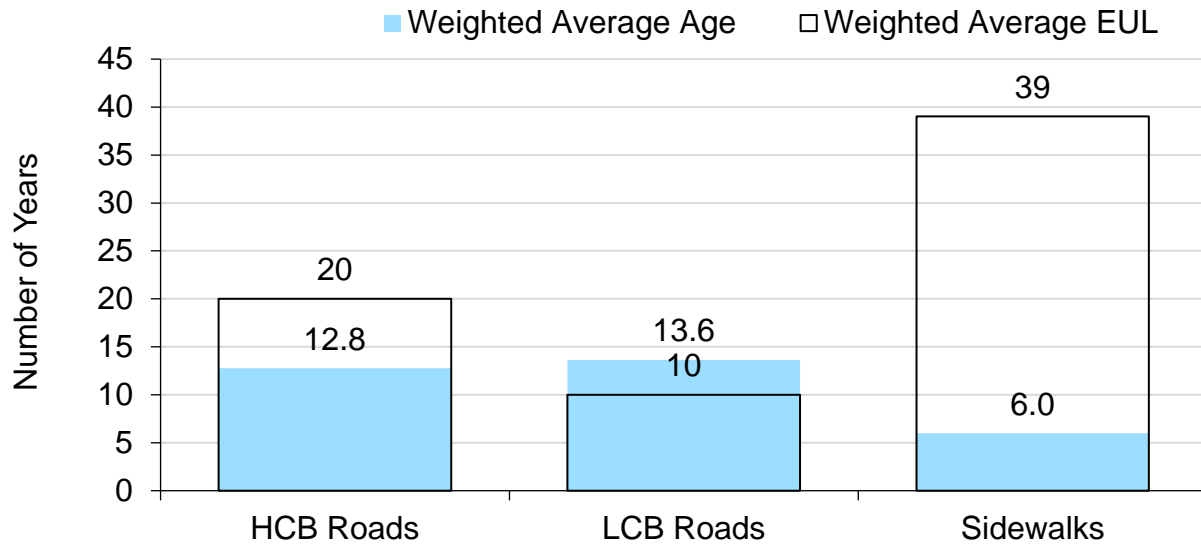
Total Current Replacement Cost: \$6,992,928

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

Asset Condition & Age

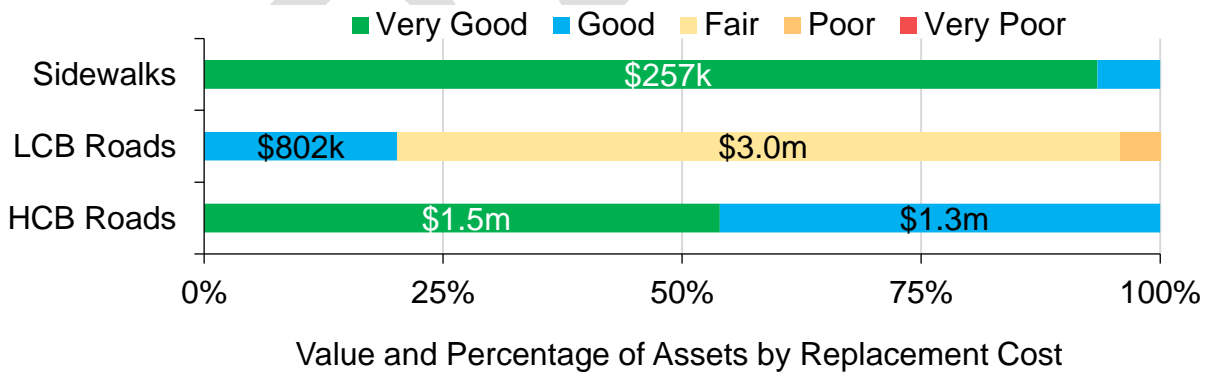
The graph below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 11 Estimated Useful Life vs Asset Age - Road Network



The graph below visually illustrates the average condition for each asset segment on a very good to very poor scale. The majority of the paved roads are in very good or good condition.

Figure 12 Asset Condition – Road Network: By Segment



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

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

Current Approach to Condition Assessment

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

- A Road Needs Study was completed in 2017 that included a detailed assessment of the condition of each road segment. Roads Needs Studies are completed on a 4-year cycle.
- The Road Needs Study recommendations are monitored and condition scores are updated as roads are assessed.

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

Table 10 Condition Rating Criteria

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

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 have been developed as a proactive approach to managing the lifecycle of HCB, LCB, and gravel 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.

Table 11 Current Lifecycle Management Strategies – Paved Roads

Paved Roads (HCB)		
Event Name	Event Class	Event Trigger
Slurry Seal	Rehabilitation	15 Years
Mill and Pave – Single Lift	Rehabilitation	30 Condition
Full Reconstruction	Replacement	45 Years

The following table outlines the Township’s current lifecycle management strategy that are not included in the tables above for HCB roads.

Table 12 Additional Strategies – Paved Roads

Activity Type	Description of Current Strategy
Maintenance	Sweeping is undertaken seasonally to remove winter sand, and grass mowing is performed on a weekly basis.
	Crack sealing may be considered at 5-7 years, based on monitoring the road surface condition.
	Cleaning is a regular maintenance activity.
	Ditching and culvert maintenance is performed on roadways on an as-needed basis.
Preventative Maintenance	The most recent micro-surfacing was completed in 2015 on a 1.3 km stretch of road. The Township is considering expanding this program on select candidates, such as those that are high risk but early in their lifecycle.
	An annual patching program is undertaken in the summer.
Rehabilitation	Mill & Pave activities are completed near the end of road’s life. Generally, a single mill & pave is considered for the majority of the network, but the Township is considering a second event on candidate roads where cost saving opportunities are available.
Replacement	Road needs study is relied upon when determining replacements, as a starting point. However, visual inspection results will reprioritize locations for replacement.

Table 13 Current Lifecycle Management Strategies – Surface Treated Roads

Paved Roads (LCB)		
Event Name	Event Class	Event Trigger
Patching	Preventative Maintenance	Every 1 Year (Repeated 15 times)
Single Surface Treatment	Rehabilitation	Every 6 Years (Repeated 3 times)
Full Reconstruction	Replacement	28 Years

The following table outlines the Township’s current lifecycle management strategy that are not included in the tables above for LCB roads.

Table 14 Activities – Surface Treated Roads

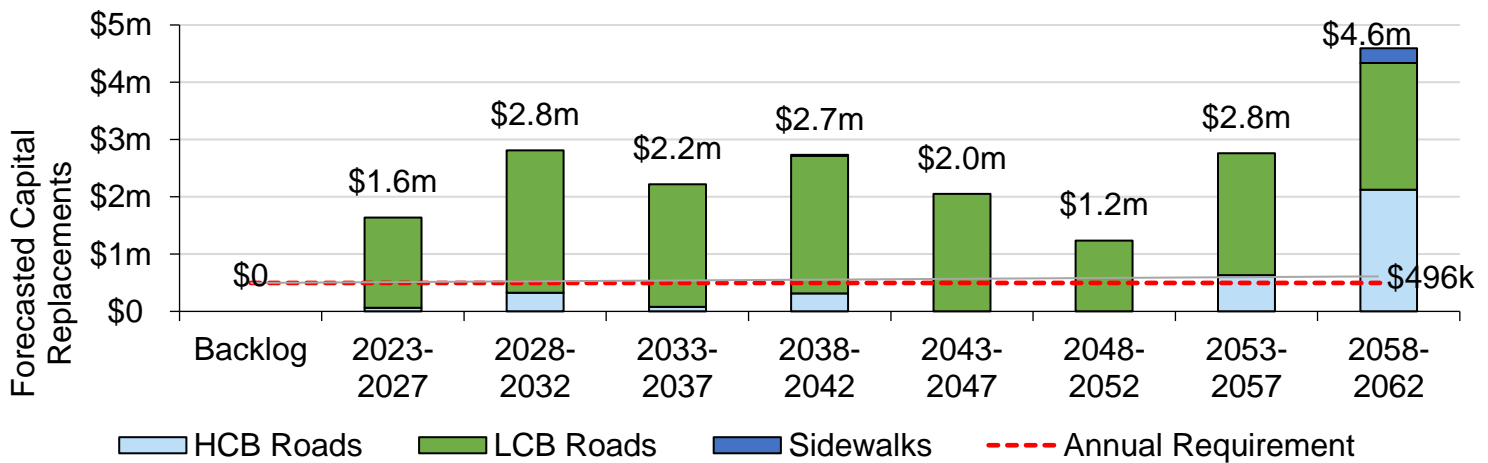
Activity Type	Description of Current Strategy
Maintenance	Ditching is performed on select roads as needed.
	Sweeping is undertaken to remove winter sand and grass mowing are performed routinely each year.
	Culvert maintenance is undertaken on an as-needed basis, generally covering 6 – 8 sections of road each year, or in conjunction with reconstruction activities.
Rehabilitation	Second single coats are considered based on rutting, wheel tracking and subgrade condition, which generally corresponds to 10 years of service life.
	Surface treatment activities are typically a joint venture with the upper tier municipality.
Replacement	Full replacements are made when the asset fails. Replacements are prioritized by road needs study and traffic counts.
	Work is typically planned one year in advance.

Forecasted Capital Requirements

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

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 40 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements. The trend line represents the average 5-year capital requirement of \$496,000; this amount does not account for inflation.

Figure 13 Forecasted Capital Replacement Requirements – Road Network 2023-2062



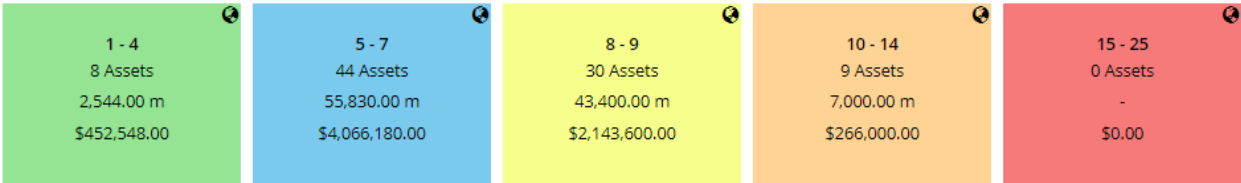
The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B

Risk & Criticality

Risk Matrix

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

Figure 14 Risk Matrix – Road Network



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

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

Table 15 Identification Criteria for Asset Prioritization

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)
Service Life Remaining	Roadside Environment (Rural, Semi-Urban, Urban)
Bus Route	Road Surface Material (Earth, Gravel, LCB, HCB)
Heavy Truck Traffic	MMS Road Class (1-6)
	AADT
	Bus Route
	Speed Limit

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

Risks to Current Asset Management Strategies

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

Climate Change & Extreme Events



An increase in the frequency and intensity of rain and snowfall events can result in flooding of sections of the road network and additional strains on snow removal efforts. The drainage capacity of the road network is not sufficient to withstand heavy water flow, potentially causing damage to the road base resulting in washouts. Further issues can arise as a result of flooding and poor drainage including accelerated deterioration caused by freeze/thaw cycles. Levels of service expectations have increased, requiring additional road patching and winter maintenance. To improve asset resiliency, Staff should identify problem areas and improve drainage through enhanced lifecycle strategies.

Organizational Knowledge & Capacity



The Township has indicated that staff turnover is a risk. Staff knowledge is lost as staff leave. Standard operating procedures should be developed to preserve knowledge of current staff and to ease onboarding of new staff.

Levels of Service

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

Community Levels of Service

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

Table 16 Ontario Regulation 588/17 Community Levels of Service – Road Network

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description, which may include maps, of the road network in the Township and its level of connectivity	See Appendix C
Quality	Description or images that illustrate the different levels of road class pavement condition	<p>The Township completed a Road Management Study in October 2016 in coordination with BRG Project Management & Municipal Specialists. Every road section received a surface condition rating (1-10).</p> <p>(1-5) Road surface exhibits moderate to significant deterioration and requires renewal or full replacement within 1-5 years</p> <p>(6-10) Road surface is in good condition or has been recently re-surfaced. Renewal or reconstruction is not required for 6-10+ years</p>

Technical Levels of Service

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

Table 17 Ontario Regulation 588/17 Technical Levels of Service – Road Network

Service Attribute	Technical Metric	Current LOS (2022)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km ²)	0
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km ²)	0.33
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km ²)	0.19
Quality	Average pavement condition index for paved roads in the Township	HCB: 76% LCB: 53%
	Average surface condition for unpaved roads in the Township (e.g. excellent, good, fair, poor)	Fair
Performance	Target vs. Actual capital reinvestment rate	7.1% vs 8.1%

Recommendations

Asset Inventory

- The asset inventory should be regularly reviewed to ensure it is up-to-date and an accurate reflection of the assets that are in-service.
- The sidewalk inventory includes several pooled assets that should be broken into discrete segments to allow for detailed planning and analysis.

Condition Assessment Strategies

- The last Roads Needs Study was completed in 2017. The Township should consider recommendations from the Roads Needs Study and the condition scores from manual assessments to guide capital planning.

Lifecycle Management Strategies

- Implement the identified lifecycle management strategies for HCB LCB, and gravel roads to realize potential cost avoidance and maintain a high quality of road pavement condition.
- Evaluate the efficacy of the Township's lifecycle management strategies at regular intervals to determine the impact cost, condition and risk.

Risk Management Strategies

- Implement risk-based decision-making as part of asset management planning and budgeting processes. This 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 Township 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.

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5. Bridges & Culverts

Bridges and culverts are essential components of the transportation services offered to the community. The maintenance of all bridges and culverts located on municipal roads falls under the responsibility of public works which aims to keep these structures in satisfactory condition and reduce service interruptions.

The state of the infrastructure for bridges and culverts is summarized in the following table.

Table 18 Replacement Cost for Bridges & Culverts

Replacement Cost	Condition	Financial Capacity	
\$4.2 million	Very Good (82%)	Annual Requirement:	\$98,000
		Funding Available:	\$30,000
		Annual Deficit:	\$68,000

The following core values and level of service statements are a key driving force behind the Township's asset management planning:

Table 19 Level of Service Statements Bridges & Culverts

Service Attribute	Level of Service Statement
Scope	The municipality aims to provide bridges and culverts that are accessible to the entire community with sufficient capacity to meet traffic demands under all weather conditions. The goal is to minimize load restrictions on bridges and culverts throughout the municipality.
Quality	the municipality strives to maintain bridges and culverts in good condition minimizing unplanned service interruptions and closures to ensure reliable transportation infrastructure for the community.

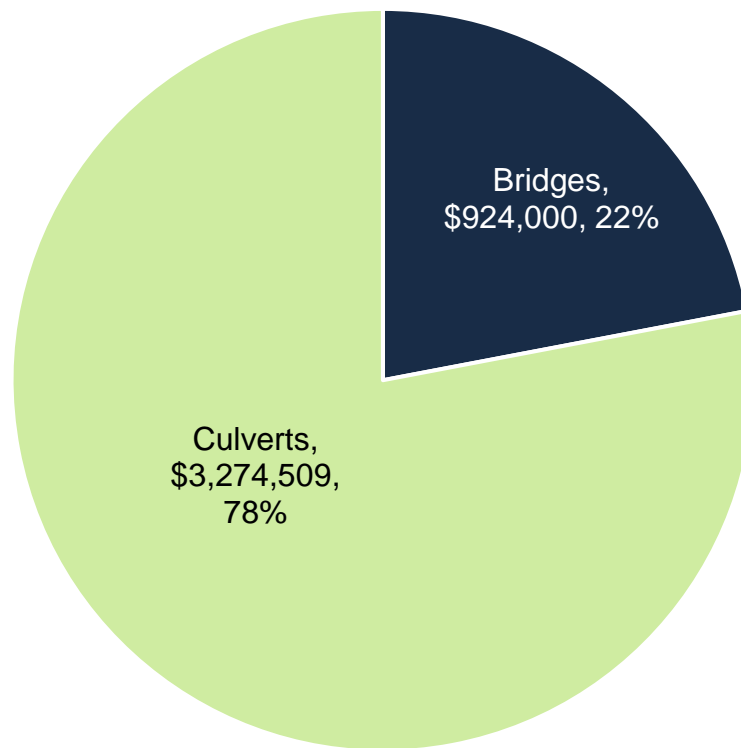
Asset Inventory & Costs

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

Table 20 Asset Inventory – Bridges & Culverts

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Bridges	2	\$924,000	\$18,000
Culverts	9	\$3,275,000	\$79,000
Total		\$4,199,000	\$97,000

Figure 15 Portfolio Valuation - Bridges & Culverts



Total Current Replacement Cost: \$4,198,509

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

Asset Condition & Age

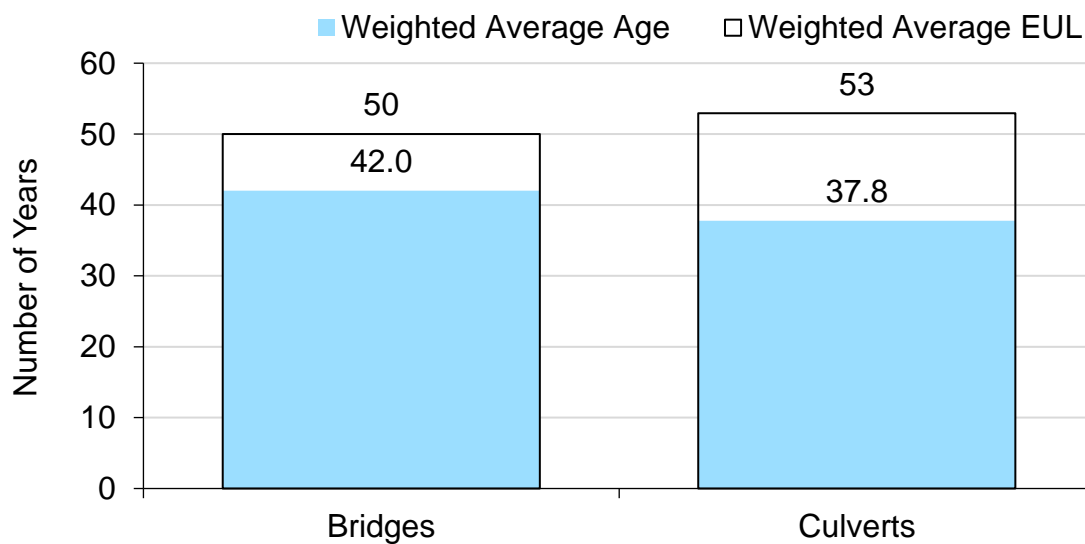
An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to

users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

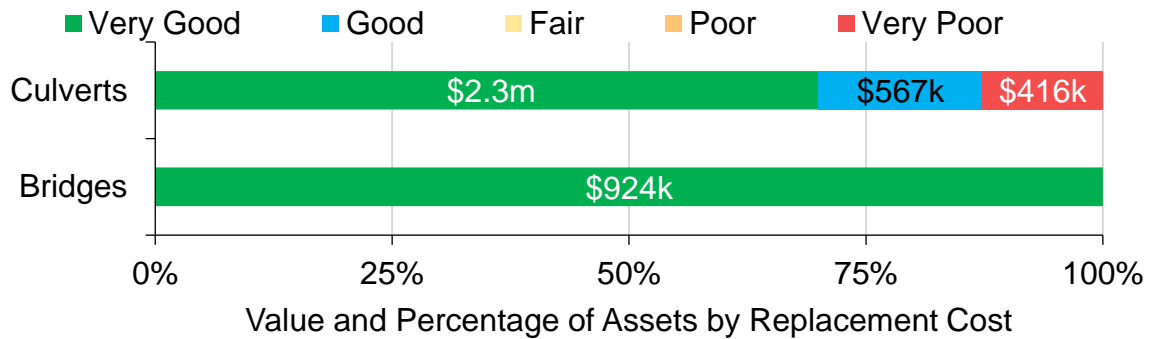
The figure below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 16 Estimated Useful Life vs. Asset Age – Bridges & Culverts



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

Figure 17 Asset Condition by Segment – Bridges & Culverts:



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

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

- Condition assessments of all bridges and culverts are completed every 2 years in accordance with the Ontario Structure Inspection Manual (OSIM) by an external contractor

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

Table 21 Condition Rating Criteria - Bridges & Culverts

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

Lifecycle Management Strategy

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

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

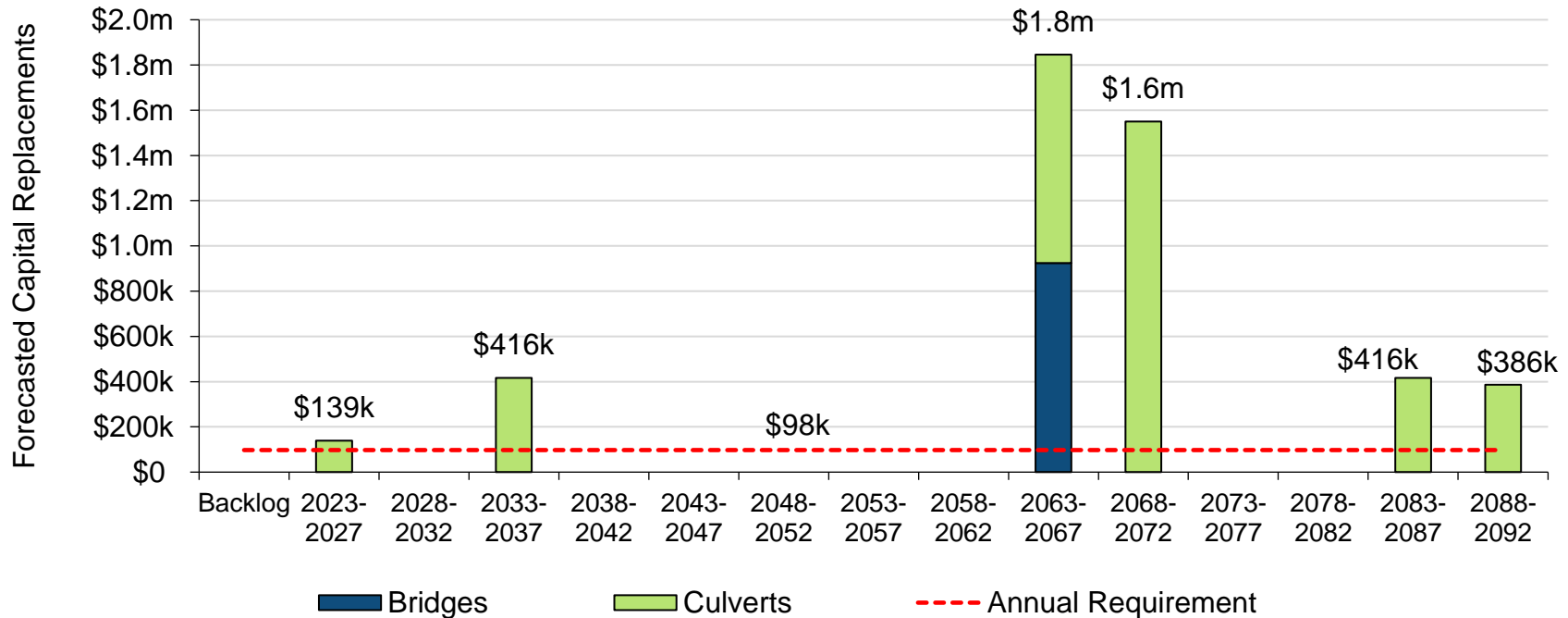
Table 22 Current Lifecycle Management Strategies – Bridges and Culverts

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation/ Replacement	All lifecycle activities are driven by the results of mandated structural inspections completed according to the Ontario Structure Inspection Manual (OSIM)
	Recommendations for detailed inspection by the OSIM report are generally accepted and budgeted in upcoming years.
	Smaller culverts (non-structural) work is typically done in conjunction to regular road work.
	Sweeping, mowing, tree brushing around culverts and general maintenance are completed annually.
	OSIM major repairs and replacements recommendations are tiered by staff based on requiring immediate (< 2 years) attention, recommended work in 3-5 years, and recommended work in 5-10 years.
	Whenever possible, major rehabilitative and replacement events are staggered to reduce dramatic increases in costs.
	Replacement prioritization is generally based on OSIM recommendations; however, traffic counts are taken into consideration as well.
Inspection	The most recent inspection report was completed in 2022 by GHD, however the previous report from 2020 was used for this report.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 65 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 5-year capital requirements. The trend line represents the average 5-year capital requirement of \$98k; this amount does not account for inflation.

Figure 18 Forecasted Capital Replacement Requirements – Bridges and Culverts 2023-2092



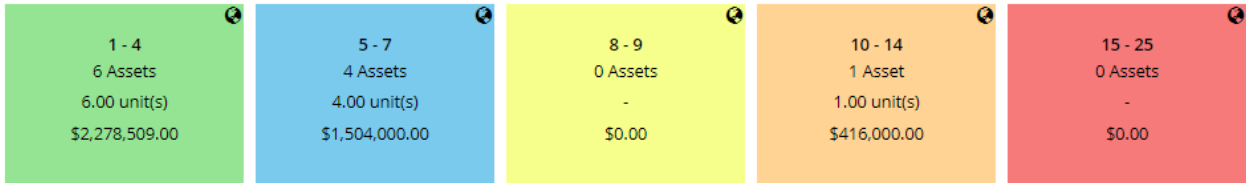
The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

Risk & Criticality

Risk Matrix

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

Figure 19 Risk Matrix - Bridges and Culverts



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

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

Table 23 Probability and Consequence of Failure Attributes

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)
Service Life Remaining	Recommended work (O&M, Rehabilitate, Replace)
	Detour Distance
	AADT
	Main Deficiency

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

Risks to Current Asset Management Strategies

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

Climate Change & Extreme Events



Flooding and extreme weather causes damage to multiple components of the Municipality's bridges including the deck, superstructure, substructure, and approaches. The increased frequency and intensity of precipitation events are likely to increase the water flow which can lead to deterioration of bridge components. Staff should identify and monitor affected bridges and culverts. The Municipality also should prioritize infrastructure maintenance, rehabilitation, and replacement based on susceptibility to climate impacts.

Levels of Service

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

Community Levels of Service

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

Table 24 Ontario Regulation 588/17 Community Levels of Service – Bridges & Culverts

Service Attribute	Qualitative Description	Current LOS (2022)
Scope	Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	The township's bridges and structural culverts are integral to the municipal transportation network. They are designed and maintained to accommodate a wide range of vehicles including passenger cars heavy transport vehicles and emergency vehicles. The structures also support active transportation allowing for safe passage of pedestrian and cyclist the Township aims to minimize loading or dimensional restrictions on its bridges and culverts to ensure unrestricted access for all types of traffic across the municipality.
Quality	Description or images of the condition of bridges and culverts and how this would affect use of the bridges and culverts	See Appendix C

Technical Levels of Service

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

Table 25 Ontario Regulation 588/17 Technical Levels of Service – Bridges & Culverts

Service Attribute	Technical Metric	Current LOS (2022)
Scope	% of bridges in the Township with loading or dimensional restrictions	0%
Quality	Average bridge condition index value for bridges in the Township	87
	Average bridge condition index value for structural culverts in the Township	81
Performance	Target vs. Actual capital reinvestment rate	2.3% vs 0.7%

Recommendations

Data Review/Validation

- The bridges inventory does not include componentized assets. Each bridge is pooled under a single asset record. Bridges consist of several separate capital components – such as abutments, a deck, guiderails, and piles – that have unique estimated useful lives and require asset-specific lifecycle strategies. Staff should work towards a component-based inventory of all bridges to allow for component-based lifecycle planning.
- Continue to review and validate inventory data, assessed condition data, and replacement costs for all bridges and structural culverts upon the completion of OSIM inspections every 2 years.

Condition Assessment Strategies

- PSD recommends that the Township continue to complete regular inspections according to the Ontario Structural Inspections Manual. As completed, all condition assessments should be uploaded into the asset inventory to drive forward asset management planning and forecasting activities.

Lifecycle Management Strategies

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

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 Township believe to provide meaningful and reliable inputs into asset management planning.
- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

6. Buildings

The Township of Douro-Dummer owns and maintains several buildings that provide key services to the community. These include:

- Fire buildings
- General government buildings
- Library buildings
- Parks & recreation buildings
- Public works buildings

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

Table 26 Replacement Cost for Buildings

Replacement Cost	Condition	Financial Capacity	
\$38.6 million	Poor (22%)	Annual Requirement:	\$1,391,000
		Funding Available:	\$431,000
		Annual Deficit:	\$960,000

The following core values and level of service statements are a key driving force behind the Township's asset management planning:

Table 27 Level of Service Statements for Buildings

Service Attribute	Level of Service Statement
Scope	The building services are designed to be conveniently accessible to the entire community ensuring that they can meet the needs of various users including residents, businesses and visitors under all weather conditions.
Quality	The buildings are maintained in good condition with efforts focusing on minimizing unplanned service interruptions and ensuring that they remain safe and functional for all users

Asset Inventory & Costs

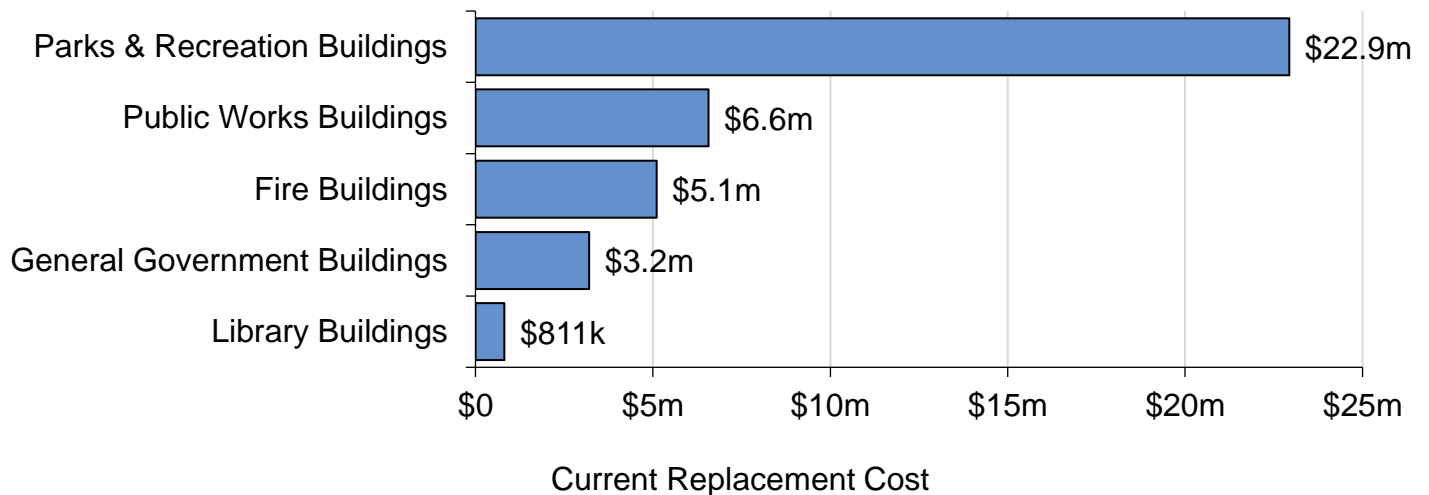
The table below includes the quantity, total replacement cost and annual capital requirements of each asset segment in the Township's buildings inventory.

Table 28 Asset Inventory – Buildings

Asset Segment	Quantity Components (# of Bldgs)	Replacement Cost	Annual Capital Requirement
Fire Buildings	19 (5)	\$5,103,000	\$181,000
General Government Buildings	23 (3)	\$3,204,000	\$105,000
Library Buildings	9 (1)	\$811,000	\$29,000
Parks & Recreation Buildings	42 (6)	\$22,935,000	\$901,000
Public Works Buildings	17 (5)	\$6,570,000	\$176,000
Total		\$38,623,000	\$1,392,000

Figure 20 Portfolio Valuation – Buildings

Total Current Replacement Cost: \$38,623,132

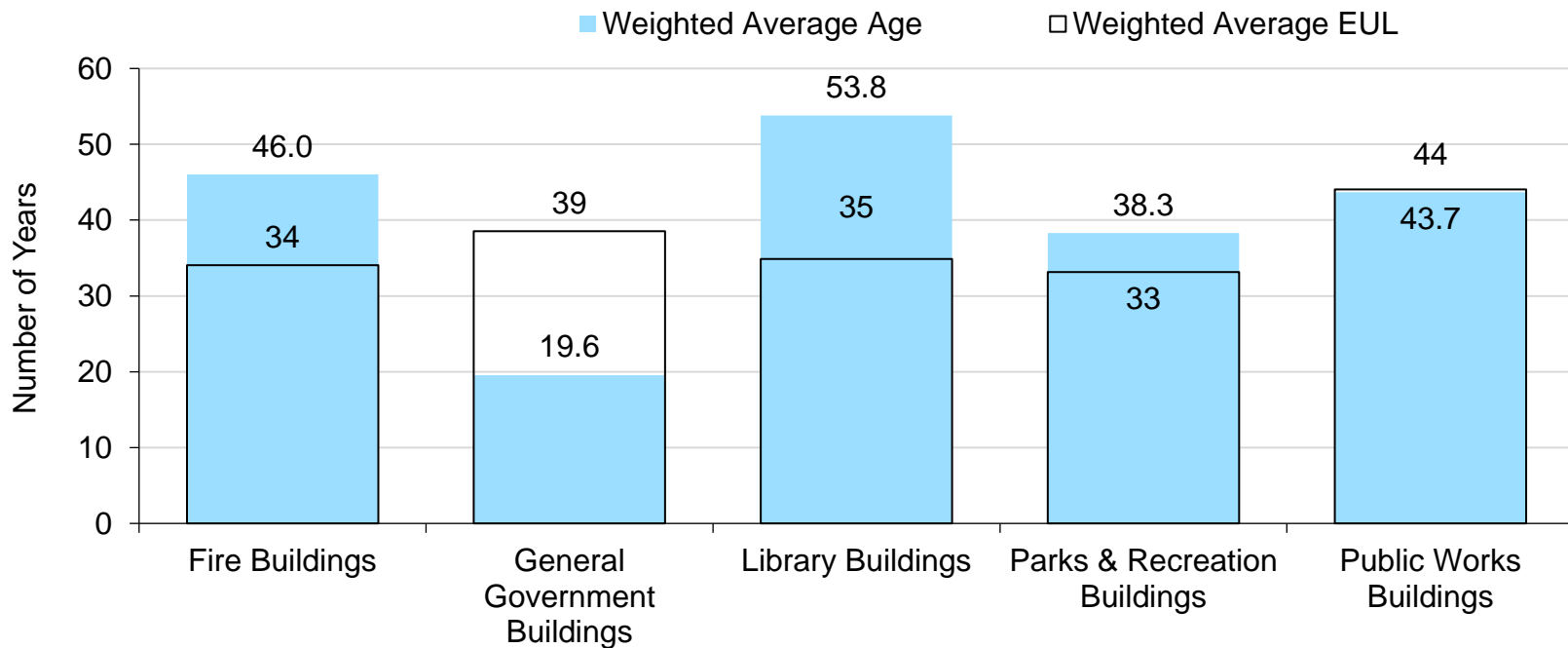


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurately represent realistic capital requirements.

Asset Condition & Age

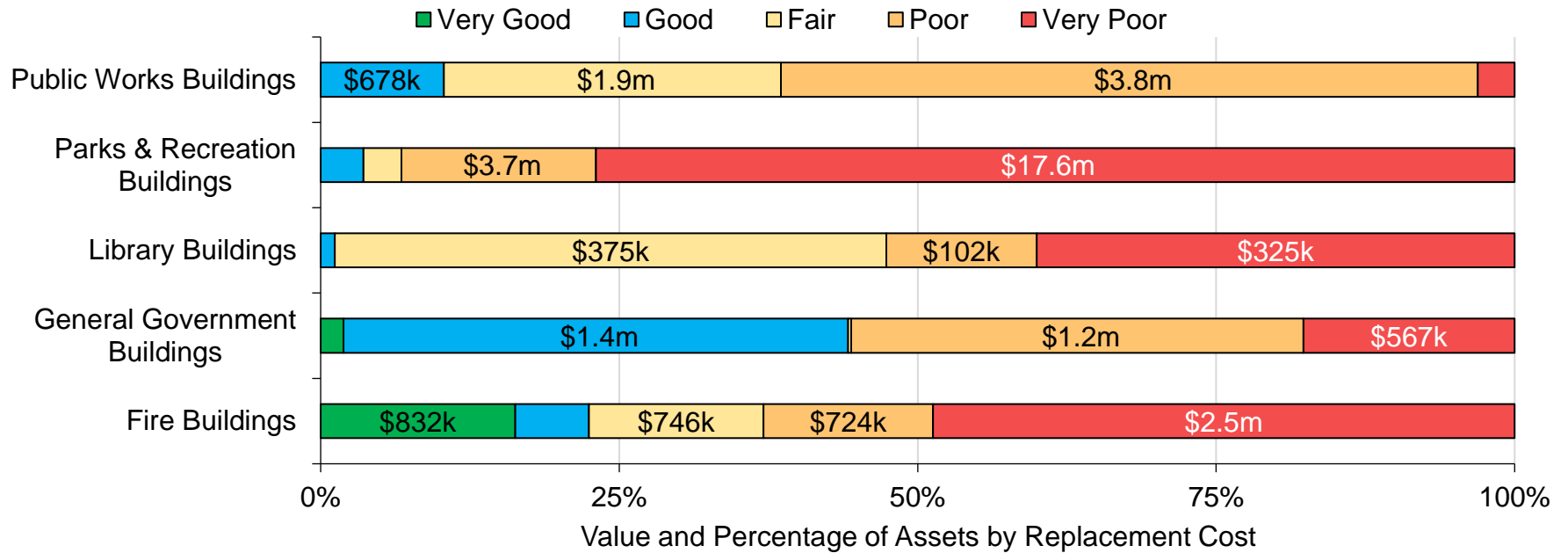
The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 21 Estimated Useful Life vs Asset Age - Buildings



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

Figure 22 Asset Condition – Buildings



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

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

Current Approach to Condition Assessment

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

- The Township does not have a formal condition assessment program in place to assess the condition of the buildings.
- The Township indicated that a formal building condition assessment is in progress and will be utilized to prioritize future projects.

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

Table 29 Condition Rating Criteria - Buildings

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

Lifecycle Management Strategy

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

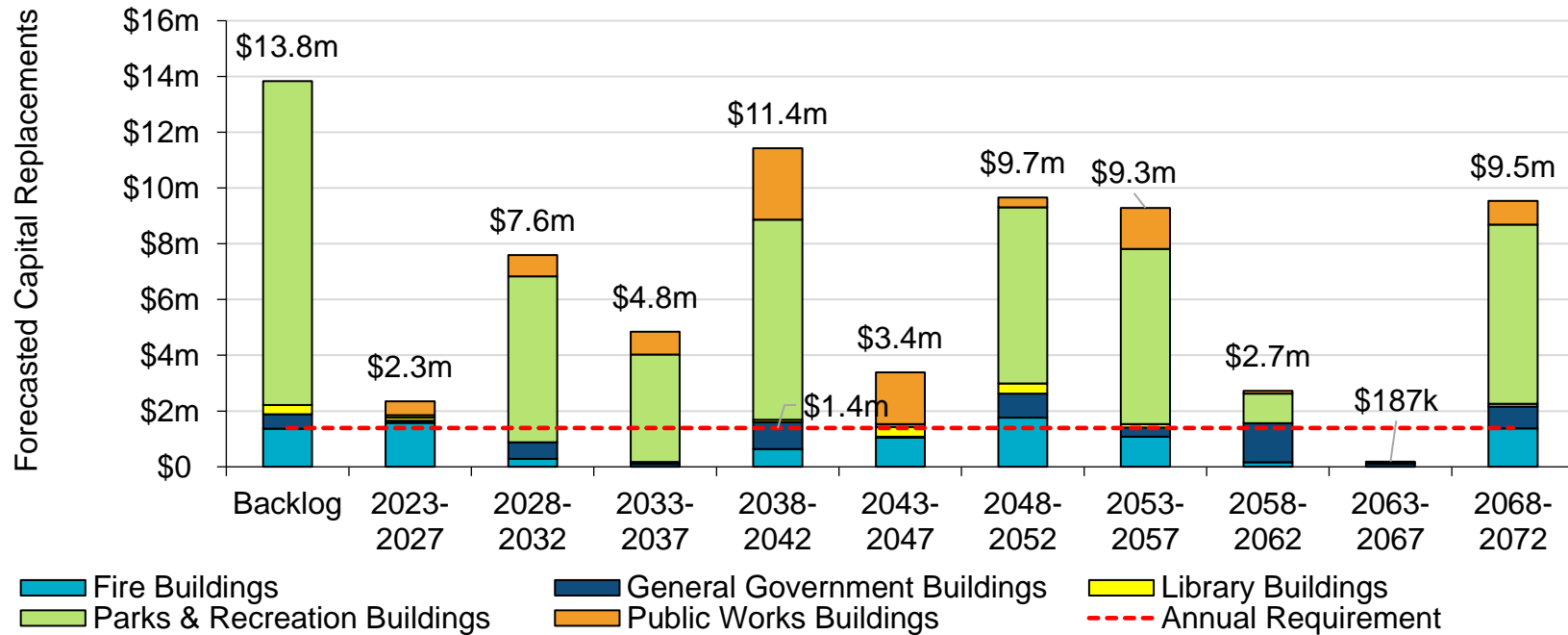
Table 30 Current Lifecycle Management Strategies - Buildings

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	<p>The Township's Building Chief does an annual building walkthrough each year.</p>
	<p>Additional internal inspections are undertaken by department on an as-needed basis:</p>
	<p>Fire Halls are inspected for health and safety issues monthly, which are compiled to a list. Cleaning and sanitation are continually undertaken because of the recent COVID safety protocols.</p>
	<p>Parks facilities have minor maintenance and painting done internally as needed. Daily plant readings are also performed.</p>
	<p>Public Works facilities are subject to monthly health and safety inspections and continual cleaning.</p>
	<p>Libraries are walked through monthly for health and safety compliance.</p>
	<p>Cleaning is a regular maintenance activity. The Covid-19 pandemic increased this activity.</p>
	<p>HVAC and duct cleaning are performed. Furnaces and air handlers are serviced externally on an annual basis.</p>
	<p>Repainting and plumbing are mainly done in-house when possible.</p>
	<p>The Electrical Safety Authority (ESA) performs annual electrical safety inspections for buildings.</p>
Replacement	<p>Assessments are completed strategically as buildings approach their end-of-life to determine whether replacement or rehabilitation is a more appropriate treatment option.</p>
	<p>Building management is primarily reactive right now.</p>
	<p>Part of the 2019 buildings assessment included considerations for space needs, repurposing, and expansion for several buildings.</p>

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 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 5-year capital requirements. The trend line represents the average 5-year capital requirement of \$1.4 million; this amount does not account for inflation.

Figure 23 Forecasted Capital Replacement Requirements – Buildings 2023-2072



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

Risk & Criticality

Risk Matrix

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

Figure 24 Risk Matrix- Buildings



This is a high-level model developed for the purposes of this AMP and Township staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that municipal staff utilize to define and prioritize the criticality of buildings are documented below:

Table 31 Probability and Consequence of Failure Attributes - Buildings

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

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

Risks to Current Asset Management Strategies

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

Asset Data, Capital Funding and Regulations



About 31% of condition data is assessed and the remaining 69% is age-based condition which may not be accurate. Overall, 80% of building assets are in poor or very poor condition. Buildings make up 57% of the Township's overall portfolio value. The Township cannot contribute sufficient capital funding towards building repairs and retrofits. Older buildings need to be brought up to code, and all buildings will need to comply with AODA, which requires additional capital. The Township is reliant on grant funding for, however there are limited grants opportunities available.

Community Expectations & Growth



Demographics of the community are changing as more people are moving in from urban centres and have higher levels of service expectations for buildings and amenities. Staff should continue to monitor demographic changes and work towards developing proposed levels of service with input from public surveys.

Climate Change & Extreme Weather



Recreation centres and arenas need to operate differently due to warmer weather. More frequent extreme weather events such as storms can impact the condition of building components and should be considered when prioritizing projects and capital planning.

Levels of Service

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

Community Levels of Service

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

Table 32 Ontario Regulation 588/17 Community Levels of Service – Buildings

Service Attribute	Qualitative Description	Current LOS (2022)
Sustainable and Affordable	Description of lifecycle activities performed on municipal buildings	See Section 6.3

Technical Levels of Service

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

Table 33 Ontario Regulation 588/17 Technical Levels of Service – Buildings

Service Attribute	Technical Metric	Current LOS (2022)
Sustainable and Affordable	Target vs. Actual capital reinvestment rate	3.6% vs 1.1%
	% of buildings in poor or very poor condition	80

Recommendations

Asset Inventory

- The Township has indicated that a building condition assessment is in progress. As the building condition assessment is complete, asset data should be updated and maintained. Accurate asset data is important for capital planning. Component-based lifecycle planning should be prioritized.
- Incorporation of the new fire hall into the building asset inventory, ensuring that adequate funding and life cycle management strategies are in place to support this significant addition to the Township's infrastructure.

Replacement Costs

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

Condition Assessment Strategies

- The buildings category makes up 61% of the Township's total asset inventory portfolio. About 31% of the buildings inventory have an assessed condition. The Township should implement regular condition assessments for all buildings to better inform short- and long-term capital requirements.

Lifecycle Management Strategies

- Develop a 5–10 year proactive facilities replacement/rehabilitation plan, utilizing existing inspection information.

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 Township 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.

7. Vehicles

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

- Fire rescue vehicles to provide emergency services
- Parks & recreation vehicles
- Public works vehicles

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

Table 34 Replacement Cost for Vehicles

Replacement Cost	Condition	Financial Capacity	
\$7.4 million	Good (65%)	Annual Requirement:	\$522,000
		Funding Available:	\$162,000
		Annual Deficit:	\$360,000

The following core values and level of service statements are a key driving force behind the Township's asset management planning:

Table 35 Level of Service Statements for Vehicles

Service Attribute	Level of Service Statement
Scope	The Township maintains a fleet of vehicles that are sufficient in size and variety to meet operational demands across all departments. Vehicles are strategically deployed to ensure timely and efficient service delivery throughout the community under various weather conditions and operational requirements.
Quality	the municipal vehicle fleet is maintained in good working condition through regular inspections, preventative maintenance and timely repairs. This approach aims to minimize unplanned service interruptions insure vehicle reliability and maximize the fleets operational readiness to support municipal services.

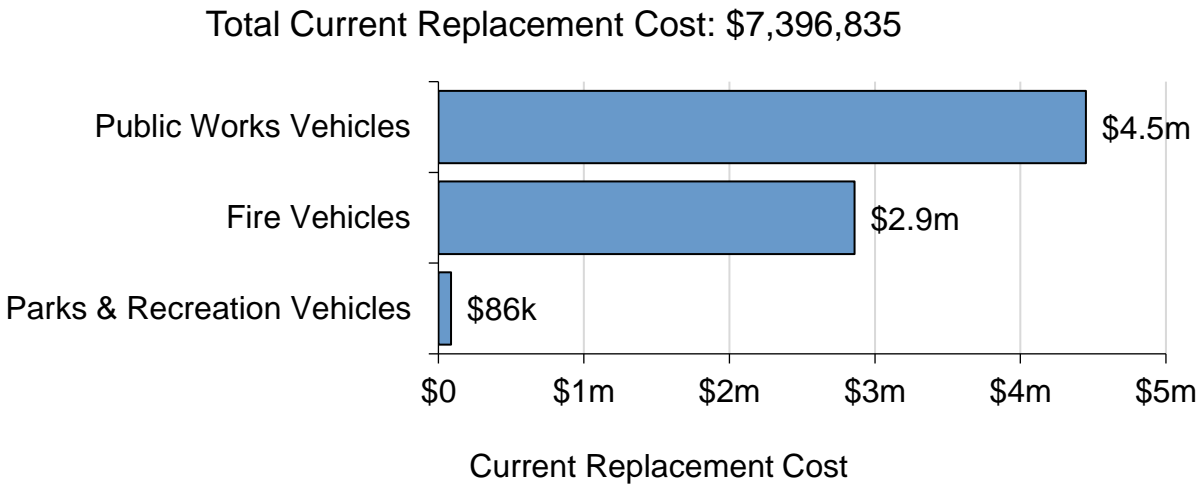
Asset Inventory & Costs

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

Table 36 Detailed Asset Inventory – Vehicles

Asset Segment	Quantity	Total Replacement Cost	Annual Capital Requirement
Fire Vehicles	18	\$2,860,000	\$151,000
Parks & Recreation Vehicles	2	\$86,000	\$6,000
Public Works Vehicles	21	\$4,451,000	\$365,000
Total		\$7,397,000	\$522,000

Figure 25 Portfolio Valuation – Vehicles

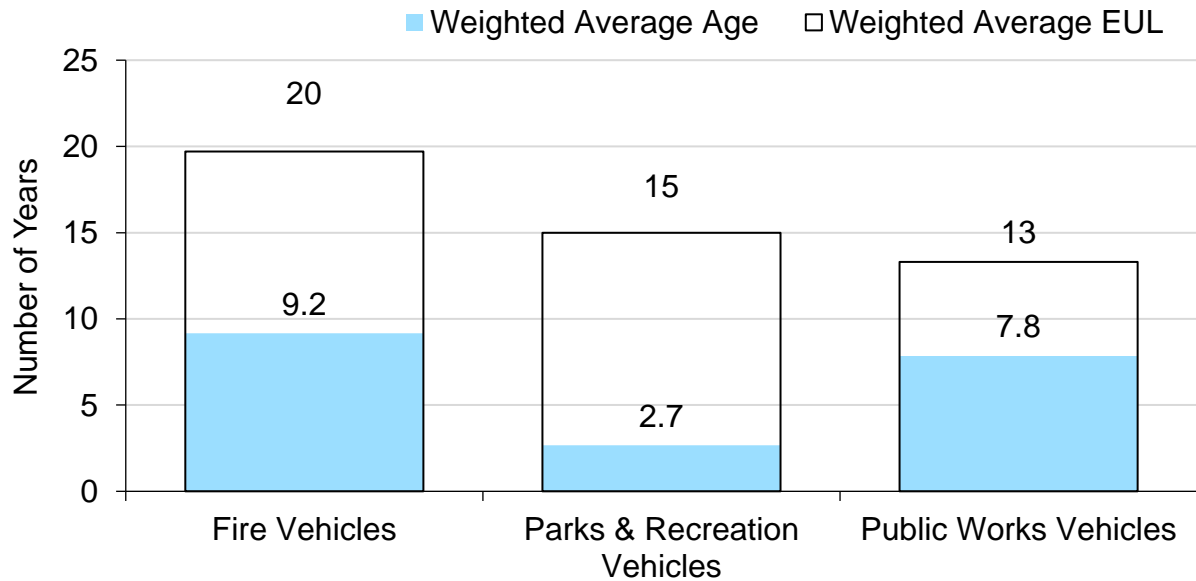


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurately represent realistic capital requirements.

Asset Condition & Age

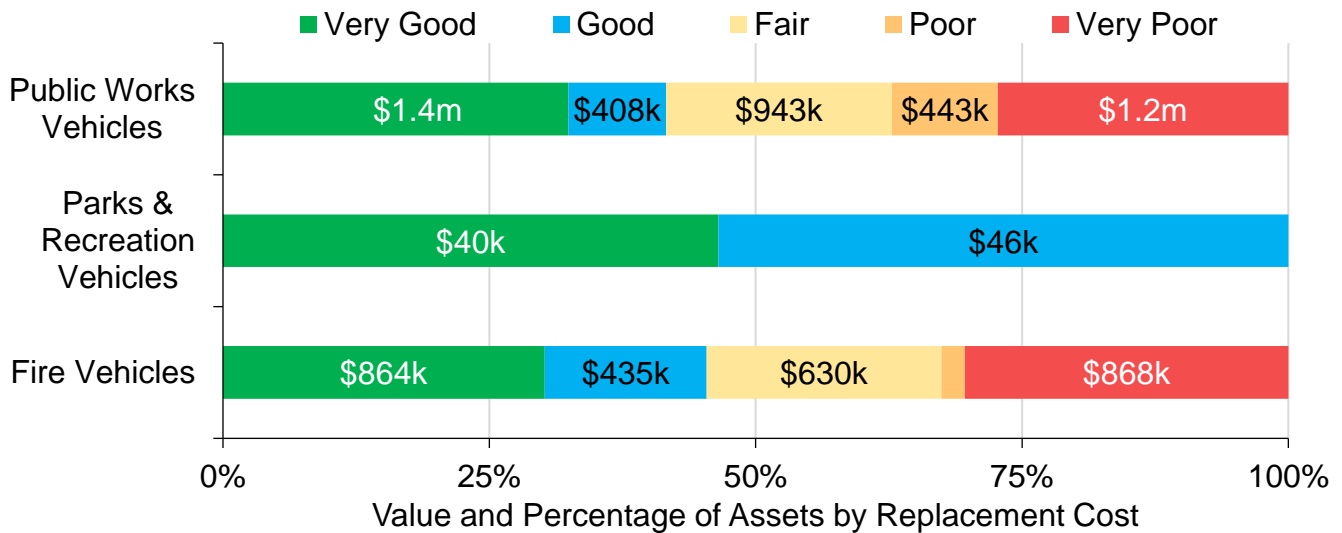
The table below identifies the current average condition and source of available condition data for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 26 Estimated Useful Life vs Asset Age - Vehicles



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

Figure 27 Asset Condition By Segment – Vehicles



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

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 more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township’s current approach:

- Staff complete regular visual inspections of vehicles to ensure they are in state of adequate repair prior to operation.
- Annual safety checks are completed externally.

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

Table 37 Condition Rating Criteria - Vehicles

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

Lifecycle Management Strategy

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

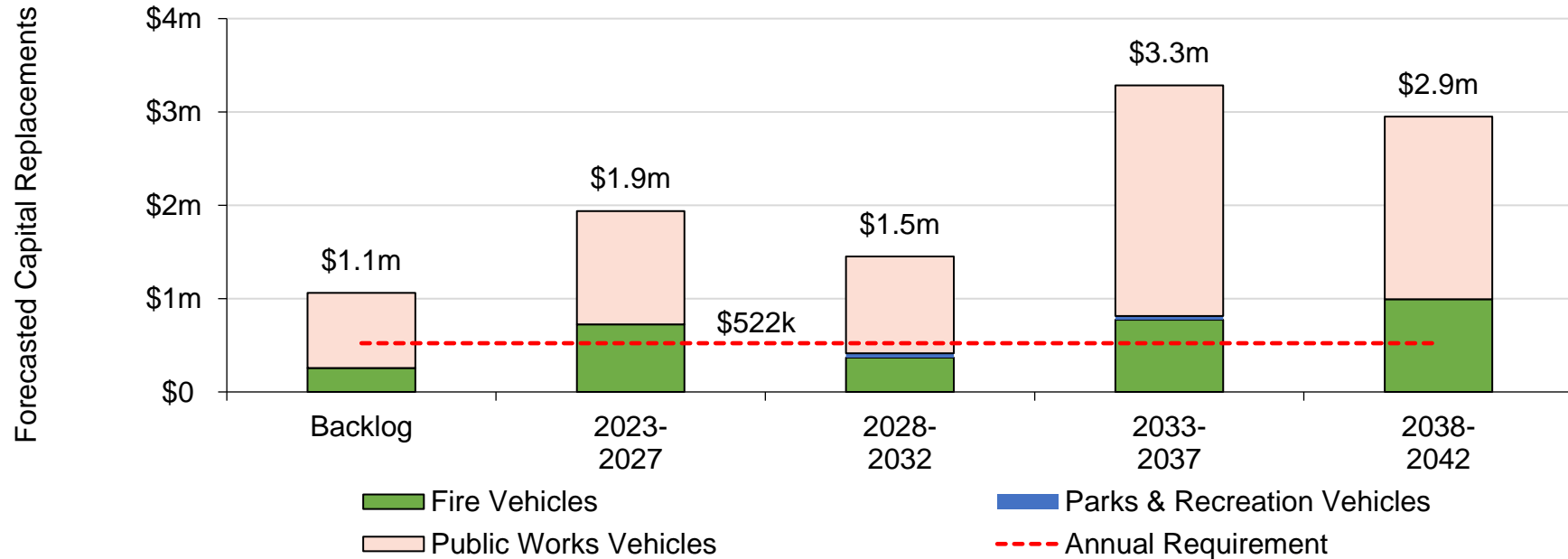
Table 38 Current Lifecycle Management Strategies – Vehicles

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Every pumper has an external inspection and pump performance test on an annual basis for certification. Routine maintenance, oil change, and safety inspections are completed.
	Boats have a Spring and Fall inspection. Visual inspection, oil levels, safety checks, and other routine maintenance are as needed or monthly during seasonal use. No formal planning horizon or rehabilitative events have been identified.
	Commercial Vehicle Operator’s Registration (CVOR) is completed every Spring. Oil changes occur when required, mileage is typically used an indicator.
	The annual CVOR related inspections are done by an external mechanic. During the inspection, the mechanic informs and suggests component replacements, such as tire changes.
	Non-CVOR vehicles have routine oil changes based on mileage (6000-8000km). A mechanic completes a 50-point inspection during this time and recommends any needed changes to brakes, tires, etc.
	Warranty has been used to cover issues with a grader engine in the past.
Replacement	Trucks are replaced every 10 years.
	Graders are replaced every 20 years.
	Pumpers and tankers are expected to be replaced at 20 years, and is affected by insurance ratings.
	Rescues are set to be replaced every 15 years.
	Condition and budget are the main considerations when prioritizing replacements. Consistent and known mechanical issues are also factored in as well.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 20 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year bins and the trend line represents the average 5-year capital requirements. The trend line represents the average 5-year capital requirement of \$522k; this amount does not account for inflation.

Figure 28 Forecasted Capital Replacement Requirements – Vehicles 2023-2042



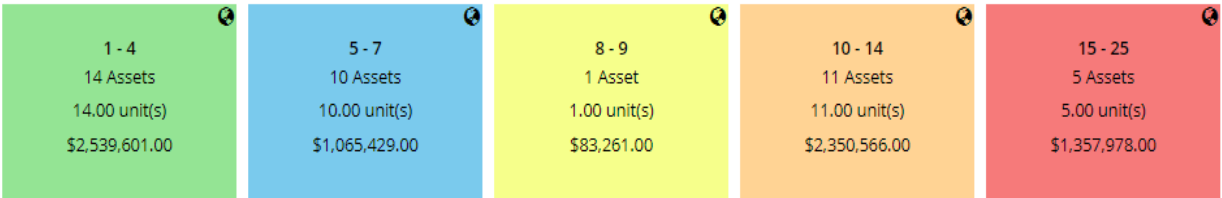
The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B

Risk & Criticality

Risk Matrix

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

Figure 29 Risk Matrix – Vehicles



This is a high-level model developed for the purposes of this AMP and Township staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that municipal staff utilize to define and prioritize the criticality of vehicles are documented below:

Table 39 Probability and Consequence of Failure Attributes

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)
	Vehicle Weight (Light, medium, heavy duty)
	Segment

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

Risks to Current Asset Management Strategies

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

Organizational Knowledge



There is inconsistency in staff knowledge in operating vehicles. Newer staff do not have the knowledge and training provided necessary to operate every vehicle. As experienced employees retire, the lack of standardized training programs can leave the Township vulnerable since some vehicles require specialized training to operate. Standard operating procedures should be developed to preserve knowledge of current staff and to ease onboarding of new staff.

Levels of Service

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

Community Levels of Service

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

Table 40 Ontario Regulation 588/17 Community Levels of Service - Vehicles

Service Attribute	Qualitative Description	Current LOS (2022)
Sustainable and Affordable	Description of lifecycle activities performed on vehicles	See Section 7.3

Technical Levels of Service

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

Table 41 Ontario Regulation 588/17 Technical Levels of Service – Vehicles

Service Attribute	Technical Metric	Current LOS (2022)
Sustainable and Affordable	Target vs. Actual capital reinvestment rate	7.1% vs 2.2%
	% of vehicles in poor or very poor condition	35

Recommendations

Replacement Costs

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

Condition Assessment Strategies

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

Lifecycle Management Strategies

- Undertake an annual review of all fleet assets to determine and update the replacement schedule. Vehicle age, kilometers and annual repair costs should be taken into consideration when determining appropriate replacement options.
- Warranty information and maintenance records should be maintained in an easily accessible database or ledger to ensure that information is available to both operators and those responsible for determining lifecycle event schedules.

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.
- Develop a standard training program to effectively onboard new staff on operating different vehicle types.

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 Township 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.

DRAFT

8. Machinery & Equipment

In order to maintain the high quality of public infrastructure and support the delivery of core services, Township staff own and employ various types of machinery and equipment. This includes:

- Fire equipment to support the delivery of emergency services
- Library equipment
- Office equipment to support services for buildings
- Parks & recreation equipment to support recreational services
- Public works equipment
- Water equipment for water treatment storage and systems

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

Table 42 Replacement Cost for Machinery and Equipment

Replacement Cost	Condition	Financial Capacity	
\$4.7 million	Fair (47%)	Annual Requirement:	\$324,000
		Funding Available:	\$100,000
		Annual Deficit:	\$224,000

The following core values and level of service statements are a key driving force behind the Township's asset management planning:

Table 43 Level of Service Statements - Machinery and Equipment

Service Attribute	Level of Service Statement
Scope	The municipality maintains a diverse and sufficient inventory of machinery and equipment to support various municipal operations and service delivery needs. The machinery and equipment are strategically deployed to ensure an efficient and timely service across the community with the capacity to meet operational demands under various conditions.
Quality	The municipal machinery and equipment fleet is maintained in good working condition through regular inspections preventative maintenance, and timely repairs this approach aims to minimize unplanned service interruptions, ensure equipment reliability, and maximize operational readiness and support continuous and effective municipal services.

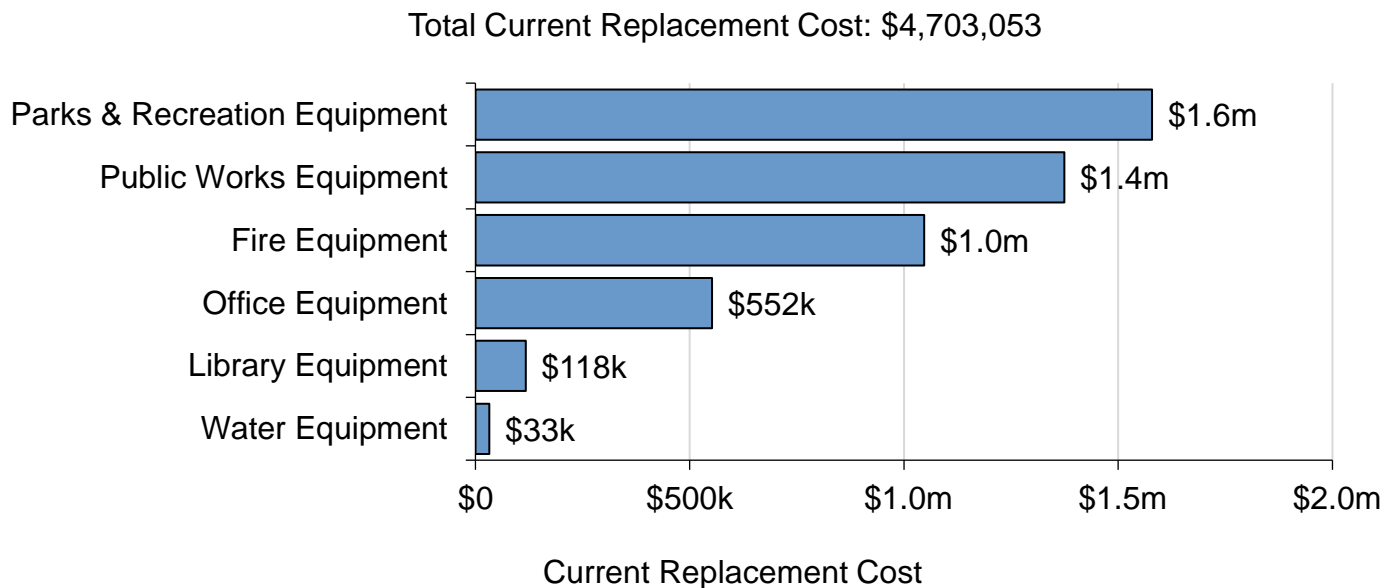
Asset Inventory & Costs

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

Table 44 Detailed Asset Inventory – Machinery and Equipment

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Fire Equipment	374	\$1,047,000	\$72,000
Library Equipment	26	\$118,000	\$19,000
Office Equipment	21	\$552,000	\$49,000
Parks & Recreation Equipment	40	\$1,579,000	\$73,000
Public Works Equipment	33	\$1,374,000	\$108,000
Water Equipment	5	\$33,000	\$3,000
Total		\$4,703,000	\$324,000

Figure 30 Portfolio Valuation - Machinery and Equipment

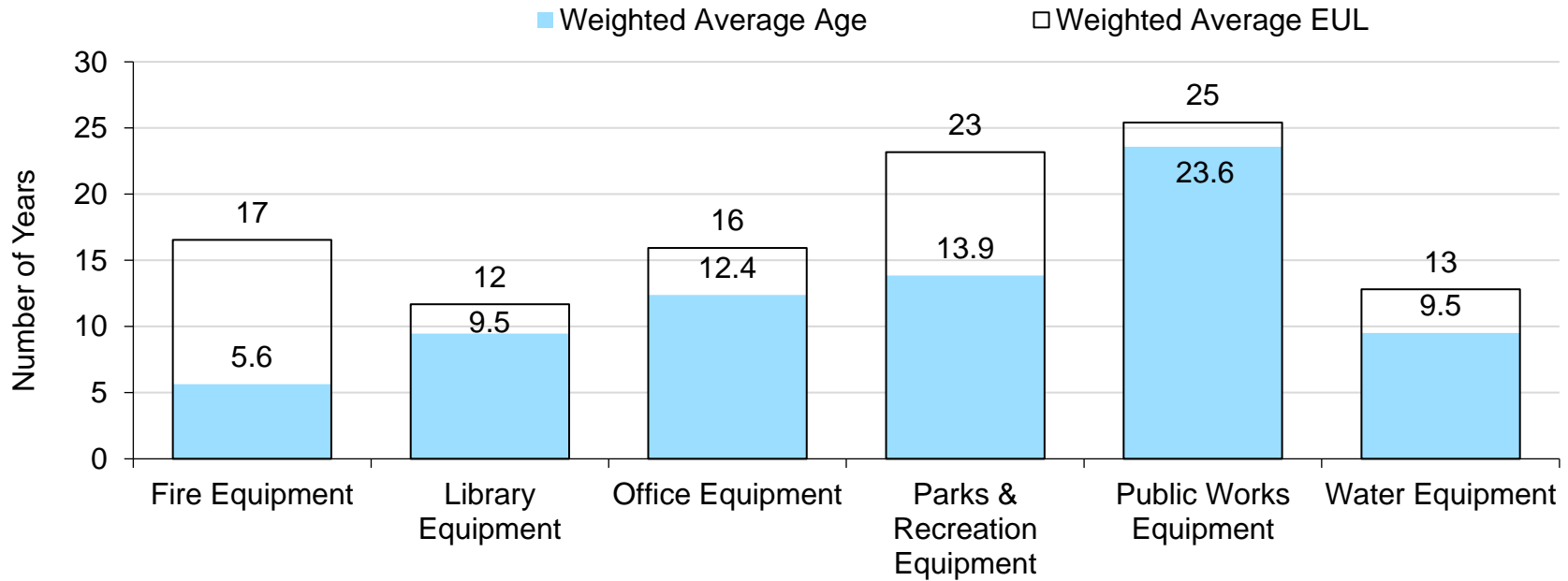


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurately represent realistic capital requirements.

Asset Condition & Age

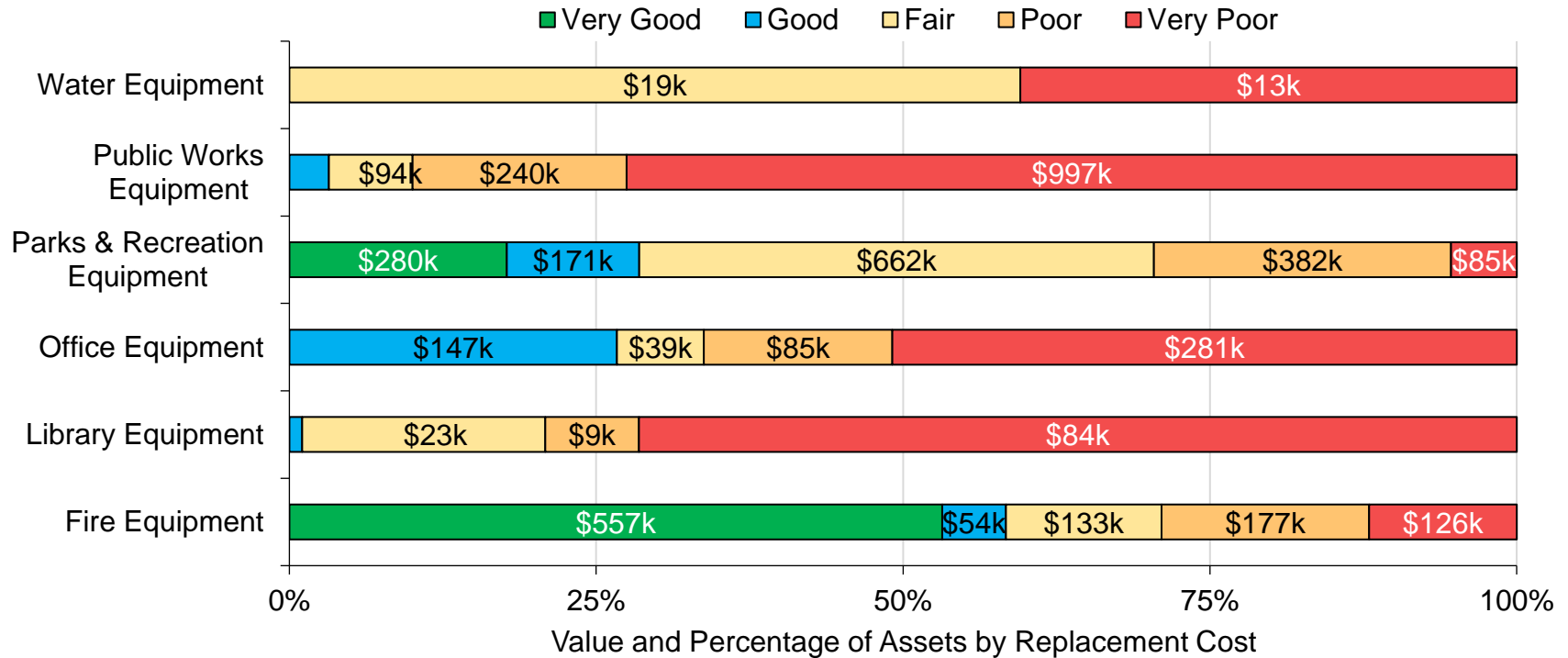
The figure below identifies the current average condition and source of available condition data for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 31 Estimated Useful Life vs. Asset Age – Machinery and Equipment



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

Figure 32 Asset Condition by Segment – Machinery and Equipment



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

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

Current Approach to Condition Assessment

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

- Fire machinery and equipment are inspected annually to meet regulatory standards
- For the parks and recreation and public works segments, as the estimated useful life for assets is reached, variables such as number of required repairs and hours in-service are used to prioritize replacement.
- There are no formal condition assessment programs in place for other machinery and equipment segments.

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

Table 45 Rating Criteria to Determine Condition - Machinery and Equipment

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

Lifecycle Management Strategy

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

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

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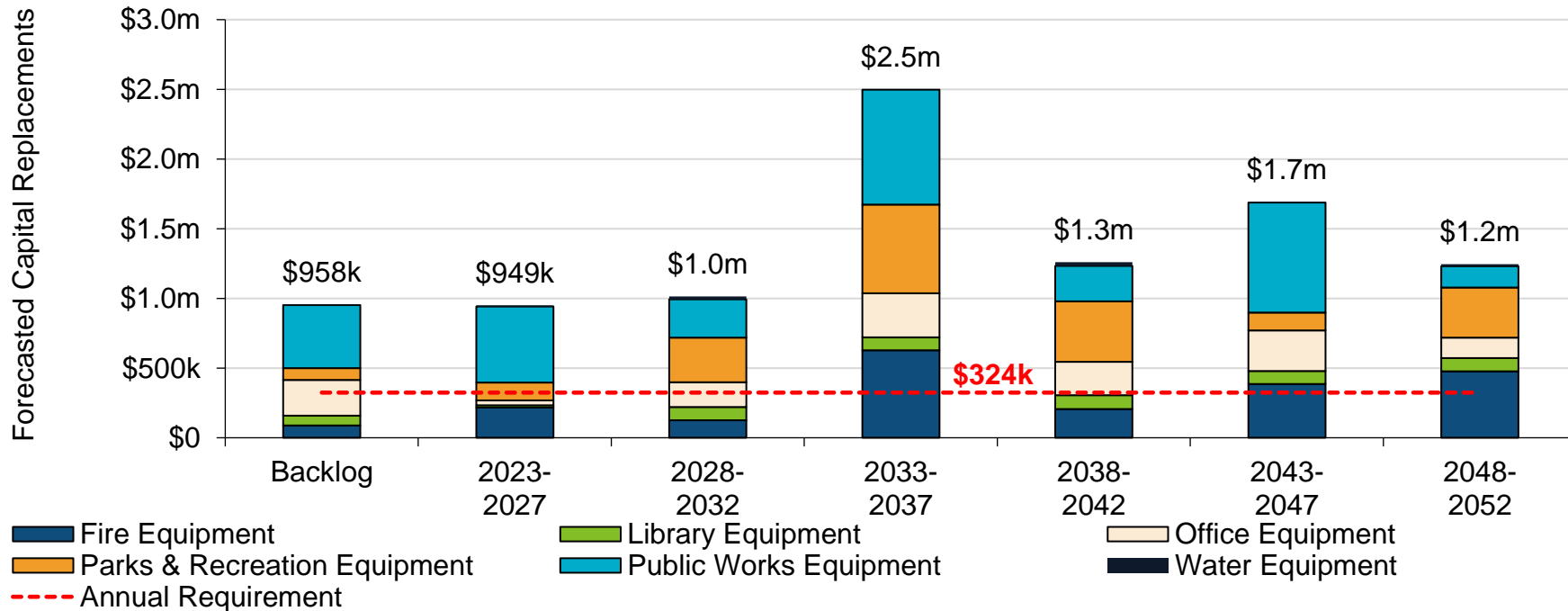
Table 46 Current Lifecycle Management Strategies – Machinery and Equipment

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Mechanical equipment, such as mowers, have the oil changed every Spring or if they have accumulated sufficient operating hours.
	Grease fittings are checked on a weekly and monthly basis for tractors and motors. The blades are changed every 2 weeks.
	Snowplows are maintained on an annual basis and inspected before and during Winter months. This includes replacement of chutes, blades, pins, and other components.
	Bunker gear is inspected routinely by staff, and professionally inspected annually when sent out for cleaning. Monthly night maintenance is performed as issues are identified.
	Defibrillators are checked monthly to ensure proper functioning.
	Self Contained Breathing Apparatus (SCBA) have an annual inspection and are hydrostatically tested. Staff perform visual inspections monthly and after use.
	Radio equipment is inspected during use and issues are reported as they arise.
	Extrication tools have an annual inspection and are recertified every second year.
	Fire ladders are inspected annually and recertified every two years.
	Computer maintenance is usually done in-house, outside consultants mostly act as support.
	Library furnishings were redone last year and comply with AODA requirements. Aesthetics are taken into consideration and grants play a role here too
Replacement	Both the fire and public works department have a 25-year capital forecast for their equipment.
	Defibrillators are replaced when they expire.
	The library expects to buy 1 computer every year, one for each staff, and five for patrons.
	Library related assets and decisions also go through library board.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 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 5-year capital requirements. The trend line represents the average 5-year capital requirement of \$324k; this amount does not account for inflation.

Figure 33 Forecasted Capital Replacement Requirements – Machinery and Equipment 2023-2052



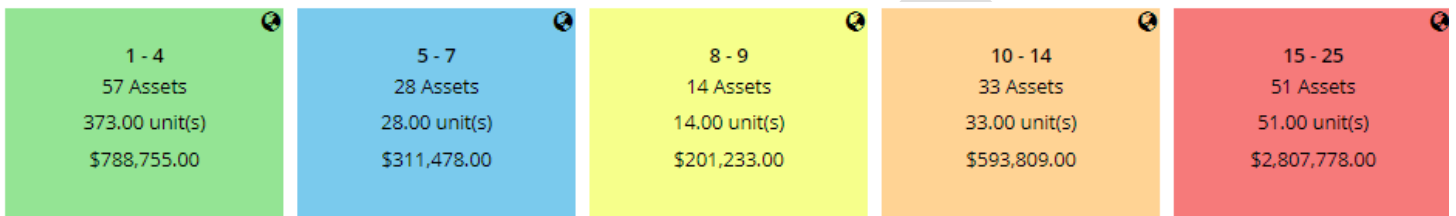
The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

Risk & Criticality

Risk Matrix

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

Figure 34 Risk Matrix – Machinery and Equipment



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

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

Table 47 Probability and Consequence of Failure Attributes

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)
	Criticality for Service Delivery

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

Risks to Current Asset Management Strategies

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

Organizational Capacity



There is inconsistency in staff knowledge in operating machinery and equipment. Newer staff do not have the knowledge and training provided necessary to operate every type of machinery and equipment. As experienced employees retire, the lack of standardized training programs can leave the Township vulnerable since some machinery and equipment require specialized training to operate and perform maintenance. Standard operating procedures should be developed to preserve knowledge of current staff and to ease onboarding of new staff.

Climate Change & Extreme Weather



The needs of the public works and fire department are changing due to the effects of climate change and increased frequency of extreme weather events. To gain a better understanding of the needs and necessary capacity for the Town, a deeper analysis is required on how climate change and extreme weather impacts these departments.

Community Expectations/Growth



There is a growing population that consists of residents who moved from urban centres to rural areas within the Township who expect the same levels of service. The Township will need to determine what expectation the community has for rural areas in order to meet their needs.

Levels of Service

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

Community Levels of Service

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

Table 48 Ontario Regulation 588/17 Community Levels of Service – Machinery and Equipment

Service Attribute	Qualitative Description	Current LOS (2022)
Sustainable and Affordable	Description of lifecycle activities performed on machinery and equipment	See Section 8.3

Technical Levels of Service

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

Table 49 Ontario Regulation 588/17 Community Levels of Service – Machinery and Equipment

Service Attribute	Technical Metric	Current LOS (2022)
Sustainable and Affordable	Target vs. Actual capital reinvestment rate	6.9% vs 2.1%
	% of machinery and equipment in poor or very poor condition	53

Recommendations

Replacement Costs

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

Condition Assessment Strategies

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

Lifecycle Management Strategies

- Install a replacement cycle strategy for specialized equipment based on assessed condition or manufacturer recommendations.

- Schedule strategies for fire equipment as per NFPA requirements within the Township's asset management software lifecycle framework.
- Explore the opportunity to repurpose equipment to different departments or lower risk applications. (E.g. repurpose critical backup generators to noncritical applications when being replaced).

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.
- Develop a standard training program to effectively onboard new staff on operating different machinery and equipment.

Levels of Service

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

9. Land Improvements

The Township of Douro-Dummer owns a small number of assets that are considered land improvements. This category includes:

- Benches
- Docks/wharfs
- Fencing
- Parking lot
- Pathways/signage
- Playgrounds
- Streetlights
- Structures

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

Table 50 Replacement Cost for Land Improvements

Replacement Cost	Condition	Financial Capacity	
\$1.5 million	Fair (54%)	Annual Requirement:	\$50,000
		Funding Available:	\$16,000
		Annual Deficit:	\$34,000

The following core values and level of service statements are a key driving force behind the Township's asset management planning:

Table 51 Level of Service Statements for Land Improvements

Service Attribute	Level of Service Statement
Scope	the land improvement services are designed to be conveniently accessible to the entire community, ensuring that they can meet the needs of various users, including residents, businesses, and visitors under all weather conditions
Quality	the land improvements are maintained in good condition through regular inspections and maintenance activities with efforts focused on minimizing unplanned service interruptions and ensuring that they remain safe and functional for all users

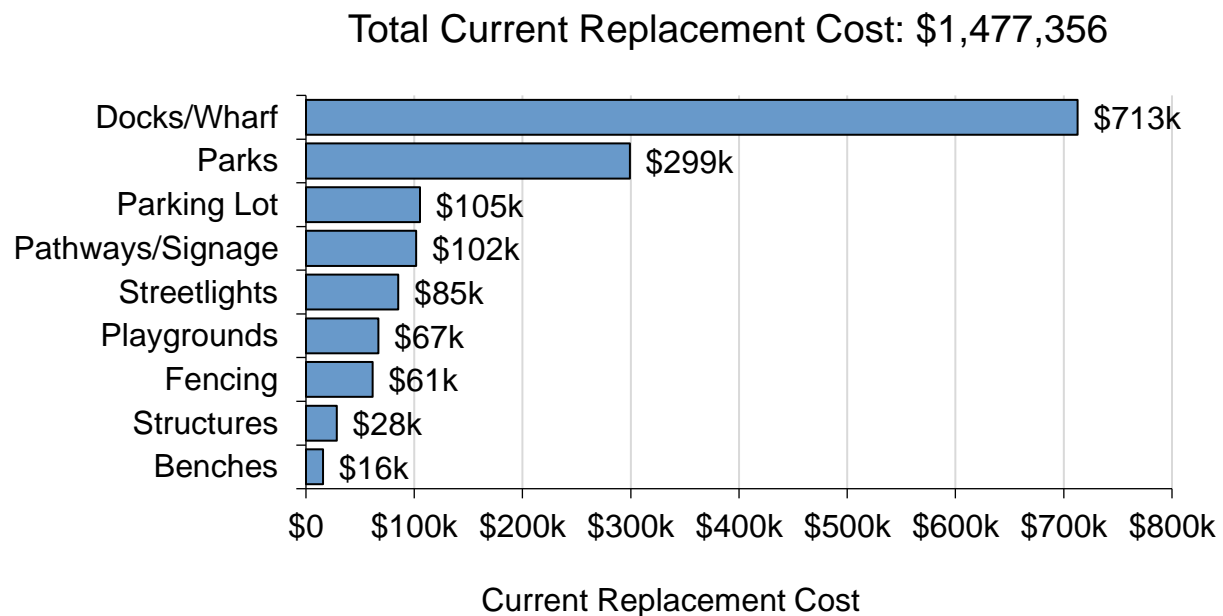
Asset Inventory & Costs

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

Table 52 Detailed Asset Inventory – Land Improvements

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
Benches	1	\$16,000	\$2,000
Docks/Wharf	4	\$713,000	\$17,000
Fencing	5,291 ft	\$61,000	\$3,000
Parking Lot	113,958 ft ²	\$105,000	\$6,000
Parks	109,381 ft ²	\$299,000	\$12,000
Pathways/Signage	92	\$102,000	\$4,000
Playgrounds	1	\$67,000	\$3,000
Streetlights	1	\$85,000	\$4,000
Structures	527 ft ²	\$28,000	\$1,000
Total		\$1,476,000	\$52,000

Figure 35 Portfolio Valuation – Land Improvements

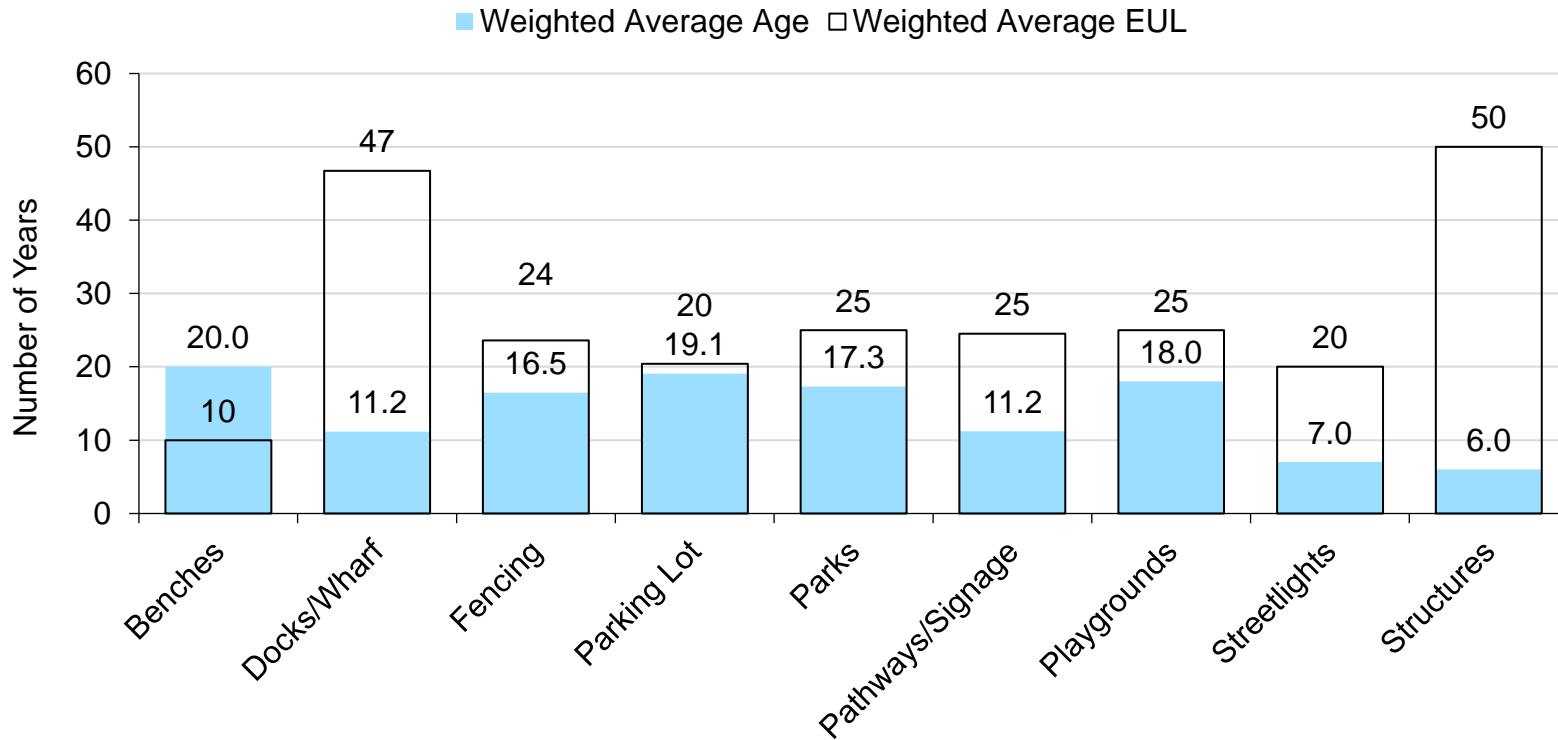


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurately represent realistic capital requirements.

Asset Condition & Age

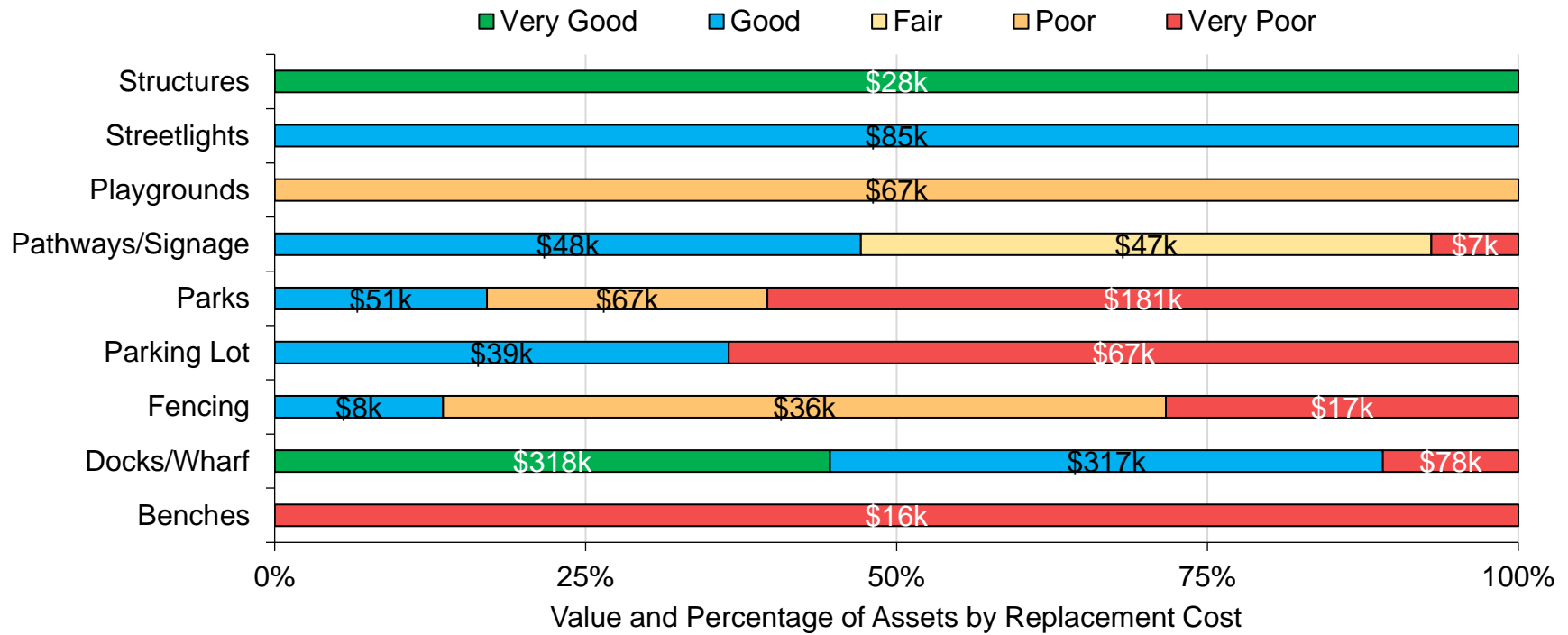
The table below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 36 Estimated Useful Life vs Asset Age – Land Improvements



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

Figure 37 Asset Condition – Land Improvements



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

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

Current Approach to Condition Assessment

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

- There are no formal condition assessment programs in place for land improvements. Informal inspections are completed to monitor condition.

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

Figure 38 Condition Rating Criteria

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

Lifecycle Management Strategy

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

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

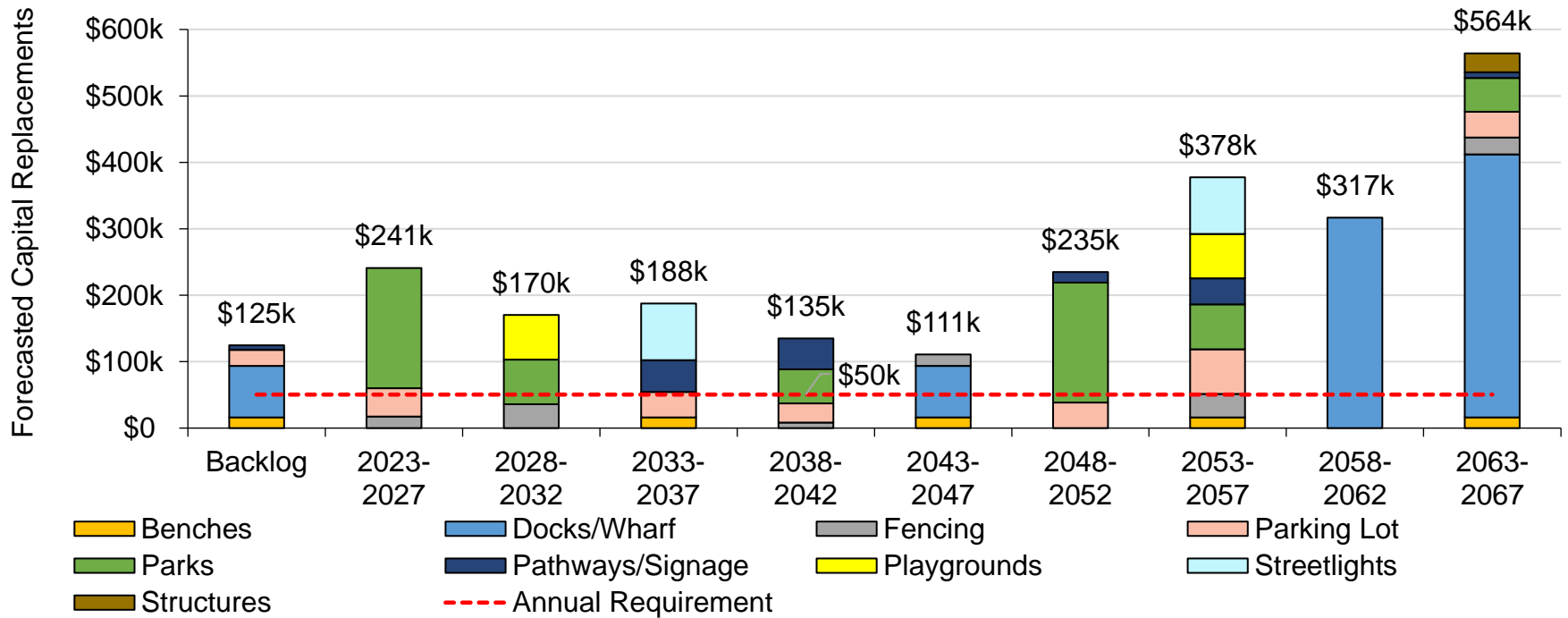
Table 53 Current Lifecycle Management Strategies – Land Improvements

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Sports field maintenance is based on needs. Grass is mowed typically once or twice per week. Regular maintenance of the ball fields is undertaken before each rental.
	Playing fields and parks are inspected regularly with a checklist for hazards and entanglement. There is a general assessment annually.
	Tree trimming maintenance as it relates to hydro lines is completed as-needed. General upkeep performed.
	With the presence of the Covid-19 pandemic, sanitation frequency has increased to a daily activity.
	Wharfs and docks are visually inspected twice annually, corresponding to when they are installed and removed during the season. On occasion, a diver has been called to retrieve items from the lake floor when necessary.
Replacement	There are no formal guiding documents prescribing replacement or upgrades of most parks and recreation assets.
	Decisions have generally been made on an ad hoc manner as it relates to safety.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 45 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 5-year capital requirements. The trend line represents the average 5-year capital requirement of \$50k; this amount does not account for inflation.

Figure 39 Forecasted Capital Replacement Requirements – Road Network 2023-2067



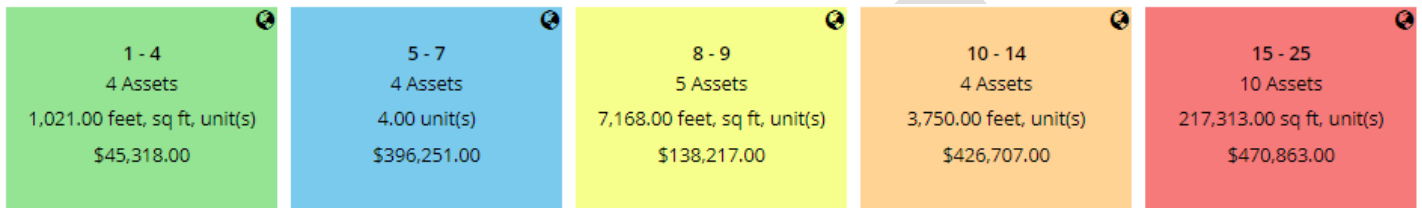
The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

Risk & Criticality

Risk Matrix

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

Figure 40 Risk Matrix – Land Improvements



This is a high-level model developed for the purposes of this AMP and Township staff should review and adjust the risk model to reflect an evolving understanding of both the probability and consequences of asset failure. The asset-specific attributes that municipal staff utilize to define and prioritize the criticality of land improvements are documented below:

Table 54 Identification Criteria for Asset Prioritization

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)
	Segment
	Exposure (Parks & Trails)

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

Risks to Current Asset Management Strategies

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

Asset Data



Majority of condition data is age-based, and the replacement costs are based on historical costs and inflation; both condition and replacement cost are often found to be inaccurate. Age-based condition does not consider important factors such as usage, maintenance history, and environmental factors, and does not accurately reflect the asset's true condition state. Land improvement assets such as wooden docks, park benches and signs are pooled together into one asset. Pooled assets should be broken into individual assets to create a more accurate asset inventory. Maintaining a more accurate asset inventory will allow for detailed planning and analysis.

Levels of Service

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

Community Levels of Service

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

Table 55 Ontario Regulation 588/17 Community Levels of Service – Land Improvements

Service Attribute	Qualitative Description	Current LOS (2022)
Sustainable and Affordable	Description of lifecycle activities performed on parks	See Section 9.3

Technical Levels of Service

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

Table 56 Ontario Regulation 588/17 Technical Levels of Service – Land Improvements

Service Attribute	Technical Metric	Current LOS (2022)
Sustainable and Affordable	% of land improvements in poor or very poor condition	36

Recommendations

Asset Data

- There is critical asset data (EULs) missing for a few assets within Land improvements. Pooled assets should be separated into individual assets. Review and update asset data regularly to ensure inventory accuracy.

Replacement Costs

- All replacement costs used in this AMP were based on the inflation of historical costs. These costs should be evaluated to determine their accuracy and reliability. Replacement costs should be updated according to the best available information on the cost to replace the asset in today's value.

Condition Assessment Strategies

- Identify condition assessment strategies for high value and high-risk assets. Consider developing a condition assessment program for more accurate conditions rather than relying on age-based condition.
- Review assets that have surpassed their estimated useful life to determine if immediate replacement is required or whether these assets are expected to remain in-service. Adjust the service life and/or condition ratings for these assets accordingly.

Lifecycle Management Strategies

- Develop a deficiencies list and prioritize lifecycle activities by the risk each deficiency poses.
- Warranty information and maintenance records should be maintained in an easily accessible database or ledger to ensure that information is available to both operators and those responsible for determining lifecycle event schedules.

Risk Management Strategies

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

Levels of Service

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

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10. Furniture & Fixtures

The Township of Douro-Dummer owns a small number of assets that are Furniture & Fixtures. This category includes:

- General Government furniture
- Library furniture
- Parks & Recreation furniture
- Public Works furniture

The state of the infrastructure for the furniture & fixtures is summarized in the following table.

Table 57 Replacement Cost for Furniture & Fixtures

Replacement Cost	Condition	Financial Capacity	
\$103,000	Very Poor (17%)	Annual Requirement:	\$5,000
		Funding Available:	\$2,000
		Annual Deficit:	\$3,000

The following core values and level of service statements are a key driving force behind the Township's asset management planning:

Table 58 Level of Service Statements Furniture & Fixtures

Service Attribute	Level of Service Statement
Scope	The municipality maintains an inventory of furniture and fixtures that is sufficient to support municipal operations and service delivery needs across all departments. These assets are strategically deployed to ensure efficient and comfortable workspaces for staff in public areas for community use.
Quality	The municipal furniture and fixtures are maintained in good condition through regular inspections maintenance and timely replacements this approach aims to provide a safe functional and esthetically pleasing environment for staff and public use while maximizing the lifespan of these assets.

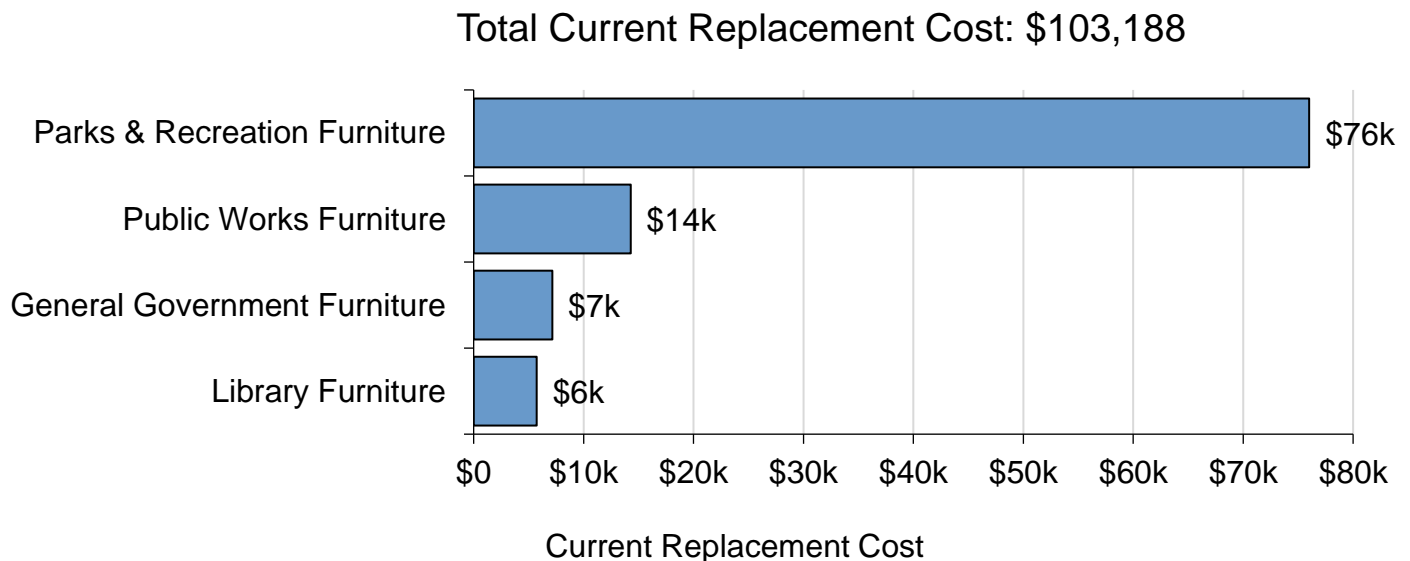
Asset Inventory & Costs

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

Table 59 Detailed Asset Inventory – Furniture and Fixtures

Asset Segment	Quantity	Replacement Cost	Annual Capital Requirement
General Government Furniture	3	\$7,000	\$1,000
Library Furniture	3	\$6,000	\$0
Parks & Recreation Furniture	2	\$76,000	\$3,000
Public Works Furniture	1	\$14,000	\$1,000
Total		\$103,000	\$5,000

Figure 41 Portfolio Valuation – Furniture and Fixtures

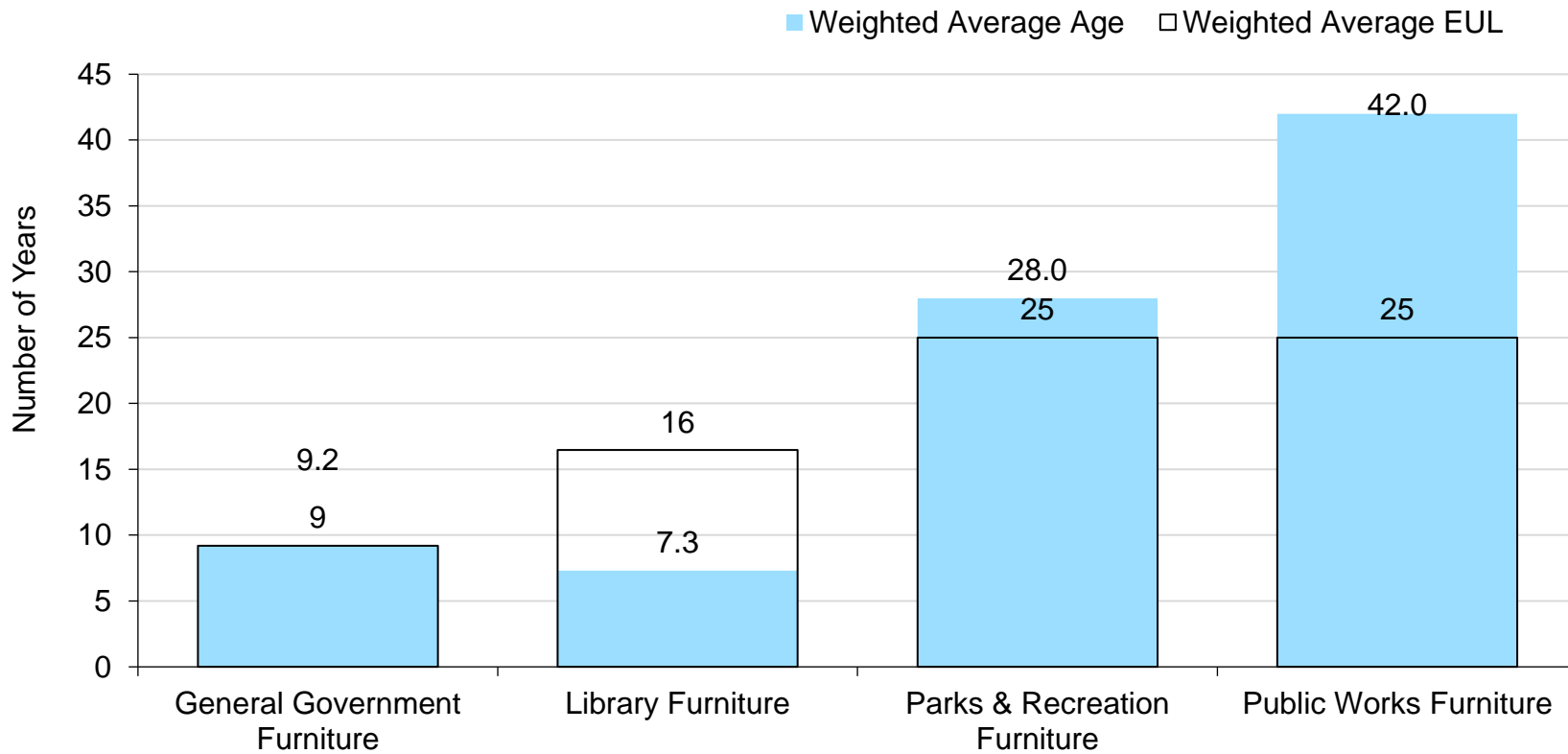


Each asset's replacement cost should be reviewed periodically to determine whether adjustments are needed to more accurately represent realistic capital requirements.

Asset Condition & Age

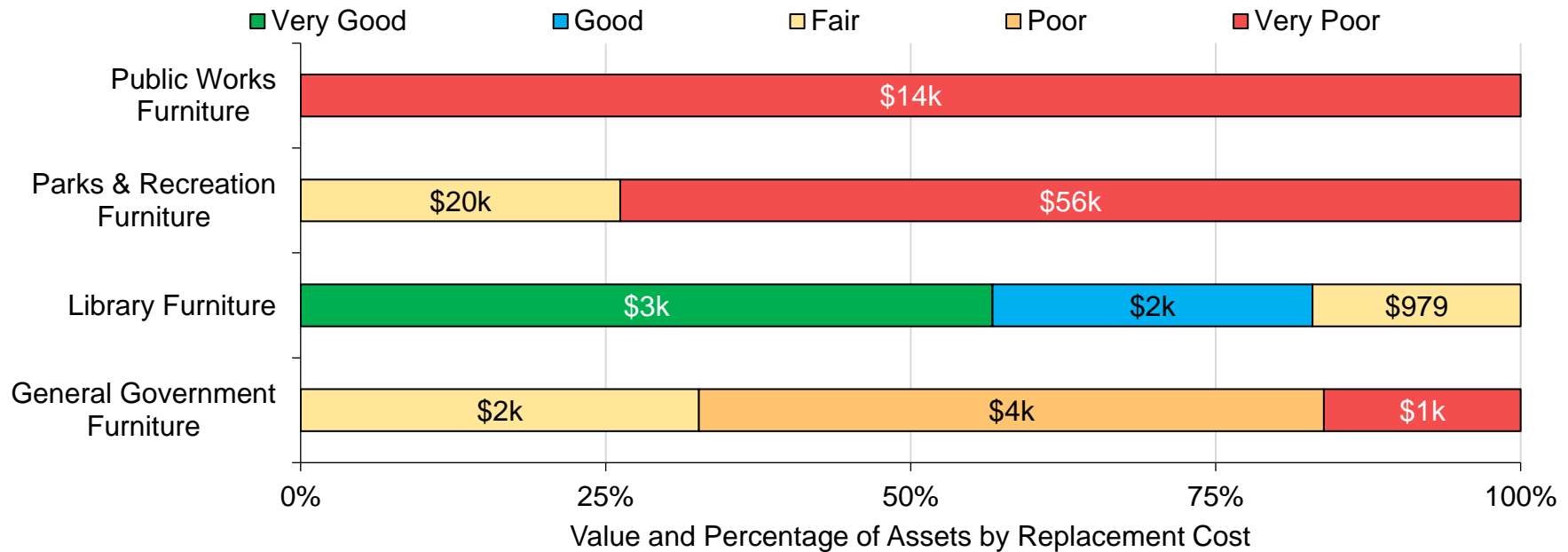
The figure below identifies the current average condition, the average age, and the estimated useful life for each asset segment. The average condition (%) is a weighted value based on replacement cost.

Figure 42 Estimated Useful Life vs. Asset Age – Furniture and Fixtures



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

Figure 43 Asset Condition By Segment – Furniture and Fixtures



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

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 more confidently determine the remaining service life of assets and identify the most cost-effective approach to managing assets. The following describes the Township’s current approach:

- There are no formal condition assessment programs in place for furniture & fixtures.

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

Table 60 Condition Rating Criteria – Furniture and Fixtures

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

Lifecycle Management Strategy

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

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

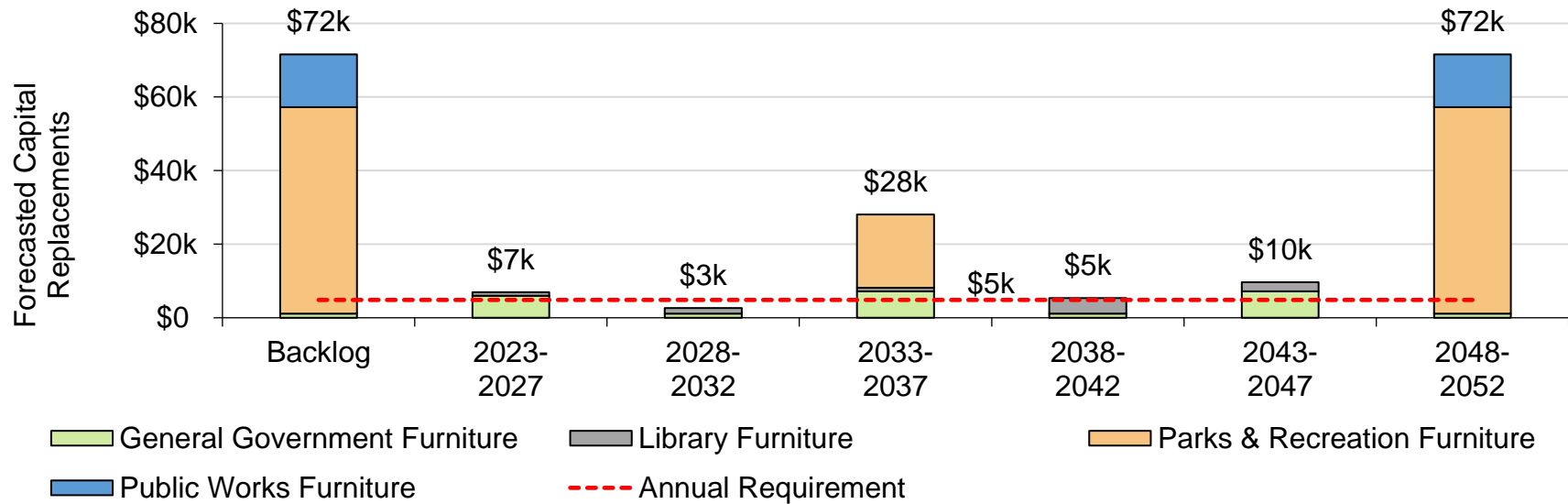
Table 61 Current Lifecycle Management Strategies – Furniture and Fixtures

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation/ Rehabilitation	The furniture & fixtures asset category is comprised of tables, chairs, and shelving. Lifecycle requirements for these assets are dealt with on a case-by-case basis There are no formal guiding documents prescribing replacement or upgrades for furniture and fixtures assets.

Forecasted Capital Requirements

The following graph forecasts long-term capital requirements. The annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs. The following graph identifies capital requirements over the next 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 5-year capital requirements. The trend line represents the average 5-year capital requirement of \$5k; this amount does not account for inflation.

Figure 44 Forecasted Capital Replacement Requirements – Furniture and Fixtures 2023-2052



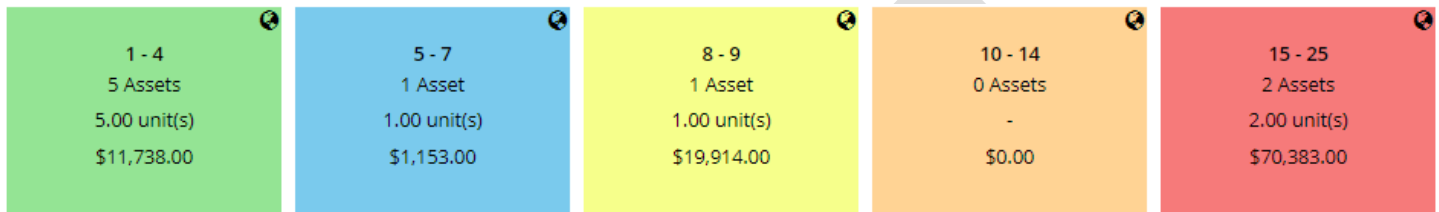
The projected cost of lifecycle activities that will need to be undertaken over the next 10 years to maintain the current level of service can be found in Appendix B.

Risk & Criticality

Risk Matrix

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

Figure 45 Risk Matrix – Furniture and Fixtures



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

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

Table 62 Probability and Consequence of Failure Attributes

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Historical Cost

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

Risks to Current Asset Management Strategies

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

Asset Data



Majority of condition data is age-based, and the replacement costs are based on historical costs and inflation; both condition and replacement cost are often found to be inaccurate. Age-based condition does not consider important factors such as usage, maintenance history, and environmental factors, and does not accurately reflect the asset's true condition state. Furniture and fixtures assets such as tables and chairs are pooled together into one asset. Pooled assets should be broken into individual assets to create a more accurate asset inventory. Maintaining a more accurate asset inventory will allow for detailed planning and analysis.

Levels of Service

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

Community Levels of Service

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

Table 63 Ontario Regulation 588/17 Community Levels of Service – Furniture and Fixtures

Service Attribute	Qualitative Description	Current LOS (2022)
Sustainable and Affordable	Description of lifecycle activities performed on furniture and fixtures	See Section 10.3

Technical Levels of Service

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

Table 64 Ontario Regulation 588/17 Technical Levels of Service – Furniture and Fixtures

Service Attribute	Technical Metric	Current LOS (2022)
Sustainable and Affordable	% of furniture and fixtures in poor or very poor condition	73

Recommendations

Asset Data

- There is critical asset data (EULs) missing for a few assets within Furniture and Fixtures. Pooled assets should be separated into individual assets. Review and update asset data regularly to ensure inventory accuracy.

Replacement Costs

- All replacement costs used in this AMP were based on the inflation of historical costs. These costs should be evaluated to determine their accuracy and reliability. Replacement costs should be updated according to the best available information on the cost to replace the asset in today's value.

Condition Assessment Strategies

- Review assets that have surpassed their estimated useful life to determine if immediate replacement is required or whether these assets are expected to remain in-service. Adjust the service life and/or condition ratings for these assets accordingly.
- Consider developing a condition assessment program for more accurate conditions rather than relying on age-based condition.

Risk Management Strategies

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

Levels of Service

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

- Work towards identifying proposed levels of service as per O. Reg. 588/17 and identify the strategies that are required to close any gaps between current and proposed levels of service.

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11. Impacts of Growth

Key Insights

- Understanding the key drivers of growth and demand will allow the Township to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure
- Moderate population and employment growth is expected
- The costs of growth should be considered in long-term funding strategies that are designed to maintain the current level of service

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Description of Growth Assumptions

The demand for infrastructure and services will change over time based on a combination of internal and external factors. Understanding the key drivers of growth and demand will allow the Township to 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.

Douro-Dummer Official Plan (2022)

The Township of Douro-Dummer’s Official Plan is incorporated within the County of Peterborough’s Official Plan which has been adopted in 2022 and reflects the goals of the Planning Act.

The County’s Official Plan includes goals, objectives, and policies to effectively manage and guide land use changes while also monitoring their impact on the cultural, social, economic, and natural aspects of the environment. The Official Plan will set out a 30-year planning horizon for growth management of population and employment forecasts. Agricultural, commercial, recreational and rural areas will be the prioritization of infrastructure development within the municipality.

The Settlement Areas will be the focus of growth and development. This will promote efficient development patterns, protect resources, promote green spaces, ensure effective use of infrastructure and minimize unnecessary public expenditures. The Township’s rural lands will provide opportunity for agricultural uses, recreation, and tourism.

To illustrate historical growth rates, the following table shows population and housing figures from 1996 to 2021. The following table was developed using Statistics Canada’s Census data.

Historical Figures	1996	2001	2006	2011	2016	2021
Population	6,724	6,652	6,954	6,805	6,709	7,632
Population Change	N/A	-1%	4.5%	-2.1%	-1.4%	13.8%
Private Dwellings	N/A	3,249	3,442	3,110	3,434	3,601

The population of Douro-Dummer ranges from 6,724 in 1996 to 7,632 in 2021. The population has fluctuated significantly with notable increases and decreases. The most recent assessment found a 13.8% increase in population, suggesting a potential upward trend.

The Township of Douro-Dummer has also developed a Strategic Plan which analyzes the challenges of the Township's infrastructure needs, prioritization of development of recreation and culture programs, facilitation of economic development and effective utilization of resources, and preservation of natural heritage features.

Impact of Growth on Lifecycle Activities

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

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

12. Financial Strategy

Key Insights

- The Township is committing approximately \$1.31 million towards capital projects per year from sustainable revenue sources
- Given the annual capital requirement of \$2.89 million, there is currently a funding gap of \$1.58 million annually
- For tax-funded assets, we recommend increasing tax revenues by 2.3% each year for the next 10 years to achieve a sustainable level of funding

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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 the Township of Douro-Dummer 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. Reserves
 - d. Debt
 - e. 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. Gas tax
 - 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 Township's approach to the following:

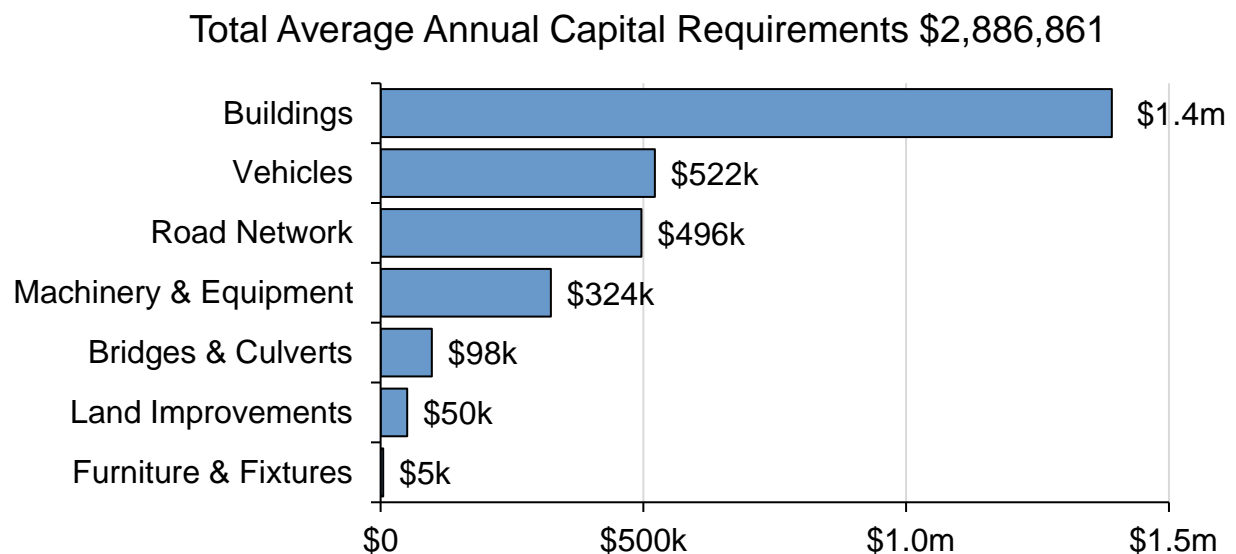
1. In order to reduce financial requirements, consideration has been given to revising service levels downward.
2. All asset management and financial strategies have been considered. For example:
 - a. If a zero-debt policy is in place, is it warranted? If not the use of debt should be considered.
 - b. Do user fees reflect the cost of the applicable service? If not, increased user fees should be considered.

Annual Requirements & Capital Funding

Annual Requirements

The annual requirements represent the amount the Township should allocate annually to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs and achieve long-term sustainability. In total, the Township must allocate approximately \$2.9 million annually to address capital requirements for the assets included in this AMP.

Figure 46 Average Annual Capital Requirements by Asset Category



For most asset categories the annual requirement has been calculated based on a “replacement only” scenario, in which capital costs are only incurred at the construction and replacement of each asset.

However, for the Road Network lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal of the Township’s roads and sanitary sewer mains respectively. The development of these

strategies allows for a comparison of potential cost avoidance if the strategies were to be implemented. The following table compares two scenarios for the Road Network:

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

Table 65 Lifecycle Strategies Annual Savings

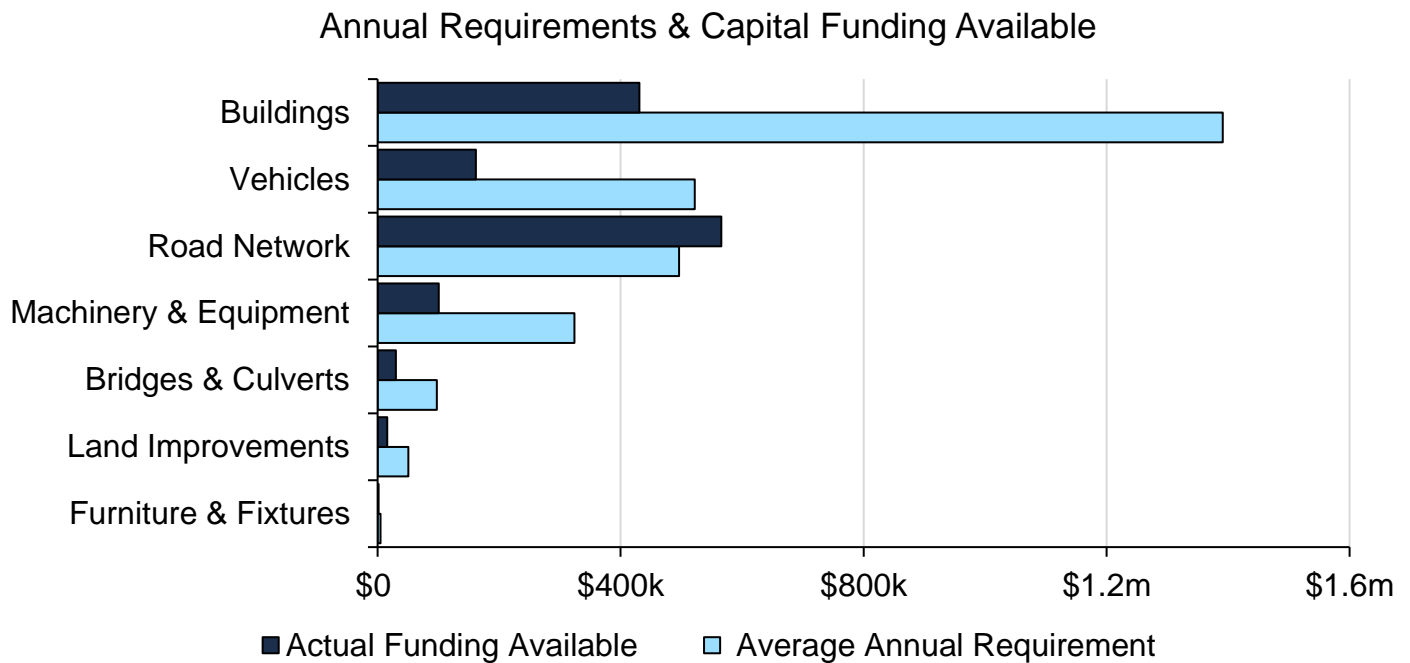
Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Road Network	\$541,000	\$496,000	\$45,000

The implementation of a proactive lifecycle strategy for roads leads to a potential annual cost avoidance of \$45,000 for the Road Network. This represents an overall reduction of the annual requirements for the roads category by 8.3%. As the lifecycle strategy scenario represents the lowest cost option available to the Township, we have used these annual requirements in the development of the financial strategy.

Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately \$1,306,000 towards capital projects per year. Given the annual capital requirement of \$2,887,000, there is currently a funding gap of \$1,580,000 annually.

Figure 47 Annual Requirements vs. Capital Funding Available



Funding Objective

We have developed a scenario that would enable Douro-Dummer to achieve full funding within 15 years for the following assets:

- a) **Tax Funded Assets:** Road Network, Bridges & Culverts, Buildings, Machinery & Equipment, Land Improvements, Vehicles and Furniture and Fixtures.

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, Douro-Dummer’s average annual asset investment requirements, current funding positions, and funding increases required to achieve full funding on assets funded by taxes.

Table 66 Annual Available Funding for Tax Funded Assets

Asset Category	Avg. Annual Requirement	Annual Funding Available			Total Available	Annual Surplus/Deficit
		Taxes	Gas Tax	OCIF		
Road Network	496,499	153,810	222,028	189,931	565,769	-69,270
Bridges & Culverts	97,569	30,226	0	0	30,226	67,343
Furniture & Fixtures	4,845	1,501	0	0	1,501	3,344
Buildings	1,391,369	431,031	0	0	431,031	960,338
Land Improvements	50,434	15,624	0	0	15,624	34,810
Machinery & Equipment	324,090	100,400	0	0	100,400	223,690
Vehicles	522,055	161,727	0	0	161,727	360,328
	2,886,861	894,319	222,028	189,931	1,306,278	1,580,583

The average annual investment requirement for the above categories is \$2.887 million. Annual revenue currently allocated to these assets for capital purposes is \$1.306 million leaving an annual deficit of \$1.580 million. Put differently, these infrastructure categories are currently funded at 45% of their long-term requirements.

Full Funding Requirements

In 2023, Township of Douro-Dummer had projected annual tax revenues of \$6.4 million. 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:

Table 67 Tax Increase Requirements for Full Funding

Asset Category	Tax Change Required for Full Funding
Road Network	-1.1%
Bridges & Culverts	1.1%
Furniture & Fixtures	0.1%
Buildings	15.1%
Land Improvements	0.5%
Machinery & Equipment	3.5%
Vehicles	5.7%
	24.9%

Our recommendations include capturing the above changes and allocating them to the infrastructure deficit outlined above. The table below outlines this concept and presents several options:

Table 68 Tax Increase Options 5-20 Years

	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	1,580,584	1,580,584	1,580,584	1,580,584
Change in Debt Costs	n/a	n/a	n/a	n/a
Resulting Infrastructure Deficit:	1,580,584	1,580,584	1,580,584	1,580,584
Tax Increase Required	24.8%	24.8%	24.8%	24.8%
Annually:	4.6%	2.3%	1.5%	1.2%

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 2.3% 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 gas tax and OCIF revenue as outlined previously.
- c) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
- d) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

1. As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. By Provincial AMP rules, this periodic funding cannot be incorporated into an AMP unless there are firm commitments in place. We have included OCIF formula-based funding, if applicable, since this funding is a multi-year commitment¹.
2. We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

Although this option achieves full funding on an annual basis in 10 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 \$12.5 million for Buildings, \$673,000 for Machinery & Equipment, \$125,000 for Land Improvements, \$72,000 for Furniture & Fixtures and \$3.5 million for Vehicles.

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

Use of Debt

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

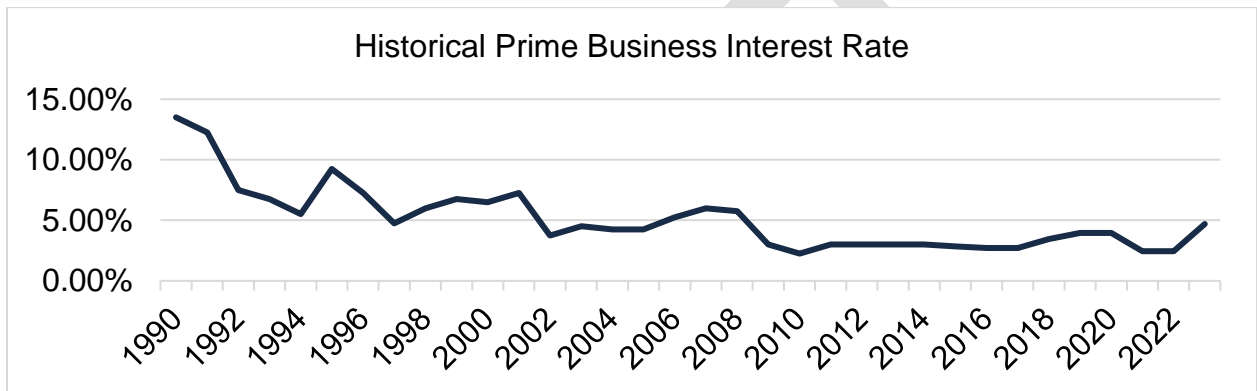
- a) the ability to stabilize tax & user rates when dealing with variable and sometimes uncontrollable factors
- b) equitable distribution of the cost/benefits of infrastructure over its useful life

¹ The Township 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.

- c) a secure source of funding
- d) flexibility in cash flow management

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

Figure 48 Historical Prime Rate



A change in 15-year rates from 5% to 7% would change the premium from 45% to 65%. Such a change would have a significant impact on a financial plan.

For reference purposes, the following table outlines the premium paid on a project if financed by debt. For example, a \$1 million project financed at 3.0%² over 15 years would result in a 26% premium or \$260 thousand of increased costs due to interest payments. For simplicity, the table does not consider the time value of money or the effect of inflation on delayed projects.

² Current municipal Infrastructure Ontario rates for 15-year money is 3.2%.

Table 69 Interest Premiums Paid

Interest Rate	Number of Years Financed					
	5	10	15	20	25	30
7.0%	22%	42%	65%	89%	115%	142%
6.5%	20%	39%	60%	82%	105%	130%
6.0%	19%	36%	54%	74%	96%	118%
5.5%	17%	33%	49%	67%	86%	106%
5.0%	15%	30%	45%	60%	77%	95%
4.5%	14%	26%	40%	54%	69%	84%
4.0%	12%	23%	35%	47%	60%	73%
3.5%	11%	20%	30%	41%	52%	63%
3.0%	9%	17%	26%	34%	44%	53%
2.5%	8%	14%	21%	28%	36%	43%
2.0%	6%	11%	17%	22%	28%	34%
1.5%	5%	8%	12%	16%	21%	25%
1.0%	3%	6%	8%	11%	14%	16%
0.5%	2%	3%	4%	5%	7%	8%
0.0%	0%	0%	0%	0%	0%	0%

Currently, Douro-Dummer does not utilize debt, but it is a potential option for the municipality to utilize as a source of funding in the future.

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

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

Table 70 Douro-Dummer Reserve Balances

Asset Category	Balance at December 31, 2023
Bridges & Culverts	860,000
Buildings	1,210,000
Furniture & Fixtures	907,000
Land Improvements	930,000
Machinery & Equipment	1,268,000
Road Network	1,231,000
Vehicles	860,000
Total Tax Funded:	7,266,000

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

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

These reserves are available for use by applicable asset categories during the phase-in period to full funding. This coupled with Douro-Dummer's judicious use of debt in the past, allows the scenarios to assume that, if required, available reserves and debt capacity can be used for high priority and emergency infrastructure investments in the short- to medium-term.

Recommendation

In 2025, Ontario Regulation 588/17 will require Douro-Dummer 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.

Appendices

Appendix A - includes a one-page report card with an overview of key data from each asset category

Appendix B - identifies projected 10-year capital requirements for each asset category

Appendix C - includes several maps that have been used to visualize the current level of service

Appendix D - identifies the criteria used to calculate risk for each asset category

Appendix E - provides additional guidance on the development of a condition assessment program

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Appendix A: Infrastructure Report Card

Asset Category	Replacement Cost (millions)	Asset Condition	Financial Capacity	
Road Network	\$6.99m	Good	Annual Requirement:	\$496,000
			Funding Available:	\$566,000
			Annual Deficit:	\$(-70,000)
Bridges & Culverts	\$4.20m	Very Good	Annual Requirement:	\$98,000
			Funding Available:	\$30,000
			Annual Deficit:	\$68,000
Buildings	\$38.6m	Poor	Annual Requirement:	\$1,391,000
			Funding Available:	\$431,000
			Annual Deficit:	\$960,000
Machinery & Equipment	\$4.70m	Fair	Annual Requirement:	\$324,000
			Funding Available:	\$100,000
			Annual Deficit:	\$224,000
Vehicles	\$7.40m	Fair	Annual Requirement:	\$522,000
			Funding Available:	\$162,000
			Annual Deficit:	\$360,000
Land Improvements	\$1.48m	Fair	Annual Requirement:	\$50,000
			Funding Available:	\$16,000
			Annual Deficit:	\$34,000
Furniture & Fixtures	\$103km	Very poor	Annual Requirement:	\$5,000
			Funding Available:	\$2,000
			Annual Deficit:	\$3,000
Overall	\$63.50m	Poor	Annual Requirement:	\$2,887,000
			Funding Available:	\$1,306,000
			Annual Deficit:	\$1,581,000

Appendix B: 10-Year Capital Requirements

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

Table 71 System Generated 10-Year Capital Replacement Forecast: Road Network

Road Network											
Segment	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
HCB Roads	\$389k	\$0	\$0	\$62k	\$0	\$0	\$4k	\$138k	\$162k	\$0	\$23k
LCB Roads	\$4.1m	\$262k	\$554k	\$362k	\$156k	\$241k	\$652k	\$559k	\$911k	\$362k	\$0
Sidewalks	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$4.4m	\$262k	\$554k	\$424k	\$156k	\$241k	\$656k	\$697k	\$1.1m	\$362k	\$23k

Table 72 System Generated 10-Year Capital Replacement Forecast: Bridges & Culverts

Bridges & Culverts											
Segment	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Bridges	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Culverts	\$139k	\$94k	\$0	\$0	\$45k	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$139k	\$94k	\$0	\$0	\$45k	\$0	\$0	\$0	\$0	\$0	\$0

Table 73 System Generated 10-Year Capital Replacement Forecast: Buildings

Buildings											
Segment	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Fire Buildings	\$1.9m	\$0	\$0	\$0	\$1.5m	\$76k	\$0	\$22k	\$123k	\$136k	\$0
General Government Buildings	\$671k	\$0	\$49k	\$23k	\$0	\$0	\$0	\$0	\$486k	\$78k	\$35k
Library Buildings	\$114k	\$2k	\$0	\$11k	\$91k	\$10k	\$0	\$0	\$0	\$0	\$0
Parks & Recreation Buildings	\$6.0m	\$0	\$68k	\$19k	\$0	\$0	\$214k	\$185k	\$5.3m	\$54k	\$202k
Public Works Buildings	\$1.3m	\$203k	\$0	\$0	\$291k	\$0	\$0	\$457k	\$180k	\$0	\$121k
Total	\$9.9m	\$205k	\$117k	\$54k	\$1.9m	\$86k	\$214k	\$664k	\$6.1m	\$267k	\$358k

Table 74 System Generated 10-Year Capital Replacement Forecast: Vehicles

Vehicles											
Segment	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Fire Vehicles	\$1.1m	\$0	\$312k	\$0	\$336k	\$77k	\$0	\$0	\$59k	\$0	\$309k
Parks & Recreation Vehicles	\$46k	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$46k
Public Works Vehicles	\$2.3m	\$0	\$410k	\$83k	\$360k	\$360k	\$0	\$48k	\$360k	\$0	\$631k
Total	\$3.4m	\$0	\$722k	\$83k	\$696k	\$437k	\$0	\$48k	\$419k	\$0	\$985k

Table 75 System Generated 10-Year Capital Replacement Forecast: Machinery & Equipment

Machinery & Equipment											
Segment	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Fire Equipment	\$342k	\$13k	\$26k	\$58k	\$71k	\$50k	\$29k	\$35k	\$24k	\$0	\$37k
Library Equipment	\$111k	\$13k	\$0	\$0	\$0	\$3k	\$94k	\$0	\$0	\$0	\$1k
Office Equipment	\$213k	\$13k	\$12k	\$4k	\$6k	\$0	\$85k	\$6k	\$65k	\$15k	\$6k
Parks & Recreation Equipment	\$449k	\$0	\$0	\$0	\$0	\$128k	\$73k	\$6k	\$79k	\$0	\$162k
Public Works Equipment	\$821k	\$30k	\$470k	\$1k	\$44k	\$0	\$54k	\$92k	\$0	\$0	\$130k
Water Equipment	\$26k	\$7k	\$0	\$0	\$0	\$0	\$14k	\$5k	\$0	\$0	\$0
Total	\$2.0m	\$75k	\$508k	\$63k	\$122k	\$181k	\$349k	\$144k	\$168k	\$15k	\$337k

Table 76 System Generated 10-Year Capital Replacement Forecast: Land Improvements

Land Improvements											
Segment	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Benches	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Docks/Wharf	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fencing	\$53k	\$0	\$0	\$17k	\$0	\$0	\$0	\$36k	\$0	\$0	\$0
Parking Lot	\$43k	\$5k	\$0	\$0	\$38k	\$0	\$0	\$0	\$0	\$0	\$0
Parks	\$248k	\$0	\$0	\$0	\$0	\$181k	\$0	\$67k	\$0	\$0	\$0
Pathways/Signage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Playgrounds	\$67k	\$0	\$0	\$0	\$0	\$0	\$0	\$67k	\$0	\$0	\$0
Streetlights	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Structures	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$411k	\$5k	\$0	\$17k	\$38k	\$181k	\$0	\$170k	\$0	\$0	\$0

Table 77 System Generated 10-Year Capital Replacement Forecast: Furniture & Fixtures

Furniture & Fixtures											
Segment	Total	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
General Government Furniture	\$7k	\$0	\$0	\$0	\$4k	\$2k	\$1k	\$0	\$0	\$0	\$0
Library Furniture	\$2k	\$0	\$0	\$0	\$979	\$0	\$0	\$0	\$0	\$0	\$2k
Parks & Recreation Furniture	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Public Works Furniture	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$10k	\$0	\$0	\$0	\$5k	\$2k	\$1k	\$0	\$0	\$0	\$2k

Images of Bridge in Good Condition
LYNCHS ROCK ROAD Bridge F
Inspected: June 29, 2022

Figure 50 Images of Lynchs Rock Road Bridge F



Images of Culvert in Good Condition

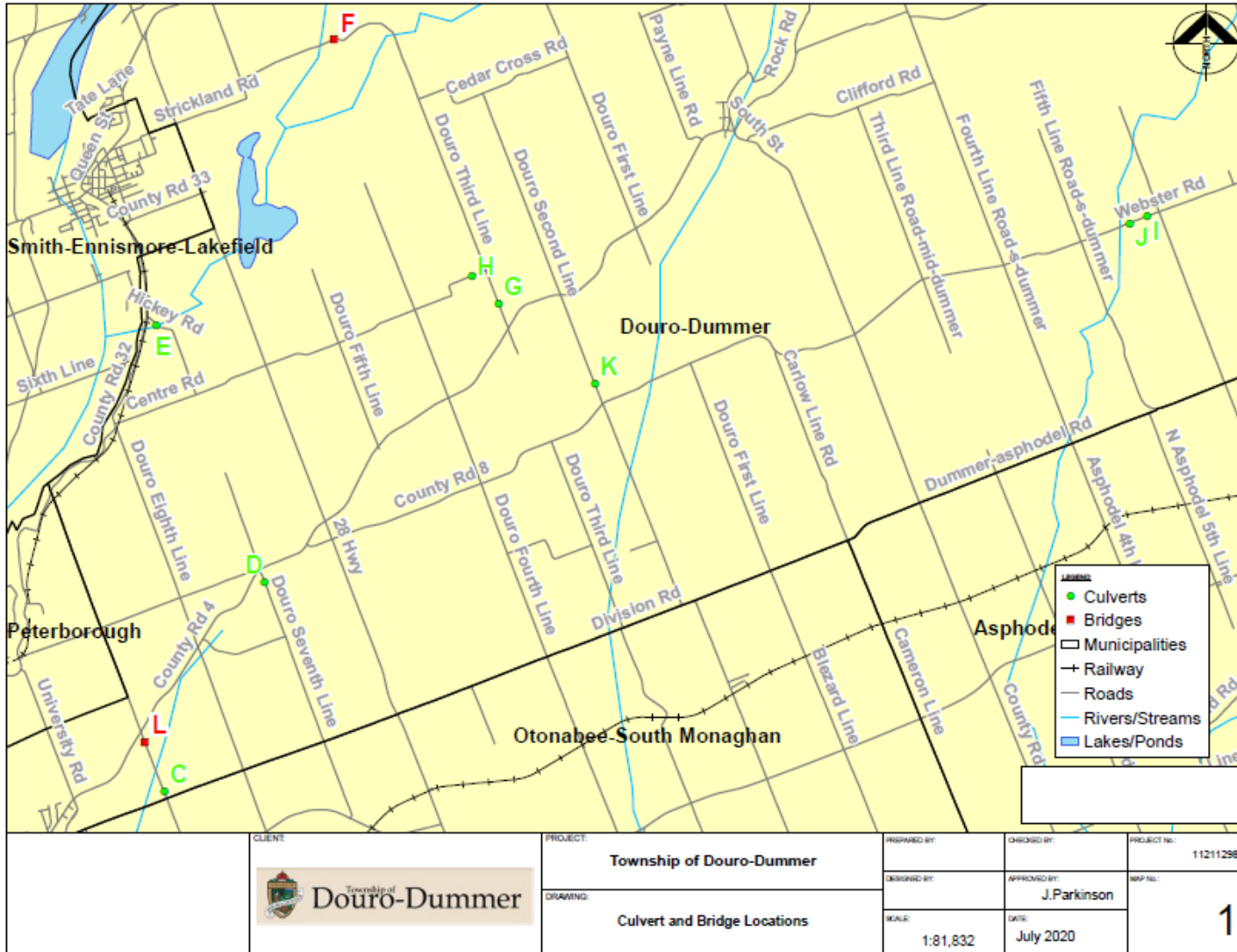
Culvert No. C, Douro 9th Line,

Inspected: June 29, 2022

Figure 51 Images of Culvert No. C, Douro 9th Line



Figure 52 Culvert and Bridge Locations



Appendix D: Risk Rating Criteria

Probability of Failure

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Road Network (Roads)	Condition	75	80-100	1
			60-79	2
			40-59	3
			20-39	4
			0-19	5
	Section AADT	15	0-99	1
			100-299	2
			300-399	3
			400-699	4
			700+	5
Surface Material	10	HCB - Asphalt	2	
		LCB - Surface Treatment	3	
Bridges & Culverts	Condition	100%	80-100	1
Buildings			60-79	2
Machinery & Equipment			40-59	3
Vehicles			20-39	4
Land Improvements			0-19	5

Consequence of Failure

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Road Network (Roads)	Economic (70%)	Surface Material (100%)	HCB	4
			LCB	2
		Road Design Class (20%)	Collector	3
			Local	2
	Social (30%)	Section AADT (40%)	0-99	1
			100-299	2
			300-399	3
			400-699	4
			700+	5
		MMS Class (40%)	4	4
Bridges & Culverts	Economic (100%)	Replacement Cost (100%)	4	4
			5	3
			6	2
			\$0-\$50,000	1
			\$50,000-\$350,000	2
			\$350,000-\$1,000,000	3
\$1,000,000-\$2,000,000	4			
\$2,000,000+	5			

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Buildings	Economic (70%)	Replacement Cost (100%)	\$0-\$200,000	1
			\$200,000-\$900,000	2
			\$900,000-\$1,750,000	3
			\$1,750,000-\$4,000,000	4
			\$4,000,000+	5
	Operational (30%)	Department (100%)	Libraries	2
			Public Works	3
			Recreation/Facilities	3
			Protective Services	4
			Administration	4
Machinery & Equipment	Economic (70%)	Replacement Cost (100%)	Fire	5
			\$0-\$50,000	1
			\$50,000-\$100,000	2
			\$100,000-\$200,000	3
			\$200,000-\$500,000	4
	Operational (30%)	Equipment Type (100%)	\$500,000+	5
			Signage	1
			Books & Periodicals	2
			Library Equipment	2
			Recreation Department Equipment	2
		Recreation Tractors	2	
		Administration Equipment	3	
		Environmental Services Equipment	3	
		Public Works Equipment	3	
		Computers	4	
		Fire Department Equipment	4	

Asset Category	Risk Classification	Risk Criteria	Value/Range	Consequence of Failure Score
Vehicles	Economic (70%)	Replacement Cost (100%)	\$0-\$25,000	1
			\$25,000-\$50,000	2
			\$50,000-\$150,000	3
			\$150,000-\$300,000	4
			\$300,000+	5
	Operational (30%)	Vehicles Type (100%)	Environmental Services Vehicles	2
			Recreation Department Vehicles	2
			Public Works Vehicles	3
			Fire Department Vehicles	4
Land Improvements	Economic (100%)	Replacement Cost (100%)	\$0-\$25,000	1
			\$25,000-\$50,000	2
			\$50,000-\$100,000	3
			\$100,000-\$150,000	4
			\$150,000+	5

Appendix E: Condition Assessment Guidelines

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

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

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

Role of Asset Condition Data

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

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

Guidelines for Condition Assessment

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

Condition assessments must include a quantitative or qualitative assessment of the current condition of the asset, collected according to specified condition rating criteria, in a format that can be used for asset management decision-making. As a result, it is important that staff adequately define the condition rating criteria that should be used and the assets that require a discrete condition rating. When engaging with external consultants to complete condition assessments, it is critical that these details are communicated as part of the contractual terms of the project.

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

Developing a Condition Assessment Schedule

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

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