Asset Management Plan

Township of Elizabethtown-Kitley

2022

This Asset Management Program was prepared by:

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

Key Statistics

Replacement cost of asset portfolio
$104.5 million

Replacement cost of infrastructure per household
$26,208 (2016)

Percentage of assets in fair or better condition
87%

Percentage of assets with assessed condition data
68%

Annual capital infrastructure deficit
$2.3 million

Recommended timeframe for eliminating annual infrastructure deficit
20 Years

Target reinvestment rate
4.0%

Actual reinvestment rate
1.8%

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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 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 includes the following asset categories:

With the development of this AMP the Township of Elizabethtown-Kitley 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

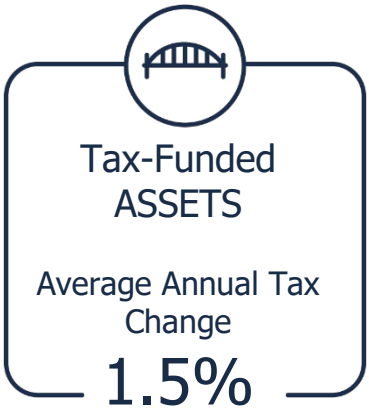
The overall replacement cost of the asset categories included in this AMP totals $104.5 million. 87% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 68% of assets. For the remaining 32% of assets, assessed condition data was unavailable, 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.

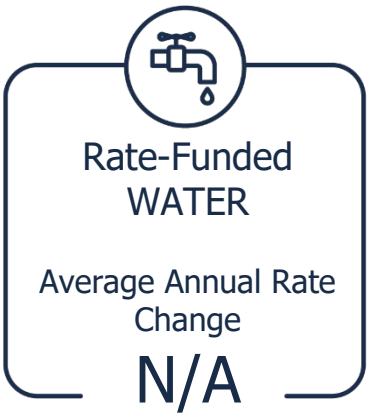
To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the Township's average annual capital requirement totals $4.2 million. Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $2.0 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $2.2 million.

It is important to note that this AMP represents a snapshot in time and is based on the best available processes, data, and information at the 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 graphics shows annual tax/rate change required to eliminate the Township's infrastructure deficit based on a 20-year plan[1]:





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

[1] Currently there is no allocation towards the water network. To fully fund these requirements, the Township will need to collect rates sufficient to gather $98,000 per year.

1 Introduction & Context

Key Insights

- The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value ratepayers receive from the asset portfolio

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

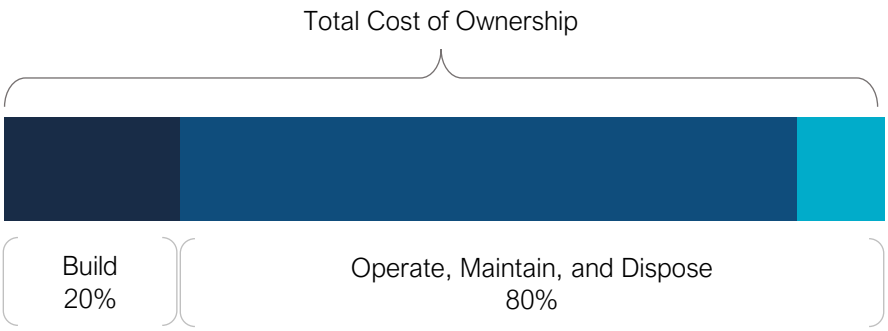
- An asset management plan is a living document that should be updated regularly to inform long-term planning

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

1.1 An Overview of Asset Management

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

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



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

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

1.1.1 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.

In Accordance with the with the timelines set out by the Province of Ontario on December 13, 2017 (O.Reg. 588/17), the Township finalized its Strategic Asset Management Policy in June 2019. The objectives of the policy include:

- Provide a framework for implementing Asset Management to enable a consistent and strategic approach at all levels of the organization.
- Provide guidance to staff responsible for asset management
- Ensure the management of its assets is implemented in the most efficient and effective way possible
- Provide transparency and demonstrate to stakeholders the legitimacy of decision-making processes which combine strategic plans, budgets, service levels and risks

1.1.2 Asset Management Strategy

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

The 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.

1.1.3 Asset Management Plan

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

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

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

1.2 Key Concepts in Asset Management

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

1.2.1 Lifecycle Management Strategies

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

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

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

Lifecycle Activity	Description	Example (Roads)	Cost
Maintenance	Activities that prevent defects or deteriorations from occurring	Crack Seal	$
Rehabilitation/ Renewal	Activities that rectify defects or deficiencies that are already present and may be affecting asset performance	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.

1.2.2 Risk Management Strategies

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

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

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

1.2.3 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 & 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 municipality's asset management strategies on the physical condition of assets or the quality/capacity of the services they provide.

For core asset categories (roads, bridges & culverts, 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 Elizabethtown-Kitley. 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.

1.3 Ontario Regulation 588/17

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

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

2019

Strategic Asset Management Policy

2022

Asset Management Plan for Core Assets with the following components:

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

2024

Asset Management Plan for Core and Non-Core Assets

2025

Asset Management Policy Update and an Asset Management Plan for All Assets with the following additional components:

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

1.3.1 O. Reg. 588/17 Compliance Review

The following table identifies the requirements outlined in Ontario Regulation 588/17 for municipalities to meet by July 1, 2024. Next to each requirement a page or section reference is included in addition to any necessary commentary.

Requirement	O. Reg. Section	AMP Section Reference	Status
Summary of assets in each category	S.5(2), 3(i)	4.1.1 - 5.2.1	Complete
Replacement cost of assets in each category	S.5(2), 3(ii)	4.1.1 - 5.2.1	Complete
Average age of assets in each category	S.5(2), 3(iii)	4.1.3 - 5.2.3	Complete
Condition of core assets in each category	S.5(2), 3(iv)	4.1.2 – 5.2.2	Complete
Description of municipality's approach to assessing the condition of assets in each category	S.5(2), 3(v)	4.1.2 – 5.2.2	Complete
Current levels of service in each category	S.5(2), 1(i-ii)	4.1.6 - 5.2.6	Complete
Current performance measures in each category	S.5(2), 2	4.1.6 - 5.2.6	Complete
Lifecycle activities needed to maintain current levels of service for 10 years	S.5(2), 4	4.1.4 - 5.2.4	Complete
Costs of providing lifecycle activities for 10 years	S.5(2), 4	Appendix A	Complete
Growth assumptions	S.5(2), 5(i-ii) S.5(2), 6(i-vi)	6.1-6.2	Complete

2 Scope and Methodology

Key Insights

- This asset management plan includes 6 asset categories and is divided between tax-funded and rate-funded categories

- The source and recency of replacement costs impacts the accuracy and reliability of asset portfolio valuation

- Accurate and reliable condition data helps to prevent premature and costly rehabilitation or replacement and ensures that lifecycle activities occur at the right time to maximize asset value and useful life

2.1 Assets categories included in this AMP

This asset management plan for the Elizabethtown-Kitley is produced in compliance with Ontario Regulation 588/17. The July 2024 iteration of the Asset Management Plan requires analysis of both core and non-core assets.

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.

Asset Category	Source of Funding
Road Network	Tax Levy
Bridges & Culverts	
Buildings & Facilities	
Machinery & Equipment	
Vehicles	
Water Network	User Rates

2.2 Deriving Replacement Costs

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

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

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

2.3 Estimated Useful Life and Service Life Remaining

The estimated useful life (EUL) of an asset is the period over which the 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:

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

2.4 Reinvestment Rate

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

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

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

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

2.5 Deriving Asset Condition

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

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the 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.

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.

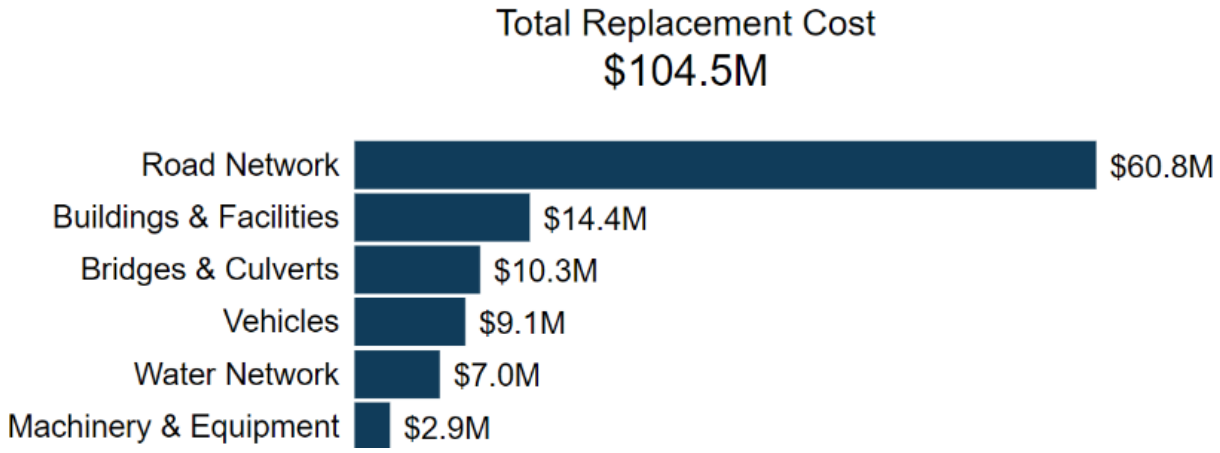
3 Portfolio Overview

Key Insights

- The total replacement cost of the Township's asset portfolio is $105 million
- The Township's target re-investment rate is 4.0%, and the actual re-investment rate is 1.8%, contributing to an expanding infrastructure deficit
- 87% of all assets are in fair or better condition
- 58% of assets are projected to require replacement in the next 10 years
- Average annual capital requirements total $4.2 million per year across all assets

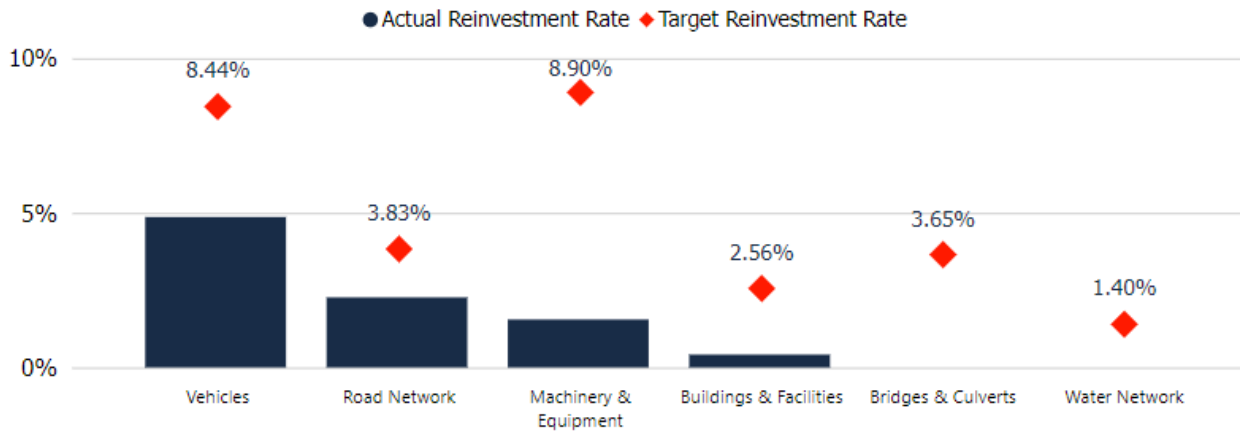
3.1 Total Replacement Cost of Asset Portfolio

The asset categories analyzed in this AMP have a total replacement cost of $105 million based on inventory data from 2021. This total was determined based on a combination of user-defined costs and historical cost inflation. This estimate reflects replacement of historical assets with similar, not necessarily identical, assets available for procurement today.



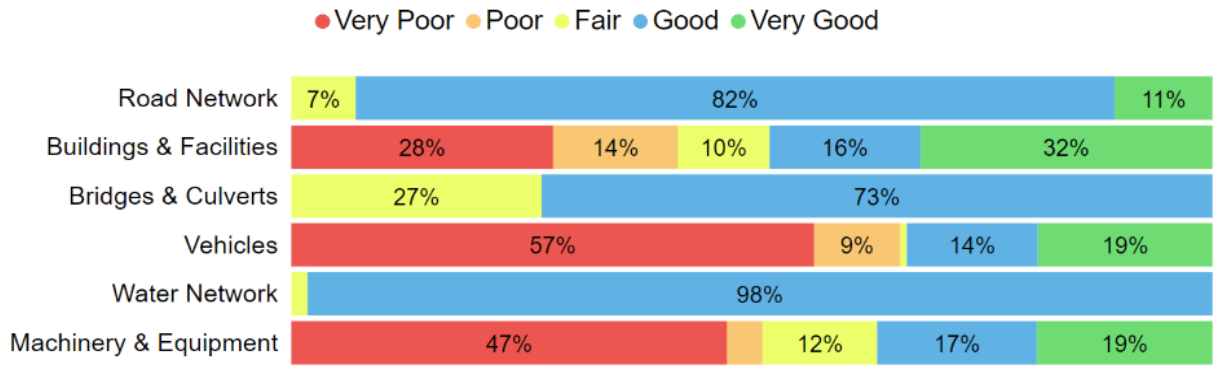
3.2 Target vs. Actual Reinvestment Rate

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 $4.2 million annually, for a target reinvestment rate of 4.0%. Actual annual spending on infrastructure totals approximately $2.0 million, for an actual reinvestment rate of 1.8%.



3.3 Condition of Asset Portfolio

The current condition of the assets is central to all asset management planning. Collectively, 87% of assets in Elizabethtown-Kitley are in fair or better condition. This estimate relies on both age-based and field condition data.

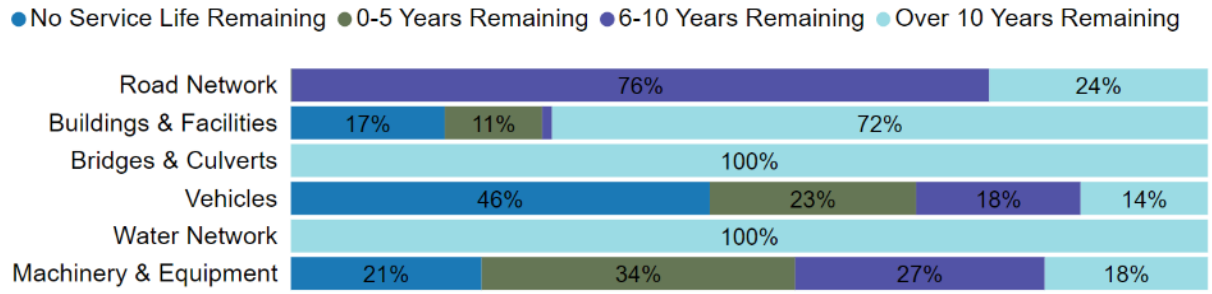


This AMP relies on assessed condition data for 62% of assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

Asset Category	Asset Segment	% Of Assets with Assessed Condition	Source of Condition Data
Road Network	Roads	100%	2021 RNS
	Sidewalks	100%	Greer Galloway Group
	Streetlights	0	Age-Based
Bridges & Culverts	Bridges	100%	2021 OSIM Report
	Structural Culverts	100%	2021 OSIM Report
Buildings & Facilities	All	0%	Age-Based
Machinery & Equipment	All	0%	Age-Based
Vehicles	All	0%	Age-Based
Water Network	All	0%	Age-Based

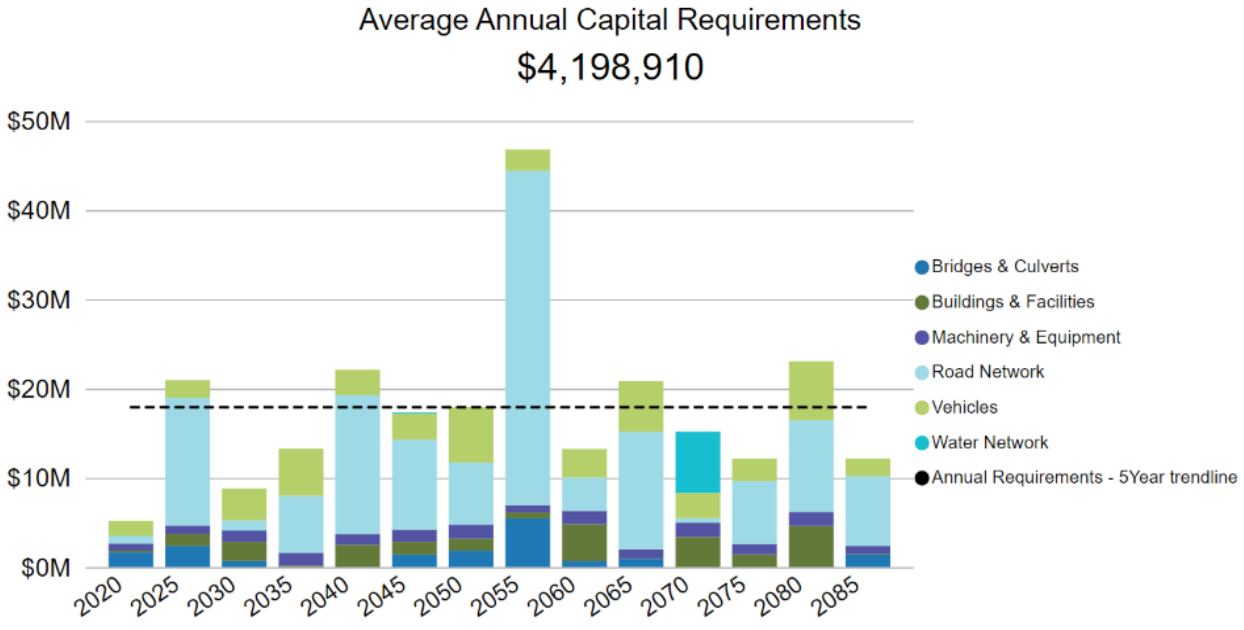
3.4 Service Life Remaining

Based on asset age, available assessed condition data and estimated useful life, 58% 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.



3.5 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 50 years.



4 Analysis of Tax-funded Assets

Key Insights

- Tax-funded assets are valued at $97.5 million
- 86% of tax-funded assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for tax-funded assets is approximately $4.1 million
- Critical assets should be evaluated to determine appropriate risk mitigation activities and treatment options

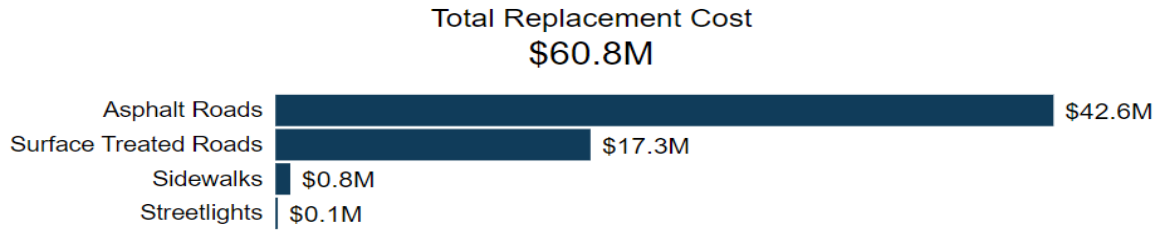
4.1 Road Network

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

4.1.1 Asset Inventory & Replacement Cost

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

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Gravel Roads	221.9 kms	Not Planned for Replacement[2]	
Asphalt Roads	107.25 kms	100% Cost/Unit	$42,631,550
Surface Treated Roads	43.95 kms	100% Cost/Unit	$17,263,350
Sidewalks	4.85 kms	User-Defined	$813,529
Streetlights	233	CPI Tables	$130,045
			$60,838,474

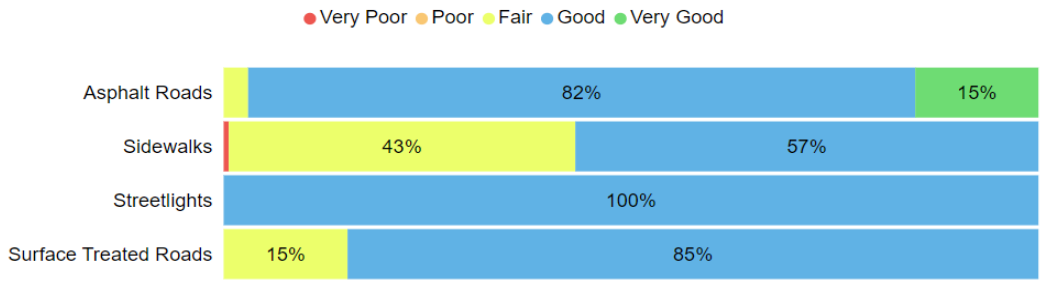


[2] Gravel roads have been included as they comprise a significant portion of the Township's Road Network. However, the lifecycle management strategies for these assets consist of perpetual maintenance activities and do not require capital costs for rehabilitation or replacement.

4.1.2 Asset Condition

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.

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Asphalt Roads	73%	Good	100% Assessed
Surface Treated Roads	67%	Good	100% Assessed
Sidewalks	61%	Good	100% Assessed
Streetlights	79%	Good	Age-based
	71%	**Good**	**99.8% Assessed**



Current Approach to Condition Assessment

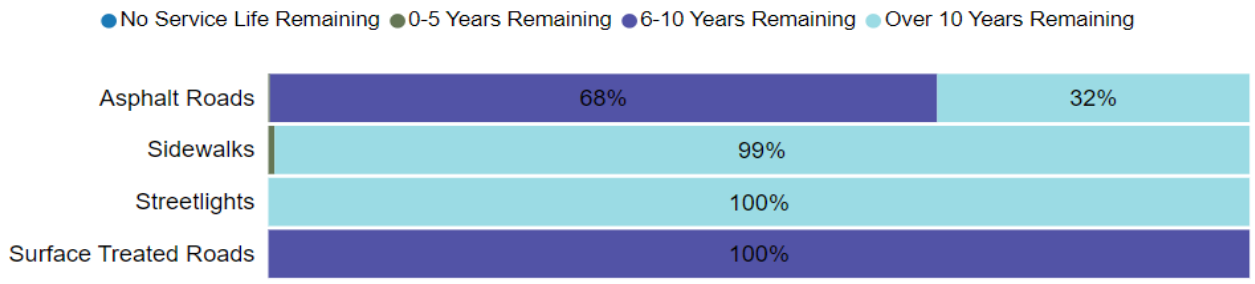
Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets more confidently. The following describes the municipality's current approach:

- A Road Needs Study was completed in 2017, and updated by staff in 2021, that included a detailed assessment of the condition of each road segment (PCI)
    - The next external assessment is scheduled for 2022
- An internal road review is completed by municipal staff, which includes visual inspection and is done in accordance with O.Reg. 239/02
- Sidewalks are inspected on an annual basis by a third-party contractor, with the purpose of documenting any defects found

4.1.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Road Network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Asphalt Roads	15	22.1	8.8
Surface Treated Roads	12	21.1	8.6
Sidewalks	40	24.6	23.8
Streetlights	30	6.1	23.9
		22.1	**10.9**



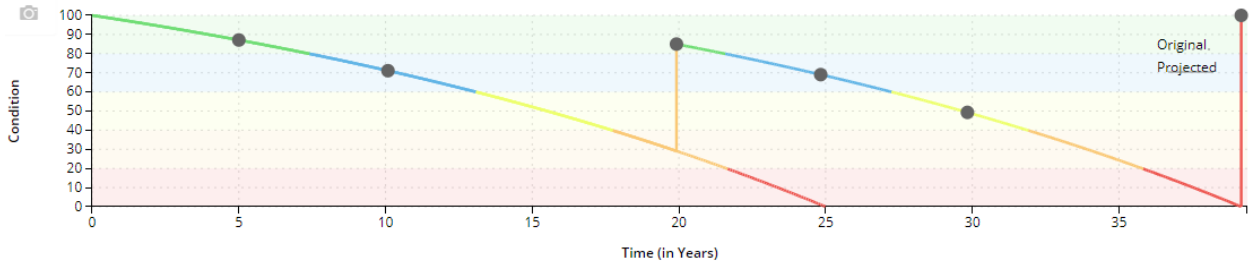
Each asset's Estimated Useful Life should be reviewed periodically to determine whether adjustments need to be made to better align with the observed length of service life for each asset type.

4.1.4 Lifecycle Management Strategy

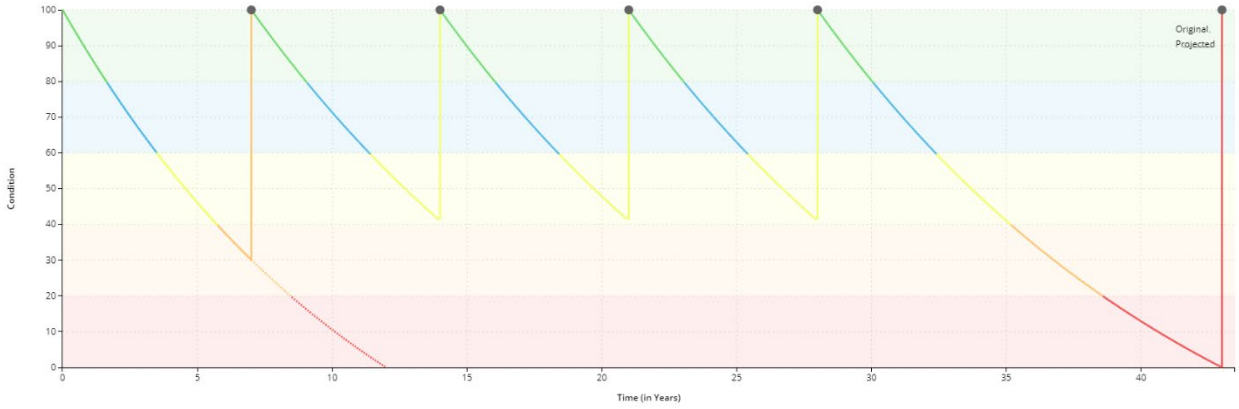
The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including an asset's characteristics, location, utilization, maintenance history and environment.

The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of asphalt and surface treated 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.

Asphalt Roads		
Event Name	**Event Class**	**Event Trigger**
Overlay	Rehabiliation	Condition: 40
Pulverize and Pave	Rehabilitation	Condition: 10
Full Reconstruction	Replacement	Condition: 0



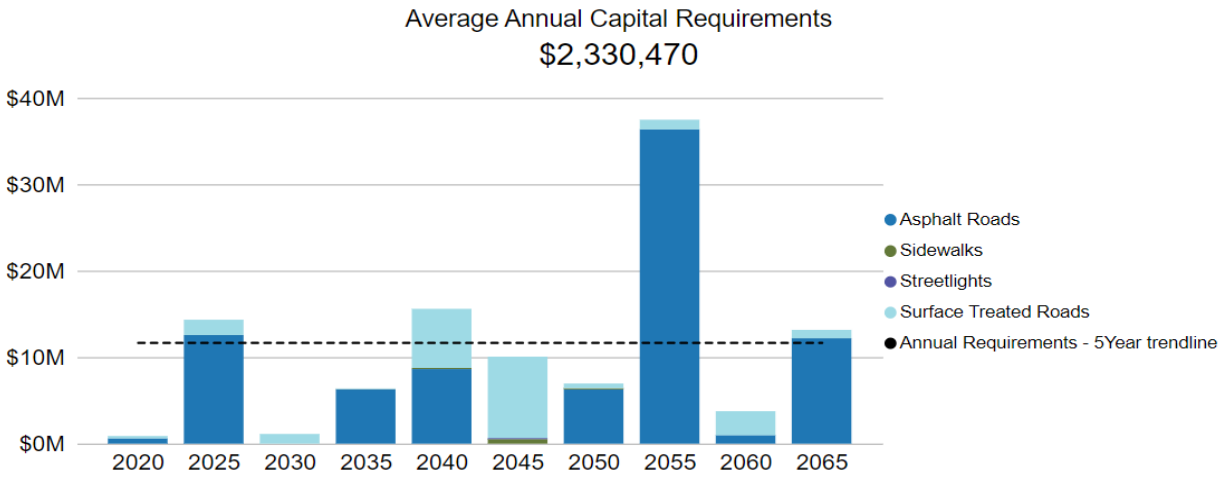
Surface Treated Roads		
Event Name	**Event Class**	**Event Trigger**
Double Surface Treatment	Rehabilitation	Condition: 30
Single Surface Treatment 1	Rehabilitation	14 Years
Single Surface Treatment 2	Rehabilitation	21 Years
Single Surface Treatment 3	Rehabilitation	28 Years
Full Reconstruction	Replacement	Condition: 0



Forecasted Capital Requirements

Based on the lifecycle strategies identified previously for asphalt and surface treated 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 annual capital requirement represents the average amount per year that the Township should allocate towards funding rehabilitation and replacement needs to meet future capital needs.



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

4.1.5 Risks to Current Asset Management Strategies

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

Staff Resources & Capacity

Municipal staff have indicated that there currently is not enough capacity to complete regularly scheduled maintenance of the road network. Consequently, there is not enough time for internal staff to dedicate towards asset management planning activities such as data refinement and lifecycle strategy development. With Elizabethtown-Kitley currently having a backlog regarding its road network, staffing resources and capacity needs to be addressed.

Climate Change & Extreme Weather Events

An increase in the frequency and intensity of precipitation events can result in flooding of sections of the road network. The drainage capacity of the road network is not sufficient to withstand heavy water flow. Further issues can arise as a result of flooding and poor drainage including accelerated deterioration caused by freeze/thaw cycles. To improve asset resiliency, Staff should identify problem areas and improve drainage through enhanced lifecycle strategies.

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

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

4.1.6 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.

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity	See Appendix B
Quality	Description or images that illustrate the different levels of road class pavement condition	The Township completed an update in 2021. Every road surface received an updated pavement condition index (PCI) from 0-100, with 0 indicating very poor, and 100 indicating a road which is in very good condition

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2021)
Scope	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km^2)	N/A
	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km^2)	1.02
	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km^2)	0.30
Quality	Average pavement condition index for paved roads in the municipality	Asphalt: 73% Surface Treated Roads: 67%
	Average surface condition for unpaved roads in the municipality (e.g. excellent, good, fair, poor)	Good
Performance	Capital reinvestment rate	2.27%

4.1.7 Recommendations

Asset Inventory

- Review and update road replacement costs to reflect current unit rates.

Condition Assessment Strategies

- The last comprehensive assessment of the road network was conducted in 2021. Consider regular, network-wide assessment, every 3 – 5 years.

Lifecycle Management Strategies

- Implement the identified lifecycle management strategies for Asphalt and Surface Treated 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.

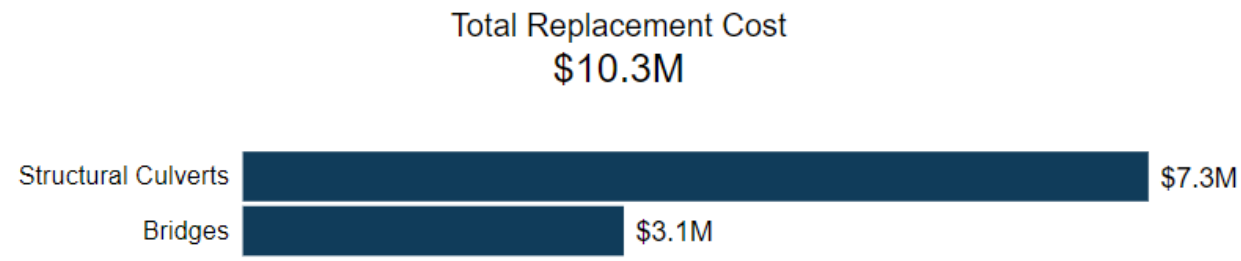
4.2 Bridges & Culverts

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

4.2.1 Asset Inventory & Replacement Cost

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

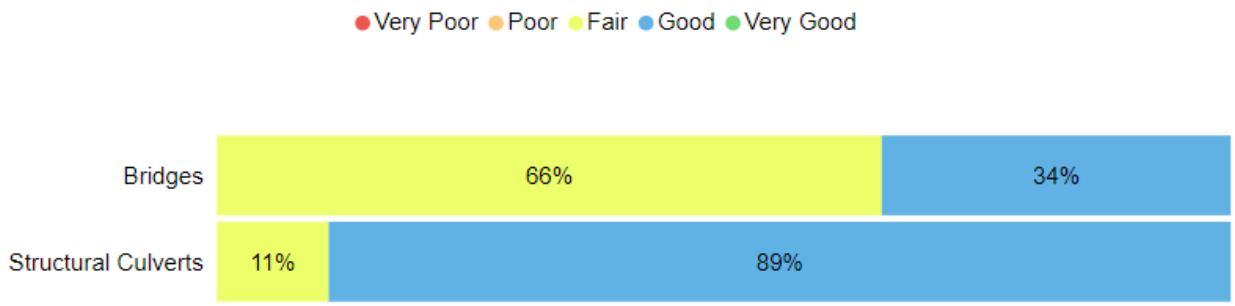
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Bridges	4	User-Defined	$3,050,000
Structural Culverts	6	User-Defined	$7,250,000
			$10,300,000



4.2.2 Asset Condition

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.

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Bridges	60%	Good	100% Assessed
Structural Culverts	65%	Good	100% Assessed
	64%	**Good**	**100% Assessed**



To ensure that the Township's Bridges & Culverts continues to provide an acceptable level of service, Elizabethtown-Kitley 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 & Culverts.

Current Approach to Condition Assessment

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

> Condition assessments of all bridges and culverts with a span greater than or equal to 3 meters are completed every 2 years in accordance with the Ontario Structure Inspection Manual (OSIM)

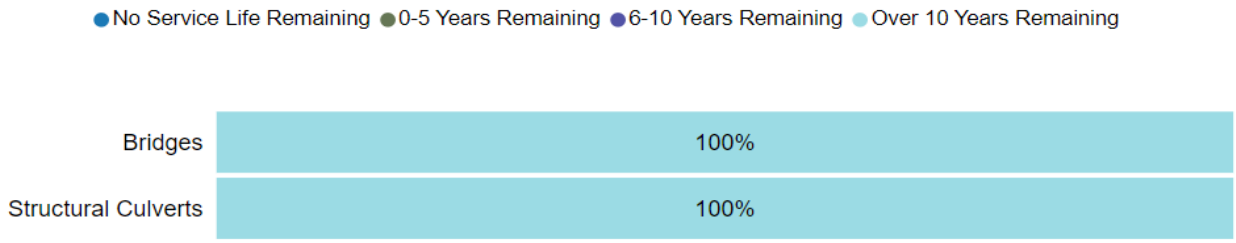
In this AMP, the following rating criteria is used to determine the current condition of bridges and culverts and forecast future capital requirements:

Condition	Rating
Very Good	80-100
Good	70-80
Fair	60-70
Poor	50-60
Very Poor	0-50

4.2.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Bridges & Culverts assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Bridges	75	37.0	24.2
Structural Culverts	40	39.8	25.7
		38.9	**25.2**



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

4.2.4 Lifecycle Management Strategy

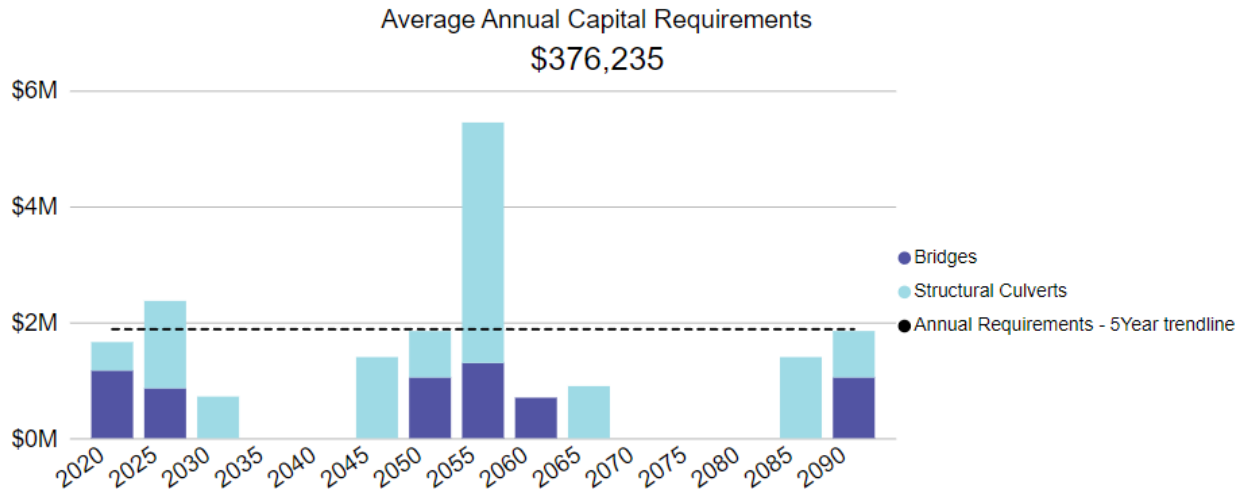
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance, Rehabilitation and Replacement	All lifecycle activities are driven by the results of mandated structural inspections competed according to the Ontario Structure Inspection Manual (OSIM)
Inspection	The most recent inspection report was completed in 2021 TSI Inc.

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

4.2.5 Risks to Current Asset Management Strategies

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

Aging Infrastructure

As municipal bridges continue to age, there are a handful of structures that are approaching their original useful life. As the bridges were created around the same time, this can create the need complete major rehabilitation projects at the same time.

Capital Funding Strategies

Major capital rehabilitation projects for bridges and culverts are dependant on the availability of grant funding opportunities. When grants are not available, bridge rehabilitation projects may be deferred. An annual capital funding strategy can reduce dependency on grant funding and help prevent deferral of capital works. Staff have indicated that both internal/external lifecycle activities (maintenance, rehabilitation), are not being completed due to the lack of funding to complete work.

Climate Change & Extreme Weather Events

Flooding and extreme weather causes damage to multiple components of the Township's bridges including the deck, superstructure, substructure, and approaches. The rising levels of freshwater and the increased frequency and intensity of precipitation events are likely to increase the deterioration of bridge components. Staff should identify and monitor effected bridges and culverts. The township experienced a washout in 2001, resulting in a complete rebuild.

The Township also should prioritize infrastructure maintenance, rehabilitation, and replacement based on susceptibility to climate impacts.

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

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

4.2.6 Levels of Service

The following tables identify the Township's current level of service for Bridges & Culverts. These metrics include the technical and community level of service metrics that are required as part of O. Reg. 588/17 as well as any additional performance measures that the 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 & Culverts.

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description of the traffic that is supported by municipal bridges (e.g. heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	Bridges and structural culverts are a key component of the municipal transportation network. One structure owned and maintained by the Township, has a loading or dimensional restrictions. All other structures support most types of vehicles, including heavy transport, emergency vehicles, and cyclists.
Quality	Description or images of the condition of bridges & culverts and how this would affect use of the bridges & culverts	Appendix B

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2021)
Scope	% Of bridges in the Township with loading or dimensional restrictions	10%
Quality	Average bridge condition index value for bridges in the Township	61%
	Average bridge condition index value for structural culverts in the Township	66%
Performance	Capital re-investment rate	0.0%

4.2.7 Recommendations

Data Review/Validation

- 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.

Risk Management Strategies

- Use risk ratings to prioritize critical bridges, ensuring that limited funding can be best apportioned to the bridges and culverts network.
- Review risk models on a regular basis and adjust according to an evolving understanding of the probability and consequences of asset failure.

Lifecycle Management Strategies

- This AMP only includes capital costs associated with the reconstruction of 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.

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.

4.3 Buildings & Facilities

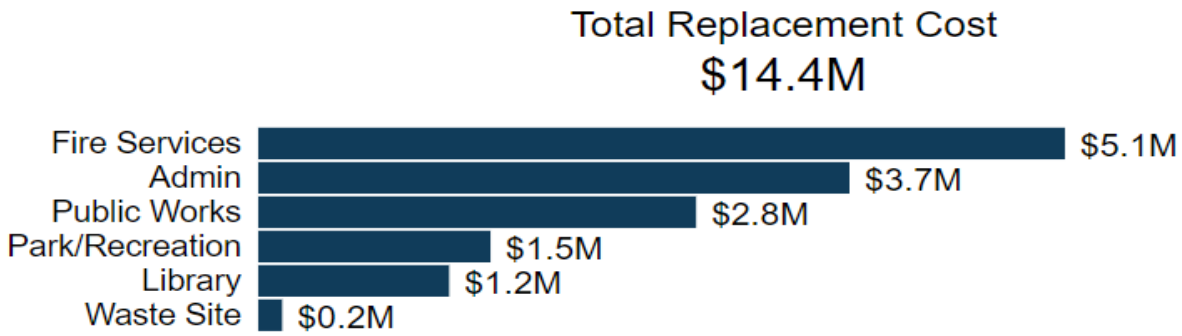
Elizabethtown-Kitley owns and maintains several facilities that provide key services to the community. These include:

- Administrative offices
- Fire stations
- Community parks
- Public library
- Waste site

4.3.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment in the Township's Buildings & Facilities inventory. All user-defined costs are insurance appraisals.

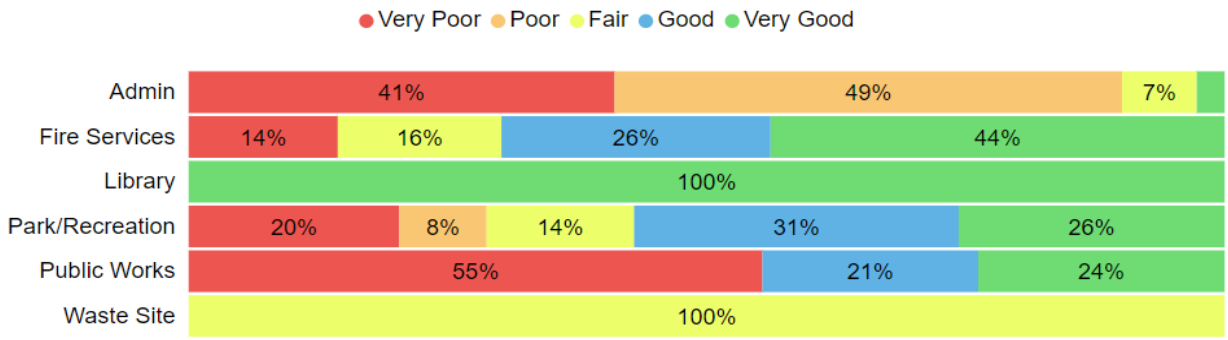
Asset Segment	Quantity (# of components)	Replacement Cost Method	Total Replacement Cost
Admin	2 (7)	90% User-Defined 10% CPI	$3,722,794
Fire Services	3	56% User-Defined 44% CPI	$5,079,202
Library	1 (4)	83% User-Defined 17% CPI	$1,202,506
Park/Recreation	14	86% User-Defined 14% CPI	$1,462,683
Public Works	2 (6)	76% User-Defined 24% CPI	$2,756,927
Waste Site	1	User-Defined	$151,200
			$14,375,312



4.3.2 Asset Condition

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.

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Admin	17%	Very Poor	Age-based
Fire Services	67%	Good	Age-based
Library	81%	Very Good	Age-Based
Park/Recreation	58%	Fair	Age-based
Public Works	41%	Fair	Age-based
Waste Site	48	Fair	Age-Based
	57%	**Fair**	**Age-Based**



To ensure that the Township's Buildings & Facilities continues to provide an acceptable level of service, Elizabethtown-Kitley 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 & Facilities.

Current Approach to Condition Assessment

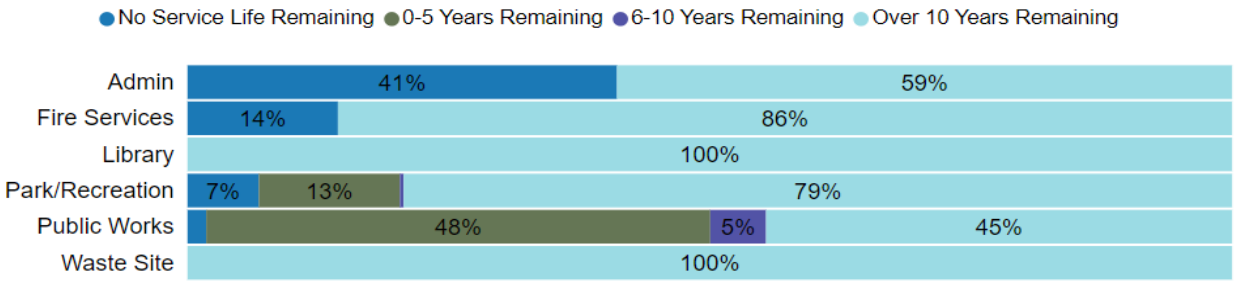
Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets more confidently. The following describes the municipality's current approach:

- A building condition assessment was conducted in 2020, recommending improvements to each building component. However, this study did not provide an overall condition rating to each building.
- Health and safety walkthroughs are completed internally, once a month
- No formal building assessments are completed regularly
- Fire stations are examined monthly

4.3.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Buildings & Facilities assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Admin	20-50	30.7	10.8
Fire Services	20-50	25.2	17.2
Library	20-50	5.4	29.6
Park/Recreation	10-50	20.5	18.4
Public Works	20-50	25	15
Waste Site	50	26	24
		22.2	**17.6**



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

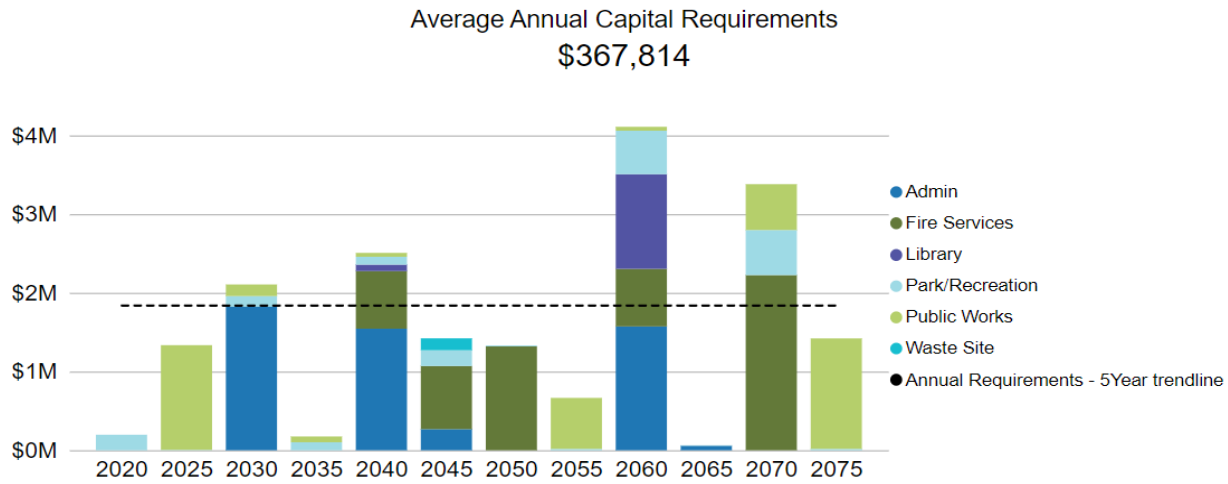
4.3.4 Lifecycle Management Strategy

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

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	Municipal buildings are subject to monthly, scheduled inspections to identify health & safety requirements
	Fire stations are subject to internal maintenance regarding heating systems (annually), compressors (semi-annually)
	Administrative building maintenance is primarily reactive, apart from shceudled mainataince on its HVAC systems, which is done through an external contractor
Replacement	Replacements occur when assets reach end of life/failure. However, staff have indicated that it will present to council, a plan which will help the Township become proactive, rather than reactive.

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

4.3.5 Risks to Current Asset Management Strategies

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

Aging Infrastructure & Capital Funding

Elizabethtown's buildings and facilities have an average age of 22.2 years. With the Township's aging infrastructure, staff has indicated that the presence of asbestos in buildings is a growing issue. Not having the necessary budget available to complete the required work, is further compounding the Township's problem with the management of its buildings and facilities.

COVID-19

COVID-19 has placed additional burdens on building management, requiring better ventilation to reduce the rate of infections. The Township is in the process of replacing HVAC systems, windows, and other related building components for ventilation purposes. Budgeting for these expenses means that base maintenance may receive less attention.

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

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

4.3.6 Levels of Service

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description, which may include maps, of the types of facilities that the Township operates and maintains	Admin (2) Fire (3) Library (1) Parks/Recreation (14) Public Works (2) Waste Site (1)

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2021)
Quality	% Of buildings that are in good and very good condition	48%
	% Of buildings that are in poor and very poor condition	42%
Performance	Capital re-investment rate	0.42%

4.3.7 Recommendations

Asset Inventory

- The Township's building inventory is a combination of single building entries, and separate assets for upgrades. Going forward, the Township should develop a consistent building componentization scheme, such as UNIFORMAT-II. This will allow the Township to document the needs of buildings at a component level.

Condition Assessment Strategies

- The Township should implement regular condition assessments for all facilities to better inform short- and long-term capital requirements.

Risk Management Strategies

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

Levels of Service

- 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.

4.4 Machinery & Equipment

To maintain the high quality of public infrastructure and support the delivery of core services, Elizabethtown-Kitley staff owns and employ various types of machinery and equipment. This includes:

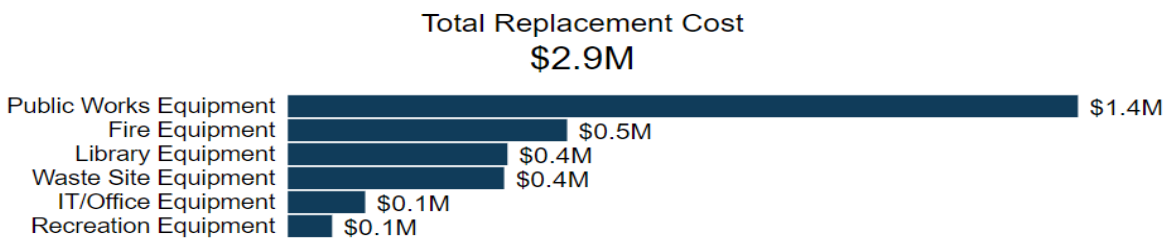
- Fire equipment
- Office/IT equipment
- Library equipment
- Public works equipment
- Recreation equipment
- Waste site equipment

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

4.4.1 Asset Inventory & Replacement Cost

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

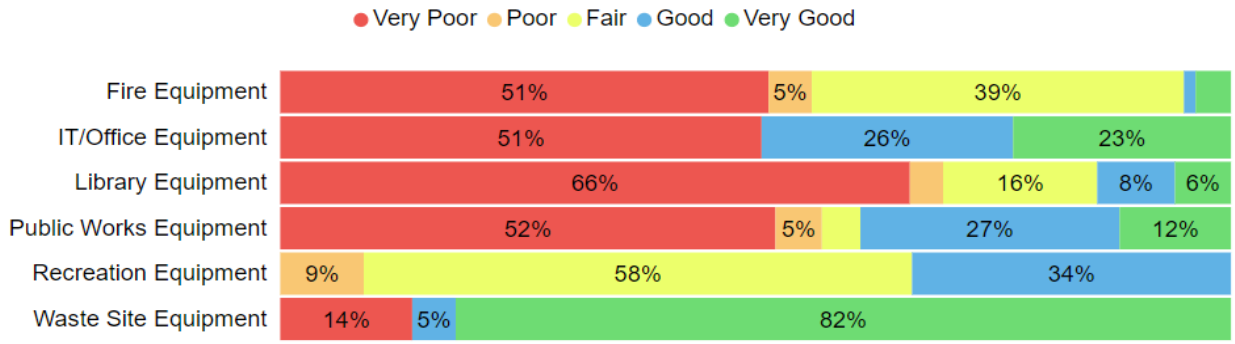
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Fire Equipment	7	CPI Tables	$500,087
IT/Office Equipment	7	CPI Tables	$138,470
Library Equipment	18	CPI Tables	$393,269
Public Works Equipment	15	CPI Tables	$1,414,911
Recreation Equipment	4	CPI Tables	$79,274
Waste Site Equipment	3	CPI Tables	$387,248
			$2,913,259



4.4.2 Asset Condition

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.

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Fire Equipment	22%	Poor	Age-based
IT/Office Equipment	39%	Poor	Age-based
Library Equipment	18%	Very Poor	Age-Based
Public Works Equipment	36%	Poor	Age-based
Recreation Equipment	52%	Fair	Age-Based
Waste Site Equipment	79%	Good	Age-Based
	37%	**Poor**	**Age-Based**



To ensure that the Township's Machinery & Equipment continues to provide an acceptable level of service, Elizabethtown-Kitley 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 & Equipment.

Current Approach to Condition Assessment

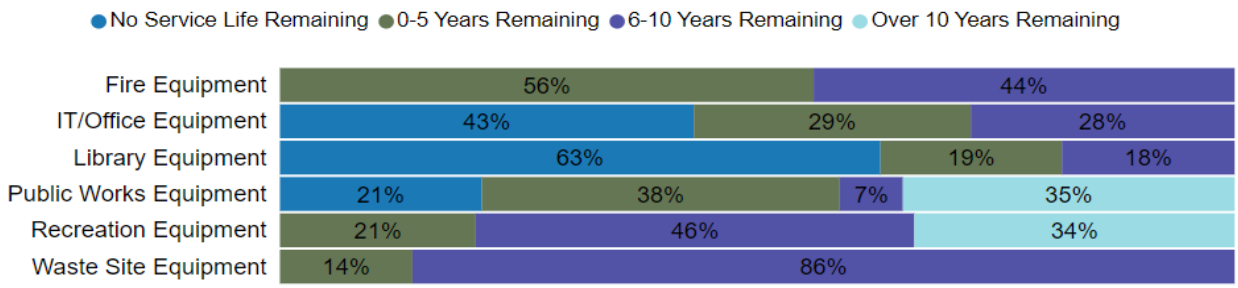
Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets more confidently. The following describes the municipality's current approach:

- Staff complete regular visual inspections of machinery & equipment to ensure they are in state of adequate repair
- Recommendations for non-fire equipment upgrades are provided on an annual basis by staff
- Bunker gear follows a ten-year replacement schedule, as per the National Fire Protection Agency standards. Other equipment, such as breathing apparatuses, are replaced based on its condition

4.4.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Machinery & Equipment assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Fire Equipment	8-15	3.8	6.3
IT/Office Equipment	7-10	6.9	0.9
Library Equipment	7-15	8.8	-1.4[3]
Public Works Equipment	10-25	13.6	0.7
Recreation Equipment	10-20	7.4	7.7
Waste Site Equipment	10-15	5.1	6.5
		8.8	**1.6**



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

[3] Library books are kept in collections beyond the seven-year useful life that is typical. Although library equipment appears to need urgent replacement, it is still in good functioning order.

4.4.4 Lifecycle Management Strategy

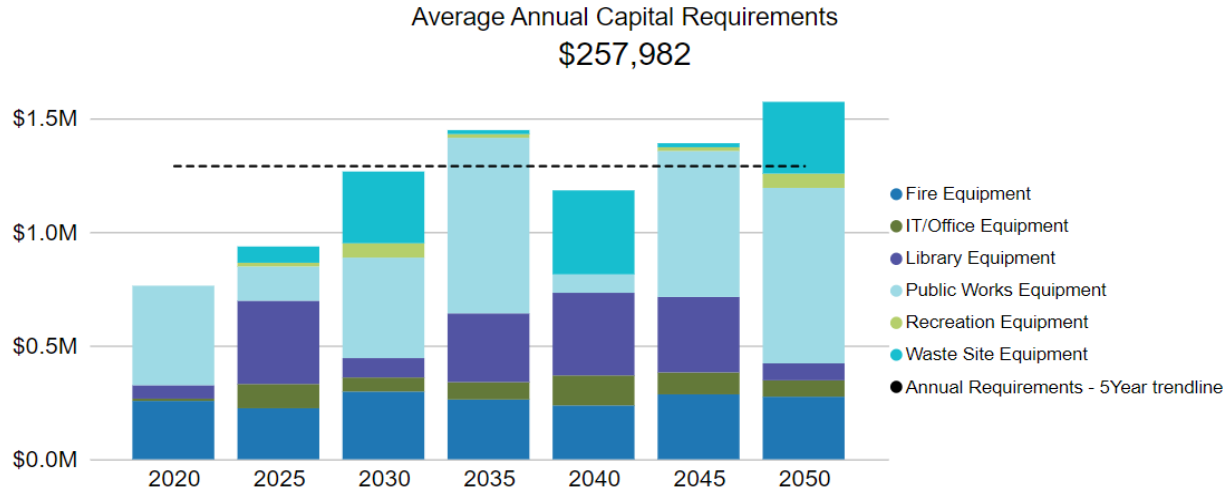
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance/ Rehabilitation	Maintenance program varies by department
	Fire Protection Services equipment is subject to a much more rigorous inspection and maintenance program compared to most other departments. Fire equipment requires annual testing, bunker gear is inspected after every use.
	IT equipment recieves annual recommendations by an external contractor
	Machinery & equipment is maintained according to manufacturer recommended actions and supplemented by the expertise of municipal staff
Replacement	The replacement of machinery & equipment depends on deficiencies identified by operators that may impact their ability to complete required tasks
	A planning horizon exists for the Fire department and is accounted for in the operating budget

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

4.4.5 Risks to Current Asset Management Strategies

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

Staff Capacity

The Fire Department indicated that the recruitment and retention for volunteer fire fighters has been and is an ongoing issue. Coupled with the legislative/regulatory requirements, staffing capacity issues need to be resolved to maintain the Township's level of service and the community's expectations.

COVID-19

Staff indicated that with Covid-19, the Township required more frontline equipment. The disruption of the supply chain made it difficult for the Elizabethtown-Kitley to acquire the necessary equipment needed.

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

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

4.4.6 Levels of Service

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description or images of the types of machinery and equipment that the Township operates and maintains	Fire Equipment (7) IT/Office Equipment (7) Library Equipment (18) Public Works Equipment (15) Recreation Equipment (4) Waste Site (3)

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2021)
Quality	% Of machinery & equipment that are in good and very good condition	36%
	% Of machinery & equipment that are in poor and very poor condition	51%
Performance	Capital re-investment rate	1.55%

4.4.7 Recommendations

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.

Inventory

- Many machinery and equipment assets have exceeded their stated estimated useful life. The Township may consider reviewing and revising the estimated useful life values to better reflect the true service life of these assets.

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.

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.

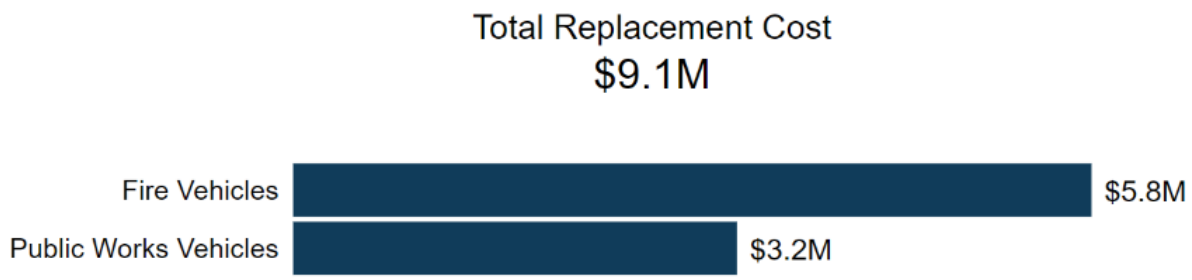
4.5 Vehicles

Vehicles allow staff to efficiently deliver municipal services and personnel. Elizabethtown-Kitley's vehicle inventory is comprised of fire rescue vehicles and public works vehicles (plow trucks)

4.5.1 Asset Inventory & Replacement Cost

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

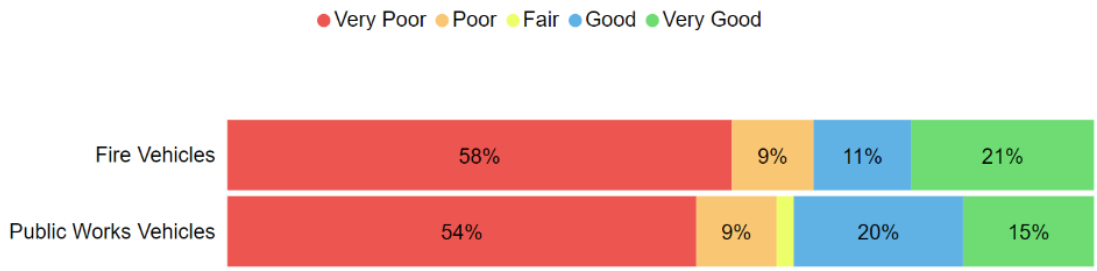
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Fire Vehicles	15	User-Defined	$5,841,000
Public Works Vehicles	16	99.1% User-Defined 0.9% CPI	$3,247,661
			$9,088,661



4.5.2 Asset Condition

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.

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Fire Vehicles	30%	Poor	Age-Based
Public Works Vehicles	34%	Poor	Age-Based
	31%	**Poor**	**Age-Based**



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

Current Approach to Condition Assessment

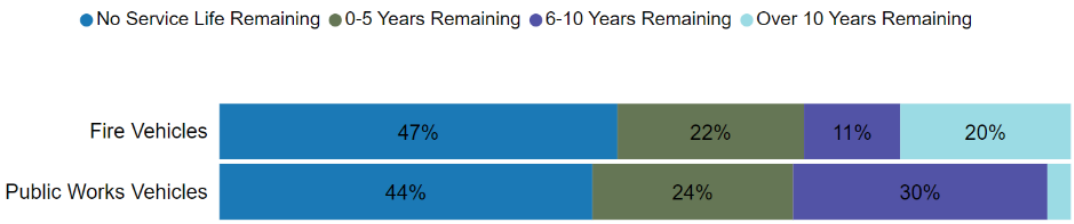
Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets more confidently. The following describes the municipality's current approach:

- Fire vehicles are inspected monthly, internally
    - Post-use inspection is completed after every use
- Staff complete regular visual inspections of public works vehicles to ensure they are in state of adequate repair prior to operation
    - Vehicles are also inspected and recertified annually

4.5.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Vehicles assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Fire Vehicles	6-15	11.8	0.9
Public Works Vehicles	6-12	8.3	0.9
		10.0	**0.9**



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

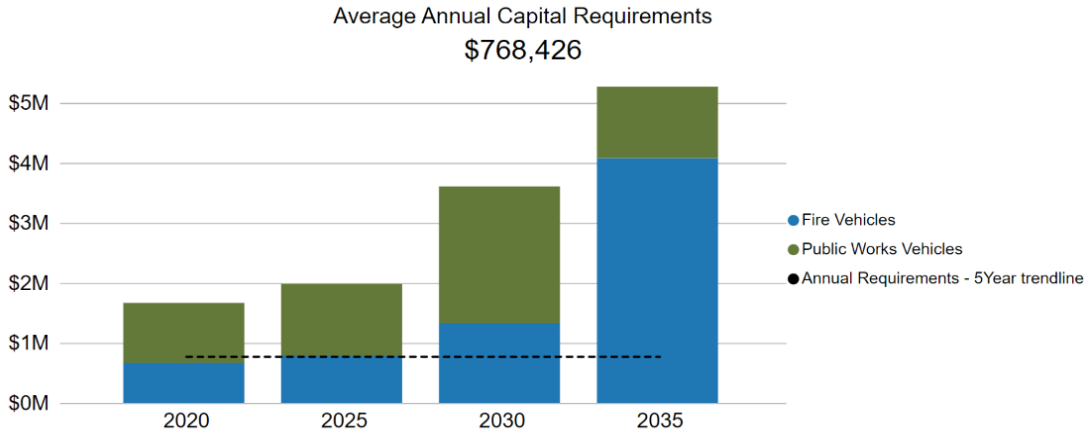
4.5.4 Lifecycle Management Strategy

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

Activity Type	Description of Current Strategy
Maintenance / Rehabilitation	As needed minor maintainance activities include: oil changes, greasing, filter changes, tire rotation
	Annual preventative maintenance activities include system components checks, pump tests, etc.
	Batteries are replaced every 3 years for fire department vehicles, while tires are changed every 10 years
Replacement	Vehicle replacements are based the Township's capital plan, which primarily looks at the age of the vehicle

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

4.5.5 Risks to Current Asset Management Strategies

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

Staff Capacity

Staff have indicated that it is difficult to complete all required maintenance activities. This is due in part because the Township does not have an internal mechanic. With most vehicles projected to reach their estimated useful life within a year (0.9 years), regular maintenance becomes increasingly important if the Township wants to continue utilizing its vehicle assets.

Aging Infrastructure & Funding Strategies

As vehicles age, they will require exponentially increasing O&M costs to ensure compliance with MTO standards and to function adequately. As capital budgets become more constrained, more maintenance will be postponed, which will further amplify this risk.

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

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

4.5.6 Levels of Service

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description or images which of the types of vehicles that the Township operates and maintains	Fire Vehicles (15) Public Works Vehicles (16)

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2021)
Quality	% Of vehicles that are in good and very good condition	33%
	% Of vehicles that are in poor and very poor condition	66%
Performance	Capital re-investment rate	4.87%

4.5.7 Recommendations

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.

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.

5 Analysis of Rate-funded Assets

Key Insights

- Rate-funded assets are valued at $7 million
- 100% of rate-funded assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for rate-funded assets is approximately $98 thousand
- Critical assets should be evaluated to determine appropriate risk mitigation activities and treatment options

5.1 Water Network

Water services for the Township are currently maintained and funded for by the City of Brockville. However, the Township is expected to assume responsibility for these assets in the near future. The water services provided by the Township includes the following:

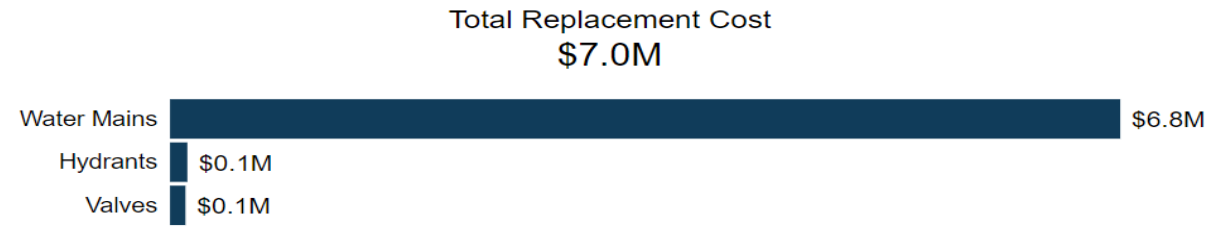
- Hydrants
- Valves
- Water Mains

The table below outlines high-level service indicators for the Water Network.

5.1.1 Asset Inventory & Replacement Cost

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

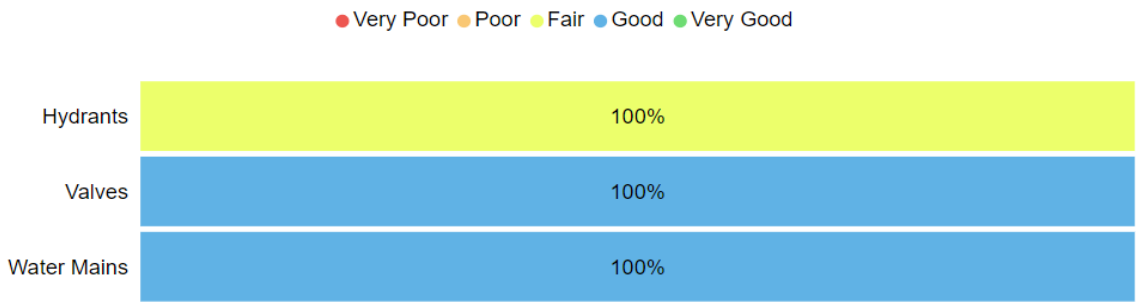
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Hydrants	19	User-Defined	$123,500
Valves	60	User-Defined	$108,000
Water Mains	16.23 kms	Cost/Unit	$6,768,940
			$7,000,440



5.1.2 Asset Condition

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.

Asset Segment	Average Condition (%)	Average Condition Rating	Condition Source
Hydrants	54%	Fair	Age-Based
Valves	68%	Good	Age-based
Water Mains	68%	Good	Age-Based
	68%	**Good**	**Age-Based**



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

Current Approach to Condition Assessment

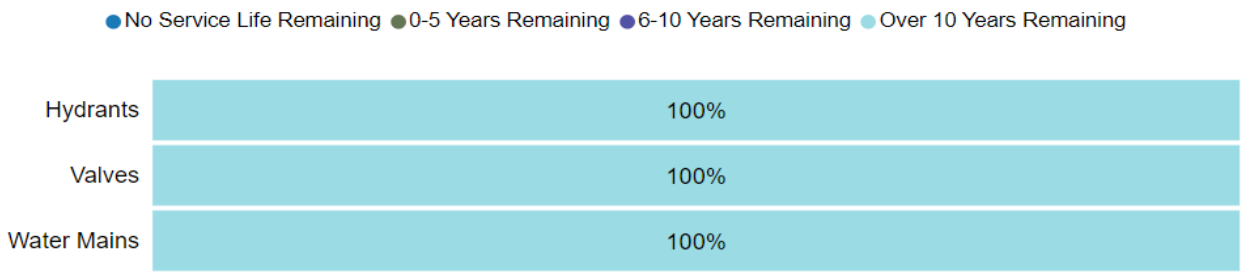
Accurate and reliable condition data allows staff to determine the remaining service life of assets and identify the most cost-effective approach to managing assets more confidently. The following describes the municipality's current approach:

- Staff primarily rely on the age and material of water mains to determine the projected condition of water mains
- There are no formal internal condition assessment programs in place for the Water Network
- Inspections are completed by the neighbouring city, Brockville

5.1.3 Estimated Useful Life & Average Age

The Estimated Useful Life for Water Network assets has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service. Finally, the Average Service Life Remaining represents the difference between the Estimated Useful Life and the Average Age, except when an asset has been assigned an assessed condition rating. Assessed condition may increase or decrease the average service life remaining.

Asset Segment	Estimated Useful Life (Years)	Average Age (Years)	Average Service Life Remaining (Years)
Hydrants	50 Years	23.0	27.0
Valves	72 Years	23.0	49.0
Water Mains	72 Years	23.0	49.0
		23.0	**45.8**



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

5.1.4 Lifecycle Management Strategy

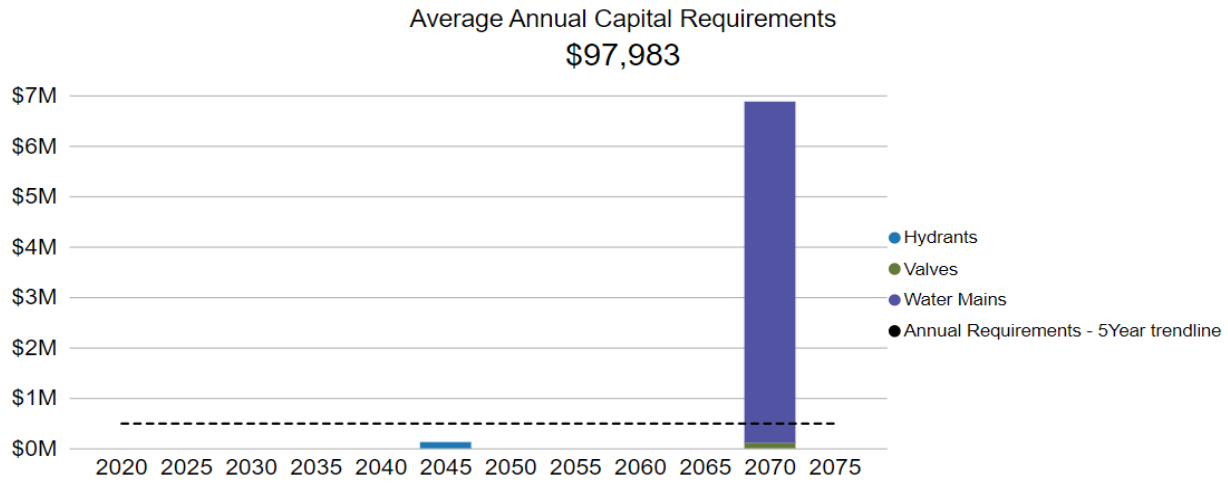
The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

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

Activity Type	Description of Current Strategy
Maintenance	Main flushing is completed annually
	Hydrant inspection and valve turning occurs annually
Replacement	In the absence of mid-lifecycle rehabilitative events, most mains are simply maintained with the goal of full replacement once it reaches its end-of-life
	Replacement activities are identified based on an analysis of the main break rate as well as any issues identified during regular maintenance activities

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

5.1.5 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 & Information

All asset data pertaining to the water network is with The City of Brockville. Consequently, Elizabethtown-Kitley does not have immediate access.

With the completion of this AMP, the Township has been able to have a centralized database of the hydrants, valves, and mains. Staff plan to prioritize data refinement efforts to increase confidence in the accuracy and reliability of asset data and information. Once completed there will be greater confidence in the development of data-driven strategies to address infrastructure needs.

5.1.6 Levels of Service

The following tables identify the Township's current level of service for Water 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 Water Network.

Service Attribute	Qualitative Description	Current LOS (2021)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system	See Appendix B
	Description, which may include maps, of the user groups or areas of the municipality that have fire flow	See Appendix B
Reliability	Description of boil water advisories and service interruptions	N/A

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2021)
Scope	% Of properties connected to the municipal water system	7%
	% Of properties where fire flow is available	0%
Reliability	# Of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system	0
	# Of connection-days per year where water is not available due to water main breaks compared to the total number of properties connected to the municipal water system	0.017
Performance	Capital re-investment rate	0.0%

5.1.7 Recommendations

Asset Inventory

- Review unit replacement costs of watermains and hydrants, ensuring they reflect current market value.

Condition Assessment Strategies

- Identify condition assessment strategies for high value and high-risk water network assets.

Lifecycle Strategies

- Determine an appropriate level of flushing, valve turning, and hydrant maintenance to ensure the water system is functioning.

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 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.

6 Impacts of Growth

Key Insights

- Understanding the key drivers of growth and demand will allow the Township to more effectively plan for new infrastructure, and the upgrade or disposal of existing infrastructure

- Moderate population growth, and moderate employment decline is expected

- The costs of growth should be considered in long-term funding strategies that are designed to maintain the current level of service

6.1 Description of Growth Assumptions

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

6.1.1 Official Plan of the Township of Elizabethtown-Kitley (2018)

The Township recently adopted a new Official Plan to ensure conformance with the United Counties of Leeds and Grenville Official Plan, and address matters of local planning interest. The Official Plan is a planning document for the purpose of guiding the future development of the Township of Elizabethtown-Kitley to the year 2031.

The Official Plan has been approved by the United Counties of Leeds & Greenville as of October 25, 2018.

The General Development Policies apply to development regardless of the land use designation in which it is situated. The policies in the Official Plan are intended to support the initiative that most of the future growth will be focused on existing settlement areas in the Township's villages and hamlets.

The majority of commercial and industrial development will be directed to existing industrial-business parks, with designated portions of County Road No. 29 Corridor area as a healthy and prosperous commercial and industrial area.

6.1.2 United Counties of Leeds and Grenville (2021)

The Counties is responsible for the allocation of growth to the local municipalities, which is based on a combination of local factors including: local planning policy; historic and recent growth trends; market demand; and the capacity to accommodate growth from land supply and servicing perspectives.

The following table outlines the population and employment forecasts allocated to Elizabethtown-Kitley:

	2011	**2021**	**2031**
Total Place of Work Employment Forecasts	2,580	2,680	2,500
Historical & Forecast Total Population	9,965	9,960	10,010

6.2 Impact of Growth on Lifecycle Activities

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

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

7 Financial Strategy

Key Insights

- The Township is committing approximately $1,926,000 towards capital projects per year from sustainable revenue sources

- Given the annual capital requirement of $4,198,000, there is currently a funding gap of $2,272,000 annually

- For tax-funded assets, we recommend increasing tax revenues by 1.5% each year for the next 20 years to achieve a sustainable level of funding

- For the Water Network, we suggest setting a rate suitable to funding $98,000 of capital requirements

7.1 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 Township of Elizabethtown-Kitley 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.

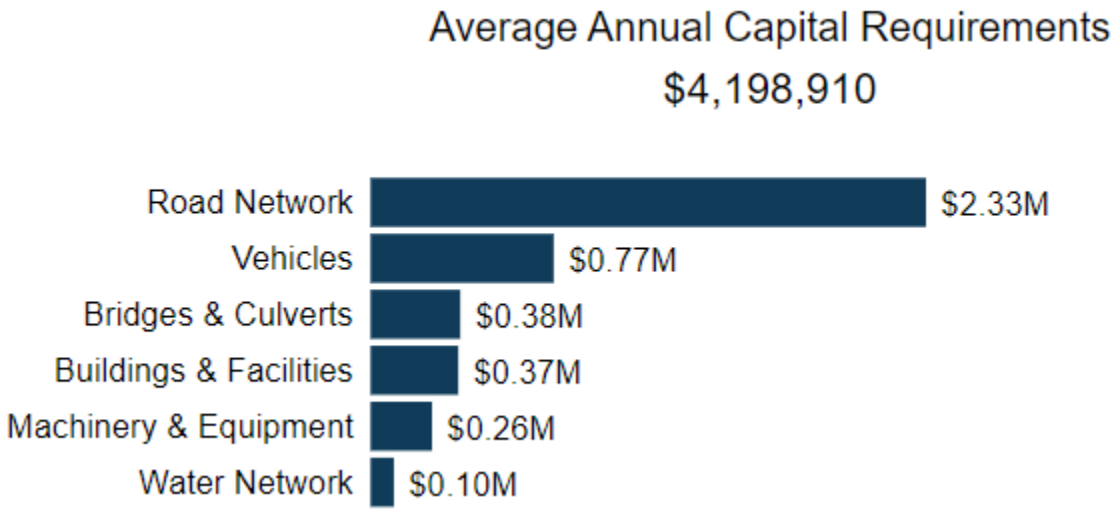
If the financial plan component results in a funding shortfall, the Province requires the inclusion of a specific plan as to how the impact of the shortfall will be managed. In determining the legitimacy of a funding shortfall, the Province may evaluate the Township's approach to the following:

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.

7.1.1 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 $4.2 million annually to address capital requirements for the assets included in this AMP.

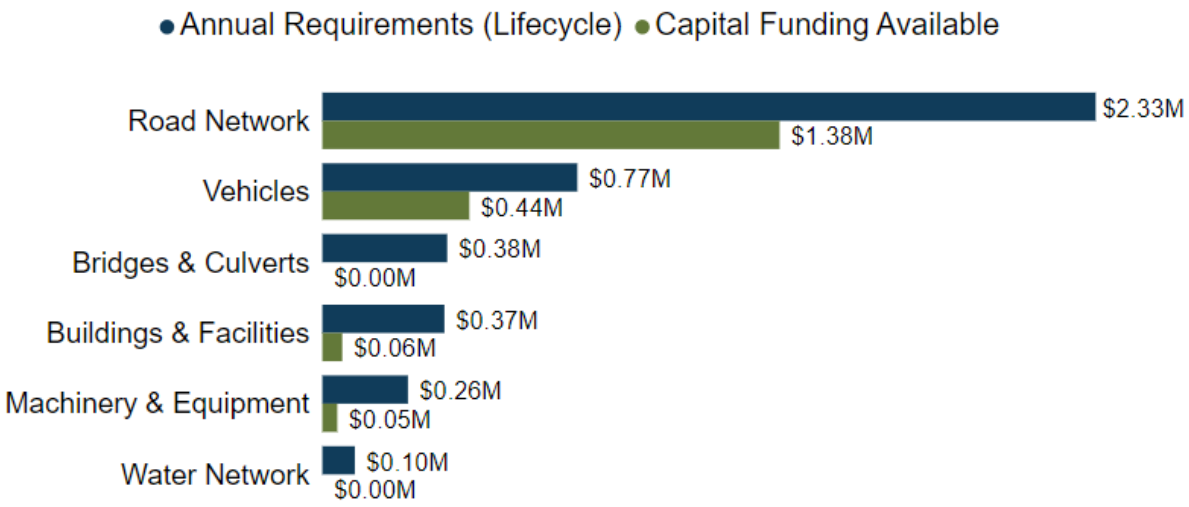


For most asset categories the annual requirement has been calculated based on a "replacement only" scenario, in which capital costs are only incurred at the construction and replacement of each asset.

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.

Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the Township is committing approximately $1,926,000 towards capital projects per year. Given the annual capital requirement of $4,100,000, there is currently a funding gap of $2,174,000 annually.



7.2 Funding Objective

We have developed a scenario that would enable Elizabethtown-Kitley to achieve full funding within 1 to 20 years for the following assets:

1. **Tax Funded Assets:** Bridges & Culverts, Buildings & Facilities, Machinery & Equipment, Road Network, Vehicles
2. **Rate-Funded Assets:** Water Network

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

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

7.3 Financial Profile: Tax Funded Assets

7.3.1 Current Funding Position

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

Asset Category	Avg. Annual Requirement	Annual Funding Available				Annual Deficit
		Taxes	Gas Tax	OCIF	Total Available	
Bridges & Culverts	376,000	0	0	0	0	376,000
Buildings & Facilities	368,000	60,000	0	0	60,000	308,000
Machinery & Equipment	258,000	45,000	0	0	45,000	213,000
Road Network	2,330,000	826,000	313,000	239,000	1,378,000	952,000
Vehicles	768,000	443,000	0	0	443,000	325,000
	4,100,000	**1,374,000**	**313,000**	**239,000**	**1,926,000**	**2,174,000**

The average annual investment requirement for the above categories is $4,100,000. Annual revenue currently allocated to these assets for capital purposes is $1,926,000 leaving an annual deficit of $2,174,000. Put differently, these infrastructure categories are currently funded at 47% of their long-term requirements.

7.3.2 Full Funding Requirements

In 2021, Township of Elizabethtown-Kitley has annual tax revenues of $6,647,000. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding would require the following tax change over time:

Asset Category	Tax Change Required for Full Funding
Bridges & Culverts	5.7%
Buildings & Facilities	4.6%
Machinery & Equipment	3.2%
Road Network	14.3%
Vehicles	4.9%
	32.7%

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

a) Elizabethtown-Kitley's formula based OCIF grant is scheduled to grow from $105,000 in 2019 to $107,000 in 2021.
b) Elizabethtown-Kitley's debt payments for these asset categories will be decreasing by $151,000 over the next 5 years and by $151,000 over the next 10 years. Although not shown in the table, debt payment decreases will be $151,000 and $116,000 over the next 15 and 20 years respectively.

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:

	Without Capturing Changes				With Capturing Changes			
	5 Years	10 Years	15 Years	20 Years	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	2,174,000	2,174,000	2,174,000	2,174,000	2,174,000	2,174,000	2,174,000	2,174,000
Change in Debt Costs	N/A	N/A	N/A	N/A	151,000	151,000	151,000	116,000
Change in OCIF Grants	N/A	N/A	N/A	N/A	0	0	0	0
Resulting Infrastructure Deficit:	**5**	**10**	**15**	**20**	**5**	**10**	**15**	**20**
Tax Increase Required	32.7%	32.7%	32.7%	32.7%	35%	35%	35%	34.4%
Annually:	**5.9%**	**2.9%**	**2.0%**	**1.5%**	**6.2%**	**3.1%**	**2.1%**	**1.5%**

7.3.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 20-year option. This involves full funding being achieved over 20 years by:

a) increasing tax revenues by 1.5% each year for the next 20 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
b) allocating the current gas tax and OCIF revenue as outlined previously.
c) should the scheduled OCIF grant increase, the Township should reduce the annual tax increase by an amount equal to the grant increase as it occurs.
d) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
e) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

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

Although this option achieves full funding on an annual basis in 20 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available.

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

[4] The 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.

7.4 Financial Profile: Rate Funded Assets

7.4.1 Current Funding Position

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

Asset Category	Avg. Annual Requirement	Annual Funding Available				Annual Deficit
		Taxes	Gas Tax	OCIF	Total Available	
Water Network	98,000	0	0	0	0	98,000
	98,000	**0**	**0**	**0**	**0**	**0**

The average annual investment requirement for the above categories is $98,000. Annual revenue currently allocated to these assets for capital purposes is $0 leaving an annual deficit of $98,000. Put differently, these infrastructure categories are currently funded at 0% of their long-term requirements.

7.4.2 Full Funding Requirements

In 2021, Elizabethtown-Kitley had no annual water revenues. As illustrated in the table below, without consideration of any other sources of revenue, full funding would require the following changes over time:

Asset Category	Tax Change Required for Full Funding
Water Network	N/A

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

	Water Network			
	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	98,000	98,000	98,000	98,000
Tax Increase Required	N/A	N/A	N/A	N/A
Annually:	**N/A**	**N/A**	**N/A**	**N/A**

7.4.3 Financial Strategy Recommendations

Considering all of the above information, we recommend phasing in a water network rate over the next 5-20 years to:

a) over the phase in period, achieve annual funding available for asset investment of $98 thousand from the water network rates
b) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

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

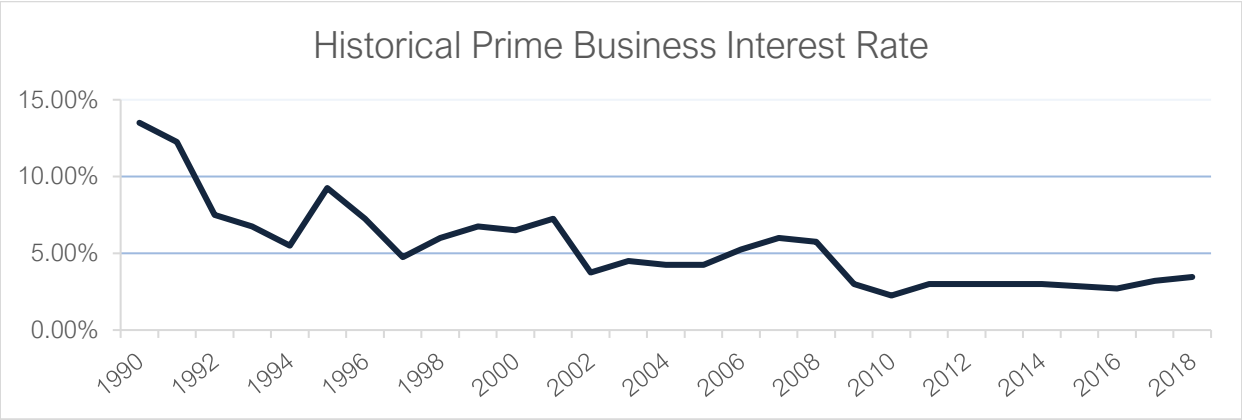
Prioritizing future projects will require the current data to be replaced by condition-based data. Although our recommendations include no further use of debt, the results of the condition-based analysis may require otherwise.

7.5 Use of Debt

For reference purposes, the following table outlines the premium paid on a project if financed by debt. For example, a $1M project financed at 3.0%[5] over 15 years would result in a 26% premium or $260,000 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.

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%

It should be noted that current interest rates are near all-time lows. Sustainable funding models that include debt need to incorporate the risk of rising interest rates. The following graph shows where historical lending rates have been:



[5] Current municipal Infrastructure Ontario rates for 15-year money is 3.2%.

A change in 15-year rates from 3% to 6% would change the premium from 26% to 54%. Such a change would have a significant impact on a financial plan.

The following tables outline how Elizabethtown-Kitley has historically used debt for investing in the asset categories as listed. There is currently $2,208,000 of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of $151,000, well within its provincially prescribed maximum of $1,873,000.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2017	2018	2019	2020	2021
Bridges & Culverts	0	0	0	0	0	0
Buildings & Facilities	2,208,000	0	0	0	0	2,208,000
Machinery & Equipment	0	0	0	0	0	0
Road Network	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0
Total Tax Funded:	**0**	**0**	**0**	**0**	**0**	**2,208,000**
Water Network	0	0	0	0	0	0
Total Rate Funded:	**0**	**0**	**0**	**0**	**0**	**0**

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2021	2022	2023	2024	2025	2026	2031
Bridges & Culverts	0	0	0	0	0	0	0
Buildings & Facilities	0	151,000	151,000	151,000	151,000	151,000	151,000
Machinery & Equipment	0	0	0	0	0	0	0
Road Network	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0
Total Tax Funded:	**0**	**151,000**	**151,000**	**151,000**	**151,000**	**151,000**	**151,000**
Water Network	0	0	0	0	0	0	0
Total Rate Funded:	**0**	**0**	**0**	**0**	**0**	**0**	**0**

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

7.6 Use of Reserves

7.6.1 Available Reserves

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

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

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

Asset Category	Balance at December 31, 2021
Bridges & Culverts	104,000
Buildings & Facilities	224,000
Machinery & Equipment	455,000
Road Network	1,527,000
Vehicles	756,000
Total Tax Funded:	**3,086,000**
Water Network	56,000
Total Rate Funded:	**56,000**

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 Elizabethtown-Kitley'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.

7.6.2 Recommendation

In 2024, Ontario Regulation 588/17 will require Elizabethtown-Kitley 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.

8 Appendices

Key Insights

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

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

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

Appendix A: 10-Year Capital Requirements

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

Road Network											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Asphalt Roads	$0	$0	$73,710	$110,565	$429,975	$2,862,405	$2,100,735	$4,649,873	$2,813,265	$135,135	$0
Sidewalks	$0	$0	$0	$0	$0	$0	$5,103	$0	$0	$0	$0
Streetlights	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Surface Treated Roads	$0	$0	$49,950	$140,400	$81,000	$513,450	$862,200	$313,200	$0	$83,250	$234,000
Total:	**$0**	**$0**	**$123,660**	**$250,965**	**$510,975**	**$3,375,855**	**$2,968,038**	**$4,963,073**	**$2,813,265**	**$218,385**	**$234,000**

Bridges & Culverts											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Bridges	$0	$0	$1,169,400	$0	$0	$862,000	$0	$300,000	$0	$0	$0
Structural Culverts	$0	$0	$100,000	$0	$390,000	$0	$0	$0	$1,208,500	$0	$366,250
Total:	**$0**	**$0**	**$1,269,400**	**$0**	**$390,000**	**$862,000**	**$0**	**$300,000**	**$1,208,500**	**$0**	**$366,250**

Buildings & Facilities											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Admin	$1,530,800	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Fire Services	$731,500	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Library	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Park/Recreation	$100,000	$0	$197,400	$0	$0	$0	$0	$0	$0	$5,258	$0
Public Works	$49,500	$0	$0	$0	$0	$0	$1,330,200	$0	$0	$0	$0
Waste Site	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total:	**$2,411,800**	**$0**	**$197,400**	**$0**	**$0**	**$0**	**$1,330,200**	**$0**	**$0**	**$5,258**	**$0**

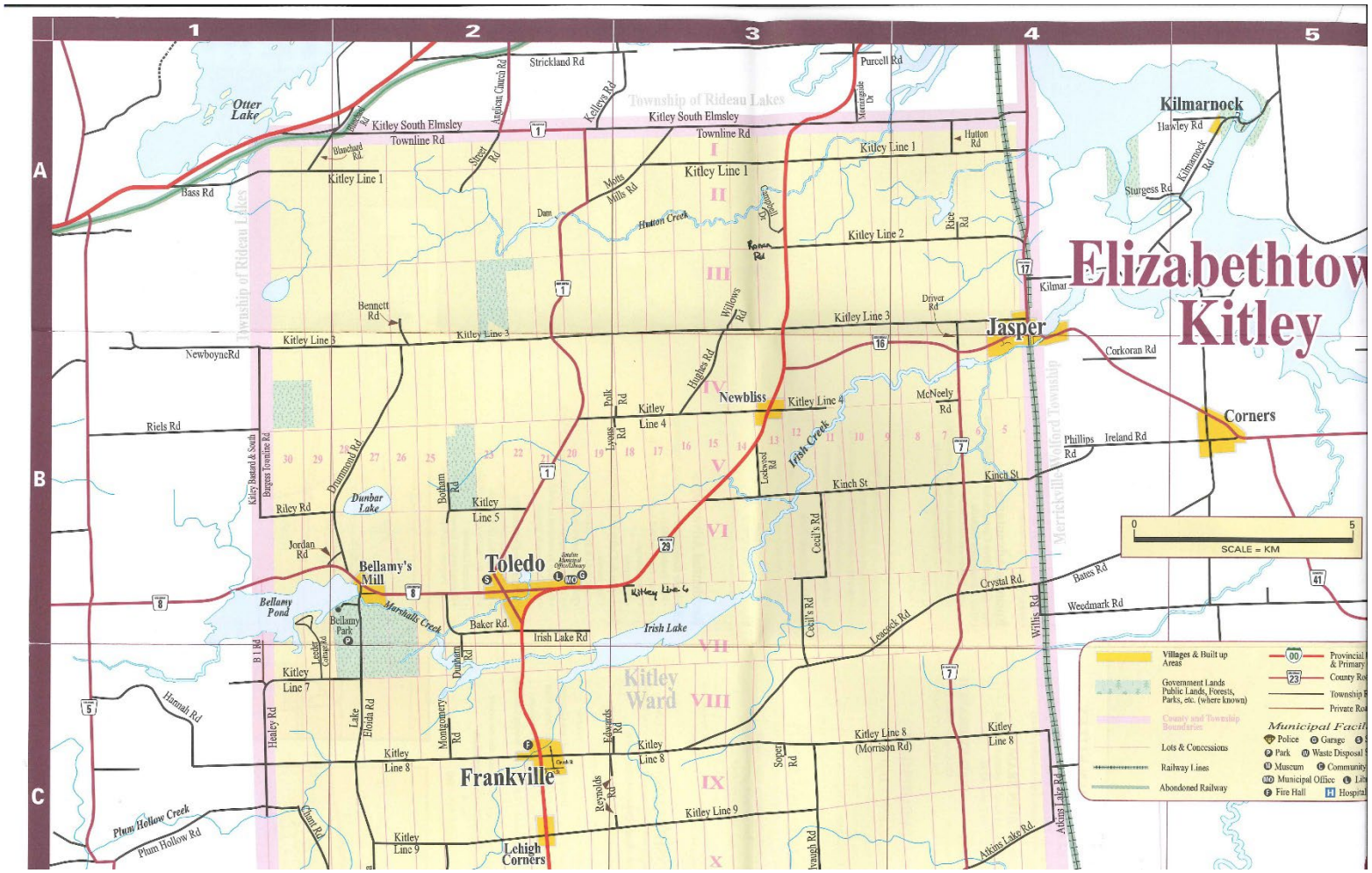
Machinery & Equipment											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Fire Equipment	$0	$0	$256,882	$0	$0	$22,706	$0	$0	$201,882	$0	$256,882
IT/Office Equipment	$60,025	$0	$10,079	$0	$0	$0	$30,096	$0	$60,025	$16,608	$31,741
Library Equipment	$215,244	$32,134	$0	$13,063	$13,742	$15,772	$32,145	$10,622	$307,925	$0	$13,063
Public Works Equipment	$298,889	$0	$104,394	$333,667	$0	$0	$0	$92,801	$49,589	$8,620	$0
Recreation Equipment	$0	$0	$0	$0	$0	$6,965	$0	$9,295	$0	$0	$0
Waste Site Equipment	$0	$0	$0	$0	$0	$53,769	$0	$0	$0	$17,715	$315,764
Total:	**$574,158**	**$32,134**	**$371,355**	**$346,730**	**$13,742**	**$99,212**	**$62,241**	**$112,718**	**$619,421**	**$42,943**	**$617,450**

Vehicles											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Fire Vehicles	$2,730,000	$0	$0	$670,000	$0	$0	$610,000	$60,000	$0	$120,000	$0
Public Works Vehicles	$1,060,000	$362,661	$0	$335,000	$300,000	$65,000	$65,000	$92,661	$0	$970,000	$0
Total:	**$3,790,000**	**$362,661**	**$0**	**$1,005,000**	**$300,000**	**$65,000**	**$675,000**	**$152,661**	**$0**	**$1,090,000**	**$0**

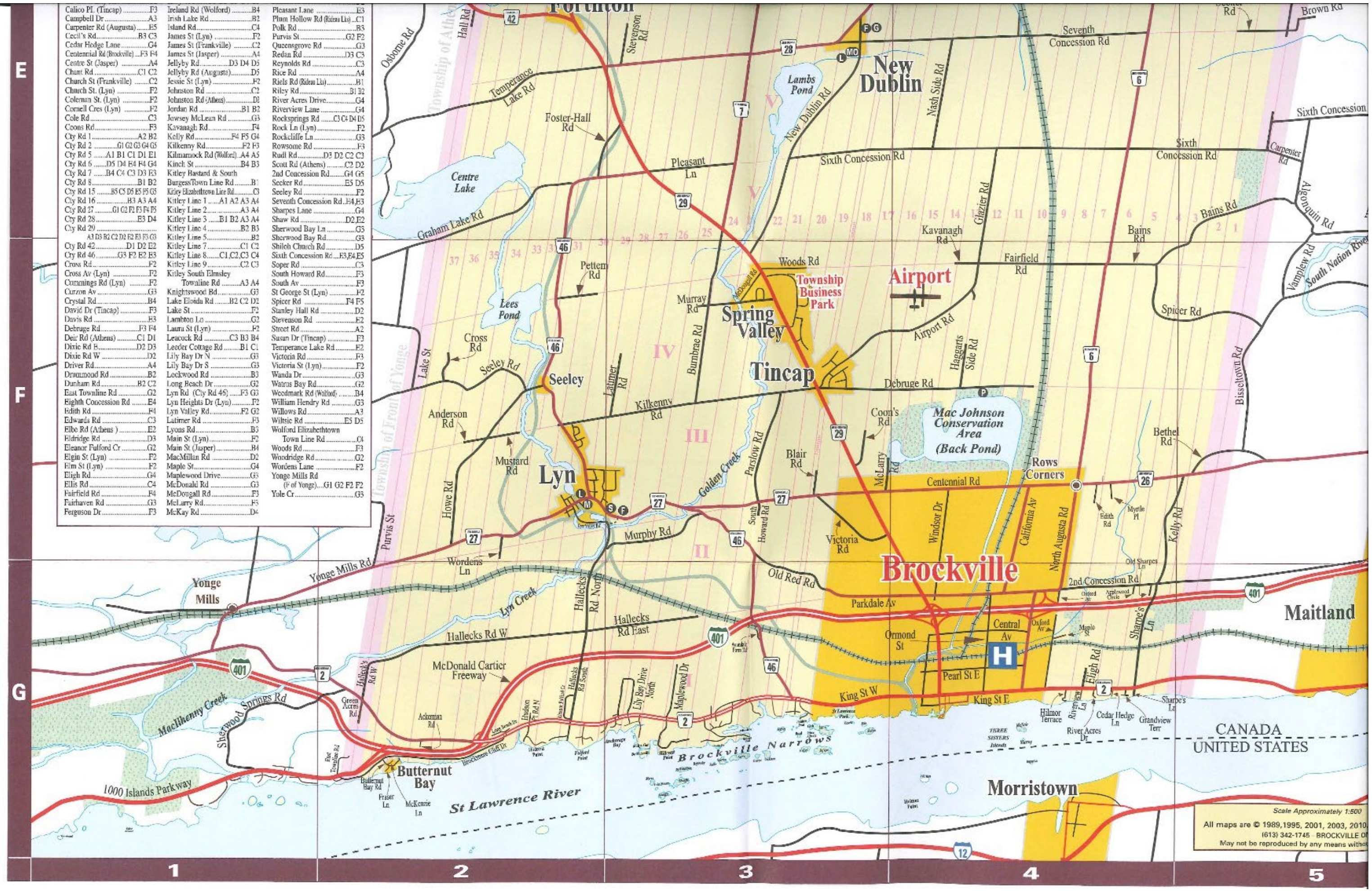
Water Network											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Hydrants	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Valves	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Water Mains	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Total:	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

Appendix B: Level of Service Maps

Road Network Maps




Frankville
Lehigh Corners
Addison
Greenbush
Rocksprings
Forthton
Glen Elbe
Eloida Lake
Atkins Lake
Mud Lake
Mud Creek
Kitley Line 8
Kitley Line 9
Mother Barnes Rd
Kitley-Elizabethtown Townline Rd
Wolford-Elizabethtown Townline Rd
Rudl Rd
Miller Rd
Rocksprings Rd
Scott Rd
Johnston Rd
MacMillan Rd
Redan Rd
Haggett Ln
Dixie Rd W
Dixie Rd E
Eldridge Rd
Stanley Hall Rd
Brayton-Miller Rd
Greenbush Line
Peterson Rd
Addison-Greenbush Rd
Jellyby Rd
McKay Rd
Mudcreek Rd
Elbe Rd
Davis Rd
Paul Foster Rd
Gosford Rd
Eighth Concession Rd
Seventh Concession Rd
Seeker Rd
Brown Rd
Wiltsie Rd
Shaw Rd
Hall Rd
Stevenson Rd
Deir Rd
Chant Rd
Lake Eloida Rd
Frank Rd
Cole Rd
Mulvaugh Rd
Bellamy Rd
Island Rd
McManus Rd
Ellis Rd
Shiloh Church Rd
Mills Rd
Flycreek Rd
Reynolds Rd
Soper Rd
Atkins Lake Rd
(Morrison Rd)
Lots & Concessions
Railway Lines
Abondoned Railway
Police
Garage
Park
Waste Disposal
Museum
Community
Municipal Office
Fire Hall
Hospital
Index
McKenzie Ln G2
McManus Rd D4 C4
McNeely Rd B4
Meg Av (Tincap) F3
Mill St (Lyn) F2
Miller Rd D3
Mills Rd C4 D4
Montgomery Rd C2
Morrison Rd (Line 8) C3 C4
Mother Barnes Rd C1 C2
Motts Mills Rd A2 A3
Mud Creek Rd E4 D4
Mulvaugh Rd C3
Murphy Rd F3
Murray Rd F3
Mustards Rd F2
Myrtle Place F4
Nash Side Rd E4
New Dublin Rd E3 F3
Newboyne Rd (Rideau Lks) A1
North Augusta Rd (Cty Rd 6) G4 E4 E5 D5 F4
Old Lily Bay Rd G3
Old Red Rd F3 G3
Old Sharpe's Ln G4
Orchard St F3
Oxford Av G4
Parslow Rd F3
Paul Foster Rd E3
Paul Rd G3
Pearl St (Lyn) F2
Perth St (Cty Rd. 46) F2
Perth St. (Lyn) F2
Peterson Rd D2
Pettem Rd F2
Pleasant Lane E3
Plum Hollow Rd (Rideau Lks) C1
Polk Rd B3
Purvis St G2 F2
Queensgrove Rd G3


Calico Pl. (Tincap) F3
Campbell Dr A3
Carpenter Rd (Augusta) E5
Cecil's Rd B3 C3
Cedar Hedge Lane G4
Centennial Rd (Brockville) ...F3 F4
Centre St (Jasper) A4
Chant Rd C1 C2
Church St (Frankville) C2
Church St. (Lyn) F2
Coleman St. (Lyn) F2
Cornell Cres (Lyn) F2
Cole Rd C3
Coons Rd F3
Cty Rd 1 ....A2 B2
Cty Rd 2 ....G1 G2 G3 G4 G5
Cty Rd 5 ....A1 B1 C1 D1 E1
Cty Rd 6 ....D5 D4 E4 F4 G4
Cty Rd 7 ....B4 C4 C3 D3 E3
Cty Rd 8 ....B1 B2
Cty Rd 15 ....B5 C5 D5 E5 F5 G5
Cty Rd 16 ....B3 A3 A4
Cty Rd 27 ....G1 G2 F2 F3 F4 F5
Cty Rd 28 ....E3 D4
Cty Rd 29 ....
A3 D3 B2 C2 D2 E2 E3 F3 G3
Cty Rd 42 ....D1 D2 E2
Cty Rd 46 ....G3 F2 E2 E3
Cross Rd F2
Cross Av (Lyn) F2
Cummings Rd (Lyn) F2
Curzon Av G3
Crystal Rd B4
David Dr (Tincap) F3
Davis Rd E3
Debruge Rd F3 F4
Deir Rd (Athens) C1 D1
Dixie Rd E D2 D3
Dixie Rd W D2
Driver Rd A4
Drummond Rd B2
Dunham Rd B2 C2
East Townline Rd G2
Eighth Concession Rd E4
Edith Rd F4
Edwards Rd C3
Elbe Rd (Athens) E2
Eldridge Rd D3
Eleanor Fulford Cr G2
Elgin St (Lyn) F2
Elm St (Lyn) F2
Eligh Rd G4
Ellis Rd C4
Fairfield Rd F4
Fairhaven Rd G3
Ferguson Dr F3
Ireland Rd (Wolford) B4
Irish Lake Rd B2
Island Rd C4
James St (Lyn) F2
James St (Frankville) C2
James St (Jasper) A4
Jellyby Rd D3 D4 D5
Jellyby Rd (Augusta) D5
Jessie St (Lyn) F2
Johnston Rd C2
Johnston Rd (Athens) D2
Jordan Rd B1 B2
Jowsey McLean Rd G3
Kavanagh Rd F4
Kelly Rd F4 F5 G4
Kilkenny Rd F2 F3
Kilmarnock Rd (Wolford) ..A4 A5
Kinch St B4 B3
Kitley Bastard & South
BurgessTown Line Rd B1
Kitley Elizabethtown Line Rd C3
Kitley Line 1 ....A1 A2 A3 A4
Kitley Line 2 ....A3 A4
Kitley Line 3 ....B1 B2 A3 A4
Kitley Line 4 ....B2 B3
Kitley Line 5 ....B2
Kitley Line 7 ....C1 C2
Kitley Line 8 ....C1,C2,C3 C4
Kitley Line 9 ....C2 C3
Kitley South Elmsley
Townline Rd A3 A4
Knightswood Bd G3
Lake Eloida Rd B2 C2 D2
Lake St F2
Lambton Ln G2
Laura St (Lyn) F2
Leacock Rd C3 B3 B4
Leeder Cottage Rd B1 C1
Lily Bay Dr N G3
Lily Bay Dr S G3
Lockwood Rd B3
Long Beach Dr G2
Lyn Rd (Cty Rd 46) F3 G3
Lyn Heights Dr (Lyn) F2
Lyn Valley Rd F2 G2
Latimer Rd F3
Lyons Rd B3
Main St (Lyn) F2
Main St (Jasper) B4
MacMillan Rd D2
Maple St G4
Maplewood Drive G3
McDonald Rd G3
McDougall Rd F3
McLarry Rd F3
McKay Rd D4
Pleasant Lane E3
Plum Hollow Rd (Rideau Lks) ..C1
Polk Rd B3
Purvis St G2 F2
Queensgrove Rd G3
Redan Rd D3 C3
Reynolds Rd C3
Rice Rd A4
Riels Rd (Rideau Lks) B1
Riley Rd B1 B2
River Acres Drive G4
Riverview Lane G4
Rocksprings Rd C3 C4 D4 D5
Rock Ln (Lyn) F2
Rockcliffe Ln G3
Rowsome Rd F3
Rudl Rd D3 D2 C2 C3
Scott Rd (Athens) C2 D2
2nd Concession Rd G4 G5
Secker Rd E5 D5
Seeley Rd F2
Seventh Concession Rd ..E4,E3
Sharpes Lane G4
Shaw Rd D2,E2
Sherwood Bay Ln G3
Sherwood Bay Rd G3
Shiloh Church Rd D5
Sixth Concession Rd E3,E4,E5
Soper Rd C3
South Howard Rd F3
South Av F3
St George St (Lyn) F2
Spicer Rd F4 F5
Stanley Hall Rd D2
Stevenson Rd E2
Street Rd A2
Susan Dr (Tincap) F3
Temperance Lake Rd E2
Victoria Rd F3
Victoria St (Lyn) F2
Wanda Dr G3
Watrus Bay Rd G2
Woodmark Rd (Wolford) B4
William Hendry Rd G3
Willows Rd A3
Wiltsie Rd E5 D5
Wolford Elizabethtown
Town Line Rd C4
Woods Rd F3
Woodridge Rd G2
Wordens Lane F2
Yonge Mills Rd
(F of Yonge) G1 G2 F2 F2
Yole Cr G3
E
F
G
1
2
3
4
5
New Dublin
Lambs Pond
Centre Lake
Lees Pond
Seeley
Spring Valley
Tincap
Township Business Park
Airport
Mac Johnson Conservation Area (Back Pond)
Lyn
Yonge Mills
Rows Corners
Brockville
Maitland
Butternut Bay
Morristown
St Lawrence River
Brockville Narrows
CANADA
UNITED STATES
1000 Islands Parkway
McDonald Cartier Freeway
Seventh Concession Rd
Sixth Concession Rd
Woods Rd
Debruge Rd
Kilkenny Rd
Centennial Rd
Parkdale Av
King St W
King St E
Pearl St E
Hallecks Rd W
Hallecks Rd East
Yonge Mills Rd
Graham Lake Rd
Scale Approximately 1:600
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Images of Bridge in Good Condition
Lyn Valley Road Culvert
BCI: 70
Inspected: June 8th, 2021

Images of Culvert in Fair Condition
Kitley Line 1 Bridge
BCI: 57.2
Inspected: June 10th, 2021

Water Network Map – map of water feeder main

Appendix C: Condition Assessment Guidelines

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

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

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

Role of Asset Condition Data

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

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

Guidelines for Condition Assessment

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

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

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

Developing a Condition Assessment Schedule

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

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