Asset Management Plan

Perth County
Cultivating Opportunity

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
$237 million

Replacement cost of infrastructure per household
$7,232

Percentage of assets in fair or better condition
81%

Percentage of assets with assessed condition data
86%

Annual capital infrastructure deficit
$1.275million

Recommended timeframe for eliminating annual infrastructure deficit
5 Years

Target reinvestment rate
3.3%

Actual reinvestment rate
2.8%

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Executive Summary

County infrastructure provides the foundation for the economic, social, and environmental health and growth of Perth County 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.

All municipalities in Ontario are required to complete an asset management plan (AMP) in accordance with Ontario Regulation 588/17 (O. Reg. 588/17). This AMP outlines the current state of asset management planning at Perth County. It 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 County can ensure that public infrastructure is managed to support the sustainable delivery of infrastructure services.

This AMP includes the following asset categories:

Asset Category

- Road Network
- Bridges and Culverts
- Machinery and Equipment
- Facilities
- Fleet
- Computer Systems
- Land Improvements

The overall replacement cost of the asset categories included in this AMP totals $237 million. 81% of all assets analysed in this AMP are in fair or better condition and assessed condition data was available for 86% of assets. For the remaining assets, assessed condition data was unavailable, and asset age was used to approximate condition. This is 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 (Roads, and Bridges & Culverts) 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 County's average annual capital requirement totals $7.9 million. Based on a historical analysis of sustainable capital funding sources, the County is committing approximately $6.6 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $1.3 million.

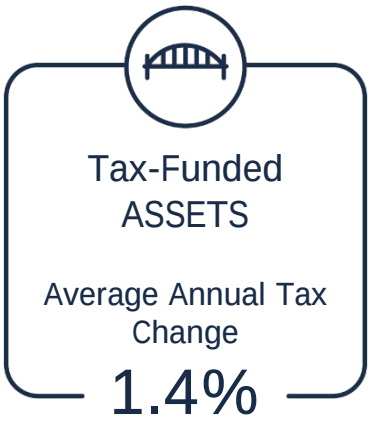
It is important to note that this AMP represents a snapshot in time and is based on the best available processes, data, and information at the County. Strategic asset management planning is an ongoing and dynamic process that requires continuous improvement and dedicated resources.

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 County can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

With the development of this AMP Perth County has achieved compliance with O. Reg. 588/17 to the extent of the requirements that must be completed by July 1, 2022. There are additional requirements concerning proposed levels of service and growth that must be met by July 1, 2024 and 2025.

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 County's infrastructure deficit based on a 5-year plan:



Recommendations to guide continuous refinement of the County's asset management program 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
- Develop 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 Introduction & Context

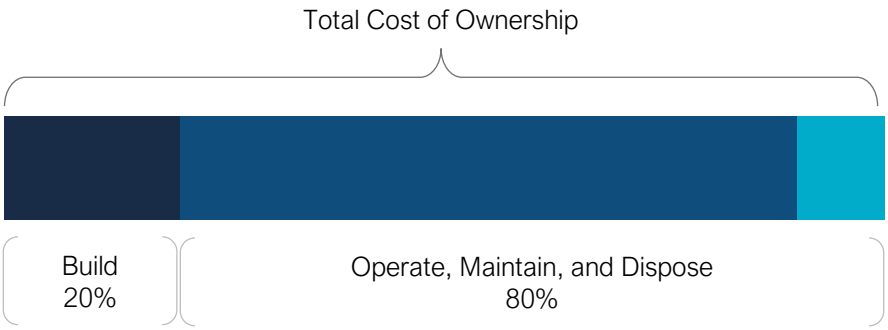
Key Insights

- The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, and manage the associated risks, while maximizing the value rate payers receive from the asset portfolio
- The County'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 milestones and requirements for asset management plans in Ontario between July 1, 2022, and 2025

1.1 Asset Management Overview

Municipalities are responsible for managing and maintaining a broad portfolio of infrastructure assets to deliver services to the community. The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, and 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 a 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 County's approach to asset management activities. It aligns with the organizational strategic plan and provides clear direction to County staff on their roles and responsibilities as part of the asset management program.

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 County plans to achieve asset management objectives through planned activities and decision-making criteria.

The County'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 County'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 County 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 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, or replacement. The following table provides a description of each type of activity and the general difference in cost.

Lifecycle Activity	Description	Example (Roads)	Cost
Preventative Maintenance	Activities that prevent defects or deteriorations from occurring	Crack Seal	$
General Maintenance	Activities that focus on current defects or inhibit deterioration	Pothole Repairs	$
Rehabilitation/ Renewal	Activities that rectify defects or deficiencies that are already present and may be affecting asset performance	Mill & Re-surface	$$
Replacement/ Reconstruction	Asset end-of-life activities that often involve the complete replacement of assets	Full Reconstruction	$$$
Replacement Upgrade	Asset end-of-life activities that involve the replacement of an asset to an 'upgraded' asset	Gravel Road to a Surface Treated Road	$$$$

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 County'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 County 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 County as worth measuring and evaluating. The County 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, 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 County 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 County'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, and 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 County 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 County plans to establish proposed levels of service over a 10-year period, in accordance with O. Reg. 588/17.

Proposed levels of service should be realistic and achievable within the timeframe outlined by the County. 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 County 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 impact 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, 2022. Next to each requirement a page or section reference is included in addition to any necessary commentary. For this AMP the County has met all requirements for July 1, 2022, for core assets and has also partially met requirements for July 1, 2024, for non-core assets.

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 County'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 for Core Assets Only
Current performance measures in each category	S.5(2), 2	4.1.6 - 5.2.6	Complete for Core Assets Only
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 7 tax funded asset 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 Asset categories included in this AMP

This asset management plan for Perth County is produced in compliance with Ontario Regulation 588/17. The July 2022 deadline under the regulation—the first of three AMPs—requires analysis of only core assets (roads, bridges & culverts, and stormwater infrastructure).

The AMP summarizes the state of the infrastructure for the County'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
Bridges and Culverts	Tax Levy & Sustainable Funding Sources From Other Levels of Government
Computer Systems	
Facilities	
Fleet	
Land Improvements	
Machinery and Equipment	
Road Network	

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

2.3 Estimated Useful Life

The estimated useful life (EUL) of an asset is the period over which the County 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 County staff and supplemented by existing industry standards when necessary.

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 County 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 County's asset portfolio. The table below illustrates a typical condition rating system applied 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 B 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

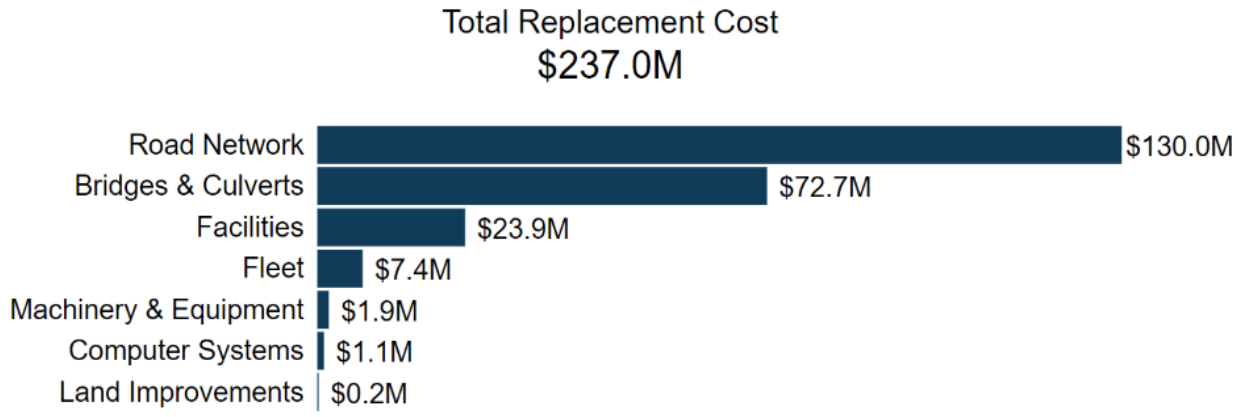
- The total replacement cost of the County's asset portfolio is $237 million
- The County's target re-investment rate is 3.3%, and the actual re-investment rate is 2.8%, contributing to an expanding infrastructure deficit
- 81% of all assets are in fair or better condition
- Average annual capital requirements total $7.9 million per year across all assets

3.1 State of the Infrastructure Summary

Asset Category	Replacement Cost	Average Condition	Financial Capacity	
Road Network	$129.95 M	64%	Annual Requirement:	$4,872,000
			Funding Available:	$4,344,000
			Annual Deficit:	**$528,994**
Bridges and Culverts	$72.66 M	69%	Annual Requirement:	$1,332,000
			Funding Available:	$941,000
			Annual Deficit:	**$391,000**
Facilities	$23.89 M	63%	Annual Requirement:	$659,000
			Funding Available:	$653,000
			Annual Deficit:	**$6,000**
Machinery and Equipment	$1.90 M	64%	Annual Requirement:	$173,000
			Funding Available:	$173,000
			Annual Deficit:	**$0**
Computer Systems	$1.10 M	48%	Annual Requirement:	$123,000
			Funding Available:	$165,000
			Annual Deficit:	**($42,000)**
Fleet	$7.35 M	38%	Annual Requirement:	$778,000
			Funding Available:	$386,000
			Annual Deficit:	**$392,000**
Land Improvements	$0.16 M	25%	Annual Requirement:	$11,000
			Funding Available:	$11,000
			Annual Deficit:	**$0**
Overall	$ 237.01M	**63%**	Annual Requirement:	$7,948,000
			Funding Available:	$6,673,000
			Annual Deficit:	**$1,275,000**

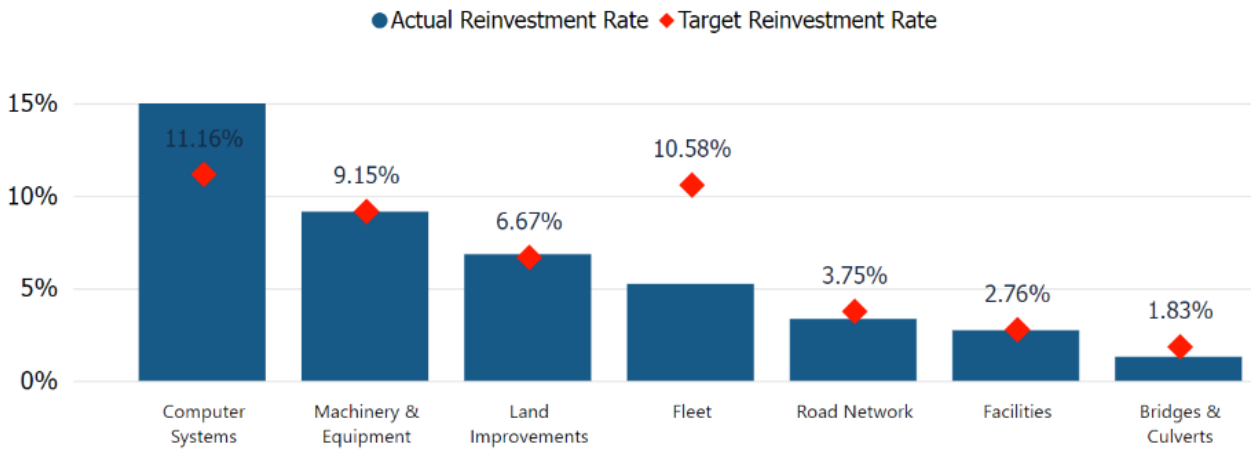
3.2 Total Replacement Cost of Asset Portfolio

The asset categories analyzed in this AMP have a total replacement cost of $237 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.



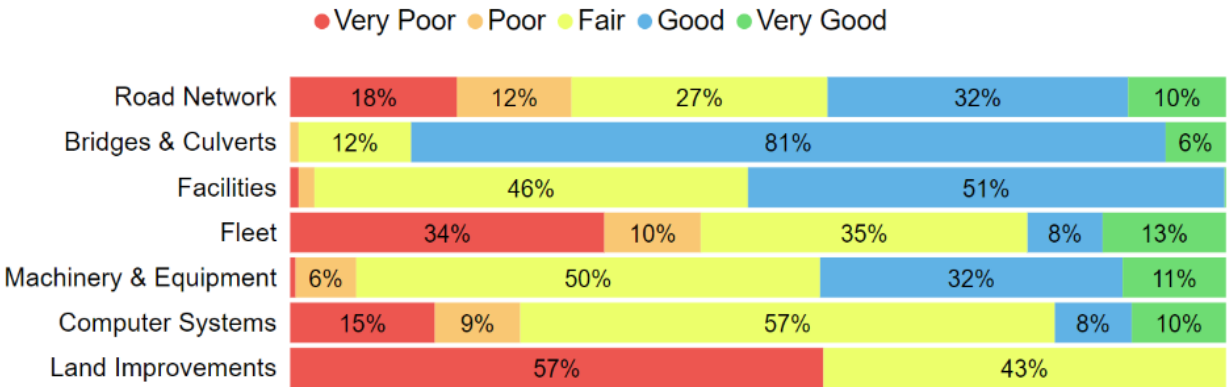
3.3 Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps or surpluses by comparing target vs actual reinvestment rate. To meet the long-term replacement needs, the County should be allocating approximately $7.948 million annually, for a target reinvestment rate of 3.3%. Actual annual spending on infrastructure totals approximately $6.673 million, for an actual reinvestment rate of 2.8%.



3.4 Condition of Asset Portfolio

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



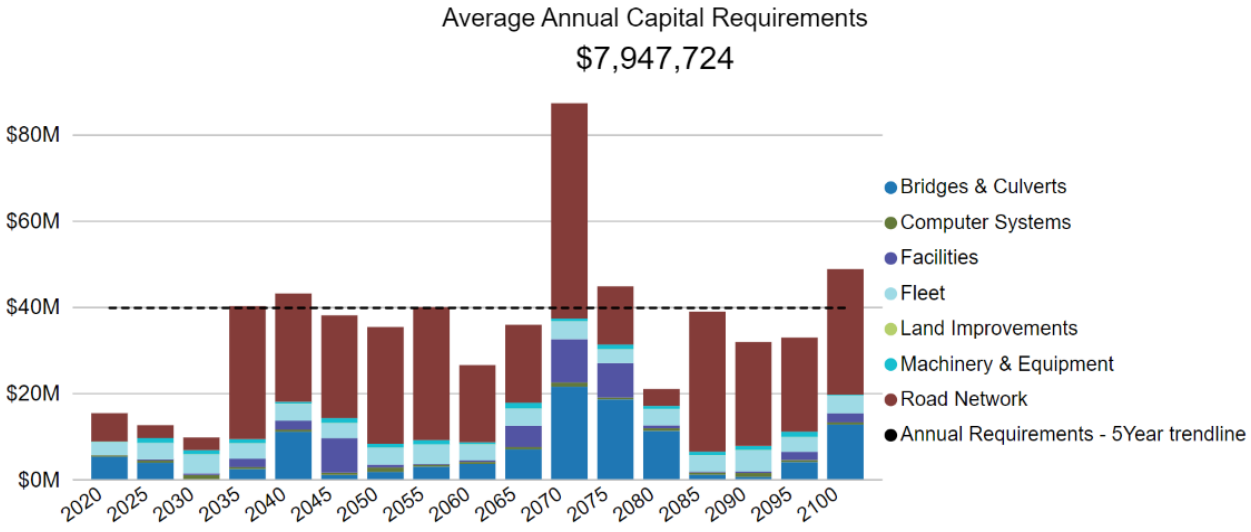
This AMP relies on assessed condition data for 86% of assets; for the remaining portfolio, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it reflects the true condition of the asset and its ability to perform its functions. The table 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	All	99.9%	2022 RNS
Bridges and Culvets	All	99.4%	2021 OSIM
Facilities	All	97.2%	Age-Based, Staff Assessments
Machinery and Equipment	All	41.4%	Age-Based, Staff Assessments
Computer Systems	All	46.2%	Age-Based, Staff Assessments
Fleet	All	0%	Age-Based
Land Improvements	All	0%	Age-Based
		86%	

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 County can produce an accurate long-term capital forecast.

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



4 State of Local Infrastructure Core Assets

Key Insights

- Core infrastructure categories represented in this AMP include the road network, and bridges & culverts
- Core infrastructure assets are valued at $203 million
- 80% of core infrastructure assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for core infrastructure assets is approximately $6.2 million

Standard Tables and Graphs Defined

- The **Average Condition** (%) is a weighted value based on replacement cost. The Estimated Useful Life 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.
- The **annual capital requirement** represents the average amount per year that the County should allocate towards funding rehabilitation and replacement needs to meet future capital needs.
- **Risk matrices** provide a visual representation of the relationship between the probability of failure and the consequence of failure for the assets within each asset category based on 2021 inventory data.

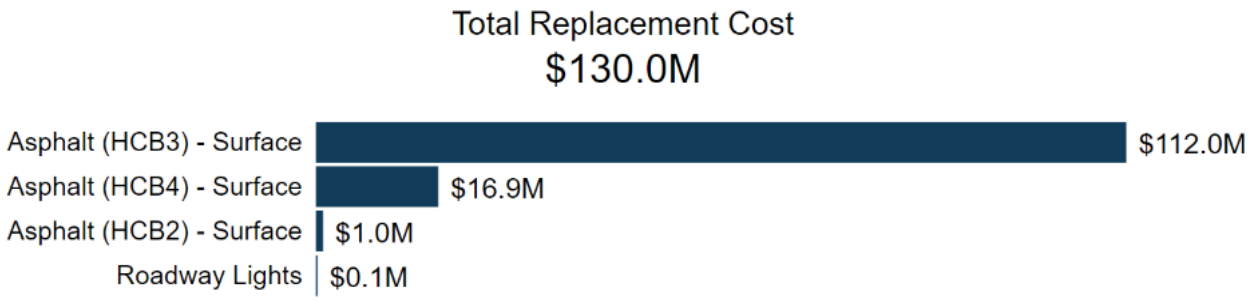
4.1 Road Network

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 County's asset portfolio. It includes all County owned and maintained roadways in addition to supporting roadside infrastructure including roadway lighting.

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 County's Road Network inventory.

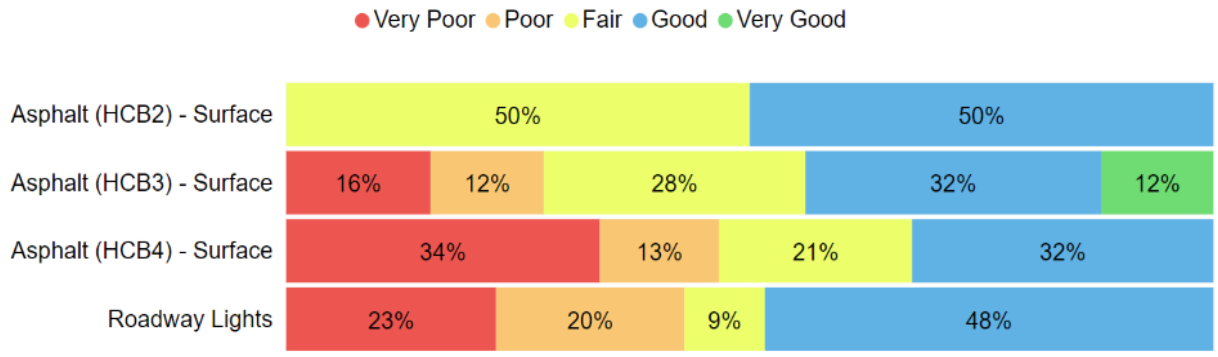
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Asphalt (HCB2) – Surface	3.68 kms	User-Defined	$983,550
Asphalt (HCB3) – Surface	418.906 kms	User-Defined	$111,960,590
Asphalt (HCB4) – Surface	63.270 kms	User-Defined	$16,910,111
Roadway Lights	26	CPI Tables	$96,622
			$129,950,873



4.1.2 Asset Condition, Age & Useful Life

The table below identifies the current average condition, average age, and estimated useful life for each asset segment.

Asset Segment	Average Condition (%)	Estimated Useful Life (Years)	Average Age (Years)
Asphalt (HCB2) – Surface	73%	20	15 Years 8 Months
Asphalt (HCB3) – Surface	66%	20	15 Years
Asphalt (HCB4) – Surface	54%	20	9 Years 11 Months
Roadway Lights	44%	25-50	22 Years 6 Months
	64%		**15 Years 3 Months**



Current Approach to Condition Assessment

The following describes the County's current approach:

- The most recent Road Needs Study was completed in April of 2022 by 4 Roads Management Services. The study includes pertinent details on road assets including assessed condition, AADT, MMS service class, surface material, replacement cost, etc.
- External studies are conducted on a biennial basis

The following rating criteria, is used to determine the current condition of HCB2 and HCB3 road segments and forecast future capital requirements:

Condition	Rating
Very Good	95 – 100
Good	75 – 94
Fair	60 – 74
Poor	40 – 59
Very Poor	0 – 39

The following rating criteria, is used to determine the current condition of HCB4 road segments and forecast future capital requirements:

Condition	Rating
Very Good	90 – 100
Good	75 – 89
Fair	60 – 74
Poor	40 – 59
Very Poor	0 – 39

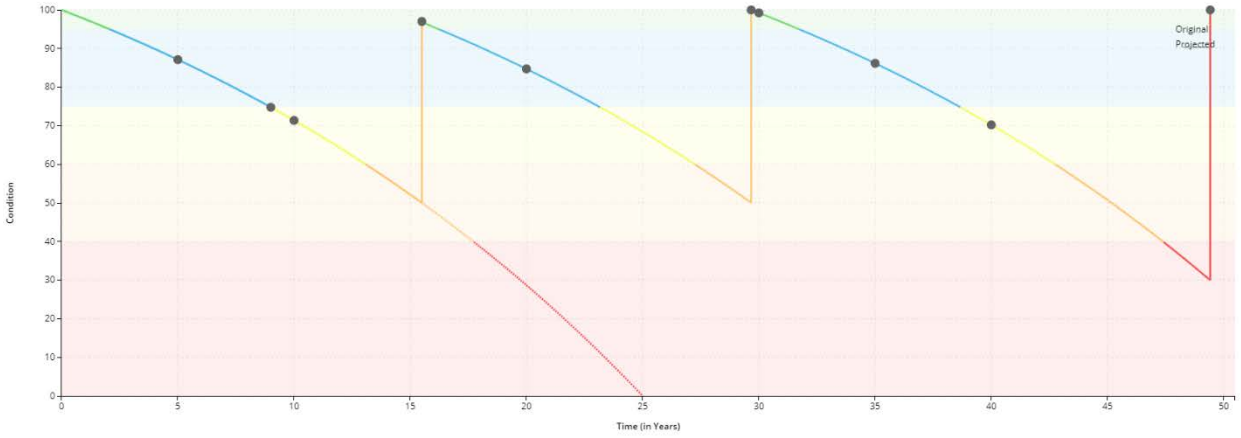
The following rating criteria, is used to determine the current condition of roadway lighting and forecast future capital requirements:

Condition	Rating
Very Good	80 – 100
Good	60 – 79
Fair	40 – 59
Poor	20 – 39
Very Poor	0 – 19

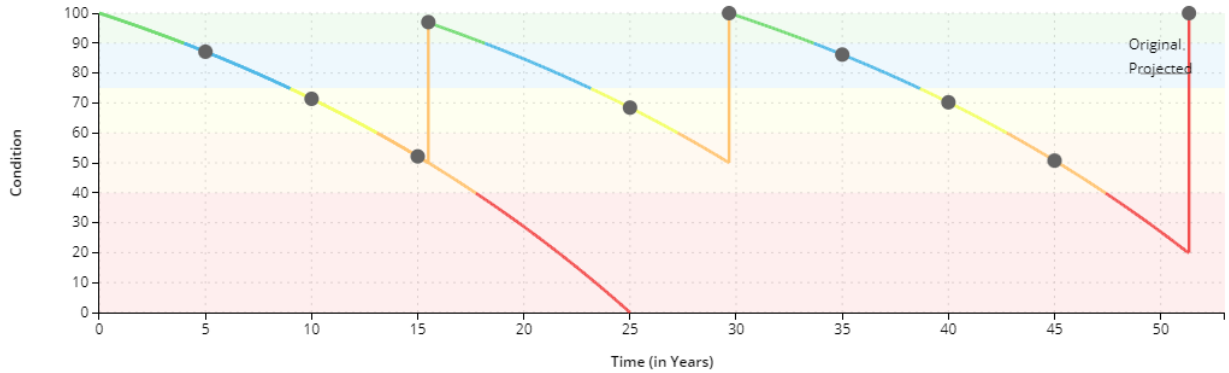
4.1.3 Lifecycle Management Strategy

The following lifecycle strategies in the tables below have been documented to illustrate the maintenance and rehabilitation required to keep roads in a good state of repair.

HCB2 & HCB3 Roads		
Event Name	**Event Class**	**Event Trigger**
Crack Sealing	Preventative Maintenance	5 Years
Crack Sealing	Preventative Maintenance	9 Years
Microsurfacing	Maintenance	10 Years
Resurfacing – Single Lift	Rehabilitation	PCI 50
Crack Sealing	Preventative Maintenance	20 Years
Mill & Resurfacing – Double Lift	Rehabilitation	PCI 50
Crack Sealing	Preventative Maintenance	30 Years
Crack Sealing	Preventative Maintenance	35 Years
Crack Sealing	Preventative Maintenance	40 Years
Asset Replacement	Replacement	PCI 30

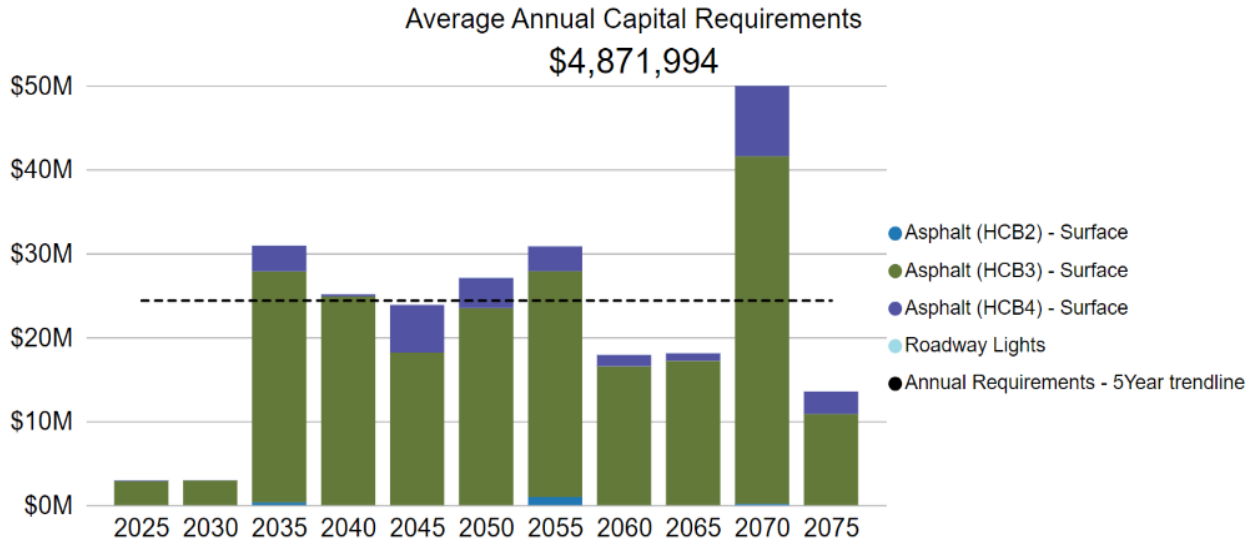


HCB4 Roads		
Event Name	**Event Class**	**Event Trigger**
Crack Sealing	Preventative Maintenance	5 Years
Crack Sealing	Preventative Maintenance	10 Years
Microsurfacing	Maintenance	15 Years
Resurfacing – Single Lift	Rehabilitation	PCI 50
Crack Sealing	Preventative Maintenance	25 Years
Mill & Resurfacing – Double Lift	Rehabilitation	PCI 50
Crack Sealing	Preventative Maintenance	35 Years
Crack Sealing	Preventative Maintenance	40 Years
Crack Sealing	Preventative Maintenance	45 Years
Asset Replacement	Replacement	PCI 20-30



4.1.4 Forecasted Capital Requirements

Based on the lifecycle strategies identified previously for the County's road network the graphs below, illustrates capital requirements over the next 55 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year increments and the trend line represents the average 5-year capital requirements.



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 Risk Analysis

Risk Matrix

The following risk matrix provides a visual representation of the criteria used in the table below, to determine the risk rating of each road asset.

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Road Surface Material (Economic)
	MMS Service Class (Operational)
	AADT Range (Social)
	Roadside Environment (Social)
	Road Speed Range (Health and Safety)

Risks to Current Asset Management Strategies

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

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. Further issues can arise because 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.

Organizational Capacity and Community Expectations

Staff find it a continuous challenge to dedicate staff resource time towards data collection and ongoing maintenance activities while maintaining public expectations. Striking an appropriate balance of various community expectations for road services at an acceptable cost poses an ongoing challenge for staff.

Capital Funding

Funding continues to be an ongoing challenge regarding the overall maintenance of the road network. Internal staff have identified the increase of construction and labour costs having a negative impact. With higher community expectations, increased traffic volume, and overall growth, the County should look to review and streamline lifecycle strategies as a means ensure that the lack of capital funding does not greatly impact its level of service.

4.1.6 Levels of Service

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

Community Levels of Service

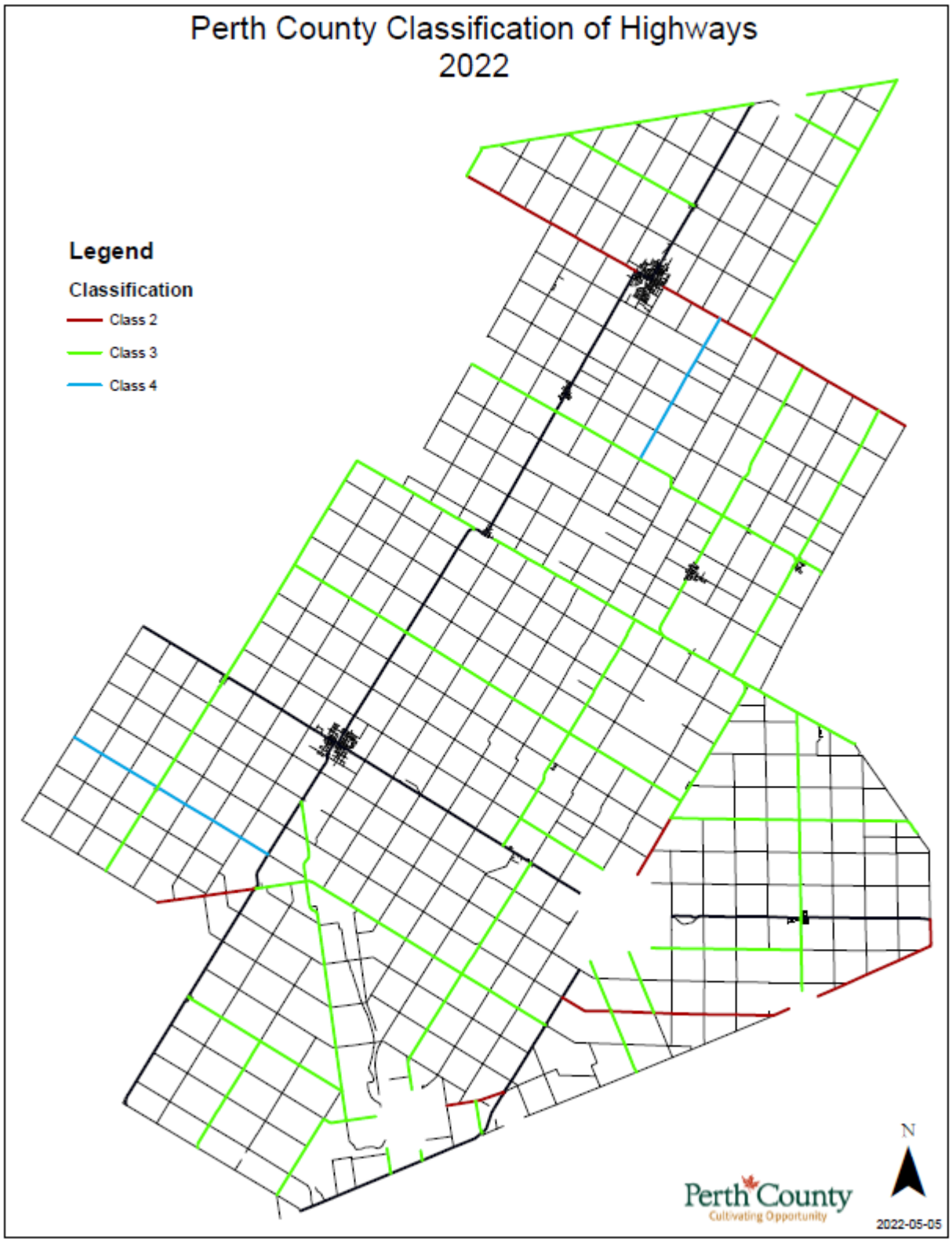
The table below outlines the qualitative descriptions that determine the community levels of service provided by the Road Network.

Service Attribute	Qualitative Description	Current LOS (2021)
Availability	Description, which may include maps, of the road network in the County and its level of connectivity	The County's road network is critical infrastructure that supports multi-model transporation including commercial and personal transportation, emergency vehicles, agricultural machinery, and cyclists.
Performance	Description, images, or map that illustrate the different levels of road class pavement condition	A Road Needs Study was conducted in 2022 by 4 Roads Management Services Inc. that provides pertinent details on each road owned and maintained by the County, including road classes. Perth County's road network can be seen below.

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2021)
Availability	Lane-km of MMS classes 1 and 2 per land area (km/km^2)	0.051
	Lane-km of MMS classes 3 and 4 per land area (km/km^2)	0.402
	Lane-km of MMS classes 5 and 6 per land area (km/km^2)	0.003
Reliability	Average pavement condition index for paved roads in the County	64.5%
	Average surface condition for unpaved roads in the County (e.g., excellent, good, fair, poor)	N/A
Sustainability	Capital reinvestment rate	3.21%


Perth County Classification of Highways
2022
Legend
Classification
Class 2
Class 3
Class 4
N
Perth County
Cultivating Opportunity
2022-05-05

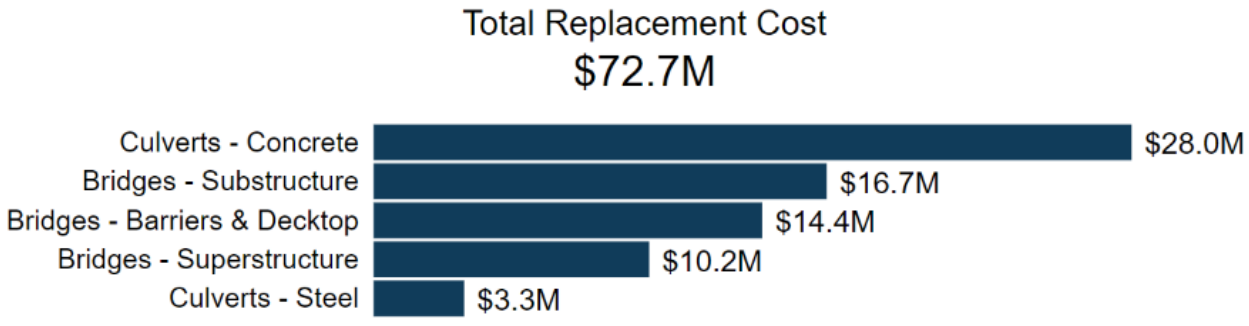
4.2 Bridges and Culverts

Bridges and Culverts (over 3m) represent a critical portion of the transportation services provided to the community. Perth County is responsible for the maintenance of all bridges and culverts located across county 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 County's bridges and culverts inventory.

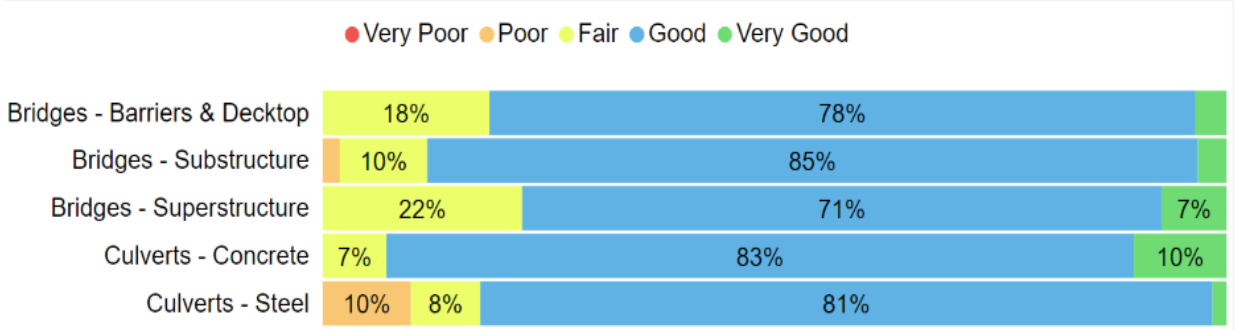
Asset Segment	Quantity (Components)	Replacement Cost Method	Total Replacement Cost
Bridges – Barriers & Decktop	42	CPI Tables	$14,362,361
Bridges – Substructure	42	CPI Tables	$16,748,993
Bridges – Superstructure	42	CPI Tables	$10,182,772
Culverts – Concrete	67	CPI Tables	$28,019,576
Culverts – Steel	10	CPI Tables	$3,345,426
			$72,656,124



4.2.2 Asset Condition, Age & Useful Life

Error! Reference source not found.The table below identifies the current average condition, average age, and estimated useful life for each asset segment.

Asset Segment	Average Condition (%)	Estimated Useful Life (Years)	Average Age (Years)
Bridges – Barriers & Decktop	67%	14-75	51 Years 8 Months
Bridges – Substructure	67%	14-80	52 Years 11 Months
Bridges – Superstructure	67%	14-75	52 Years 11 Months
Culverts – Concrete	71%	75-80	44 Years 8 Months
Culverts – Steel	66%	30-50	35 Years 6 Months
			49 Years 1 Month



Current Approach to Condition Assessment

The following describes the County'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)
- Culverts with a span less than 3 meters are subject to internal condition assessments every 4 years

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

Condition	Rating
Very Good	80 – 100
Good	60 – 79
Fair	40 – 59
Poor	20 – 39
Very Poor	0 – 19

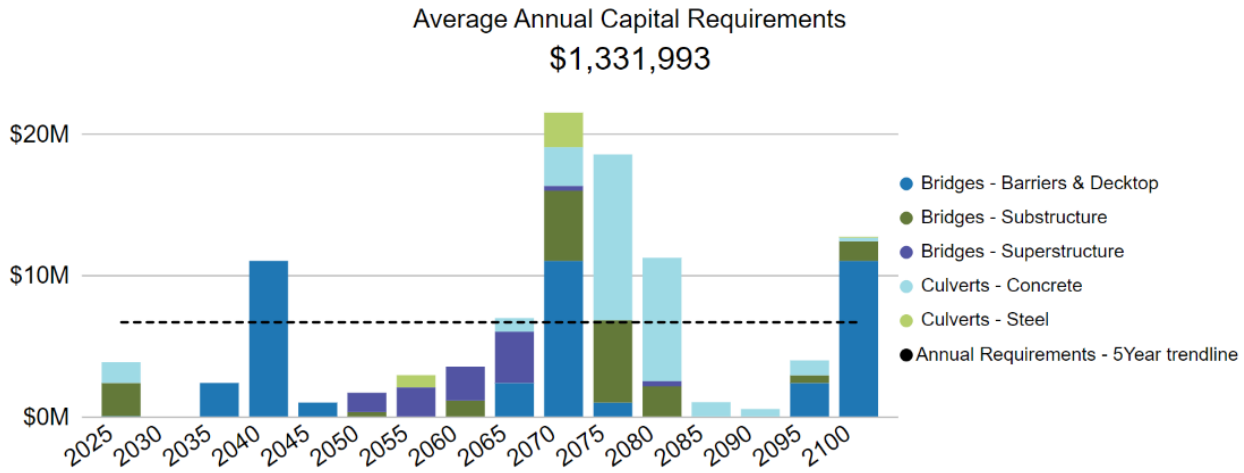
4.2.3 Lifecycle Management Strategy

The table below outlines the County's current lifecycle management strategy for bridges and culverts.

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 2022 by GM BluePlan Engineering Limited

4.2.4 Forecasted Capital Requirements

The graph below illustrates capital requirements over the next 80 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year increments and the trend line represents the average 5-year capital requirements.



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 Risk Analysis

Risk Matrix

The following risk matrix provides a visual representation of the criteria used in the table below, to determine the risk rating of each bridge & culvert asset.

Probability of Failure (POF)	Consequence of Failure (COF)
Condition	Replacement Cost (Financial)
Service Life Remaining (Years)	AADT (Social)

Risks to Current Asset Management Strategies

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

Aging Infrastructure

As County bridges and culverts continue to age, there are a handful of structures that are approaching their original useful life. 7% of the County's bridges and culverts are within 1 year of the estimated projected useful life. While scheduled biennial inspections ensure that structures are safe and operable, there may be the need to complete major rehabilitation projects at the same time.

Climate Change & Extreme Weather Events

Flooding and extreme weather causes damage to multiple components of the County'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.

4.2.6 Levels of Service

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

Community Levels of Service

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

Service Attribute	Qualitative Description	Current LOS (2021)
Availability	Description of the traffic that is supported by County bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	Bridges and structural culverts are a key component of the County's transportation network. There are no loading or dimensional restrictions on any structure, meaning that all types of vehicles, including heavy transport, motor vehicles, emergency vehicles, agricultural machinery, and cyclists can cross them without restriction.

Performance	Description or images of the condition of bridges and culverts and how this would affect use of the bridges and culverts	See below

Additional Structure #17 – Perth Line 86
BCI – 26 (Poor)

Wickie Bridge Structure 135018 - Perth Road 135
BCI – 54 (Fair)

Shipley Bridge Structure 088033 - Perth Line 88
BCI – 65 (Good)

Structure 055115 - Perth Line 55
BCI – 92 (Very Good)

Technical Levels of Service

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

Service Attribute	Technical Metric	Current LOS (2021)
Availability	% Of bridges in the County with loading or dimensional restrictions	0%
Reliability	Average bridge condition index value for bridges in the County	67
	Average bridge condition index value for structural culverts in the County	70

4.3 Core Assets Recommendations

O.Reg. 588/17 Proposed Levels of Service

- By July 1, 2025, Perth County's asset management plan must include levels of service that the County's proposes to provide for each of the 10 years following the year in which all information is required.
- An explanation of why Perth County's proposed levels of service are appropriate for the County.
- The proposed performance of each asset category for each year of the 10-year period, determined in accordance with the performance measures established by the County.
- A lifecycle management and financial strategy with respect to the assets in each asset category for the 10-year period

Data Review/Validation

Road Network

- Continue to review and refine the road network's asset inventory to ensure new assets and betterments are reflected and attributes are detailed.
- Review road culverts inventory to determine whether all County assets within this asset category have been accounted for.

Bridges and Culverts

- Continue to review and validate assessed condition data and replacement costs for all bridges and structural culverts upon the completion of OSIM inspections every 2 years.

Condition Assessment Strategies

Road Network

- Consider completing an updated assessment of all roads within the next 2-3 years.
- Develop and conduct condition assessment programs for all other road network assets such traffic signals, signs, and non-structural culverts.

Bridges and Culverts

- The confirmation of a comprehensive asset inventory should be followed by a system-wide assessment of the condition of all stormwater infrastructure assets through CCTV or zoom camera inspections.

Lifecycle Management Strategies

Road Network

- Develop cursory life cycle management strategies for all other road network assets.

Bridges and Culverts

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

All Core Assets

- Document and review lifecycle management strategies for core infrastructure assets on a regular basis to achieve the lowest total cost of ownership while maintaining adequate service levels.

Risk Management Strategies

All Core Assets

- 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

All Core Assets

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

5 State of Local Infrastructure Non-core Assets

Key Insights

- Non-core asset categories represented in this AMP include facilities, machinery and equipment, computer systems, fleet, and land improvements
- Non-core infrastructure assets are valued at $34 million
- 87% of non-core assets are in fair or better condition
- The average annual capital requirement to sustain the current level of service for non-core infrastructure assets is approximately $1.7 million

Standard Tables and Graphs Defined

- The **Average Condition** (%) is a weighted value based on replacement cost. The Estimated Useful Life 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.
- The **annual capital requirement** represents the average amount per year that the County should allocate towards funding rehabilitation and replacement needs to meet future capital needs.

5.1 Facilities

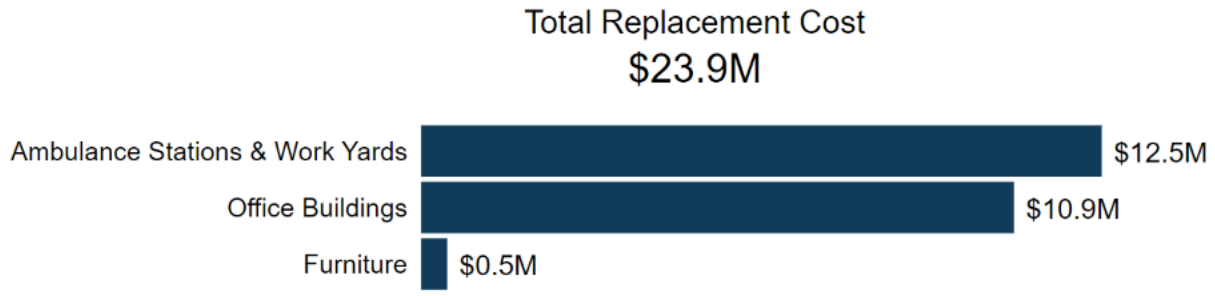
Perth County owns and maintains numerous buildings that provide key services to the community. These service area facilities include:

- paramedic services
- courthouse
- archives building
- registry office

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 County's facility inventory.

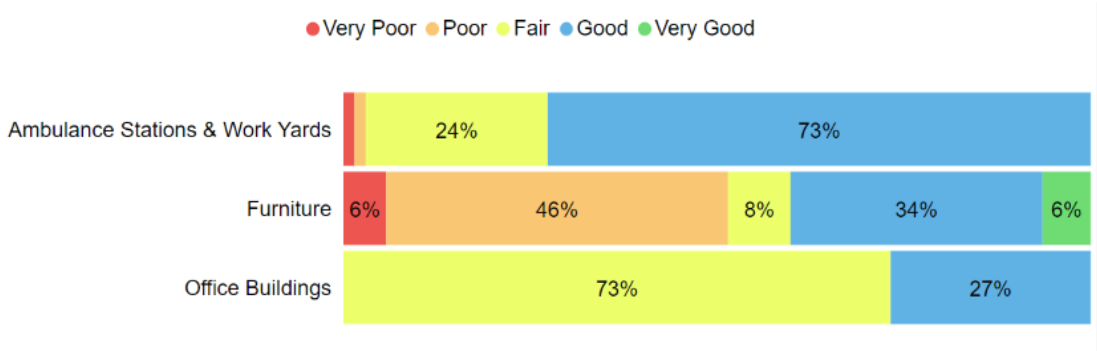
Asset Segment	Quantity (components)	Replacement Cost Method	Total Replacement Cost
Ambulance Stations & Work Yards	18	92.5% CPI Tables 7.5% User-Defined	$12,512,699
Furniture	502	CPI Tables	$480,512
Office Buildings	4	62.% CPI Tables 37.3% User-Defined	$10,899,718
			$23,892,929



5.1.2 Asset Condition, Age & Useful Life

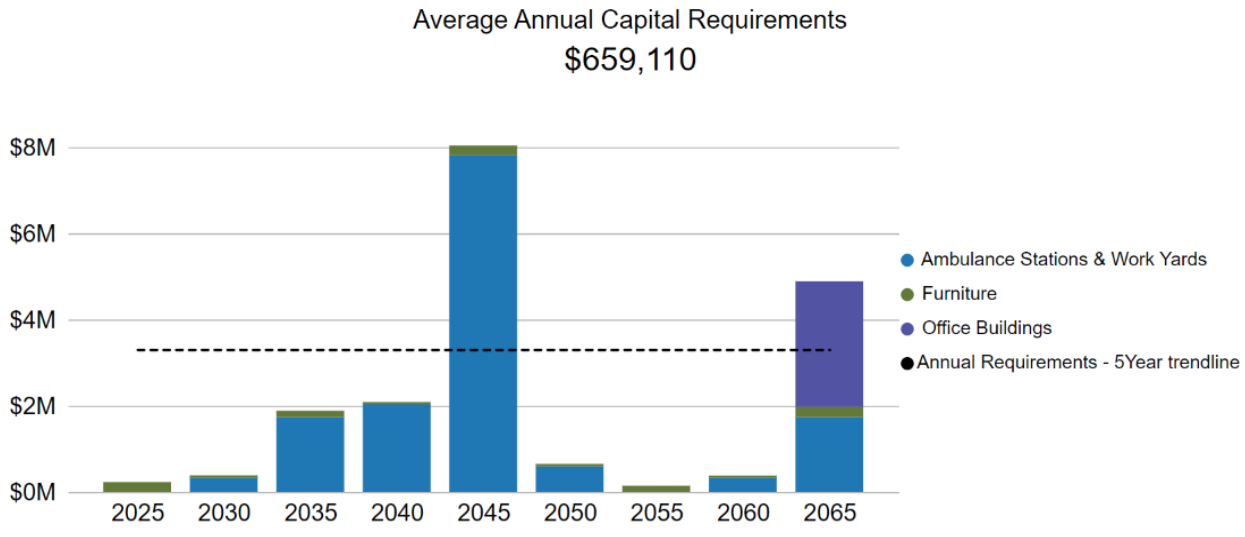
The table below identifies the current average condition, average age, and estimated useful life for each asset segment.

Asset Segment	Average Condition (%)	Estimated Useful Life (Years)	Average Age (Years)
Ambulance Stations & Work Yards	60%	30-50	25 Years 4 Months
Furniture	47%	10-20	12 Years 7 Months
Office Buildings	67%	50	56 Years 9 Months
	63%		**14 Years 2 Months**



5.1.3 Forecasted Capital Requirements

The graph below illustrates capital requirements over the next 45 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 5-year increments and the trend line represents the average 5-year capital requirements.



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.

5.1.4 Risk Analysis

Facilities are considered a non-core asset category. As such, Perth County has until July 1, 2024, to identify asset risk and determine asset criticality.

5.1.5 Levels of Service

Facilities are considered a non-core asset category. As such, Perth County has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the current level of service provided.

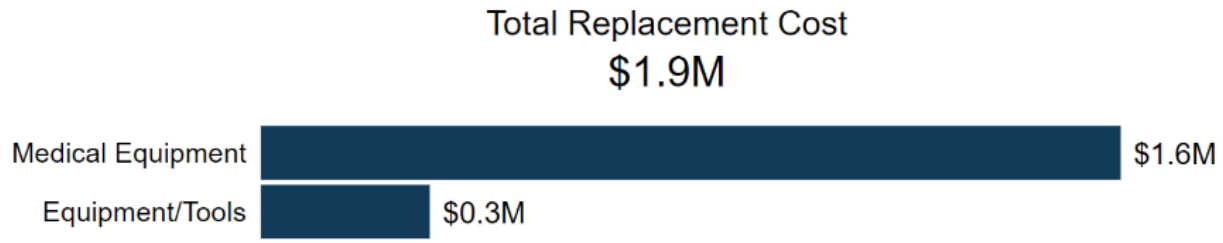
5.2 Machinery and Equipment

To maintain the high quality of public infrastructure and support the delivery of core services, County staff own and employ various types of machinery, tools, and equipment.

5.2.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each machinery and equipment asset segment in Perth County.

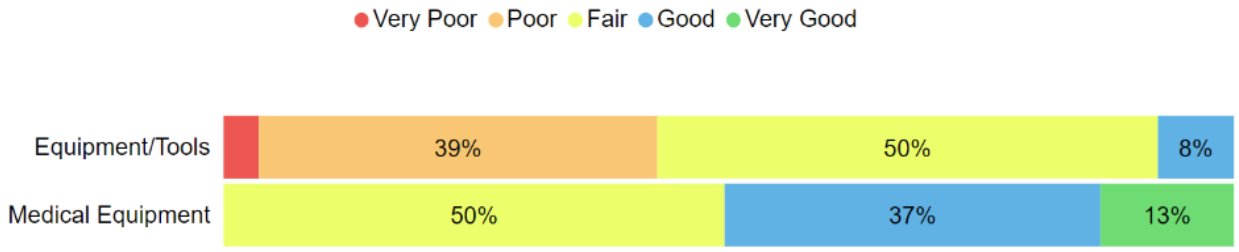
Asset Segment	Count	Replacement Cost Method	Total Replacement Cost
Equipment/Tools	34	CPI Tables	$310,754
Medical Equipment	536	93.0% CPI Tables 7.0% User-Defined	$1,580,904
			$1,891,658



5.2.2 Asset Condition, Age & Useful Life

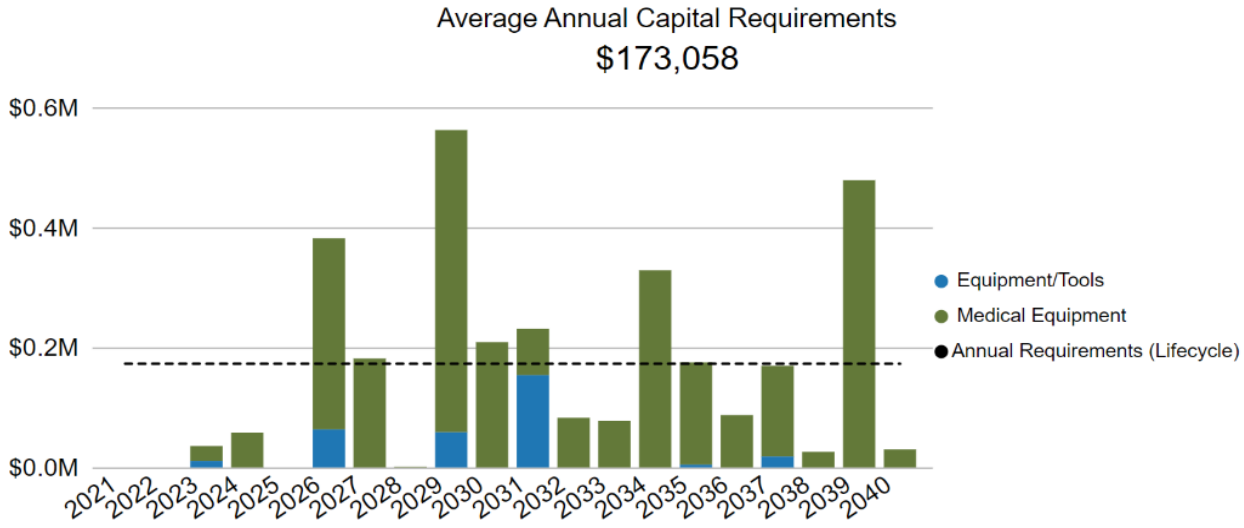
The table below identifies the current average condition, average age, and estimated useful life for each asset segment.

Asset Segment	Average Condition (%)	Estimated Useful Life (Years)	Average Age (Years)
Equipment/Tools	41%	8 Years 8 Months	11 Years 3 Months
Medical Equipment	69%	6 Years 1 Month	10 Years 5 Months
	64%	**6 Years 3 Months**	**10 Years 6 Months**



5.2.3 Forecasted Capital Requirements

The graph below identifies capital requirements over the next 20 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 1-year increments and the trend line represents the average annual capital requirements.



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.

5.2.4 Risk Analysis

Machinery and equipment are considered a non-core asset category. As such, Perth County has until July 1, 2024, to identify asset risk and determine asset criticality.

5.2.5 Levels of Service

Machinery and equipment are considered a non-core asset category. As such, Perth County has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the current level of service provided.

5.3 Computer Systems

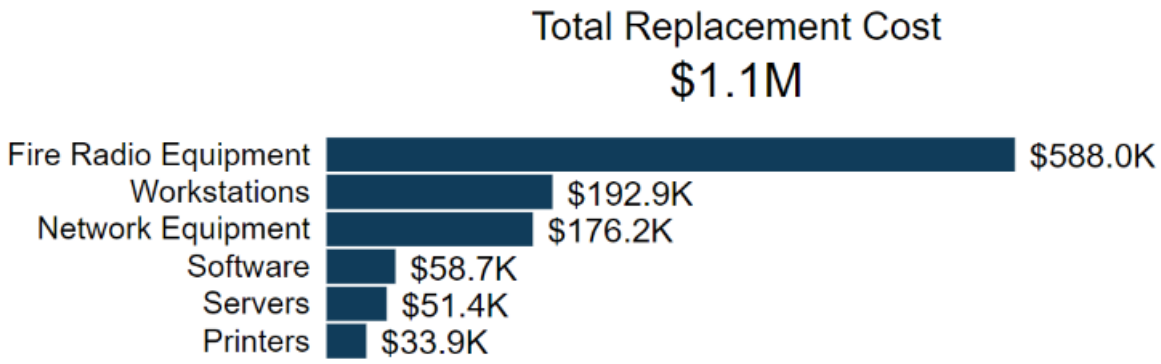
To maintain the high quality of public infrastructure and support the delivery of core services, County staff own and employ various types of computer systems. This includes:

- Fire Radio Equipment
- Network Equipment
- Printers
- Servers
- Software
- Workstations

5.3.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of each asset segment by service area in the County's furniture & equipment inventory.

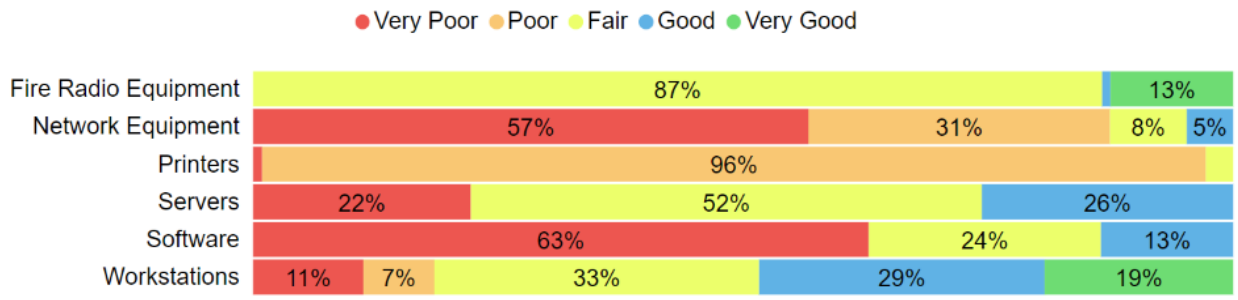
Asset Segment	Count	Replacement Cost Method	Total Replacement Cost
Fire Radio Equipment	167	CPI Tables	$588,005
Network Equipment	177	CPI Tables	$176,153
Printers	19	CPI Tables	$33,900
Servers	13	72.9% CPI Tables 27.1% User-Defined	$51,420
Software	805	73.2% CPI Tables 26.8% User-Defined	$58,731
Workstations	101	CPI Tables	$192,904
			$1,101,113



5.3.2 Asset Condition, Age & Useful Life

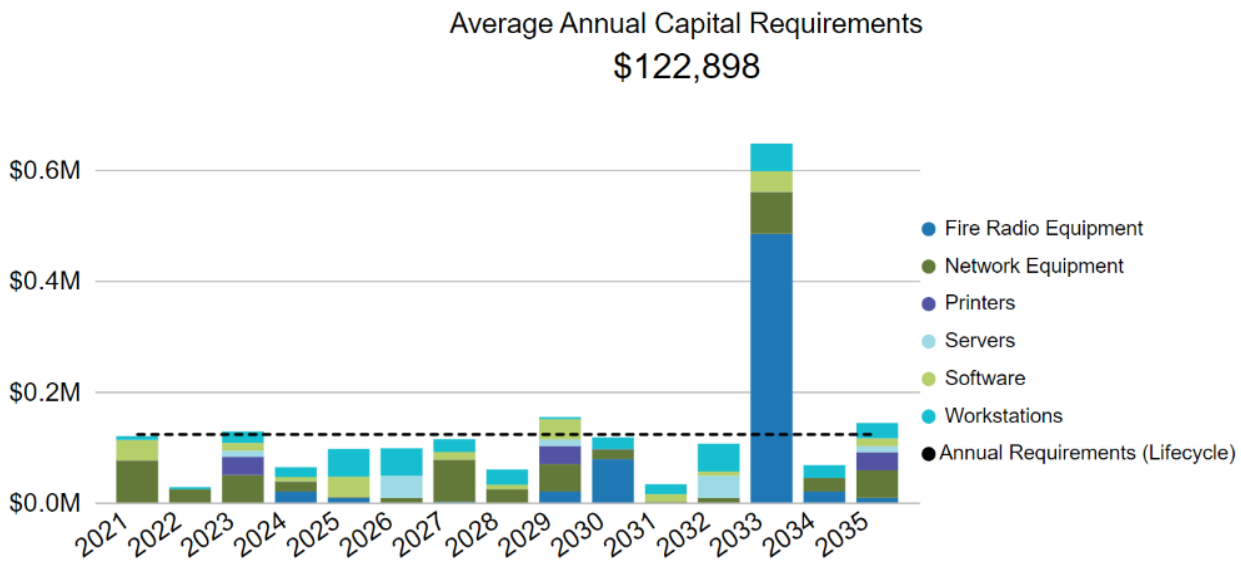
The table below identifies the current average condition, average age, and estimated useful life for each asset segment by service area.

Asset Segment	Average Condition (%)	Estimated Useful Life (Years)	Average Age (Years)
Fire Radio Equipment	63%	10 Years 8 Months	8 Years 2 Months
Network Equipment	16%	1 Year 1 Month	5 Years 1 Month
Printers	28%	2 Years 6 Months	4 Years 4 Months
Servers	44%	2 Years 1 Month	4 Years
Software	19%	9 Months	3 Years 3 Months
Workstations	56%	3 Years 11 Months	3 Years 1 Month
	50%	**6 Years 1 Month**	**5 Years 8 Months**



5.3.3 Forecasted Capital Requirements

The following graph identifies capital requirements over the next 15 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 1-year increments and the trend line represents the average annual capital requirements.



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.

5.3.4 Risk Analysis

Computer systems are considered a non-core asset category. As such, Perth County has until July 1, 2024, to identify asset risk and determine asset criticality.

5.3.5 Levels of Service

Computer systems are considered a non-core asset category. As such, Perth County has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the current level of service provided.

5.4 Fleet

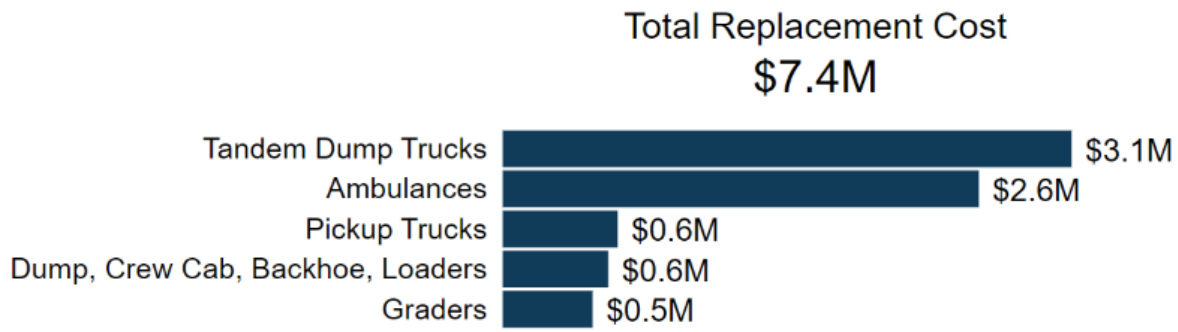
Vehicles allow staff to efficiently deliver County services and personnel. Perth County own and maintain a variety of vehicles including:

- Ambulances
- Dump, Crew Cab, Backhoe, & Loaders
- Graders
- Pickup Trucks
- Tandem Dump Trucks

5.4.1 Asset Inventory & Replacement Cost

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

Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Ambulances	18	CPI Tables	$2,582,950
Dump, Crew Cab, Backhoe, Loaders	7	CPI Tables	$572,897
Graders	2	CPI Tables	$487,442
Pickup Trucks	14	CPI Tables	$624,691
Tandem Dump Trucks	18	CPI Tables	$3,085,854
			$7,353,834



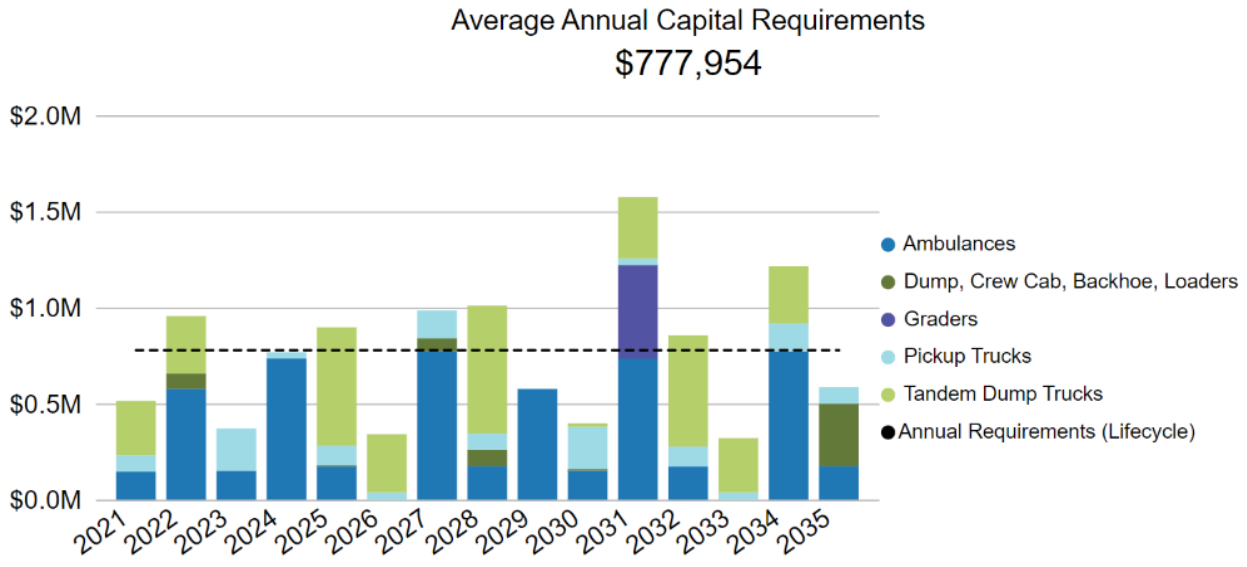
5.4.2 Asset Condition, Age & Useful Life

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

Asset Segment	Average Condition (%)	Estimated Useful Life (Years)	Average Age (Years)
Ambulances	41%	3 Years 6 Months	4 Years 7 Months
Dump, Crew Cab, Backhoe, Loaders	12%	2 Years 11 Months	12 Years 1 Month
Graders	49%	9 Years 9 Months	10 Years 4 Months
Pickup Trucks	22%	4 Years	6 Years 11 Months
Tandem Dump Trucks	41%	7 Years 3 Months	7 Years 2 Months
		4 Years 7 Months	7 Years

5.4.3 Forecasted Capital Requirements

The graph below illustrates capital requirements over the next 15 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 1-year increments and the trend line represents the average annual capital requirements.



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.

5.4.4 Risk Analysis

Fleet is considered a non-core asset category. As such, Perth County has until July 1, 2024, to identify asset risk and determine asset criticality.

5.4.5 Levels of Service

Fleet is considered a non-core asset category. As such, Perth County has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the current level of service provided.

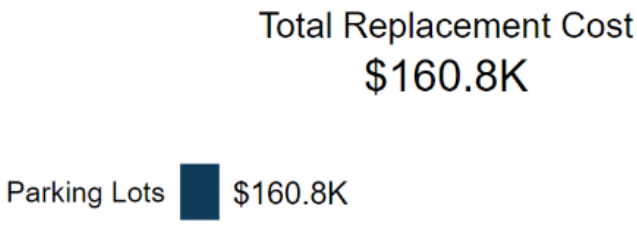
5.5 Land Improvements

Land improvement assets are comprised of parking lots which the County owns and maintains.

5.5.1 Asset Inventory & Replacement Cost

The table below includes the quantity, replacement cost method and total replacement cost of the County's land improvements.

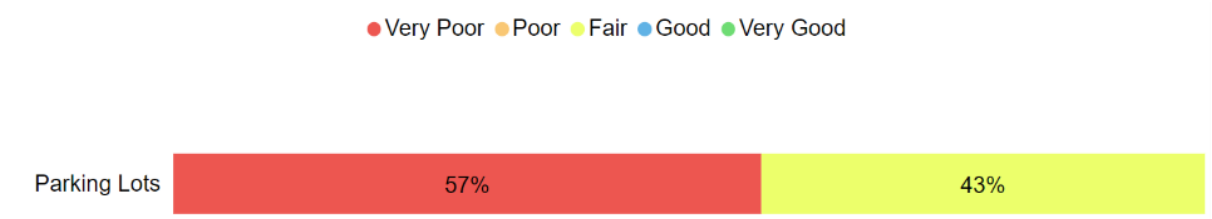
Asset Segment	Quantity	Replacement Cost Method	Total Replacement Cost
Parking Lots	4	CPI Tables	$160,754
			$160,754



5.5.2 Asset Condition, Age & Useful Life

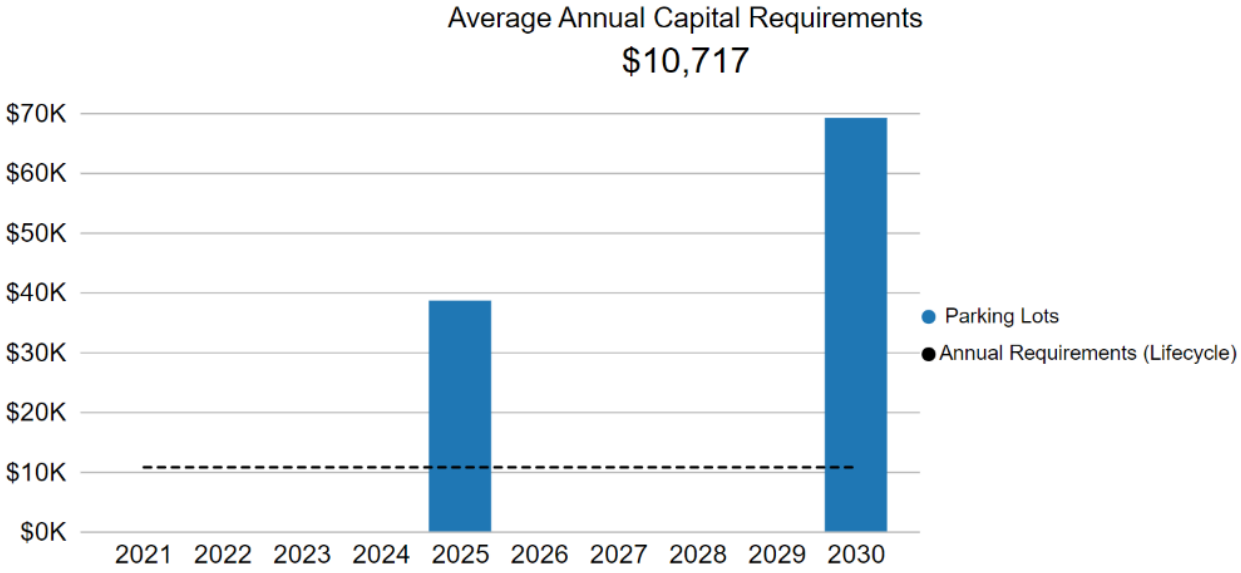
The table below identifies the current average condition, average age, and estimated useful life for parking lots. The Average Condition (%) is a weighted value based on replacement cost. The Estimated Useful Life has been assigned according to a combination of established industry standards and staff knowledge. The Average Age of each asset is based on the number of years each asset has been in-service.

Asset Segment	Average Condition (%)	Estimated Useful Life (Years)	Average Age (Years)
Parking Lots	25%	6 Years	21 Years 8 Months
			21 Years 8 Months



5.5.3 Forecasted Capital Requirements

The graph below illustrates capital requirements over the next 10 years. This projection is used as it ensures that every asset has gone through one full iteration of replacement. The forecasted requirements are aggregated into 1-year increments and the trend line represents the average annual capital requirements.



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.

5.5.4 Risk Analysis

Land improvements are considered a non-core asset category. As such, Perth County has until July 1, 2024, to identify asset risk and determine asset criticality.

5.5.5 Levels of Service

Land improvements are considered a non-core asset category. As such, Perth County has until July 1, 2024, to determine the qualitative descriptions and technical metrics that measure the current level of service provided.

5.6 Non-core Assets Recommendations

O.Reg. 588/17 Current / Proposed Levels of Service

- Perth County should gather data and information to detail and review the lifecycle management strategies, levels of service, and risk of all non-core asset categories by July 1, 2024.
- By July 1, 2025, Perth County's asset management plan must include levels of service that the County proposes to provide for each of the following 10 years.
- An explanation of why Perth County's proposed levels of service are appropriate for the County.
- The proposed performance of each asset category for each year of the 10-year period, determined in accordance with the performance measures established by the County.
- A lifecycle management and financial strategy with respect to the assets in each asset category for the 10-year period.

Asset Inventories and Data

All Other Non-Core Assets

- All non-core asset inventory data should be analyzed regularly to ensure end users have confidence in the accuracy, consistency, integrity, and outputs of data.

Replacement Costs

All Non-core Assets

- Where asset replacement costs were not available, historical costs have been inflated using Provincial CPI tables. These costs should be evaluated to determine their accuracy and reliability.
- Replacement costs should be updated every 3–5 years according to the best available information on the cost to replace the asset in today's value.

Condition Assessment Strategies

Buildings

- The County should implement regular internal condition assessments for all buildings and associated components to better inform short- and mid-term capital requirements.
- The County should consider comprehensive building assessments for all buildings on a 5–10-year cycle to better inform and update the short- and long-term capital requirements.

Fleet

- Fleet assets are inspected regularly, and the associated data should be appended to fleet assets within the County's centralized asset management system.

All Other Non-Core Assets

- Identify condition assessment strategies for all non-core high value and high-risk assets.
- 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.

Life Cycle Management Strategies

The documentation of lifecycle management strategies, current levels of service, and risk are critical to the development of a comprehensive asset management program. These components of the Asset Management Plan support effective short-term and long-term capital planning and contribute to more proactive asset management practices, thus extending the estimated useful life of many assets and providing a higher level of service.

Risk Management Strategies

All Non-core Assets

- 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

All Non-core Assets

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

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 County 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 County of Perth Official Plan (Mar. 2020)

The County of Perth's consolidated Official Plan was adopted by Council in March of 2020. The Official Plan, under OPA NO. 47, replaces the Official Plan documents for the townships located within Perth County. That said, it is important to note that the Official Plan does not apply to the City of Stratford or the separated Town of St. Marys. Policies for the City of Stratford and the Town of St. Marys are contained in their respective Official Plan documents.

The Official Plan serves specific purposes for the County of Perth including:

i. Consolidating planning policies for the eleven townships;
ii. Establishing appropriate goals, objectives, and policy to guide and direct land use;
iii. Recognizing and emphasizing the importance of the serviced urban settlement areas; and
iv. Providing a policy framework which will protect, preserve, enhance, and improve the natural resource base of the County

Perth County's population is expected to grow at an annual rate of 0.6% from 2016 to 2041. During this time span, the County's population is expected to increase by 14.5%. As per Watson & Associates Economists Ltd. 2019 Official Plan Update (OPU), Perth County's gross population will likely increase by 6200 to an approximate total of 44000-45000:

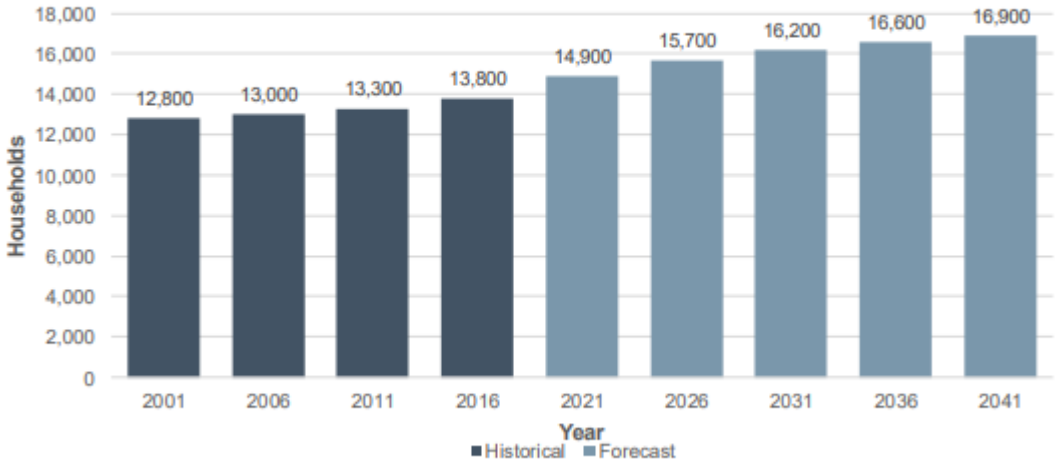
Perth County
Population Growth Forecast, 2001 to 2041[5]

Year	Population (Excluding undercount)	Population (Including undercount)[1]
Mid-2001	37,700	39,200
Mid-2006	37,300	38,600
Mid-2011	37,600	38,600
Mid-2016	38,100	39,100
Mid-2021	40,200	41,300
Mid-2026	41,700	42,900
Mid-2031	42,900	44,100
Mid-2036	43,600	44,800
Mid-2041	44,000	45,300
Mid-2016 to Mid-2021	2,100	2,200
Mid-2016 to Mid-2026	3,600	3,800
Mid-2016 to Mid-2031	4,800	5,000
Mid-2016 to Mid-2036	5,500	5,700
Mid-2016 to Mid-2041	5,900	6,200
Mid-2001 to Mid-2006	-400	-600
Mid-2006 to Mid-2011	300	0
Mid-2011 to Mid-2016	500	500
Mid-2016 to Mid-2021	2100	2200
Mid-2021 to Mid-2026	1500	1600
Mid-2026 to Mid-2031	1200	1200
Mid-2031 to Mid-2036	700	700
Mid-2036 to Mid-2041	400	500

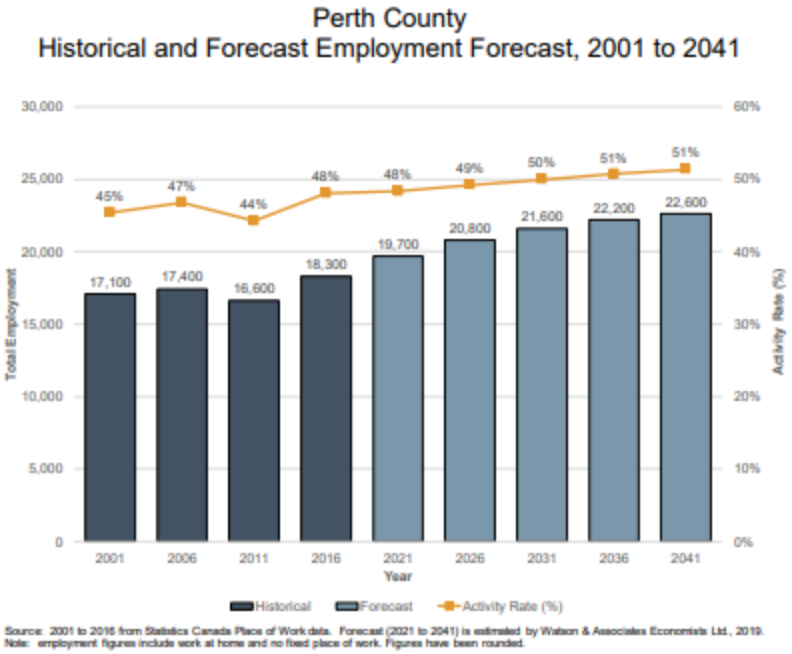
Source: 2001 to 2016 data from Statistics Canada Demography Division by Watson & Associates Economists Ltd., 2019.
Note: Population figures have been rounded.

Similarly, Perth County's housing and employment forecast are projected to grow at rates of 18% and 19%, respectively. This can be seen in the tables below:

Perth County
Historical and Forecast Households, 2001 to 2041



Source: Historical households (2001 to 2016) from Statistics Canada Census. Forecast (2021 to 2041) estimated by Watson & Associates Economists Ltd., 2019.



6.2 Impact of Growth on Lifecycle Activities

By July 1, 2025, Perth County's asset management plan must include levels of service that the County's proposes to provide for each of the 10 years following the year in which all information required.

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 County'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 County 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

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 Perth County to identify the financial resources required for sustainable asset management based on existing asset inventories, desired levels of service, and projected growth requirements.

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

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

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

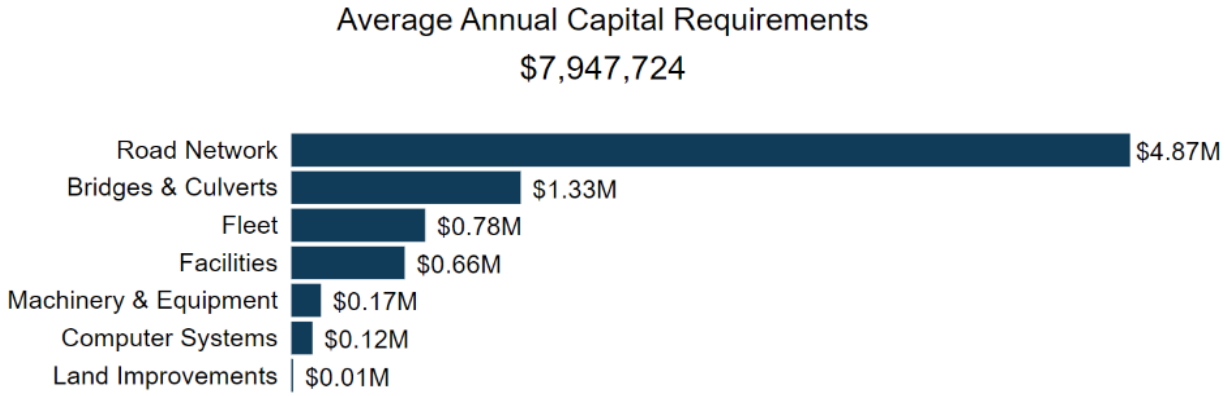
If the financial plan component results in a funding shortfall, the province requires the inclusion of a specific plan as to how the impact of the shortfall will be managed. In determining the legitimacy of a funding shortfall, the province may evaluate a county's approach to the following:

1. 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 County 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 County must allocate approximately $7.9 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 and bridges & culverts, lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal of the County's roads and bridges/culverts. The development of these strategies allows for a comparison of potential cost avoidance if the strategies were to be implemented. The following table compares two scenarios for the road network and bridges & culverts:

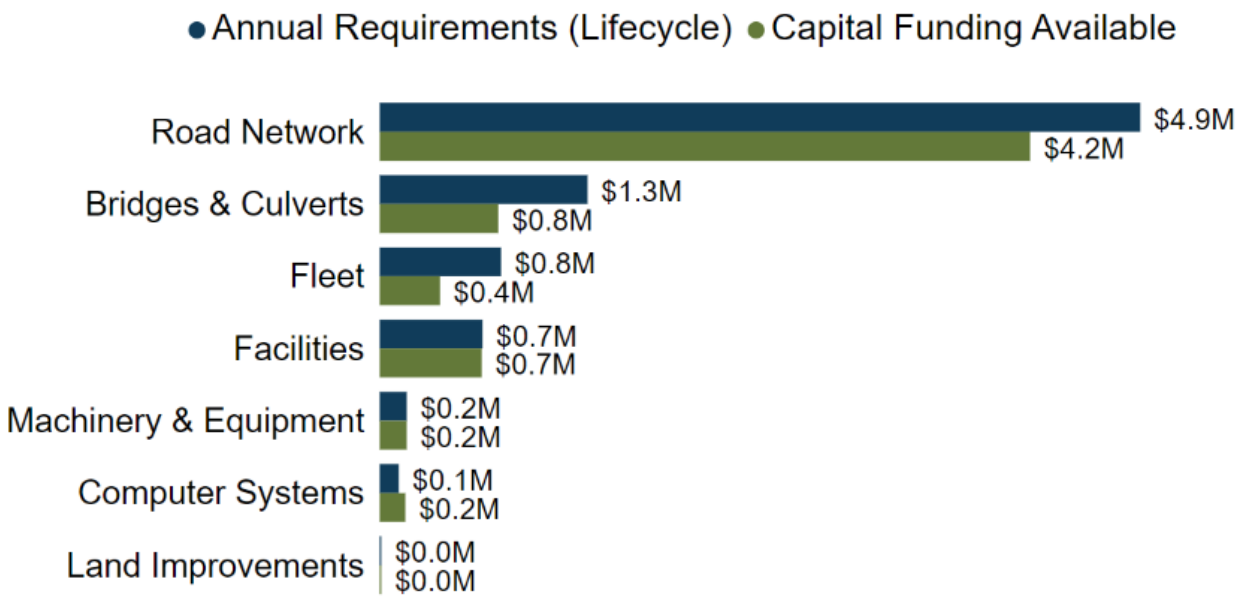
1. **Replacement Only Scenario**: Based on the assumption that assets deteriorate and – without regularly scheduled maintenance and rehabilitation – are replaced at the end of their service life.
2. **Lifecycle Strategy Scenario**: Based on the assumption that lifecycle activities are performed at strategic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

Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Road Network	$5,196,102	$4,871,994	$324,108
Bridges & Culverts	$1,274,524	$1,331,993	($57,469)

The implementation of a proactive lifecycle strategy for roads leads to a potential annual cost avoidance of $324,108 (6.2%). Implementing a proactive lifecycle strategy for the bridges & culverts would require Perth County to allocate an additional $57,469 (4.3%) annually. As the lifecycle strategy scenario represents the lowest cost option available to the County, we have used these annual requirements in the development of the financial strategy.

Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the County is committing approximately $6,673,000 towards capital projects per year. Given the annual capital requirement of $7,948,000, there is currently a funding gap of $1,275,000 annually.



7.2 Funding Objective

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

- **Tax Funded Assets:** Road Network, Bridges & Culverts, Facilities, Machinery & Equipment, Fleet, Land Improvements and Computer Systems

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, Perth County's average annual asset capital expenditure (CapEx) 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 to Reserves	Gas Tax	OCIF	Other	Total Available	
Road Network	4,872,000	2,400,000	1,270,000	496,000	178,000	4,344,000	528,000
Bridges & Culverts	1,332,000	760,000			181,000	941,000	391,000
Facilities	659,000	653,000				653,000	6,000
Machinery & Equipment	173,000	173,000				173,000	0
Fleet	778,000	386,000				386,000	392,000
Land Improvements	11,000	11,000				11,000	0
Computer Systems	123,000	165,000				165,000	-42,000
	7,948,000	**4,548,000**	**1,270,000**	**496,000**	**359,000**	**6,673,000**	**1,275,000**

The average annual CapEx requirement for the above categories is $7.948M. Annual revenue currently allocated to these assets for capital purposes is $6.673M leaving an annual deficit of $1.275M. Put differently, these infrastructure categories are currently funded at 84.0% of their long-term requirements.

7.3.2 Full Funding Requirements

In 2021, Perth County has annual tax revenues of $17.109M. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding would require the following tax change over time:

Asset Category	Tax Change Required for Full Funding
Road Network	3.1%
Bridges & Culverts	2.3%
Facilities	0.0%
Machinery & Equipment	0.0%
Fleet	2.3%
Land Improvements	0.0%
Computer Systems	-0.2%
	7.5%

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

a) Perth County's debt payments for these asset categories will be decreasing by $93K over the next 5 years and by $174K over the next 10 years. Although not shown in the table, debt payment decreases will be $751K 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	1,275,000	1,275,000	1,275,000	1,275,000	1,275,000	1,275,000	1,275,000	1,275,000
Change in Debt Costs	N/A	N/A	N/A	N/A	-97,000	-174,000	-751,000	-751,000
Change in OCIF Grants	N/A	N/A	N/A	N/A				
Resulting Infrastructure Deficit:	**1,275,000**	**1,275,000**	**1,275,000**	**1,275,000**	**1,178,000**	**1,101,000**	**524,000**	**524,000**
Tax Increase Required	7.5%	7.5%	7.5%	7.5%	6.9%	6.4%	3.1%	3.1%
Annually:	**1.5%**	**0.8%**	**0.5%**	**0.4%**	**1.4%**	**0.7%**	**0.3%**	**0.2%**

7.3.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 5-year option. This involves full CapEx funding being achieved over 5 years by:

a) when realized, reallocating the debt cost reductions of $97K to the infrastructure deficit as outlined above.
b) increasing tax revenues by 1.4% each year for the next 5 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
c) allocating the current gas tax and OCIF revenue as outlined previously.
d) allocating the scheduled OCIF grant increases to the infrastructure deficit as they occur.
e) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
f) 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[1].
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 CapEx funding on an annual basis in 5 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. Current data shows a pent-up investment demand of $407K for Fleet.

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.

[1] The County 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 Use of Debt

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

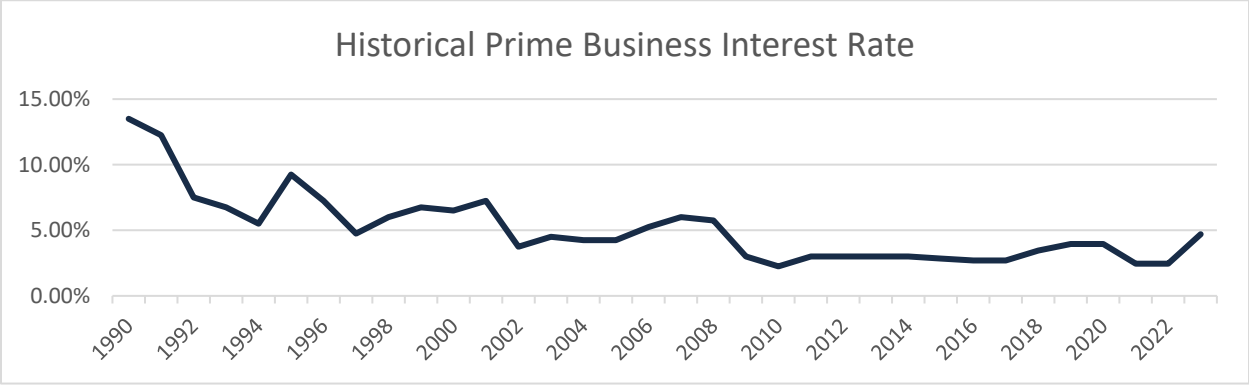
a) the ability to stabilize tax & user rates when dealing with variable and sometimes uncontrollable factors

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

c) a secure source of funding

d) flexibility in cash flow management

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



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

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

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

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%

The following tables outline how Perth County has historically used debt for investing in the asset categories as listed. There is currently $6.774M of debt outstanding for the assets covered by this AMP with corresponding principal and interest payments of $751K, well within its provincially prescribed maximum of $4.567M.

Asset Category	Current Debt Outstanding	Use of Debt in the Last Five Years				
		2017	2018	2019	2020	2021
Road Network						
Bridges & Culverts						
Facilities	6,774,000	1,514,000				
Machinery & Equipment						
Fleet						
Land Improvements						
Computer Systems						
Total Tax Funded:	**6,774,000**	**1,514,000**	**0**	**0**	**0**	**0**

Asset Category	Principal & Interest Payments in the Next Ten Years						
	2022	2023	2024	2025	2026	2027	2032
Road Network							
Bridges & Culverts							
Facilities	751,000	827,000	827,000	827,000	827,000	654,000	577,000
Machinery & Equipment							
Fleet							
Land Improvements							
Computer Systems							
Total Tax Funded:	**751,000**	**827,000**	**827,000**	**827,000**	**827,000**	**654,000**	**577,000**

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

7.5 Use of Reserves

7.5.1 Available Reserves

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

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

By asset category, the table below outlines the details of the reserves currently available to Perth County.

Asset Category	Balance on December 31, 2021
Road Network	7,662,000
Bridges & Culverts	1,532,000
Facilities	2,064,000
Machinery & Equipment	202,000
Fleet	437,000
Land Improvements	0
Computer Systems	91,000
Total Rate Funded:	**11,988,000**

There is considerable debate in the municipal sector as to the appropriate level of reserves that a county should have on hand. There is no clear guideline that has gained wide acceptance. Factors that municipalities should consider 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 Perth County'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.

7.5.2 Recommendation

In 2025, Ontario Regulation 588/17 will require Perth County 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 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[3]													
Segment	**Back log**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**
Asphalt (HCB2) - Surface	$0	$0	$0	$0	$651,586	$0	$0	$0	$0	$0	$0	$0	$0
Asphalt (HCB3) - Surface	$0	$7,867,000	$4,690,500	$7,705,486	$5,789,319	$5,627,279	$5,730,000	$5,557,728	$5,518,388	$5,310,498	$4,281,982	$3,205,906	$2,934,164
Asphalt (HCB4) - Surface	$0	$0	$2,597,500	$52,477	$0	$0	$0	$0	$0	$0	$1,358,018	$2,365,780	$2,627,546
Roadway Lights	$0	$19,536	$0	$0	$0	$0	$0	$0	$2,351	$0	$0	$0	$0
Total:	**$0**	**$7,886,536**	**$7,288,000**	**$7,757,963**	**$6,440,905**	**$5,627,279**	**$5,730,000**	**$5,557,728**	**$5,520,739**	**$5,310,498**	**$5,640,000**	**$5,571,686**	**$5,561,710**

[3] Capital requirements for Perth County, from 2021-2032, provided by 4 Roads Management Services Inc.

Bridges and Culverts											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Bridges - Barriers & Decktop	$0	$0	$0	$0	$0	$25,000	$0	$0	$0	$0	$0
Bridges - Substructure	$0	$0	$0	$1,073,253	$300,053	$2,350,000	$0	$0	$0	$0	$0
Bridges - Superstructure	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Culverts - Concrete	$0	$0	$0	$0	$0	$1,465,000	$0	$0	$0	$0	$0
Culverts - Steel	$0	$0	$0	$2,436,206	$0	$0	$0	$0	$0	$0	$0
Total:	**$0**	**$0**	**$0**	**$3,509,458**	**$300,053**	**$3,840,000**	**$0**	**$0**	**$0**	**$0**	**$0**

Facilities[4]												
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**
Ambulance Stations & Work Yards	$0	$182,500	$152,500	$74,000	$119,000	$221,600	$56,500	$62,000	$96,500	$123,000	$91,500	$112,000
Furniture	$0	$4,298	$3,046	$6,331	$4,943	$8,847	$94,249	$60,672	$34,638	$30,355	$16,787	$12,044
Office Buildings	$0	$219,000	$3,919,500	$177,500	$209,500	$163,000	$112,500	$81,800	$27,500	$49,000	$78,500	$37,500
Total:	**$0**	**$405,798**	**$4,075,046**	**$257,831**	**$333,443**	**$393,447**	**$263,249**	**$204,472**	**$158,638**	**$202,355**	**$186,787**	**$161,544**

[4] Perth County's capital requirements for facilities, from 2021-2031, were provided by Walter Fedy in a 2018 report.

Machinery and Equipment											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Equipment/Tools	$0	$0	$0	$10,825	$0	$0	$63,652	$0	$0	$58,873	$0
Medical Equipment	$0	$0	$0	$24,884	$58,021	$0	$318,585	$181,770	$1,254	$503,540	$208,971
Total:	**$0**	**$0**	**$0**	**$35,709**	**$58,021**	**$0**	**$382,237**	**$181,770**	**$1,254**	**$562,413**	**$208,971**

Computer Systems											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Fire Radio Equipment	$0	$0	$0	$0	$20,067	$8,430	$0	$1,274	$0	$20,067	$78,640
Network Equipment	$0	$75,650	$24,186	$49,558	$16,892	$1,533	$8,334	$75,650	$24,186	$49,558	$16,892
Printers	$0	$315	$0	$32,641	$944	$0	$0	$315	$0	$32,641	$944
Servers	$0	$0	$0	$11,420	$0	$0	$40,000	$0	$0	$11,420	$0
Software	$0	$36,893	$0	$13,918	$7,920	$36,893	$0	$13,918	$7,920	$36,893	$0
Workstations	$0	$7,197	$3,540	$20,882	$17,812	$50,190	$49,670	$23,245	$27,565	$3,540	$20,882
Total:	**$0**	**$120,055**	**$27,726**	**$128,419**	**$63,635**	**$97,046**	**$98,004**	**$114,402**	**$59,671**	**$154,119**	**$117,358**

Fleet											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Ambulances	$0	$145,653	$576,334	$151,750	$734,676	$173,984	$0	$770,857	$175,349	$576,334	$151,750
Dump, Crew Cab, Backhoe, Loaders	$324,593	$0	$81,122	$0	$0	$5,706	$0	$69,375	$84,264	$0	$7,837
Graders	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pickup Trucks	$82,848	$86,073	$0	$219,735	$33,255	$101,718	$38,168	$62,894	$168,921	$0	$219,735
Tandem Dump Trucks	$0	$283,151	$298,204	$0	$0	$616,155	$302,555	$0	$664,940	$0	$19,300
Total:	**$407,441**	**$514,877**	**$955,660**	**$371,485**	**$767,931**	**$897,563**	**$340,723**	**$903,126**	**$1,093,474**	**$576,334**	**$398,622**

Land Improvements											
Segment	**Backlog**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**
Parking Lots	$0	$0	$0	$0	$0	$38,601	$0	$0	$0	$0	$69,151
Total:	**$0**	**$0**	**$0**	**$0**	**$0**	**$38,601**	**$0**	**$0**	**$0**	**$0**	**$69,151**

Appendix B: 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 County'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 County 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 County'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 County 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 County 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 County 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 County 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