County of Lennox & Addington

2024 ASSET MANAGEMENT PLAN

Prepared by County Staff
June 20, 2024

VERSION LOG

Version #	Date	Revised By	Revision Description
Draft 01	June 17, 2024	MM, CW, MD	Initial Draft

EXECUTIVE SUMMARY

This report is the County of Lennox & Addington Asset Management Plan which provides insights on County-owned assets. The Asset Management Plan (AMP) establishes a new line of sight from levels of service and costs to strategic drivers, whether those drivers be legislation, strategic initiatives, or current areas of Council focus. Continuing from the last AMP update in 2019, new infrastructure information is provided, and the structure and content of the AMP have been updated to meet new legislative requirements.

Key provisions the County provides to the public include:

- Emergency services
- Long term care
- Planning and community services
- Social services
- Transportation and stormwater management

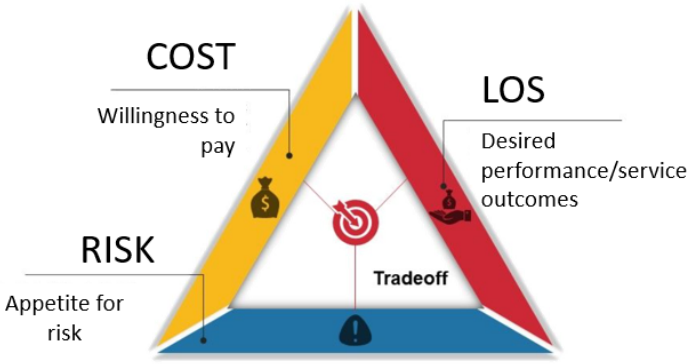
This 2024 Asset Management Plan (AMP) represents the County's Plan to responsibly maintain its assets so that it may continue to deliver these services sustainably into the future, by addressing the following questions:

- What do we own and why?
- What is it worth and what condition is it in?
- What are the current service levels?
- What activities do we employ to manage the assets and maintain those levels?
- What does all of that cost?

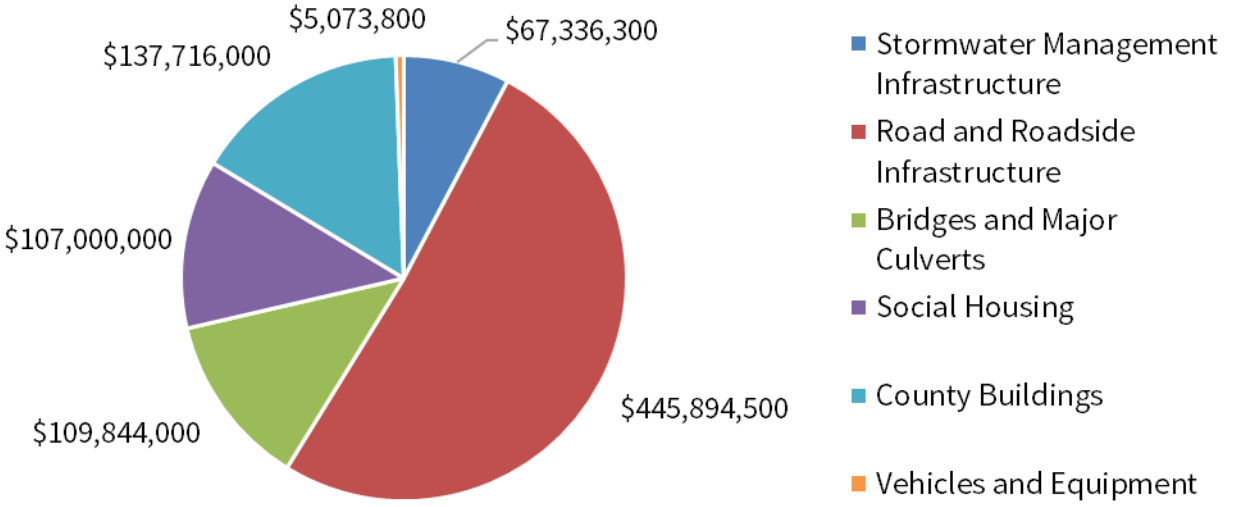
It is not recommended that the required funding to maintain service levels be translated directly into the budget forecast. Instead, the projections are meant to establish a new baseline, documenting what state and principles apply today, so that staff and Council may begin to consider:

1. The preferred means to identify and measure levels of service, and
2. Options to optimize cost, level of service, and risk.

This discussion, and the trade-off and optimization that must occur, can be depicted in the graphic below.



The current replacement value of the assets used to provide the services listed above is $873M, shown below.

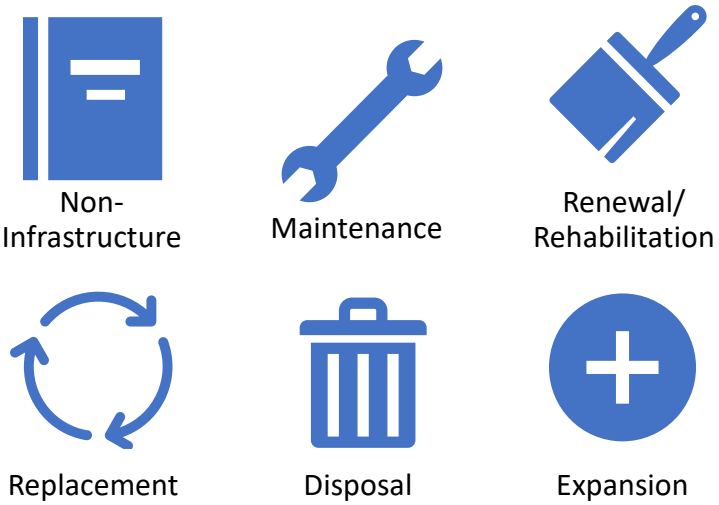


In general, the condition of these assets ranges from very poor to very good, and a detailed assessment for each asset category is provided within this AMP.

The levels of service provided by each asset category link to the Asset Management Policy and the Council Strategic Plan, demonstrated through customer and technical levels of service measures listed in the AMP. These include:

- Scope of services – providing reach and connectivity
- Reliability – maintaining infrastructure in acceptable condition
- Quality – providing quality services through infrastructure in a state of good repair

To provide these levels of service, a range of activities are regularly planned for and carried out throughout the lifecycle of assets, shown below.



Lifecycle activities and the strategies required and applied for each asset category are described in the AMP.

For staff and Council to make informed decisions on trade-offs between cost, levels of service and risk, it is important to also describe how the assets may 'fail' – which is a critical point where money is spent. Failure modes usually related to physical failure, performance/capacity failure, or financial failure. The risks associated with the related failure modes for each asset category are provided in the AMP.

Presented in the AMP, based on all of this supporting information, are the funding requirements to carry out the lifecycle activities described, to maintain the current level of service. The corresponding requirements for annual capital are shown below (averaged for 2024-2034) and compared to the current budget forecast.

	Anticipated Budget (Equivalent Annual Cost)	**Cost to Maintain LOS (Equivalent Annual Cost)**	**Annual Funding Shortfall/(Excess)**
Stormwater Management Infrastructure	$3,000,000	$4,600,000	$1,600,000
Roads and Roadside Infrastructure	$19,700,000	$20,055,250	$355,250

	Anticipated Budget (Equivalent Annual Cost)	Cost to Maintain LOS (Equivalent Annual Cost)	Annual Funding Shortfall/(Excess)
Bridges and Major Culverts	$965,000	$1,300,000	$335,000
Social Housing	$1,133,000	$5,306,000	$4,173,000
County Buildings	$ 535,150	$1,600,000	$1,064,850
Long term care	$ 545,250	$1,690,500	$1,145,250
Vehicles & Equipment	$772,500	$750,000	($22,500)
Total	**$26,650,900**	**$35,301,750**	**$8,650,850**

Discussions and recommendations around each comparison above are provided in the AMP, along with strategic options for financing. Operating forecasts are also discussed.

Although currently funded through the existing tax base, the strategy for funding growth is being reviewed by the County, and growth considerations are noted in the AMP.

In the next steps of this AMP, the County will be asking "Is this asset providing the community the service it expects and is willing to pay for?" Assets may be in excellent condition but may not be providing service at a level that is satisfactory to the community. This assessment and forecasting process will evolve to establish proposed levels of service accompanied by a corresponding cost and financing strategy.

Financing Strategy

Once proposed levels of service are defined and the cost to achieve them is determined then the strategic options to address any potential infrastructure funding shortfall include:

1. Adjust asset performance expectations. The funding shortfall may be reduced by revisiting stakeholder objectives against affordability/willingness to pay.
2. Continue to seek funding from the Provincial or Federal government to fund infrastructure.
3. Draw from available reserves. The use of reserves is appropriate to fund large projects where spending is increased for a short period, after which spending will return to baseline levels.
4. Investigate Development Charges (DCs) to finance infrastructure required to service new growth. This involves the completion of a DC background study and the passing of

a municipal by-law to charge a per-lot fee to fund growth-related infrastructure projects.

5. Consider modest above-baseline revenue increases to fund the infrastructure funding shortfall.
6. Consider acquiring debt.

Recommendation

It is not recommended that the required funding to maintain levels of service be directly translated into the budget forecast.

Instead, the projections are meant to establish a new baseline, documenting current state and principles that apply today, so that staff and Council may begin to consider:

1. The preferred means to identify and measure levels of service, and
2. Options to optimize cost, level of service, and risk.

After this, funding strategies can be optimized for each asset category.

It is also important to note that asset management practices and the AMP must be checked in on regularly and communicated, which is further described in the AMP.

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DEFINITIONS

Asset
A resource with economic value that a municipality controls with the expectation that it will provide a future benefit. An asset is specifically defined as property, equipment, vehicles, tools or other resources with a purchase value at or above the Capital Asset Threshold.

Asset Management (AM)
The coordinated activity of an organization to realize value from assets.

Asset Management Plan (AMP)
A plan for the management of infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the life cycle of the asset in the most cost-effective manner to provide a specific level of service. The management of infrastructure assets includes investment, design, construction, acquisition, operation, maintenance, renewal, replacement and decommissioning of these assets.

Asset Category
A category of municipal infrastructure assets that is an aggregate of assets.

Asset Hierarchy
A logical digital index of assets and asset information.

Core Asset
Includes any municipal infrastructure asset that is a:

- water asset that relates to the collection, production, treatment, storage, supply or distribution of drinking water,
- wastewater asset that relates to the collection, transmission, treatment or disposal of wastewater, including any wastewater asset that from time to time manages stormwater,
- stormwater management asset that relates to the collection, transmission, treatment, retention, infiltration, control or disposal of stormwater,
- road, or
- bridge or culvert.

Estimated Service Life (ESL)
For new assets, this is the estimated expected life (usually in years) that an asset will function, assuming typical general maintenance is carried out. Typically, ESLs vary for different types of assets, such as a concrete culvert vs. a corrugated steel pipe.

Infrastructure
The physical structures and associated facilities that form the foundation of development, and by or through which a public service is provided.

Infrastructure Deficit
A spending shortfall in comparison to an established need. This can include the accumulated deficit that results year over year due to financial shortfalls.

Level of Service (LOS)
The parameters, or combination of parameters, which reflect social, political, environmental and economic outcomes that the organization delivers (ISO 55000). A means for capturing and realizing value from the County's assets through the delivery of services (e.g. parks, libraries, transit) to stakeholders (such as customers).

Lifecycle
The useful life of an asset from acquisition to disposal, typically expressed in years.

Lifecycle Activity
An activity undertaken to sustain asset integrity and service levels occur over the life of an asset, such as demand management or rehabilitation.

Lifecycle Cost
The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation and disposal costs.

Lifecycle Management Strategy
The set of planned actions that will enable the assets to provide the desired levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.

Non-Core Asset
Includes any municipal infrastructure asset that is a not a core asset, such as fleet, equipment, and buildings.

Non-Infrastructure Lifecycle Activities
Actions or policies that are not capital in nature, which result in the lowering of costs and/or extend the useful life of an asset.

Ontario Regulation O.Reg. 588/17
Under the Infrastructure for Jobs and Prosperity Act, 2015, principles are set out by the provincial government to regulate asset management planning for municipalities. On December 27, 2017, O. Reg. 588/17 was released which regulates asset management planning for municipal infrastructure.

Public
Residents, visitors and businesses in the County of Lennox & Addington, stakeholders, or other interested parties.

Remaining Useful Life
Time left (usually in years) in the asset before it is considered failed, usually related to an anticipated failure mode.

1 INTRODUCTION

County assets provide the foundation upon which the County delivers services essential to the livelihood of its citizens and businesses. The County currently owns and operates over $873 million in assets, which contributes to community health, citizen satisfaction and enables the County's future growth (by replacement cost).

The County's well-established Asset Management (AM) practices are a set of integrated strategies to plan investments regarding the building, operating, maintaining, renewing, replacing and disposing of these assets while being as efficient as possible with the resources entrusted to County.

This 2024 Asset Management Plan (AMP) update represents the County's Plan to responsibly maintain its assets so that it may continue to deliver services sustainably into the future. It provides a rational framework enabling the County to create a line of sight between high-level corporate drivers and the assets required to deliver services.

This document was a collaborative effort among the asset owners and programming teams. It describes the rationale used to deliver programs to design, construct, maintain, operate, and renew the County assets to strike a balance between:

- Performance / levels of service,
- Costs associated with asset ownership, and
- The risks inherent in owning large critical networks of infrastructure.

The objectives of this AMP were two-fold. First and foremost, it was developed to add applicable requirements from Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure and the County's 2019 AM Policy; and secondly it is being used to enhance the conversations around asset management at the County.

1.1 Purpose

The purpose of this plan is to:

- Enable the County to respond to current AM Plan regulatory requirements.
- Provide recommendations regarding future AM Plan regulatory requirements and enhanced AM practices.
- Establish an AMP Framework that can be expanded or modified as Enterprise Asset Management at the County gets underway.
- Describe current levels of service.
- Identify the ways in which assets can fail and describe the lifecycle management options applied to mitigate the failure.
- Forecast expenditures required to sustain current levels of service for the next 10 years.

- Support the line of sight between Council approved plans and initiatives and asset investment needs.
- Provide increased transparency related to the County's AM practices, challenges and opportunities and decision-making processes.

1.2 Scope

The County's 2024 Asset AMP reports on the majority of its assets within the core asset categories, as defined by Ontario Regulation 588/17. This AMP covers a minimum period of 10 years and reports on the majority of the assets owned by the County, including:

Core Assets:

- Stormwater Management Infrastructure,
- Roads and Roadside Infrastructure, and
- Bridges and Major Culverts

Non-Core Assets:

- Social Housing,
- County Buildings, and
- Vehicles and Equipment.

Some bridge assets are shared with other agencies and are included for consideration in the AMP.

Due to the ongoing regulatory milestones of O. Reg. 588/17, supplementary versions of this AMP are required to be developed for July 1, 2025.

1.3 Alignment with Drivers

This AMP sits among the County's other significant planning documents. This AMP aligns with the Strategic Asset Management Policy. The AMP functions to provide transparency, build trust, and demonstrate the good work done by the County's Council and staff. It shares information with infrastructure reports, master plans, needs studies, Capital and Operating budgets, and Tangible Capital Asset Reporting.

An important point of clarification is the role the AMP plays in the County's capital and operating budget development process – which is to identify the cost associated with completing all the work required on assets to deliver a defined level of service. While AM practices are rooted in financial efficiency and achieving the lowest cost of asset ownership, the AMP (unlike the capital and operating budget process) is not constrained in its financial analysis. It identifies all asset costs associated with all asset needs, not just those the County can afford to address. The purpose of this type of analysis is to demonstrate that the County is aware of the gap between what is needed in terms of asset investment and what is currently budgeted.

County Asset Managers provide their expertise on asset and service requirements, and in collaboration with staff in Finance and Council, are committed to finding solutions that will enable the County to continue to sustainably provide valuable services to the community.

1.3.1 Alignment with Strategic Asset Management Policy

This AMP was developed in accordance with the County's Strategic AM Policy (2019). As part of its asset management planning for municipal infrastructure, the County is committed to considering the following as outlined by the Policy:

- Providing opportunities for residents and other stakeholders served by the County to
- provide input in the development of asset management plans; and
- Coordinating asset management planning with other infrastructure asset owning agencies such as municipal bodies and regulated utilities.
- Considering climate change.

1.3.2 Ontario Regulation 588/17

In December 2017, the Ontario government passed Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure. The regulation sets out requirements for municipal asset management planning to help municipalities better understand their infrastructure needs and inform infrastructure planning and investment decisions. The regulation is being phased in over six years and in 2025 will culminate in the development of an Asset Management Plan that addresses the future investment needs for all infrastructure assets owned by the County. Key legislative deadlines for all Ontario municipalities are shown in Table 1.

Table 1 – Legislative Milestones

Date	Milestone	Status
July 1, 2019	Prepare and publish a strategic asset management policy.	Complete – June 2019
July 1, 2022	Develop enhanced AMP that includes the cost to maintain current service levels covering core infrastructure assets.	Complete – July 2022
July 1, 2024	Expand enhanced AMP that includes the cost to maintain current service levels covering all infrastructure assets.	Complete – July 2024
July 1, 2025	Expand AMP to provide further details on all infrastructure assets, including proposed service levels and the revenue and expenditure plan to achieve the proposed service levels (if greater than current service levels).	Under Development

This AMP is focused on compliance to the July 1, 2024 requirements, and also builds a foundation towards partial compliance to the July 1, 2025 requirements.

This AMP particularly resonates with the following guiding principles from the County's Strategic Plan:

- We exist to serve our public.
- We are committed to long term visioning and sustainability.

The specific Strategic Priorities that connect to the levels of service discussed in this plan include:

- Priority #1 - Facilitate safe affordable housing
- Priority #3 - Foster growth and opportunity
- Priority #4 - Maintain infrastructure excellence
- Priority #5 – Improve connectivity
- Priority #6 – Reimagine County libraries

1.4 Since the Last Asset Management Plan

The status of recommendations from the previous AMP update are provided below.

Recommendation 1 (2019)

The Asset Management Plan recommends an annual expenditure of $15.3 million, to keep up with infrastructure needs, leaving a funding gap of approximately $4.3 million. Most of this gap relates to roads & bridges and social housing. In order to address this gap, the County should continue to levy, at a minimum, an additional 2% of the overall levy dedicated to infrastructure, as has been the County's practice for the past ten plus years.

Since 2019, the County has maintained annual expenditures of $19.4 million (2020) and $14.8 million (2021) to try and keep up with the infrastructure needs. The County has also maintained the additional 2% of the prior years overall levy dedicated to infrastructure. This has resulted in an additional $609 thousand (2022), $634 thousand (2023), and starting in 2024 an additional 2.5% of the prior years overall levy resulting in $849 thousand to help fund the gap of infrastructure needs.

Recommendation 2 (2019)

The County should seek additional sustainable funding from federal and provincial sources. Currently the only sustainable annual funding is the federal gas tax funds of $1.28 million and provincial funding for the debt repayment related to the construction of the John M. Parrott Centre ($635,000). (Note – In 2015 and future years, the Province will be providing sustainable formula-based funding through the OCIF program and this funding is now incorporated into the County's Asset Management Plan). From time to time, the Provincial/Federal governments have also provided additional infrastructure funding on a one-time basis.

Although the funding is welcomed, it cannot be included as part of a comprehensive asset management plan because the amount and timing are uncertain.

At present, the sustainable annual funding is the federal gas tax funds of $1.4 million Canadian Community Building Funding (CCBF) and the Ontario Community Infrastructure Fund (OCIF) currently at $1.1 million. The OCIF formula is in the process of being updated to include current replacement costs and the asset management plan should be updated to reflect the updated annual funding when amounts are announced. The other provincial funding is for the debt repayment related to the construction of the John M. Parrott Centre $635 thousand.

Recommendation 3 (2019)

The County should seek additional funding for social housing replacement. The outstanding debentures on the existing social housing units will be fully paid within the next 10 years, which should free up additional federal/provincial resources to invest in social housing. In 2016, the Province will be providing capital repair funding for Social Housing through the SHIP program.

Since 2019, the County has sold surplus housing from the social housing portfolio resulting in an additional $328 thousand available for new social housing units. Additionally, in 2022/23 the Province is providing capital funding $899 thousand under various housing programs (COCH $289 thousand; OPHI $393 thousand; COHB $217 thousand)

Recommendation 4 (2019)

The County should also consider alternative revenue sources to fund infrastructure, including development charges.

The County is still investigating alternative revenue sources to fund infrastructure, including development charges.

Recommendation 5 (2019)

The County should continue to inspect and monitor its assets and to conduct condition assessment reports on a regular basis in order to update asset management strategies to ensure that infrastructure dollars are spent as efficiently as possible. A building condition assessment was completed for County buildings in 2016 and roads & bridge needs studies will be updated later this year.

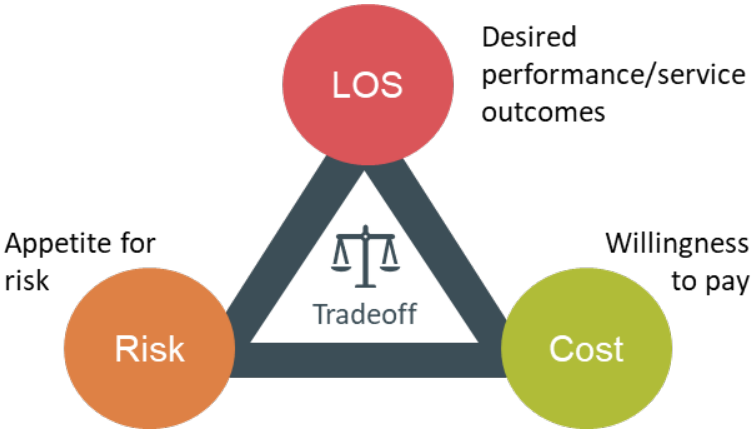
Since 2019, the County has completed infrastructure asset condition reports that are now being included in the updated asset management plan. Annual asset condition assessments will be part of the annual process when updating the County's asset management plan. The County continues bi-annual bridge and major culvert inspections (OSIM) annual road assessments, and quintennial building condition assessments.

1.5 Sources of Information

The County maintains several asset inventories at varying levels of detail, including GIS, database inventories, and assessment reports.

2 AMP OVERVIEW

The County is continually challenged by fiscal constraints and deteriorating infrastructure that requires regular investment, management and response. To address infrastructure challenges, and to meet legislated requirements, service objectives and financial targets, the County's Asset Managers strive to balance three intrinsically connected elements: levels of service, cost and risk.



The tension between these elements typically results in impacts and trade-offs. For example, by allowing one element to decline or conversely by enhancing another, an organization can be pushed off balance and away from the optimum center point.

When the tension between level of service and cost is not balanced, it exposes the organization to sustainability risks. For example, the County may elevate its levels of service beyond what the organization can afford, where the cost of work required on assets to sustain that level of service may reach beyond what the County is willing to pay. To avoid such an imbalance, Asset Managers develop plans to optimize investments and methods of delivering the level of service. These decisions are always associated with a level of risk, and the role of AM is to weigh these options and find the optimum balance.

2.1 Risk

Risk often drives AM decisions. The County's Asset Managers continually strive to minimize risks to the community. Risk can be expressed in terms of financial, legislative compliance, public safety or health, environmental, County reputation, private property, or service to the customer considerations. Risks to the community can be as minor as traffic delays and as severe as harm to public health. The role of the Asset Manager is to identify and mitigate the risks of asset failure.

An asset is considered to have failed when one of the following failure modes has occurred:

- Capacity and Performance: Demand on the asset exceeds asset capabilities, from growth for example, or requirements (legislative, industry standard or internal requirement) exceed asset capabilities, from climate change for example)
- Financial Efficiency: the cost of maintaining and operating the asset exceeds the cost of the replacement or alternative option to deliver the same capability
- Physical Failure: the asset fails structurally, stops working or is otherwise non-operational

Asset Managers monitor all asset failure modes but focus on the failure modes most likely to occur. In the case of core assets, physical and performance failure modes are modelled and monitored, and mitigation techniques (lifecycle activities) are prescribed to offset failure and extend the life of the asset.

As the County explores failure modes and associated risk in greater detail in future AMPS, types of consequences may be explored. For example, service consequences are types of risk consequences associated with the potential impact to the reliability and/or quality of a service being provided by the assets. Risk Consequences are broader, and can include financial implications, loss of reputation from users, impacts to environment, or injury to staff or public as well as the consequence relating to the loss or reduction in the service. Risk responses include treatment options, corresponding costs and what risk would remain if the management option is implemented. Critical assets may be treated differently in relation to operation, maintenance and renewal because, if they fail, a significant impact to services would result. There might be controls or plans already in place to provide additional operation, maintenance and renewal activities to ensure such critical assets do not fail.

The County's lifecycle management strategies for its assets guide decisions regarding what lifecycle activities are to be applied, at what stage of an asset lifecycle, to mitigate risk of asset failure, sustain levels of service, while striving to achieve the lowest lifecycle cost. The lifecycle management strategy for each asset category must first consider how the assets fail, and what lifecycle activities the County can carry out to prevent or mitigate that failure. These risks are described in each Asset Category section.

As a part of the County's strategic priority of maintaining infrastructure excellence and dedication to environmental stewardship, the County recognizes that climate change is a significant risk that is regularly incorporated into its planning activities.

2.2 State of Infrastructure

The State of Infrastructure section for each asset category incorporates the following:

- A summary of the inventory of assets which support the service area, including description and quantity of assets
- An approximation of the replacement value of the assets. Of note, not all assets are replaced; some are continually rehabilitated rather than replaced. As such, a replacement value estimate serves as

a foundational benchmark to highlight the significance of the infrastructure that supports the service area.
- The average age and estimated service life (ESL)
- Condition ratings of the assets that support each service area (i.e., % of assets in very good condition, weighted by the replacement value).

Maintaining accurate and reliable asset information is important because it acts as a foundation for decision-making. This information can be used to estimate current and future needs which supports the planning process and allows the County to be more proactive over reactive. Replacement values for each asset were derived based on a number of sources.

For condition information, while the County aims to visually assess all assets, it is not always feasible to do so. Because of this, a mix of approaches was used to determine the condition of assets including legislated inspections, visual inspections (on-site) and age-derived condition. Condition ratings were applied to each asset based on the available information using a five-point rating scale.

Table 2 – Condition Categorization

Performance Category	Description
Very Good	Fit for the Future - Overall condition of assets and their associated elements is good or newly replaced/rehabilitated.
Good	Adequate for Now - Most assets are functioning with a few elements showing signs of deterioration.
Fair	Requires Attention - some assets show general signs of deterioration and some deficiencies are starting to show. Many elements are approaching the end of their service life.
Poor	At Risk - Many elements have reached the end of their service life and no longer meet the community's expectations.
Very Poor	Unfit for sustained Service - These assets are well beyond their service life and are below standard condition showing signs of advanced deterioration.

2.3 Levels of Service

Levels of service are the cornerstone of asset management; they build the connection between the strategic initiatives and service objectives of the County with the means (the assets) that deliver the service. A level of service provides what the County needs that asset to do, as such levels of service provide the platform for all lifecycle decision-making.

While the minimum acceptable level of performance for some assets are governed by legislation (such as bridges), some are derived from internal policy and strategy approved and directed by Council.

The Levels of Service described in this AMP have been prepared in response to the requirements of O. Reg. 588/17. In the future, the County may consider additional Levels of Service that demonstrate alignment between organizational objectives and assets. The County's current performance is collectively indicated using the level of service metrics.

The measures are categorized in two types: Mandatory LOS measures as per O. Reg. 588/17, and foundational measures selected by the County.

	Represents a legislated LOS measure as per O. Reg. 588/17
	Represents a Foundational Metric selected by the County

In this Asset Management Plan, performance of the assets is indicated by the levels of service metrics reported. Performance will continue to be monitored and communicated as more performance measures develop.

2.4 Lifecycle Management Strategy

The asset lifecycle management strategy is a set of planned actions that allow the assets to continue to provide levels of service at the lowest lifecycle cost (i.e., through preventative action), while managing risk. Lifecycle Management Strategies describe the asset lifecycle activities applied to the asset category, the forecasted lifecycle activity costs and the optimal budget to maintain the current LOS. The approach to these items is described below.

Lifecycle activities describe planned actions that can be performed on an asset over its lifetime from construction to decommissioning. These activities are grouped into categories and are described below.

Table 3 – Categories of Lifecycle Activities

Lifecycle Activity Category	Description
Non-Infrastructure	Actions, studies, plans or policies that may not involve direct work done on an asset group, but may lead to lower costs or extension of asset life.
Operations and Maintenance	Regularly scheduled inspection and maintenance, or repair and activities associated with unexpected events.
Renewal/ Rehabilitation	Significant repairs designed to extend the life of the asset.
Replacement	Activities that are expected to occur once an asset has reached the end of its useful life and renewal/ rehabilitation is no longer an option.
Service Improvement	Planned activities to improve an asset's capacity, quality, and system reliability.
Disposal	Activities associated with disposing of an asset once it has reached the end of its useful life or is otherwise no longer needed by the municipality. Costs are typically combined with rehabilitation or replacement activities.
Expansion	Planned activities required to extend services to previously un-serviced areas - or expand services to meet growth demands.

3 STORMWATER MANAGEMENT INFRASTRUCTURE

3.1 State of Infrastructure

The summary of the stormwater management infrastructure inventory is provided in Table 4. The average age of assets compared to the average estimated service lives is also included in the summary. This provides a quick snapshot of where the storm assets generally are in their lifecycle, which in turn can give an idea of overall condition based on age.

Table 4 – Stormwater Management Infrastructure Inventory Summary

Asset Type	Quantity	Replacement Cost	Average Age (years)	Average ESL (years)
Stormwater Mains	19.8 km	$ 12,371,000	26	60
Minor Culverts	65.6 km	$ 46,495,000	25	47
Stormwater Pumping Station	1	$1,000,000	43	75
Ditches	747 km	$7,470,000	28*	40

* Average age of roads has been assumed to be applicable

The various construction dates for stormwater infrastructure are shown on the chart below.

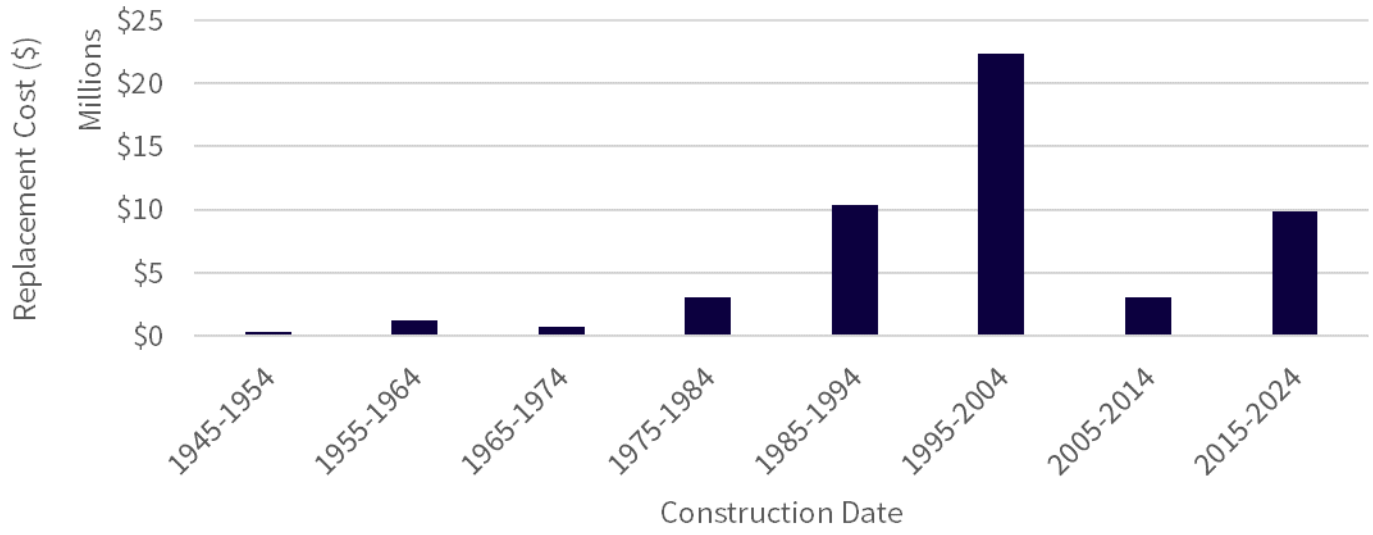


Figure 1– Stormwater Management Infrastructure Construction Date Distribution

The County continues to work on improving condition / inspection processes for assessing the condition of all storm sewers. Condition grades were assigned to each sewer using the findings from field assessments. Approximately 30% of the stormwater mains have has a field assessment. For assets without condition data, an age-based approach was used to determine asset condition. Table 5 presents the logic used to convert assessment grades and age as a proportion of remaining useful life into a condition rating. The condition distribution by replacement value is provided in Figure 2.

Table 5 – Stormwater Management Infrastructure Condition Ratings

Category	Life Remaining	Field Assessment Condition Category	Field Assessment Score
Very Good	100-67%	Excellent	100-76
Good	66% to 34%	Good	75-51
Fair	33% to 1%	Fair	50-26
Poor	0%	Poor	25-11
Very Poor	Beyond service life	Very Poor, Replace	10-0

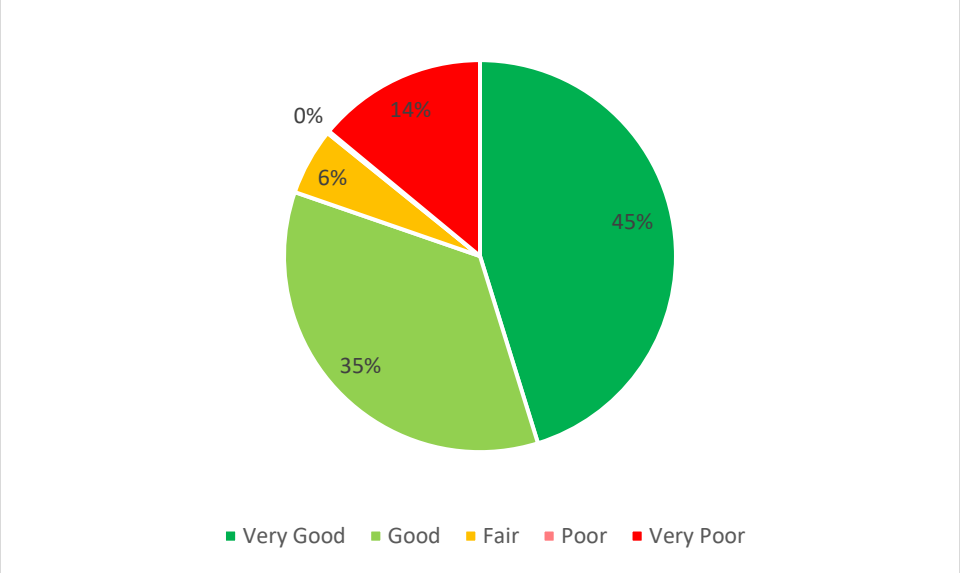


Figure 2 – Current Condition of Stormwater Main Infrastructure

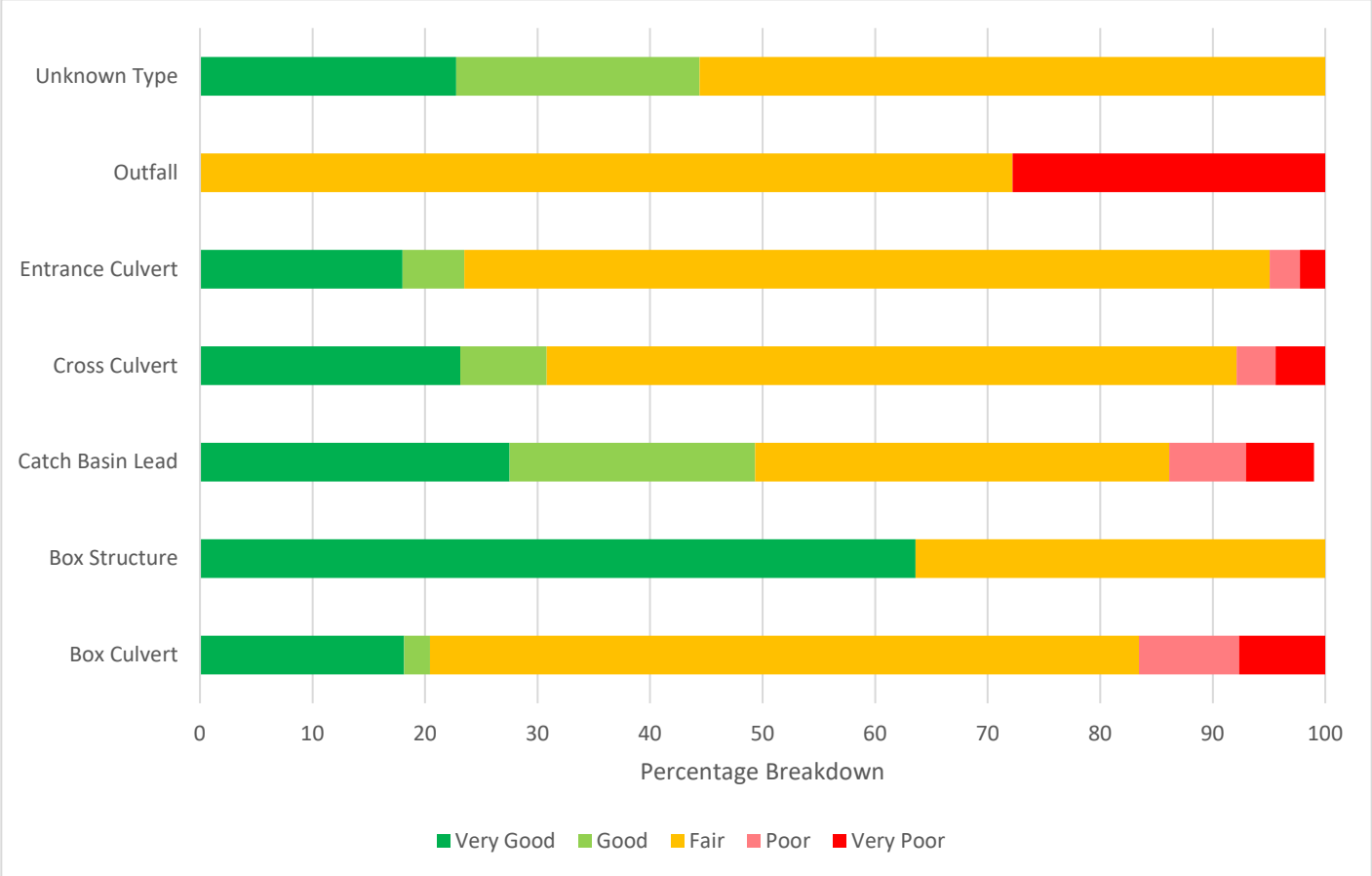


Figure 3 – Current Condition of Roadside/Minor Culvert Infrastructure

3.2 Levels of Service

The County's levels of service are centered around asset condition and resilience. Resilience is a level of service requirement from O.Reg.588/17, and although not defined in the regulation, is interpreted to mean that the stormwater system provides protection from stormwater surges within the road allowance and from private property flooding. The customer and technical LOS are shown in Table 6 and Table 7.

Table 6 – Stormwater Management Infrastructure Customer Levels of Service

Service Attributes	Customer Measures	2024 Performance
Scope	Description, which may include maps, of the user groups or areas of the municipality that are protected from flooding,	Areas of the County are protected from flooding through a variety of County infrastructure. In rural areas, roadside ditches manage road flooding and may offer some property flooding

Service Attributes	Customer Measures	2024 Performance
	including the extent of the protection provided by the municipal stormwater management system.	protection, and municipal drains provide formal drainage and flooding considerations. In urban areas, underground storm infrastructure provides some degree of flooding protection to private properties and flooding of the road allowance. A stormwater pump station is in place at the underpass on CR41 to allow the County to lower the risk and impact and flooding.

Table 7 – Stormwater Management Infrastructure Technical Levels of Service

Service Attribute	Metric	2024 Performance
Scope	Percentage of properties in municipality resilient to a 100-year storm.	97%*
	Percentage of the municipal stormwater management system resilient to a 5-year storm.	100%
Reliable	Percentage of stormwater management infrastructure that are in fair or better condition	83%

* Based on the percentage of properties adjacent to County ditches within floodplains

3.3 Lifecycle Management Strategy

For the County to provide stormwater management infrastructure services and maintain LOS, certain lifecycle activities are performed. The lifecycle activities performed are summarized in Table 8.

Table 8 – Stormwater Management Infrastructure Lifecycle Activities

Lifecycle Activity	Description	Frequency
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
	Stormwater model	As required, based on needs
	CCTV inspections	Annual, 10-year frequency for entire network (10% of network per year)
	Flood risk reduction program	Ongoing

Lifecycle Activity	Description	Frequency
Operations and Maintenance	Spot repairs	As required
	Catch basin, lateral and maintenance hole repairs	As required
	Flushing	Prior to CCTV, based on identified issues, and during construction and commissioning
Rehabilitation	N/A	N/A
Replacement	Full pipe replacement	When assets reach poor condition/end of service life
	Maintenance hole and catchbasin/ditch inlet replacement	Coordinated with sewer replacement
Disposal	Removed as part of the project or abandoned	As required
Expansion/Service Changes	Pipe upsizing	Based on growth, modelling and studies
	New subdivisions	Through development
	Replacement of ditches with storm sewers	As required

3.4 Failure Modes and Risk

Physical failure and performance failure are the main failure modes the County strives to prevent, shown below.

3.4.1 Physical Failure

Structural integrity of linear and facilities assets is fundamental to maintaining these assets in an acceptable state - a level of service to the community. Physical failure is associated with considerable flooding risks amongst many others.

Associated Risks

- Public Health
- Public Safety
- Regulatory Compliance
- Environmental
- Private Property
- Financial
- Service to the Customer

- Organizational Reputation

3.4.2 Performance Failure

Capacity, pressure and flow are examples of linear and vertical water performance measures, which also relate to levels of service to the community including fire flow and connection. Failure in these measures can lead to significant public health risks.

Associated Risks

- Public Health
- Public Safety
- Regulatory Compliance
- Environmental
- Private Property
- Financial
- Service to the Customer
- Organizational Reputation

3.5 Funding Lifecycle Activities

The County uses the lifecycle strategies described to plan work and determine future expenditure needs. The technical LOS used in the AM analysis for stormwater management infrastructure was defined as the percentage of assets that are in fair or better condition.

3.5.1 Anticipated Budget

The current planned budget was analyzed to set a baseline for comparing the other scenarios. The current anticipated annual capital investment of $1.86M resulted in the performance forecast illustrated in Figure 4.

Figure 4 – Stormwater Management Infrastructure Performance Forecast for Anticipated Budget

The percentage of assets in fair or better condition goes from 83% to 97%

The current planned budget for roadside culverts (<3m in diameter) was analyzed to set a baseline for comparing the other scenarios. The current anticipated annual capital investment of $1.2M resulted in the performance forecast illustrated in Figure 4.

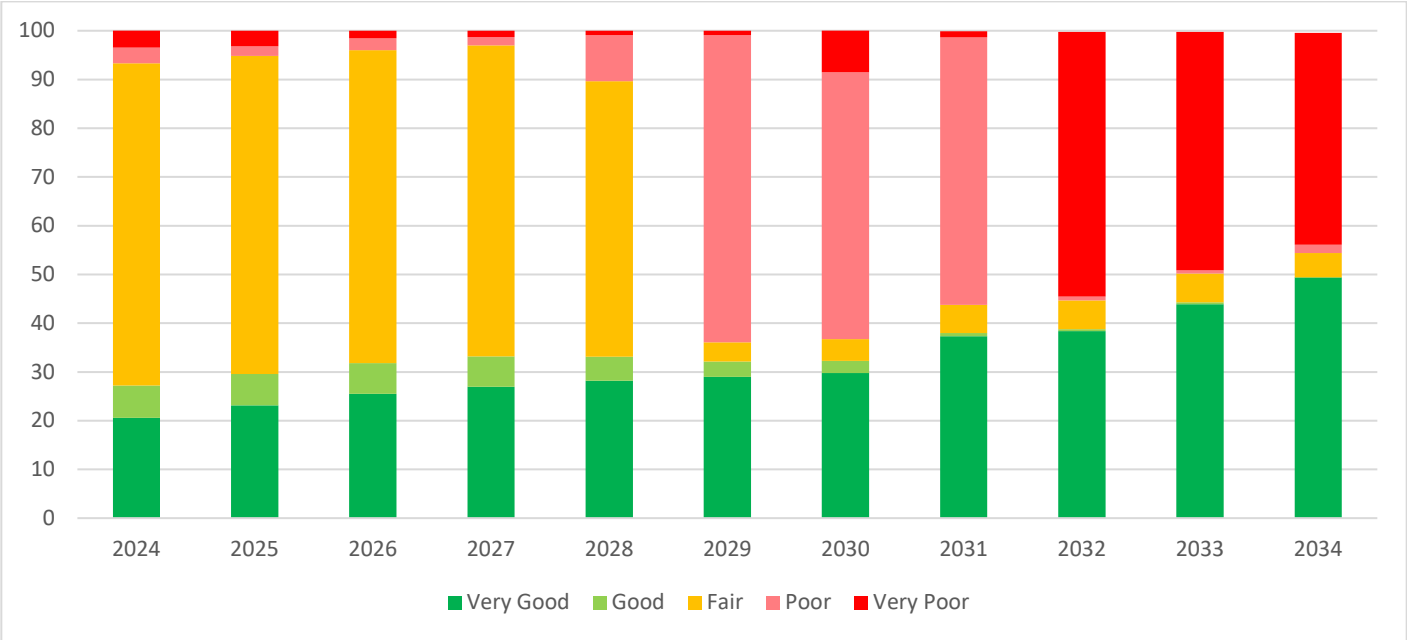


Figure 5 – Roadside Culvert Funding

The percentage of assets in fair or better condition is expected to hold at 90% until 2028

3.5.2 Cost to Maintain LOS

Understanding the cost to maintain levels of service is a requirement of O.Reg.588/17.

This cost for storm mains was determined to be $1.8M annually over a 10-year period and resulted in the performance forecast illustrated in Figure 6. The percentage of assets that are in fair or better condition remain above 96% over the forecast period.

Figure 6 – Stormwater Management Infrastructure Performance Forecast for Cost to Maintain LOS

The cost to maintain levels of service for roadside culverts was determined to be an annual expense of $2.8 million over a 10-year period and resulted in the performance forecast illustrated in Figure 7.

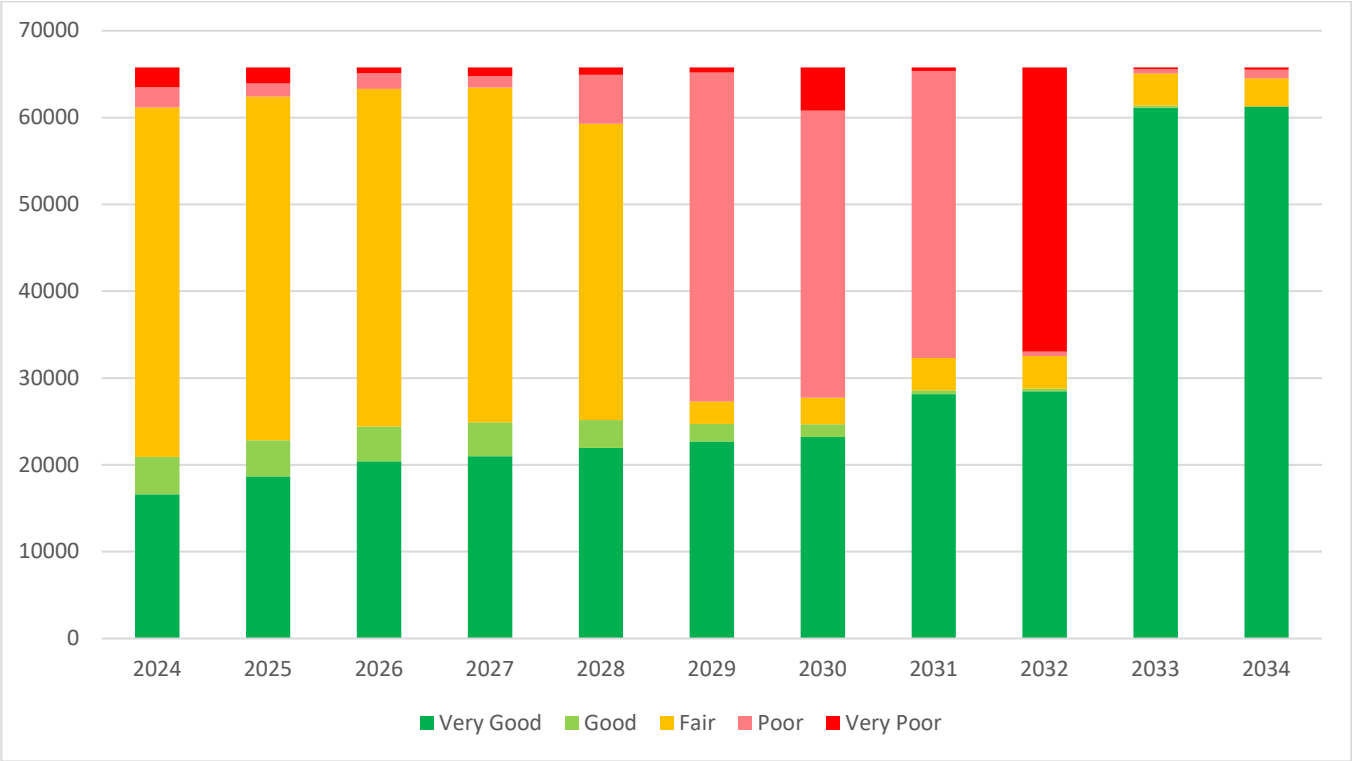


Figure 7 – Roadside Culvert Performance Forecast for Cost to Maintain LOS

3.5.3 Unconstrained Budget

The County asset prediction model forecasts assets to deteriorate each year. Those that deteriorate to a point of requiring replacement trigger a funding need, and each year's forecasted needs for storm are shown below in the figure. In Year 9 (2033), the model predicts a significant portion of storm assets are triggered for replacement, since the condition of this group of assets is predicted to deteriorate in that year to 'poor'. The corresponding costs of the replacements each year are charted below.

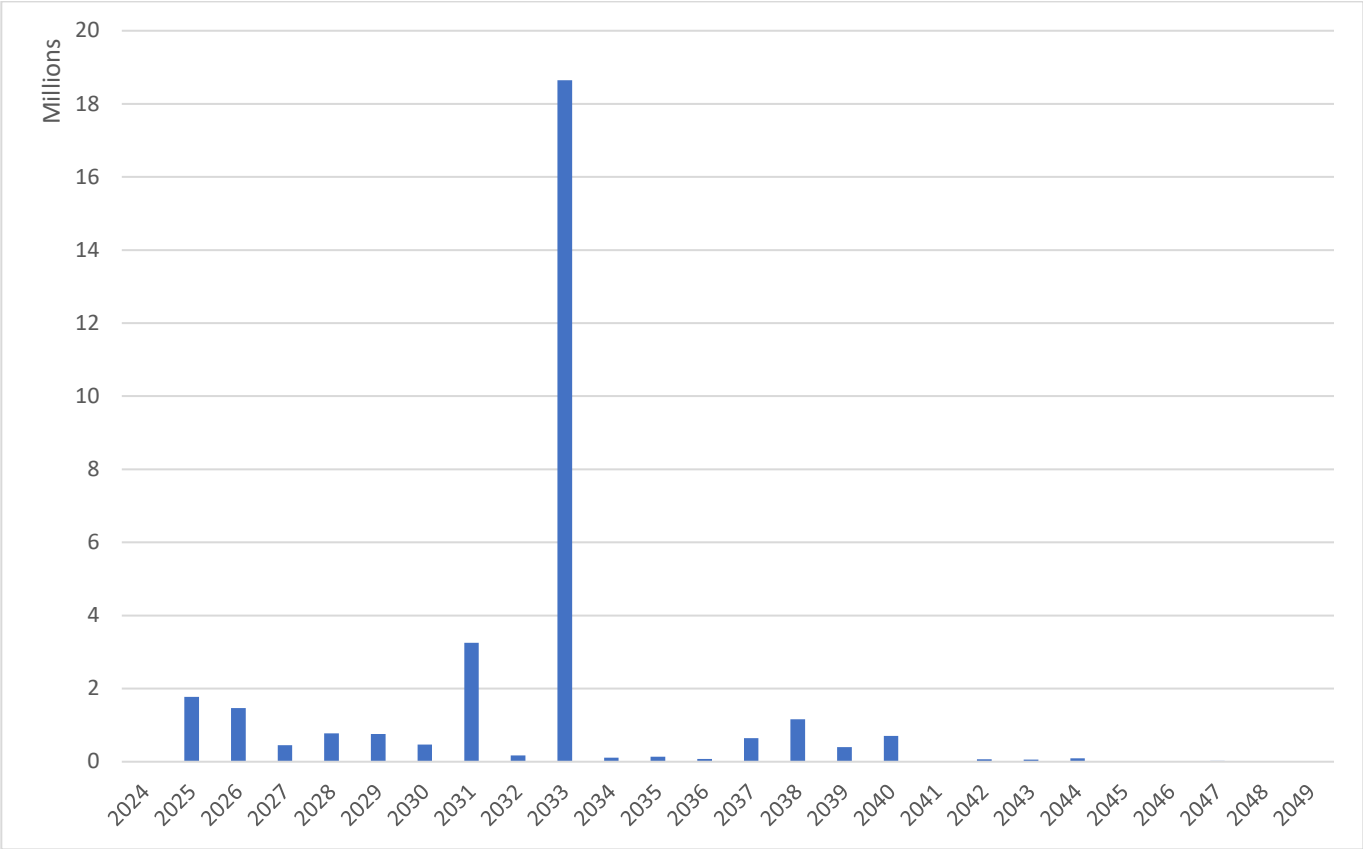


Figure 8 – Stormwater Management Infrastructure Unconstrained Budget Lifecycle Strategy

In practice, the actual replacement construction projects and budgets would not be executed this way, but rather staff would spread anticipated budget needs over several years. The graph and prediction is an excellent way to show the overall trend of coming needs of the asset class over the next 25 years. Also note that this figure demonstrates the investments required each year as storm assets deteriorate, if no investment restrictions were in place.

3.6 Recommendations

Although an annual capital shortfall between the required budget for maintaining current levels of service and the forecasted budget, it is recommended that several factors be explored and discussed.

- The data collection program continues to mature, providing more relevant and accurate data, both about the inventory itself and its condition. Focus should continue on gathering the correct data to measure and monitor the correct metrics, to ensure the forecasts are accurate and validated. This is especially relevant for the inventory and condition inspection of small culverts.
- Market pricing indices have inflated significantly. The County has seen construction-pricing increasing up to 5 - 10%, and these have been incorporated into current replacement values.

The current anticipated budget for stormwater management infrastructure will be enough to maintain LOS until approximately 2030. The analyses suggest that a large portion of assets are transitioning from fair to poor category in 2031. This is the main cause of the annual shortfall between anticipated budget and cost to maintain LOS. The assets requiring investment in 2031 will be spread over several years to allow staff and contractors to plan and implement the renewal projects.

4 ROADS AND ROADSIDE INFRASTRUCTURE

4.1 State of Infrastructure

The summary of the roads and roadside infrastructure inventory is provided below. The average age of assets compared to the average estimated service lives is also included in the summary. This provides a quick snapshot of where the storm assets generally are in their lifecycle, which in turn can give an idea of overall condition based on age.

Table 9 – Road and Roadside Infrastructure Inventory Summary

Asset Type	Quantity	Replacement Cost	Average Age (years)	Average ESL (years)
Roads	458 km	$424,204,900	28	91*
Guiderails	60 km	$12,171,000	28**	36***
Signs	4632 units	$112,800	9	25
Streetlights	657 units	$560,150	10	50
Traffic Lights	12 units	$6,000,000	15	50
Traffic Beacons	29 units	$73,500	18	20

*Assumes all lifecycle management strategies are being completed

** Average age of roads has been assumed to be applicable

*** Condition of assets will supersede age-based assumption

The distribution of assets by construction date is provided in Figure 9.

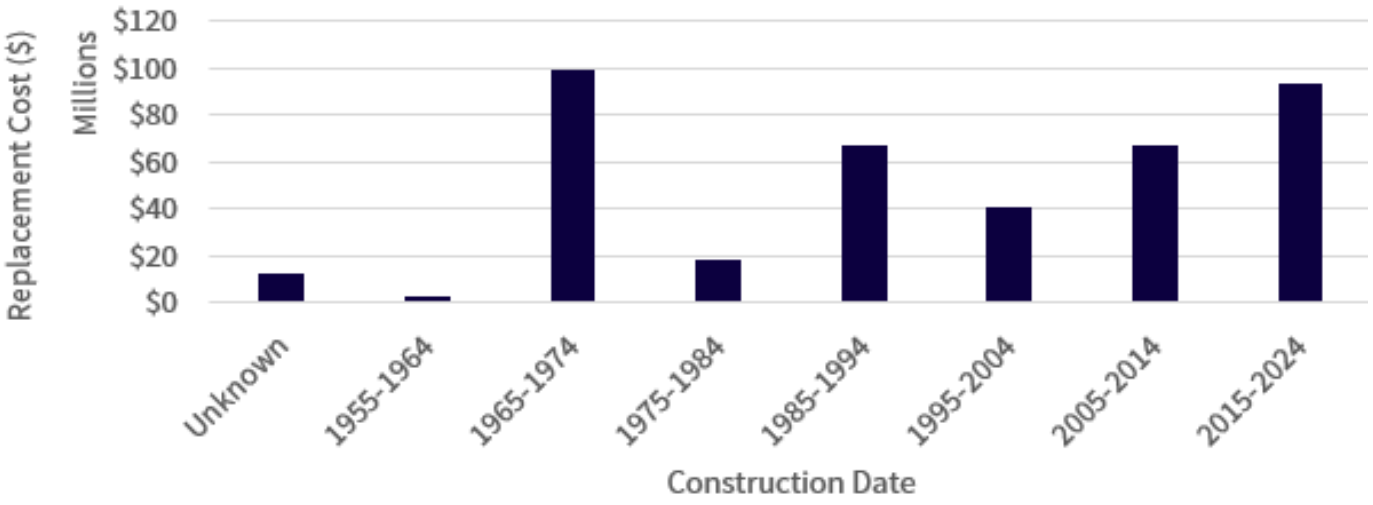


Figure 9 – Roads and Roadside Infrastructure Construction Date Distribution

The County has been assessing the condition of roads using Pavement Condition Ratings (PCR). New roads have a PCR of 100, which decreases as the condition of the roads degrade. After road resurfacing, PCR is increased. The County can continue to resurface roads to improve overall road condition until such point where a full depth replacement is required.

Traffic assets generally are assessed using life consumed. For assets without condition assessment data, life consumed was used to determine asset condition.

The current condition of roads and roadside infrastructure is provided in the figure below.

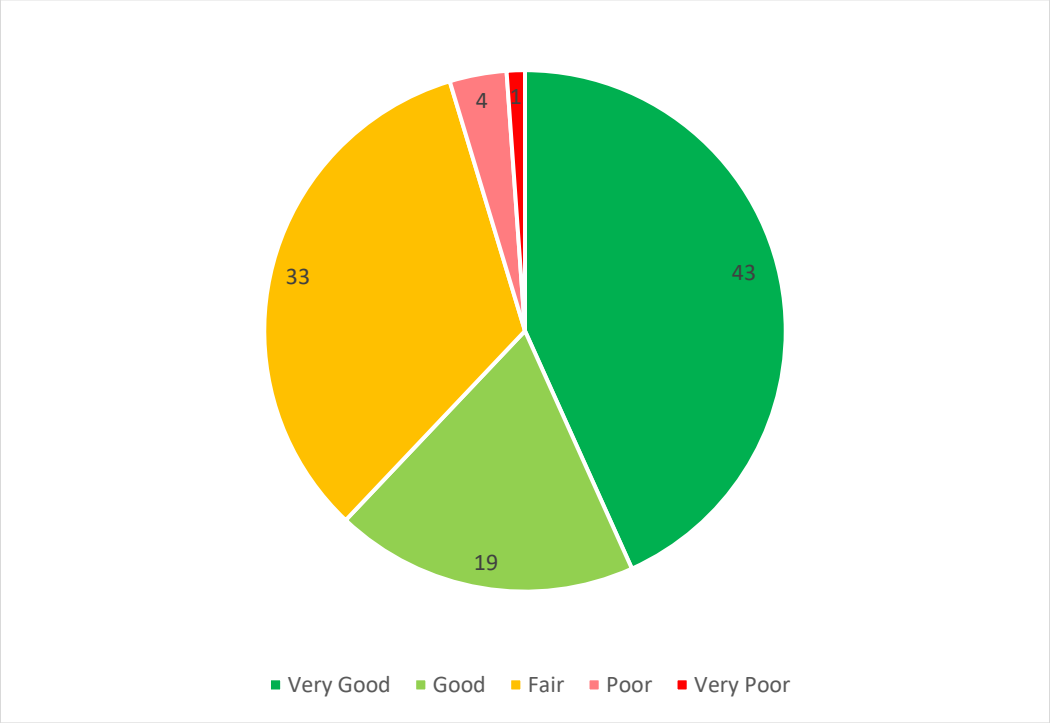


Figure 10 – Current Condition of Roads and Roadside Infrastructure

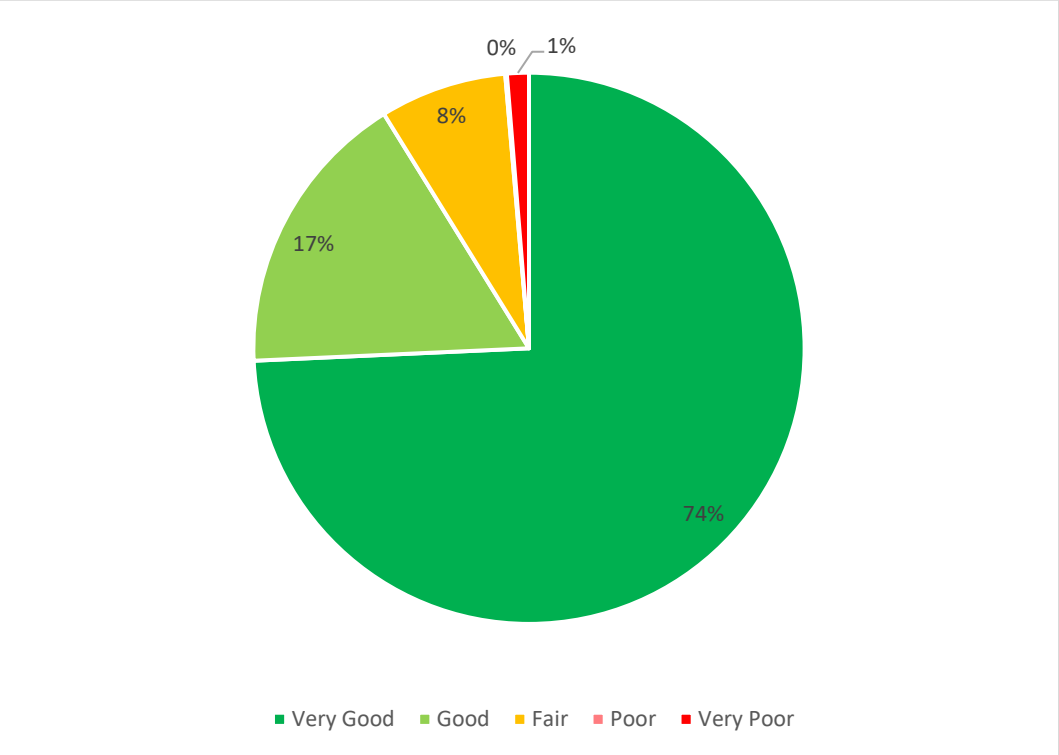


Figure 11 - Roadside Priority and regulatory signage condition distribution based on replacement value

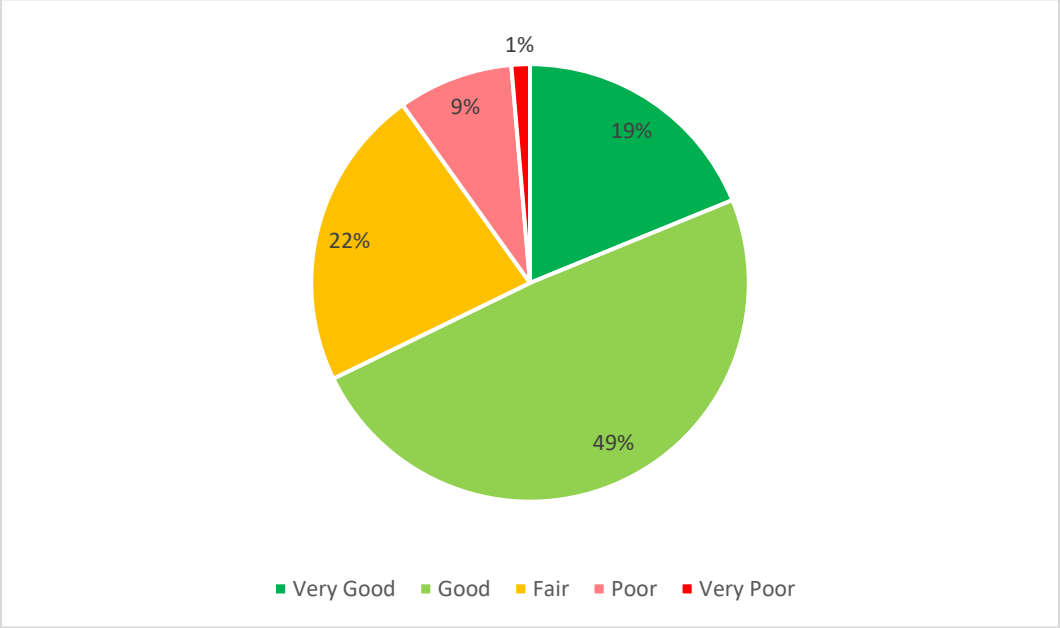


Figure 12 - Roadside Guiderail condition distribution based on replacement value

4.2 Levels of Service

The County's goal is to provide a quality network of reliable roads and roadside infrastructure for moving people and goods across the County. This means the network is remains in a state of good repair for use. The customer and technical LOS are shown in Table 10 and Table 11.

Table 10 –Road and Roadside Infrastructure Customer Levels of Service

Service Attributes	Customer Measures	2024 Performance
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity.	The County's road network is made of major and minor arterial roads. The County's roads provide a high degree of connectivity through the major urban centres, and to the nearest major provincial highway (HWY-401), offering a convenient transportation route through and around the County.
Quality	Description or images that illustrate the different levels of road class pavement condition.	Over half of the County's roads ad roadside infrastructure is in good or very good condition. Approximately 33% of the County's roads are in fair condition. Only approximately 5% of the County's roads are in poor or very poor condition.

Table 11 – Road and Roadside Infrastructure Technical Levels of Service

Service Attribute	Metric	2024 Performance
Scope	Number of lane-kilometres of each of arterial roads, collector roads and local roads as a proportion of square kilometres of land area of the municipality.	Arterial: 0.33 Collector: Not applicable Local: Not applicable
Quality	For paved roads in the municipality, the average pavement condition index value.	75*
	For unpaved roads in the municipality, the average surface condition (e.g. excellent, good, fair or poor).	Not applicable
Reliable	Percentage of roads & roadside infrastructure in fair or better condition	95%

*Weighted by replacement cost

4.3 Lifecycle Management Strategy

For the County to provide road and roadside infrastructure services and maintain LOS, certain lifecycle activities are performed. The lifecycle activities performed are summarized in Table 12.

Table 12 – Roads Lifecycle Activities

Lifecycle Activity	Description	Frequency
Non-Infrastructure	Planning and studies (Master Plans, financial plans, traffic studies, AMPs)	As required
	Pavement Condition Assessment	Biennially
	Traffic reduction measures (varied)	Where feasible/possible
Operations and Maintenance	Road Inspections as per the Minimum Maintenance Standards	As per O. Reg. 239/02 frequency
	Road cleaning (sweeping, winter/fall cleaning, removing obstructions)	Ongoing or as required
	Reactive maintenance or spot repairs	As required
	Pothole patching	As required
	Road cut repairs	As required and in conjunction with asphalt rehabilitation works
	Curb repairs	As required and in conjunction with asphalt rehabilitation works
	Guiderail damage repairs	As required
	Ditching	As required and in conjunction with asphalt rehabilitation works
	Line painting and pavement markings	Annually (semi-annually for arterial roads), or based on reflectivity
	Winter maintenance (snow removal, de-icing)	As required based on storm events and Minimum Maintenance Standards O.Reg.287/12
	Crack Sealing	As required, and based on pavement conditions assessments
Rehabilitation	Mill and Overlay	As required, based on findings from pavement condition assessments
Replacement	Full depth reconstruction with local base repairs	As required, based on findings from pavement condition assessments
Disposal	Asphalt re-use	Where feasible/possible
	Roadside ditch-cleanout	As required
	Contaminated and excess material disposal	Coordinated with road repair/replacement

Lifecycle Activity	Description	Frequency
	Roadway decommissioning (land transfer agreements, and specific requirements)	Coordinated with road repair/replacement
Expansion/Service Changes	Widening	As identified through master plans and other studies, and also coordinated with road replacement
	Retrofit to add Cycle Lanes	As identified through master plans and other studies
	Various multi-modal transportation solutions	As identified through master plans and other studies
	Pedestrian infrastructure improvements	As identified through master plans and other studies
	New sections of road	As identified through master plans and other studies
	Right of way service enhancements/reductions	As identified through master plans and other studies, and also coordinated with road rehabilitation and replacement
	Cross section adjustments/conversions	As identified through master plans and other studies

Table 13 – Roadside Infrastructure Lifecycle Activities

Lifecycle Activity	Description	Frequency
Non-Infrastructure	Planning and studies (Master Plans, financial plans, traffic studies, AMPs)	As required
Operations and Maintenance	Inspections	Annually
	Reactive repairs and maintenance	As required
	Removing obstructions to or traffic signs and devices	As required
Rehabilitation	N/A	N/A
Replacement	Street Sign replacements	Replace when asset reaches the end of its service life
	Street Lighting: replacement of luminaire and/or poles	Replace when asset reaches the end of its service life

Lifecycle Activity	Description	Frequency
	Street Lighting: replacing burned out light bulbs	As required
	Traffic Signal replacements	Replace when asset reaches the end of its service life
Disposal	Removed as part of the project	Coordinated with asset replacement
Expansion/Service Changes	Pedestrian crossing addition/improvements	As identified through master plans and other studies
	Right of way service enhancements/reductions	As identified through master plans and other studies
	Signals, signs, and crossing additions for Active Transportation infrastructure addition	As identified through master plans and other studies
	Addition of street lighting to improve service	As identified through master plans and other studies
	Upgrade street lighting to LED	Coordinated with Lighting Replacements and Road Rehab/Reconstruction Projects
	On demand changes as per development	As identified through master plans and other studies

4.4 Failure Modes and Risk

Physical failure and performance failure are the main failure modes the County strives to prevent with road network assets, described below.

4.4.1 Physical Failure

Structural integrity of roads is fundamental to maintaining these assets in an acceptable state - a level of service to the community. Physical failure of roads is associated with considerable risks, and as such, design, construction and maintenance of roads is significantly legislated.

Associated Risks

- Public Safety
- Regulatory Compliance
- Environmental
- Private Property
- Financial

- Service to the Customer
- Organizational Reputation

4.4.2 Performance Failure

Paved and gravel roads provide a surface to travel upon which impacts the ride and comfort of the user. The risks associated with performance failure of roads is also extensive. Capacity failure may also occur due to lack of planning related to congestion.

Associated Risks

- Public Safety
- Regulatory Compliance
- Service to the Customer
- Organizational Reputation

4.5 Funding Lifecycle Activities

The County uses the lifecycle strategies described in this AMP to plan work and determine future expenditure needs.

4.5.1 Anticipated Budget

The current planned budget was analyzed to set a baseline for comparing the other scenarios. If the County spends the planned annual capital budget of $19.5 M for roads (annual average 2024-2034), this results in the performance forecast below. The percentage of assets in fair or better condition reduces over the 10-year forecast.

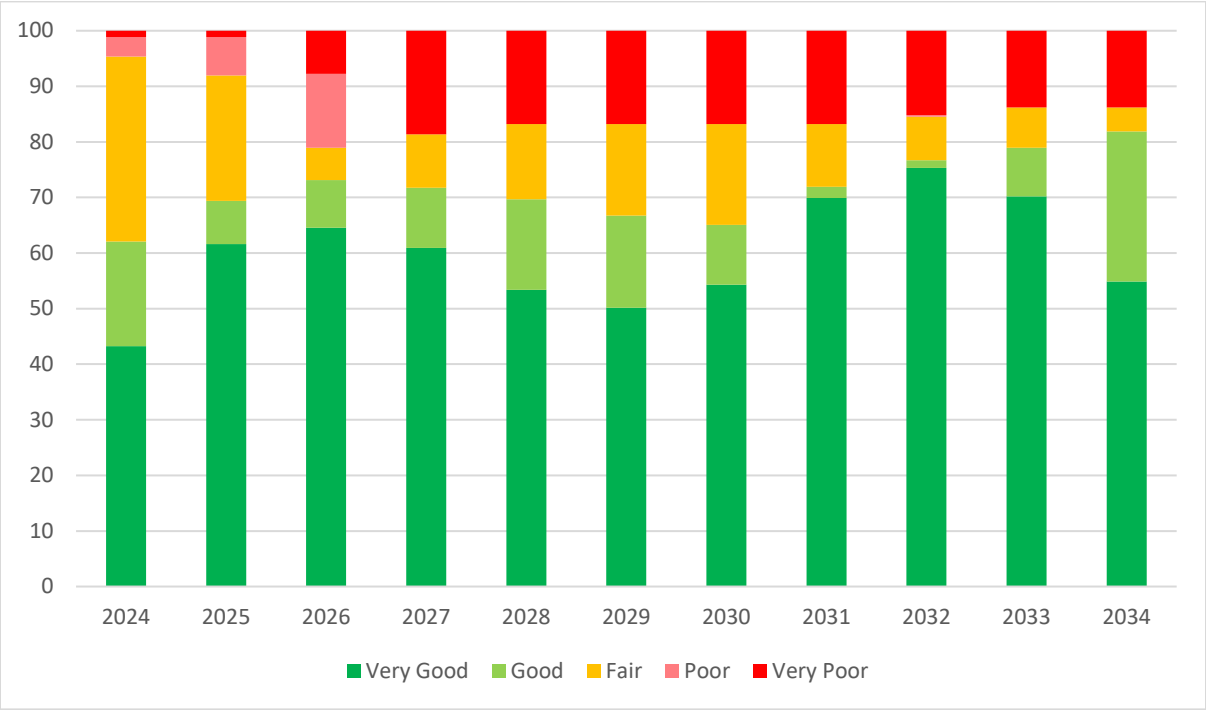


Figure 13 – Road and Roadside Infrastructure Performance Forecast for Anticipated Budget

4.5.2 Cost to Maintain LOS

The annual cost to maintain levels of service is a requirement of O.Reg.588/17. Staff discussed several options for the current level of service for roads, shown below.

If the current level of service for roads is defined by the average network pavement condition rating of approximately 75 the cost to maintain this level for the next ten years was determined to be an average of $19.5M annually. The graph below shows the predicted average network pavement condition that results from this annual average capital expenditure. An additional $500K is required annually to maintain the roadside assets.

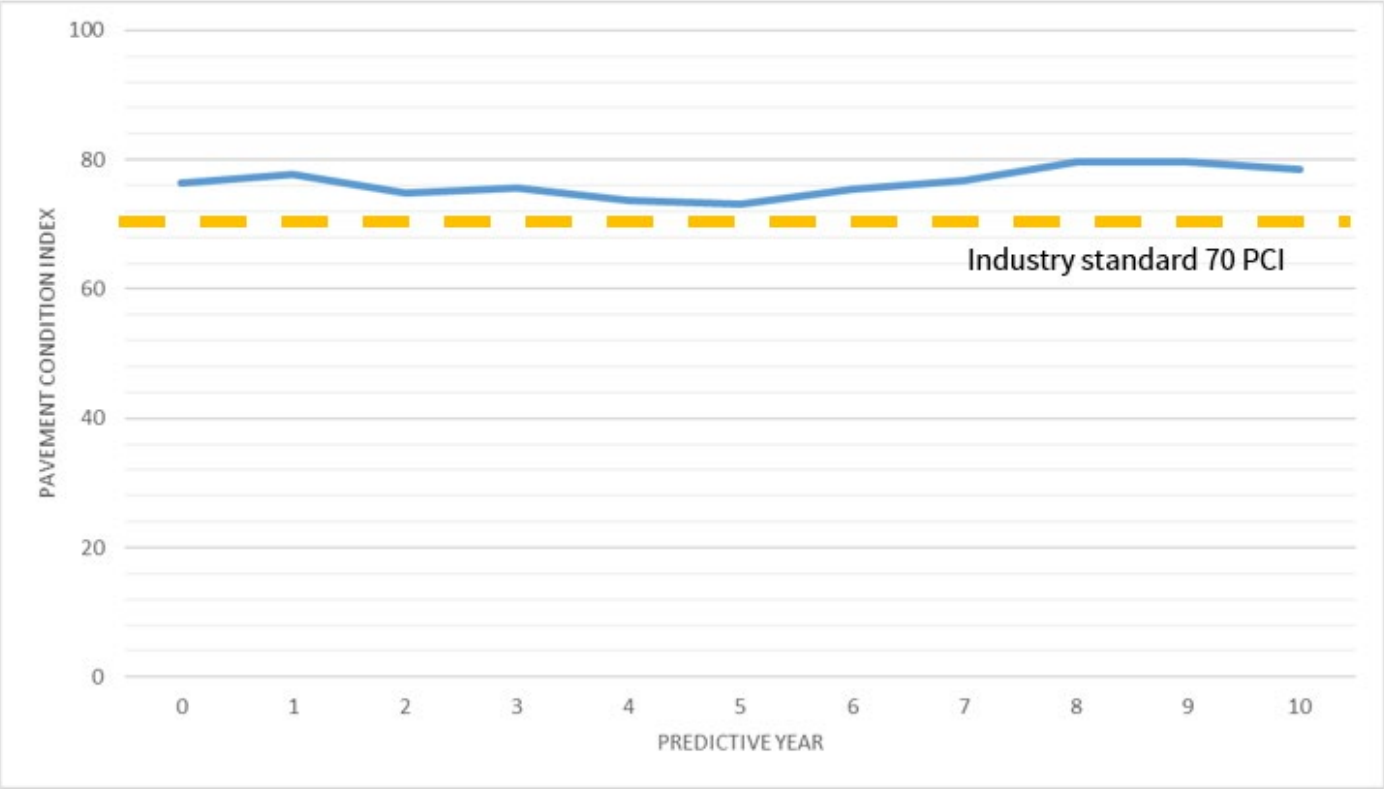


Figure 14 – Predicted Annual Average Capital Expenditure Cost to Maintain Level of Service (LOS)

4.5.3 Unconstrained Budget

For comparison, the forecasted condition of roads over the next ten years without any spending constraints is shown in the following figure.

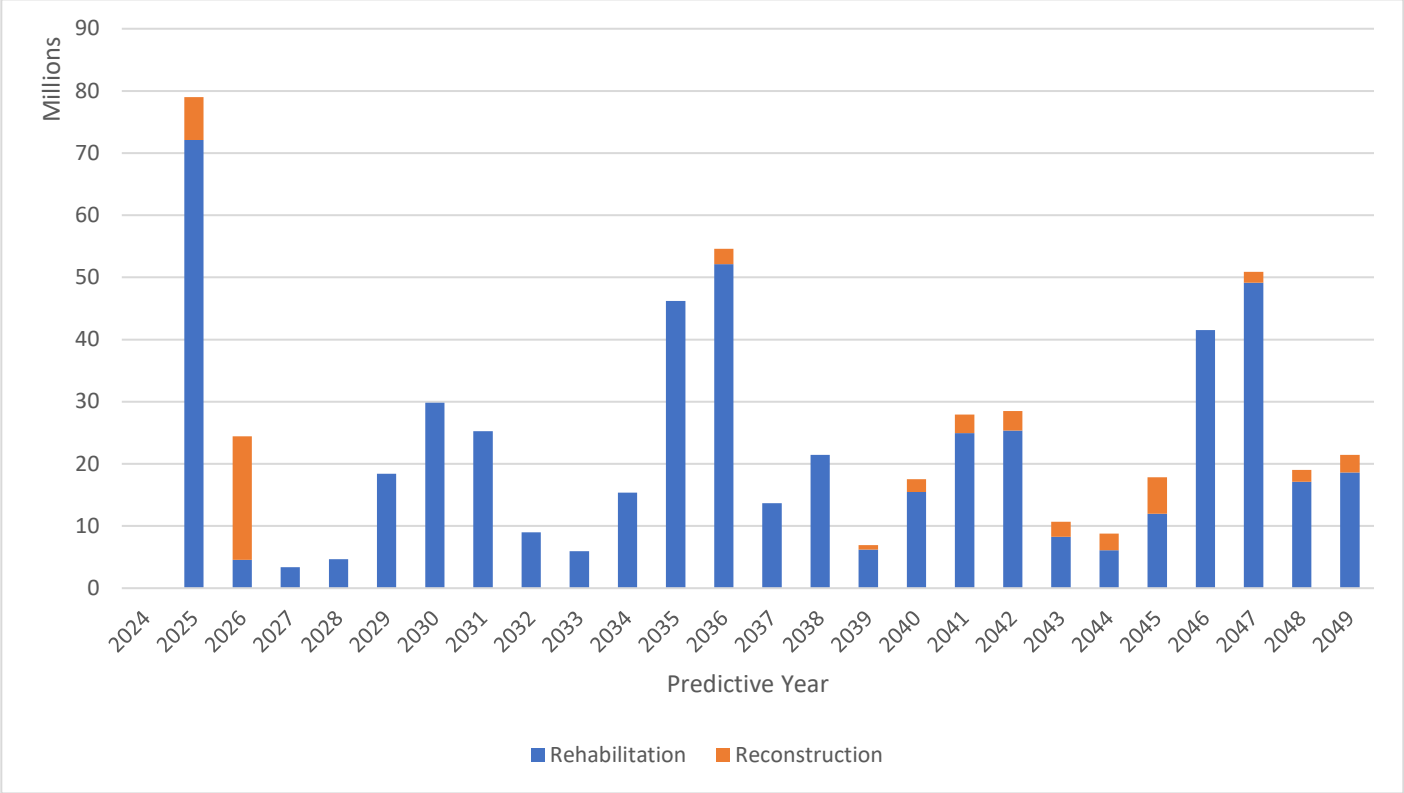


Figure 15 – Road and Roadside Infrastructure Unconstrained Budget Lifecycle Strategy

This figure demonstrates how capital would be spent each year as roads deteriorate, if no capital restrictions were in place.

4.6 Recommendations

Staff have noted that in the past 6 years, there has been an overall decline in network average PCR by approximately 3%. To maintain the current network average PCR, an increase in the annual capital investment is required (note that the overall investments have been averaged to avoid peaks and better plan funding). Although an annual capital shortfall between the required budget for maintaining current levels of service and the forecasted budget, it should be noted that the current capital forecast generally aligns with the forecasted needs presented in the AMP. This validates that the current strategies being applied by staff, and it is recommended that several factors be explored and discussed.

The data collection program continues to mature, providing more relevant and accurate data, both about the inventory itself and its condition. Focus should continue on gathering the correct data to measure and monitor the correct metrics, to ensure the forecasts are accurate and validated.

- Market pricing indices have inflated significantly, which inflates the valuations.
- Confirmed capital shortfall can be discussed as suggested in the Financing Strategy Section 10. Resulting discussions about costs, levels of service and risk align directly with legislated proposed levels of service requirements due in 2025.

5 BRIDGES AND MAJOR CULVERTS

5.1 State of Infrastructure

A summary of the bridges and major culverts is provided below.

Table 14 –Bridges and Major Culverts Inventory Summary

Asset Type	Quantity	Replacement Cost	Average Age (years)	Average ESL (years)
Vehicular Bridge	41	$71,682,000	38	90
Major Culvert	24	$14,360,000	31	55
Rail Bridge*	3	$5,871,500	60	90

* Rail bridges are shared assets with CNR & CPR. Shown value is County share.

The chart below shows the range of construction dates for bridges and major culverts, by replacement value, based on 2020 OSIM reports.

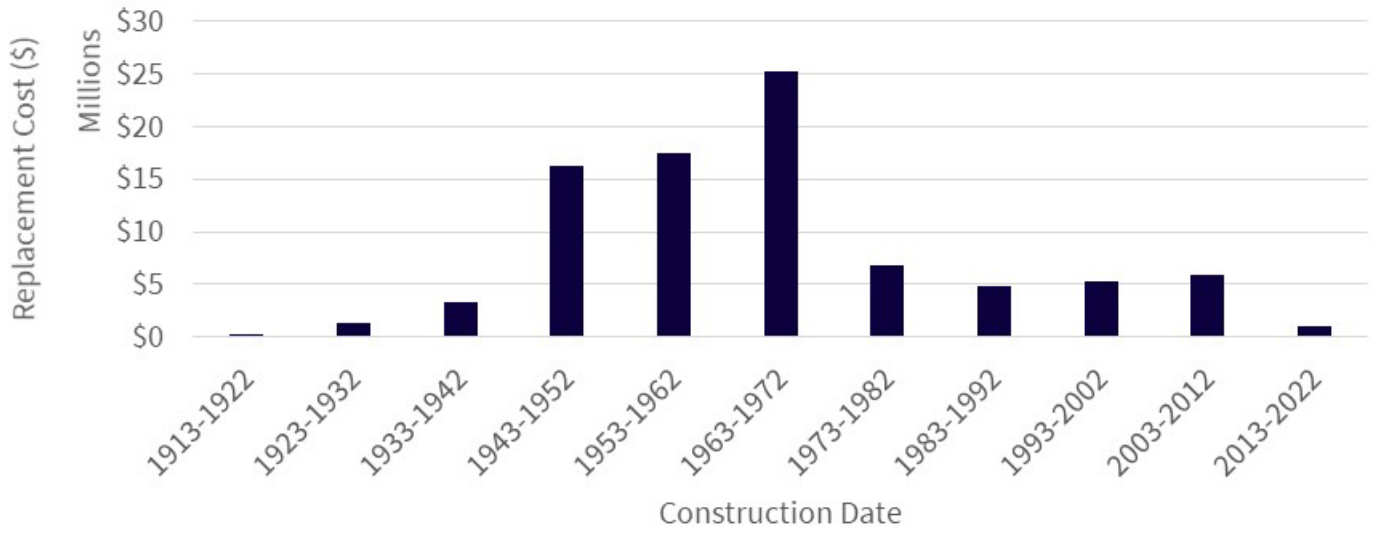


Figure 36 Construction Dates for Bridges and Major Culverts

The condition of municipal structures is measured by a 100-point rating scale called the Bridge Condition Index (BCI). The BCI is a measurement of the replacement value of various condition states of a structure's components, relative to the overall replacement value of the structure.

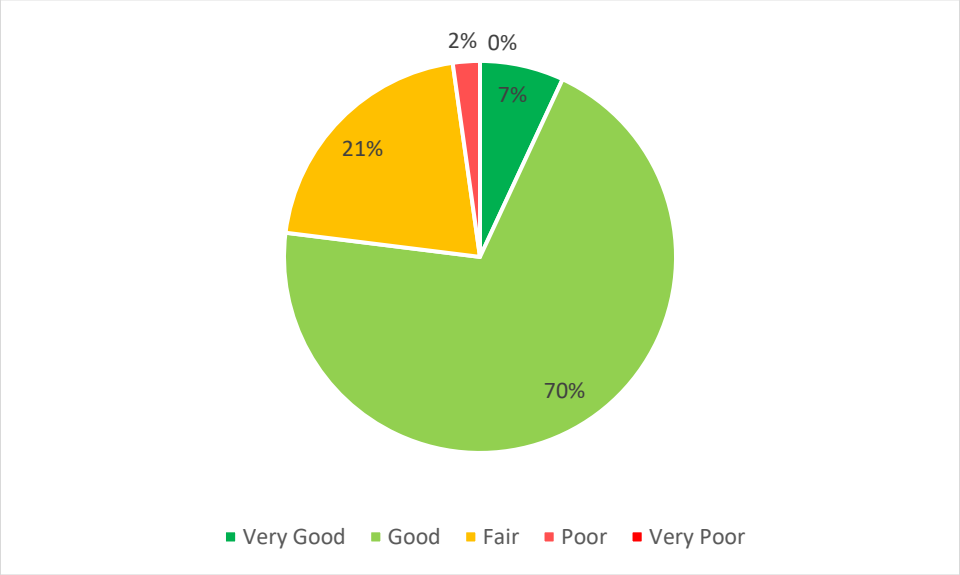


Figure 47 – Current Condition of Bridges and Major Culverts

The figure above shows the current condition of bridges and major culverts.

5.2 Levels of Service

Levels of service are expressed as the outputs a customer receives from the County. This AMP sets a number of levels or service for Bridges and Major Culverts and connects the level of service to the assets required to deliver them. The customer and technical LOS are shown in Table 15 and Table 16.

Table 15 – Bridges and Major Culverts Customer Levels of Service

Service Attributes	Customer Measures	2024 Performance
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists).	Municipal bridges support a range of traffic, including all types of vehicles including passenger vehicles, transport trucks/vehicles and emergency vehicles. Pedestrians and cyclists are also supported on the County's roads and associated active transportation routes.
Quality	Description or images of the condition of bridges and how this would affect use of the bridges.	All of the County's bridges are in fair or better condition, with the vast majority (77%) in good condition. This would not adversely affect the use of the County's bridges.

Service Attributes	Customer Measures	2024 Performance
	Description or images of the condition of culverts and how this would affect use of the culverts.	The majority of the County's large culverts (>95%) are in fair or better condition, with 77% of all large culverts in good and very good condition. Approximately 2% of large culverts are in poor condition. Culverts in poor condition may require rehabilitation or replacement, which could result in closures (and detour routes) or load/lane restrictions.

Table 16 – Bridges and Major Culverts Technical Levels of Service

Service Attribute	Metric	2024 Performance
Scope	Percentage of bridges in the municipality with loading or dimensional restrictions.	Height Restriction: 0.1% Lane Width: 1.4% Spring Restriction: 23.9%
Quality	For bridges in the municipality, the average bridge condition index value.	72
	For structural culverts in the municipality, the average bridge condition index value.	72
Reliable	Percentage of bridges and major culverts in fair or better condition	Bridges: 100% Culverts: 98% All Structures: 98%

5.3 Lifecycle Management Strategy

For the County to provide bridges and major culverts services and maintain LOS, certain lifecycle activities are performed. The lifecycle activities performed are summarized in Table 17.

Table 17 – Bridges and Culverts Lifecycle Activities

Lifecycle Activity	Description	Frequency
Non-Infrastructure	Planning and studies (Master Plans, financial plans, traffic studies, AMPs)	As required
	OSIM Inspections	Biennially

Lifecycle Activity	Description	Frequency
Operations and Maintenance	Expansion joint and bearing seat cleaning	Annually
	Guide rail maintenance	As required
	Winter maintenance	As required, following storm events and as per Minimum Maintenance Standards O.Reg. 287/12
	Concrete sealing and cleaning	As required
	Vegetation and debris/sediment removal	As required
	Guiderail repairs	As required
	Reactive repairs (vehicle impact damage, vandalism, graffiti)	As required
Rehabilitation	Minor and major rehabilitations (varies)	As per OSIM inspection recommendations
Replacement	Bridge/large culvert replacement	As per OSIM inspection recommendations
Disposal	Disposal of asset components	Coordinated with rehabilitation or replacement works.
Expansion/Service Changes	Addition of new structures	As identified through master plans and studies
	Access to subdivision	As identified through master plans and studies
	Addition of sidewalks and AT infrastructure	As identified through master plans and studies

5.4 Failure Modes and Risk

Physical failure and performance failure are the main failure modes the County strives to prevent, described below.

5.4.1 Physical Failure

Structural integrity of bridges and major culverts is fundamental to maintaining these assets in an acceptable state - a level of service to the community. Physical failure of bridges and major culverts is associated with considerable risks, and as such, design, construction and maintenance of bridges and large culverts is significantly legislated.

Associated Risks

- Public Safety
- Regulatory Compliance
- Environmental
- Private Property
- Financial
- Service to the Customer
- Organizational Reputation

5.4.2 Performance Failure

Bridges move traffic and pedestrians across obstacles without interruption. Doing this without loading or dimensional restrictions to the user is a service to the community. Enacting loading or dimensional restrictions to the user is a performance failure, since capacity can be affected. The risks associated with performance failure of bridges and culverts is also extensive.

Associated Risks

- Public Safety
- Regulatory Compliance
- Service to the Customer
- Organizational Reputation

5.5 Funding Lifecycle Activities

The County uses the lifecycle strategies described in this AMP to plan work and determine future expenditure needs.

5.5.1 Anticipated Budget

The current planned budget was analyzed to set a baseline for comparing scenarios. If the County spends the planned annual capital budget of $965K (annual average 2024-2034), this results in the performance forecast illustrated below.

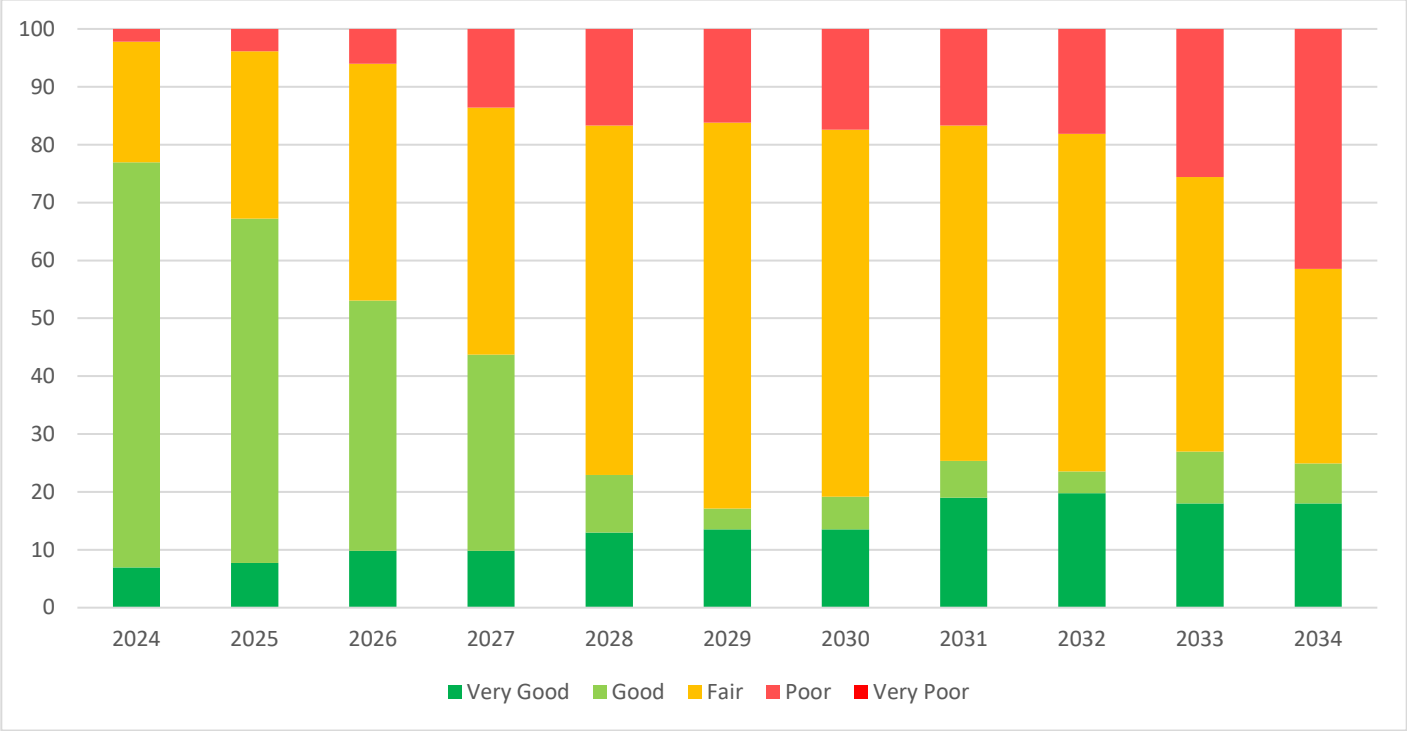


Figure 18 – Bridges and Major Culverts Performance Forecast for Anticipated Budget

5.5.2 Cost to Maintain LOS

The current level of service is defined by the percentage of bridges and major culverts in fair or better condition. The cost to maintain this level was determined to be an average of $1.3Mill annually over a 10-year period. This average resulted in the performance forecast illustrated in Figure 19. The percentage of assets that are in fair or better condition generally remains constant over the forecast period.

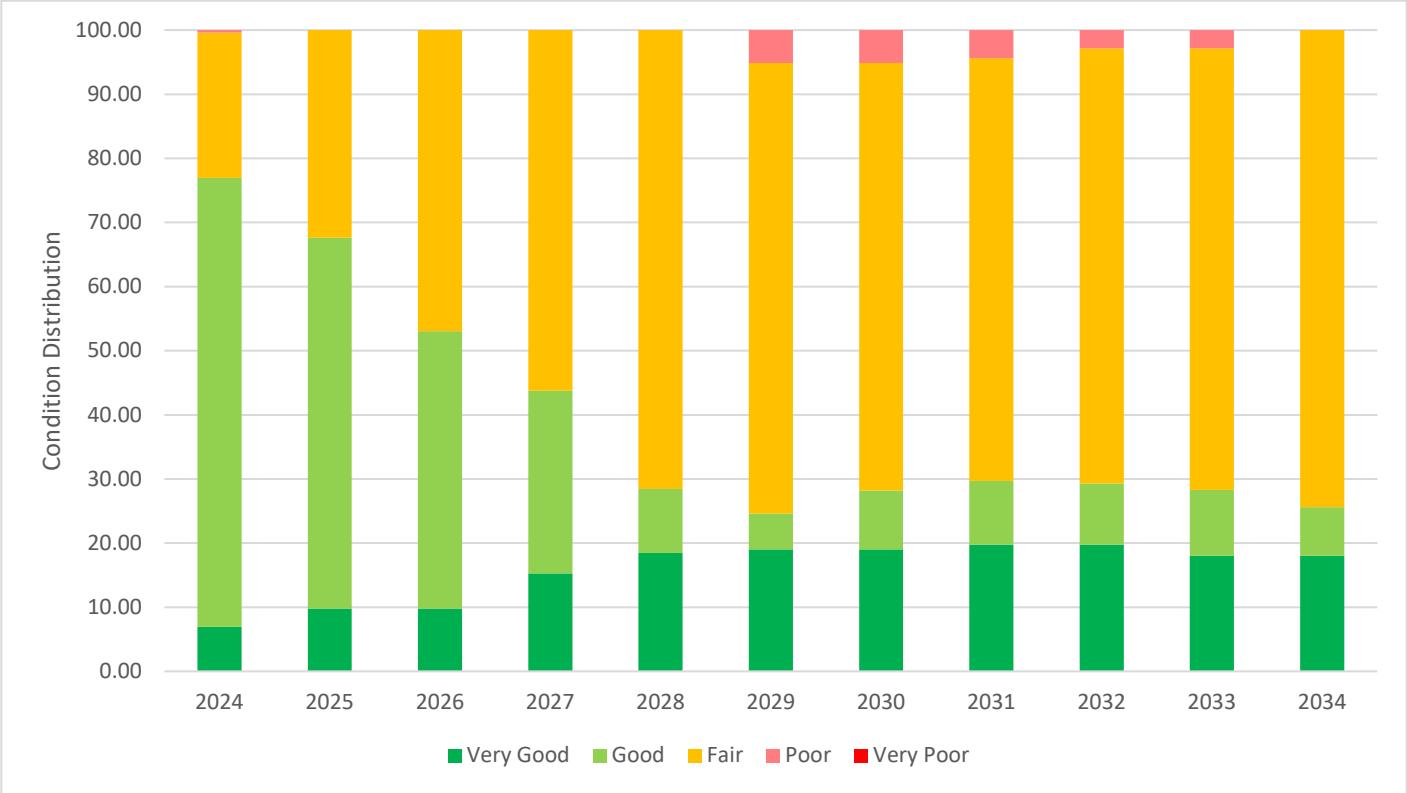


Figure 19 – Bridges and Major Culverts Performance Forecast for Cost to Maintain

5.5.3 Unconstrained Budget

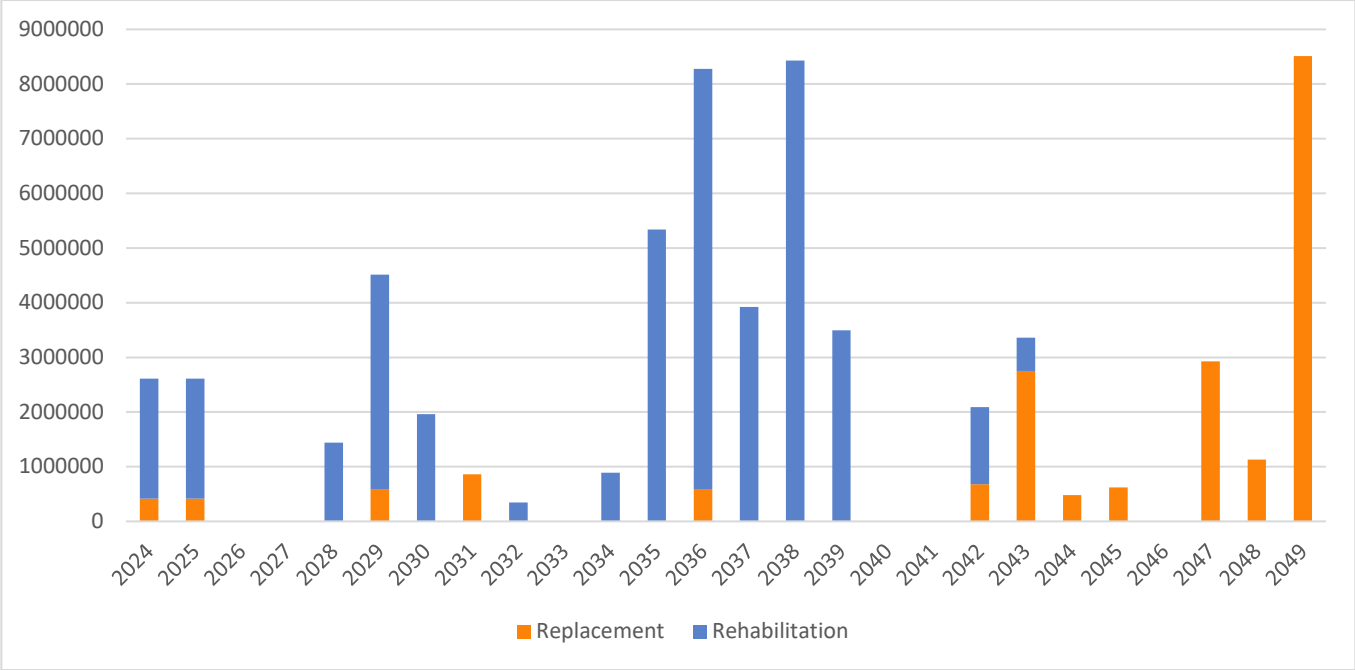


Figure 20 – Bridges and Major Culverts Unconstrained Budget Lifecycle Strategy

For comparison, the forecasted condition of bridges and major culverts over the next ten years, without any spending constraints, is shown above. This figure demonstrates how capital would be spent each year as bridges and major culverts deteriorate, if no capital restrictions were in place.

5.6 Recommendations

No annual capital shortfall is anticipated for this asset category, based on the information and levels of service provided within this section, and the planned capital forecast. The County should continue to implement the recommendations set out by the OSIM inspections to ensure the bridges and culverts continue to meet performance objectives.

6 SOCIAL HOUSING

6.1 State of Infrastructure

The summary of the social housing inventory is provided in the following table. The average age of assets compared to the average estimated service lives is also included in the summary. This provides a quick snapshot of where assets generally are in their lifecycle, which in turn can give an idea of overall condition based on age.

Table 18 – Social Housing Inventory Summary

Asset Type	Quantity	Replacement Cost	Average Age (years)	Average ESL (years)
Sites	15	$107,000,000	44	63

The County performed a comprehensive building condition assessment in spring of 2022. This provided a good understanding of the current state of social housing and a forecast of future needs. The condition of each building component was assessed for current state. Industry standard Facility Condition Index (FCI) was used to indicate future performance. Table 19 presents the logic used to convert FCI into a condition rating.

Table 19 – Social Housing Condition Ratings

Category	Building Component (Field assessment)	County Building (FCI)
Very Good	Excellent	0 to 4.9%
Good	Very Good	5 to 9.9%
Fair	Good	10 to 15%
Poor	Fair	15 to 30%
Very Poor	Poor	>30%

The condition distribution by replacement value for social housing assets is provided in the following figure.

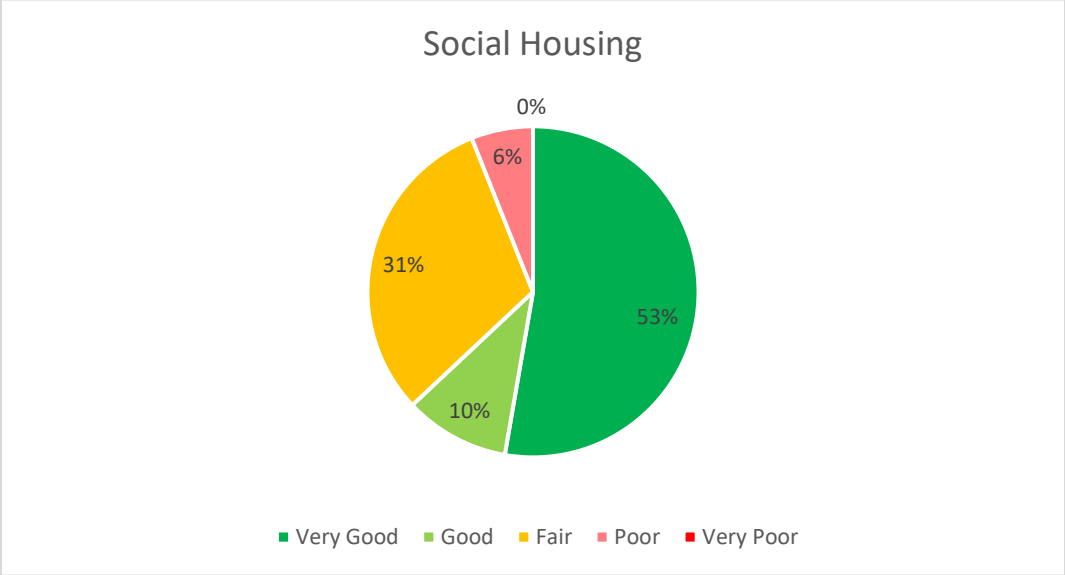


Figure 21 – Current Condition of Social Housing by Building Component

6.2 Levels of Service

The County's goal is to provide a social housing services in a reliable manner, ensuring all assets remain in a state of fair or better condition. The technical LOS are shown in Table 20.

Table 20 – Social Housing Technical Level of Service

Service Attribute	Metric	2024 Performance
Reliable	Percentage of social housing in good or better condition	63%

6.2.1 Anticipated Budget

The condition distribution of assets by replacement value for social housing assets forecasted for the next 10 years is provided in the following figure.

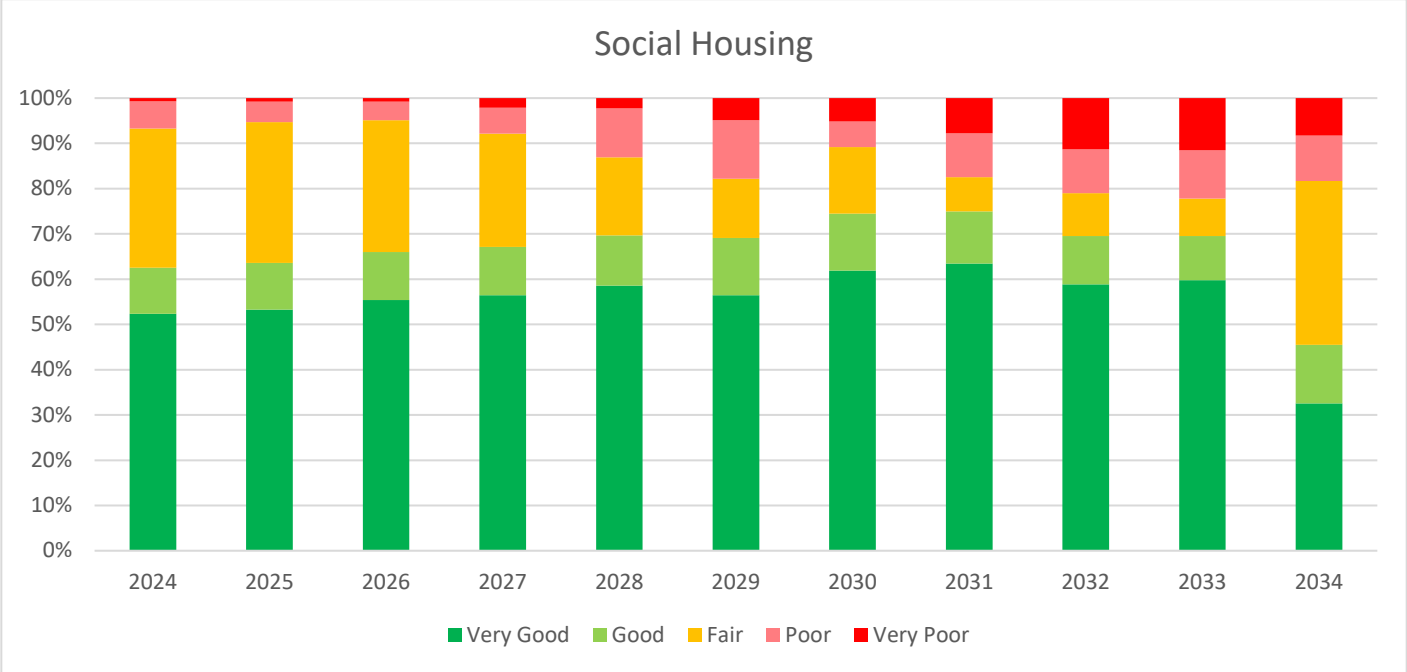


Figure 22 – Anticipated Budget for Social Housing Assets for the Next 10 Years

6.3 Lifecycle Management Strategy

For the County to provide social housing services and maintain LOS, certain lifecycle activities are performed. The lifecycle activities performed are summarized in Table 21.

Table 21 – Social Housing Lifecycle Activities

Lifecycle Activity	Description	Frequency
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
	Condition assessments	Approx. every 5 years (varies)
Operations and Maintenance	Staff inspections	Weekly
	Reactive and preventive maintenance	Following PM programs, or as needed

Lifecycle Activity	Description	Frequency
Rehabilitation	Rehabilitation needs	Based on inspections and condition assessments
Replacement	Equipment or building component replacement	When assets reach end of service life
Disposal	Building and equipment disposal	Coordinated with asset replacement
	Equipment re-use	As required where possible
Expansion/Service Changes	Expand capacity as required	As required

6.4 Failure Modes and Risk

Physical failure, financial failure and performance failure are the main failure modes the County strives to prevent, described below.

6.4.1 Physical Failure

Structural integrity of Social Housing assets is fundamental to maintaining these assets in an acceptable state - a level of service to the community. Physical failure is associated with considerable risks.

Associated Risks

- Public Health
- Public Safety
- Regulatory Compliance
- Environmental
- Private Property
- Service to the Customer
- Organizational Reputation

6.4.2 Performance Failure

Capacity, such as beds, is a critical service to the community, with significant risks. Carbon footprint considerations also relate to performance failure.

Associated Risks

- Public Health
- Public Safety

- Regulatory Compliance
- Service to the Customer
- Organizational Reputation

6.4.3 Financial Failure

Expenditures related to utilities and programming may be failing financially.

Associated Risks

- Financial
- Service to the Customer
- Organizational Reputation

6.5 Funding Lifecycle Activities

The County uses the lifecycle strategies described in this AMP to plan work and determine future expenditure needs.

6.5.1 Anticipated Budget

The current anticipated investments for social housing were $1.3M annually. The results from the building condition assessment project have not yet been incorporated into the County's asset management modelling software since the project finished well into the development of this AMP. The impacts of current budgets on performance will be included in future AMP updates.

6.5.2 Cost to Maintain LOS

The building condition assessment project identified the costs to maintain the LOS for social housing. The FCI for each building was forecasted over the next 10 years and recommended annual costs to address future needs. The capital cost to maintain LOS was determined to be $5.3M (annual average for 2024-2034) and the details are provided in the following table.

Table 22 – Social Housing Performance Forecasted Needs

Facility	Facility Condition Index (FCI)										
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Average FCI
14 Barker Street - Picton	0.00	0.00	2.82	1.54	4.50	9.64	7.54	13.66	15.12	11.85	6.67
235 First Ave	0.32	0.00	0.00	2.97	2.83	10.56	7.52	9.64	9.19	13.73	5.68
260 Simcoe Street	0.21	0.00	0.00	3.08	3.19	11.57	6.55	8.67	8.21	11.68	5.32
264 Simcoe Ave	0.19	0.00	0.00	2.78	2.33	13.87	10.54	12.45	12.03	15.17	6.94
Camden Court	1.34	1.15	1.15	1.67	7.92	5.66	5.80	14.35	8.98	8.79	5.68
Disraeli	1.29	1.24	3.23	1.37	4.30	3.13	3.45	9.54	8.05	15.28	5.09
Dundas Heights	0.64	0.64	0.74	4.54	5.68	5.03	6.10	8.85	8.71	11.71	5.26
Jubilee Apartments	0.48	0.48	1.72	0.48	2.70	4.90	5.54	12.72	12.43	13.92	5.54
Maple Villa	0.46	0.46	2.37	0.46	1.77	3.91	4.57	10.95	10.70	13.38	4.90
Meadow Lane	0.94	0.94	1.49	1.76	5.61	4.35	3.83	7.60	8.09	8.90	4.35
Meadowview Apartments	0.96	0.96	1.05	0.99	2.67	4.07	6.60	12.15	10.45	16.44	5.63
Pinegrove Apartments	0.99	0.99	1.42	1.05	2.74	4.39	7.37	11.34	11.34	15.16	5.68
Queen Elizabeth Apartments	0.72	0.72	0.81	0.73	3.42	5.32	4.23	10.76	6.30	9.73	4.27
The Maples	1.28	1.28	2.77	1.51	3.28	5.72	7.74	11.07	5.17	8.34	4.82
Twin Pines	1.52	1.52	3.29	1.57	3.28	3.86	6.53	9.46	7.72	12.40	5.11
Annual Needs	889,512.91	863,988.82	1,837,609.03	1,555,091.43	4,100,680.03	4,830,824.22	5,563,970.26	11,125,551.26	9,621,007.16	12,673,098.56	5,306,133.37

6.6 Recommendations

Comparing the anticipated budget to the suggested forecast from the most recent building condition assessment, there appears to be an annual average shortfall of approximately $4.1M for 2024-2034. Staff will factor in these considerations into the next capital budget cycle.

7 OTHER COUNTY BUILDINGS

7.1 State of Infrastructure

The summary of the County building inventory is provided below. The average age of assets compared to the average estimated service lives is also included in the summary. This provides a quick snapshot of where assets generally are in their lifecycle, which in turn can give an idea of overall condition based on age.

Table 23 – County Buildings Inventory Summary

Asset Type	Quantity	Replacement Cost	Average Age (years)	Average ESL (years)
Sites	13	$107,716,150	24	27

The County has performed a comprehensive building condition assessment in spring of 2022. This provided a good understanding of the current state of County buildings and a forecast of future needs. The condition of each building component was assessed for current state. Industry standard Facility Condition Index (FCI) was used to indicate future performance. Table 24 presents the logic used to convert FCI into a condition rating.

Table 24 – County Buildings Condition Ratings

Category	Building Component (Field assessment)	County Building (FCI)
Very Good	Excellent	0 to 4.9%
Good	Very Good	5 to 9.9%
Fair	Good	10 to 15%
Poor	Fair	15 to 30%
Very Poor	Poor	>30%

The condition distribution by replacement value is provided below.

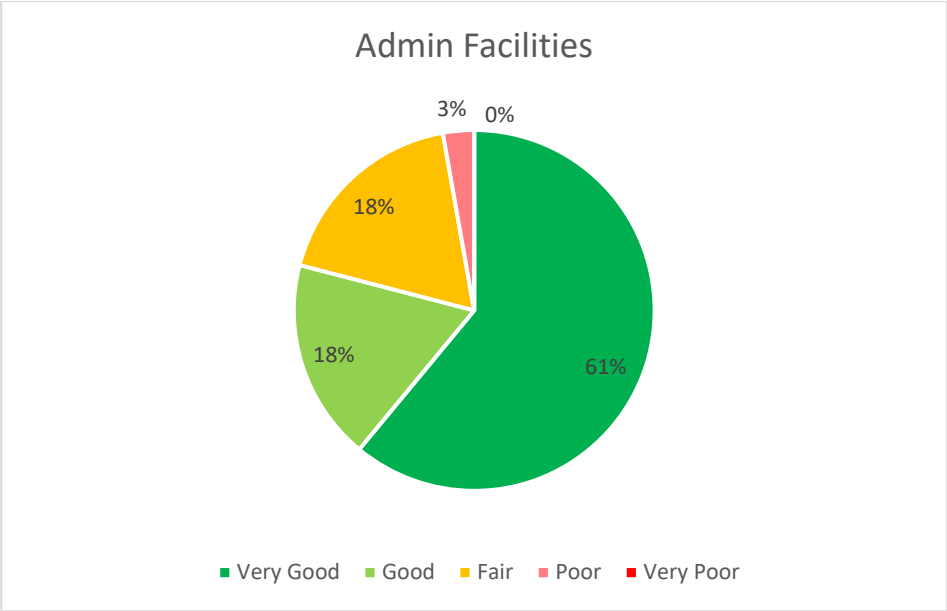


Figure 23 – Current Condition of County Buildings by Building Component

Results shown in the above figures appear to misalign. Staff will investigate further on the current state and the indicators to use.

7.2 Levels of Service

The County's goal is to provide buildings that support services to the community and maintain the buildings in a state of good repair. The technical LOS are shown in Table 25.

Table 25 – County Buildings Technical Levels of Service

Service Attribute	Metric	2022 Performance
Reliable	Percentage of County Buildings in good or better condition	79%

7.3 Lifecycle Management Strategy

For the County to provide building services and maintain LOS, certain lifecycle activities are performed. The lifecycle activities performed are summarized in Table 26.

Table 26 – County Building Lifecycle Activities

Lifecycle Activity	Description	Frequency
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
	Condition assessments	Approx. every 10 years (varies)
Operations and Maintenance	Staff inspections	Weekly
	Reactive and preventive maintenance	Following PM programs, or as needed
Rehabilitation	Rehabilitation needs	Based on inspections and condition assessments
Replacement	Equipment or building component replacement	When assets reach end of service life
Disposal	Building and equipment disposal	Coordinated with asset replacement
	Equipment re-use	As required where possible
Expansion/Service Changes	Expansion to buildings are required	As required

7.4 Failure Modes and Risk

Physical failure, financial failure and performance failure are the main failure modes the County strives to prevent, described below.

7.4.1 Physical Failure

Structural integrity of County buildings is fundamental to maintaining these assets in an acceptable state - a level of service to the community. Physical failure is associated with considerable risks.

Associated Risks

- Public Health
- Public Safety
- Regulatory Compliance
- Environmental
- Private Property
- Financial
- Service to the Customer
- Organizational Reputation

7.4.2 Performance Failure

Capacity and legislative compliance of County buildings is a critical service to the community and staff, with significant risks. Carbon footprint considerations also relate to performance failure.

Associated Risks

- Public Health
- Public Safety
- Regulatory Compliance
- Financial
- Service to the Customer
- Organizational Reputation

7.4.3 Financial Failure

Expenditures related to utilities may cause building to fail financially.

Associated Risks

- Financial
- Service to the Customer
- Organizational Reputation

7.5 Funding Lifecycle Activities

The County uses the lifecycle strategies described in this AMP to plan work and determine future expenditure needs.

7.5.1 Anticipated Budget

The current anticipated investments for County Buildings are $535K annually. The results from the building condition assessment project have not yet been incorporated into the County's asset management modelling software since the project finished well into the development of this AMP. The impacts of current budgets on performance will be included in future AMP updates.

The condition distribution of assets by replacement value for social housing assets forecasted for the next 10 years is provided in the following figure.

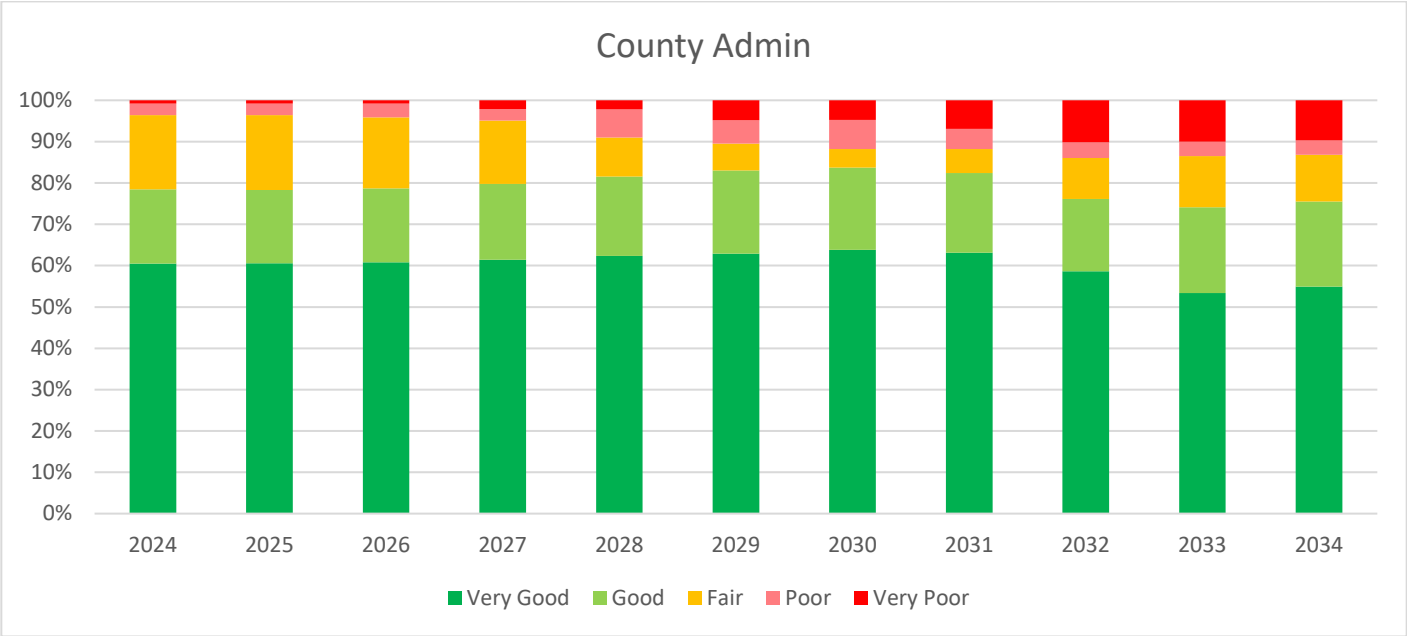


Figure 24 – Condition Distribution of Assets by Replacement Value for Social Housing Assets Anticipated Budget

7.5.2 Cost to Maintain LOS

The building condition assessment project identified the costs to maintain the LOS for social housing. The FCI for each building was forecasted over the next 10 years and recommended annual costs to address future needs. The cost to maintain LOS was determined to be $1.6M and the details are provided in the following table.

Table 27 – Forecast of FCI for County Buildings

Facility	Facility Condition Index (FCI)										
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Average FCI
Amherstview Daycare	0.00	0.00	0.25	0.03	0.89	0.03	0.03	0.03	1.01	6.14	0.84
Cartwright Building	0.00	22.16	6.96	7.02	3.57	19.82	0.75	0.75	1.18	4.76	6.69
County Garage	0.00	0.00	2.31	0.00	3.57	2.84	5.80	5.80	5.80	7.61	3.38
Denbigh EMS Base	1.36	2.96	0.06	0.87	1.15	7.06	5.53	1.59	1.77	1.50	2.38
Historic Land Registry Building	0.00	0.00	2.85	0.75	0.30	6.81	3.04	2.58	2.58	7.74	2.67
LA Courthouse	0.06	0.00	0.00	1.08	1.56	4.13	7.03	9.88	8.05	13.10	4.49
MacPherson House	0.40	0.01	3.89	0.48	2.68	9.57	3.88	7.47	7.32	18.12	5.38
Memorial Building	0.00	0.00	0.22	6.30	0.52	5.50	7.95	7.75	7.71	15.30	5.12
Museum & Archives	0.00	0.00	0.02	0.09	1.41	3.18	1.57	2.69	2.69	1.73	1.34
Napanee EMS Base	0.02	0.14	0.23	1.91	1.65	0.00	2.88	6.60	4.31	6.97	2.47
Northbrook EMS Base	0.00	0.02	0.18	1.93	3.49	2.86	1.21	0.11	2.28	0.89	1.30
PELASS Amherstview	0.36	0.36	5.00	2.39	1.77	5.67	8.36	19.78	19.78	25.43	8.89
PELASS Napanee	0.00	0.18	0.71	0.18	1.29	3.23	2.82	4.93	4.87	5.92	2.41
Stone Mills EMS Base	0.12	0.12	0.12	3.37	0.00	0.00	0.02	0.02	4.51	3.07	1.14
Yarker Daycare	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.67	2.42	0.50	0.56
Annual Needs	26,369.80	174,736.55	505,270.00	788,901.20	758,407.35	1,778,173.20	2,006,172.80	2,878,056.45	2,773,701.55	4,418,040.80	1,610,782.97

7.6 Recommendations

Comparing the anticipated budget to the suggested forecast from the most recent building condition assessment, there appears to be an annual average shortfall of approximately $1.07M for 2024-2034. Staff will factor in these considerations into the next capital budget cycle.

8 LONG TERM CARE FACILITY

8.1 State of Infrastructure

The summary of the County building inventory is provided below. The average age of assets compared to the average estimated service lives is also included in the summary. This provides a quick snapshot of where assets generally are in their lifecycle, which in turn can give an idea of overall condition based on age.

Table 28 – County Buildings Inventory Summary

Asset Type	Quantity	Replacement Cost	Average Age (years)	Average ESL (years)
Sites	1	$33,394,124	19	27

The County has performed a comprehensive building condition assessment in spring of 2022. This provided a good understanding of the current state of County buildings and a forecast of future needs. The condition of each building component was assessed for current state. Industry standard Facility Condition Index (FCI) was used to indicate future performance. Table 29 presents the logic used to convert FCI into a condition rating.

Table 29 – County Buildings Condition Ratings

Category	Building Component (Field assessment)	County Building (FCI)
Very Good	Excellent	0 to 4.9%
Good	Very Good	5 to 9.9%
Fair	Good	10 to 15%
Poor	Fair	15 to 30%
Very Poor	Poor	>30%

The condition distribution by replacement value is provided below.

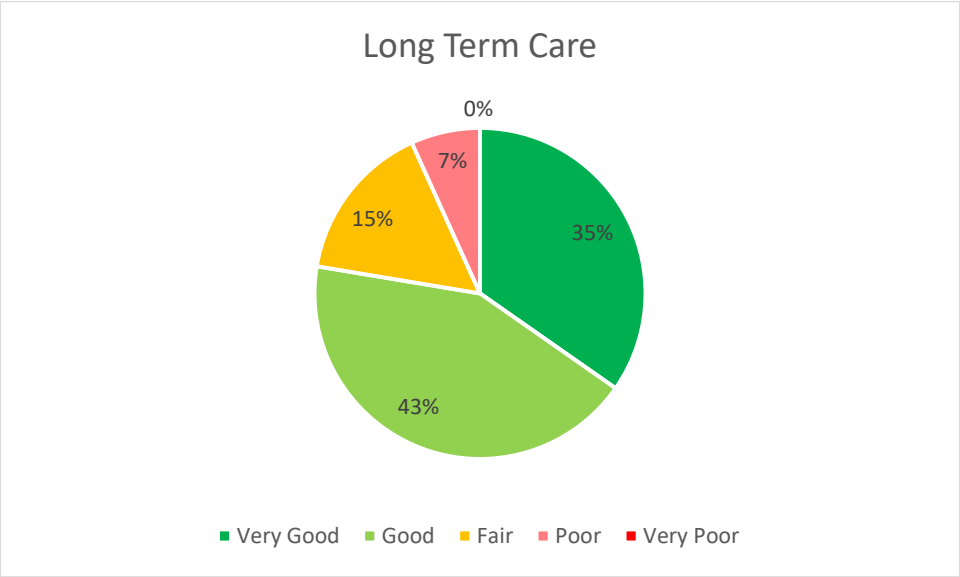


Figure 25 – Current Condition of John M Parrott Centre by Building Component

8.2 Levels of Service

The County's goal is to provide buildings that support services to the community and maintain the buildings in a state of good repair. The technical LOS are shown in Table 30.

Table 30 – County Buildings Technical Levels of Service

Service Attribute	Metric	2022 Performance
Reliable	Percentage of Long Term Care components in fair or better condition	93%

8.3 Lifecycle Management Strategy

For the County to provide building services and maintain LOS, certain lifecycle activities are performed. The lifecycle activities performed are summarized in Table 31.

Table 31 – County Building Lifecycle Activities

Lifecycle Activity	Description	Frequency
Non-Infrastructure	Planning and studies (Master Plans, financial plans, capacity studies, AMPs)	As required
	Condition assessments	Approx. every 10 years (varies)
Operations and Maintenance	Staff inspections	Weekly
	Reactive and preventive maintenance	Following PM programs, or as needed
Rehabilitation	Rehabilitation needs	Based on inspections and condition assessments
Replacement	Equipment or building component replacement	When assets reach end of service life
Disposal	Building and equipment disposal	Coordinated with asset replacement
	Equipment re-use	As required where possible
Expansion/Service Changes	Expansion to buildings are required	As required

8.4 Failure Modes and Risk

Physical failure, financial failure and performance failure are the main failure modes the County strives to prevent, described below.

8.4.1 Physical Failure

Structural integrity of County buildings is fundamental to maintaining these assets in an acceptable state - a level of service to the community. Physical failure is associated with considerable risks.

Associated Risks

- Public Health
- Public Safety
- Regulatory Compliance
- Environmental
- Private Property
- Financial
- Service to the Customer
- Organizational Reputation

8.4.2 Performance Failure

Capacity and legislative compliance of County buildings is a critical service to the community and staff, with significant risks. Carbon footprint considerations also relate to performance failure.

Associated Risks

- Public Health
- Public Safety
- Regulatory Compliance
- Financial
- Service to the Customer
- Organizational Reputation

8.4.3 Financial Failure

Expenditures related to utilities may cause building to fail financially.

Associated Risks

- Financial
- Service to the Customer
- Organizational Reputation

8.5 Funding Lifecycle Activities

The County uses the lifecycle strategies described in this AMP to plan work and determine future expenditure needs.

8.5.1 Anticipated Budget

The current anticipated investments for the Long Term Care Facility is $545K annually. The results from the building condition assessment project have not yet been incorporated into the County's asset management modelling software since the project finished well into the development of this AMP. The impacts of current budgets on performance will be included in future AMP updates.

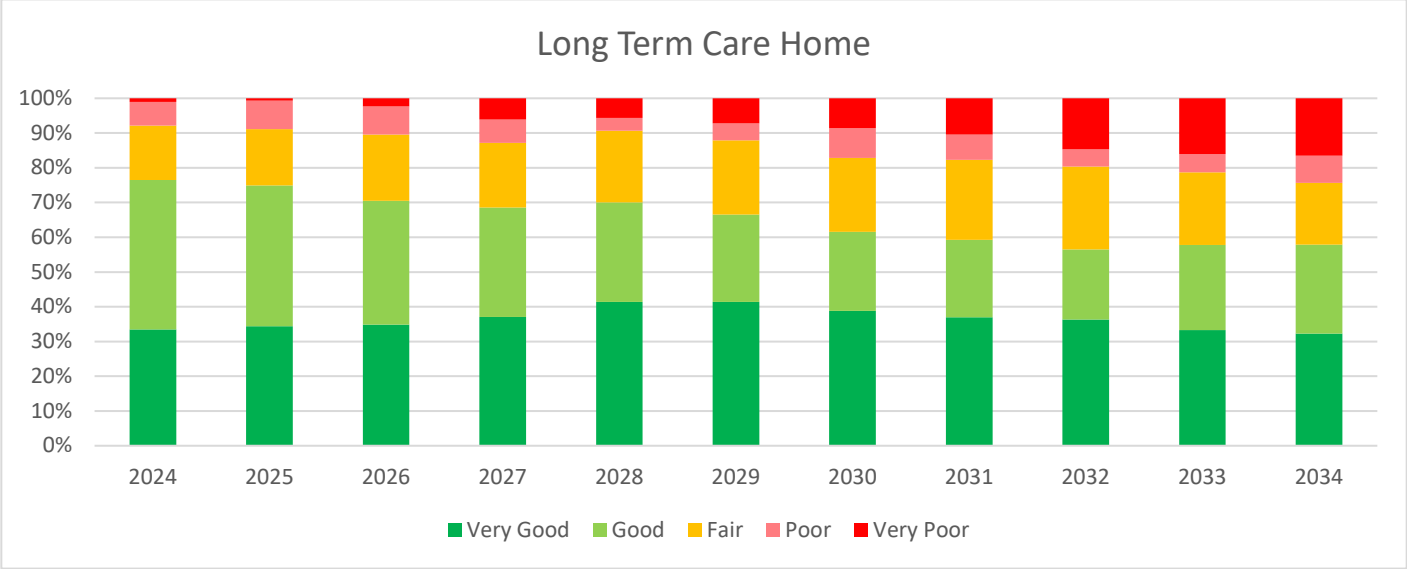


Figure 26 – Anticipated Budget for the Long Term Care Facility

8.5.2 Cost to Maintain LOS

The building condition assessment project identified the costs to maintain the LOS for social housing. The FCI for each building was forecasted over the next 10 years and recommended annual costs to address future needs. The cost to maintain LOS was determined to be $1.7M and the details are provided in the following table.

Table 32 – Forecast of FCI for Long Term Care Facility

Facility	Facility Condition Index (FCI)										
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	Average FCI
John M Parrott Centre	1.02	0.69	2.33	6.05	4.99	6.64	7.98	9.20	9.07	15.49	6.35
Annual Needs	270,573.00	183,898.00	620,141.00	1,611,469.00	1,329,972.00	1,769,410.00	2,126,058.00	2,450,340.00	2,415,840.00	4,127,405.00	1,690,510.60

8.6 Recommendations

Comparing the anticipated budget to the suggested forecast from the most recent building condition assessment, there appears to be an annual average shortfall of approximately $1.7M for 2024-2034. Staff will factor in these considerations into the next capital budget cycle.

9 VEHICLES AND EQUIPMENT

9.1 State of Infrastructure

A summary of the Vehicles and Equipment is provided below. These are used by various departments as shown.

Table 33 – Vehicles and Equipment Inventory Summary

Asset Type	Quantity	Replacement Cost	Average Age (years)	Average ESL (years)
Paramedic Services Vehicles & Equipment	41	$3,977,500	3	5
Property Services Vehicles & Equipment	64*	$555,000	7	10
Roads and Bridges Vehicles & Equipment	10	$290,000	5	14

*Quantity does not include small equipment less than $1,000. They have been included in replacement cost.

A summary of acquisition dates for these assets is shown in the following graph.

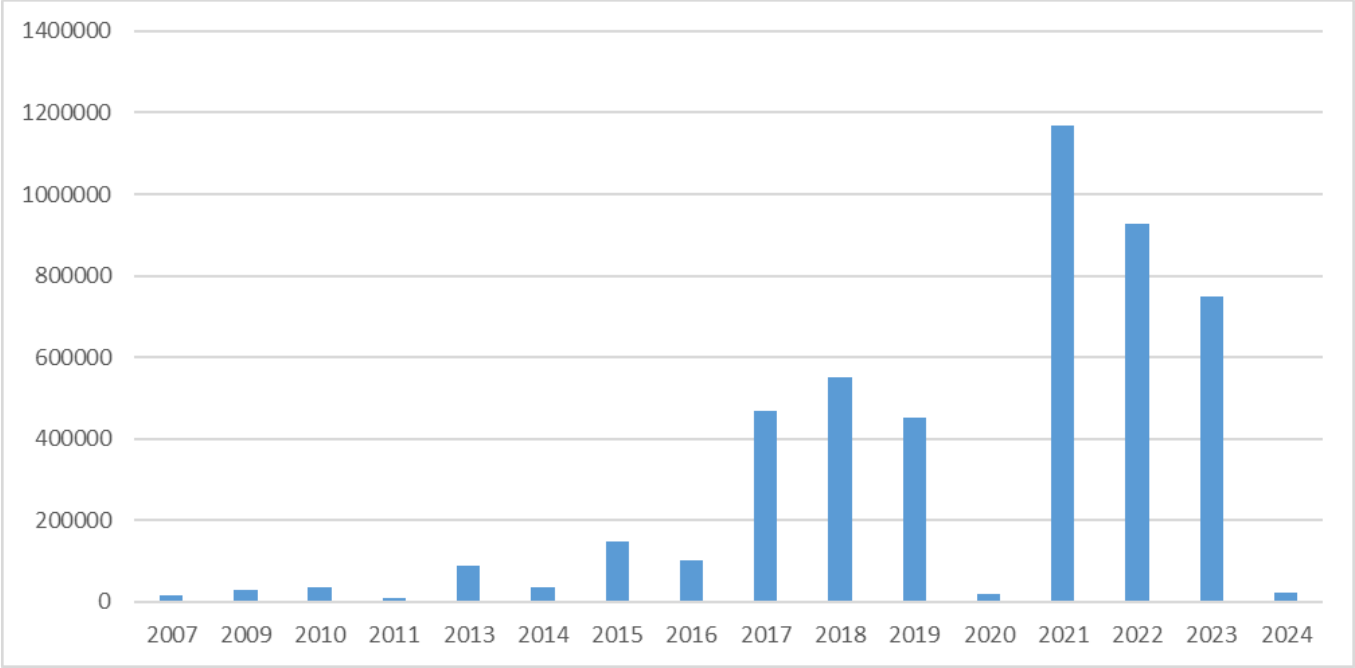


Figure 27 – Acquisition Dates for Vehicles and Equipment

The condition of fleet and equipment assets is estimated using an age based. Table 34 presents the logic used to age as a proportion of remaining useful life into a condition rating.

Table 34 – Fleet and Equipment Infrastructure Condition Ratings

Category	Life Remaining
Very Good	100-67%
Good	66% to 34%
Fair	33% to 1%
Poor	0%
Very Poor	Beyond service life

The condition distribution by replacement value is provided in Figure 28.

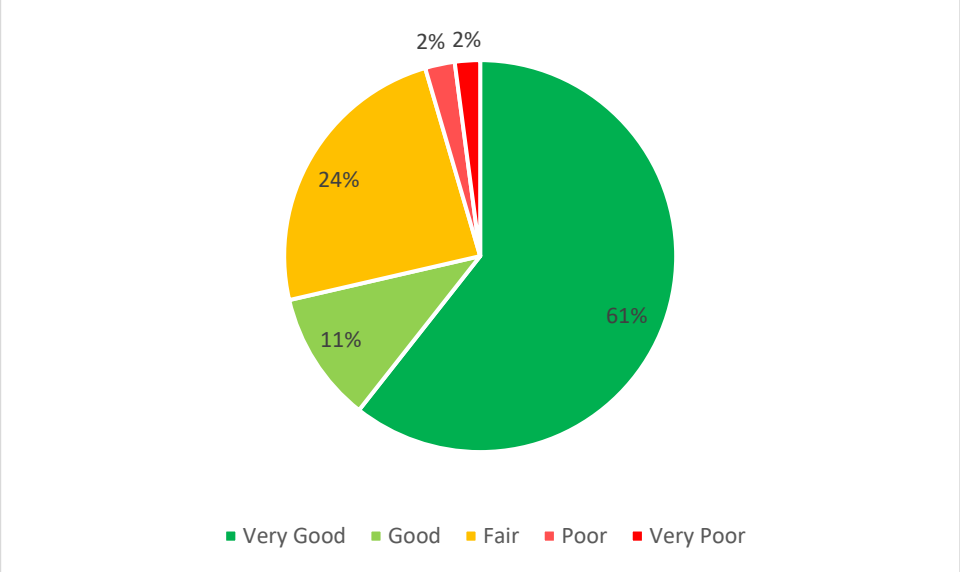


Figure 28 – Current Condition of Vehicles and Equipment

9.2 Levels of Service

Levels of service are expressed as the outputs a customer receives from the County. This AMP sets a number of levels or service for Vehicles and Equipment and connects the level of service to the assets required to deliver them. No legislated levels of service are in place for Vehicles and Equipment. The technical LOS are shown in Table 35.

Table 35 – Vehicles & Equipment Technical Level of Service

Service Attribute	Metric	2024 Performance
Reliable	Percentage of vehicles & equipment in fair or better condition	96%

9.3 Lifecycle Management Strategy

For the County to provide vehicle and equipment services and maintain LOS, certain lifecycle activities are performed. The lifecycle activities performed are summarized in Table 36.

Table 36 – Vehicle and Equipment Lifecycle Activities

Lifecycle Activity	Description	Frequency
Non-Infrastructure	Lifecycle Management Reviews. Ongoing review and benchmarking of operating costs to replacement costs. Test extending lifecycle to review impact. Cost review on Assets past lifecycle.	Annual reviews at a minimum.
Operations and Maintenance	Carrying out regular preventive maintenance of all vehicles. Reactive maintenance for circumstances that cannot be easily mitigated (vehicle accidents requiring immediate repair, faster than anticipated vehicle breakdown). Tracking all failures as incidents in order to continue to improve. Target is to minimize unplanned non-standardized work. Empowering staff to make decisions regarding elective repairs in order to ensure continuity of service and fewer breakdowns while in service.	Annual reviews at a minimum.
Rehabilitation	Regular preventative maintenance programs assist in determining renewals/rehabilitations required, typically at 7 years. Review operating costs to rehabilitation and/or replacement costs as asset nears its end of useful life.	Annual reviews at a minimum.
Replacement	Review operating costs to replacement costs as asset nears its end of useful life, typically at 10 years. Consider opportunities to repurpose add on equipment, attachments and outfitting past the lifecycle of the parent asset. Optimal asset lifecycle assessed to	Annual reviews at a minimum.

Lifecycle Activity	Description	Frequency
	determine timing of replacement that minimizes maintenance/repair work and maximize salvage value.	
Disposal	Optimal lifecycle analysis results in salvage value. Fleet planning to stagger sales of similar assets at auction to ensure maximum returns and not over flooding resale market, when applicable. Fleet planning to target peak season for certain items to hit auction when demand is high. (i.e., snowplow equipment – Sept-Nov.)	As required, typically annually at a minimum.
Expansion/Service Changes	Extended warranties and service agreements, RFP procurement practices to acquire higher quality assets with longer lifecycles.	As required, typically annually at a minimum.

9.4 Failure Modes and Risk

Physical failure, financial failure and performance failure are the main failure modes the County strives to prevent for vehicles and equipment, described below.

9.4.1 Physical Failure

Structural integrity of vehicles and equipment is fundamental to maintaining these assets in an acceptable state - a level of service to the community and to staff. Physical failure is associated with considerable risks.

Associated Risks

- Public Safety
- Regulatory Compliance
- Environmental
- Financial
- Service to the Customer
- Organizational Reputation

9.4.2 Performance Failure

Vehicles and equipment can also fail at the point where vehicular/equipment performance is no longer satisfactory (e.g. performance in winter, power, capacity to hold crew), does not meet legislated requirements for safety, or fails to serve its function any longer (obsolete equipment). Carbon footprint considerations also relate to performance failure.

Associated Risks

- Public Safety
- Regulatory Compliance
- Financial
- Service to the Customer
- Organizational Reputation

9.4.3 Financial Failure

Expenditures related to fuel efficiency in fleet, or licensing in software, may be failing financially.

Associated Risks

- Financial
- Service to the Customer
- Organizational Reputation

9.5 Funding Lifecycle Activities

The County uses the lifecycle strategies described in this AMP to plan work and determine future expenditure needs.

9.5.1 Anticipated Budget

The currently planned budget was analyzed to set a baseline for comparing the other scenarios. The current anticipated investments resulted in the performance forecast illustrated in Figure 29. If the County spends the planned annual capital budget of $750K (annual average 2024-2034), this results in the performance forecast illustrated below.

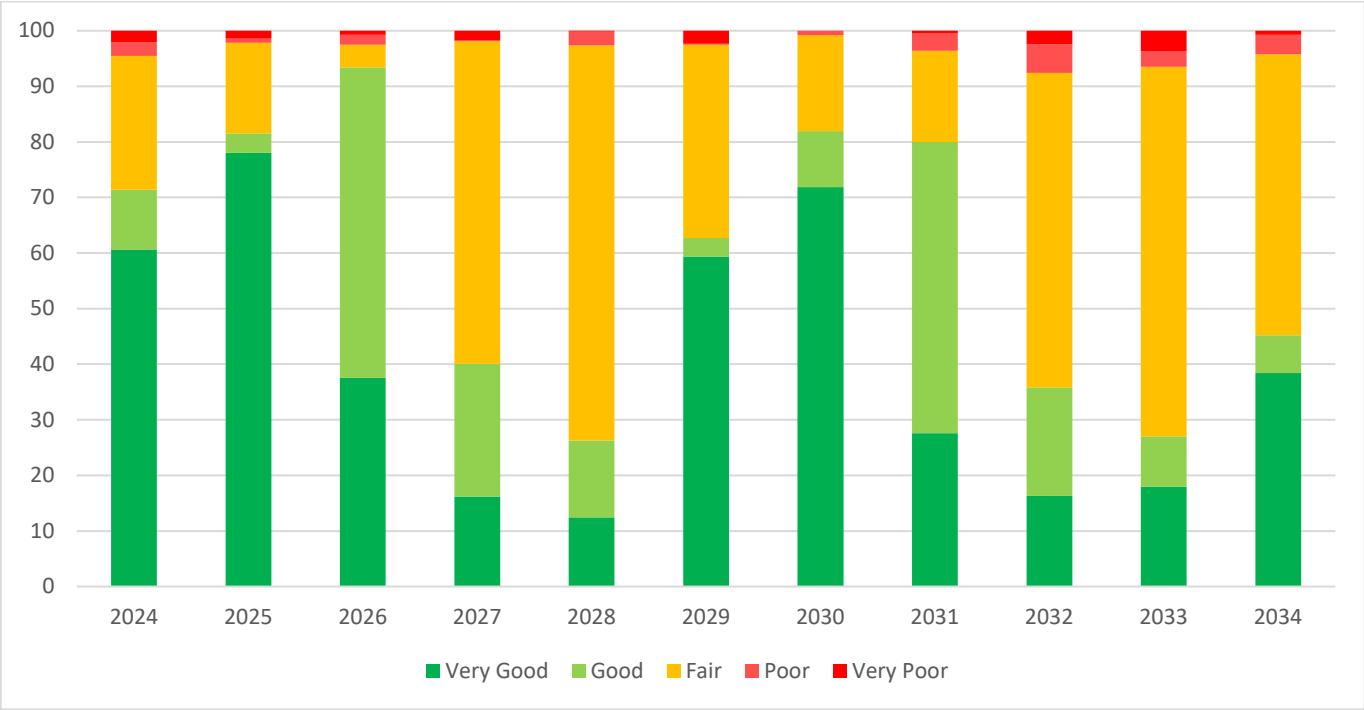


Figure 29 – Vehicles and Equipment Performance Forecast for Anticipated Budget

9.5.2 Cost to Maintain LOS

The current level of service is defined by the percentage of vehicles and equipment in fair or better condition. The cost to maintain this level was determined to be an average of $750K annually over a 10-year period. This average resulted in the performance forecast illustrated in Figure 30. The percentage of assets that are in fair or better condition generally remains constant over the forecast period. See graph below of current anticipated spending.

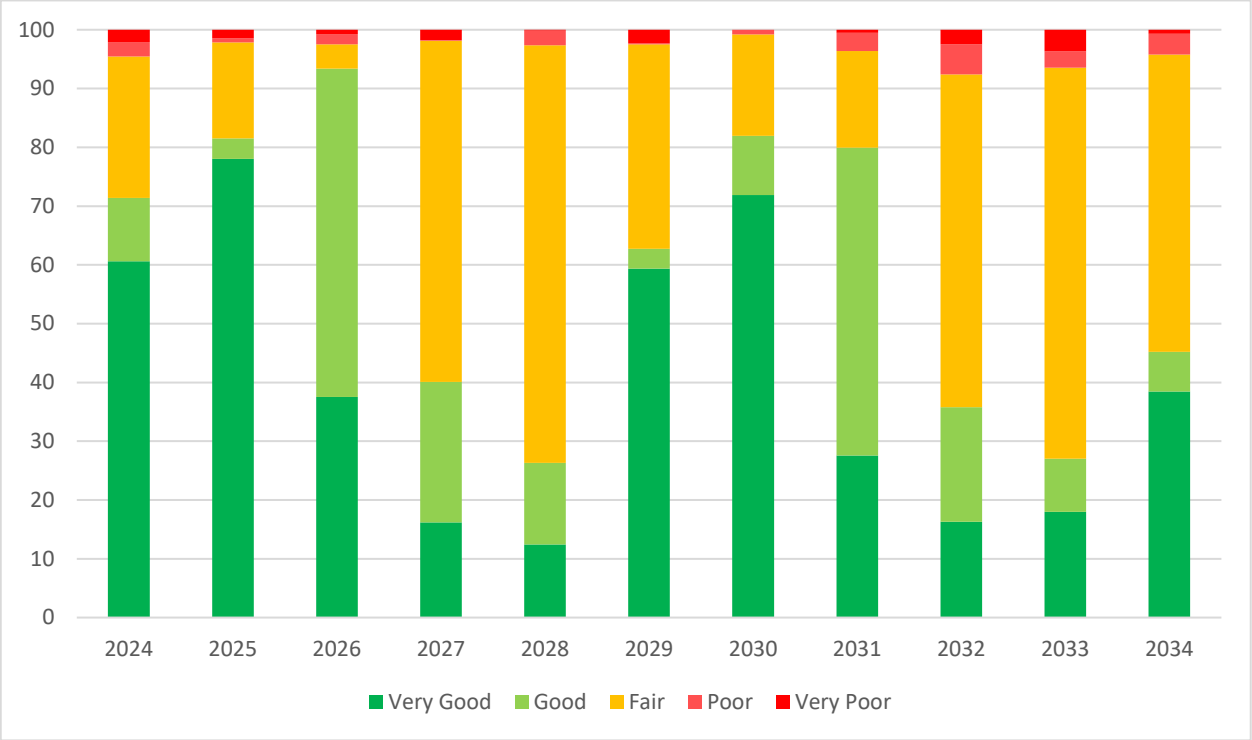


Figure 30 – Vehicles and Equipment Performance Forecast for Cost to Maintain

9.5.3 Unconstrained Budget

For comparison, the forecasted condition of vehicles and equipment over the next ten years, without any spending constraints, is shown below.

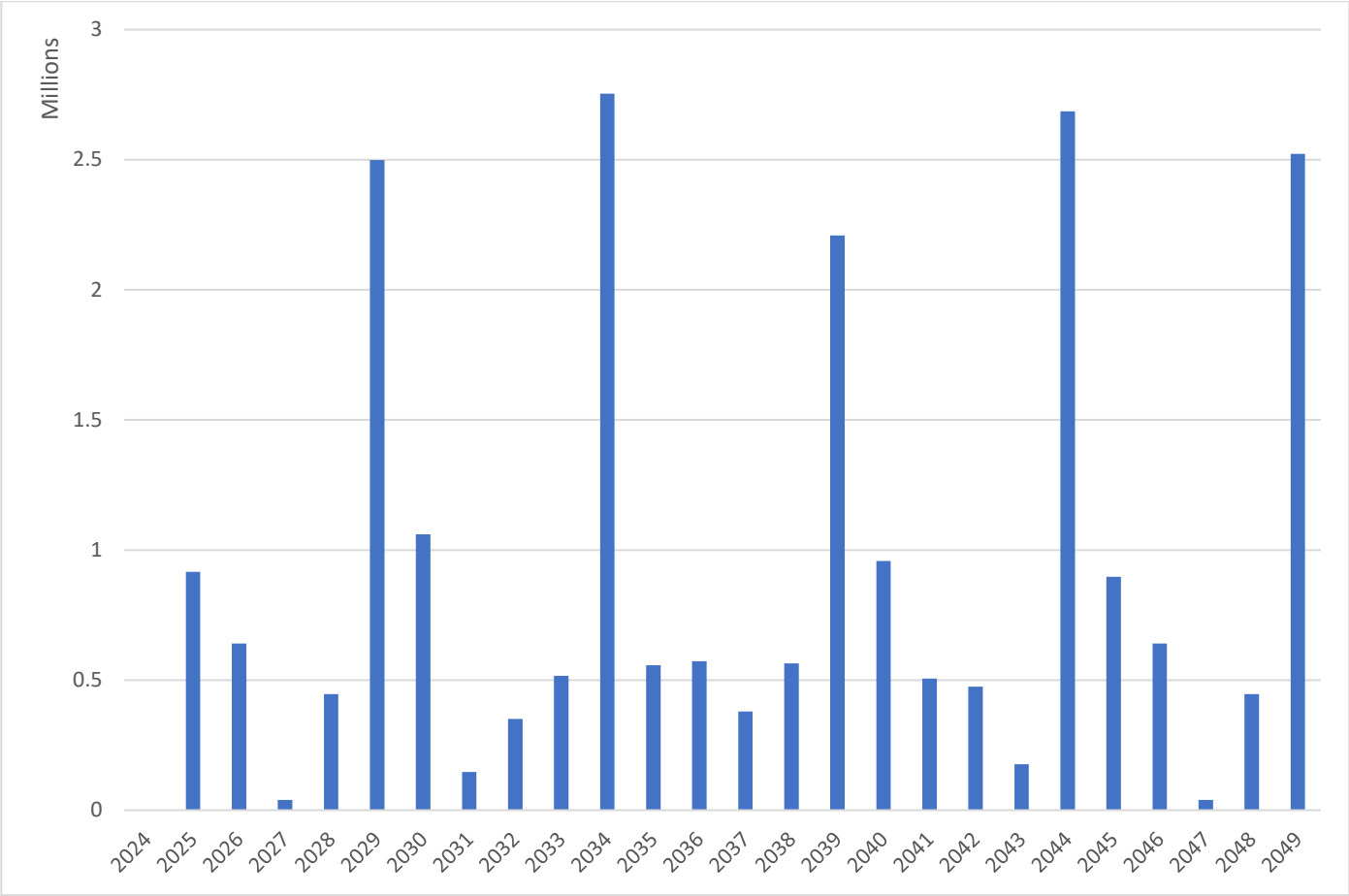


Figure 31 – Vehicles and Equipment Unconstrained Budget Lifecycle Strategy

This figure demonstrates how capital would be spent each year as vehicles and equipment deteriorate, if no capital restrictions were in place. As mentioned, this forecast is based on age.

9.6 Recommendations

No annual capital shortfall is anticipated for this asset category, based on the information and levels of service provided within this section, and the planned capital forecast. Although a capital overspend appears when considering maintenance of current LOS, this is not the case. The discrepancy arises largely because the case-by-case vehicle/equipment lifecycle costs and options are regularly considered with each budget cycle, rather than a trigger of replacement by age alone. Vehicles/equipment may be replaced

earlier because staff factor in the optimal time for resale value of the unit. The anticipated budget needs are based age and standard useful life estimations, while actual spending may be less based on efforts by staff to consider case by case assessment using levels of service and condition indicators.

10 GROWTH CONSIDERATIONS

The County's population is expected to increase by over 9,000 people between 2011 and 2036, a growth increase of about 22%. The County does not currently use development charges to fund growth, but plans are underway to continue developing its processes for planning and funding growth. Currently, the County plans for growth through its Official Plan. The Official Plan (2015) provides the vision for the future growth of the County by:

- Establishing frameworks to provide guidance to local municipalities and to coordinate on planning & development issues that cross municipal borders, and
- Implementing the Provincial Policy Statement at the County level.

As provided in the Official Plan section 3.0 (2015), the population and employment forecasts are shown. An Official Plan update is also underway in 2022.

Table 37 – County Population Growth Forecast by Local Municipality, 2011-2036

Municipality	Population Growth (2011 to 2036)	Growth Rate (2011 to 2036)
Greater Napanee	3,663	23.61%
Loyalist Township	4,177	25.75%
Stone Mills	1,272	16.83%
Addington Highlands	282	11.15%
Total	**9,395**	**22.46%**

Table 38 – County Employment Growth Forecast by Local Municipality, 2011-2036

Municipality	Employment Growth (2011 to 2036)	Growth Rate (2011 to 2036)
Greater Napanee	1,710	23.61%
Loyalist Township	720	25.75%
Stone Mills	122	16.83%
Addington Highlands	68	11.15%
Total	**2,552**	**22.46%**

Growth will likely correspond to increased demand on all assets, which could result in increased deterioration of assets and a reduction in service levels if not planned for. Maintaining capacity and quality, especially with climate change, may also present a challenge as the County's population increase.

The County may increase its asset portfolio to accommodate the increase in population through new development. This will also result in additional financial and non-financial resources to operate and manage the lifecycle activities associated with these new assets.

As the asset network expands due to the assumption of new developments, maintenance and renewal of these additional or enhanced existing assets requires more resources including people, processes, equipment and technology to maintain and respond to these changing needs. It is important to note that, while population increases, the costs associated with the new infrastructure would be delayed until the time the works are in place.

The estimated capital and operating expenditures related to the lifecycle activities to accommodate projected increases in demand caused by growth are currently under review by staff. Although infrastructure expenditures due to growth are currently funded by the existing tax base, the County is progressing with explorations of more refined growth planning and funding, which will be presented to Council at a later date.

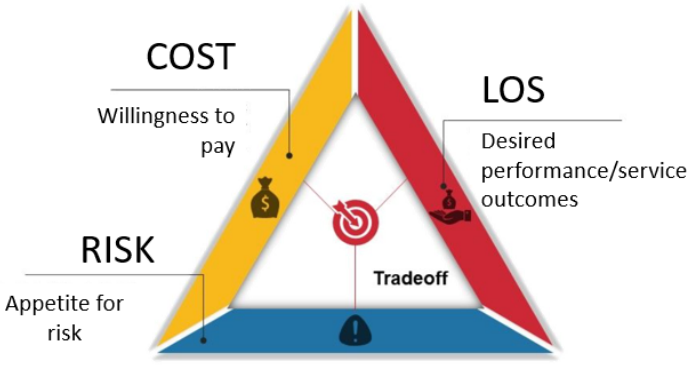
11 FINANCING STRATEGY

The financial strategy of this AMP aims to document current and projected costs from newly defined levels of service. It takes into consideration revenues, operating and capital expenditures, debt, and any future commitment for all the asset classes in the plan.

It is not recommended that the required funding to maintain service levels be translated directly into the budget forecast. Instead, the projections are meant to establish a new baseline, documenting what state and principles apply today, so that staff and Council may begin to consider:

1. The preferred means to identify and measure levels of service, and
2. Options to optimize cost, level of service, and risk.

This discussion, and the trade-off and optimization that must occur, can be depicted in the graphic below.



The County's budgets are developed to allocate the necessary funding to provide services, maintain, and construct infrastructure assets. These are based on required costs (expenditures) and available funding (revenues). The County allocates a portion of their revenues from property taxes to support current year projects, contribute to reserve funds, and make debt repayments. Property taxes fund the asset categories discussed in this AMP.

In terms of expenditures, the County categorizes its budget into the following:

- **Operating budget:** Supports the day-to-day activities and functions conducted to provide County services. Samples of the expenditures funded from the operating budget include staff salaries, equipment maintenance, materials supply, and facilities services. These are expensed within the fiscal year.
- **Capital budget:** Includes large expenditures associated with construction or purchase of infrastructure. It leverages the debt and reserve funds available to manage the financial position over a ten-year period. Defining capital budgets includes the evaluation of long-term investment proposals along with estimating future cash flows.

As part of the annual budget development process, the County ensures continued financial sustainability through effective financial planning and risk management. The County will use one or more of these financial strategies to fund its projects:

- **Pay as you go**: Saving funds in advance to acquire an asset. This strategy often requires sacrificing short-term needs to retain funds long-term for a larger capital project.
- **Debenture Financing**: A loan issued to acquire an asset which requires annual repayments with interest (limited to an annual payment limit).
- **Reserve Accounts**: Contributing to a reserve account to maintain a threshold for unexpected costs.
- **Third-Party Contributions**: Contributions from external parties, such as subsidies from development and grants from higher levels of government.
- **User Fees**: Fees for the user of a service (typically based on a full-cost-recovery model).

The County must use short and long-term strategies to ensure fiscal responsibility and provide the necessary services to its residents. This includes the continued preparation and distribution of the 10-year capital plan allocations.

Procurement strategies also form part of the County's financial plan to meet service levels and address backlogs. The County actively engages in project bundling wherever possible and feasible.

The following section details the financial results of each scenario analyzed for this AMP. It discusses various strategies and avenues to fund investment shortfalls, as well as risks associated with the lifecycle activities under each strategy. The results of this AMP and financial strategy are expected to be used to inform the County's long-term financial plans.

11.1 Total Operating

Ongoing lifecycle activities are in place for sound stewardship of the County's current asset portfolio, including activities funded through the operating budget. Operation, planning, maintenance, and renewal of assets will continue to require operational resources including people, processes, tools, and technology. For example, non-infrastructure activities (plans and studies), design, procurement, maintenance, and operating activities are all ongoing lifecycle management tasks that require operating dollars.

It is assumed that the operating costs to maintain current levels of service are equivalent to the current operating budget. Without growth or changes to any levels of service, the forecasted operating budget to expect to maintain current levels of service, provided annual inflation and pricing index changes are accounted for.

As such, the 2024 total operating expense budget of $80,122,424 is the current (and forecasted) operating cost to maintain current levels of service from 2024-2034. Annual inflation and pricing index changes will need to be accounted for in future budget preparations based on this level of service.

11.2 Total Capital

The AM analyses were conducted under the assumption that expansion, maintenance, non-infrastructure and service changes expenditures will remain the same for all scenarios and are fully accommodated under the County's existing budget. Since the lifecycle models were developed around capital works interventions, the forecasting analysis provided a comparison of renewal (replacement and rehabilitation) needs against anticipated capital funding.

The breakdown of the anticipated budget by lifecycle activities is provided in Table 39.

Table 39 – Lifecycle Activities for Anticipated Budget ($000)

	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Renewal	18634.25	22712.61	23025.35	21367.6	21482.9	13177	12563.85	9274.75	6651.9	4380.95
Expansion	4340	50	50	400	300	0	0	5000	5000	5000
Maintenance	4	2	5.5	2.5	2.5	5.5	3	3	6	3
Non-Infrastructure	0	27	0	0	60	0	27	0	0	60
Grand Total	22978.25	22791.61	23080.85	21770.1	21845.4	13182.5	12593.85	14277.75	11657.9	9443.95

The following table describes the anticipated annual investment compared to the cost to maintain LOS for renewal.

Table 40 – Scenario Comparison

	Anticipated Budget (Equivalent Annual Cost)	Cost to Maintain LOS (Equivalent Annual Cost)	Annual Funding Shortfall/(Excess)
Stormwater Management Infrastructure	$3,000,000	$4,600,000	$1,600,000
Roads and Roadside Infrastructure	$19,700,000	$20,055,250	$555,250
Bridges and Major Culverts	$965,000	$1,300,000	$335,000
Social Housing	$1,133,000	$5,306,000	$4,173,000
County Buildings	$ 535,150	$1,600,000	$1,064,850

	Anticipated Budget (Equivalent Annual Cost)	Cost to Maintain LOS (Equivalent Annual Cost)	Annual Funding Shortfall/(Excess)
Long term care	$ 545,250	$1,690,500	$1,135,250
Vehicles & Equipment	$772,500	$750,000	($22,500)
Total	**$26,650,900**	**$35,301,750**	**$7,776,000**

11.3 Options to Address Infrastructure Needs

The strategic options to address any potential infrastructure funding shortfall include:

1. Adjust asset performance expectations. The funding shortfall may be reduced by revisiting stakeholder objectives against affordability/willingness to pay.
2. Continue to seek funding from the Provincial or Federal government to fund infrastructure.
3. Draw from available reserves. The use of reserves is appropriate to fund large projects where spending is increased for a short period, after which spending will return to baseline levels.
4. Investigate Development Charges (DCs) to finance infrastructure required to service new growth. This involves the completed of a DC background study and the passing of a municipal by-law to charge a per-lot fee to fund growth-related infrastructure projects.
5. Consider modest above-baseline revenue increases to fund the infrastructure funding shortfall.
6. Consider acquiring debt.

As the County endeavors to identify funding shortfalls, it may operate in a state where service levels are lower than community expectations. During this time, while shortfalls are being addressed, lower service levels (for some assets) could result in premature failures and an overall reduced level of service to the community, which increases the County's overall risk. Furthermore, the County cannot allocate all resources to address shortfalls immediately, which will result in some work being deferred. Deferrals can also have financial impacts, as they create a situation whereby the County does not have the resources needed to intervene in asset renewals at the most optimal time. This could result in an increase in overall cost, by deferring less costly rehabilitations, which require more costly replacements sooner.

Deferred work may also require emergency intervention to replace assets that have failed. Emergency intervention is often costly, as it requires less planning and additional unforeseen costs to address issues immediately. When assets, such as buried (linear) infrastructure assets are replaced in this way, they are also not able to be coordinated and bundled with other adjacent corridor assets, which means the County cannot take advantage of the cost savings associated with bundled projects.

Furthermore, if infrastructure needs are not addressed, an increase in maintenance costs will likely be experienced, as the County will require additional resources and funds to maintain assets that are aged and at a higher risk of failure.

In cases where the County is able to meet its needs, or if the County elects to increase funding to achieve service level targets sooner, it should be noted that annual funding allocations should not change. Rather, excess funding should be allocated towards reserves. By maintaining healthy reserves, the County will have a buffer to ensure that funding can be provided in future years where needs are higher, and to aid in tax stabilization in future years.

The lifecycle strategies used within the forecasts outline when activities should be performed on the County's assets based on their condition score or age. Some assets may be allowed to run to failure before being replaced, while other assets may be replaced earlier in their lifecycle. This defines the level of service being provided based on condition and can be adjusted to balance risk tolerance and availability of funding.

These lifecycle strategies are also continuously being improved to better reflect how the County manages assets and improving data quality to better capture the actual state of the assets. The next steps in terms of asset management planning will be to define the proposed levels of service, which will include confirming the preferred condition or performance targets for the lifecycle strategies or modifying the level of service metrics. While high risk assets should have a high level of service and not be allowed to run to failure, it may be possible that levels of service may be reduced for some assets that do not need to be renewed or replaced as frequently, reducing the forecasted spending requirements.

12 IMPROVEMENT PLAN

The County's 2024 AMP is an integral part of its AM System, which dictates the business practices and processes that make-up Asset Management at the County. An integral part of any AM system is the concept of continual improvement. This is a mechanism where the outputs of the AM system, including this AMP, provide inputs into the remainder of the components of the system to inform the continued improvement and increased maturity of the overall system.

Throughout the development of this AMP, opportunities for continual improvement have been identified. The following section summarizes these opportunities and provides observations and recommendations to apply continual improvement practices into the strategies that support this AMP. This will advance the maturity of AM at the County, as well as the maturity of future AMPs. This will also assist the County in advancing some of the additional components of this AMP to meet future milestone requirements of O.Reg. 588/17.

The Improvement Plan is divided into sections, following the key content sections that support this AMP. Appropriate AM strategies are that are affected by continual improvement are also referenced.

The County's Asset Management program is well developed and has a level of maturity that ensures that it has the appropriate systems and data in place to meet the requirements of O.Reg. 588/17. Throughout the course of the development of this AMP, the County has concurrently developed level of service, lifecycle management, and risk management strategies, which have assisted in producing the content of this AMP. These strategies were designed so that they could be standardized and applicable to all asset classes, not just the asset classes featured in this AMP.

12.1 State of the Infrastructure

The County's state of the infrastructure assessment is based on its wealth of asset data that has been collected and maintained over the years to support asset management.

- Increase the County's data maturity by collecting additional data to fill gaps.
- Continue to collect and update asset data.

12.2 Levels of Service

The County has developed its level of service strategy, in line with the requirements of O.Reg. 588/17. For this 2024 AMP, the County does not specify its proposed levels of service; however, the County will be required to report on proposed levels of service to meet the 2025 O.Reg. 588/17 milestone.

- In order to establish proposed levels of service, the County should understand both the internal (organizational) and community objectives and needs with respect to its services.
- First, the County may consider recording current levels of service annually, to develop a historical compendium of LOS information. This can be used to understand the effectiveness of each LOS measure in categorizing service objectives, and the responsiveness of this LOS measure to infrastructure investments. Over time, this will allow the County to understand what "target" or "proposed" service level is optimal to ensure that the County can provide the best possible service to the community.
- Second, the County should consider further engagement of the community to communicate its LOS strategy, and solicit feedback on service levels, and infrastructure investments that are tied to those service levels. By doing this, the County may understand both the internal and community-based drivers for setting target, or "proposed" levels of service. Also, with these efforts the County will continue to endorse transparency in County decision-making.
- In addition to developing proposed levels of service, the County should also endeavour to continue to collect data to support its level of service strategy and expand on identified future metrics.

12.3 Lifecycle Management Strategy

The County's lifecycle strategies are based on lifecycle activities and lifecycle models, which mathematically model asset deterioration and common lifecycle interventions. Where possible, the models were based on a review of historical condition data. Many of the models were based on or supported by professional judgment and expertise. Wherever possible, developing models based solely on asset historical condition data is preferable.

- Continue to collect asset condition data, and use it to validate existing lifecycle models, modify existing lifecycle models or develop new lifecycle models.
- Ensure that appropriate asset data is also collected and tied to the observed condition data, such as asset type, number of past asset interventions/rehabilitations, asset age, etc.
- Wherever possible, develop lifecycle models based on a review of historical asset data, as opposed to professional judgment
- Continue to collect asset intervention costs digitally, and tie them to asset classes, to increase the maturity of forecasting costs.

13 AMP ADMINISTRATION

Several important AMP administration and maintenance items are in place, in alignment with responsibilities the County's Asset Management Policy and the legislation.

13.1 Risks and Mitigations

This section summarizes the risks associated with the asset management assumptions and approaches used in this AMP. Risks are described below, and potential mitigation strategies are also discussed.

Data Confidence

The asset management analyses completed as part of this AMP are reliant on the County's asset and financial data. The confidence of that data affects the confidence of the results of each analysis. Data confidence, with respect to key asset management data, is detailed for each major asset class in the sections above. Overall, data completeness and confidence is continually improving at the County.

The County continues its strategy to update, maintain and improve asset data, which has been developed as part of this AMP development.

Due to the general confidence of the County's data, this risk is considered to be low.

Funding and Costs

Through the analyses within this AMP, the County has identified assets that may require additional funding in order to continue current levels of service. It is not always possible or practical to obtain this funding, particularly in cases where the shortfall is large.

The current environment also contains a degree of uncertainty, due to recent events that include the economic environment that has seen inflation rise to multi-year highs at the time of writing of this AMP. These uncertainties may result in economic pressures that could increase the financial impact of maintaining and replacing infrastructure.

Climate Change

Climate change also poses a significant risk to the County. The effects of climate change could result in impacts to assets that would require additional funding from the County to address. Impacts could include increased risk of failures, accelerated deterioration or a reduction in capacity of some assets that are impacted by the effects of climate change.

Climate change hazards, including increased precipitation, heat waves and other changes to the elements could change the County's needs and ultimately result in impacts to its financial strategy.

It is recommended that the County continues to include climate change considerations in its planning decisions and strategies, to ensure that the County continues to prepare and remain agile.

13.2 Endorsement and Approval

This AMP has been endorsed by the executive lead (CAO) and approved by a resolution passed by Council.

13.3 Update of Asset Management Plans

The AMP due in 2025 that includes proposed levels of service will require review and updating at least every five years. Until that time, the County will endeavour to review and update this AMP, especially to include legislative requirements as they come due.

13.4 Review of Asset Management Planning Process

The AMP due in 2025 that includes proposed levels of service will require annual Council review.

Until that time, the County will endeavour to facilitate Council conducting an annual review of its asset management progress on or before July 1 of each year. This review will include:

- The County's progress in implementing its asset management plan;
- Any factors impeding the County's ability to implement its asset management plan; and
- A strategy to address such factors.

13.5 Public Communication

Financial Services is responsible for posting the current AM Policy and AMP on the County website. Additionally, they also provide a copy of the Policy and AMP to any person who requests it.

Through Engineering, background information and reports used for State of Infrastructure information in this AMP is made available to the public to any person who requests it.

As noted in the AM Policy, asset management planning is aligned with the County's Official Plan, and methods used in the initiatives documented in the County's Official Plan are available in preparation of the AMP.

The County recognizes the residents, businesses and institutions in the County as stakeholders and other municipal bodies, provincial agencies, and regulated utilities as partners in service delivery. Accordingly, the County will foster informed dialogue with these parties using the best available information and engage with them by:

- Providing opportunities for residents and other stakeholders served by the County to provide input in the development of asset management plans; and
- Coordinating asset management planning with other infrastructure asset owning agencies such as municipal bodies and regulated utilities.