Leeds Grenville

Where Lifestyle Grows Good Business

United Counties of Leeds and Grenville

Asset Management Plan 2022

Final

October 2022

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Acronyms, Abbreviations, Definitions

An abbreviation and an acronym are both shortened versions of something else. Both can often be represented as a series of letters. Many people are unable to tell the difference between an abbreviation and an acronym.

°C	degrees Celsius
a.m.	ante meridiem
AADT	average annual daily traffic
ALOS	Asset Level of Service
AM	Asset Management
AMP	Asset Management Plan
AODA	Accessibility for Ontarians with Disabilities Act
BCI	Bridge Condition Index
Bldg	Building
C	climate change factor
CAO	Chief Administrative Officer
CDN	Canadian Dollars
CLOS	Community Level of Service
Corp	Corporation
Counties	United County of Leeds and Grenville
CSA	Canadian Standards Association
CSP	Corrugated Steel Pipe
DMI	Distress Manifestation Index

DPSS	Dillon Predictive Scenario Software
e.g.	exempli gratia (for example)
ES	Executive Summary
etc.	etcetera (and so forth)
FCM	Federation of Canadian Municipalities
HCB	High Class Bituminous
i.e.	id est (that is)
ID	identification
IT	Information Technology
km	kilometre
KPI	key performance indicator
LCB	Low Class Bituminous
LED	light-emitting diode
LOS	Level of Service
Ltd.	Limited
m	metre
M	million
m^2	square metre
Maint	maintenance
Max	maximum
Min	minimum
MOE	Ministry of the Environment

MTO	Ontario Ministry of Transportation
MVL	Maple View Lodge
N	North
N/A	Not Applicable
No.	number
O & M	Operations and Maintenance
O. Reg.	Ontario Regulation
OSIM	Ontario Structure Inspection Manual
PCI	Pavement Condition Index
p.m.	post meridiem
PW	Public Works
Qty	quantity
RCR	Ride Comfort Index
Reconst	reconstruction
Rehab	rehabilitation
SD&G	Stormont Dundas and Glengarry United Counites
St	street
sq.	square
UCLG	United Counties of Leeds and Grenville

Executive Summary

The United Counties of Leeds and Grenville (UCLG or Counties) is updating its 2018 Asset Management Plan (AMP) in alignment with the Counties' Strategic Asset Management Policy (By-Law No. 18-63) and the new regulation guiding municipalities in the development of asset management plans (O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure and as amended by O. Reg. 193/21), as the regulatory requirement is to update their plan at least every 5 years.

Overview of the AMP

The Introduction (**Section 1.0**) presents an overview of key concepts of asset management such as the State of Local Infrastructure, Levels of Service, Risk Assessment, and concludes with a Roadmap with Next Steps.

This is followed by as section on Growth within the Counties (**Section 2.0**)

The core assets included in the AMP are:

- Roads (**Section 3.0)**; and
- Bridges and Culverts (**Section 4.0**)

The non-core assets included in the AMP are:

- Community Housing (**Section 5.0**);
- Fleet (**Section 6.0**);
- Buildings and Facilities (**Section 7.0**); and
- Equipment (**Section 8.0**)

The final chapter is the Financial Strategy (**Section 9.0**).

Policy Alignment

This asset management plan was developed in alignment with the Counties' Strategic Asset Management Policy (By-Law No. 18-63).

The purpose of the policy is to formalize the Counties' commitment to asset management by aligning asset management principles with the Counties strategic goals and objectives.

Consistent standards and guidelines for management of the County's assets applying sound technical, social and economic principles that consider present and future needs of users, and the service expected from the assets. This means leveraging the lowest lifecycle cost of ownership with regard to the service levels that best meet the needs of the community while being cognizant of the risk of failure that is acceptable.

Within the policy the County states the importance of strategic alignment with other planning documents at the County, namely a Strategic Plan, a Financial Plan, the Community Plan, the Sustainable Development Plan, the Climate Change Plan, an Official Plan, an Emergency Response Plan, and an Asset Management Plan. These plans were designed to meet the legislative requirements and work together to achieve the County's mission of providing innovation and excellence in service delivery. These plans will be reviewed regularly by staff and annual spending requirements in support of the plans' objectives will be incorporated into the budgeting process. All of the County's plans rely to some extent on the physical assets owned by the County and the commitment of staff to ensure their strategic use. This includes the long-term maintenance, repair, and replacement of existing assets along with the acquisition of new assets to meet the evolving needs in the County.

Stakeholder Engagement: As established in the policy, the County recognizes the importance of stakeholder engagement as an integral component of a comprehensive asset management approach. The Counties commit to provide opportunities for residents and other stakeholders serviced by the County to provide input into asset management planning.

This was achieved through workshops with staff and a public engagement on-line survey on levels of service.

Regulatory Alignment

The 2022 AMP is an update to the 2018 AMP which was in alignment with the new regulation, **O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure**. The regulation requires the following four phases of compliance:

1. By July 2019: Municipalities to have a strategic asset management policy.
2. By July 2022: All core assets to be covered in the asset management plan with current Level of Service (LOS). Core assets include water, wastewater, stormwater, roads and bridges/culverts.

3. By July 2024: All assets owned by the municipality to be covered in the AMP. Non-core assets include buildings, fleet and equipment as well as green infrastructure assets.
4. By July 2025: Municipalities will have approved proposed LOS and the lifecycle management and financial strategy for 10-year period to achieve the proposed LOS.

The current edition of the AMP meets phase 3 and 4 requirements with the exception of natural assets.

Future updates could include green infrastructure assets (i.e. natural assets) owned by the Counties and further assessment on infrastructure vulnerability to the impacts of climate change.

Inclusion of all assets owned by the Counties provides an overview of what is needed to continue to deliver the services required of the community in the future. The asset management plan identifies the required investments to maintain service delivery for the next 10 years. The plan will be updated on an ongoing basis with the availability of new information and the regulation requires annual reporting to Council on the progress (and barriers) to implementing the AMP.

Roadmap with Next Steps

In future updates of this report a recommendation to the Counties would be to implement an updated Building Condition Assessment program for both their Community Housing and Building and Facilities assets. Since completion of the pervious Building Condition Assessment program, in 2019, several buildings, namely Sand and Salt domes have been added to the Facilities asset category. As well, the single-family homes within the Community Housing asset category would benefit from this program to ensure the entire asset has been captured with respect to a component breakdown of each unit to assist with the maintenance activities and cost tracking for these components. Given the complicated nature of assessing these dwellings from a component stand point and the time commitment needed in this assessment, it is recommended the Counties has a third party to facilitate this work.

Future updates could also include green infrastructure assets (i.e. natural assets) owned by the Counties and further assessment on infrastructure vulnerability to the impacts caused by climate change related to operations, levels of service and lifecycle management.

State of Local Infrastructure

Each section on the State of Local Infrastructure sets out the following:

- A summary of the assets in the category;
- The replacement cost of the assets in the category;
- The average age of the assets in the category, determined by assessing the average age of the components of the assets;
- The information available on the condition of the assets in the category; and,
- A description of UCLG's approach to assessing the condition of the assets in the category, based on recognized and generally accepted good engineering practices where appropriate.

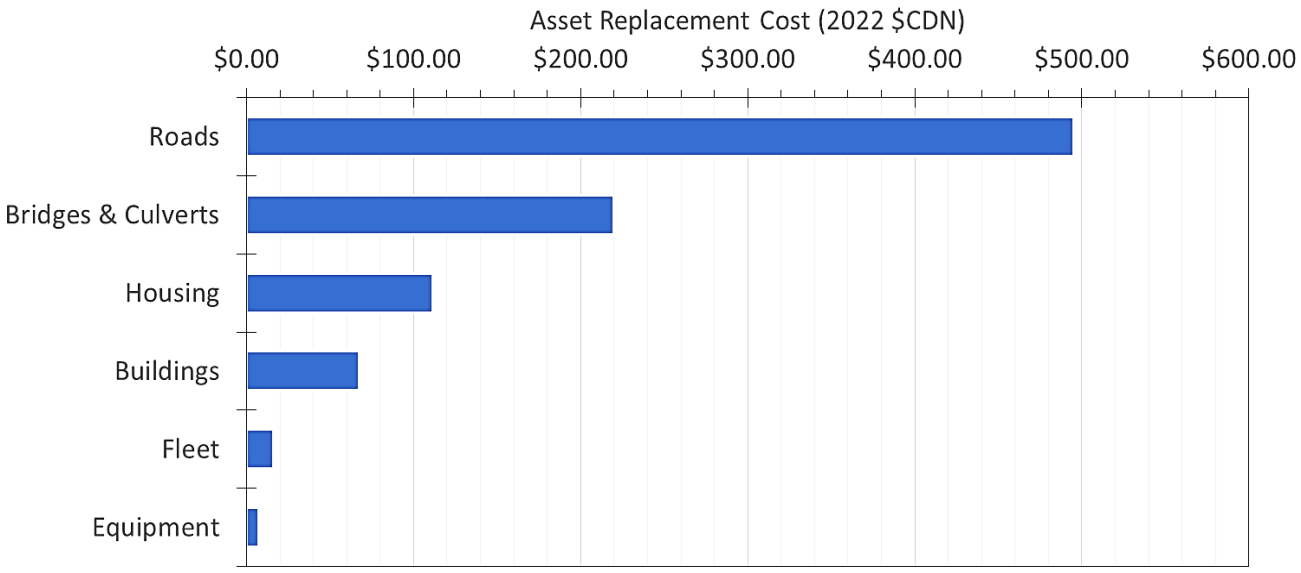
Asset Inventory

UCLG maintains comprehensive databases of their assets including detailed attributes of the assets. The inventory was compiled prior to initiation of this work and updated throughout the work as needed, and was provided by UCLG. The inventory is maintained in the WorkTech computerized maintenance system and in excel files. The inventory includes assets that are owned by UCLG that provide services in the following asset categories: Roads; Bridges and Culverts; Community Housing; Fleet; Buildings and Facilities; and Equipment.

Asset Replacement Costs

The total replacement cost for the Counties infrastructure assets is: $925.9 million (in 2022 dollars). The distribution of this replacement cost is shown in **Figure ES-1** with roads, bridges and culverts making up 64% of the replacement costs.

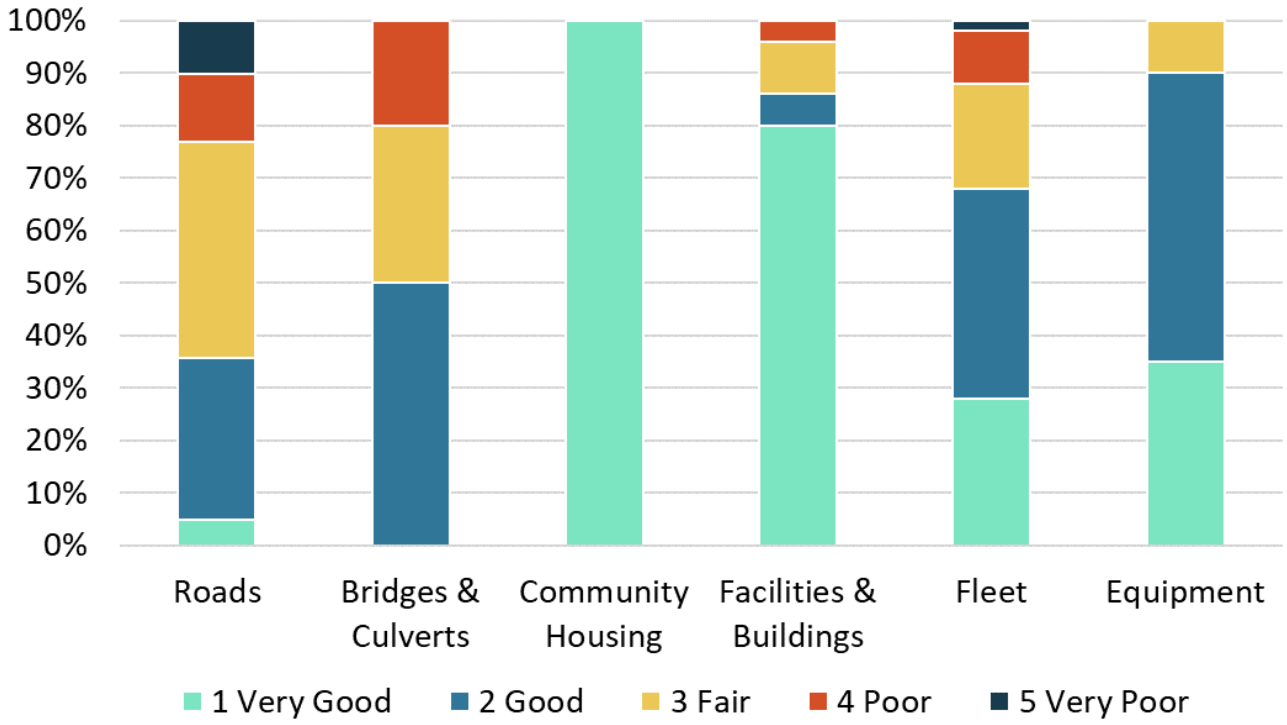
Figure ES-1: Asset Replacement Cost



Asset Condition Summary

A summary of the condition for each of the Counties infrastructure assets is shown in **Figure ES-2**. On average, 21% of the Counties infrastructure assets have a condition rating of Very Good, 35% have a condition rating of Good, 24% have a condition rating of Fair, 9% have a condition rating of Poor, and 10% have a condition rating of Very Poor.

Figure ES-2: Asset Condition



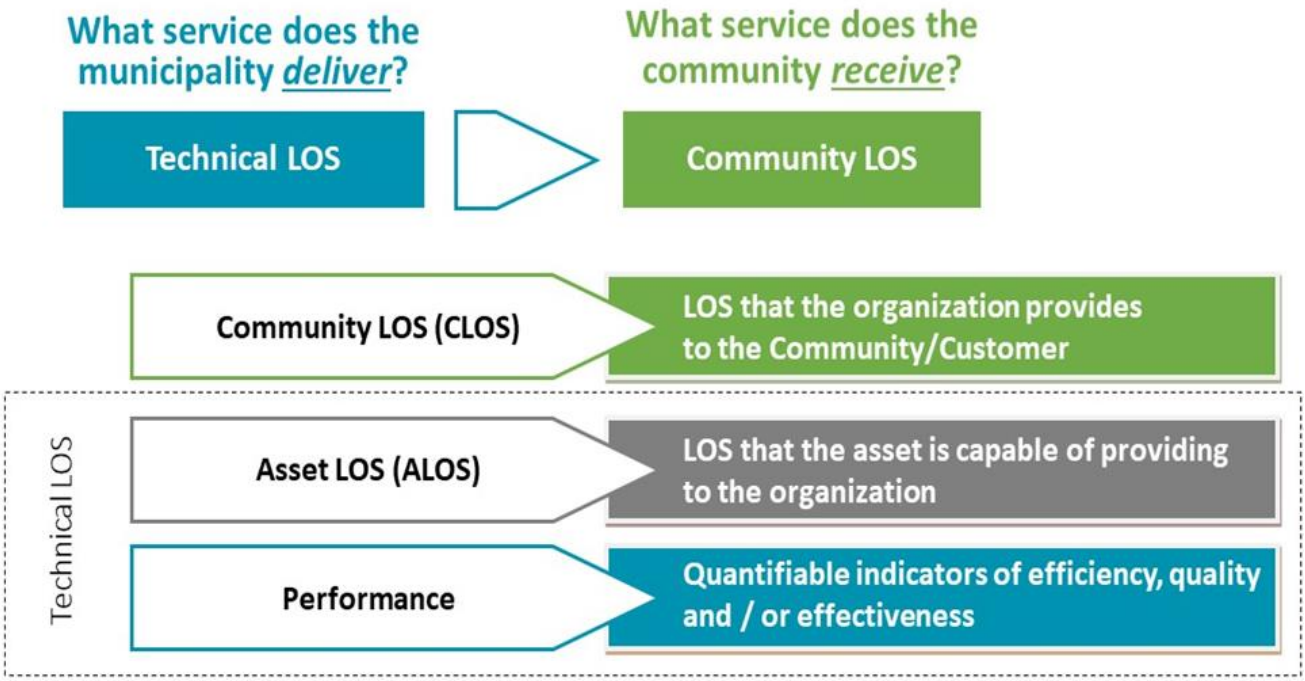
Levels of Service

The current and proposed levels of service are described in terms of technical metrics and qualitative descriptions for each asset type. These measures are prescribed for core assets (including roads, and bridges and culverts) within O. Reg. 588/17.

Levels of Service (LOS) are presented in **Figure ES-3** and defined as follows:

- **Community LOS**: LOS that the organization provides to the community, intended to be customer-focused, providing a qualitative description of scope and quality; and,
- **Technical LOS**: LOS that the asset is capable of providing to the County which is further measured by the performance of the asset, providing technical metrics that support the delivery of LOS.

Figure ES-3: Levels of Service (Community LOS, Technical LOS and Performance)



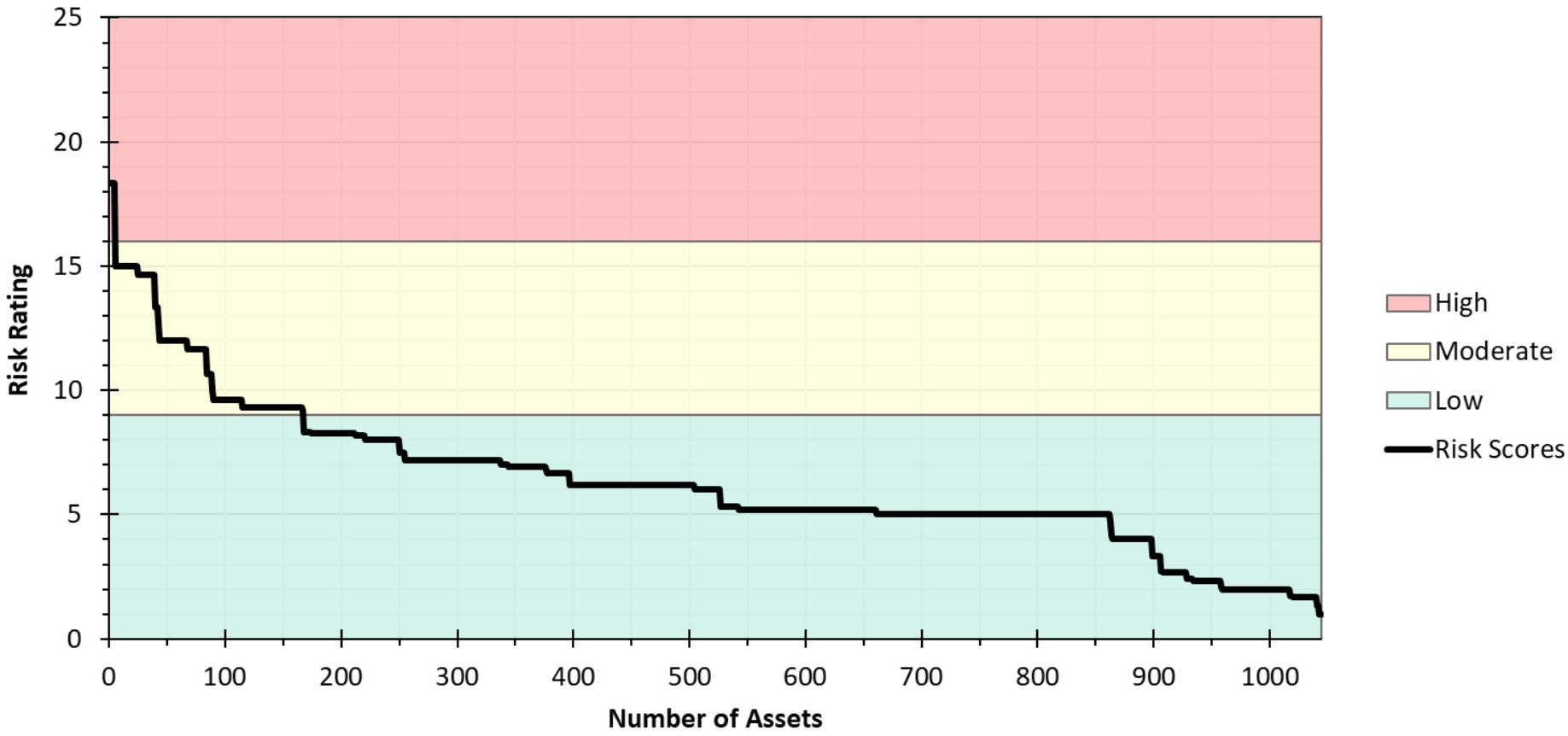
The current and proposed LOS are described in terms of technical metrics and qualitative descriptions for each asset type. These descriptions are prescribed for core assets (including roads, and bridges and culverts) within Ontario Regulation (O. Reg.) 588/17.

Through the AMP development, UCLG sought to establish current and proposed LOS, in accordance with O. Reg. 588/17 for core assets. For the non-core assets included within this AMP, UCLG sought to define and establish current and proposed LOS in line with the intent of O. Reg. 588/17.

As part of this process, UCLG undertook education and working sessions with internal stakeholders, and provided a survey for public feedback to understand level of service concepts, and gain understanding of public perception of the levels of service and the public's expectation for service delivery.

Risk Profile

Figure ES-4: Risk Profile for all Assets



Of the approximate 1045 assets tracked within the Counties asset management data only four (4) are classified as High risk rating and approximately 163 as Moderate risk rating. These assets are considered high and moderate priorities for the implementation of lifecycle activities and possible replacement. The remaining assets are considered Low risk rating.

Acknowledgements

The consulting team would like to express our appreciation to the staff of the Counties for their cooperation and input to this update. We acknowledge their commitment and flexibility to contribute to this project despite the challenges brought into daily operations as a result of the COVID-19 global pandemic.

Project Team

- Katie Clarke, Manager of Accounting/Deputy Treasurer
- Mike Hanna, Asset Manager Coordinator
- Pat Huffman, Treasurer

About this Report

Dillon Consulting Limited was retained by the United Counties of Leeds and Grenville to conduct an update to their Asset Management Plan to meet the requirements of O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure and as amended by O. Reg. 193/21.

Consulting Team

- Darla Campbell, Project Manager
- Liza Guilbeau, Asset Management Coordinator
- Kaelee Oxford, Technical Lead
- Peter Simcisko, Financing Strategy Lead, Watson & Associates Economists Ltd.

1.0 Introduction

The United Counties of Leeds and Grenville (UCLG or Counties) is updating its 2018 Asset Management Plan (AMP) in alignment with the County's Strategic Asset Management Policy (By-Law No. 18-63) and **O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure**.

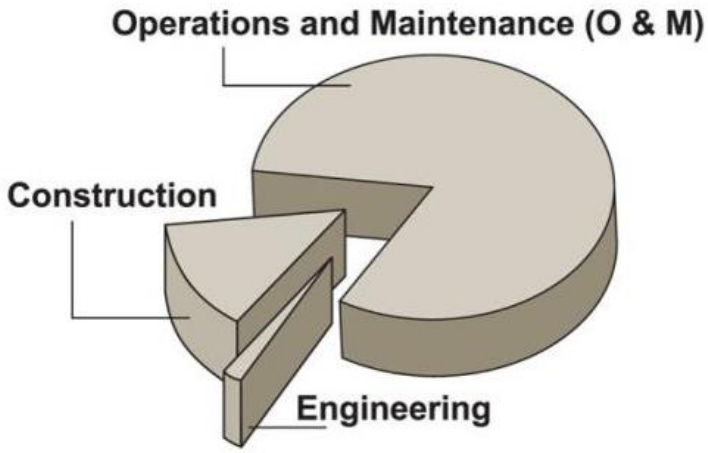
The AMP documents UCLG's assets and strategies based on known information at the time of writing the report. This plan is prepared in 2022 and is a snapshot of a period prior to June 2022. Assets will continue to deteriorate and investments will be required to improve the condition and extend the useful life of the infrastructure, to meet the "fit for purpose" measure of the assets in delivery of the services and meeting (or moving towards) the proposed levels of service established by the Counties.

1.1 Asset Management Overview

Asset management is a process of making the best possible decisions regarding the creation, maintenance, renewal, rehabilitation, disposal, expansion and procurement of infrastructure assets. The objective of asset management is to maximize the benefits of the assets, minimize risk and provide satisfactory levels of service to the public in a sustainable manner. It considers risks related to the lifecycle of the assets and requires a multi-disciplinary team of planning, finance, engineering, technology, maintenance and operations.

Asset management considers the full lifecycle of the infrastructure, not just the initial cost for designing and constructing the asset (20%), but the operations and maintenance each and every year (80%). See **Figure 1-1**.

Figure 1-1: Lifecycle Approach (Infraguide 2005)



The provision of reliable infrastructure is crucial for ensuring that UCLG can continue to deliver sustainable services to its current residents and to accommodate growth in a manner which is environmentally, socially and economically sustainable.

To ensure that UCLG is able to provide infrastructure that meets the needs of residents now and in the future UCLG has developed and implemented an asset management plan. The intent of the asset management plan is to identify the technical and financial needs of assets well in advance of a major asset renewal or replacement so that UCLG is able to plan for these major projects should the timing and the needs coincide.

1.2 Overview of the AMP

This introduction includes an overview of key asset management principles: State of Local Infrastructure, Levels of Service, Risk Assessment and Lifecycle Strategies. There is a separate section on Growth, (**Section 2.0**).

The core assets included in the AMP are presented in **Table 1-1**.

Table 1-1: Core and Non-Core Assets

Core Assets	Non-Core Assets
• Roads (Section 3) • Bridges and Culverts (Section 4)	• Community Housing (Section 5) • Fleet (Section 6) • Buildings & Facilities (Section 7) • Equipment (Section 8)

Each asset category presents the following topics:

- State of Local Infrastructure;
- Condition;
- Current Levels of Service;
- Current Performance;
- Risk Assessment;
- Lifecycle Activities; and,
- Asset Management Strategy

The final chapter is the Financial Strategy (**Section 9.0**).

1.2.1 Policy Alignment

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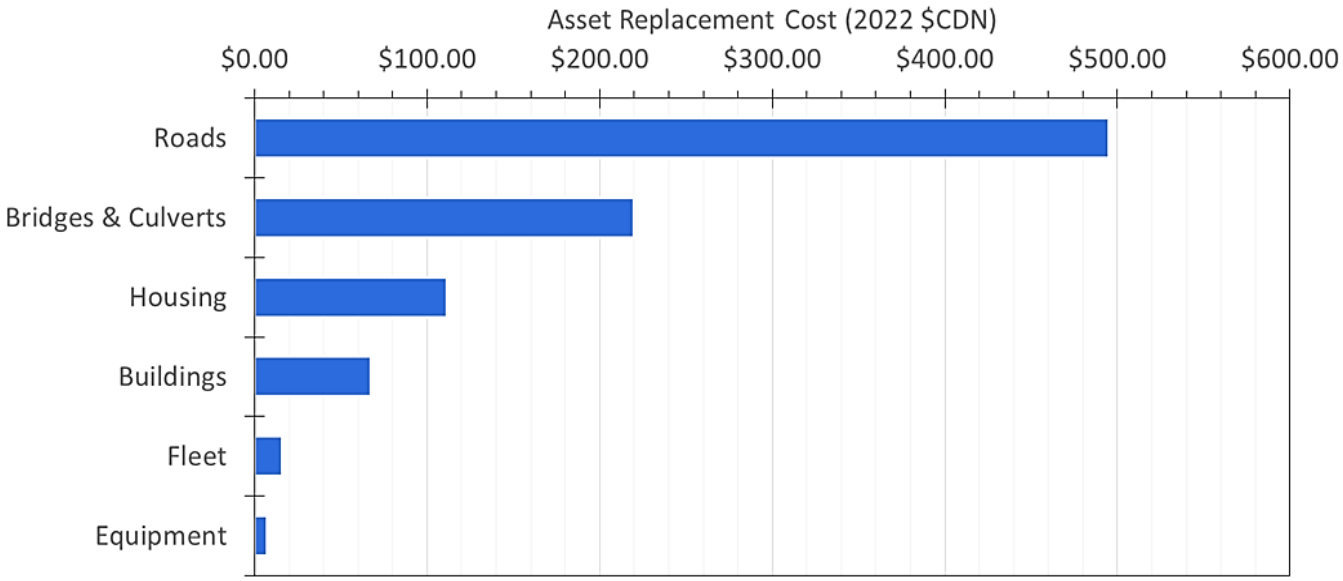
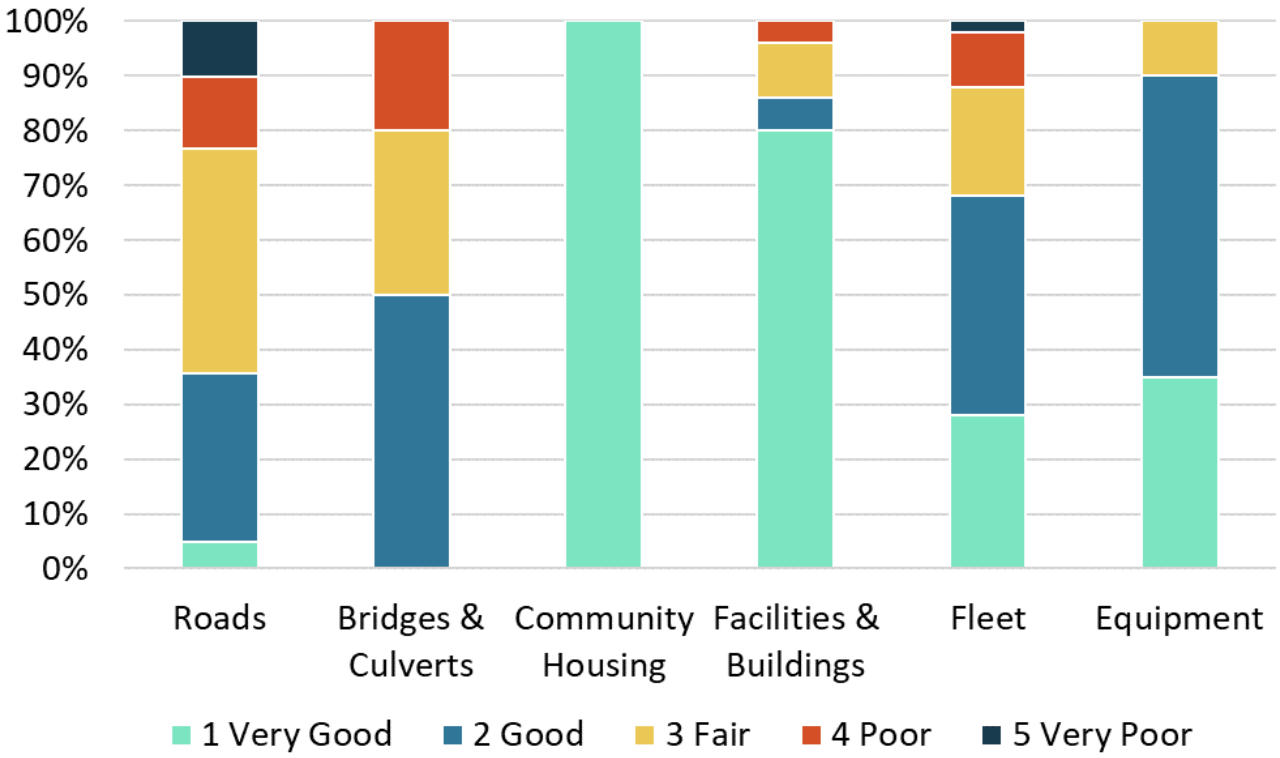
Figure 1-2: Asset Replacement Cost



1.3.3 Asset Condition Summary

A summary of the condition for each of the Counties' infrastructure assets is shown in **Figure 1-3**. On average, 21% of the Counties' infrastructure assets have a condition rating of Very Good, 35% have a condition rating of Good, 24% have a condition rating of Fair, 9% have a condition rating of Poor, and 10% have a condition rating of Very Poor.

Figure 1-3: Asset Condition



1.3.4 Asset Hierarchy

The asset hierarchy defines the tiers of asset componentry. Each type of asset, both complex and linear, can have its assets defined and inventoried at a high level, or with increased component detail. The County currently tracks their assets to a subcomponent level. An example of the componentry within the roads is shown in **Table 1-2.** The components of the assets have been defined with their category, assets, components and subcomponents.

Table 1-2: Asset Hierarchy Example

Asset Category	Asset Component	Subcomponent
Roads	Road Base Road Surface	Shoulders Street lights

For this Asset Management Plan, the analysis will focus on assets at the 'asset component' level for the assets, with the expectation that the condition and replacement of the components and subcomponents will be consistent with the linear

assets. This is predicated on the assumption that all other elements included in the system are required componentry that will be replaced in conjunction with the linear components, and are expected to have similar lifespans and conditions as the linear components.

Buildings and facilities are considered complex assets. Complex assets are classified as assets which have various components which will be considered within the AMP. The components that will be included in the AMP are described in the buildings and facilities chapter of this report.

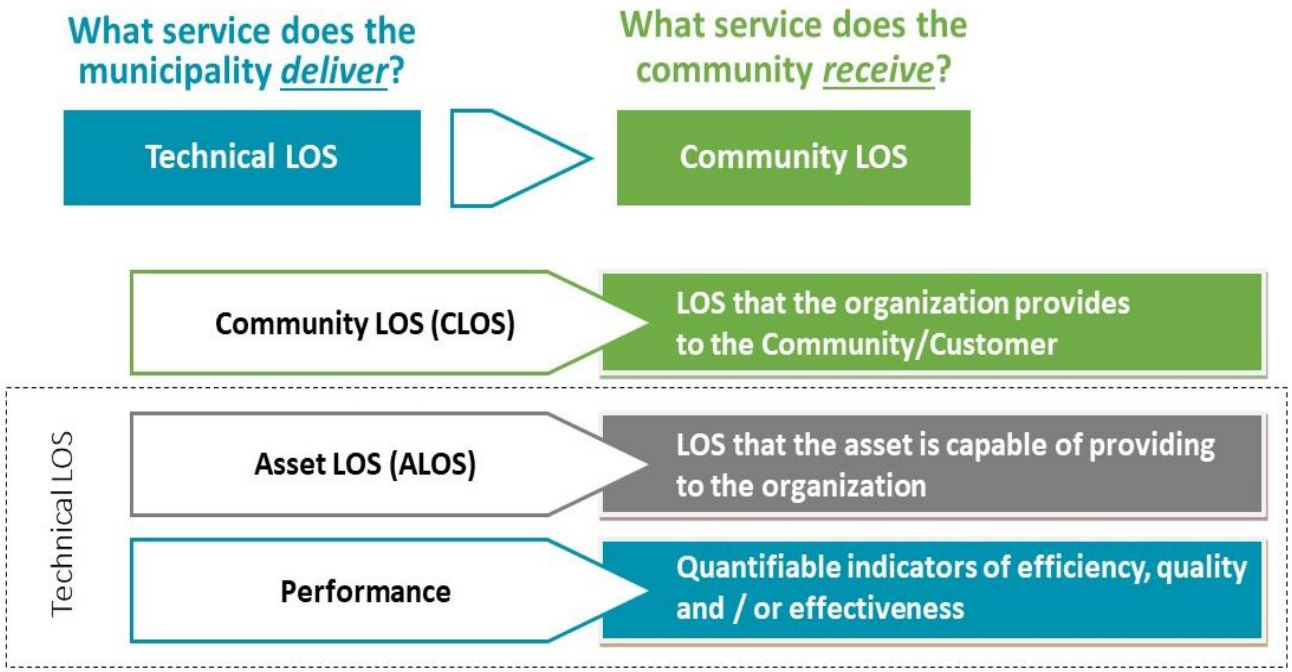
1.4 Levels of Service

The current and proposed levels of service are described in terms of technical metrics and qualitative descriptions for each asset type. These measures are prescribed for core assets (including roads, and bridges and culverts) within O. Reg. 588/17.

Levels of Service (LOS) are presented in **Figure 1-4** and defined as follows:

- **Community LOS**: LOS that the organization provides to the community, intended to be customer-focused, providing a qualitative description of scope and quality; and,
- **Technical LOS**: LOS that the asset is capable of providing to the County which is further measured by the performance of the asset, providing technical metrics that support the delivery of LOS.

Figure 1-4: Levels of Service (Community LOS, Technical LOS and Performance)



The current and proposed LOS are described in terms of technical metrics and qualitative descriptions for each asset type. These descriptions are prescribed for core assets (including roads, and bridges and culverts) within Ontario Regulation (O. Reg.) 588/17.

Through the AMP development, UCLG sought to establish current and proposed LOS, in accordance with O. Reg. 588/17 for core assets. For the non-core assets included within this AMP, UCLG sought to define and establish current and proposed LOS in line with the intent of O. Reg. 588/17.

As part of this process, UCLG undertook education and working sessions with internal stakeholders, and provided a survey for public feedback to understand level of service concepts, and gain understanding of public perception of the levels of service and the public's expectation for service delivery.

1.4.1 LOS Workshop

A workshop was held with staff from UCLG, representing departments across the organization, including Housing, Engineering, Paramedic Services, Information

Technology (IT), Facilities, and Administration. The workshop was held on March 3, 2022 through online delivery.

During the LOS of workshop, the concepts of Levels of Service were discussed, including definition of levels of service, impacts of changes to levels of service, and barriers to delivering the service.

The workshop included discussion regarding current Levels of Service at UCLG, conducting individual group discussions to identify important parameters for defining service delivery, and local issues and efficiencies for delivery.

1.4.2 LOS Community Survey

The Counties undertook a community survey to receive feedback and information regarding Levels of Service in the community.

The purpose of the community survey was to engage with members of the public about levels of service related to asset management in the County, related to service delivery associated with the asset categories included within this plan. The survey solicited feedback on:

- Overall satisfaction with municipal services;
- Suggestions for service improvements;
- Expectations for levels of municipal services;
- Willingness to pay to maintain or increase services; and,
- Service priorities for funding allocation.

The survey was advertised with a notice in a mail out and was available on the Counties' website from March 22, 2022 to April 6, 2022. The community could request a printed copy of the survey or directly participate with the online survey. The survey was completed by 148 respondents with 88% of them being full time residents within the Counties. A summary of the survey results was presented in the report, **Asset Management Levels of Service Survey Summary (April 2022).**

The following are the overall themes and findings that emerged from the survey results:

- **Theme #1**: The community is generally satisfied with the programs and services provided by the Counties;

- **Theme #2**: The community feels that most of the services listed in the survey at this time do not need improvement at this time;
- **Theme #3**: The majority of respondents would like to receive services from the Counties at a "family diner" level of service, with moderate cost.
- **Theme #4**: Overall, majority of residents are willing to pay an increase or slight increase in taxes to maintain the current levels of services.
- **Theme #5**: The services that should be prioritized are County Roads and Winter Control of those County Roads, and Paramedic Services.
- **Theme #6:** On a future scenario about addition of paved shoulders, the majority of responses indicated that it was not important, with only 39% being favourable towards importance.

1.4.3 Proposed LOS

The proposed Levels of Service (LOS) is an established target for the Counties' LOS, set to guide the Counties in their current and future asset management. Proposed Levels of Service are a requirement for compliance with O. Reg. 588/17. The Proposed LOS established within this report relates to the target to be achieved in 10-years, the year 2032.

To establish the proposed Levels of Service, the Counties established the current level of service, and sought input from the Counties' staff, public (through levels of service survey), and Council to understand the preferred levels of service targets.

Through the process, three scenarios were generally considered for proposed levels of service, each a considering a different level of investment to the infrastructure, and the corresponding impact it will have on the level of service being provided. The scenarios considered included the following:

- No change in funding – LOS would decrease over time
- Increase in funding – LOS would be maintained over time
- Greater increase in funding – LOS would increase over time (increase would vary depending on funding increase)

Direction received from Counties' staff indicated that the current Levels of Service were generally found to be sufficient, however there are some parameters that will have

improved LOS targets. Accordingly, the proposed Levels of Service targets for 2031 have been identified, maintaining the established LOS values from 2022 or slightly improving (rounding up). Proposed Levels of Service are summarized in **Table 1-3**. And described for each asset category in the sections that follow.

Table 1-3: Proposed Levels of Service for 2032

Asset Service	LOS Parameter	LOS Measure	2022 LOS Delivered	Proposed LOS for 2032
Paved Roads	Quality	Average pavement condition index (PCI)	69.5 (fair)	70 (fair) or better. New Construction to include paved shoulders.
Bridges and Culverts	Quality	Average bridge condition index (BCI) value	68.4 (fair)	68.4 (fair) or better
Community Housing	Reliability in housing	Provide rent-geared to income units within the Counties, with minimal maintenance requests and minimal waitlist time	683 rent-geared to income properties available, number of maintenance calls is 1182, wait time is 1.1701 years.	683 rent-geared to income properties available.
Fleet	Reliability	Maintained in good or better condition	52% of Fleet considered 'good', 16.5% considered 'very good'. EMS Fleet – all vehicles considered in 'good' or better condition.	75% of fleet considered 'good' or better condition. EMS Fleet – all vehicles considered in 'good' or better condition.
Buildings and Facilities	Customer Satisfaction	MVL occupancy rate and staffing. Energy efficiency and consumption of greenhouse gases.	MVL Occupancy rate 95%, experiencing staffing shortages.	MVL has a target occupancy rate of 98%. 100% Energy Efficiency.

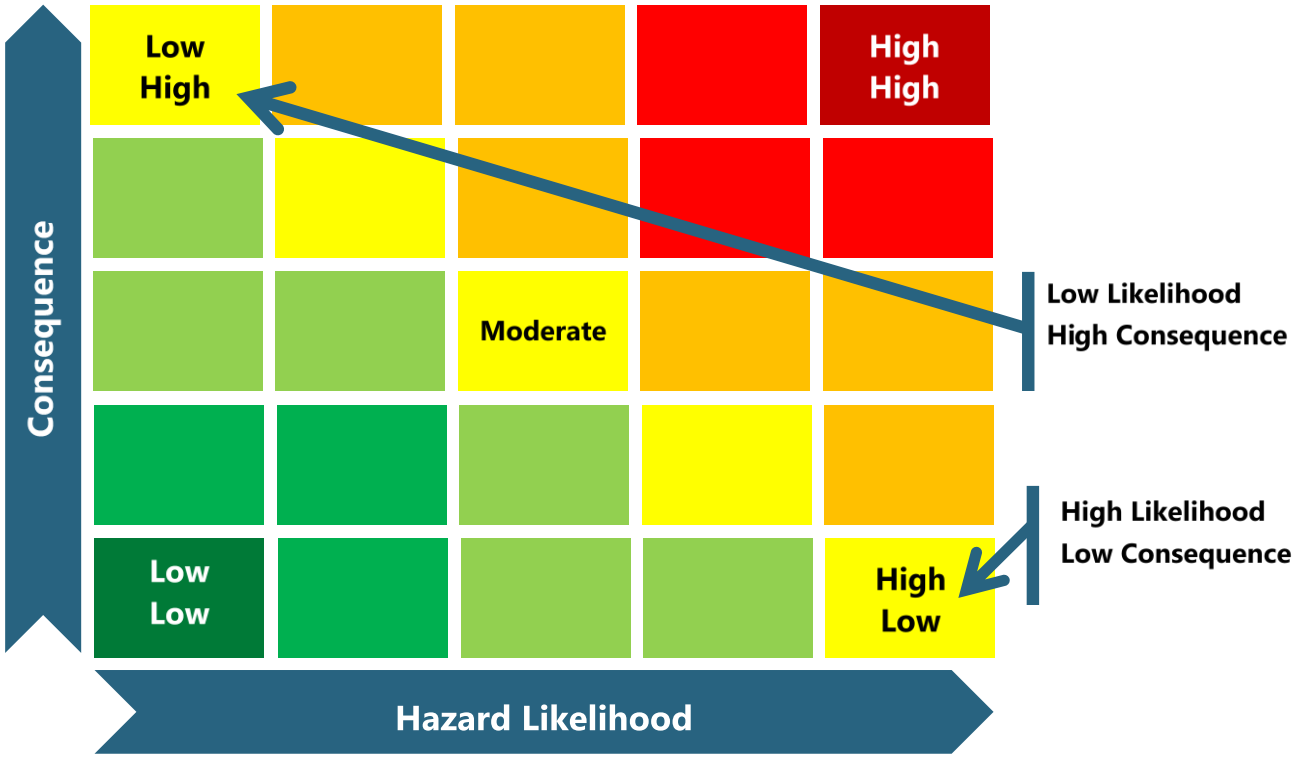
Asset Service	LOS Parameter	LOS Measure	2022 LOS Delivered	Proposed LOS for 2032
Paramedic Equipment	Reliability	Equipment maintained in good or better condition.	All equipment maintained in 'very good' condition.	All equipment maintained in 'very good' condition.
MVL Equipment	Reliability	Equipment maintained in good or better condition	All equipment maintained in 'good' condition	All equipment maintained in 'good' condition
Information Technology Equipment	Reliability	System Availability (Ensuring Minimal down time and/or system interruption)	99.997%	100%
Miscellaneous Equipment	Reliability	Equipment maintained in good condition	60% of other equipment in 'good' condition, 33% of other equipment in 'fair' condition	75% of other equipment considered 'good' or better condition

1.5 Risk Assessment

In determining the lifecycle activities for each asset category and identifying the priority activities, the risks associated with the options are to be considered. The risk rating for each asset generates a risk profile for the entire asset category.

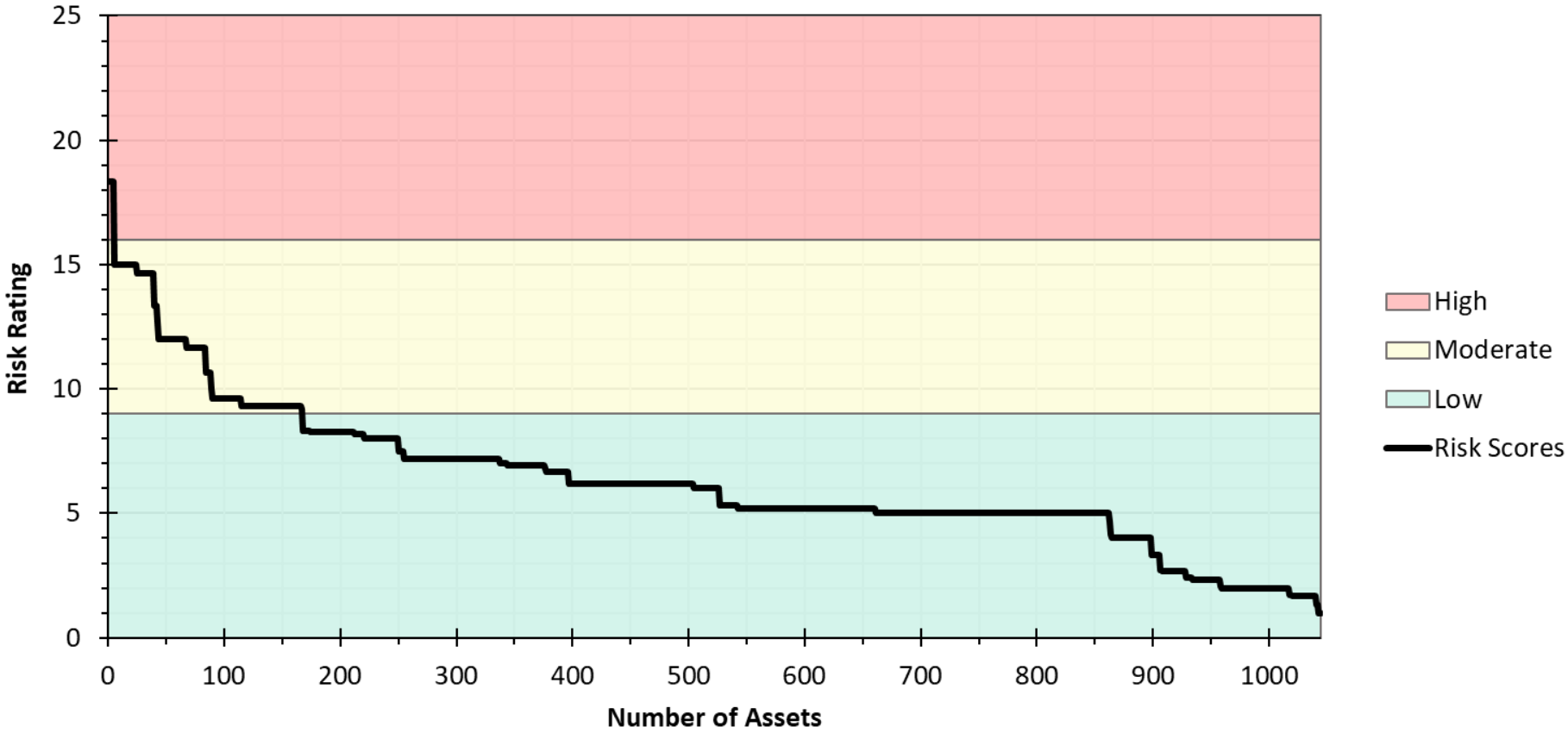
The assets with the highest risk rating identify the priorities for the County. As part of assessing risk, consider the factors that increase the likelihood of a hazard occurring (or non-delivery of service) and the consequence. **Figure 1-5** presents a risk "heat map" plotting likelihood and consequence.

Figure 1-5: Risk Heat Map



A priority rating has been developed based on the calculated risk rating and displayed in **Figure 1-6** as part of a 5 by 5 matrix. High risk ratings are shown in the red zone (risk rating 17 to 25), Moderate risk ratings are shown in the orange zone (risk ratings of 10 to 16) and Low risk ratings are in the green and yellow zone (risk ratings of 1 to 9).

Figure 1-6: Risk Profile for all Assets



The approach and methodology to risk assessment is presented in following sections. A risk profile for each asset category is presented in the corresponding sections for each asset category.

1.5.1 Risk Methodology and Approach

Risk assessment will be conducted for each of the asset categories within the AMP. The risk ratings for the assets follow the below risk methodology.

Risk is the likelihood and magnitude of a negative scenario (hazard) occurring that limits the ability of the asset to deliver the service. Risk is the consideration of asset failure and the consequence of the failure.

Risk = Likelihood x Consequence

Consequence considers the severity of the impact, vulnerability of the asset and exposure to the negative scenario.

Applying the methodology of a score of 1 to 5 for the hazard and the consequence, the maximum risk rating is 25 (high).

1.5.2 Calculation of Likelihood

The factors that contribute to the likelihood of failure include:

- A – Condition of the asset;
- B – Performance (reliability); and,
- C – Vulnerability to climate change.

See **Table 1-4** for description of these factors.

Table 1-4: Likelihood Factors

Factors	Low (1)	Moderate (3)	High (5)
A – Condition	Very Good (1)	Good (2); Fair (3)	Poor (4); Very Poor (5)
B – Performance	Always Reliable	Usually Reliable	Not Reliable
C – Climate Change	No or limited impact, quick recovery or mitigation in place	Limited impact with slower recovery; mitigation plan not in place	Moderate or high impact; no or limited mitigation plan

By separating condition and performance as two separate factors, there is an opportunity to consider assets in poor condition that may still be performing well, as well as good condition assets that are not performing well. The climate change factor brings into consideration assets that are vulnerable to climate change scenarios such as intense rainfall, increased temperatures, extreme weather and drought. The climate change rating includes any mitigation activities in the scoring which reduces the risk and lowers the score.

Therefore, the likelihood of failure is (A + B + C)/3 (i.e., the average of the factors, assuming they are equally weighted).

1.5.3 Calculation of Consequence

In calculating consequence, the question to consider is: What increases the impact of non-delivery (or failure of the asset)?

There are two factors that contribute to the consequence which are:

- D – Impact or severity; and
- E – Importance of the asset in delivering service.

Both impact and importance contribute to the consequence and will be multiplied by likelihood. The two ratings will be added together for the consequence maximum score of 5 (D+E). See **Table 1-5** for description of consequence factors.

Table 1-5: Consequence Factors

Factors	Low	Moderate	High
D – Impact	Low or no impact (0)	Moderate impact (1)	High impact (2)
E – Importance of the asset in delivering service	Low importance (1)	Moderate importance (2)	High importance (3)

The impact ratings were established by considering these five possible areas of consequence (as discussed in the Risk Workshop) and determining an overall rating of high, moderate or low by taking an average for the impact of:

- Safety/Injury;
- Financial Loss;

- Reputation with Stakeholders
- Environmental Damage; and,
- Loss of Service.

The importance ratings for assets are established in consultation with UCLG staff. The ratings established include assumptions and specific importance values for assets.

1.5.4 Calculation of Risk

The risk calculation for each of the assets is determined as follows:

Risk = Hazard x Consequence

Risk = (A + B + C)/3 x (D + E)

Where A = Condition

B = Performance

C = Climate Change

D = Impact

E = Importance of the asset

1.5.5 Climate Change

In the Risk Workshop, staff considered the following climate change scenarios and identified low, moderate or high vulnerability for assets in each asset category:

- Mean Annual Temperature;
- Number of Hot Days (> 25 °C);
- Heavy Snow Events;
- Heavy Rain Events;
- Extreme Weather Events; and,
- Occurrence and Magnitude of Flooding.

This information was used to inform the assignment of climate change factor (C) in the risk rating calculation for each asset component.

1.5.6 Limitation and Assumptions – Risk Assessment

Several key limitations and assumptions were made as part of the risk assessment process, which are summarized below:

- Field condition assessment data was used as available to determine state of infrastructure and risk. In the absence of field condition assessment data, asset age and estimated useful life was used to approximate physical condition.
- Performance of individual assets was assumed as "Always Reliable" unless otherwise indicated by Counties' staff, reviewed reports or provided asset data.

1.6 Asset Management Strategy

The asset management strategy for UCLG assets will employ the lifecycle activities to maximize the useful life and economy of each asset. Lifecycle activities are defined in O. Reg. 588/17 as "activities undertaken with respect to a municipal infrastructure asset over its service life", and refers to potential activities that can be implemented by the Counties during the useful life of an asset. The activities are separated by category, including constructing, maintaining, renewing, operating and decommissioning for each asset category.

The lifecycle activities are typical, and include recommendations for timing of implementation and other best practices for implementation. The activities are used in the asset management strategy.

The primary indicator used in the development of a lifecycle strategy is the condition of each asset, however the strategy should also consider other factors, such as:

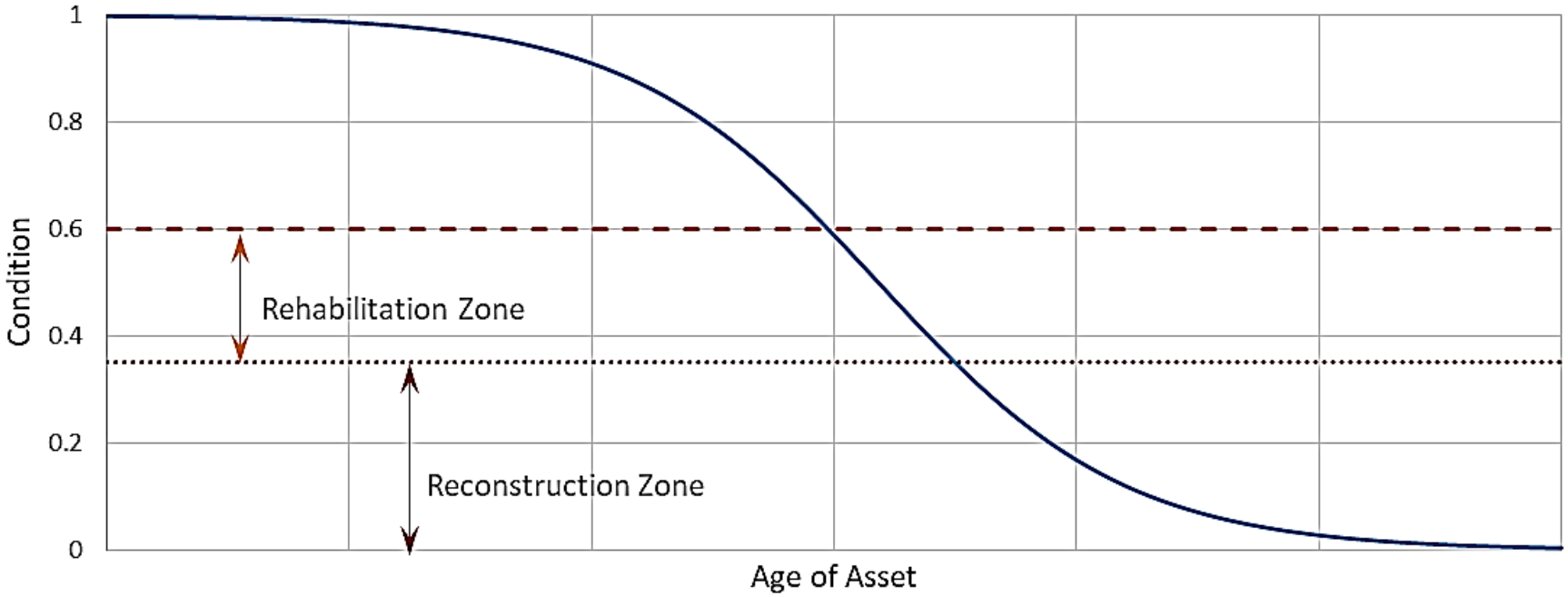
- Importance of the asset;
- Asset risk score;
- Condition of adjacent sections;
- Replacement requirements for adjacent infrastructure (linear);
- Expansion requirements; and,
- Maintenance frequency and type.

As development continues to occur at UCLG and the assets continue to deteriorate, these factors will continue to change, and each have an impact on the lifecycle of an

asset. Consideration of these factors should be given when devising capital project outlooks and budgeting, and updating of the asset management plan.

The assets will deteriorate on a non-linear basis, and the various lifecycle activities can be implemented at varying stages within an asset's deterioration. **Figure 1-7** provides a visualization of the theoretical deterioration curve for an asset, and the opportunity windows to conduct lifecycle activities within the expected useful life of an asset.

Figure 1-7: Theoretical Deterioration of Assets and Lifecycle Activity Opportunities



Implementation of maintenance activities throughout the lifecycle and rehabilitation works within an appropriate timeframe can assist in optimising the lifespan of an asset.

In reference to the above figure, it is expected that maintenance and operating activities will occur through the full lifecycle of the asset. Renewal works are most appropriately employed within the rehabilitation zone, and reconstruction and decommissioning will most likely occur within the reconstruction zone.

On an ongoing basis, each of the factors listed above should be reviewed and established to assist in asset management planning and decision making.

The strategy section for each asset category considers the lifecycle activities and best practices to develop a high-level strategy that can be used as a guide by the Counties in asset management planning and decision making. The strategy will use current UCLG practices and suggest best practices to try to optimize the lifecycle of each of UCLG's assets, and therefore asset spending.

Analysis of the assets and development of projections are included as part of the strategy section. Analysis considers current replacement cost information, the attributes of the assets, and budgetary information from the Counties to analyze the strategy and affordability. The methodologies used for linear and vertical asset analyses are described in the following sections.

2.0 Growth

Population and household data for the growth projections outlined here were obtained from the Official Plan as well as Statistics Canada Census data. Information is based in 2021 data.

The Counties comprises 3,383 square kilometers. The population and employment forecasts for the municipality are set out in its Official Plan (as consolidated in March 2021) as follows:

- The population reported in the 2021 consolidation of the Official Plan is 72,670.
- Counties and local municipalities should plan to accommodate a population of 75,960 people and 16,760 jobs to 2031.

Total population of the United Counties that is served through joint services of Paramedic Service, Provincial Offences, Ontario Works, Child Care, EarlyON and Community Housing is 104,070, which includes Brockville (22,116), Gananoque (5,383) and Prescott (4,078), as reported by Statistics Canada in the 2021 census data.

Key considerations for growth projections for UCLG and its local municipalities include the following, as listed in the Official Plan:

- The distribution of recent growth in permanent population and housing within the Counties has been strongly influenced by proximity to the City of Ottawa, which has contributed to high levels of growth in North Grenville relative to other local municipalities.
- Proximity to natural amenities also has an influence on housing demand in the Counties, with seasonal housing growth an important planning consideration for many local municipalities, most notably in Rideau Lakes and Leeds and the Thousand Islands.
- All local municipalities have been experiencing net out-commuting, largely due to job opportunities in the separated City of Brockville and in the City of Kingston, City of Ottawa and the United Counties of Stormont, Dundas and Glengarry. Out-commuting from the United Counties of Leeds and Grenville residents is anticipated to continue over the Plan horizon.

- The extent of commuter-sheds relative to employment opportunities is an important consideration in the forecasts and represents a key determinant of the distribution of future population and housing growth within the Counties.
- Servicing capacity may place limits on growth for many local municipalities.

Each consideration and its impact on the lifecycle of the assets is presented in **Table 2-1**.

Table 2-1: The Lifecycle of Assets related to Growth Assumptions

Asset Category	Growth Impact Assumptions	How Assumptions Relate to Lifecycle of the Assets
Roads	Increased traffic in connector roads to adjacent communities	Potential increase in road maintenance costs, capital expenditures (new roads), expansion requirements.
Bridges & Culverts	Increased usage of bridge crossings by vehicles in the area	Potential traffic volume delays and mitigation required Load considerations and regularly scheduled maintenance checks.
Community Housing	Increase in demand with increase in population growth	Increased capital costs for purchase of additional assets to meet service needs Potential increase in maintenance costs.
Fleet (Public works, Paramedic, and Other)	Increase in service demands - requiring increased operation or capacity at greater distances	Increased capital costs for purchase of additional assets to meet service needs Increased operational costs in fleet maintenance and operational consumables.
Buildings and Facilities	Increased facility usage Changing service demands from aging population	Increase in capital expenditure for facility development in response to development Increase in operating costs for facility services and maintenance.
Equipment	Increase in service demands - requiring increased operation or capacity at greater distances	Increased capital costs for purchase of additional asset equipment to meet service needs. Increased operational costs in equipment maintenance and operational consumables.

There are several areas of growth that impact the services and programs of the Counties. They are:

- Expansion of County Road 43 in North Grenville due to significant growth in area;
- Increasing demand for Paramedic Service due to aging population, conversions from seasonal to permanent residences (Rideau Lakes and Leeds and the Thousand Islands); and
- Greater demand for long-term care beds due to aging population.

Growth factors have been considered and five projects where growth is a driving factor have been identified by UCLG. Project description, proposed schedule and estimated budget are presented in **Table 2-2**. New financing, such as development charges and special senior-level government funding, should be considered as part of any financial strategy for this plan to fund assets required for growth.

Table 2-2: Expansion Projects to Accommodate Growth

Project Description	Proposed Schedule	Estimated Budget	Additional Funding Considerations
Paramedic Station	To Be Determined	$8 million	On Hold due to Funding
County Road 43 expansion project	2020 – 2025	$30 million	Not Applicable
Maple View Lodge: Development and Redevelopment	2022 – 2025	$79.2 million	Subject to Grant Approval

3.0 Roads

3.1 Summary

The Counties are responsible for 866 centreline kilometers of paved highway. This includes 636 kilometers of roads built over the last one-hundred years and another 230 kilometers of former provincial highways transferred to the Counties in the 1990's.

The information reported in this AMP and the subsequent analysis are based on the PCI data collection preformed in 2019 by the Public Works Patrol Supervisors from the Counties. As projects were completed throughout 2021 and 2022 on the roadways the PCI's were updated accordingly by the Patrol Supervisors and this data was incorporated into the overall data set.

The roads are located across the Counties and do not include roads owned by the separated municipalities (i.e. Brockville, Gananoque and Prescott). In some places local municipal infrastructure (i.e., water and sewer) is located within the Counties roads rights-of-way. The local municipal infrastructure is not owned by the Counties. As well some roads, bridges and culverts are located on boundaries with adjacent Counties.

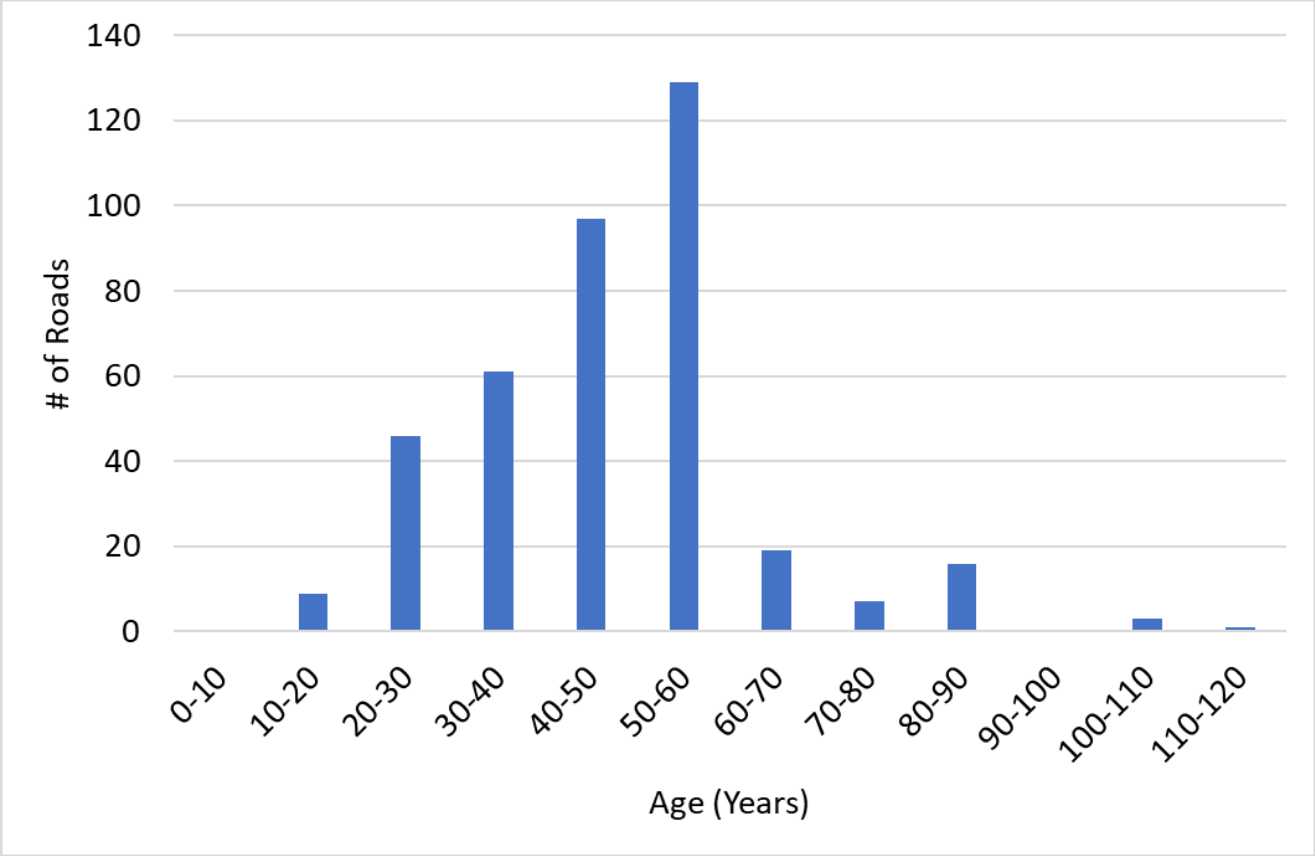
All County roads are paved arterial roads.

The majority of road assets have two lanes, with the exception of the soon to be expanded County Road 43 to a four lane configuration (from the current two lanes).

3.1.1 Average Age

The average age of the road assets is 46 years.

Figure 3-1: Age Distribution of Roads



3.1.2 Replacement Cost

Replacement cost for the road assets were determined based on recent tender information and material information. The replacement costs include costs necessary for full road reconstruction of a segment. It is assumed that all roads will be reconstructed as asphalt surface type. This cost does not include the cost of Bridges or Culvert structures within the roadway.

The replacement cost of the assets in the road category is estimated at $495 million.

3.2 Condition

The condition information for the road network reported in this AMP is primarily based on the 2019 PCI data, with section updates based on project completion, provided by the Public Woks Patrol Supervisors from the Counties.

The approach to assessing condition of roads going forward is to use in-house resources (PW patrol supervisors) to complete the roads assessment. These assessments occur as part of the condition assessment program at the Counties, and allow for staff to identify changes in observed condition and record the changes in the Maintenance Management System (WorkTech).

Pavement condition index (PCI) is a rating system that measures the condition of the roadway. It uses two components: a ride comfort rating (RCR) and a distress manifestation index (DMI). The DMI is a visual inspection that rates the road based on physical condition of, and/or damage to the road (pavement and shoulders). See **Figure 3-2** below for images of road conditions within the Counties.

Figure 3-2: Road Condition Examples

Very Good (90 to 100 PCI)

Good (80 to 90 PCI)

Fair (60 to 80 PCI)

Poor (40 to 60 PCI)

Very Poor (<40 PCI)

The condition of the roads is organized into five categories from Very Good to Very Poor using the alignment of pavement condition index (PCI) scores as shown in the following **Table 3-1**.

Table 3-1: Condition Rating Categories for Roads

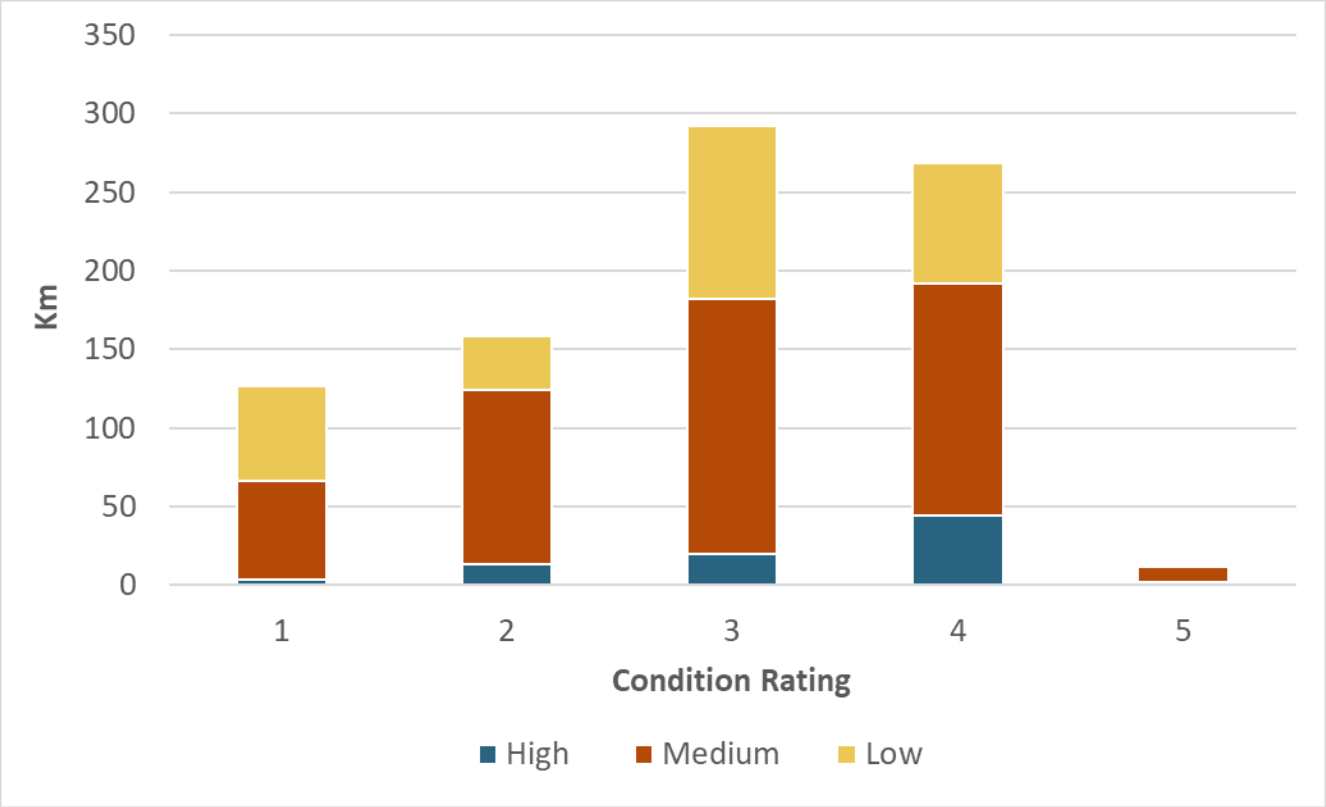
Condition	Pavement Condition Index (PCI)	Condition Category
Very Good	90-100	1
Good	80-90	2
Fair	60-80	3
Poor	40-60	4
Very Poor	0-40	5

The average PCI condition rating for the road network is 69.5 PCI, an overall Fair rating (Condition Category 3).

The majority of the road network is in a Very Good to Fair condition with less than 14% by distance in Poor condition. The average age of roads in the network is 46 years, although this does not consider maintenance and rehabilitation activities.

Figure 3-3 summarizes the condition of the road network ranging from Very Good to Very Poor based on kilometers of road in each condition category. Further, the figure presents the condition of the roads by importance (high, medium or low) shown by colour. Importance is a factor in setting priorities for future lifecycle activities.

Figure 3-3: Condition of Roads (km and Importance)



Note on Importance:

For Roads, high importance was assigned to the following roads: County Roads: 2, 26, 29, 32, 43 and 44 (former Ministry of Transportation Ontario highway (MTO) roads that were downloaded to the municipality and/or emergency route).

Bridges on high importance roads will also be assigned the same importance rating.

3.3 Current Level of Service & Performance

Levels of service for road assets are outlined in Table 4 of the regulation, O. Reg. 588/17.

3.3.1 Community Levels of Service

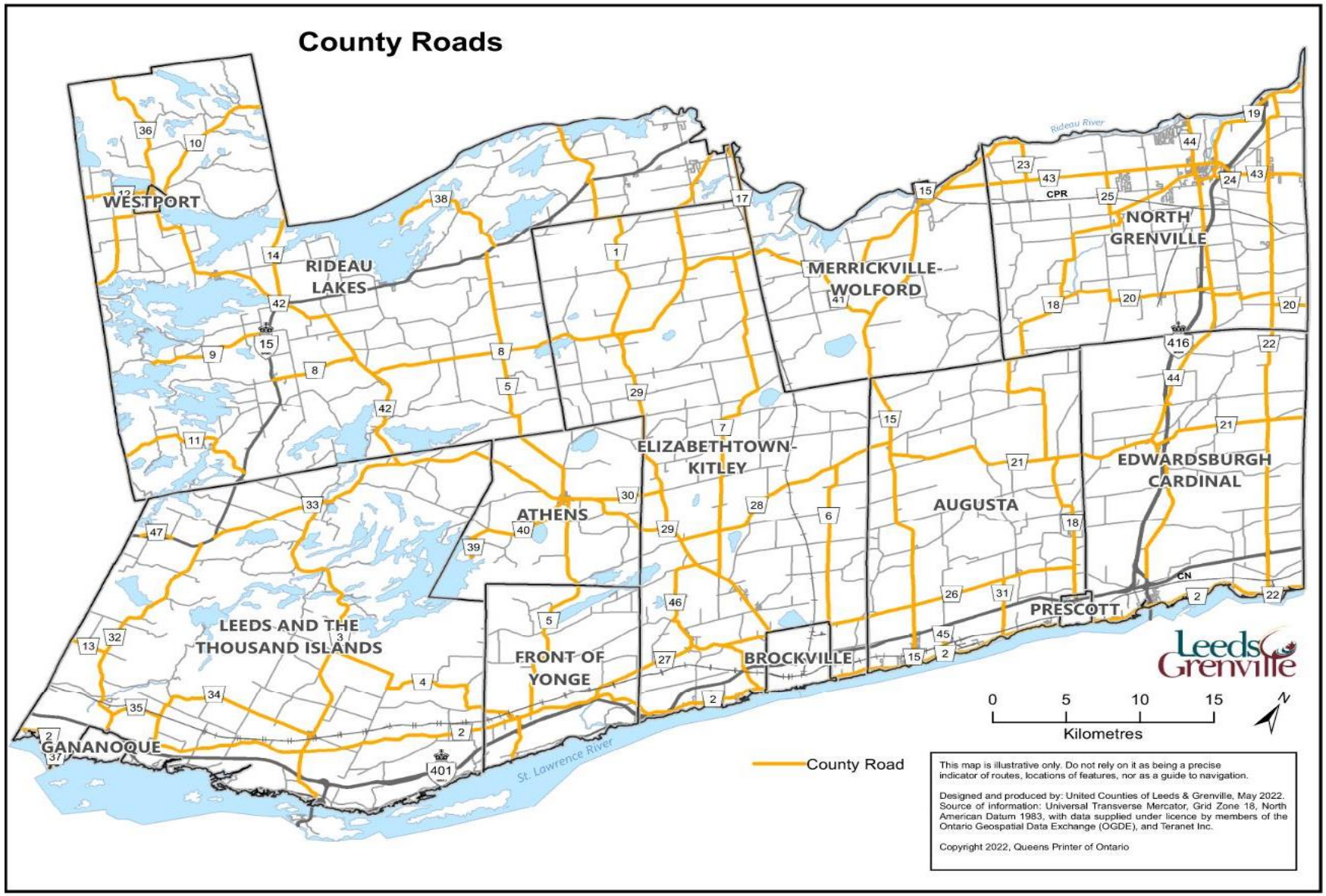
Table 3-2 outlines the Counties' current community levels of service for roads.

Table 3-2: Community Level of Service – Roads

LOS Parameter	Community Levels of Service Qualitative Description	Community LOS
Scope	Description, which may include maps, of the road network in the Municipality and its level of connectivity.	• The roads in the Counties are intended to serve through traffic and to collect traffic from the local roads system. County roads also connect urban centres to each other or the King's Highway System. County roads provide service to resort and recreational areas. • See a map of the Counties' road network in **Figure 3-4.**

LOS Parameter	Community Levels of Service Qualitative Description	Community LOS
Quality	Description or images that illustrate the different levels of road class pavement condition.	Pavement condition was most recently assessed by the Counties in 2022, however this data was not consolidated in time for the report. The road segment surfaces were visually assessed and elements were given a rating from 0 to 5 in PCI data collection, e.g. ravelling, flushing, rippling, etc., which contribute to the overall PCI calculation. The rating was assumed to have followed MTO manual guidance. See **Figure 3-3** above.

Figure 3-4: Map of County Roads



Source: Map created by the United Counties of Leeds and Grenville GIS Department.

3.3.2 Technical Levels of Service

Table 3-3 outlines the Counties' current technical levels of service for roads.

Table 3-3: Technical Level of Service – Roads

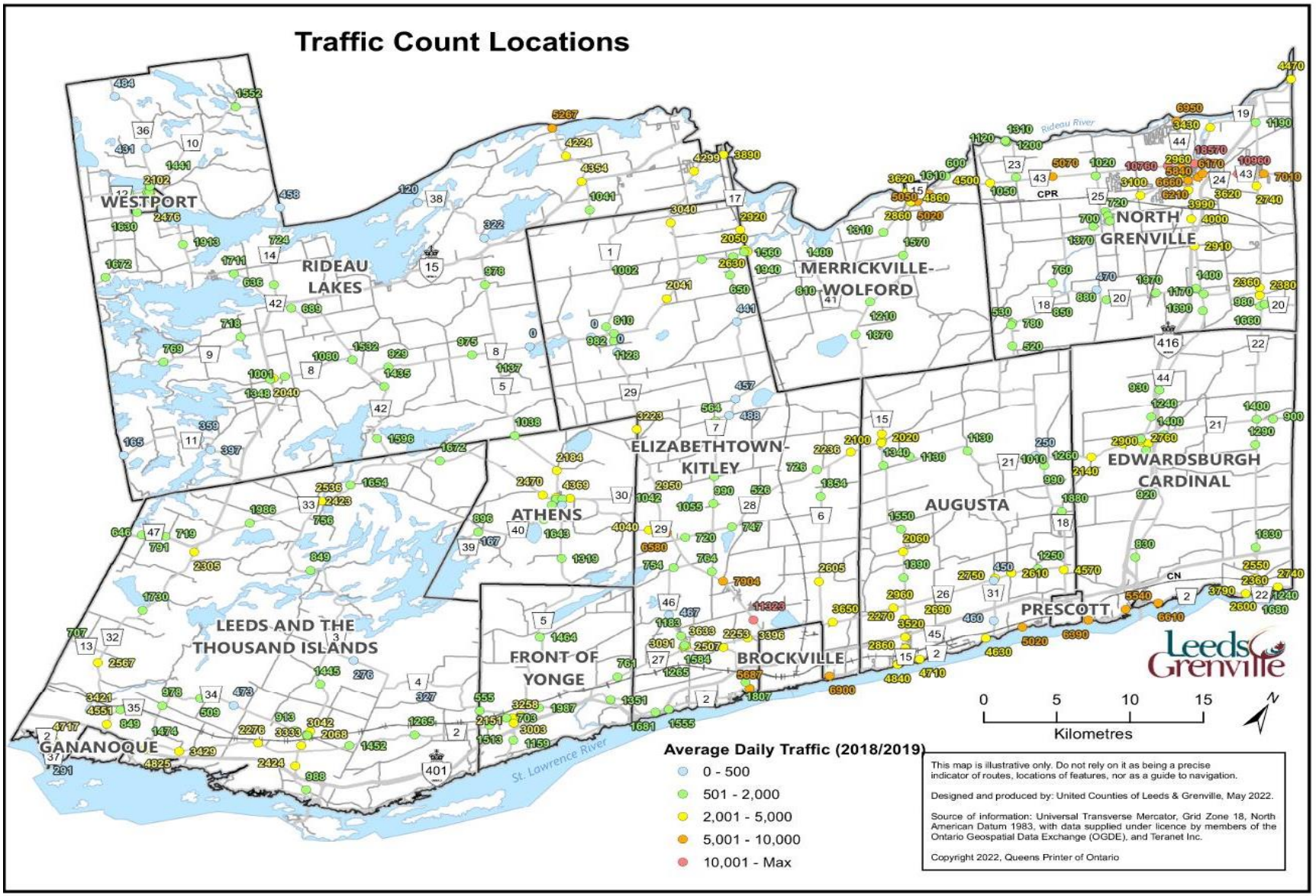
LOS Parameter	Technical Levels of Service Technical Metrics	Technical LOS
Scope	Number of lane-kilometres of each of arterial roads, collector roads and local roads as a proportion of square kilometres of land area of the Municipality.	The number of lane-kilometers of arterial roads as a proportion of square kilometers of land area of the County is 0.52 km/km^2.
Quality	For paved roads in the Municipality, the average pavement condition index value.	The average pavement condition index is 69.5 (fair condition) for paved roads.
	For unpaved roads in the Municipality, the average surface condition (e.g., excellent, good, Fair or Poor).	The Counties does not have any unpaved roads.

3.3.3 Performance - Roads

The current performance of the road network is determined by the following performance measures established by the Counties. It is based on actual performance in the most recent year.

- Half loads in spring. See list of roads in load restriction By Law 14-10 (modified by 16-38)
- Traffic counts. See **Figure 3-5** for map and location of traffic counts from 2019.

Figure 3-5: Traffic Count Locations



Source: Map created by the United Counties of Leeds and Grenville GIS Department.

3.4 Risk Assessment

The risk assessment for roads assets was conducted using the following assumptions and criteria:

Condition: Determined based on estimated condition (using provided condition data from the Counties). **Table 3-1** above provides details regarding the provided ratings from the Counties and the corresponding rating used within the risk calculation.

Performance: Assumed to be always reliable (value of 1)

Climate Change: Assumed a value of 1 (Low, No or limited impact, quick recovery or mitigation in place)

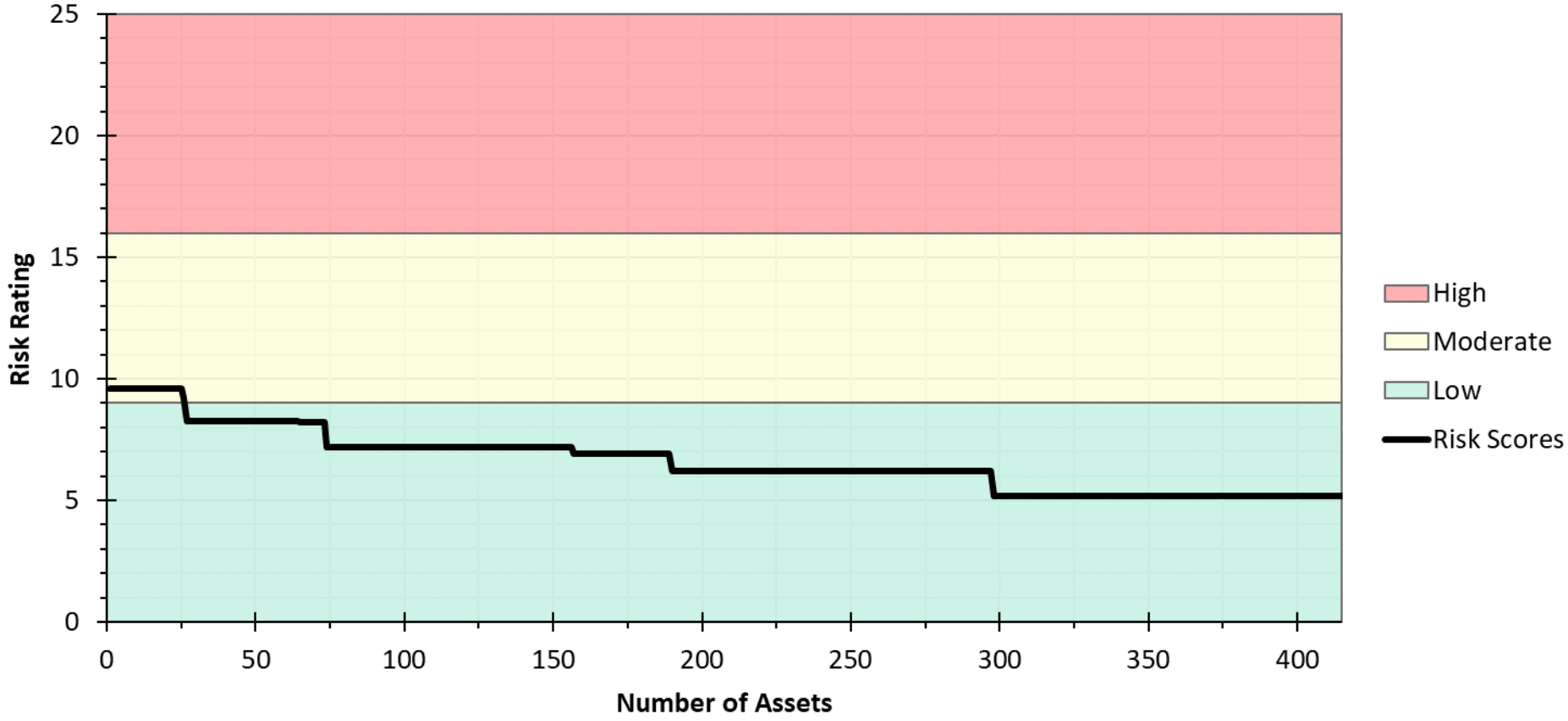
Impact: Moderate impact (value of 1) assumed for all assets

Importance: High importance (value of 3) was assigned to the following roads: County Roads: 2, 26, 29, 32, 43 and 44 (former MTO roads that were downloaded to the Counties and/or emergency route).

Importance was determined based on the type of road, per the following:

- High importance (value of 3) are main thoroughfares connecting communities and major services like hospitals.
- Moderate or Low importance (value of 2 or 1) was given for all County roads types and this importance was determined by the Public Works staff.

Figure 3-6: Risk Profile for Roads Assets



As depicted in **Figure 3-6** twenty-six (26) Road Assets were determined to be in the moderate risk zone and the remaining three hundred eighty-nine (389) are considered low risk.

3.5 Lifecycle Activities

The following section describes the lifecycle activities that can be implemented within the asset management strategy for road assets. The primary lifecycle activities include construction, improvement, maintenance, and decommissioning/disposal.

The lifecycle activities presented below are consistent with best practices for road asset management and maintenance. Additional description and details of the lifecycle activities can be found within the report.

Construction Activities:

The initial lifecycle activity of a road asset is its construction. The road asset should be constructed to adhere to applicable requirements, codes, and design guidelines. Construction of new road assets is recommended to be in line with recommendations as part of growth, master plan, or other County strategies. Design of the road asset should consider the level of service expected to be provided by that particular road asset, such as the anticipated speed or volume of traffic. Varying factors in construction include: the road classification, surface type, and location.

Construction can also be the replacement of deteriorated assets. At the end of the useful life of an asset, it can be replaced for continuation of service provision. At the time of replacement, design should be undertaken to ensure design requirements are met, and adequate capacity is provided for current and future projections.

Maintenance Activities:

Maintenance activities are undertaken on the assets throughout their useful life to maintain their operating condition and performance. There are a variety of maintenance activities available to undertake on road assets, including:

- Ditch improvements (grubbing/clearing);
- Crack sealing;
- Cape sealing;
- Slurry sealing;
- Micro surfacing (including double);
- Single surface treatment; and,
- Double surface treatment.

Maintenance activities can include the full road surface, or can be used to address localized repairs on the road surface.

The selection of the maintenance activity is dependent on a variety of factors, including road surface type (material, urban/rural classification), condition (surface and road base), road works history, and importance, among others.

Operating Activities:

Operating activities for the road assets include those activities that do not directly deal with the physical state of the road, but work to extend the asset's useful life. The operating activities can include non-infrastructure solutions (such as policies, limiting truck traffic, planning reports), and monitoring/inspection of the assets. Inspection of the road assets is completed by County staff on a regular basis, and on a broader portion of the network conducted by a third party, in the form of a Roads Needs Study. The inspection program includes a combination of the effort types to suit the needs of the County. Adjustments are made to reflect road improvements and capital construction, deterioration of pavement or ride condition, and to coordinate with underground infrastructure work. In recent years the County has procured the services of an independent specialist to provide a Roads Needs Study for the Counties.

Renewal/Rehabilitation Activities:

Renewal or rehabilitation of the road assets can be undertaken when maintenance works are no longer sufficient to address road surface deficiencies. These replace significant parts of the road but provide large improvements to condition and lifespan. These works can include:

- Membrane interlayer and overlay;
- Cold-in-place recycling; and,
- Resurfacing.

The selection of the activity for implementation will require consideration of the same factors listed for maintenance works.

Decommissioning Activities:

Decommissioning activities of the road assets includes removal of the road from service. A road may be removed by disposal of the asset components, or establishment of a barricade to prevent continued usage of the asset. Disposal activities should be

conducted such that health and safety protocols are being followed, and spent materials are disposed of at an appropriate or approved facility.

3.6 Asset Management Strategy

The asset management strategy for the road assets seeks to use the lifecycle activities in a manner that will achieve cost-effective and sustainable management of the road assets.

The road assets will deteriorate on a non-linear basis, and the lifecycle activities can be implemented at varying stages within an asset's deterioration.

The condition and usage of the road assets is a key driver in the determination of lifecycle activities to use. The Counties has previously assessed the condition of the roads assets in 2019, and will complete assessment in 2022 using in-house resources (PW patrol supervisors). These assessments occur as part of the condition assessment program at the Counties, completed on a scheduled basis wherein the entirety of the network is reviewed every three years. A variety of methods can be implemented for undertaking condition assessment of roads, including visual inspection and street scan technology. A condition rating program can also be implemented that considers the importance or risk of a road segment, and prioritizes frequency and timing of condition assessments to higher usage or higher importance roads. A condition assessment program is recommended for the Counties.

Maintenance works should be undertaken throughout the lifecycle of an asset. Selection of the appropriate maintenance activity will depend on the type of deterioration being experienced on the asset, and the condition of the asset. Some activities, such as crack sealing, are best utilized on a road segment that is generally in good condition. As the road segment continues to deteriorate, maintenance activities may become a less preferred option as it may become insufficient to address deficiencies. Maintenance activities can be undertaken on a road segment multiple times prior to the asset requiring rehabilitation activities, depending on the nature and extents of the maintenance works.

Renewal and rehabilitation activities should be undertaken on an asset when it has deteriorated past the point where maintenance activities would be adequate to address

condition issues. Selection of the appropriate rehabilitation activity will depend on the road surface material, stage in lifecycle, and severity and type of deterioration.

At the point where a road asset has deteriorated such that maintenance and rehabilitation options will be inadequate to address condition issues, the road can be a candidate for reconstruction. Reconstruction works will result in a road segment being at a very good condition rating. In general, the current strategy for the road assets at the Counties is to allow the road surface asset to degrade near to the end of its expected lifecycle, and reconstruct the road surface when required. The road base has a much longer expected useful life than the road surface, and is dealt with as required during road works.

Reconstruction and rehabilitation work offer the Counties an opportunity to integrate other improvements into the road works. This may include active transportation facilities, upgrade of drainage, street lighting, and changes to the road cross-section to accommodate growth demands.

As the Counties reconstructs the roads, the cross section will vary depending on the location and classification of the road. The width of pavement (number of lanes, presence of on-street pavement), and type of active transportation (sidewalk, multi-use path) will be assessed on a case-by-case basis as roads are identified for reconstruction works. In general, the Counties intend to implement paved shoulders on roads as they are reconstructed going forward.

The Counties' have an established program for the lifecycle of both Rural and Urban paved roads, which is used as a guide for conducting works and provides a progression through the lifecycle activities. The progression through the program is based on the year within the asset's lifespan (age), or the condition rating, with the condition rating being the preferred indicator. Each improvement has an intended impact on the roads, including maintaining the condition, or improvement of the condition rating. A summary of the program for rural roads is in **Table 3-4**, and urban roads in **Table 3-5.**

Table 3-4: Lifecycle Progression for Rural Roads

Year in Lifecycle	Condition Rating	Improvement	Impact of Improvement
3	94	Crack Seal	Hold for 3 years
7	90	Slurry Seal	Hold for 4 years
13	80	Double Microsurface treatment	Restore to 90
19	67	Cape Seal	Restore to 90
27	61	Stress Absorbing Membrane Interlayer + HL3 Overlay	Restore to 95
29	94	Crack Seal	Hold for 3 years
33	90	Slurry Seal	Hold for 4 years
39	80	Double Micro	Restore to 90
51	49	Full Depth Reclamation or Cold In-Place Recycling	Restore to 99

Table 3-5: Lifecycle Progression for Urban Roads

Year in Lifecycle	Condition Rating	Improvement	Impact of Improvement
3	93	Crack Seal	Hold for 3 years
8	83	Double Micro	Restore to 90
15	60	Cape Seal	Restore to 90
24	51	Stress Absorbing Membrane Interlayer + HL3 Overlay	Restore to 95
26	93	Crack Seal	Hold for 3 years
30	89	Slurry Seal	Hold for 4 years
35	83	Double Micro	Restore to 90
42	60	Cape Seal	Restore to 90
56	40	Urban Reconstruction	Restore to 100

The lifecycle progressions listed above are not prescriptive for asset management, and application of the lifecycle activities will vary according to many factors, including:

- Condition of adjacent road sections and efficiencies in application of lifecycles;
- Efficacy and quality of previous lifecycle activities;
- Availability of contractors; and,
- Affordability and level of service.

3.6.1 Projection of Works

The Counties' utilize the program WorkTech to analyze their road system and generate roads lifecycle projections. The WorkTech program is set up to project the upcoming works on the road network, and uses the following information, as confirmed by the Counties:

- Lifecycle activities occurring in the order and at the triggers described in the tables above;
- Costs for lifecycle activities based on recent tender information from the Counties; and
- Projecting a work plan based on either a specific pavement condition index (PCI) or a defined budget plan.

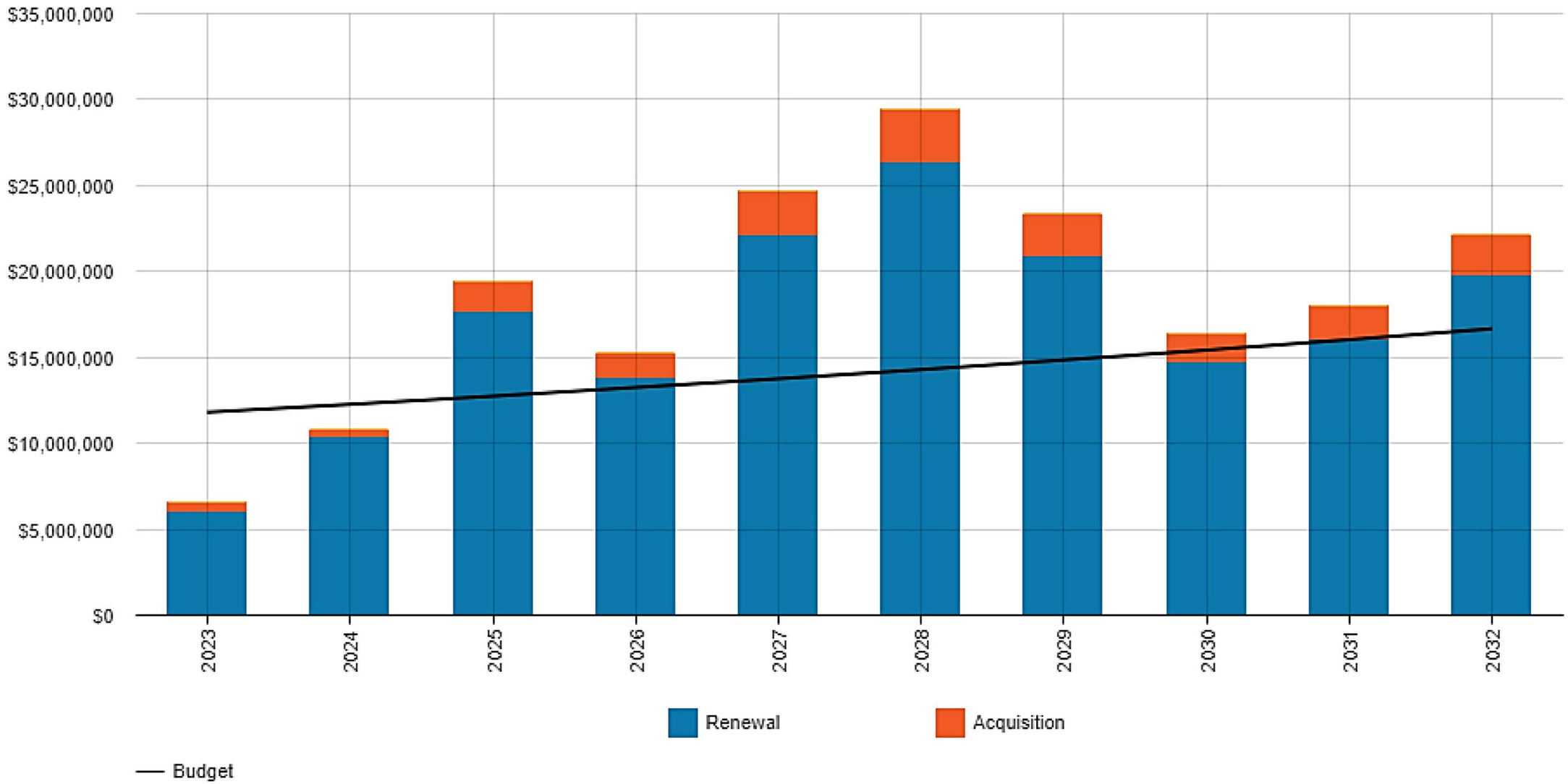
Using this program, the Counties has developed projections for a 10 year timeframe to maintain a LOS that reflects a target PCI of 70, including the following categories of works:

- Renewal: Lifecycle activities undertaken on current owned assets
- Acquisition: Lifecycle activities for newly acquired or constructed assets (capital budget). Acquisitions include paved shoulders on reconstructed roads.

Using these distinctions, the WorkTech application employs the assumptions of the Lifecycle Progression for Roads tables (**Table 3-4** and **Table 3-5**) provided by PW management to generate best-practice scenarios and consequent work plan guides. Furthermore, the program applies two separate drivers to generate projections – condition-driven or budget-driven. The model in **Figure 3-7** is a pavement condition-driven scenario that shows the funding required to maintain an average PCI of 70. This is meant to provide a visual representation of long-term funding required to maintain the current LOS.

The Planned Budget line represents the 2022 budget for Roads reconstruction and maintenance activities with an annual increase of 4%, showing a significant funding gap in order to maintain a PCI of 70 without significantly impacting the annual tax levy. To fund an average PCI of 70, an average tax increase of 5.5% per year would be required for the next 10 years for Roads. Public Works and Finance are working on a financing strategy as part of the 2023 budget and corresponding capital work plan to decrease the required tax levy increase and gradually increase funding for Roads.

Figure 3-7: Projection of Costs to Maintain PCI of 70 for Roads Assets



The anticipated total annual expenditure to maintain a PCI of 70, fluctuates between just over $6.6 M to just under $30 M, with the average across the timeframe being slightly greater than $18.6 M. The total expenditure across the full timeframe would be $186 M.

Also shown in the figure is the Counties' proposed budget across the timeframe. As mentioned previously, the budget is projected to incorporate a 4% annual capital increase. The initial total annual expenditure in 2023 would be $11,819,608, increasing to $16,653,663 in 2032, with the average of $14,110,504 per year. The total expenditure across the 10 year time frame would be $141,105,036. In this PCI-driven scenario, the projected total annual expenditure exceeds the proposed budget in all except the first two years.

4.0 Bridges and Culverts

4.1 Summary

The Counties have 89 bridges and 47 structural culverts (3 m in span and larger) totaling 136 structures.

It is important to note that six (6) bridges in the inventory are owned 50/50 by the Counties and either the Counties of Lanark, Stormont Dundas and Glengarry United, or the City of Ottawa. See **Table 4-1** to identify the bridges and culverts and 50/50 ownership.

Table 4-1: 50/50 Ownership of Bridges/Culverts

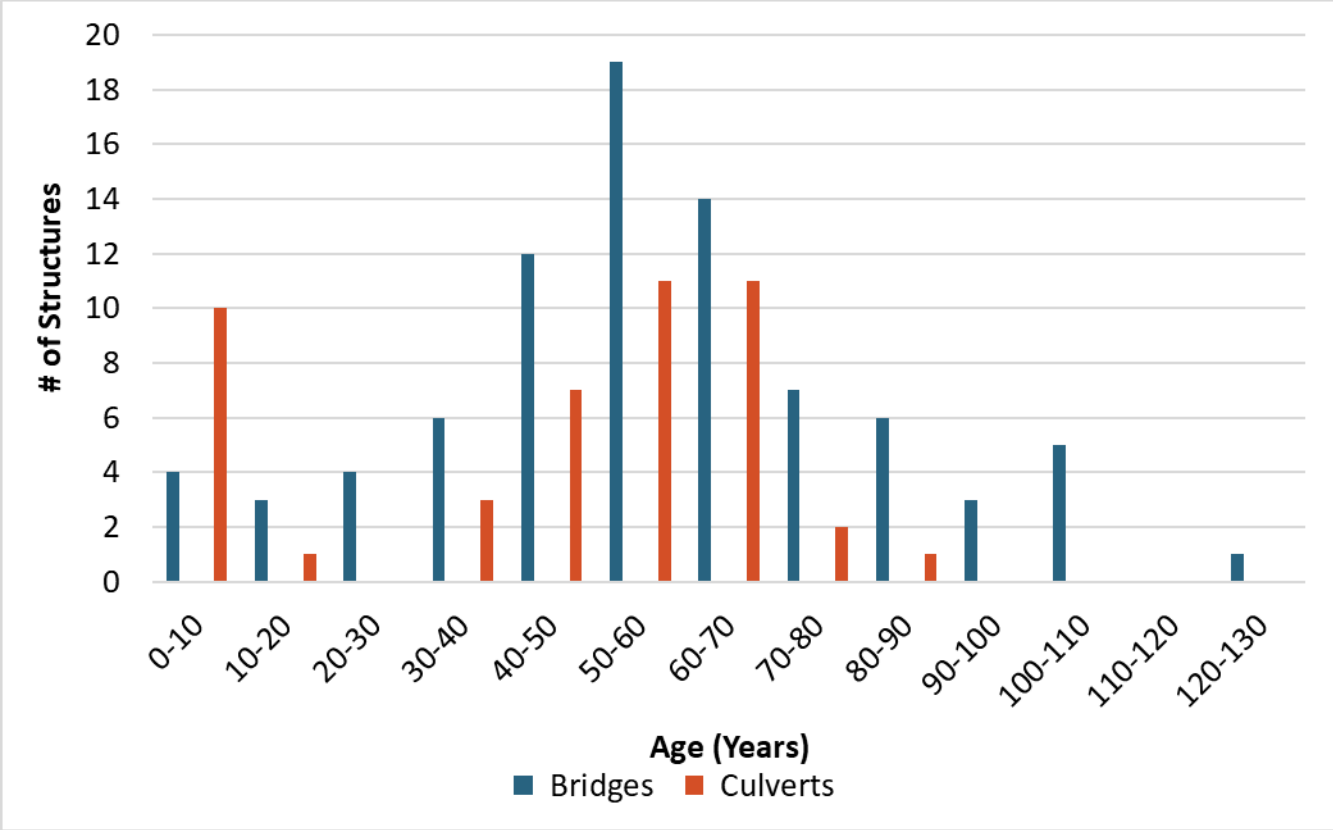
Bridge Number	Name	Ownership
23069	Burritts Rapid Bridge	50/50 Ottawa
44394	Becketts Landing Bridge	50/50 Ottawa
01215	Rideau Ferry Bridge	50/50 Lanark County
99001-1	Andrewsville Bridge	50/50 Lanark County
99005	Kilmarnock Bridge	50/50 Lanark County
99003	Pittston Bridge	50/50 SD&G

4.1.1 Average Age

The average age of bridges is 47 years, whereas for culverts it is 45 years.

The age distribution of the bridge and culvert structures is shown in **Figure 4-1**.

Figure 4-1: Age Distribution of Bridges and Culverts

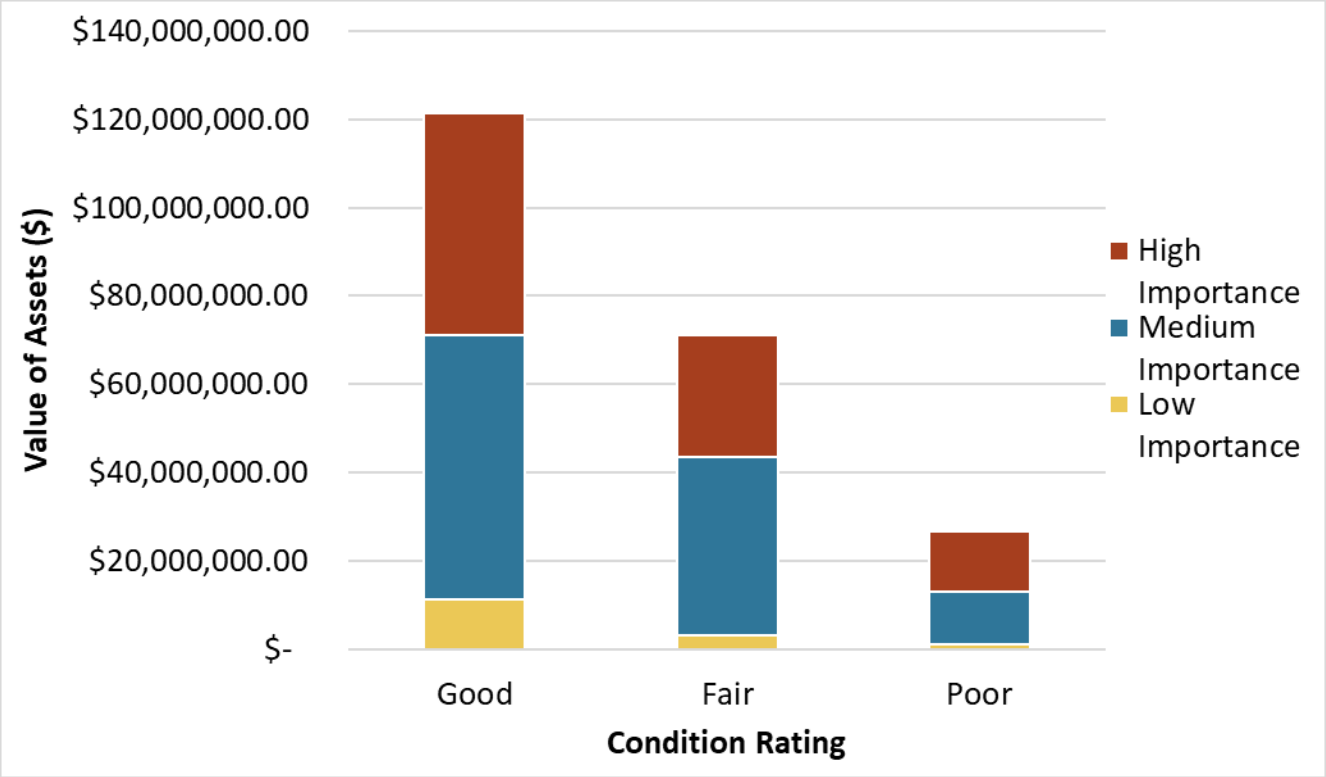


4.1.2 Replacement Cost

The replacement cost of the bridges/culverts is $219.7 million which includes only 50% of the replacement cost of the bridges that have shared ownership as noted in **Table 4-1.**

Figure 4-2 presents the replacement cost of bridges/culverts in each of the condition categories, with the importance of the bridges indicated by the colour. Note that the majority of the “high importance” bridges and culverts are in Good condition. Only a few structures are in Fair or Poor condition.

Figure 4-2: Condition of Bridges and Culverts (Value and Importance)



4.2 Condition

The information reported in this AMP and the subsequent analysis are based on the current WorkTech inventory information maintained by the Counties, and the current OSIM reports. OSIM assessments were most recently conducted for the Bridges and Culverts in 2021 by a third party consulting firm.

The Bridge Condition Index (BCI) provides an indication of the general overall condition of the bridge or structural culvert (3 plus metre span). It consists of an inspection by a professional engineer pursuant to the Ontario Structural Inspection Manual of up to 55 structural elements.

Table 4-2 shows the condition of bridges and how this would affect use of the bridges. The BCI is grouped into three condition categories of Good, Fair and Poor. Photos illustrating an example of the condition in each category are presented in **Figure 4-3** to **Figure 4-5**.

Table 4-2: Condition of Bridges and How It Affects the Use

BCI Range	Condition Rating	Affect Usage
70-100	Good = 1	n/a
60-70	Fair = 3	n/a
<60	Poor = 5	Possible load restrictions

Figure 4-3: Example of Poor Condition Bridge – Motts Mills Bridge (BCI 28.6) currently undergoing construction in 2022.

Figure 4-4: Example of Fair Condition Bridge – Smileys Bridge (BCI 64.9)

Figure 4-5: Example of Good Condition Bridge – MacIntosh Mills Bridge (BCI 91.1)

The bridges and culverts are generally in a good condition (BCI 70 to 100); out of the 89 Bridges, 53% are in good condition, 31% in fair condition (BCI 60-70) and about 16% in poor condition (BCI 0-60). Out of 47 culverts, 47% are in good condition, 32% in fair condition, and 21% are in poor condition. See **Figure 4-6** for the condition ratings of the bridges and culverts shown separately.

Figure 4-6: Bridge and Culvert Condition Ratings

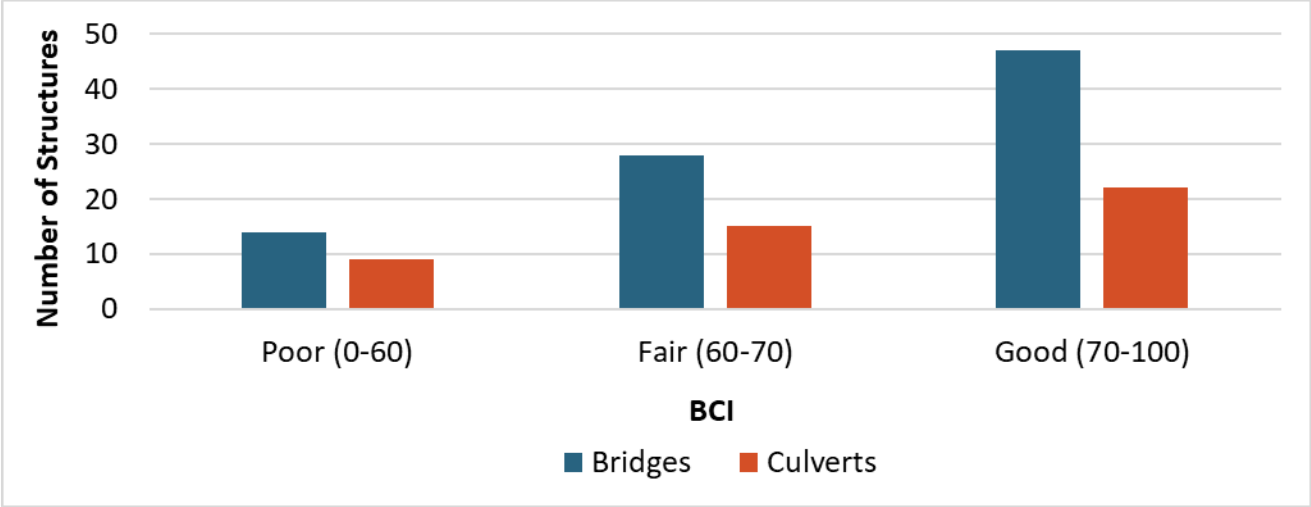


Table 4-3 shows the condition categories for culverts and how this would affect use of the culverts. Photos illustrating the condition in each condition category are presented in **Figure 4-7** to **Figure 4-9.**

Table 4-3: Condition of Culverts and How It Affects the Use

BCI Range	Rating	Affect Usage
70 to 100	Good = 1	n/a
60 to 70	Fair = 3	n/a
Less than 60	Poor = 5	Possible load restrictions

Figure 4-7: Example of Poor Condition Culvert – East Cardinal Creek Culvert (BCI 48.6)

Figure 4-8: Example of Fair Condition Culvert – Grippen Creek Culvert (BCI 62.7)

Figure 4-9: Example of Good Condition Culvert – Crosby Creek Culvert (BCI 93.4)

The Counties updates its bridges and culverts conditions every two years. It engages an independent engineering consultant to undertake the work and update the bridge needs report with current BCI and a five to ten year priority list of bridges and culverts for capital upgrades, improvements or replacement. The consultant produces an OSIM report for the County.

In addition to the condition rating (BCI), other factors such as importance, impact of climate change and consequence of failure is considered in determining the risk rating for each bridge and culvert. The risk rating and the recommendations in the OSIM report are considered in planning maintenance, repairs and replacement. For example, if a bridge/culvert has a rating of 70 or greater, then minimal maintenance is required within the next five years. In comparison, for bridges and culverts rated 50 or less, they require either immediate maintenance/repairs within one year.

4.3 Current Level of Service

Levels of service for bridges and culverts are outlined in Table 4-4 of the regulation, O. Reg. 588/17.

4.3.1 Community Level of Service – Bridges and Culverts

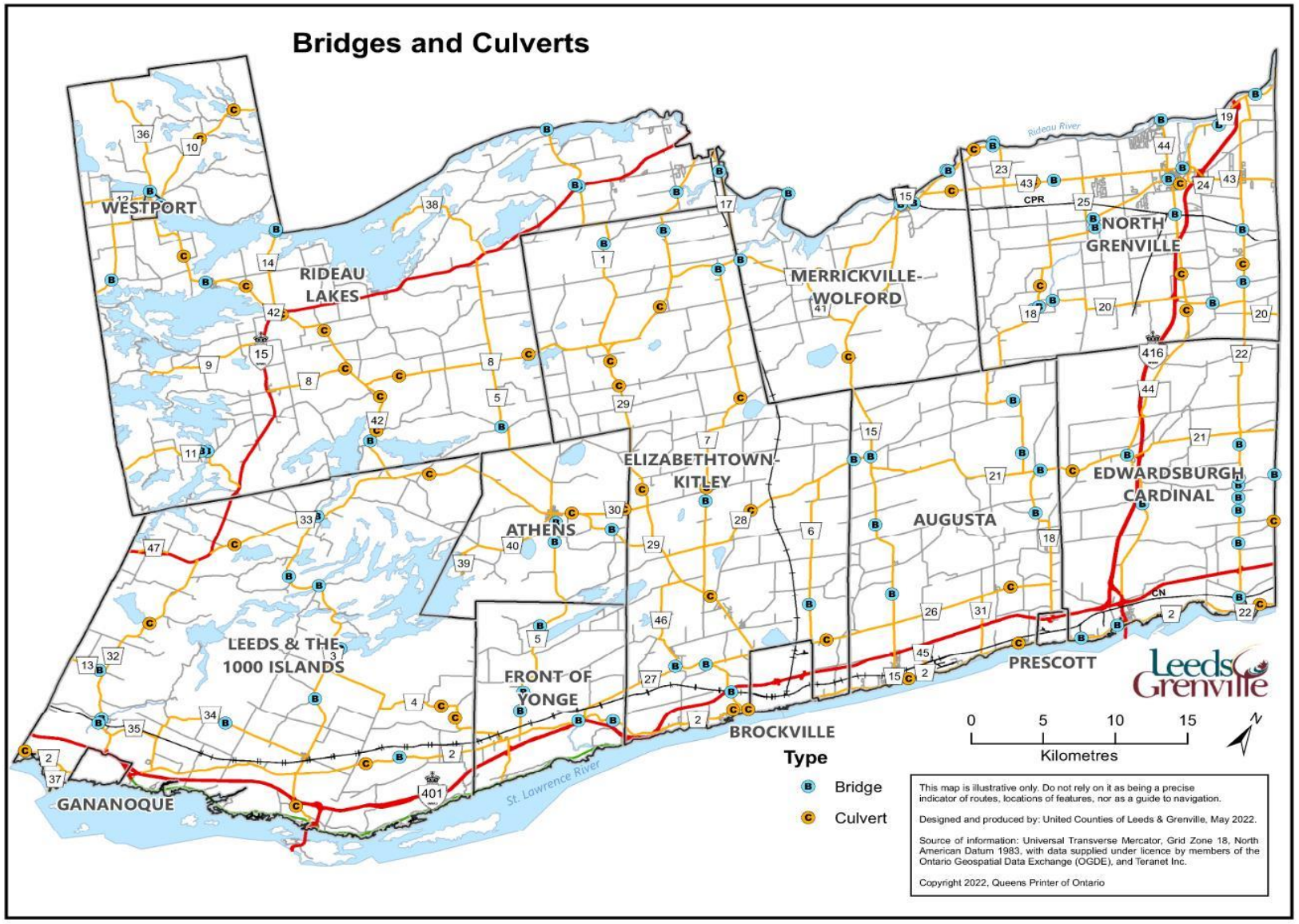
Table 4-4 outline the Counties' current community levels of service for bridges and culverts.

Table 4-4: Community Levels of Service – Bridges and Culverts

LOS Parameter	Community Levels of Service Qualitative Description	Community LOS
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists).	• The Counties' municipal bridges and culverts carry motor vehicles, emergency vehicles, heavy transport vehicles (unless otherwise signed), cyclists, and pedestrians. • **Figure 4-10** shows the location of the bridges and culverts in the Counties

LOS Parameter	Community Levels of Service Qualitative Description	Community LOS
Quality	1. Description or images of the condition of bridges and how this would affect use of the bridges. 2. Description or images of the condition of culverts and how this would affect use of the culverts.	• Examples of poor, Fair and Good condition bridges are presented previously in **Section 4.2.**

Figure 4-10: Location of Bridges and Culverts



Source: Map created by the United Counties of Leeds and Grenville GIS Department.

4.3.2 Technical Level of Service – Bridges and Culverts

Table 4-5 outlines the Counties' current technical levels of service for bridges and culverts.

Table 4-5: Technical Levels of Service – Bridges and Culverts

LOS Parameter	Technical Levels of Service Technical Metrics	Technical LOS
Scope	Percentage of bridges in the Municipality with loading or dimensional restrictions.	• 6.5% of bridges have load restrictions; and • 8.0% of bridges have minimum vertical clearance restrictions.
Quality	1. For bridges in the Municipality, the average bridge condition index value. 2. For structural culverts in the Municipality, the average bridge condition index value.	• Average Bridge Condition Index value: 66.9 • Average Culvert Condition Index value: 69.5

4.3.3 Performance – Bridges and Culverts

The current performance of bridges and culverts is determined by the following performance measures established by the Counties. It is based on actual performance in the most recent year.

See **Table 4-6** for the current performance measures related to:

- Bridges with load restrictions; and
- Bridges with minimum vertical clearance restrictions.

Table 4-6: Current Performance - Bridges/Culverts

Description of Measure	Bridge ID	Bridge Name
Load Restrictions	14064B	Sluiceway Bridge on County Road 14
	14065B	Narrow Locks Swing Bridge (owned by Parks Canada)
	23066B	Rideau Canal Swing Bridge (owned by Parks Canada)
	99001-1B	Andrewsville Bridge (shared ownership with Lanark County)
Minimum Vertical Clearance Restrictions	02769B	CNR Spur Subway (owned by others)
	22021B	CNR Subway (owned by others)
	32025B	CNR Overhead (owned by others)
	43023B	CPR Subway (owned by others)
	46015B	CNR Subway (owned by others)
	99001-1B	Andrewsville Bridge (shared ownership with Lanark County)

4.4 Risk Assessment

The risk assessment for bridge and culvert assets was conducted using the following assumptions and criteria:

Condition: Determined based on BCI ratings supplied by the Counties, according to the following:

- BCI from 0 up to 60: 5
- BCI from 60 up to 70: 3
- BCI from 70 to 100: 1

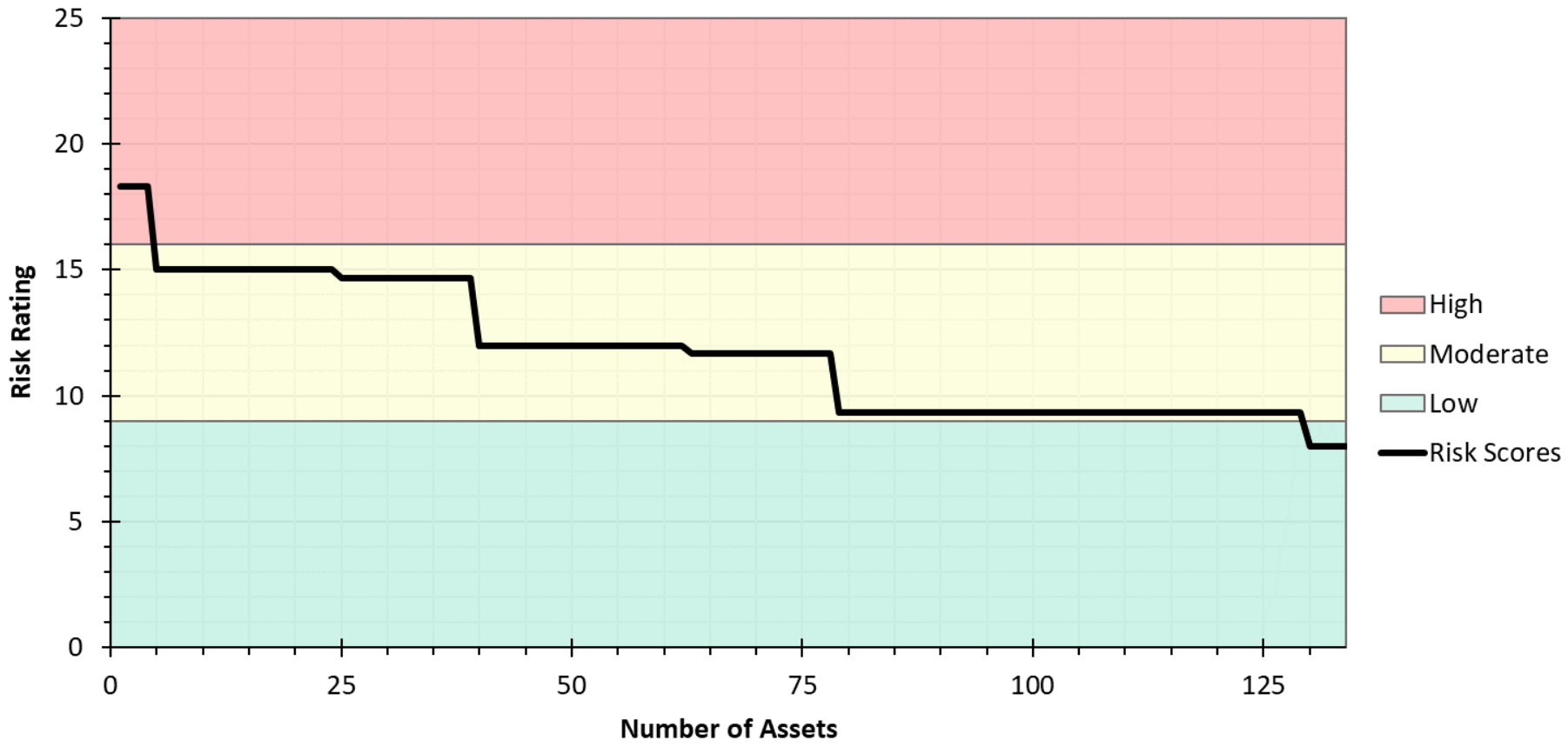
Performance: Assumed to be always reliable (value of 1)

Climate Change: Assumed a value of 5 (Moderate or high impact; no or limited mitigation plan)

Impact: Assumed to all be High impact (value of 2)

Importance: Importance for bridges are consistent with the importance values attributed to the road segments on which the bridges are located.

Figure 4-11: Risk Profile for Bridges and Culverts



As depicted in **Figure 4-11**, nine (9) Bridge and Culvert Assets were determined to be in the high risk zone, one hundred twenty (120) Bridge and Culvert Assets were determined to be in the moderate risk zone and the remaining seven (7) are considered low risk.

There are nine Bridges and Culverts that have the highest risk rating (18.2 to 18.8) which is considered a high risk (16-25). It is important to highlight that risk identification as it informs the capital plan along with other factors.

4.5 Lifecycle Activities

The following section describes the lifecycle activities that can be implemented within the asset management strategy for roadway bridge and structural culvert assets. Note that, as previously discussed, roadway bridge assets refer to the entirety of the asset which is made up of bridge deck surface and bridge structure. The primary lifecycle activities include construction, inspections, maintenance and repair, replacement, and decommissioning/disposal.

Construction Activities:

The start of an asset's lifecycle is its construction. The bridge or structural culvert should be constructed to adhere with the requirements of the O. Reg. 160/02: Standards for Bridges, CSA S6 Canadian Highway Bridge Design Code, and any and all other applicable regional codes and requirements for the bridge and its use. Each bridge or structural culvert should be designed and constructed to provide the services for which it is intended.

Inspection Activities:

Under O. Reg. 160/02: Standards for Bridges, the Counties are required to complete one inspection of all bridges and structural culverts every two years to identify condition and produce a report outlining the recommended work for a 1 to 10 year period. The inspection uses the Ontario Structural Inspection Manual (OSIM) 2008 and is referred to as the OSIM or Bridge Inspection Report. The County should continue the current biennial OSIM Bridge Inspections along the current schedule, with the next inspections scheduled for 2023. The inspections should include all bridges and culverts with a single or combined span greater than 3m.

Maintenance and Repair Activities:

Bridge and culvert assets are long-lived assets with estimated useful lives from 50 to beyond 75 years. Throughout the lifecycle of these assets the majority of expected needs will be maintenance and repair work.

Routine maintenance works are typically used to prolong the lifespan of assets and include both preventative and reactive activities designed to maintain the asset condition and function. Preventative activities are implemented to provide a predictive response to deterioration or possible performance issues by managing the contributing factors prior to an event occurring. Reactive maintenance is conducted in response to a condition or performance issue and designed to correct the issue before it causes asset deterioration and possible deficiencies. The scale of maintenance activities varies widely and is dependent on a variety of factors including the age, asset utilization, environment, and design. Maintenance should be completed based on recommendations in biennial OSIM reports and industry best practices.

A general summary of bridge and structural culvert maintenance activities include, but are not limited to:

- Cleaning, washing or flushing;
- Railing system maintenance;
- Painting of steel bridge components;
- Bearing maintenance;
- Pest control;
- Deck drainage maintenance; and
- Erosion control.

Repair works are driven by the identification and treatment of deficiencies to prevent the continued deterioration of the deficiency which may cause a reduction in asset condition, performance and LOS delivered. Timing of repairs varies widely as they may be prescheduled based on estimated deterioration, in response to biennial condition reporting, or on an emergency basis. Repairs to bridges vary widely and can be in relation to structural and deck surface components.

Replacement Activities:

Replacement of a structure is based on current age, estimated lifespan, and recommendations from condition assessments. Replacement can be used when an asset

is nearing or has reach the end of its life, repairs are not technically feasible, estimated future repair costs are greater than replacement cost, or increases to capacity or LOS are required. Replacement activities are typically large in scale and involve the issuance of a capital project. Timing of replacement activities must consider the impact on adjacent infrastructure, the impact on near-by asset LOS and replacement or maintenance requirements of connected infrastructure.

Disposal Activities:

Disposal activities from bridges and culverts can include the removal from service of a bridge or culvert, through:

- Closure of the bridge from access;
- Change in level of service of the bridge to limit access (e.g., vehicular bridge); and
- Deconstruction of the bridge.

Disposal activities should be implemented when a bridge or culvert structural has reached the end of its useful life, or has degraded to such a state that it can no longer provide the level of service for which it is intended. Removal of a bridge from service without replacement, or decrease in level of service should be undertaken only when it is decided to no longer be required to provide level of service to residents.

Disposal activities should be conducted such that health and safety protocols are being followed, and spent materials are disposed of at appropriate or approved facility.

4.6 Asset Management Strategy

The asset management strategy for bridges and structural culverts is based on maintaining the structures in sufficient condition and performance to allow for continued access to crossings and adequate service delivery. The strategy considers the requirements set out by applicable regulations, and builds on those to include the lifecycle activities summarized above.

Under O. Reg. 160/02: Standards for Bridges, the Counties are required to complete one inspection of all bridges and structural culverts every two years to identify condition and produce a report outlining the recommended work for a 1 to 10 year period. The inspection uses the Ontario Structural Inspection Manual (OSIM) 2008 and is referred to

as the OSIM report. The most recent condition assessment and study was completed in 2021, with the next scheduled assessment planned for 2023.

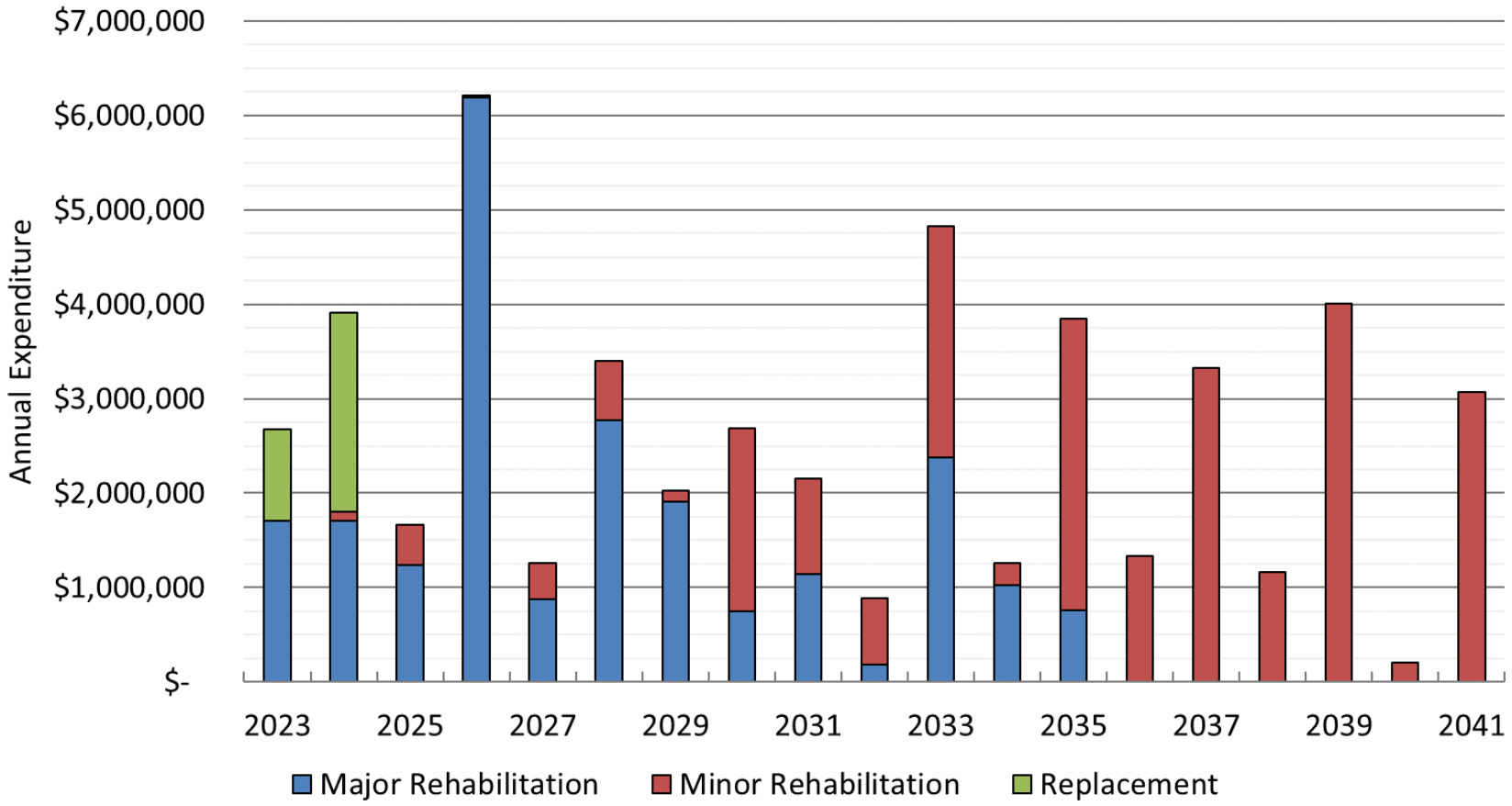
The Counties' current strategy for maintaining the bridges includes procurement of OSIM reports at the required frequency, and completion of the maintenance, rehabilitation and reconstruction works according to the recommendations from the OSIM reports.

Inspections and OSIM reports will identify works to be done at each of the bridge structures – each of the inspection types should recommend maintenance works, rehabilitation works, and reconstruction where necessary, as well as prioritization of the works and an estimation of the overall condition of the structure. It is therefore assumed that by following the results of the inspections/OSIMs, the Counties will be following a strategy that prioritizes maintenance works as required to maximize the lifecycle of the bridge assets.

4.6.1 Projection of Works

To understand the needs and projected works on the bridges and culverts within a 10 year period, the Counties have summarized a 10 year plan based on the recommendations from the 2021 OSIM reports. The repair works are categorized as minor rehabilitation, major rehabilitation, or replacement. A summary of the works is shown in **Figure 4-12**.

Figure 4-12: Projection of Works for Bridge and Culvert Assets



There are three structure replacements currently recommended based on the results of the OSIMs, including:

- Motts Mills Bridge, designed in 2022, and reconstruction to be completed in 2022 ($772,500)
- Glen Smail Bridge, to be designed in 2023 ($110,000), and replaced in 2024 ($1,042,500)
- Dulmage Culvert, to be designed in 2023 ($87,000), and replaced in 2024 ($1,060,000)

Through the first ten years of the scenario, the average annual expenditure is $2,686,783, with the maximum year experienced in 2026 at over $6.2 M. The priority and expenditure annually will be refined on an ongoing basis according to the results of the OSIM reports (conducted on a recurring two year basis). Although the OSIMs form the basis of the work plan for the Counties, it is important to note that this is a guide that the county uses to start the overall upcoming work plan. There may be external factors that also come into actuality that could change the order of work to be done, such as priority bridge works needing to be moved up due to critical nature of repairs and availability of contractors.

5.0 Community Housing

5.1 Summary

The Counties own and maintain 683 community housing units located throughout Leeds and Grenville, including the separated municipalities. This portfolio consists of 16 multi-residential buildings (with a total of 506 units) and 177 single family, semi-detached and townhouses units).

The properties at Spencerville and Mallorytown include water treatment systems as part of the asset inventory.

See **Table 5-1** and **Table 5-2** for the current inventory of community housing in Grenville (294 total units) and Leeds (389 total units). Information about the location of the buildings, year built and type of units is presented in the tables. Type of units describe the user group of each building: family (semi-detached and townhouses), adult and senior (multi-residential buildings).

Table 5-1: Current Inventory – Community Housing – Grenville

Code	Street Name	# of Units	Year Built	Type of Units
B01E	Roberta/Victor, Prescott	10	1970	Family – single
B02E	Edward Street, Prescott	02	1940	Family – single
B03C	Boundary Road, Prescott	01	1940	Family- single
B03C	Churchill Road, Prescott	14	1940	Family- single
B04C	105 Lewis Street, Merrickville	20	1975	Adult – multi
B05C	275 Water Street, Prescott	51	1975	Adult – multi
B06C	Fort Town Drive, Prescott	34	1971	Family – single
B07C	200 Bridge Street, Kemtpville	35	1975	Adult – multi
B09C	240 Helen Street, Cardinal	39	1972	Adult – multi
B10C	Victor Crescent, Prescott	12	1973	Family – single
B11C	503 Fort Town Drive, Prescott	24	1972	Adult – multi
B12C	523 Hyde Street, Prescott	07	1967	Adult – multi
B13C	33 Bennett Street, Spencerville	15	1975	Adult – multi

Code	Street Name	# of Units	Year Built	Type of Units
B14C	318 Brock Street West, Merrickville	20	1974	Adult – multi
B15C	201/203 Prescott Street, Kemptville	10	1900/1950	Adult – multi

Table 5-2: Current Inventory – Community Housing – Leeds

Code	Street Name	# of Units	Year Built	Type of Units
A01E	Salisbury Avenue, Brockville	08	1956	Family – single
A02e	Brighton Crescent, Brockville	40	1955	Family – single
A03e	Bisley Crescent, Brockville	05	1958	Family – single
A04C	5 ½ Glengarry Road, Brockville	20	1971	Family – single
A05c	150 Stone Street, Gananoque	51	1975	Adult – multi
A06C	56 Bedford Street, Westport	21	1975	Adult – multi
A07C	11 Hastings Drive, Brockville (0H4)	48	1971	Adult – multi
A08C	280/284/288 Bartholomew St, Brockville	28	1967	Family – single
A09C	80 Water Street, Brockville	82	1976	Senior – multi
	100 Perth Street, Brockville	08	2021	Adult – multi
A10C	55 Reynolds Drive, Brockville	42	1968	Adult – multi
A11C	43 Centre Street, Lansdowne	16	1977	Senior – multi
A12C	1287 Peden Boulevard, Brockville	01	1975	Family – single
	86/98 Reynolds Drive, Brockville	02	1968	Family - single
A13C	3 Miller Drive, Mallorytown	17	1978	Adult – multi

5.1.1 Average Age

The average age of the building stock is 52.1 years.

5.1.2 Replacement Cost

The replacement cost of the community housing assets is $111.45 million.
It should be noted that the replacement cost for the Community Housing Units is based on the assessed insurance value of this asset at the time this report was written.

5.2 Condition

The information reported in this AMP and the subsequent analysis are based on the current inventory information maintained by the Counties and the current BCA reports. The Building Condition assessments were conducted in 2019 by a third party consulting firm.

The Counties uses the following assessment rating for its housing units:

Very Good	new, all components new or good to excellent condition
Good	inhabitable, meets or exceeds all property standards
Fair	requires minimal improvements to remain inhabitable
Poor	uninhabitable, doesn't meet minimum property standards but feasible to repair and/or revitalize
Very Poor	uninhabitable, not feasible to make habitable

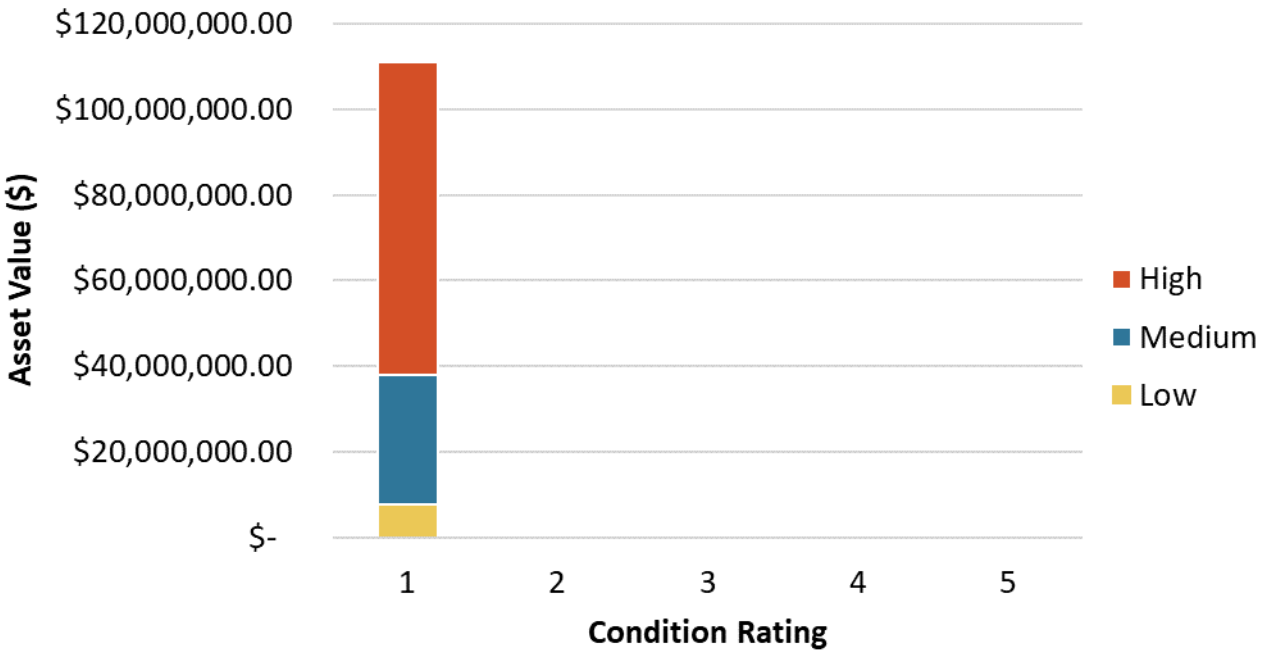
See **Figure 5-1** with the condition of Community Housing and the replacement value of these assets. This graph also differentiates the high, medium and low importance assets. The importance values assigning to the Community Housing assets were given under the following criteria:

High importance (value of 3) for multi-plexes;

Moderate importance (value of 2) for single family units; and

Low importance (value of 1) for units in low demand communities of Cardinal and Mallorytown.

Figure 5-1: Condition of Community Housing (Asset Value and Importance)



The Counties retain all of its housing assets at a Very Good condition. Should a unit be designated as Poor, the Counties undertake improvements to make the unit Good and therefore inhabitable. At the present time the Counties does not have any Good, Fair, Poor or Very Poor housing units.

The Counties assess the condition of the community housing units at the time of transition between tenants. This is a reasonable approach for the maintenance and comfort to meet the standards for the new tenant. Furthermore, they have an independent third party assessment done of the condition of the structure of the building, including foundation and roofing, as well as an evaluation of the heating, air conditioning and ventilation (HVAC) and to review electrical connectivity, every 5-10 years to ensure that overall they are meeting building code, safety, accessibility and reliability standards for the tenants.

5.3 Current Level of Service

Community Housing is considered a non-core asset under O. Reg. 588/17, and therefore do not have pre-defined levels of service statements.

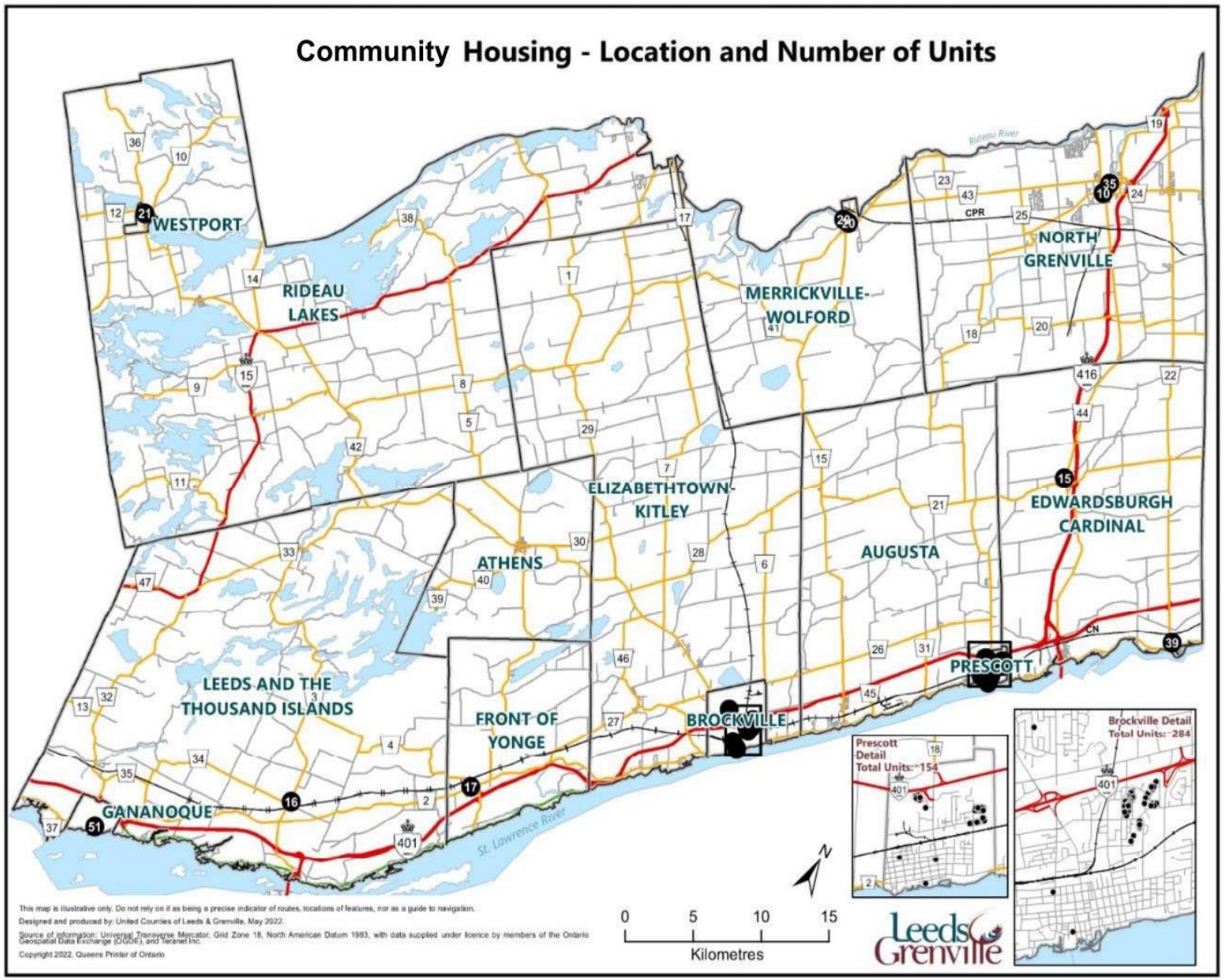
5.3.1 Community Level of Service – Community Housing

Table 5-3 outline the Counties' current community levels of service for community housing.

Table 5-3: Community LOS - Community Housing

LOS Parameter	Levels of Service Metrics	Response
Scope	Description, which may include maps of locations of Community Housing assets.	Community Housing assets are located across the Counties. See a map of the Counties' Community Housing assets in including number of assets in each community.
Quality	Description of types of community housing assets and quantity	Provide 683 rent-geared to income units in the Counties. These include single family and multi-residential units in rural and urban areas.

Figure 5-2: Community Housing – Location and Number of Units



Source: Map created by United Counties of Leeds and Grenville GIS Department.

5.3.2 Technical Level of Service – Community Housing

Table 5-4 outline the Counties' current technical levels of service for community housing.

Table 5-4: Technical LOS - Community Housing

LOS Parameter	Levels of Service Metrics	Response
Scope	Number of assets providing service compared to the size of the community (geography or population).	• 16 multi-residential buildings and 181 single family buildings which provides 683 units for rent. • Serves a population of 104,070 people (Counties plus the population of the three separate municipalities). • 683 units serving 104,070 population or 1 unit per 153 population
Quality	Refer to any legal/regulatory/local standards for your service	Requirements are defined in the Housing Services Act 2011, O. Reg. 367/11 Schedule 4, Building code/fire code, Residential Tenancy Act and local property standards (depending on municipality). The two buildings that have water treatment systems are required to comply with Safe Drinking Water Act.

5.3.3 Performance – Community Housing

The current performance of community housing is determined by the following performance measures established by the County. It is based on actual performance in the most recent two years.

The following measures are presented in **Table 5-5**:

- Total Maintenance Calls;
- Vacancy Rate;
- Time Between Tenants;
- Average time on centralized waitlist; and
- Number of households on centralized waitlist

Table 5-5: Current Performance – Community Housing

Description of Measure	Performance 2022
Total Maintenance Calls, which includes Annual Inspections, Preventative Maintenance, Move-in and Move-out calls.	1,548 (for 2020) 1,861 (for 2019) 2,006 (for 2018)
Time between tenants	30 days per unit, on average
Vacancy Rate	Units are always rented Average vacancies per month: 5 Vacancy rate: 1.2%
Average time on centralized waitlist	1.3 Years (2021)
Number of households on centralized waitlist	353 (as of May 1, 2022)

5.4 Risk Assessment

The risk assessment for community housing assets was conducted using the following assumptions and criteria:

Condition: Determined based on condition rating supplied by the Counties, according to:

- Very Good – 1
- Good – 2
- Fair – 3

- Poor – 4
- Very Poor – 5

Performance: Assumed to be always reliable (value of 1)

Climate Change: Assumed to be moderate (value of 3; limited impact with slower recovery; mitigation plan not in place)

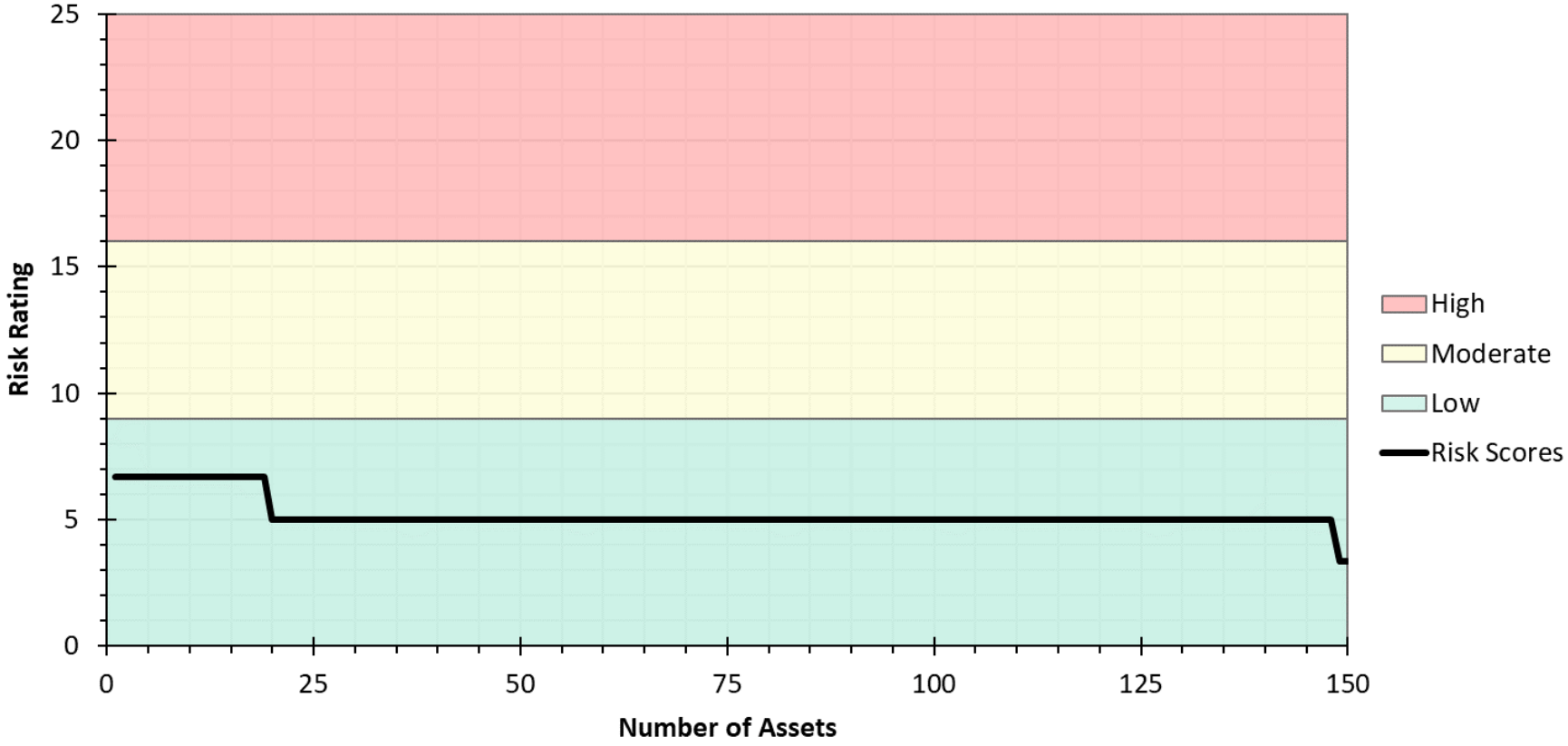
Impact: Assumed to be Moderate impact (value of 1)

Importance: High importance (value of 3) for multi-plexes

Moderate importance (value of 2) for single family units

Low importance (value of 1) for units in low demand communities of Cardinal and Mallorytown

Figure 5-3: Risk Profile for Community Housing



All 150 Community Housing Assets are considered to be low risk.

Currently there is consistency in the majority of risk factor assumptions across community housing assets, with the exception of the condition and importance. Accordingly, the variation in risk assessment values for the assets is largely driven by the condition and importance ratings.

5.5 Lifecycle Activities

The following section describes the lifecycle activities that can be implemented within the asset management strategy for community housing assets. Note that, as previously discussed, the community housing assets refers to the entirety of the asset which is made up of varying component systems depending on the use of the building. The primary lifecycle activities include construction, maintenance, renewal, and decommissioning/disposal.

Construction Activities:

The start of a community housing asset lifecycle is its construction. The housing should be constructed to adhere with the requirements of the Ontario Building code, accessibility requirements, safety requirements, and any and all other applicable regional codes and requirements for the building and its use. Construction of a new asset should be done such that the current needs of the Counties are being addressed, and that the housing asset can provide service delivery as intended.

Maintenance Activities:

Throughout the full lifecycle of a community housing asset, the majority of the expected lifecycle activities to be undertaken will be maintenance works. Maintenance activities can be used to improve the level of service of an asset (or component), or to maintain it. Activities that fall under the maintenance category can be varied by response type and scale of maintenance requirements. Activities can be required through routine maintenance works, in response to tenant complaints, or on an emergency basis. In general, the expected types of maintenance activities within the lifecycle of a building include:

- Preventative maintenance:
    - This type of maintenance activity is undertaken to prevent failure or poor performance of a housing asset component. Preventative maintenance works can be undertaken on an ad-hoc basis based on knowledge of condition, or be undertaken according to a maintenance schedule. Manufacturer directives and condition assessments should assist in determining frequency of preventative maintenance activities.
- Reactive maintenance:
    - This type of maintenance activity is undertaken in response to an issue or fault in the asset or component systems. Scale of reactive maintenance works will be variable depending on the system and type of failure or decrease in level of service.
- Major maintenance (replacement):
    - This type of maintenance activity is undertaken in response to a component which is no longer able to provide adequate level of service. Major maintenance (replacement) will be undertaken for one or more components of a community housing asset. Major maintenance works can be preventative (in anticipation of end of service life of a component), or in response to a system failure.

Renewal Activities:

Renewal works can be used to update a housing asset or unit for modernization, to achieve compliance with updated codes and requirements, to upgrade the condition or performance of the unit or asset, or to renovate to suit changes to services provided. Renovation works can include:

- Addition of new components to an existing housing unit or asset (acquisitions); and
- Updating of existing components:
- Updating of existing components can prolong the expected lifespan of an asset.

Decommissioning/Disposal Activities:

Disposal activities can include the removal from service of a housing unit or asset, or a portion of the asset and components. Disposal activities should be conducted such that health and safety and environmental protocols are being followed, and spent materials are disposed of at appropriate or approved facility.

Disposal activities can also include removal of the housing asset from the Counties portfolio through sale of property, if it is no longer required for service delivery.

5.6 Asset Management Strategy

The asset management strategy for community housing assets will maximize the lifecycle of the assets while maintaining a high level of service, in consideration of specific needs of the Counties and its citizens.

The Counties has three pillars for the regeneration and revitalization of community housing. The pillars are: Geographic Redistribution of Stock, Revitalization and Social Improvement and Revised Business Model. Maintaining these pillars can impact the mix of housing units through acquisition or disbursement of assets. These pillars are considered in future planning of community housing as well as capital and operational budget plans. In general, the community housing assets are maintained in Good condition and perform adequately to provide the intended services. The Counties strategy should maintain (or improve where appropriate) the condition and performance adequately to ensure that all assets are inhabitable and meet all building code, accessibility, safety and other requirements. As community housing units become vacant, the Counties strategy is to minimize downtime to ensure the unit can be available as quickly as possible, which involves efficient planning and implementation of the lifecycle activities to address any concerns with condition or performance prior to new occupancy.

Implementation of the lifecycle activities for the community housing assets will vary across the assets, according to the components, condition, and residential density.

Routine maintenance is undertaken for each unit which is based on the recommendations from the Building Condition assessments, these assessments are recommended to continue assuming that they are currently providing sufficient level of maintenance. Also, during the transition time between each tenant a unit is assessed for maintenance and repair needs. Maintenance works can include preventative maintenance, reactive maintenance (in the event that there is an issue), or major maintenance which can include the replacement of a component.

When maintenance works is found to be insufficient to address an issue, renewal or rehabilitation activities may be required. Further, renewal or rehabilitation works can be

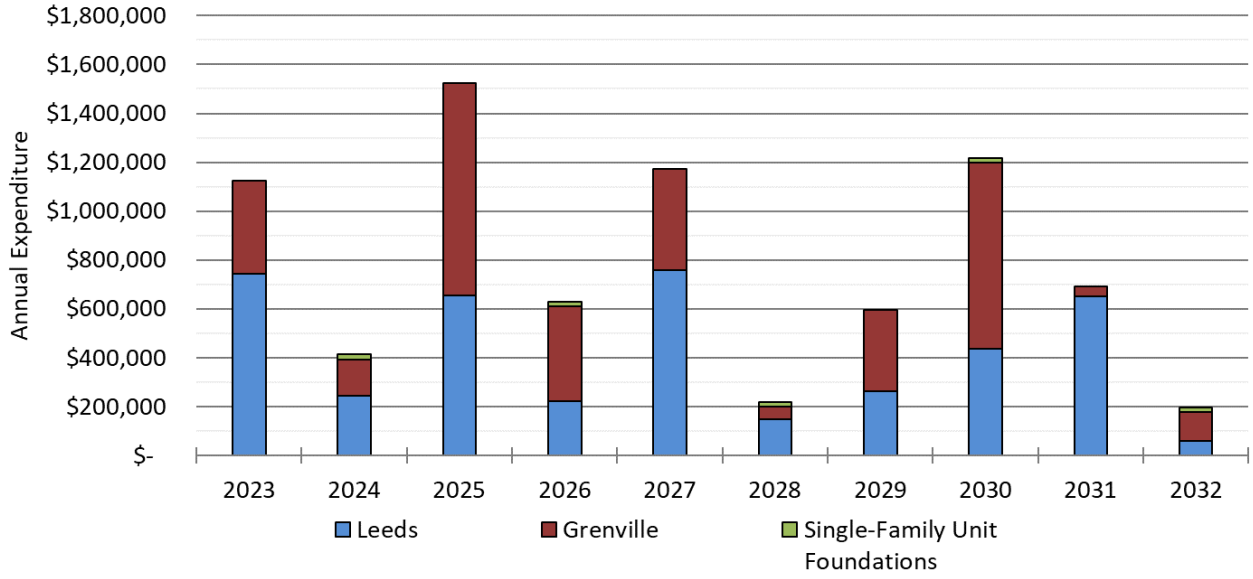
implemented when performance and condition of the community housing asset is still acceptable, however improved service delivery requires changes to the asset, such as for modernization, to achieve compliance with updated codes and requirements, or to include addition of new components to an existing asset or asset component.

Reconstruction works are undertaken when an asset has reached the end of its useful life. The Counties should consider on a case-by-case basis if the asset is to be reconstructed to a similar level of service as was existing, if modifications need to be made to support current and future service delivery. This could include changes to the housing asset to accommodate changes to occupancy, accommodate growth requirements, changes to square footage, or changes based on accessibility.

5.6.1 Projection of Works

Using condition and maintenance information the Counties have devised a 10-year capital plan for Community Housing assets, projecting capital works for the units. The average expenditure across the ten year capital plan is just under $779,000, with the annual expenditure summarized in **Figure 5-4**.

Figure 5-4: Projection of Works for Community Housing Assets



All of the expenditures are for the multi-family units, with only $20,000 allocated on alternating years to address foundational works on single-family units.

6.0 Fleet

6.1 Summary

The Counties owns and operates numerous vehicles and equipment used in delivering its services and programs. The largest user of the fleet is Public Works (roads) and Paramedic Services (ambulances and Emergency Response Vehicles). Other users include Community Housing, EarlyON, Maple View Lodge, Corporate Facilities and Forestry.

The vehicles included in the Counties' fleet delivers services in:

- **Public Works**: snow removal and road repairs as well as associated fleet equipment; which is included in this category as this equipment is integrated with the vehicles for example a plow or a grader on a truck;
- **Paramedic Service**: ambulances and Emergency Response Vehicles; and
- **Other Fleet**: vehicles required for administration services or to support social service programs.

The following table outlines the fleet assets currently owned and maintained by the Counties.

Table 6-1: Summary of Fleet

Asset Category	Public Works	Paramedic Service	Other Fleet
Number of Vehicles	54	27	6
Number of Equipment	85		

6.1.1 Average Age

The average age of Public Works and Other fleet is 6 years, while the Paramedic fleet has an average age of 5 years.

6.1.2 Replacement Costs

The replacement cost of the fleet is $16.10 million. Which includes $4.04 million for paramedic equipment.

6.2 Condition

The information reported in this AMP and the subsequent analysis are based on the current inventory information maintained by the Counties.

The condition for fleet (including equipment) was determined by the County based on age and usage of the fleet. The ranking of importance was assigned as follows.

- High importance vehicles were assigned to Paramedic Service, as a failed vehicle is difficult to replace quickly.
- Moderate importance was assigned to public works vehicles which include snow removal equipment, as a failed vehicle could be replaced or another service provider could provide the service until the equipment was fixed.
- Low importance vehicles are all the other vehicles such as for program delivery and inspections. These are the easiest vehicles to replace quickly.

Figure 6-1 presents the condition and replacement values of Public Works fleet and associated fleet equipment (without Paramedic Service). Over half the assets are in Very Good (1) or Good (2) condition, about one-third are in Fair (3) and Poor (4) condition with 11% in Very Poor (5) condition.

Figure 6-1: Condition of Public Works Fleet (Value and Importance)

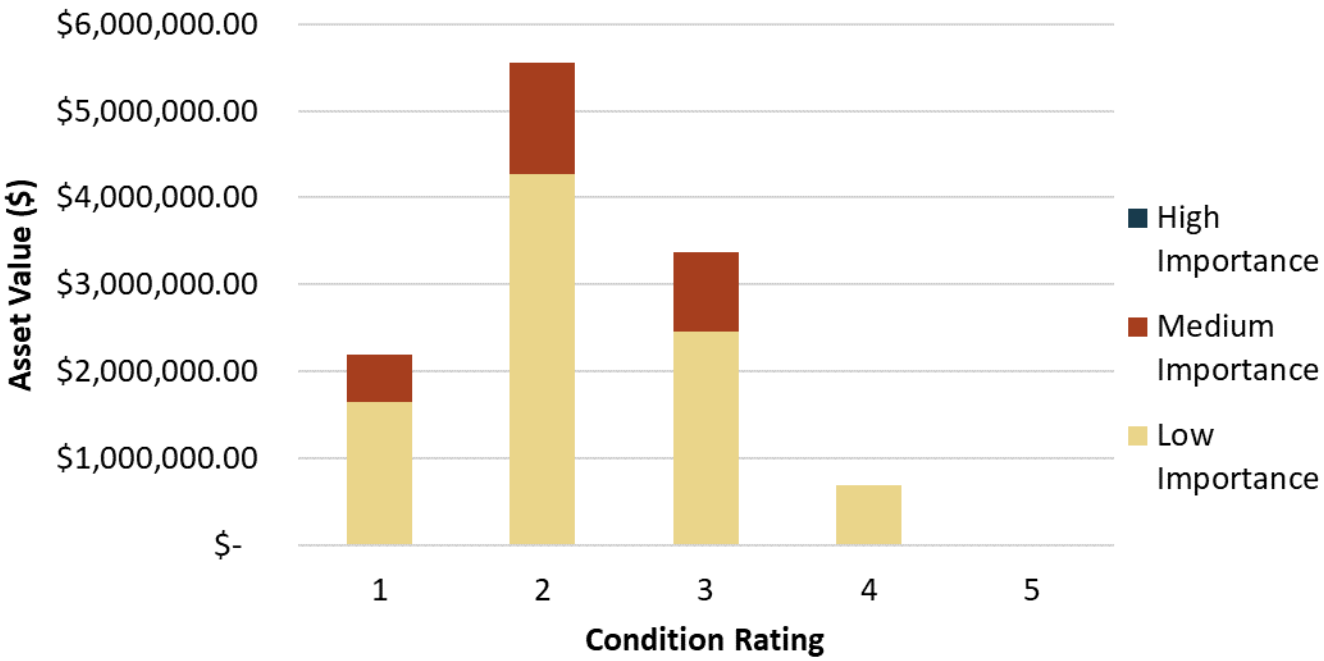
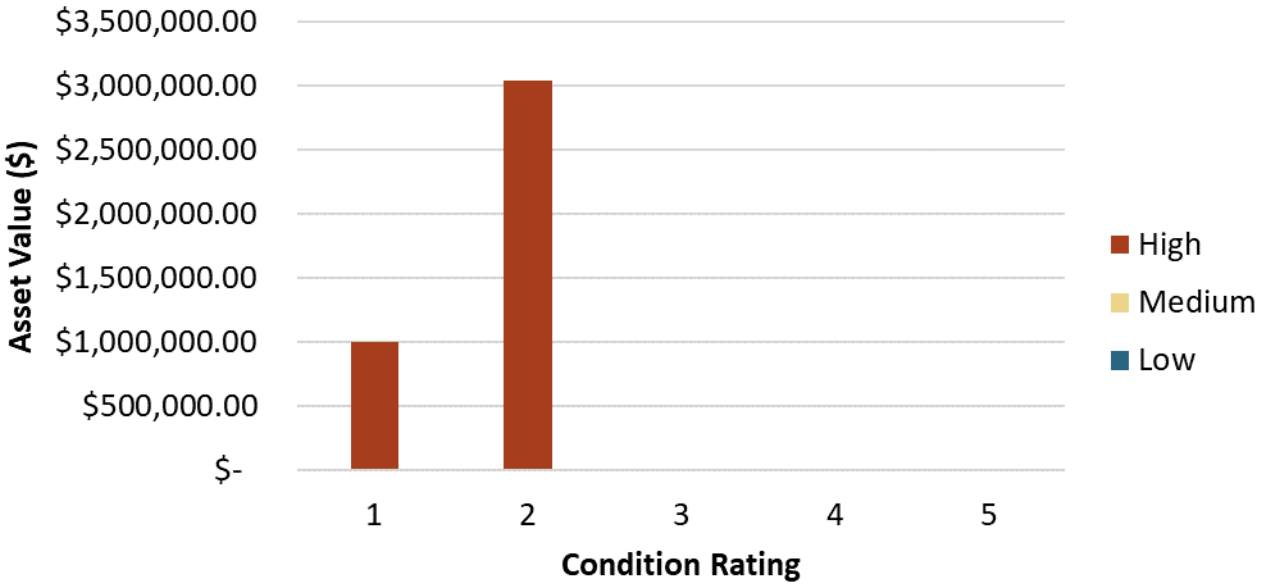


Figure 6-2 presents the condition of the paramedic fleet with all the assets in Very Good, Good condition.

Figure 6-2: Condition of Paramedic Fleet (Value and Importance)



Fleet is maintained in “good” or better condition in order to deliver a reliable service when required. If not mechanically fit, it is not available to be part of the fleet.

6.3 Current Level of Service

Fleet is considered a non-core asset under O. Reg. 588/17, and therefore do not have pre-defined levels of service statements. The two distinct services provided by fleet (Paramedic Service and Public Works) are required to meet different standards for their fleet, so levels of service parameters have been described individually or each service type.

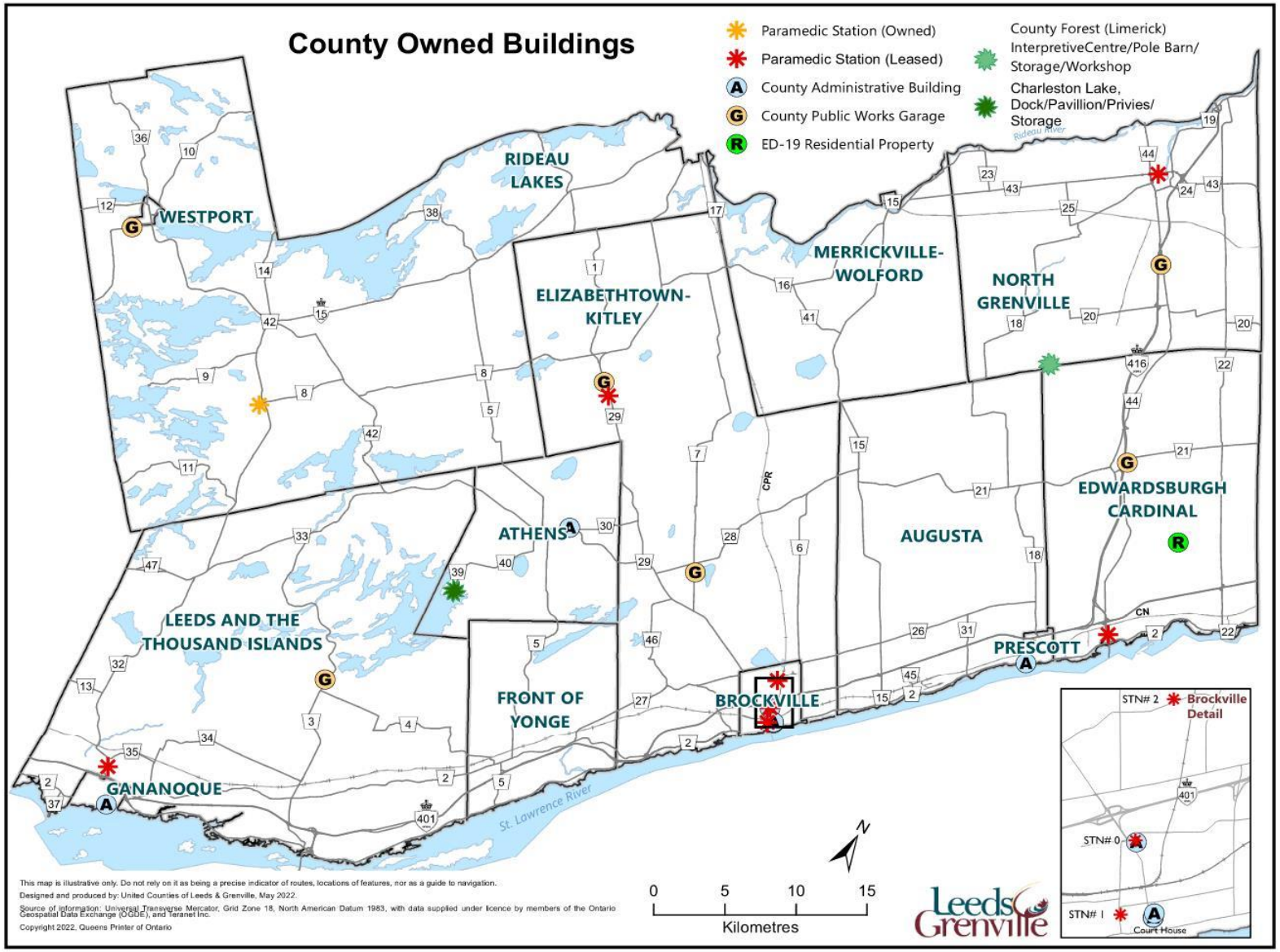
6.3.1 Community Level of Service – Fleet

Table 6-2 outlines the Counties' current community levels of service for fleet.

Table 6-2: Community LOS - Fleet

LOS Parameter	Levels of Service Metrics	Response
Scope	Description, which may include maps, of the asset category.	The vehicles and equipment included in the Counties' fleet delivers services in: • **Public Works**: snow removal and road repairs as well as forest management; • **Paramedic Service**: ambulances and Emergency Response Vehicles; and • **Other Fleet**: vehicles required for administration services or to support social service programs. The effectiveness and response time of the fleet is related to where the vehicles are stored. See Figure for a map of Counties' facilities including the location of the paramedic stations and the public works garages.
Quality	Description or images that illustrate the different levels or condition (if applicable).	Fleet is maintained in "good" or better condition in order to deliver a reliable service when required. If not mechanically fit, it is not part of fleet.

Figure 6-3: County Owned Building – Location of Garages and Paramedic Stations



Source: Map created by United Counties of Leeds and Grenville GIS Department.

6.3.2 Technical Level of Service – Fleet

Table 6-3 outline the Counties' current technical levels of service for fleet.

Table 6-3: Technical LOS - Fleet

LOS Parameter	Levels of Service Metrics	Response
Scope	Number of assets providing service compared to the size of the community (geography or population).	• See **Table 6-4** below.
Quality	Refer to any legal / regulatory / local standards for your service	Paramedic Service meets the following quality parameters: • Vehicles must meet Ontario Provincial Land Ambulance and Emergency Vehicle standards; • Manufacturer's recommendations or maintenance and life expectancy on fleet; • Ambulances based on call volume and kilometers travelled; and • Vehicle preventative maintenance program. Public Works and Other Fleet meet the following quality parameters: • Vehicle maintenance, safety; • Driver training, equipment functioning (negligence, risk management); • Maple View Lodge: vehicles stored at MVL; • Housing: all kept at 25 Central, taken daily to housing; • Corporate Facilities: maintenance technician vehicle stored at 25 Central; and • Public Works: geographically located.

6.3.3 Performance - Fleet

The current performance of fleet is determined by the following performance measures established by the Counties. It is based on actual performance in the most recent two years.

See **Table 6-4** for the following performance measures selected by the County:

- **Public Works**: Fleet maintenance expense in 2022 and vehicle recovery
- **Paramedic Service**: distance travelled, fuel consumption and number of calls

Table 6-4: Current Performance – Fleet

Description of Measure	Services Delivered	Performance 2022
Fleet maintenance expense	Public Works	$1,039,154
Vehicle recovery[1]	Public Works	$751,410
Distance travelled	Paramedic Service	1,244,121 km
Fuel consumption	Paramedic Service	305,559 litres
Number of calls	Paramedic Service	25,368 calls

[1] represents the revenue generated by a unit cost/hr for vehicles performing roadside, winter control and other road maintenance activities.

6.4 Risk Assessment

Risk assessment was undertaken for the fleet assets by service delivery as the criteria or assumptions vary.

6.4.1 Public Works Fleet

The risk assessment for public works fleet assets was conducted using the following assumptions and criteria:

Condition: Determined based on estimated condition, based on visual and mechanical inspections from qualified Public Works employees, according to the following:

Table 6-5: Condition Rating for Fleet Risk Assessment

Condition Rating	Condition Score Used
Excellent	1
Good	2
Fair	3
Rough	4

Performance: Assumed to be always reliable (value of 1)

Climate Change: Assumed to be moderate (value of 3; limited impact with slower recovery; mitigation plan not in place)

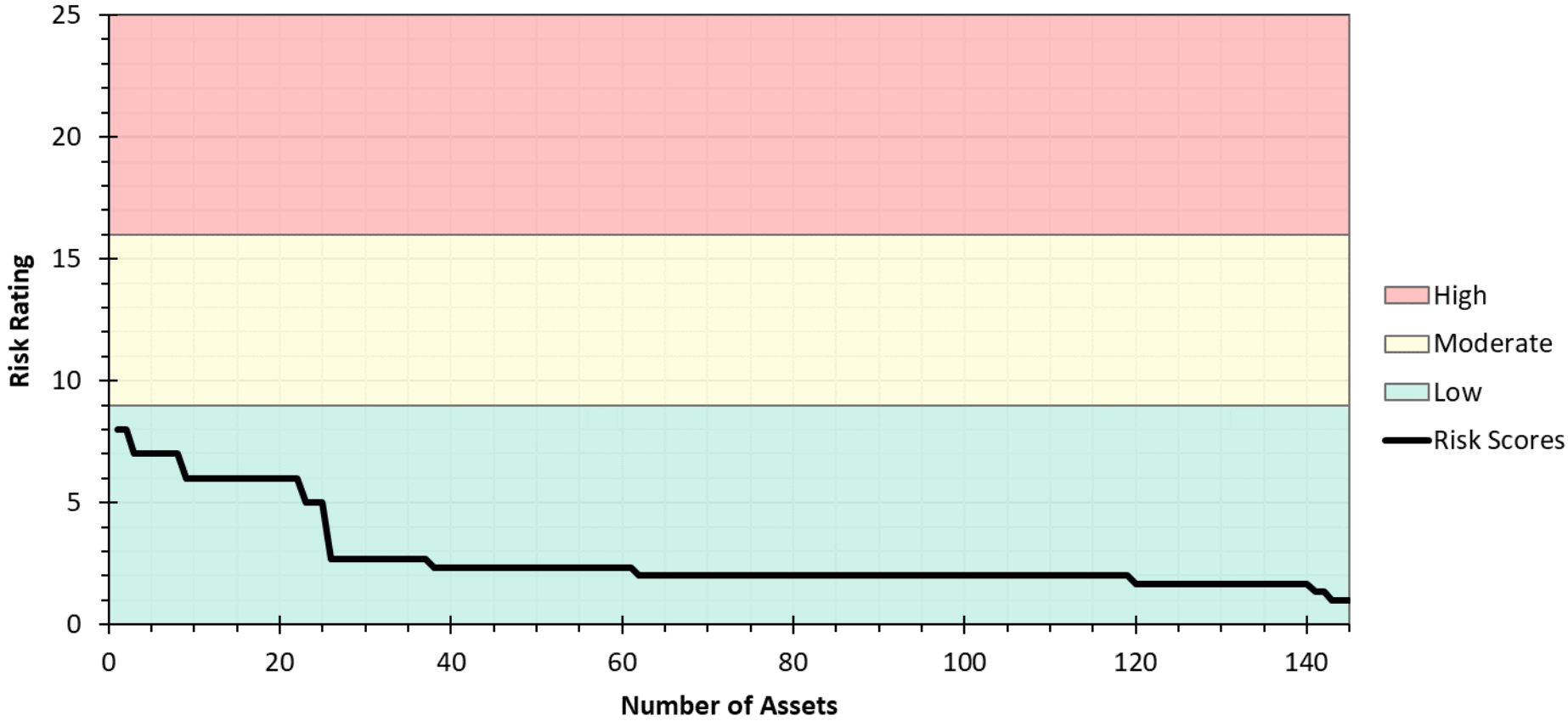
Impact: Moderate impact (value of 1) for Sander Plow Units

Low Impact (value of 0) for all other assets

Importance: Moderate importance (value of 2) for Sander Plow Units

Low importance (value of 1) for all other assets

Figure 6-3: Risk Profile for Public Works Fleet



All 139 Public Works Fleet Assets are considered to be low risk.

6.4.2 Paramedic Fleet

Note that paramedic equipment was reviewed separately and used the following assumptions:

Condition: Determined based on estimated condition as provided by the Counties

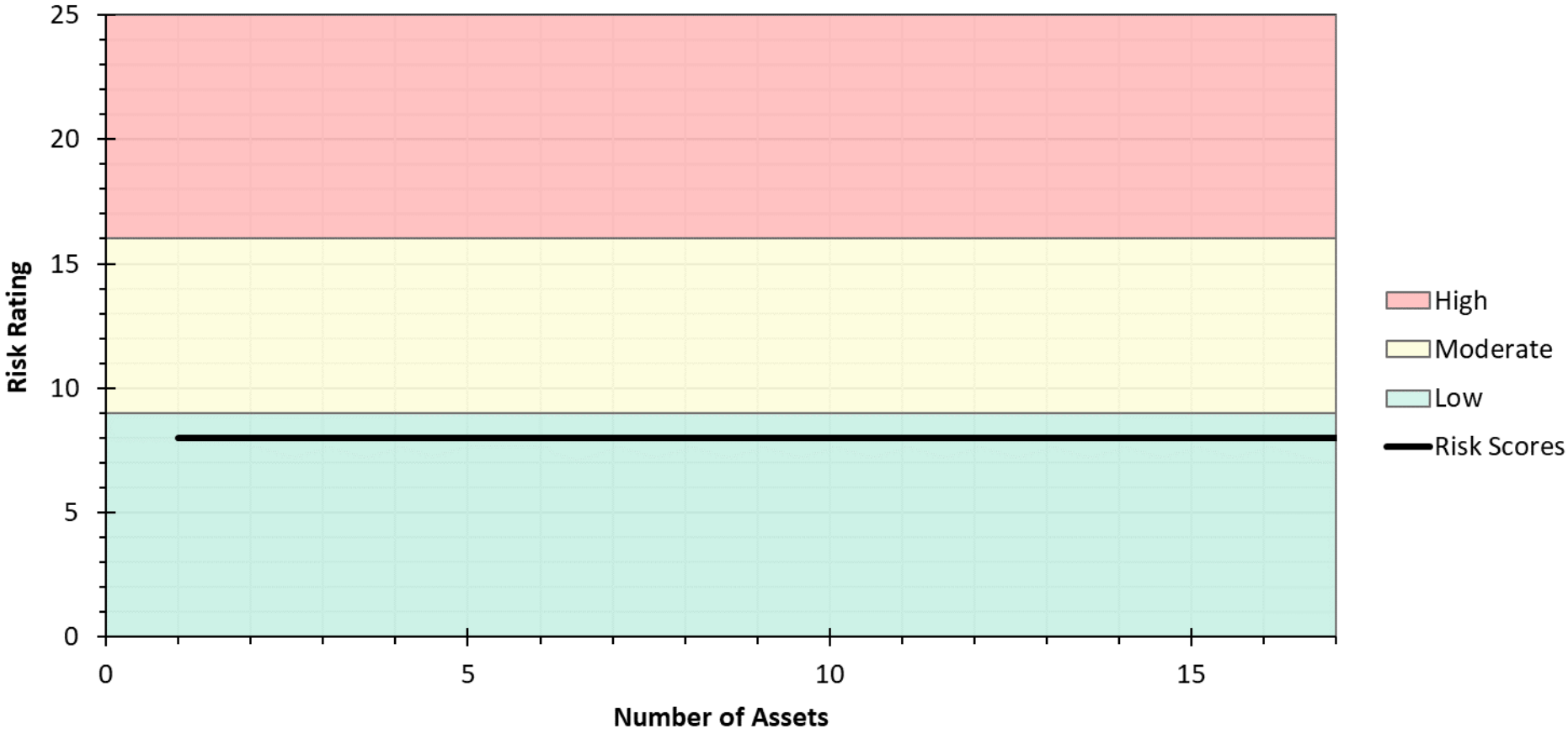
Performance: Assumed to be always reliable (value of 1)

Climate Change: Assumed to be moderate (value of 3; limited impact with slower recovery; mitigation plan not in place)

Impact: Moderate impact (value of 2) for all assets

Importance: High importance (value of 3) for all assets

Figure 6-4: Risk Profile for Paramedic Fleet

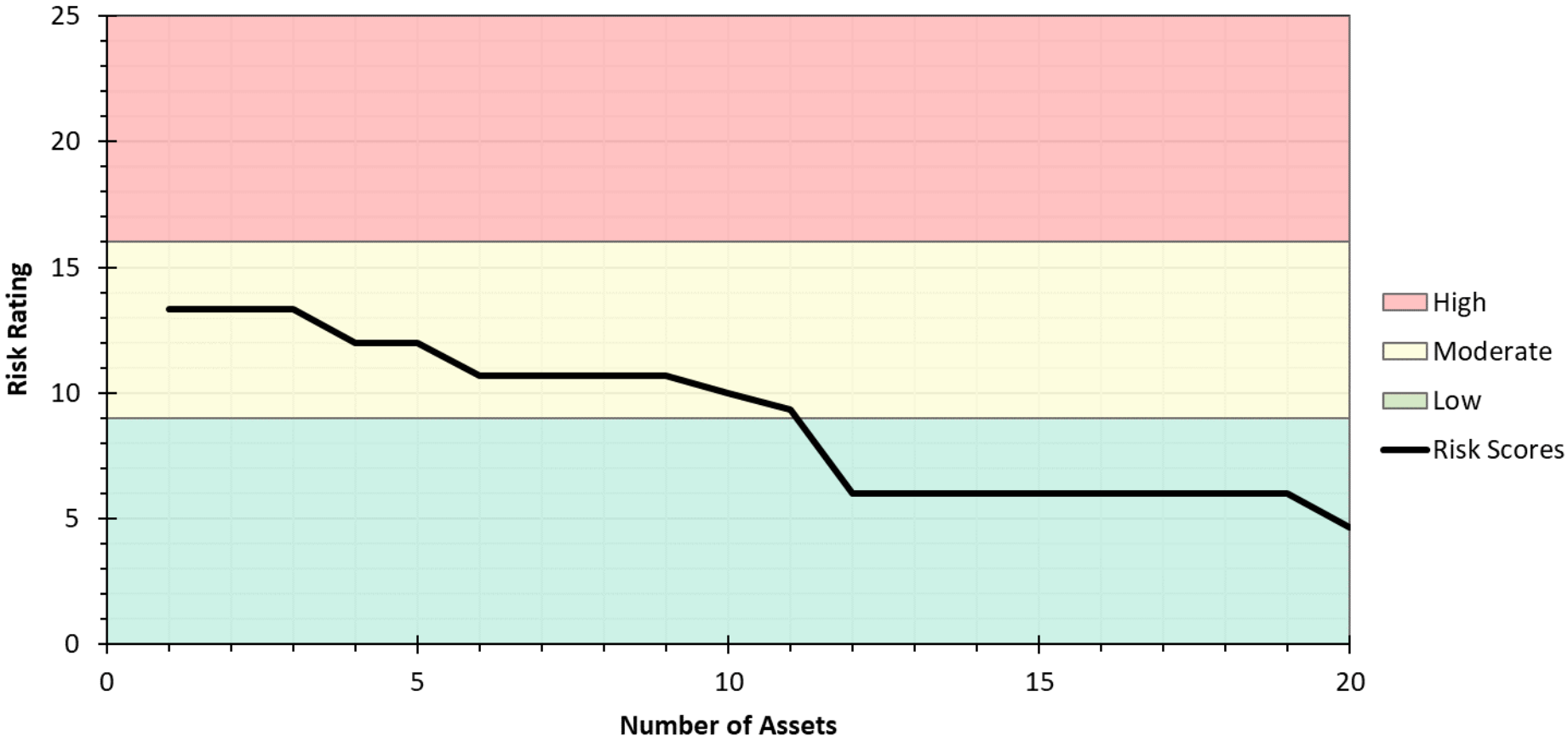


All 27 Paramedic Fleet Assets are considered to be low risk.

6.4.3 Other Fleet

The same assumptions used for Public Works Fleet were used for the Other Fleet category.

Figure 6-5: Risk Profile for Other Fleet



All 6 Other Fleet assets are considered to be low risk.

6.5 Lifecycle Activities

In the lifecycle of a fleet asset, there are multiple activities that can be undertaken, depending on the asset attributes. The expected lifecycle activities to be used on the fleet assets include acquisition, maintenance, and operation and decommissioning/disposal.

Acquisition Activities:

Acquisition of a fleet asset is the addition of a new fleet asset to the inventory (ie. expansion; excludes replacements). Acquisition of a fleet asset should consider the intended usage of the asset. Acquisition should be undertaken based on an understanding of the requirements of the asset for providing service delivery, and should follow County procurement procedures. Acquisition of an asset could be as a new purchase, or purchase of a used asset. Acquisition of a new asset can provide the Counties with an asset in Very Good condition, however the condition of a used asset could vary.

Renewal Activities:

Renewal activities include direct replacement of existing fleet assets. When a fleet asset reaches the end of its useful life, and the asset is found to be adequate for providing service delivery required, the acquisition activity may be asset replacement. This activity is similar to acquisition. Renewal activities should review utilization of the asset and consider current and future use.

Maintenance Activities:

Maintenance activities will vary across the fleet assets due to the variability in type and usage of assets. The maintenance activities should be undertaken according to manufacturer specifications and as required to address condition and performance issues that arise through regular usage. Maintenance activities should include regular inspections of vehicle for condition, and recording of maintenance activities undertaken.

Decommissioning/Disposal Activities:

Disposal activities can include the removal from service through disposal, sale of asset or transfer of an asset to a different department. Disposal activities should be conducted such that health and safety protocols are being followed, and out of service assets are disposed of at appropriate or approved facility.

6.6 Asset Management Strategy

The asset management strategy for the fleet and associated equipment assets would seek to maximize the useful lifespan of the assets, such that they can continue to be used in service delivery across the Counties. Within the Counties' fleet assets, there are a variety of vehicle types, which are involved in multiple aspects of service delivery, such as: Emergency Medical Services (which include both Ambulances and Support vehicles), Public Works Fleet (which include, Grader, Sanders, Forklifts, Trailers, Mowers, and general work vehicles) and other general Fleet for the childcare facility staff, Community Housing Staff and Maple View Lodge facility.

The Counties' current strategy for the other types of vehicle within its fleet is driven by the age and performance of the assets. Fleet assets are purchased new, and replaced following the expected useful life, or when it no longer performs satisfactorily. At the end of its lifecycle, the usage is evaluated and if required it is replaced with a new version of the vehicle and disposed of.

The rating system for the performance and condition of the fleet assets is not formalized, and should be documented such that routine inspection and assessment of the fleet assets can be conducted to understand more fully their current state. This can include visual assessment of the vehicles, tracking of maintenance logs, or logging of odometers readings.

Generally, if acquired new, the assets will begin their expected useful life in very good condition and performance. Throughout the lifecycle of the assets, routine maintenance should be conducted. As required, specific maintenance should be conducted. As an asset ages and approaches the end of its useful life, it is expected that the risk and maintenance costs associated with the asset will increase. There will be a point in the lifecycle where the risk and maintenance costs are such that replacement of the asset will be the preferred solution. This point will vary depending on the type of asset, and can be impacted by factors such as build quality, and utilization. At the end of the lifecycle the Counties should review the requirement for service delivery for the asset to determine if it requires replacement. It is assumed that the assets will be replaced like for like.

The Counties should review usage of fleet assets to confirm if services are being provided adequately. The assets should also be routinely assessed and monitored for

condition and performance, to inform any maintenance or replacement works required. The needs and monitoring of asset condition will fall within multiple departments of the Counties, due to the varied range of service the assets provide.

Specific strategy requirements for EMS fleet assets

Due to the criticality of the EMS fleet assets, the strategy is different for EMS vehicles is to run them to approximately 300,000 km on the odometer or 4 years for an Ambulance, 5 years for an ERV, and 10 years for EMS support vehicle of service, at which time the vehicle is then moved to a lower volume centre or disposed of/ made inactive, depending on the availability of a new vehicle.

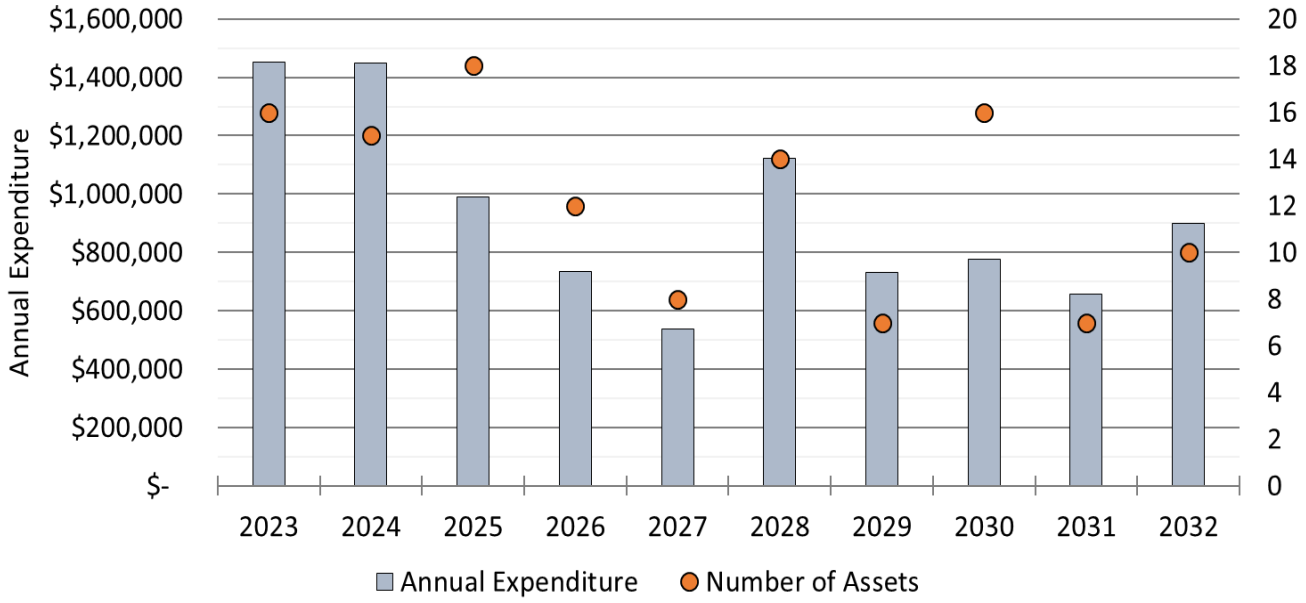
6.6.1 Projection of Works

The Counties have developed 10-year capital plans for Fleet and Equipment assets, according to condition and maintenance information. The capital plans have been separated by service delivery type.

6.6.1.1 Public Works

The capital projections for the public works fleet and associated equipment are predicted according to the expected lifespan of the assets. Where the lifespan of an asset is less than the projected timeframe (10 years), the assets may be projected for replacement multiple times. The capital works include replacement of fleet and associated equipment. A summary of the annual expenditure in the capital plan is shown in **Figure 6-6**.

Figure 6-6: Projection of Works for Public Works Fleet Assets

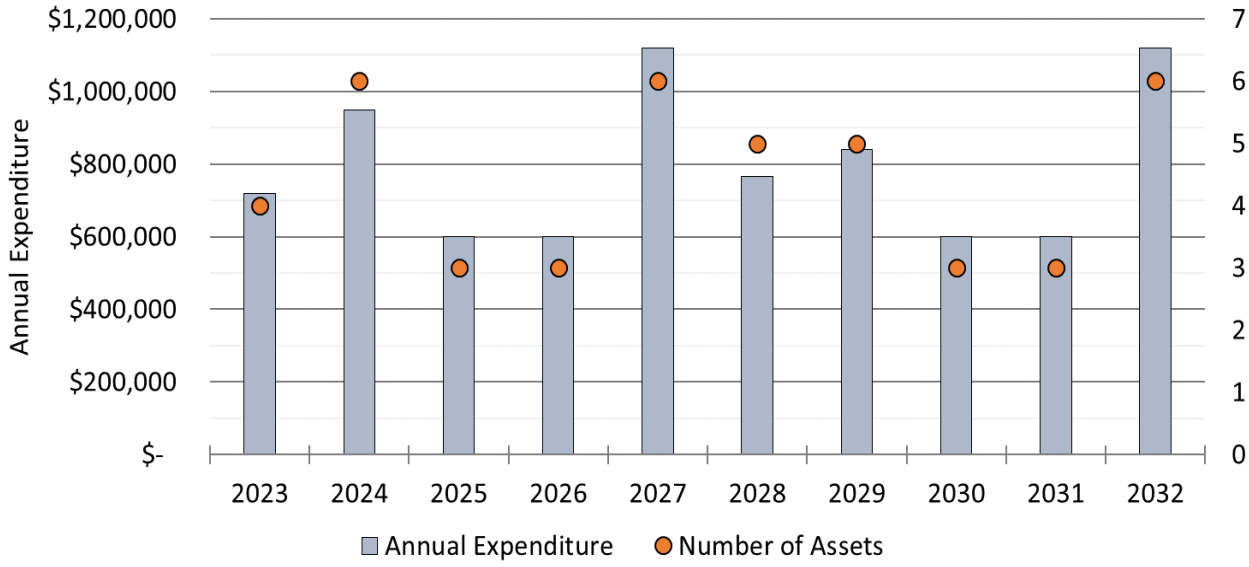


The average annual expenditure across the 10 year timeframe is just under $950,000. Three of the projected years have anticipated expenditure greater than $1 M.

6.6.1.2 Paramedic Services

The capital projections for the paramedic services fleet are predicted according to the expected lifespan of the assets. Where the lifespan of an asset is less than the projected timeframe (10 years), the assets may be projected for replacement multiple times. The capital works include replacement of fleet. A summary of the annual expenditure in the capital plan is shown in **Figure 6-7.**

Figure 6-7: Projection of Works for Paramedic Services Fleet Assets

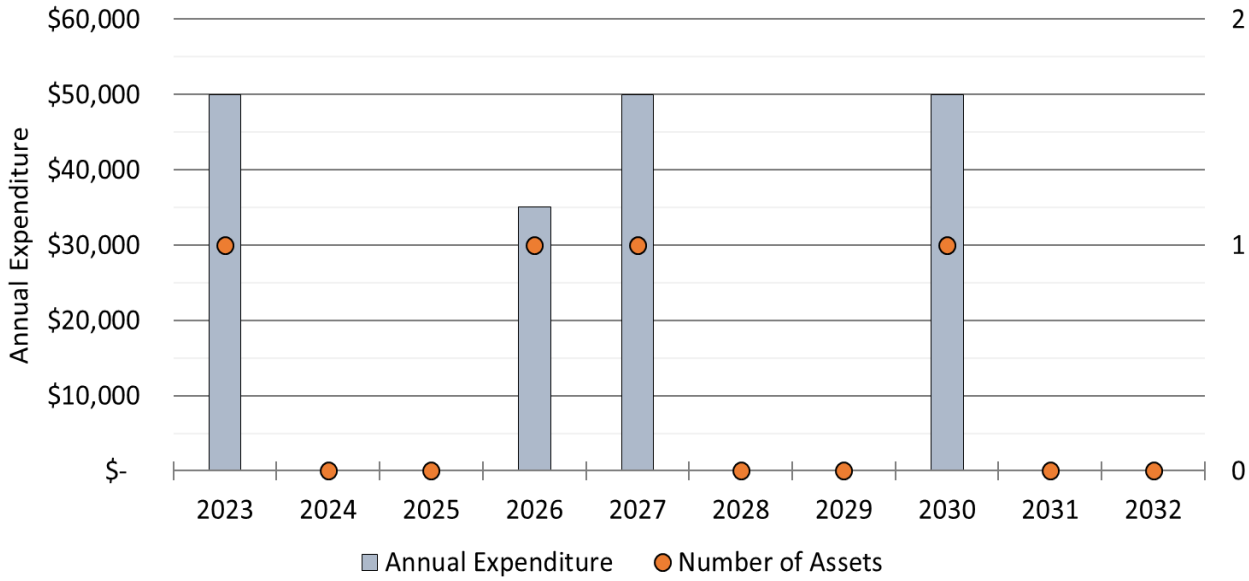


The average annual expenditure across the timeframe is approximately $791,500. There are two years with expenditures greater than $1 M, however each of these years replaces six individual assets.

6.6.1.3 Other Fleet

The capital projections for the other facilities fleet are predicted according to the expected lifespan of the assets. Where the lifespan of an asset is less than the projected timeframe (10 years), the assets may be projected for replacement multiple times. The capital works include replacement of fleet. A summary of the annual expenditure in the capital plan is shown in **Figure 6-8**.

Figure 6-8: Projection of Works for Other Fleet Assets



The average annual expenditure across the timeframe is just $18,500. Each year with expenditure includes costs for a single asset, with five assets being renewed during the timeframe.

7.0 Buildings and Facilities

7.1 Summary

The Counties has buildings and facilities in the following categories:

- Buildings (including administration, long term care and Paramedic Services);
- Public Works Facilities; and
- Forest Management.

The category of Buildings includes administration, long-term care and Paramedic Service as described below:

- The main administration building is located at **25 Central Avenue** in Brockville. This building houses the majority of the management, administrative and support staff for the Counties. The building was originally constructed in 1973 and underwent two renovations and additions in 2004 and 2007 increasing usable space from 1,705 m2 to 3,070 m2.
- Another administration building is located at **32 Wall Street** in Brockville. This building houses the Provincial Offences offices and court, economic development offices, and leased space (2nd floor). The building is approximately 127 years old and was completely renovated during the 1990s and was modified again between 2004 and 2008 as tenant requirements changed.
- In Gananoque, the Counties own a building at **375 William Street South**. This building has offices for Community and Social Services staff, an EarlyON centre, and rental space with two tenants. The Counties leases an adjacent parking lot from the Thousand Islands Playhouse. The building was acquired by the Counties in 2005 and completely renovated in 2006 to its present condition.
- The Counties owns the **Courthouse** in Brockville, which is leased to the Province on a 30-year lease with two-five year extensions. The main lease ends in May of 2032.
- **Maple View Lodge** is a 60-bed long-term care facility located east of the Village of Athens at 746 County Road 42. The facility consists of an older section built originally constructed in 1895 and subsequently renovated, the latest being 2004. This section houses the offices and support services for the long-term care operations, along with leased space on the 2nd floor. In 2004 two wings were

added to the original building. These wings house the accommodations and common areas for residents at the Lodge. The septic pumping system is included as a component of Maple View Lodge. A new facility is planned to be constructed in 2023 on the site to increase the capacity of the facility to accommodate 192 beds, it is still in the tendering phase at this time.

- The Counties provide financial support to **St. Lawrence Lodge** as they are a partner in the capital and ownership of the building with the City of Brockville and Towns of Gananoque and Prescott. St. Lawrence Lodge is managed through an independent Committee of Management comprised of representatives from each of the four partner municipalities; however, the Counties' share is a component of the Counties' consolidated financial statements.
- The Counties owns the **Elgin Paramedic Station** located at 85 Davis Lock Road in Elgin. This building was originally a County garage. In 2009 the Counties acquired the property and completely renovated the building into a Paramedic Station with three ambulance bays as well as office and living quarters for paramedics.
- The Counties lease another five paramedic stations throughout the Counties. Although the capital improvements to the leased facilities are not the responsibility of the County, with the exception of Johnstown Station, it is important to note in the asset management plan as necessary to deliver services.

7.1.1 Average Age

The average age of all buildings and facilities is 45 years.

The average age of Public Works and facilities is 27 years.

The average age of Forest Management Facilities is 47 years.

7.1.2 Replacement Cost

The total replacement cost for all building assets owned by the County is $67.49 million.

The replacement cost for Public Works facilities owned by the County is $8.68 million.

The replacement cost for Forest Management facilities owned by the County is $1.09 million (including Limerick Forest and Charleston Lake/Sand Bay facilities).

7.2 Condition

The condition information reported in this AMP is based on the current Building Condition Assessment (BCA) and WorkTech database. All BCA reporting was done by a third party consulting firm in 2019.

The Counties utilizes a rating system to determine the condition of buildings:

Very Good	well maintained, meets all applicable building codes, accessible, new or recently renovated, don't require significant improvements
Good	well maintained but requires improvements and/or renovations, often not fully accessible, meets minimum building codes
Fair	maintained but needs significant improvements and/or renovations, often not accessible or meeting today's building code levels
Poor	needs significant renovations or replacement
Very Poor	needs replacement

Due to the nature of the use of the Counties facilities and buildings, some buildings must be maintained and kept to a higher standard, such as Maple View Lodge. This facility must not only meet higher building code laws, but also requirements from the Ministry of Health and Long-Term Care as a condition of its licensing as a long-term care facility. The condition, use and age of the Counties buildings and facilities are presented in **Table 7-1, Table 7-2,** and **Table 7-3** in the section below.

For this asset management plan, the Counties' staff reviewed the facilities, assessed condition, estimated remaining useful life and identified capital works for the next 10 year period. The Counties provided information from a report by the insurance company as to the replacement cost and condition of some of the buildings.

7.2.1 Buildings

See **Table 7-1** for condition and replacement costs of the buildings.

- The Counties owns a house at 1416 Byers Road, Cardinal. Located north of Cardinal, the house and outbuildings are leased to residents until such time as the proposed ED-19 waste site is developed or the property is disposed of.

Table 7-1: Condition and Replacement Costs of Buildings

Building Name	Condition	Use	Age (years)	Replacement Cost
Administration Offices – 25 Central, Brockville	Very Good	administration offices	49	$10,103,202
Administration Offices – 32 Wall St, Brockville	Very Good	Administration offices and POA courts	127	$5,098,490
Administration Office – 375 William St, Gananoque	Very Good	administrative offices	49	$2,754,000

Building Name	Condition	Use	Age (years)	Replacement Cost
Administration Building – 41 Court House Sq., Brockville	Very Good	Court House, Jail, Registry & Police Services	180	$19,838,490
Maple View Lodge – 746 Country Road 42, Athens	Very Good	long-term care facility	127	$18,439,458
St. Lawrence Lodge - 1803 County Road 2, Brockville	Good	Long-term care facility	55	Proportionate share (28.57%) of $30 million
Paramedic Station – 85 Davis Lock Road, Elgin	Very Good	Ambulance station	55	$1,096,500
ED-19 Property – 1416 Byers Road	Poor	Leased to residents	57	$190,000
Community and Social Services Building – 555 King Street West, Prescott	Very Good	Administration offices	41	$200,000

7.2.2 Public Works Facilities

Public Works has garages in five locations with salt sheds, sands domes and various outbuildings at each. The garages were built in the 1960s or 1970s and all have had additions within the last ten years.

- The Greenbush Garage is at 6459 County Road 7 north of Brockville and is the main location for maintenance and storage.
- The four other garages are at 331 County Road 29 Frankville, 2714 Outlet Road Lansdowne, 720 County Road 44, Kemptville and 2320 County Road 21 Spencerville.
- The Counties owns a dome in Westport at a property where the building is owned by Rideau Lakes.

See **Table 7-2** for condition and replacement costs of Public Works facilities.

Table 7-2: Condition and Replacement Costs of Public Works Facilities

Building Name	Condition	Use	Age (years)	Replacement Cost
Greenbush Garage Compound – 6459 County Road 7	Fair	work purposes only	55	$2,307,898
North Leeds Garage Compound – 331 County Road 29, Frankville	Fair	work purposes only	50	$1,609,731
South Leeds Garage Compound – 2714 Outlet Road (County Rd. 3) Lansdowne	Good	work purposes only	55	$1,593,081
North Grenville Garage Compound – 720 County Road 44, Kemptville	Poor	work purposes only	55	$1,492,637
South Grenville Garage Compound – 2320 County Road 21, Spencerville	Fair	work purposes only	55	$1,275,708
Westport Dome – 9863 Perth Road, Westport	Good	work purposes only	6	$400,000

7.2.3 Forest Management Facilities

Limerick Forest is the home of two facilities. The Forestry interpretative centre is a log cabin style building built in 2009 using locally grown logs and replaced an aging building which was at one time a school house. The centre is used for education, meetings and recreational purposes and is located close to forest trails and paths on Limerick Road in North Grenville.

The Forestry workshop and storage compound located close to the Interpretive Centre is where forestry equipment is stored and maintained. The buildings include a workshop, equipment and material storage and were originally owned by the Ministry of Natural Resources.

Sand Bay County Park is located on the northeast corner of Charleston Lake and is owned and operated by the Counties as a day use park. The park has a picnic pavilion, male and female privies/change rooms and a cement dock for temporary use for boaters.

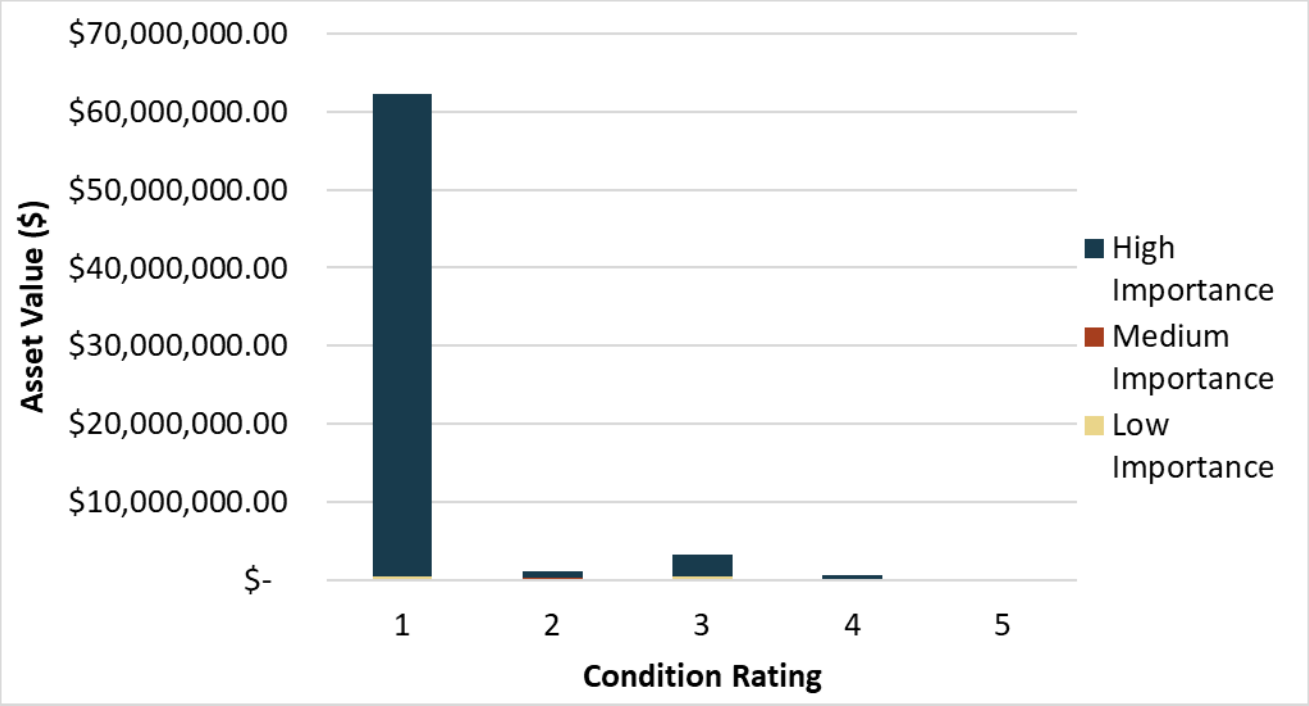
See **Table 7-3** for condition and replacement costs for Forest Management.

Table 7-3: Condition and Replacement Costs for Forest Management Facilities

Building	Condition	Use	Age (years)	Replacement Cost
Limerick Forest Interpretative Centre – North Grenville	Very Good	public building	12	$469,700
Limerick Forest Workshop, Pole Barns, Lunch room, and Storage – North Grenville	Fair	work purposes only	Approx. 67 (Built in 1950s)	$503,100
Charleston Lake – Sand Bay County Park	Fair	public recreation (pavilion, privies, dock)	34	$117,030

It is noted that the Charleston Lake comfort stations are being replaced in 2022, and will therefore be in Very Good condition once completed.

Figure 7-1: Condition of Buildings and Facilities



7.3 Current Level of Service

Buildings and Facilities are considered a non-core asset under O. Reg. 588/17, and therefore do not have pre-defined levels of service statements.

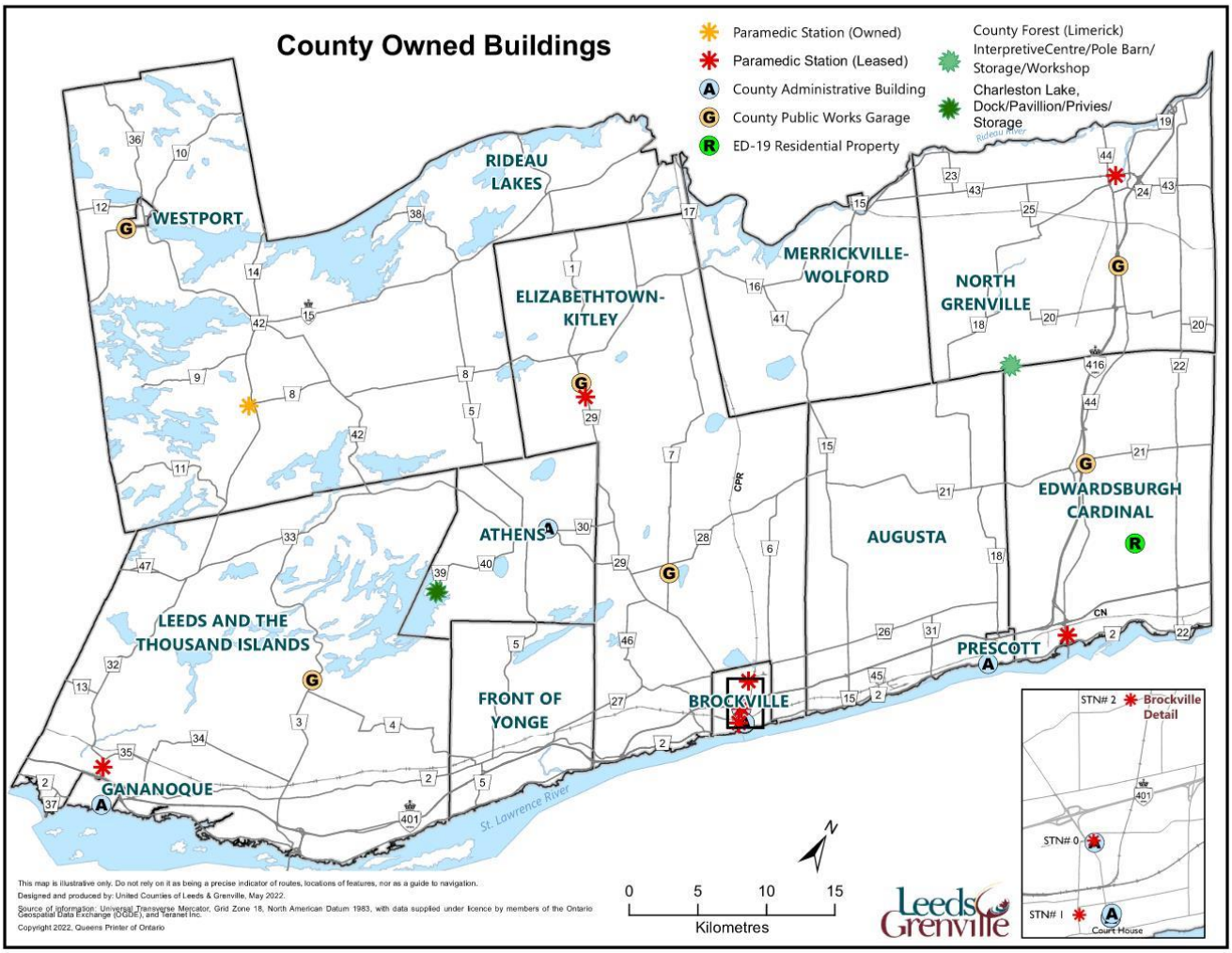
7.3.1 Community Level of Service – Building and Facilities

Table 7-4 outline the Counties' current community levels of service for buildings and facilities.

Table 7-4: Community LOS – Buildings and Facilities

LOS Parameter	Levels of Service Metrics	Response
Scope	Description, which may include maps, of the asset category.	Buildings and facilities include administrative offices, Public Works garages, long-term care facilities and paramedic station(s). See **Figure 7-2** for a map of the County owned buildings. The long-term care facilities at Maple View Lodge include the original building (1895) and the surrounding property located in Athens. The facility was redeveloped in 2004 and has 60 beds.
Quality	Description or images that illustrate the different levels or condition (if applicable). Consider hours of operation and/or when the service is available.	The Maple View Lodge building is expected to provide 25-30 years useful life. In the 10-year capital plan there are anticipated replacements and coordination of equipment. EMS Stations and Public Works Buildings are not accessible to the general public and only accessed by the staff that provide the services. The Forestry Management buildings are seasonal and only accessible to the public during the open applicable season.

Figure 7-2: Location of Buildings and Facilities



Source: Map created by United Counties of Leeds and Grenville GIS Department.

7.3.2 Technical Level of Service – Building and Facilities

Table 7-5 outline the Counties' current technical levels of service for buildings and facilities.

Table 7-5: Technical LOS – Buildings and Facilities

LOS Parameter	Levels of Service Metrics	Response
Scope	Number of assets providing service compared to the size of the community (geography or population).	Buildings and facilities include administrative offices, Public Works garages, long-term care facilities and paramedic station(s). See **Figure 7-2** for a map of the County owned buildings.
Scope	Availability of the facilities	The technical metrics related to availability, presented in **Table 7-6**, are described as follows: • Size of building (square footage); • Average hours of operation; and • Number of staff.
Quality	Refer to any legal / regulatory / local standards for your service	The quality of the buildings and accessibility vary, depending on the purpose of the building as follows: • Paramedic Service are available 365 days a year, 24 hours a day, 7 days a week; • Administrative offices are available during business hours M-F 8-4; • Public Works facilities are accessible by staff only; • Parking is accessible, secure, safe and clean; and, • Maple View Lodge delivers service 24/7.

Table 7-6: Availability – Buildings and Facilities

Facilities and Buildings	Total Floor Area (ft2)	Average hours/week	Number of Staff
Admin Offices - Central Avenue, Brockville	33,045	45.0	139 including 10 Council members
Admin Offices - Wall Street, Brockville	16,253	42.5	14
Admin Offices - William Street, Gananoque	9,910	45.0	4
Maple View Lodge	62,818	168.0	90
Paramedic Station, Elgin	4,330	168.0	12
Greenbush Garage, Brockville	7,755	60.0	6
North Leeds Garage, Frankville	6,530	60.0	7
South Leeds Garage, Lansdowne	6,360	60.0	7
North Grenville Garage, Kemptville	3,540	60.0	7
South Grenville Garage, Spencerville	3,638	60.0	7

7.3.3 Performance – Buildings and Facilities

The current performance of Buildings and Facilities is determined by the following performance measures established by the County. It is based on actual performance in the most recent two years.

- Energy efficiency for all buildings (energy usage as reported in Energy Consumption and Greenhouse Gas Emissions Reporting for 2019); and
- Maple View Lodge: occupancy rate and staffing.

7.4 Risk Assessment

7.4.1 Public Works Facilities

The risk assessment for public works facilities assets was conducted using the following assumptions and criteria:

Condition: Determined based on condition rating supplied by the Counties, according to:

- Very Good – 1
- Good – 2
- Fair – 3
- Poor – 4
- Very Poor – 5

Performance: Assumed to be always reliable (value of 1)

Climate Change: Assumed a value of 3.2 for all assets, consistent with the 2018 climate change interaction matrix calculation

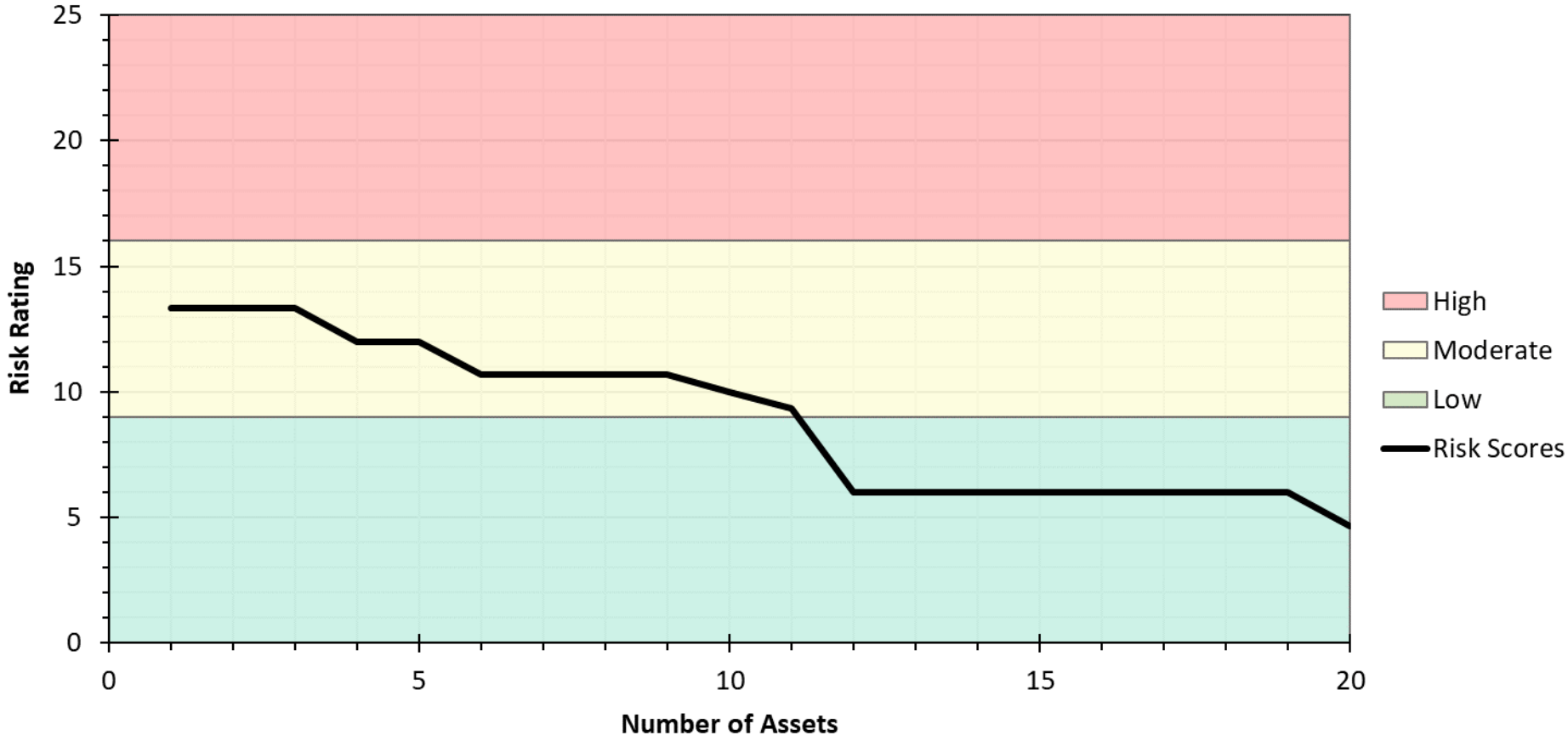
Impact: Low impact (value of 0) for the Dome at Westport

Moderate impact (value of 1) for all Public works garages

High Impact (value of 2) for the Public Works Garage at Greenbush asset

Importance: Moderate importance (value of 3) for all assets

Figure 7-3: Risk Profile for Public Works Facilities



As depicted in **Figure 7-3**, eleven (11) Public Works Facility Assets were determined to be in the moderate risk zone and the remaining nine (9) are considered low risk.

7.4.2 Forest Management

The risk assessment for forest management assets was conducted using the following assumptions and criteria:

Condition: Determined based on condition rating provided by the Counties, consistent with PW Facilities ratings

Performance: Assumed to be always reliable (value of 1)

Climate Change: Assumed a value of 4 for all assets, consistent with the 2018 climate change interaction matrix calculation

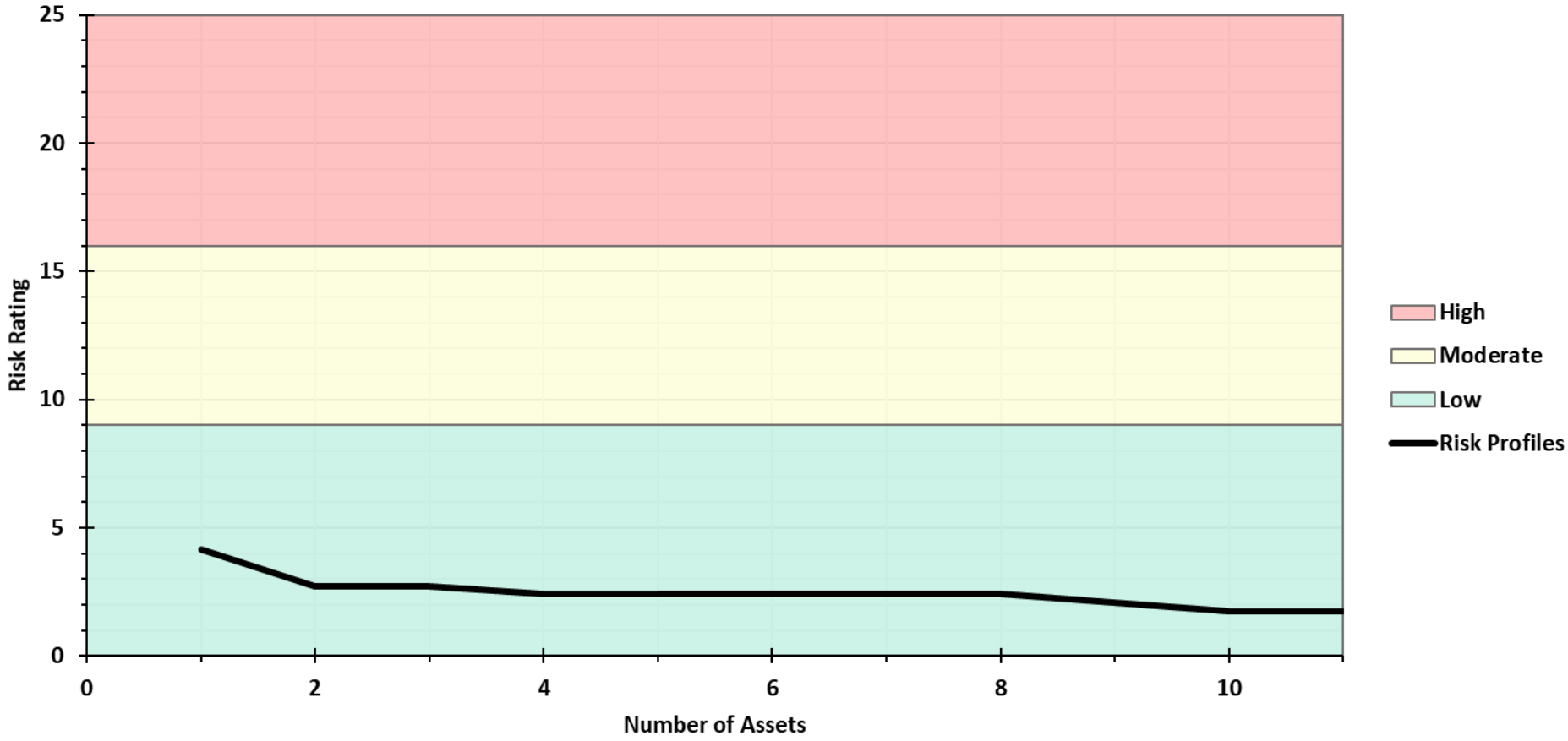
Impact: Charleston Lake Pavilion has a Moderate (value of 1) impact

Low impact (value of 0) for all other assets

Importance: Charleston Lake Pavilion has a Moderate (value of 1) impact

Low importance (value of 1) for all other assets

Figure 7-4: Risk Profile for Forest Management Facilities



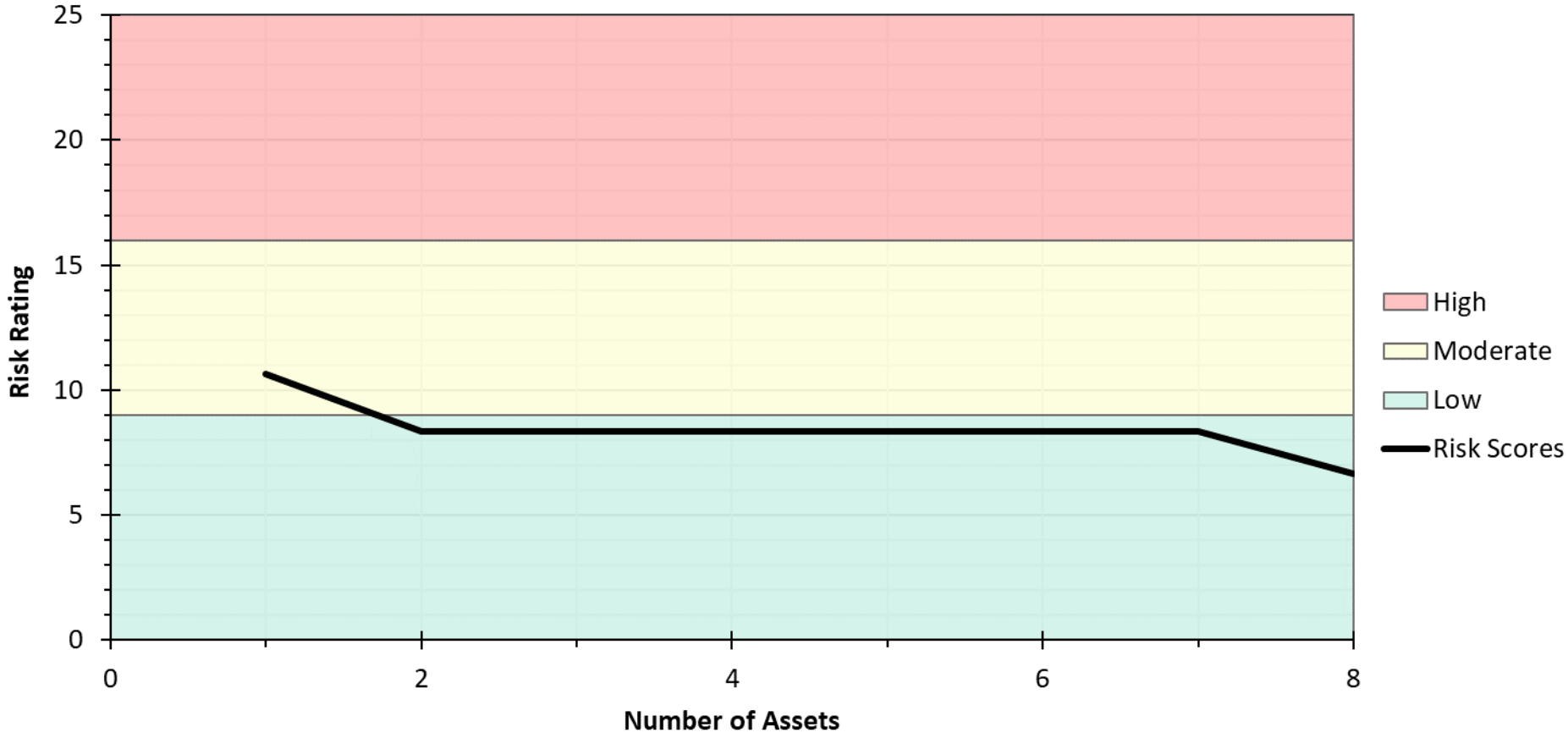
All 11 Forest Management Assets are considered to be low risk.

7.4.3 Administrative Buildings and Maple View Lodge

The risk assessment for the Administrative Buildings and Maple View Lodge assets was conducted using the following assumptions and criteria:

Condition:	Determined based on condition rating provided by the Counties, consistent with PW Facilities ratings
Performance:	Assumed to be always reliable (value of 1)
Climate Change:	Assumed a value of 3 for all assets
Impact:	Moderate impact for Maple View Lodge and St. Lawrence Lodge High impact (value of 1) for all other assets
Importance:	High importance (value of 3) for all assets

Figure 7-5: Risk Profile for Administrative Buildings and Maple View Lodge



As depicted in **Figure 7-5**, one (1) Administrative Building and Maple View Lodge asset were determined to be in the moderate risk zone and the remaining six (6) are considered low risk.

7.5 Lifecycle Activities

The following section describes the lifecycle activities that can be implemented within the asset management strategy for buildings and facilities assets. Note that, as previously discussed, building and facilities assets refers to the entirety of the asset which is made up of varying component systems depending on the use of the building. The primary lifecycle activities include construction, maintenance, renewal, and decommissioning/disposal.

Construction Activities:

The start of a building and facilities asset lifecycle is its construction. The building should be constructed to adhere with the requirements of the Ontario Building code, and any and all other applicable regional codes and requirements for the building and its use. Each building should be designed and constructed to provide the services for which it is intended.

Maintenance Activities:

Throughout the full lifecycle of a building, the majority of the expected lifecycle activities to be undertaken will be maintenance works. Maintenance activities can be used to improve the level of service of an asset (or component), or to maintain it. Activities that fall under the maintenance category can be varied by response type and scale of maintenance requirements. Activities can be required through routine maintenance works, response to Poor condition or performance, or on an emergency basis. In general, the expected types of maintenance activities within the lifecycle of a building include:

- Preventative maintenance:
    - This type of maintenance activity is undertaken to prevent failure or Poor performance of a buildings and facilities asset component. Preventative maintenance works can be undertaken on an ad-hoc basis based on knowledge of condition, or be undertaken according to a maintenance schedule. Manufacturer directives and condition assessments should assist in determining frequency of preventative maintenance activities.
- Reactive maintenance:
    - This type of maintenance activity is undertaken in response to an issue or fault in the building or component systems, on an ad-hoc basis. Scale of

reactive maintenance works will be variable depending on the system and type of failure or decrease in level of service.

- Major maintenance (replacement):
    - This type of maintenance activity is undertaken in response to a component which is no longer able to provide adequate level of service. Major maintenance (replacement) will be undertaken for one or more components of a building asset. Major maintenance works can be preventative (in anticipation of end of service life of a component), or in response to a system failure.

Renewal Activities:

Renewal works can be used to update a buildings and facilities asset for modernization, to achieve compliance with updated codes and requirements, to expand on an existing building, or to renovate to suit changes to services provided. Renewal activities include assets that are renewing or replacing existing assets. Renewal activities can include:

- Addition of new components to an existing building asset:
    - New components can be added to an existing building with the existing building largely unchanged.
- Updating of existing components:
    - Updating of existing components can prolong the expected lifespan of a building asset.

Acquisition Activities:

Acquisitions include the addition into the inventory of new assets or components. Acquisition activities will be consistent with construction or renewal, however for new assets only.

Decommissioning/Disposal Activities:

Disposal activities can include the removal from service of a building, or a portion of a building and components. Disposal activities should be conducted such that health and safety and environmental protocols are being followed, and spent materials are disposed of at appropriate or approved facility.

Disposal activities can also include removal of the building from the Counties buildings and facilities portfolio through sale of property, if it is no longer required for service delivery.

7.6 Asset Management Strategy

The asset management strategy for buildings and facilities assets will maximize the lifecycle of the assets where appropriate, in consideration of specific needs of the Counties and existing infrastructure.

The Counties' asset management strategy for buildings and facilities relies on building condition assessments to establish the current state of the assets (including information such as age, condition and performance), and to establish recommended works and associated timeframes. Recent building condition assessments were completed in 2019 for a portion of the Counties buildings and facilities by a third party consultant and have consisted of non-intrusive visual inspection of the buildings and componentry. The usage of such assessments for complex buildings and facilities assets can provide the Counties reliable and repeatable condition information and projections that can be used for capital planning and asset management. The Counties should continue to procure detailed building condition assessments at a sufficient frequency to have ongoing understanding of the condition and required works at the buildings and facilities assets, suggested to be every 5 to 10 years. These reports can be used to inform a maintenance schedule and capital works schedule, and to understand forecasting of asset improvements. If it is not possible to complete assessment of all buildings on a routine basis, priority buildings for the condition assessment program are suggested to be identified by the presented risk assessment, condition, and performance measures. Buildings with high risk or poor condition/performance components should be prioritized in the condition assessment program. Where building assessments have not been conducted (on less complex building assets and structures), the Counties could consider adding these to the scope of the building condition assessments, or undertake simplified assessments on a regular basis through visual inspection by the Counties staff.

In general, the building assets were found to be in Good condition and performing adequately to provide the intended services. The Counties strategy should maintain (or improve where appropriate) the condition and performance adequately to provide the intended services. An industry standard of 2% of the current portfolio replacement value is recommended as a minimum annual investment into capital projects for major maintenance (replacement) and renewal activities, however specific works recommendations within building condition reports will provide a more tailored understanding of the Counties' recommended annual investment.

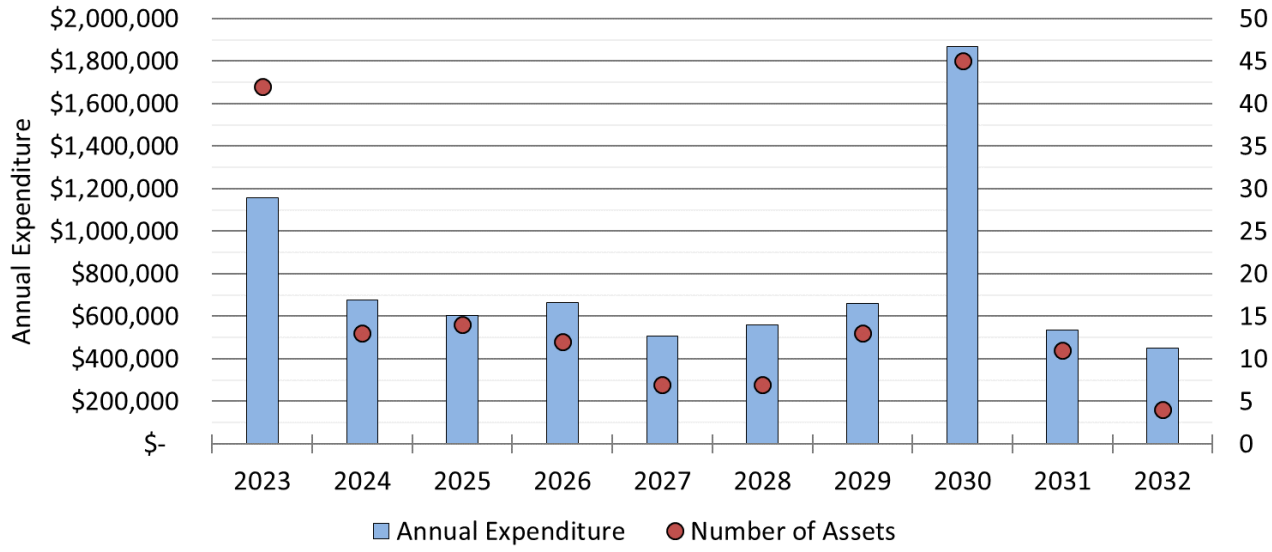
Implementation of the lifecycle activities for the buildings and facilities assets will vary across the assets, according to the components, condition, and services provided.

Routine maintenance schedules are assumed to be in place currently, and are recommended to continue assuming that they are currently providing sufficient level of maintenance. Maintenance works can include preventative maintenance, reactive maintenance (in the event that there is an issue), or major maintenance which can include the replacement of a component.

7.6.1 Projection of Works

The Counties have developed 10-year capital plans for building and facilities assets, according to condition and maintenance information. The capital projections for the buildings and facilities are predicted according to the expected lifespan of the assets. Where the lifespan of an asset component is less than the projected timeframe (10 years), the assets may be projected for replacement multiple times. Further, some works to buildings and facilities are projected to occur in consecutive years. A summary of the annual expenditure in the capital plan is shown in **Figure 7-6**.

Figure 7-6: Projection of Works for Buildings and Facilities Assets



The annual expenditure is consistently below $1 M, with the exception of years 2023 and 2030, however the quantity of asset components being addressed during those years is similarly high. The average expenditure across the timeline is just under $770,000 annually.

8.0 Equipment

8.1 Summary

The Counties owns and maintains numerous types of equipment used in the delivery of its services and programs. The largest equipment holder is Information Technology (IT) (communication towers, and fire dispatch system) and Paramedic Services, other users include Maple View Lodge as well as Miscellaneous equipment such as traffic counters and GPS equipment (from Public Works).

The Counties has 40 interconnected facilities that are both staffed and unstaffed buildings. The IT equipment resides in the Data Centre with a back-up site in a separate location. The communication towers support the fire communications system.

The Paramedic equipment encompasses defibrillators, stretchers, power units and other various equipment that is needed for the EMS staff to adequately do their work, this equipment is housed at the various EMS stations within the Counties and maintained by the staff that uses it.

The equipment maintained for use at the Maple View Lodge ranges in overall use from general patient equipment, such as shower chairs, tubs and medical equipment, to equipment used by the staff to ensure patients are comfortable such as a generator, washers and dryers, and the Nurse Call system. The equipment is maintained by the in-house staff.

8.1.1 Average Age

Average age of the Paramedic equipment is 5 years.

Average age of the Maple View Lodge equipment is 13 years.

Average age of the Information Technology equipment is 7.8 years.

Average age of Miscellaneous Equipment assets is 11.2 years.

8.1.2 Replacement Costs

The total replacement cost for all assets in Equipment is 7.23 million.

The replacement cost for Paramedic equipment is $ 2.12 million.

The replacement cost for Maple View Lodge equipment is $ 431,000.

The replacement cost for Information Technology equipment is $ 4.23 million.

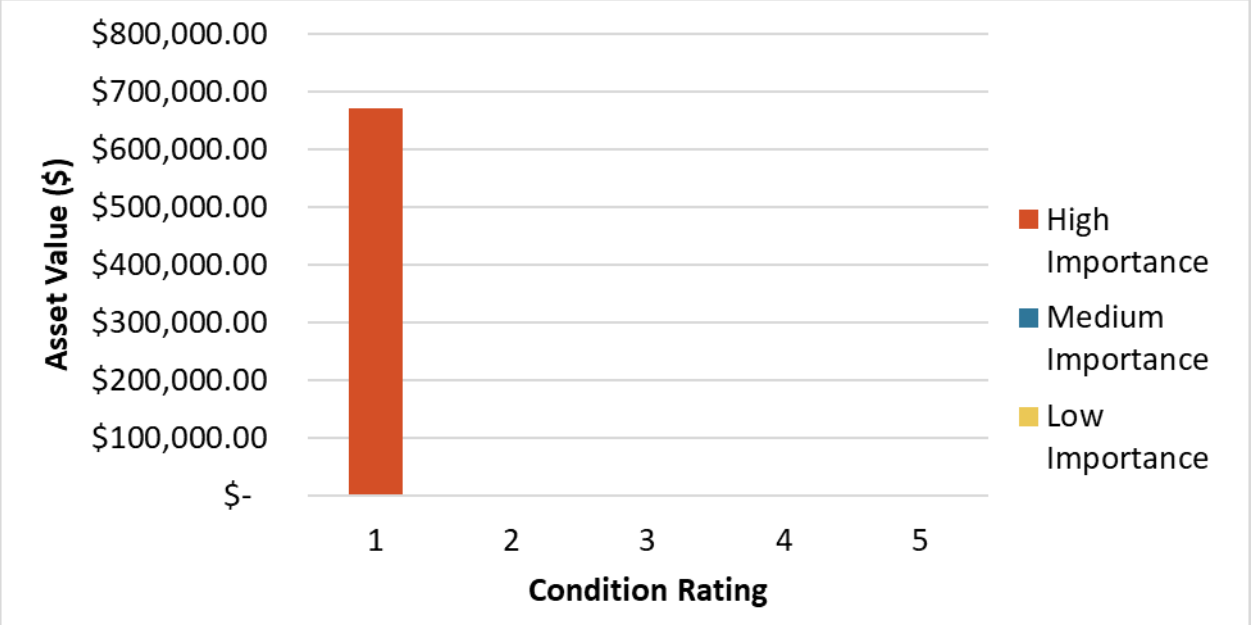
The replacement cost for Miscellaneous Equipment is $ 451,500.

8.2 Condition

The condition information reported in this AMP and the subsequent analysis are based on the current inventory information maintained by the Counties.

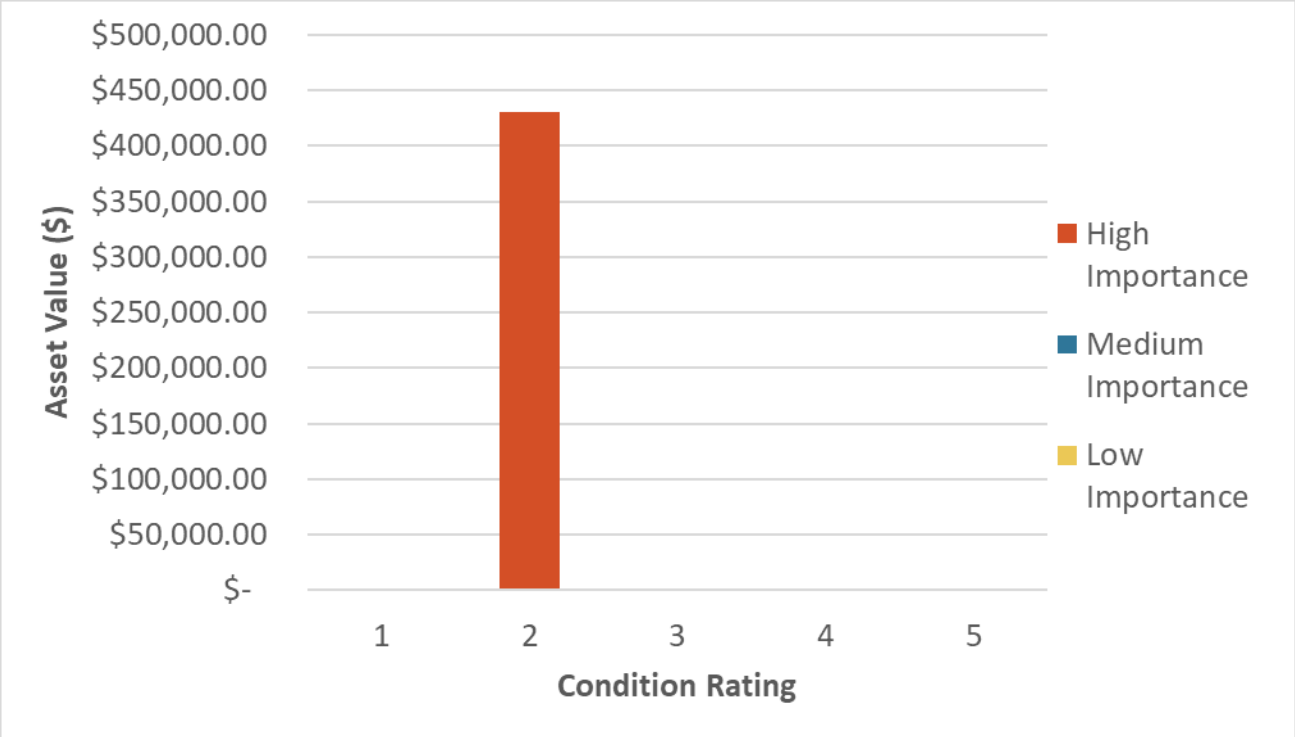
Assets in the Paramedic equipment category are all reported to be in Very Good (1) condition, as with the Paramedic fleet if the equipment is not in very good condition it is taken out of service and no longer part of the Paramedic equipment stores. The the importance of all assets is the same at high.

Figure 8-1: Condition of Paramedic Equipment (Value and Importance)



Assets in the Maple view Lodge equipment category are all reported to be in Good (2) condition. Given the use of this equipment in the long term care home setting, the equipment must be maintained at a higher standard than equipment for buildings of similar size. The importance of all assets is the same at high.

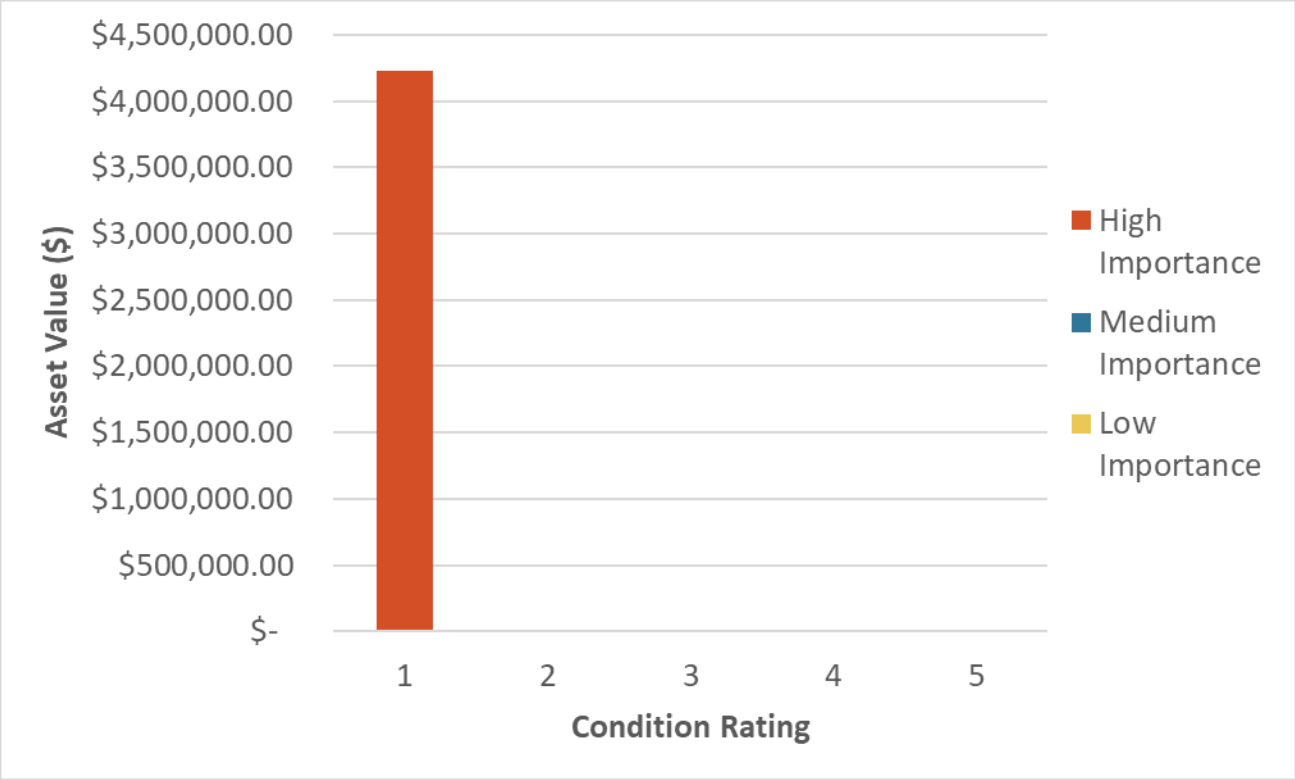
Figure 8-2: Condition of Maple View Lodge Equipment (Value and Importance)



The condition of assets in Information Technology equipment was determined by Counties staff. As this asset category has a shorter expected useful life, the staff using the equipment will have good experience to report on condition as condition is tied closely to performance and reliability.

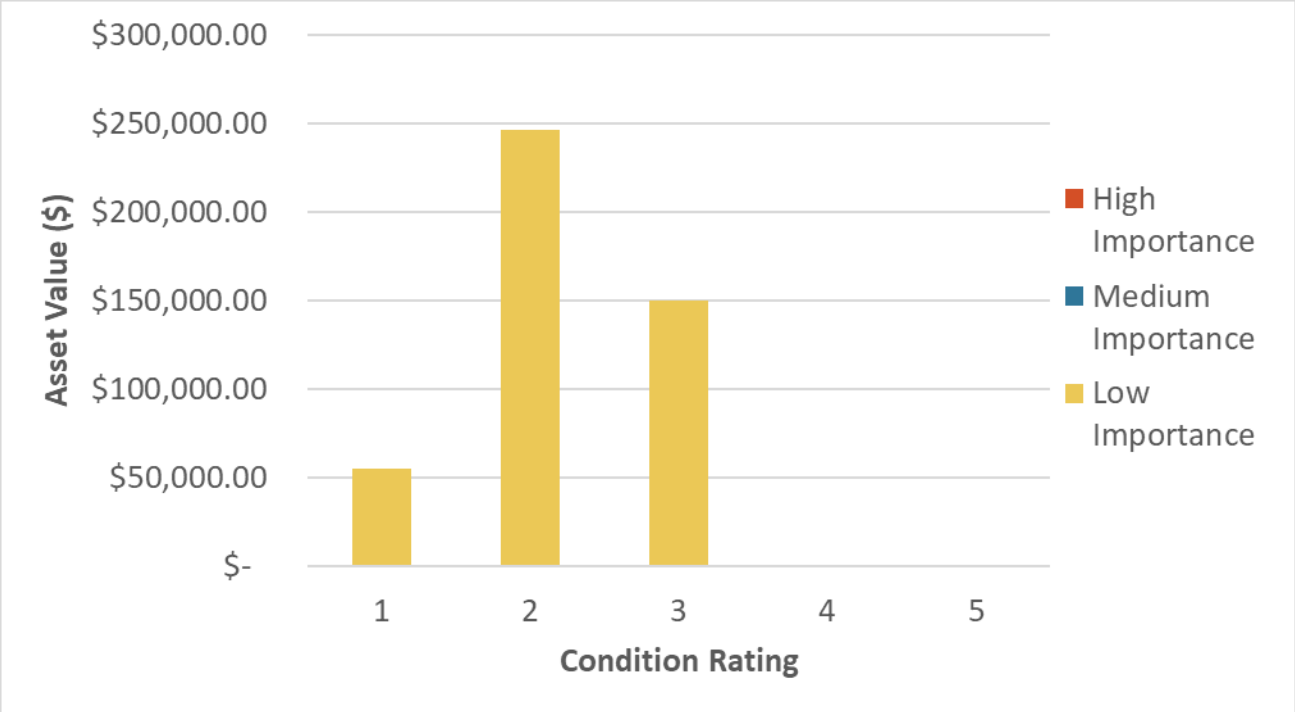
Assets in the Information Technology equipment category are all reported to be in Very Good (1) condition. The importance of all assets is the same at high.

Figure 8-3: Condition of Information Technology Equipment (Value and Importance)



Just over half the assets in the Miscellaneous Equipment category are reported to be in Very Good (1) condition, while one third are in Fair (3) and approximately 6% are in Good (2) condition. Given the mixture of assets within this category the range in condition is not unexpected, as the importance of these assets is also found to be a range from moderate to low importance. As noted in **Figure 8-3**, the importance of all assets is the same at high

Figure 8-4: Condition of Miscellaneous Equipment (Value and Importance)



The condition of assets in Other Equipment was determined by Counties staff. As this asset category has a shorter expected useful life, the staff using the equipment will have good experience to report on condition as condition is tied closely to performance and reliability.

8.3 Current Level of Service

Equipment assets are considered a non-core asset under O. Reg. 588/17, and therefore do not have pre-defined levels of service statements.

8.3.1 Community Level of Service – Equipment

The Counties' IT infrastructure are intended to serve both staff and the public by having a reliable and interconnected network for the public services that the organization provides. IT software and equipment also service the public directly through programs such as the website and the fire communications system in support of the provision of municipal fire services and public safety.

The Paramedic services are available to the public on a full time, 24hours/7 days a week basis and as such need be maintained in good condition and always reliable for the EMS staff to use. Furthermore, all equipment must meet Ontario Provincial Equipment Standards.

The equipment for use at Maple View Lodge which is generally used by the staff to ensure patient care is of high quality and efficient is needed to be reliable and in good condition.

8.3.2 Technical Level of Service – Equipment

The Counties' IT infrastructure technical quality is measured with low level of downtime and/or system interruption.

The Paramedic and Maple View Lodges equipment quality is measured by the staff that utilize the equipment for their work and understand the importance of its overall reliability and good condition.

8.3.3 Performance – Equipment

The current performance of Equipment is determined by the following performance measures established by the County. It is based on actual performance in the most recent two years.

- System availability (of the SAN and firewall) in the past 12 months (as of May 2022), has been at 99.974%. System unavailability has been for downtime, including maintenance.

Focus on the core components of the system/network which are the SAN and the firewall, both of which are located at 25 Central. If the SAN was to malfunction, the entire system/network would not be available so it is the primary, core component, followed by the firewall at Central.

It is important to differentiate the availability of the core components of the system/network from other offices and remote locations. The remote locations have less redundancy and resilience so they would be down more often (i.e. mainly due to the type of internet connection and no backup power capabilities.

8.4 Risk Assessment

8.4.1 Paramedic Equipment

The risk assessment for Paramedic Equipment assets was conducted using the following assumptions and criteria:

Condition: Determined based on condition rating supplied by the Counties, according to:

- Very Good – 1
- Good – 2
- Fair – 3
- Poor – 4
- Very Poor – 5

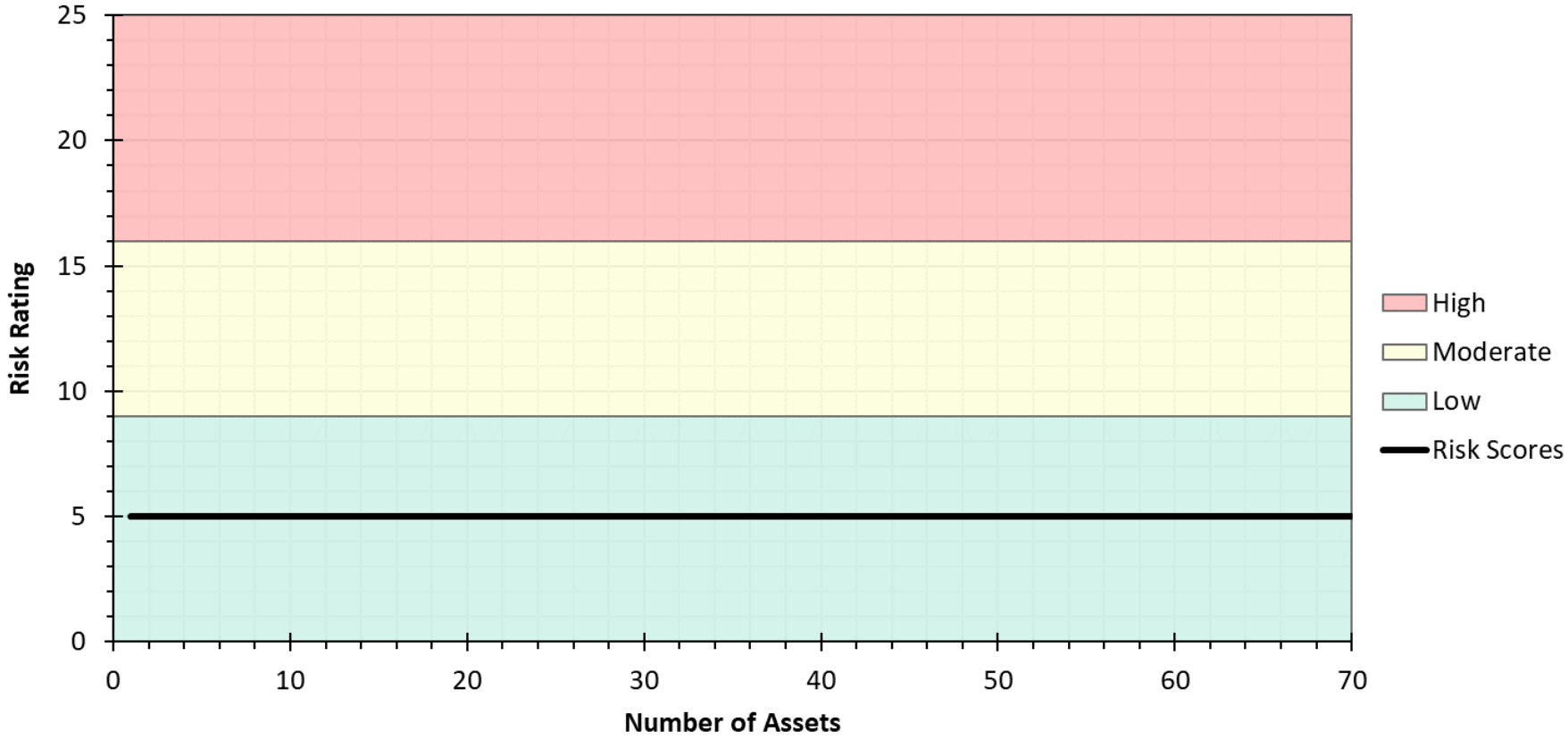
Performance: Assumed to be always reliable (value of 1) for all assets

Climate Change: Assumed a value of 1 (No or limited impact, quick recovery or mitigation in place)

Impact: High impact (value of 2) for all assets

Importance: High importance (value of 3) for all assets

Figure 8-5: Risk Profile for Paramedic Equipment



All 70 Paramedic Equipment Assets are considered to be low risk.

8.4.2 Maple View Lodge Equipment

The risk assessment for Maple View Lodge Equipment assets was conducted using the following assumptions and criteria:

Condition: Determined based on condition rating provided by the Counties, consistent with Paramedic Equipment ratings

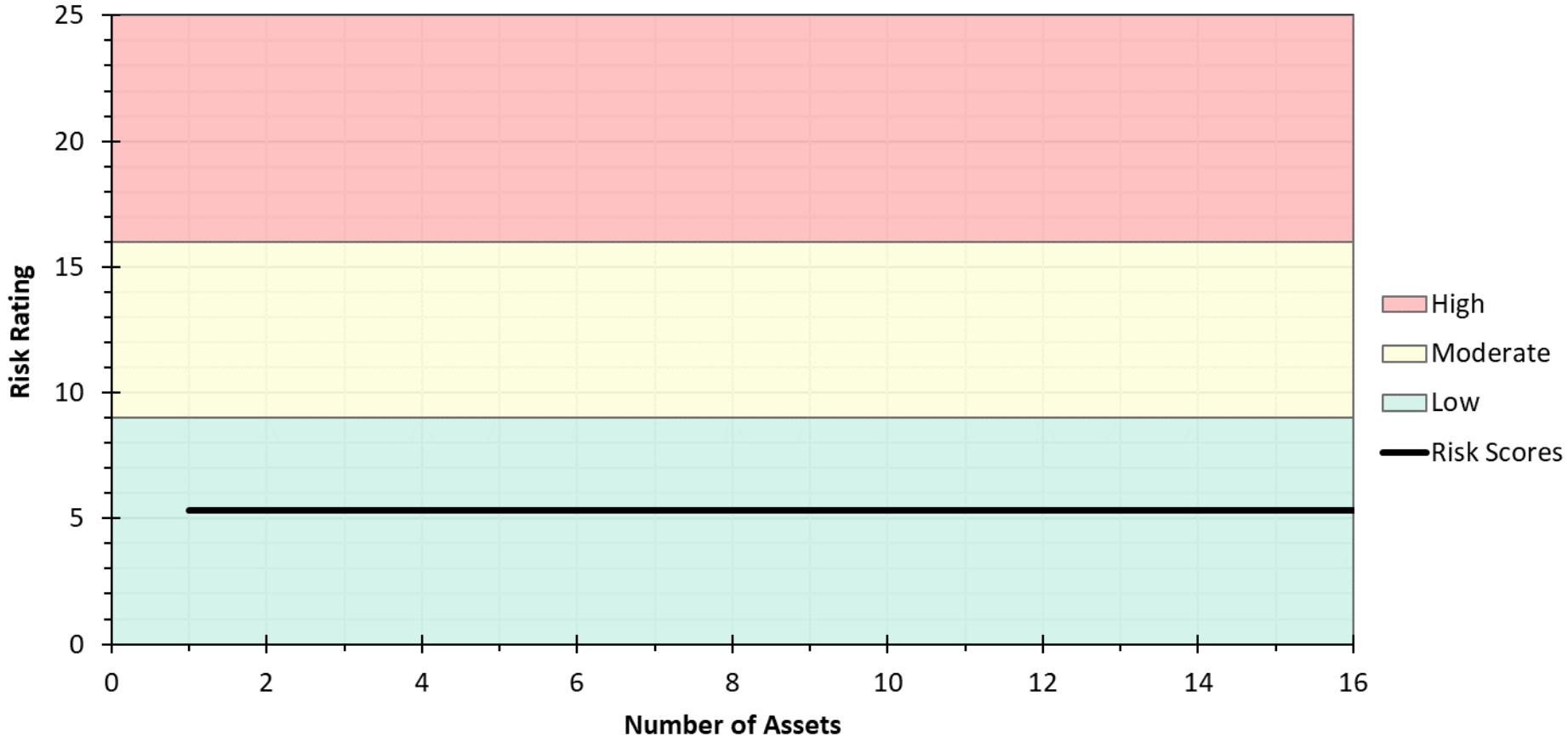
Performance: Assumed to be always reliable (value of 1) for all other assets

Climate Change: Assumed a value of 1 (No or limited impact, quick recovery or mitigation in place)

Impact: Moderate impact (value of 1) for all assets

Importance: High importance (value of 3) for all assets

Figure 8-6: Risk Profile for Maple View Lodge Equipment



All 16 Maple View Lodge Equipment Assets are considered to be low risk.

8.4.3 Information Technology Equipment

The risk assessment for Information Technology Equipment assets was conducted using the following assumptions and criteria:

Condition: Determined based on condition rating provided by the Counties, consistent with Paramedical Equipment ratings

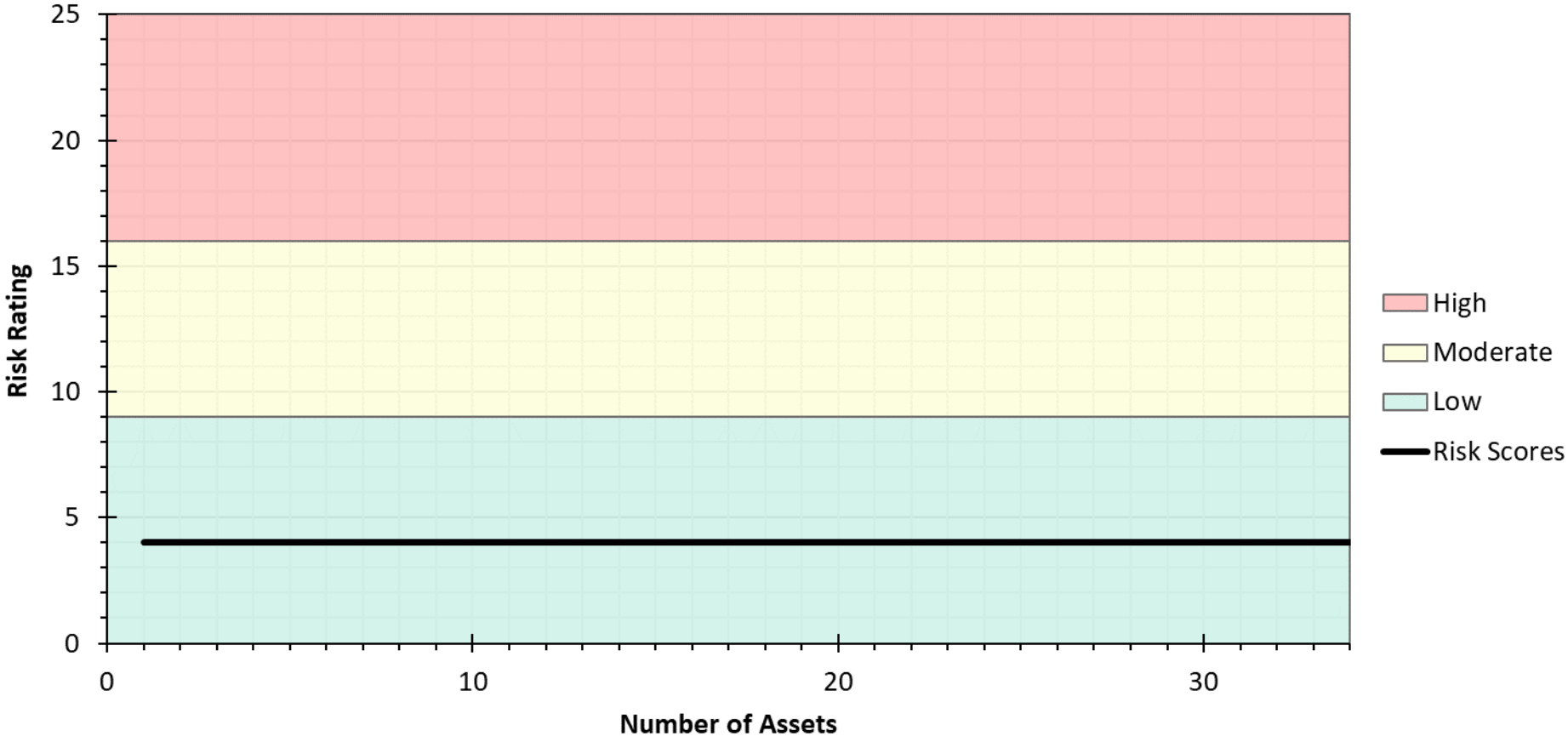
Performance: Assumed to be always reliable (value of 1) for all other assets

Climate Change: Assumed a value of 1 (No or limited impact, quick recovery or mitigation in place)

Impact: Moderate impact (value of 1) for all other assets

Importance: High importance (value of 3) for all assets

Figure 8-7: Risk Profile for Information Technology Equipment



All 34 IT Equipment Assets are considered to be low risk.

8.4.4 Miscellaneous Equipment

The risk assessment for Miscellaneous Equipment assets was conducted using the following assumptions and criteria:

Condition: Determined based on condition ratings provided by the Counties, consistent with Paramedical Equipment ratings

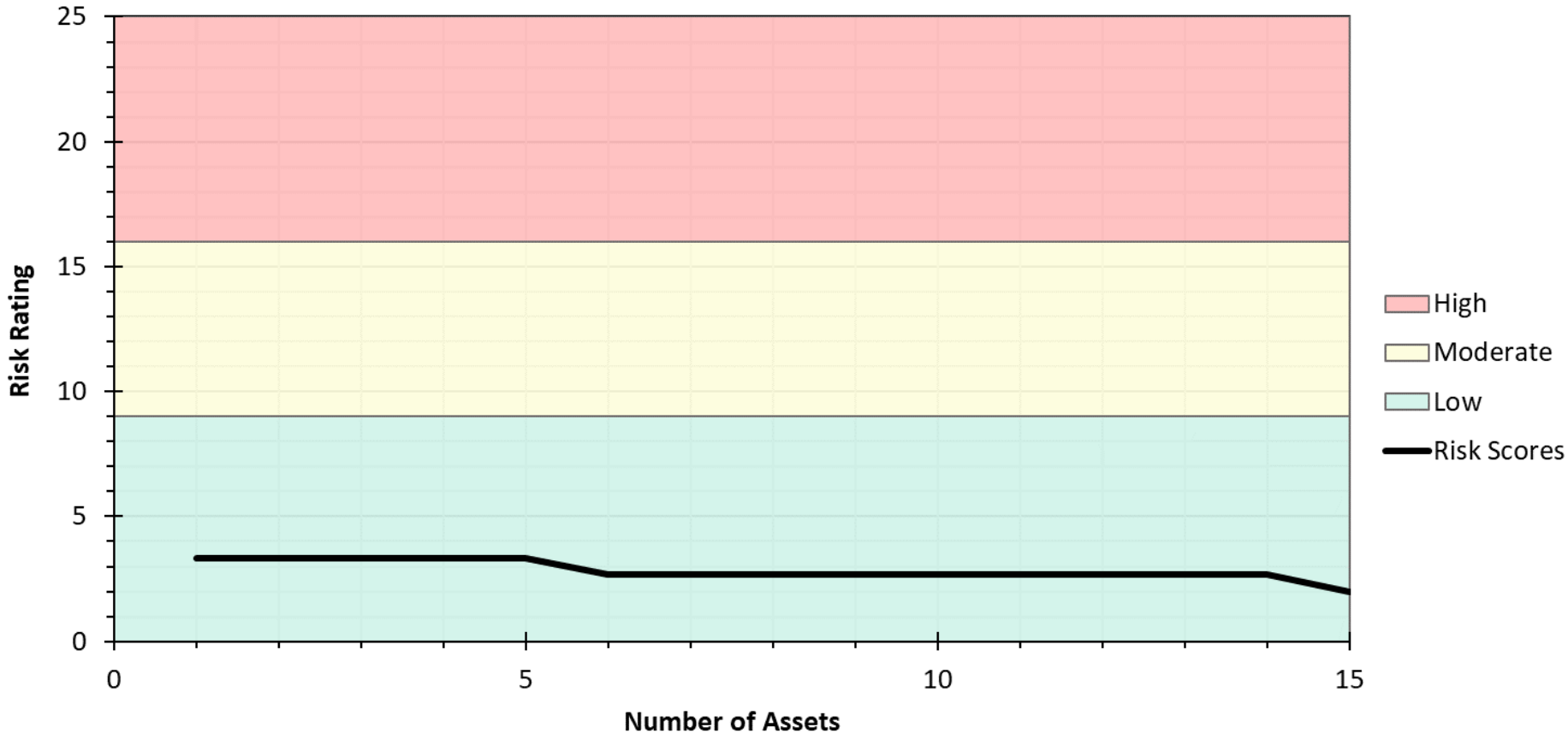
Performance: Assumed to be always reliable (value of 1) for all other assets

Climate Change: Assumed a value of 1 (No or limited impact, quick recovery or mitigation in place)

Impact: Moderate impact (value of 1) for all other assets

Importance: Low importance (value of 1) for all assets

Figure 8-8: Risk Profile for Other Equipment



All 15 Other Equipment Assets are considered to be low risk.

8.5 Lifecycle Activities

In the lifecycle of an equipment asset, there are multiple activities that can be taken, depending on the asset attributes. The expected lifecycle activities to be used on the equipment assets include acquisition, maintenance, and operation and decommissioning/disposal.

Acquisition Activities:

Acquisition of a new equipment asset should consider the intended usage of the asset. Acquisition should be undertaken based on an understanding of the requirements of the asset for providing service delivery, and should follow the Counties procurement procedures. Acquisition of an asset could be as a new purchase, or purchase of a used asset. Acquisition of a new asset can provide the Counties with an asset in Very Good condition, however the condition of a used asset could vary.

Maintenance Activities:

Maintenance activities will vary across the equipment assets due to the variability in type and usage of assets. The maintenance activities should be undertaken according to manufacturer specifications and as required to address condition and performance issues that arise through regular usage. Maintenance activities should include regular inspections for condition, and recording of maintenance activities undertaken (operations activities).

Decommissioning/Disposal Activities:

Disposal activities can include the removal from service through disposal, sale of asset or transfer of an asset to different department. Disposal activities should be conducted such that health and safety protocols are being followed, and out of service assets are disposed of at appropriate or approved facility.

8.6 Asset Management Strategy

The asset management strategy for the equipment assets seeks to use the lifecycle activities in a manner that will achieve cost-effective and sustainable management of the assets. Within the Counties' equipment assets, there are a variety of asset types, which are involved in multiple aspects of service delivery, such as: Paramedic Services (which include stretchers and defibrillators), the Maple View Lodge facility (which

include various aids for workers and patients), and Information Technology (which include the telephone and server systems).

Generally, if acquired new, the assets will begin their expected useful life in Very Good condition and performance. Throughout the lifecycle of the assets, routine maintenance should be conducted. As required, specific maintenance should be conducted. As an asset ages and approaches the end of its useful life, it is expected that the risk and maintenance costs associated with the asset will increase. There will be a point in the lifecycle where the risk and maintenance costs are such that replacement of the asset will be the preferred solution. This point will vary depending on the type of asset and the services delivered by each.

The Equipment assets include some associated with critical service delivery at the Counties such as emergency services or long-term care), and therefore have higher risk associated with asset failure. Accordingly, there is less acceptability of decreased condition of these assets and the lifecycle is shortened.

The Counties should review usage of equipment assets to confirm if services are being provided adequately. The assets should also be routinely assessed and monitored for condition and performance, to inform any maintenance or replacement works required. The needs and monitoring of asset condition will fall within multiple departments at the Counties, due to the varied range of service the assets provide.

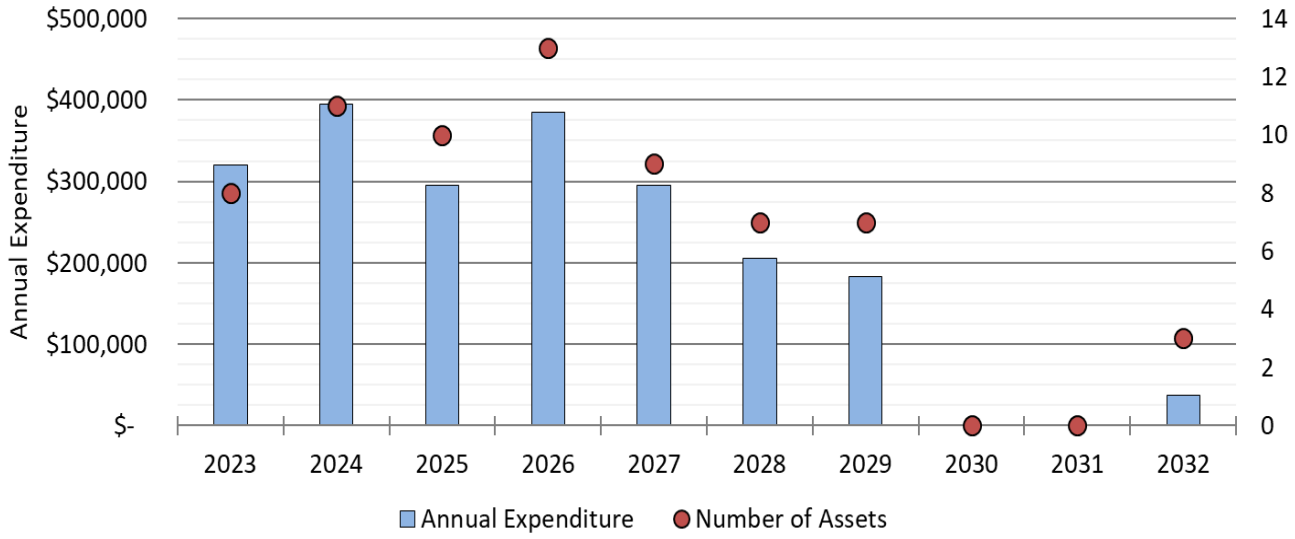
8.6.1 Projection of Works

The Counties have developed 10-year capital plans for Equipment assets, according to condition and maintenance information. The capital plans have been separated by service delivery type.

8.6.1.1 Paramedic Equipment

The capital projections for the paramedic equipment are predicated on the requirement of this equipment to be maintained in very good condition due to the criticality of service delivery. The capital works include replacement of equipment. A summary of the annual expenditure in the capital plan is shown in **Figure 8-9**.

Figure 8-9: Projection of Works for Paramedic Equipment Assets

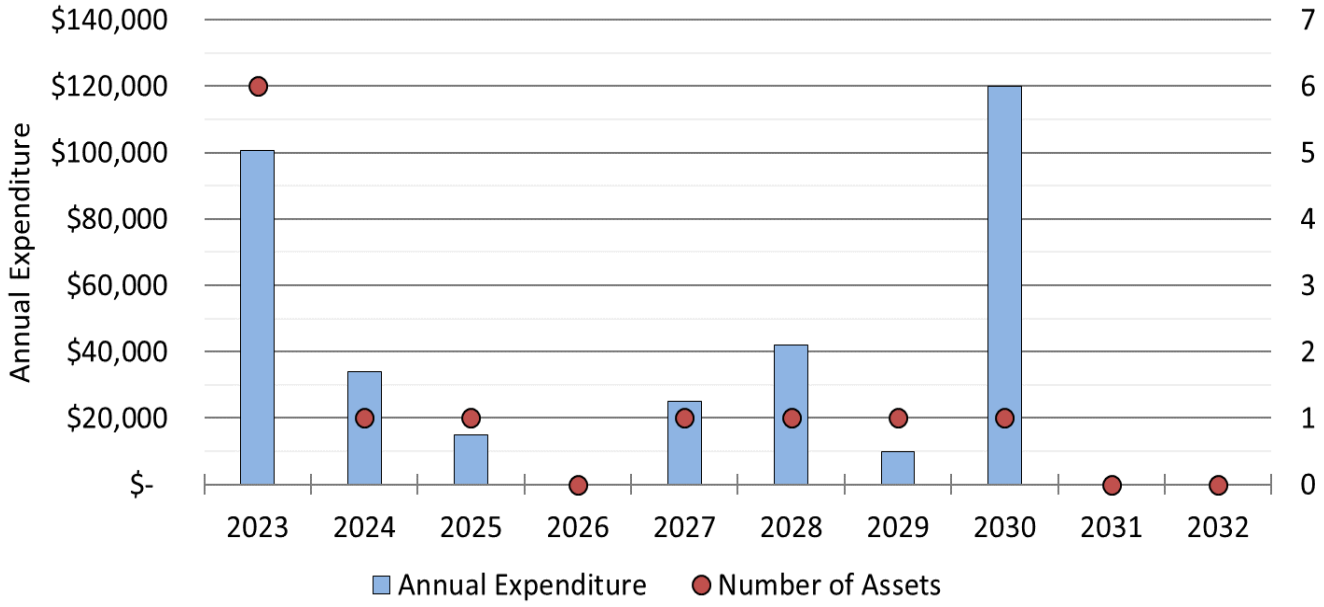


The average expenditure over the 10 year timeframe is just over $211,000, however there are two years (2029 and 2030) in which there are no projected expenditures.

8.6.1.2 Maple View Lodge Equipment

The capital projections for the Maple View Lodge equipment are predicated on the requirement of this equipment to be maintained in good condition due to the requirements for service delivery. The capital works include replacement of equipment, including appliances, medical equipment, and network equipment. A summary of the annual expenditure in the capital plan is shown in **Figure 8-10**.

Figure 8-10: Projection of Works for Maple View Lodge Equipment Assets

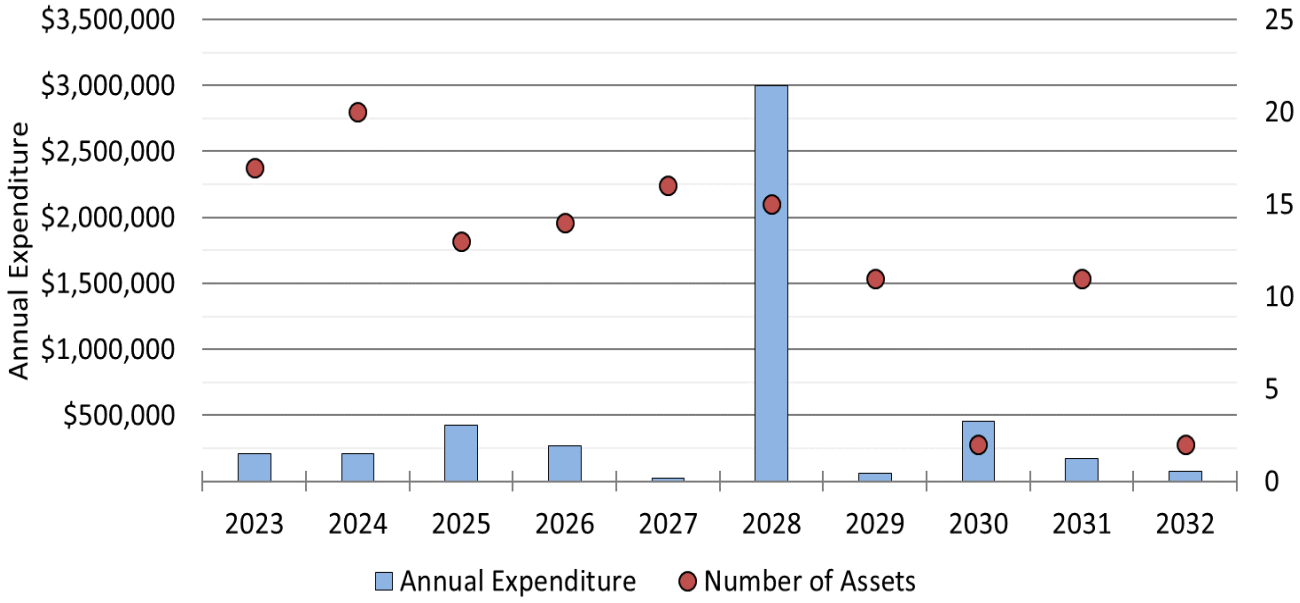


The average expenditure over the 10 year timeframe is just over $34,650, however there are two years (2031 and 2032) in which there are no projected expenditures. In contrast, 2030 has the highest expenditure at $120,000. The Counties can consider distribution of the 2030 expenditure across the subsequent two years for ease of affordability, provided that replacement can be delayed and service delivery can be maintained.

8.6.1.3 IT Equipment

The capital projections for the IT equipment are predicated on the requirement of this equipment to be maintained in very good condition due to the requirements for service delivery. The capital works include replacement of equipment. A summary of the annual expenditure in the capital plan is shown in **Figure 8-11**.

Figure 8-11: Projection of Works for IT Equipment Assets

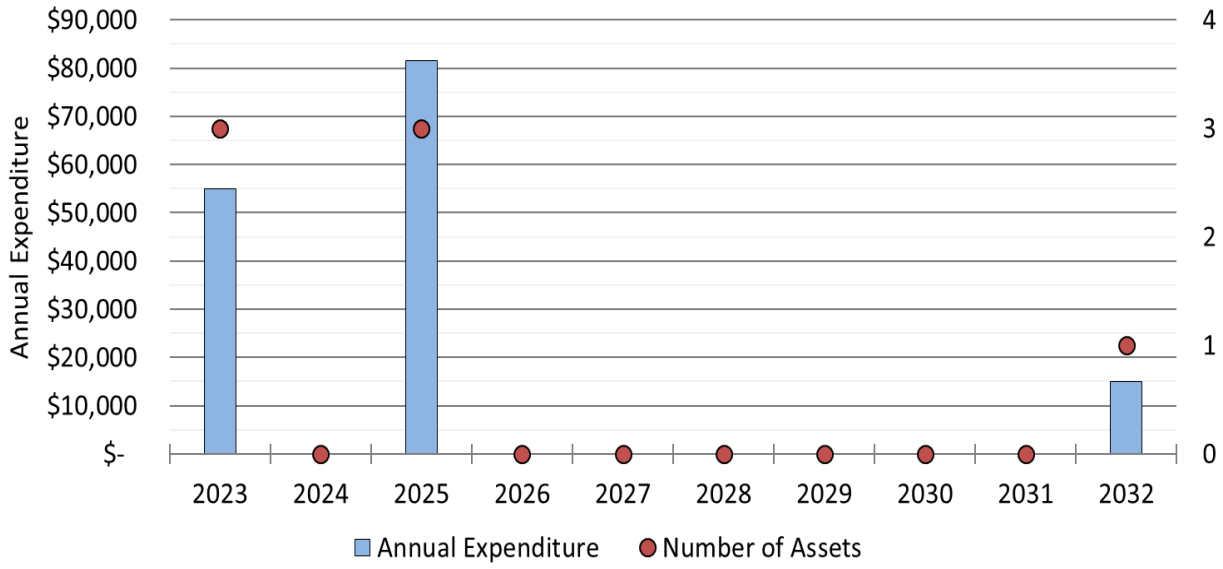


Through the 10 year capital plan, the expenditure is consistently below $500,000 annually, with the exception of 2028 wherein the expenditure is nearly $3 M. This large expenditure includes $2.75 M to replace the voice/ paging system which will reach the end of its 6 year expected lifecycle. Excluding this replacement, the average expenditure across the remainder of the capital plan timeframe is $210,800.

8.6.1.4 Miscellaneous Equipment

The capital projections for the miscellaneous equipment are based on the condition and expected useful life of the assets. The capital works include replacement of equipment, including public works equipment, generators, network equipment, and others. A summary of the annual expenditure in the capital plan is shown in **Figure 8-12**.

Figure 8-12: Projection of Works for Miscellaneous Equipment Assets



The average expenditure over the 10 year timeframe is just over $15,000, however expenditure only occurs within 3 years of the capital plan (2023, 2025 and 2032). The expenditure is consistently below $100,000 annually.

9.0 Financial Strategy

9.1 Scope and Process

This financing strategy outlines the suggested approach to sustainably funding the proposed levels of service and lifecycle management strategies outlined in preceding sections of this plan. This section of the asset management plan includes:

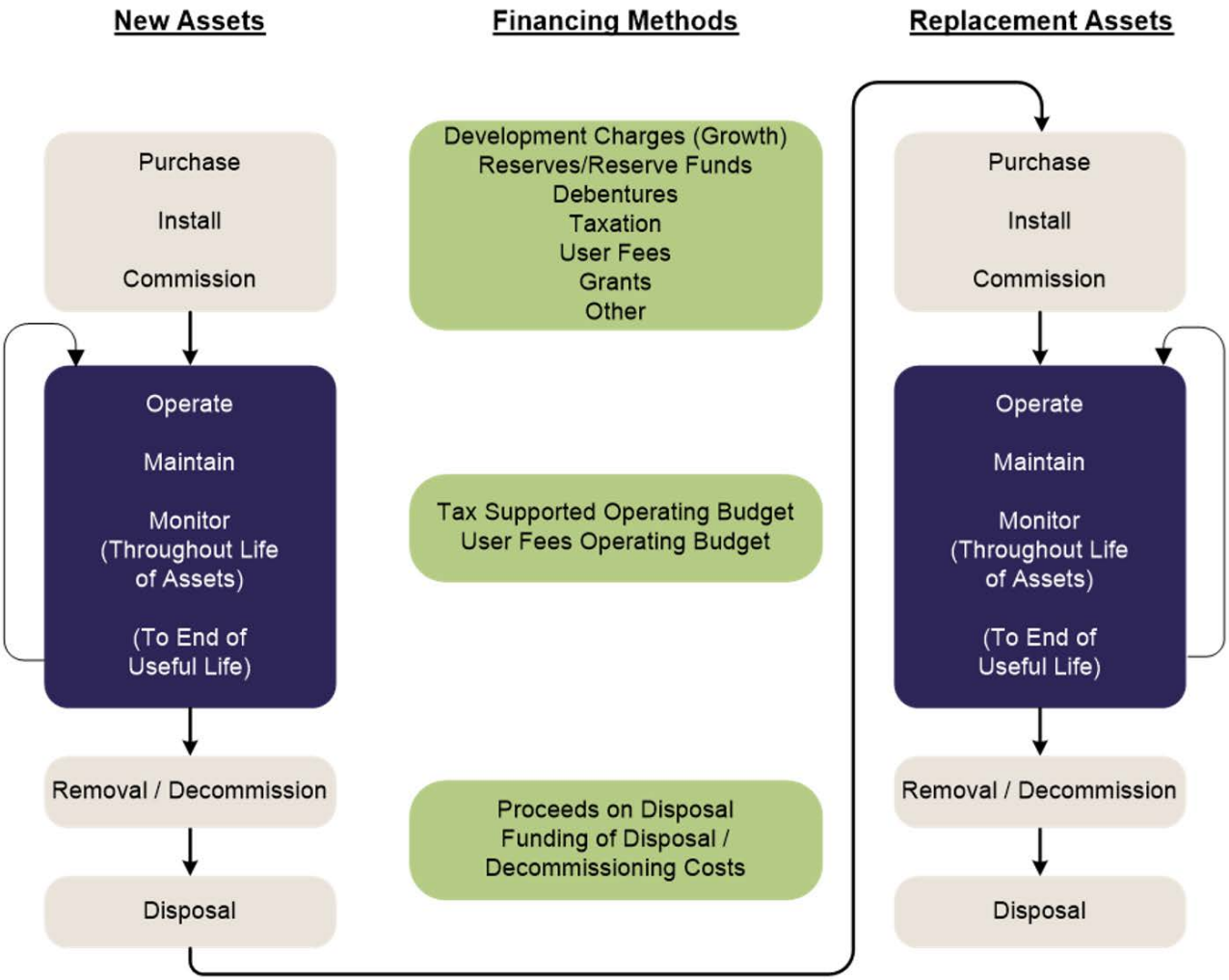
- Annual expenditure forecasts broken down by:
  - Renewal, rehabilitation, and replacement activities by asset class; and
- A breakdown of annual funding/revenue by source;
- Identification of any funding shortfalls, if applicable; and
- All key assumptions documented.

The financing strategy forecast (including both expenditure and revenue sources) was prepared consistent with the Counties' departmental budget structure, so that it can be used in conjunction with the annual budget process. Additionally, the financing strategy has been developed to align with the long-term financial plan currently being developed by municipal staff.

Various financing options, including reserve funds, debt, and grants were considered and discussed with municipal staff during the process. **Figure 9-1** provides a visual representation of how various financing methods can be used for both initial asset purchases as well as asset renewals/replacements.

For the recommended asset management strategy, a detailed ten (10) year plan was generated. The plan identifies specific renewal and rehabilitation, replacement, and expansion activities required for the forecast period as described in preceding sections of this plan. It is noted that this plan does not address maintenance activities nor operating cost impacts arising from expansion projects, however further analysis of these elements can be modelled within the Counties' long-term financial plan.

Figure 9-1: Financing Methods of Lifecycle Costs



9.2 Annual Costs

Table 9-1 shows the capital expenditure forecast for each asset class over the 2023-2032 forecast period. This expenditure forecast is based on the lifecycle activities identified in preceding sections of this plan. The expenditure forecast includes a capital inflation factor of 4% annually, which aligns closely with the historical 20-year annual average rate of inflation as witnessed in Statistics Canada's Building Construction Price Index[2].

[2] Statistics Canada. Table 18-10-0135-01 Building construction price indexes, by type of building. Toronto series, Non-residential buildings.

Table 9-1: Capital Expenditure Forecast – Inflated Dollars

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Expenditures											
Tax Supported Services											
County Properties	692,476	396,399	257,284	254,999	618,162	105,476	392,426	565,435	1,511,405	659,318	648,199
Fire - Equipment				61,868							
Public Works - Roads (Lifecycle)	9,197,789	6,355,743	11,339,613	19,841,262	16,308,207	26,919,147	33,346,608	27,665,081	20,312,065	22,882,218	29,391,227
Public Works - County Road 43 (Expansion)	3,600,000	20,800,000	15,000,000	3,000,000							
Public Works - Bridges	4,869,332	2,778,412	4,228,515	1,876,048	7,267,980	1,531,766	4,298,099	2,670,355	3,671,221	3,061,188	1,314,309
Public Works - Buildings	912,464	509,320	346,574	204,729	10,557	22,313	18,256	146,404	221,106	25,278	17,763
Public Works - Fleet	1,483,825	1,510,080	1,566,157	1,113,615	859,846	653,343	1,420,953	963,262	1,064,747	936,539	1,329,378
Other Equipment	380,000	275,600	227,136	507,876	315,862	24,333	3,789,630	81,588	622,699	241,963	133,222
Total Tax Supported Services	**21,135,886**	**32,625,554**	**32,965,279**	**26,860,397**	**25,380,614**	**29,256,378**	**43,265,973**	**32,092,124**	**27,403,243**	**27,806,504**	**32,834,098**
Paramedic											
Paramedic Services - Fleet	737,797	748,800	1,027,520	674,918	701,915	1,362,651	967,969	1,105,383	821,141	853,987	1,657,874
Paramedic Services - Equipment		332,800	427,232	331,835	450,396	358,913	259,390	240,816			54,769
Paramedic Services - Buildings	50,202	95,749	14,147			5,268		34,648	78,778		
Total Paramedic	**787,999**	**1,177,349**	**1,468,899**	**1,006,753**	**1,152,311**	**1,726,832**	**1,227,359**	**1,380,847**	**899,919**	**853,987**	**1,712,643**
Community Housing											
Social Housing - Betterments	2,625,598	1,169,532	446,701	1,715,330	737,268	1,426,546	276,561	785,282	1,666,591	986,996	293,162
Social Housing - Fleet	40,000	52,000				60,833					
Total Community Housing	**2,665,598**	**1,221,532**	**446,701**	**1,715,330**	**737,268**	**1,487,379**	**276,561**	**785,282**	**1,666,591**	**986,996**	**293,162**
Children's Services											
Child Care - Fleet					40,945						
Total Children's Services					**40,945**						
Maple View Lodge											
New Capital - Maple View Lodge Expansion Project	8,155,000	26,800,000	24,501,270	18,744,883							
Maple View Lodge - Betterments	382,000	203,112	113,947	219,117	150,151	483,547	299,291	123,171	743,310	74,724	
Maple View Lodge - Fleet									68,428		
Maple View Lodge - Equipment		104,520	36,774	16,873		30,416	53,143	13,159	164,228		
Total Maple View Lodge	**8,537,000**	**27,107,632**	**24,651,991**	**18,980,873**	**150,151**	**513,963**	**352,434**	**136,331**	**975,966**	**74,724**	
Total Expenditures	**33,126,483**	**62,132,067**	**59,532,870**	**48,563,353**	**27,461,289**	**32,984,552**	**45,122,328**	**34,394,584**	**30,945,719**	**29,722,211**	**34,839,903**

Tax Supported Services

The capital forecast estimates that an average of approximately $21.44 million (inflated dollars) will be spent annually on renewal and rehabilitation of road assets over the next 10 years. Bridges and culverts will require an average annual spend of $3.27 million over this same time period. Additionally, average annual capital expenditures are projected to be $150,000 for public works facilities, $1.14 million for public works fleet, $540,000 for County properties, $620,000 for general equipment, and $10,000 for fire equipment over the forecast period.

Paramedic Services

From 2023 to 2032, the average annual expenditures related to the replacement of paramedic fleet are projected to be $990,000, while replacements of paramedic equipment are projected to average $250,000 annually. Finally, rehabilitation and renewal activities planned for paramedic buildings are projected to average $20,000 annually.

Social Housing

The lifecycle rehabilitation and renewal activities planned for social housing buildings are projected to cost on average $950,000 per year over the forecast period. Replacement of Social Housing fleet is projected to cost on average $10,000 annually.

Children's Services

From 2023 to 2032, the average annual expenditures associated with the replacement of vehicles supporting children's services are projected to be $4,000.

Maple View Lodge

The annual costs of lifecycle activities associated with Maple View Lodge facility average $240,000 over the forecast period. In addition, the average annual costs of lifecycle activities related to supporting fleet and equipment are $10,000 and $40,000 respectively.

9.3 Growth Capital

In addition to lifecycle activities to maintain service levels of existing assets, this financing strategy incorporates the financial impacts that arise from the construction or acquisition of new capital assets.

Transportation

The expansion of County Road 43 from two to four lanes has been included in the capital expenditure forecast, with a gross cost estimate totaling $43 million. The expansion of County Road 43 has been assumed to include Provincial/Federal grant funding and contributions from the Municipality of North Grenville. Some of the Counties' share of the project cost is being debt funded.

Facilities – Maple View Lodge

An expansion of the Maple View Lodge facility has been included in the forecast, with construction expenditures totaling $79.20 million. It has been assumed that this project will be completed in 2025, with construction financing utilized during the construction phase, and debentures issued upon completion. A Construction Funding Subsidy has been assumed to be available from the provincial government to help offset some of the annual debt servicing costs.

9.4 Funding

Table 9-2 summarizes the recommended strategy to finance the asset lifecycle costs identified in **Table 9-1**. This funding forecast was based on the funding sources identified in the Counties' budget documents, and was further refined based on discussions with municipal staff.

The lifecycle costs required to sustain established level of service targets are being recovered through several methods:

- Ontario Community Infrastructure Fund (OCIF) formula-based funding is identified for years in which the funding amount is known (2022). The Ontario Government more than doubled the OCIF grant allocations in 2022 as part of a five-year initiative to support small, rural, and northern communities that started in 2022. In the financial strategy, the 2022 level of OCIF funding is maintained for the five-year duration of the provincial initiative. It is then reduced back to the 2021 funding level for 2027 to 2032.
- Canada Community-Building Fund (CCBF) funding has been shown as a stable and long-term funding source for eligible capital projects. Annual funding estimates are based on the Counties' 2023 funding level.

- Provincial/Federal grant funding has been included in the forecast for the County Road 43 Expansion project. This grant funding is included as a necessary source of funding to ensure the Counties can complete this project.
- Debt financing is shown as required, specifically in years where significant growth-related capital needs are identified.
- The Counties will be dependent upon maintaining healthy capital reserves/reserve funds in order to provide the remainder of the required lifecycle funding over the forecast period. This will require the Counties to proactively increase amounts being transferred to these capital reserves during the annual budget process.

9.4.1 Funding Shortfall

This financing strategy has been developed to be fully funded, and therefore no funding shortfall has been identified. However, this means that if identified grants and debt financing are not received at expected amounts then shortfalls may present themselves. In such an event, the difference could be made up through increases to the tax levy over-and-above those presented hereafter, or through potential alternate funding sources (expanded upon below).

9.4.2 Other Potential Funding Sources

While debt, grants, and the tax levy have been projected to fully fund the lifecycle management strategy, other sources of funding could be utilized to lessen the tax levy burden, specifically:

- Development Charges – Development charges are costs imposed on new development to help pay for the municipal services these new developments impose on a municipality. While the Counties does not currently impose development charges, these charges could be introduced to help pay for some of the growth-related capital needs identified earlier in this plan.
- Joint-Service Recoveries – The Counties owns assets that are used to deliver services on behalf of partner municipalities. Where capital costs have been identified for assets that are owned for these purposes, additional funding from these external parties should be captured to help mitigate pressure on the tax levy.

Table 9-2: Breakdown of Capital Financing by Source – Inflated Dollars

Description	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Capital Financing											
Tax Supported Services											
Debenture Requirements - Tax Supported Services					1,709,006	9,930,177	22,148,382	9,961,660	3,128,442	661,041	2,419,303
Construction Financing - Tax Supported Services	2,061,723	17,800,000	8,000,000	667,063							
Ontario Community Infrastructure Fund	3,521,579	3,613,616	3,521,579	3,521,579	3,521,579	1,664,497	1,664,497	1,664,497	1,664,497	1,664,497	1,664,497
Canada Community-Building Fund	4,343,009	2,322,681	2,310,595	2,310,595	2,310,595	2,310,595	2,310,595	2,310,595	2,310,595	2,310,595	2,310,595
Other Provincial/Federal Grants/Other External Recoveries	403,257	3,000,000	7,000,000	2,332,937							
Transfer from Operating	168,930										
Transfer from Carry-forward Reserve	2,554,844										
Transfer from Amortization Reserves - Tax Supported Services	8,082,544	5,889,257	12,133,105	18,028,223	17,839,434	15,351,110	17,142,499	18,155,372	20,299,709	23,170,372	26,439,703
Total Tax Supported Services	**21,135,886**	**32,625,554**	**32,965,279**	**26,860,397**	**25,380,614**	**29,256,378**	**43,265,973**	**32,092,124**	**27,403,243**	**27,806,504**	**32,834,098**
Paramedic											
Debenture Requirements - Paramedic											
Transfer from Carry-forward Reserve	294,065										
Transfer from Amortization Reserves - Paramedic	493,934	1,177,349	1,468,899	1,006,753	1,152,311	1,726,832	1,227,359	1,380,847	899,919	853,987	1,712,643
Total Paramedic	**787,999**	**1,177,349**	**1,468,899**	**1,006,753**	**1,152,311**	**1,726,832**	**1,227,359**	**1,380,847**	**899,919**	**853,987**	**1,712,643**
Community Housing											
Debenture Requirements - Community Housing											
Provincial/Federal Grants	1,996,371										
Transfer from Carry-forward Reserve	50,727										
Transfer from Amortization Reserves - Community Housing	618,500	1,221,532	446,701	1,715,330	737,268	1,487,379	276,561	785,282	1,666,591	986,996	293,162
Total Community Housing	**2,665,598**	**1,221,532**	**446,701**	**1,715,330**	**737,268**	**1,487,379**	**276,561**	**785,282**	**1,666,591**	**986,996**	**293,162**
Children's Services											
Debenture Requirements - Children's Services											
Transfer from Amortization Reserves - Children's Services					40,945						
Total Children's Services					**40,945**						
Maple View Lodge											
Debenture Requirements - Maple View Lodge											
Construction Financing - Maple View Lodge	8,155,000	26,800,000	24,501,270	18,744,883							
Transfer from Operating	25,000										
Transfer from Carry-forward Reserve	90,000										
Transfer from Amortization Reserves - Maple View Lodge	267,000	307,632	150,721	235,990	150,151	513,963	352,434	136,331	975,966	74,724	
Total Maple View Lodge	**8,537,000**	**27,107,632**	**24,651,991**	**18,980,873**	**150,151**	**513,963**	**352,434**	**136,331**	**975,966**	**74,724**	
Total Capital Financing	**33,126,483**	**62,132,067**	**59,532,870**	**48,563,353**	**27,461,289**	**32,984,552**	**45,122,328**	**34,394,584**	**30,945,719**	**29,722,211**	**34,839,903**

9.5 Tax Levy Impact

While the annual funding requirement may fluctuate, it is important for the Counties to implement a consistent, yet increasing, annual investment in capital so that the excess annual funds can accrue in capital reserve funds. **Table 9-3** presents a summary of the impacts on the tax levy as a result of this financing strategy.

In order to fund the recommended asset lifecycle activities over the forecast period using the Counties' own available funding sources (i.e. using taxation, CCBF funding, OCIF funding, and debentures), an increase in the Counties' taxation levy would be required. The impacts on individual property tax bills resultant from the financial strategy are estimated as follows:

- 5.86% increase in the first year, 6.74% increase in 2024, 6.23% increase in 2025;
- An increase of 19.16% in 2026 when the Maple View Lodge expansion is completed; and
- 4.26% increases per year from 2027 to the end of the forecast period.

Included in the tax levy impact is an annual grant funding source of approximately $1,025,000 that will help offset a portion of the annual debt payments incurred for the Maple View Lodge Expansion project. Additionally, as existing external debt payments are reduced or paid off, the resultant savings have been identified to be re-invested into the appropriate capital reserve.

Consideration for cash-flow and positive reserve fund balances has been included in setting the capital reserve transfer amounts. Continuity schedules for all capital-related reserves are presented in Appendix B.

The tax bill impacts presented above take into account anticipated assessment increases resulting from new assessment growth, assumed to average 1.1% annually.

The tax levy impacts identified above include inflationary adjustments to the Counties' operating costs and revenues, assumed to average 2% annually. However, if other funding sources become available (as mentioned above), or if maintenance practices allow for the deferral of capital works, then the impact on the Counties' taxation levy would potentially decrease.

Further detail on the Financing Strategy is presented in Appendix B.

Table 9-3: Tax Levy Impact – Inflated Dollars

Description	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Expenditures										
Operating Expenditures										
Tax Supported Services	54,148,831	55,231,808	56,336,444	57,463,173	58,612,436	59,784,685	60,980,379	62,199,986	63,443,986	64,712,866
Paramedic	18,075,686	18,437,199	18,805,943	19,182,062	19,565,703	19,957,018	20,356,158	20,763,281	21,178,547	21,602,118
Community Housing	13,194,523	13,458,413	13,727,581	14,002,133	14,282,176	14,567,819	14,859,175	15,156,359	15,459,486	15,768,676
Children's Services	10,593,596	10,805,468	11,021,557	11,242,009	11,466,849	11,696,186	11,930,109	12,168,712	12,412,086	12,660,328
Maple View Lodge	8,691,398	8,865,226	9,042,530	27,993,720	28,553,594	29,124,666	29,707,159	30,301,302	30,907,329	31,525,475
Capital-related Expenditures										
Tax Supported Services										
Transfers to Capital Reserve - Lifecycle	8,416,747	10,221,721	12,181,701	13,089,382	15,351,110	17,142,499	18,155,372	20,299,709	23,170,372	26,439,703
Transfer from Amortization Reserves - Paramedic										
Transfer to Capital										
Transfers to Dedicated Infrastructure Levy Reserve Fund	813,188	813,118	813,118	813,118	813,118	813,118	813,118	813,118	813,118	813,118
Construction Loan Interest Payment	578,086	1,223,086	1,439,763							
New Debenture Repayments				2,032,316	2,165,159	2,937,041	4,658,657	5,432,987	5,676,163	5,727,547
Paramedic										
Transfers to Capital Reserve - Lifecycle	706,609	808,317	916,258	1,030,868	1,157,980	1,289,349	1,428,235	1,574,093	1,727,425	1,888,757
Transfers to Capital Reserve – Debt Re-investment										
Community Housing										
Transfers to Capital Reserve - Lifecycle	943,864	1,088,935	1,244,386	1,411,016	1,598,094	1,792,918	2,000,708	2,220,734	2,453,922	2,701,249
New Debenture Repayments										
Children's Services										
Transfers to Capital Reserve - Lifecycle	1,848	2,166	2,496	2,839	3,209	3,583	3,969	4,363	4,767	5,181
Maple View Lodge										
Transfers to Capital Reserve – Lifecycle	141,029	161,212	182,188	204,033	226,736	250,347	274,903	300,442	327,001	354,624
Transfers to Capital Reserve – Debt Re-investment	363,552	363,552	363,552	363,552	363,552	363,552	363,552	363,552	363,552	363,552
Transfer to Capital										
Existing Debenture Repayments										
Construction Loan Interest Payment	1,014,975	2,169,254	3,142,292							
New Debenture Repayments				6,071,606	6,071,606	6,071,606	6,071,606	6,071,606	6,071,606	6,071,606
Total Expenditures	**117,683,930**	**123,649,545**	**129,219,914**	**154,901,897**	**160,231,392**	**165,794,458**	**171,603,170**	**177,670,314**	**184,009,430**	**190,634,869**
Revenues										
Tax Supported Services										
Operating	33,024,129	33,684,612	34,358,304	35,045,470	35,746,380	36,461,307	37,190,533	37,934,344	38,693,031	39,466,892
Capital-related Recoveries										
Transfers from Dedicated Infrastructure Levy Reserve Fund	578,086	1,223,086	1,439,763	813,188	813,188	813,188	813,188	813,188	813,188	813,188
Paramedic										
Operating	11,718,799	11,953,175	12,192,239	12,436,084	12,684,805	12,938,501	13,197,271	13,461,217	13,730,441	14,005,050
Capital-related Recoveries	174,829	195,725	219,118	245,308	274,627	307,451	344,199	385,338	431,394	482,955
Community Housing										
Operating	9,318,850	9,505,227	9,695,331	9,889,238	10,087,022	10,288,763	10,494,538	10,704,429	10,918,517	11,136,888
Capital-related Recoveries	233,222	263,125	296,861	334,923	377,865	426,313	480,972	542,640	612,215	690,709

Description	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Children's Services										
Operating	10,198,981	10,402,961	10,611,020	10,823,241	11,039,705	11,260,499	10,485,709	11,715,424	11,949,732	12,188,727
Maple View Lodge										
Operating	5,890,382	6,008,190	6,128,354	19,539,362	19,930,149	20,328,752	20,735,327	21,150,003	21,573,034	22,004,495
Capital-related Recoveries	171,392	366,307	530,617	1,025,270	1,025,270	1,025,270	1,025,270	1,025,270	1,025,270	1,025,270
Total Revenues	**71,308,671**	**73,602,407**	**75,471,607**	**90,152,082**	**91,979,012**	**93,850,045**	**95,767,008**	**97,731,883**	**99,746,822**	**101,814,174**
Dedicated Hospital Levy	**414,726**	**423,020**	**431,481**	**440,110**	**448,913**	**457,891**	**467,049**	**476,390**	**485,917**	**495,636**
Dedicated Infrastructure Levy	**813,188**	**813,188**	**813,188**	**813,188**	**813,188**	**813,188**	**813,188**	**813,188**	**813,188**	**813,188**
County Levy	**45,147,346**	**48,810,930**	**52,503,638**	**63,496,516**	**66,990,279**	**70,673,334**	**74,555,925**	**78,648,853**	**82,963,502**	**87,511,871**
Total Tax Levy Required	**46,375,259**	**50,047,138**	**53,748,307**	**64,749,814**	**68,252380**	**71,944,413**	**75,836,162**	**79,938,431**	**84,262,608**	**88,820,695**
Taxation Levy Analysis										
Prior Year Taxation Levy	43,331,828	46,375,259	50,047,138	53,748,307	64,749,814	68,252,380	71,944,413	75,836,162	79,938,431	84,262,608
Add: Provision for Assessment Growth	476,650	510,128	550,519	591,231	715,248	750,776	791,389	834,198	879,323	926,889
Current Year Taxation Levy at 0.0% Increase	**43,808,478**	**46,885,387**	**50,597,657**	**54,339,538**	**65,462,062**	**69,003,156**	**72,735,801**	**76,670,360**	**80,817,754**	**85,189,496**
Additional Increase in Taxation Levy for the Year	**2,566,781**	**3,161,751**	**3,150,650**	**10,410,276**	**2,790,318**	**2,941,257**	**3,100,361**	**3,268,071**	**3,444,854**	**3,631,199**
Total Taxation Levy	**46,375,259**	**50,047,138**	**53,748,307**	**64,749,814**	**68,252,380**	**71,944,413**	**75,836,162**	**79,938,431**	**84,262,608**	**88,820,694**
Estimated Impact on Tax Bills	**5.86%**	**6.74%**	**6.23%**	**19.16%**	**4.26%**	**4.26%**	**4.26%**	**4.26%**	**4.26%**	**4.26%**

10.0 Reference Reports

United Counties of Leeds and Grenville Documents

Official Plan for the United Counties of Leeds and Grenville
Office Consolidation – March 1, 2021

By-Law to Adopt a Strategic Asset Management Policy
By-Law 18-63, Passed October 25, 2018

Building Condition Assessments

Facility Condition Assessments (Multiple Facilities)
Prepared by FCAPX Ltd., November 29 2019

- **a.** EMS Station 5
- **b.** Greenbush Parts Building
- **c.** Greenbush Patrol Garage
- **d.** Greenbush Storage Building
- **e.** Maple View Lodge
- **f.** North Grenville Patrol Garage
- **g.** North Grenville Storage Building
- **h.** North Leeds Patrol Garage
- **i.** South Grenville Patrol Garage
- **j.** South Leeds Storage Building
- **k.** South Grenville Storage Building
- **l.** South Leeds Patrol Garage
- **m.** Victoria Building

Bridge OSIM Reports

2021 OSIM Bridge Inspections & Needs Study
Prepared by TSI Inc, September 2021

Roads

By-Law to Repeal By-Law 14-10 and to Designate a Reduced Load Period
By-Law 21-25, Passed March 25, 2021

Other

Asset Management Levels of Service Survey Summary (April 2022)
Prepared by Dillon Consulting Limited, April 2022

Appendix A

Load Restrictions By-Law 21-25

This appendix is provided in a separate document.

Appendix B

Financial Continuity Schedules

This appendix is provided in a separate document.