2025
Corporate Asset Management Plan

Niagara Region | Ontario, Canada
niagararegion.ca

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Acknowledgments

The Niagara Region Asset Management Office would like to acknowledge the dedication and contribution of all staff members, departments, and committees in developing the 2025 Corporate Asset Management Plan (CAMP). Your efforts in providing data, expertise, and insights have been invaluable in shaping a comprehensive and effective plan.

We would also like to extend our appreciation to the Asset Management Working Group (AMWG) and the Directors' Asset Management Team (DAMT) for their collaboration, support, and guidance; and the Corporate Asset Management Steering Team (CAMST) for their leadership throughout the process. We further recognise the support from the Regional departments for their contributions to the collection and analysis of qualitative and quantitative data that informed this plan. Their expertise has ensured that this document aligns with the best practices and supports Niagara Region's strategic priorities.

Additionally, we acknowledge the guidance provided by the Corporate Leadership Team (CLT) and Council, whose commitment to sustainable asset management practices continues to drive the success of asset planning programs and initiatives.

The 2025 CAMP reflects the collective efforts of all involved and reaffirms our commitment to responsibly managing public assets to serve the needs of our communities today and into the future.

Thank you,
Asset Management Office (AMO)
Corporate Services Department
Niagara Region

Message from

Ron Tripp

Chief Administrative Officer

Niagara is home to beautiful, diverse, and growing communities. The Region is responsible for providing services that support the needs of residents, businesses, institutions, and visitors.

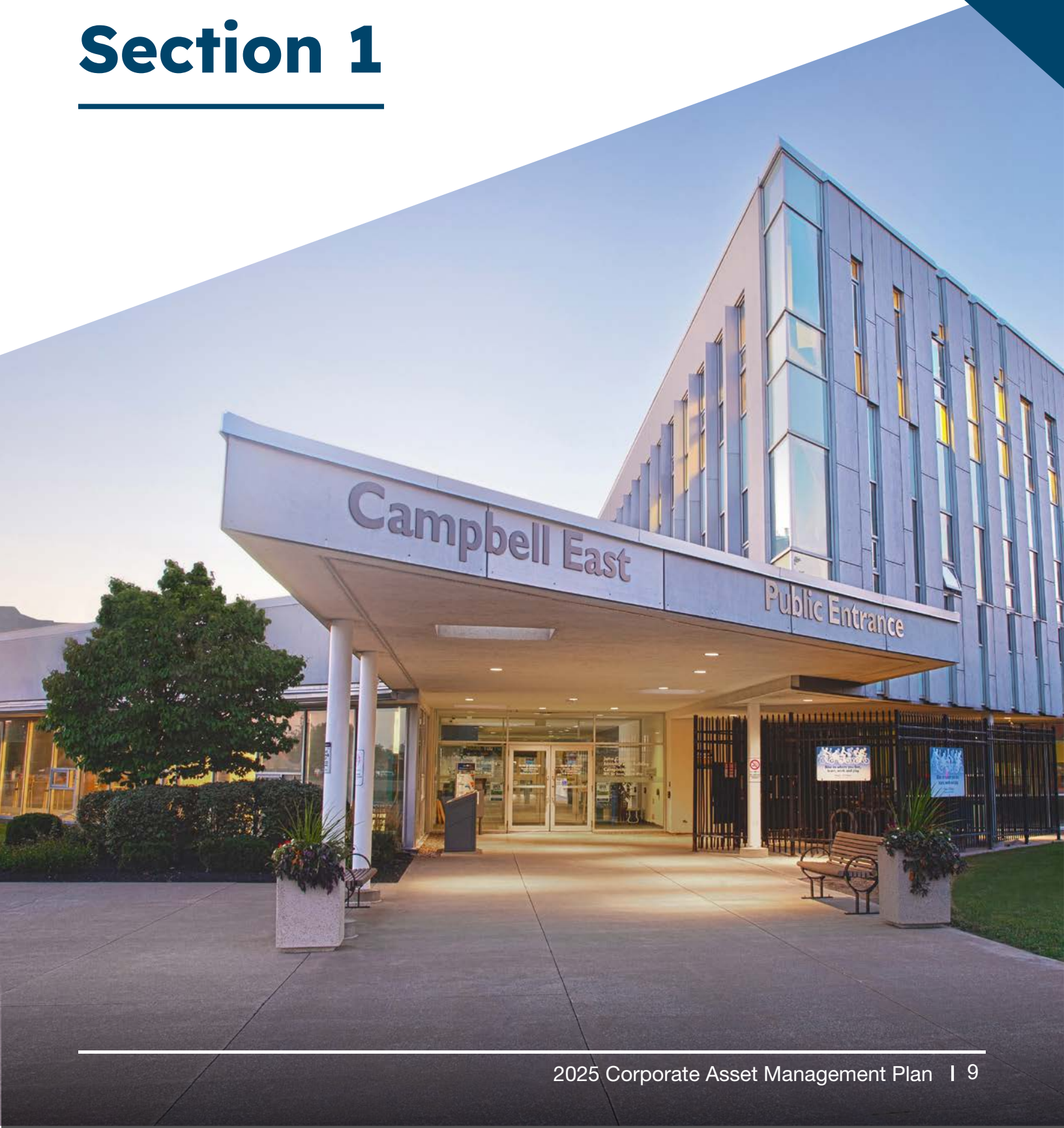
Our Asset Management Program serves as a guide for managing the wide range of regional assets, ensuring they are in a state of good repair. It outlines our asset portfolio, processes and maintenance costs, allowing us to make informed decisions about our assets moving forward. By formalizing and modernizing our asset management practices, we are future-proofing our ability to continue delivering services to the Niagara region's residents, businesses and visitors.

The Asset Management Program also plays a crucial role in improving service delivery across the entire corporation. Through the development of policies, processes, and practices, we aim to optimize our resources and prioritize projects that will deliver the best return on investment, while also balancing costs and risks. By considering corporate-wide risk, we can ensure that our program is financially viable and aligns with our long-term vision for sustainable growth.

I want to express my gratitude to the corporate leadership, divisional team, asset management office, finance team, working group, and the corporate asset management steering team for their commitment and ongoing support. Their expertise and collaboration have been instrumental in the progress of the Asset Management Program in the Niagara Region. We recognize the importance of fostering an open and cooperative partnership with our stakeholders to achieve service excellence. Together, we will continue to lead with creativity and collaboration, making the Region of Niagara a prosperous place for everyone to live, work, visit, and thrive.

Thank you,
Ron Tripp
Chief Administrative Officer (CAO)

Section 1



Key Statistics

$12.1 Billion
Replacement value of asset portfolio

$392 Million
Annual capital sustainable infrastructure deficit

$2.8 Billion
Deferred capital work backlog

71%
Assets in fair, good, or very good condition

29%
Assets in poor, very poor, or unknown condition

44%
Assets with empirical condition data

3.79%
Recommended levy to meet annual renewal needs

7.25%
Recommended increase in rate to meet annual renewal needs

0.92%
Recommended increase in special levy to meet annual renewal needs

Executive Summary

The Regional Municipality of Niagara (the Region) is an upper-tier municipality serving approximately 525,352 residents across 12 Municipalities in Southern Ontario. These municipalities include the cities of St. Catharines, Niagara Falls, Welland, Thorold, and Port Colborne; the towns of Fort Erie, Grimsby, Lincoln, Pelham, and Niagara-on-the-Lake; and the townships of Wainfleet and West Lincoln. The 2025 Corporate Asset Management Plan (CAMP) details the management of approximately $12.13 billion in assets that support the Regional services.

Corporate asset management planning within the Regional Municipality is vital for advancing the strategic goals of the Niagara Region and aligns with Ontario Regulation (O. Reg.) 588/17 Asset Management Planning for Municipal Infrastructure. This planning entails continuous evaluation of asset management practices and financial strategies to sustain the Region's current and future infrastructure needs. The Regional Council aims to ensure that infrastructure services provide a reliable foundation for Niagara Region's economic, social, and environmental well-being and development by delivering critical services. The 2025 CAMP assesses the condition of assets, identifies risks, and outlines the financial investments required to maintain the Region's existing or planned Level of Service (LOS).

This asset management plan complies with Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure, ensuring the Region's continued grant eligibility. The report indicates that 70.97% of the Region's assets are in fair condition or better. It is important to note that this report provides a snapshot in time based on the Region's best available processes, data, and information.

The 2025 CAMP is structured into sections focusing on various asset categories from the following 16 service areas in the Region:

- Water
- Wastewater
- Waste Management
- Transportation
- Fleet
- Niagara Transit Commission
- Senior Services
- Regional Housing
- Children's Services
- Social Assistance and Employment Opportunities
- Public Health
- Emergency Medical Services
- Information Technology
- Facilities
- Court Services
- Police Services

Each service area section outlines the inventory and valuation of assets, their condition, age, level of service, lifecycle management strategies, and data confidence and improvement plans. Asset risk and condition are key metrics used to monitor progress toward meeting service levels and delivering safe, effective, and efficient services to the community.

ES.1. Demand Drivers

Demand drivers are the underlying factors that direct change in service demand. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services.

The population forecast for the Region indicates an increase from 525,352 in 2023 to 694,000 by 2051. Currently, the Region is experiencing population growth and densification, which is straining service delivery capabilities. The demands for services from residents, businesses, and customers are evolving, and it is projected that these demands will continue to compete for the Region's limited resources as we navigate the challenges of growth and intensification. Other key factors influencing demand for Regional services include development trends, legislative requirements, and changing priorities at the upper levels of government.

ES.2. Level of Service (LOS)

Level of service (LOS) is a key business driver that influences asset management decisions and informs lifecycle investment strategies. It provides a line-of-sight link between corporate objectives, customer requirements, and technical performance measures.

The regulation, O. Reg. 588/17, requires municipalities to report on proposed service levels for all regional assets over the next ten years, including a lifecycle management plan and a financial strategy to maintain assets at the approved service levels by July 1, 2025. The 2025 CAMP identifies investment needs and supports long-term financial sustainability planning while maintaining the current level of service as proposed service levels. However, further work is necessary across all service areas to support asset management needs and inform financial planning that aligns with the Region's anticipated population and employment growth. This will help assess the growth impact and determine the additional funding and resources needed to adequately support asset acquisition, operations, maintenance, and renewal.

The Region is working to understand the impact of growth on its assets and services, and a key part of this effort is the upcoming Development Charge (DC) study, Master planning, and Level of Service (LoS) framework development projects. These initiatives will assess the Region's short-, medium-, and long-term needs to ensure they effectively accommodate growth while

acknowledging an ongoing asset risk alongside enhanced mitigation strategies to manage the situation.

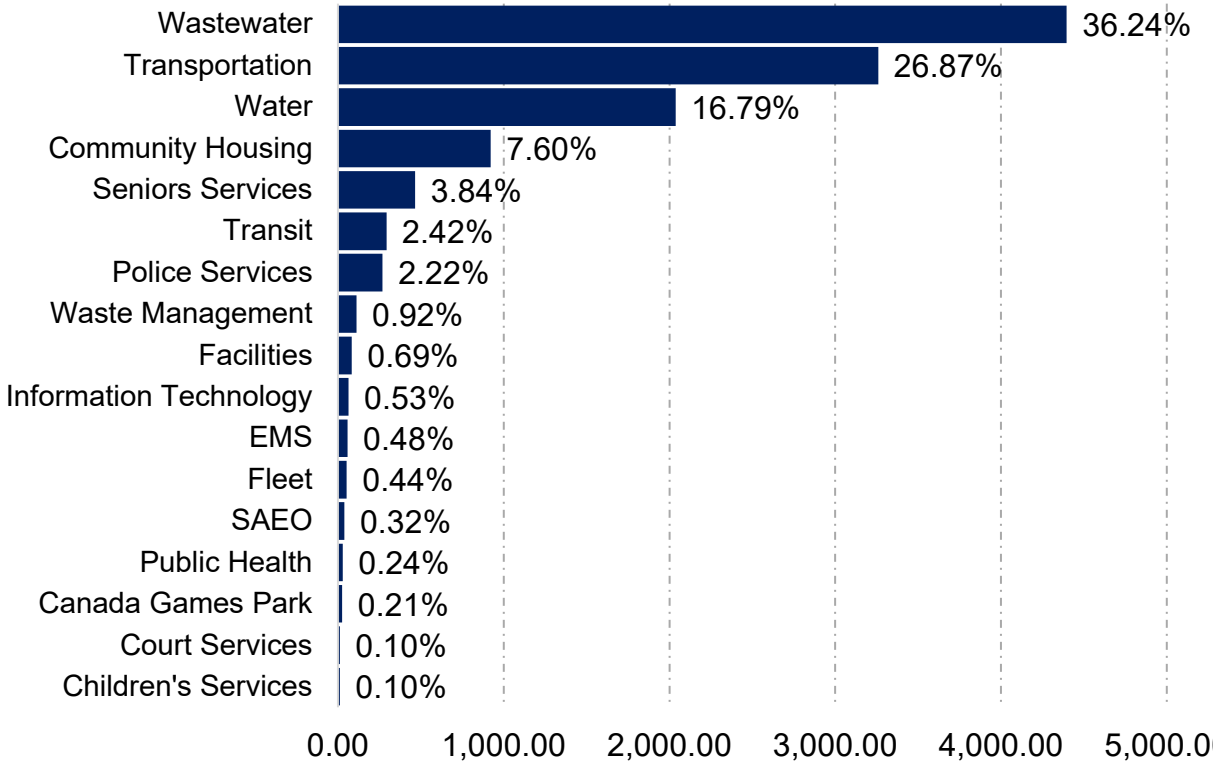
ES.3. State of Infrastructure

The Region's initial step in developing the 2025 CAMP is to understand the assets it owns and their condition. 2025 CAMP reflects asset data available as of the year ended 2023. This includes asset inventory, condition, and replacement values.

Replacement Value

The 2025 CAMP shows that the Region has assets estimated at around $12.13 billion in replacement value from its 16 service areas, as shown in Figure 1. This represents an increase of 23.56% from the 2021 report (2021 – $9.82 billion). The increase is primarily due to the addition of new assets since 2021, the effects of inflation, better data from building condition assessments, and increased asset coverage. This significant increase directly impacts capital programming requirements, indicating a need for increased funding to maintain assets in good repair.

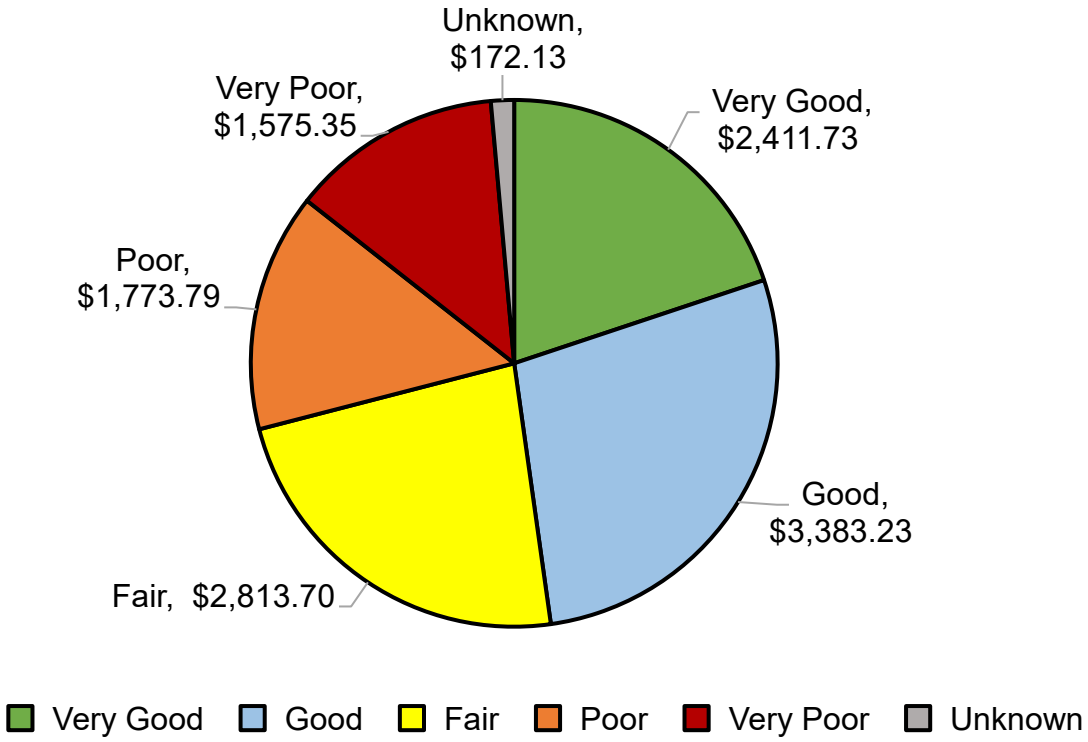
Figure 1: 2025 CAMP Assets – Total Replacement Value of $12.13 billion.



Asset Condition

Overall, 70.97% of Niagara Region's assets by replacement value are in very good, good, or fair condition, as described in Figure 2. While most remain in reasonable condition, significant investment is required to address assets in poor and very poor condition (27.61%). Assets in this group pose a high risk and are candidates requiring continued investment to ensure they do not fail and continue to provide service at an adequate level.

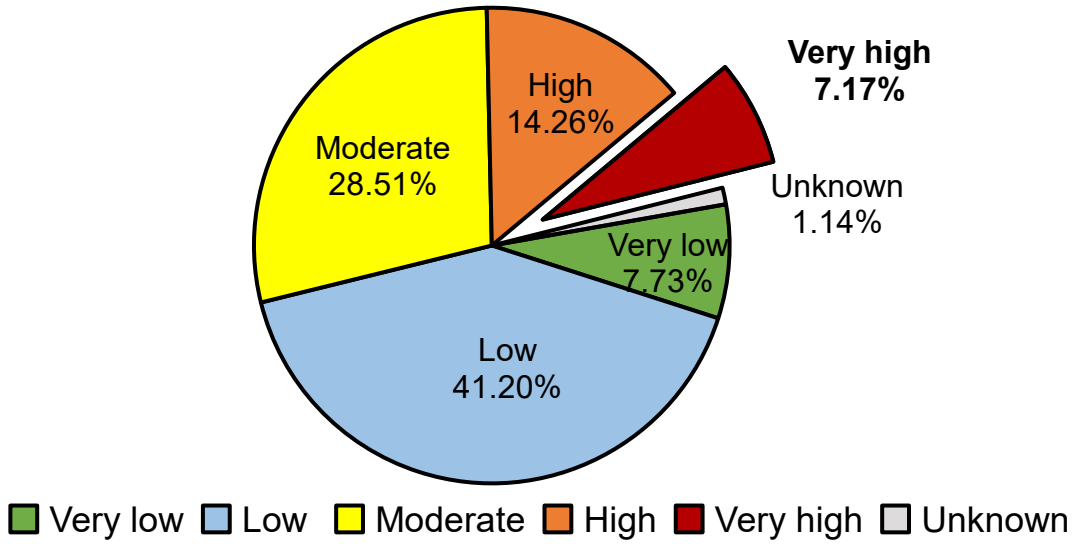
Figure 2: Condition of Regional Assets in 2025 CAMP.



Asset Risk

The Region has identified 7.17% of its assets by replacement value (approximately $870.02 million) as very high risk based on the probability of failure and the consequence of failure. Notably, these assets do not currently pose an immediate operational risk to the public. Figure 3 below illustrates the proportion of each risk category in the entire asset portfolio of Niagara Region. The risk category includes very low, low, moderate, high, very high and unknown.

Figure 3: Very High-Risk Assets (7.17%) in 2025 CAMP.



ES.4. Lifecycle Strategy

Asset management lifecycle strategies are the planned actions that the Region uses to manage its infrastructure to meet service levels.

The basic concept of a lifecycle asset strategy involves performing routine maintenance throughout the asset's life, along with periodic rehabilitation or refurbishment. The asset is replaced based on its useful expected life (UEL), which indicates when a replacement is necessary. This process effectively restarts the lifecycle. The lifecycle asset strategy models the behavior, deterioration, and risks associated with assets over time and the actions required to restore performance. This forms the basis for forecasting actions and costs and their impact on service levels, performance, and risk.

The primary lifecycle strategies used by the Region for managing its existing assets include operations and maintenance, renewal and rehabilitation, and replacement at the end of their expected useful life, as all assets deteriorate over time. Lifecycle interventions maximize an asset's useful life and ensure it continues delivering services at established service levels. However, the growing backlog of deferred capital interventions and limited funding prevents necessary maintenance and rehabilitation activities. This heightens the risk of service disruptions due to unpredictable asset failures and exposes the Region to regulatory non-compliance.

ES.5. Financial Summary

The 2025 CAMP estimates a significantly higher investment backlog compared to the 2021 CAMP. As of 2025, the backlog of deferred capital investment stands at $2.76 billion, an 11.12% increase from the $2.48 billion reported in 2021. The annual average renewal investment (AARI) required, including the backlog, over the next 10 years is $585.48 million per year, an increase of 33.78% over the 2021 value ($437.9 million), which is in tandem with the rise in the replacement value of assets.

Figure 4 illustrates the 10-year average capital program needs from 2026 to 2035. The backlog bar in the chart indicates a capital work backlog of approximately $2.76 billion distributed over a 10-year span, amounting to $275.58 million annually. However, the Region only has $193.71 million in sustainable funding available from all sources leaving an annual funding gap of $391.71 million.

Figure 4 Forecasted Capital Needs, AARI, and Existing Backlog Spread Over 10-years (in $ millions)

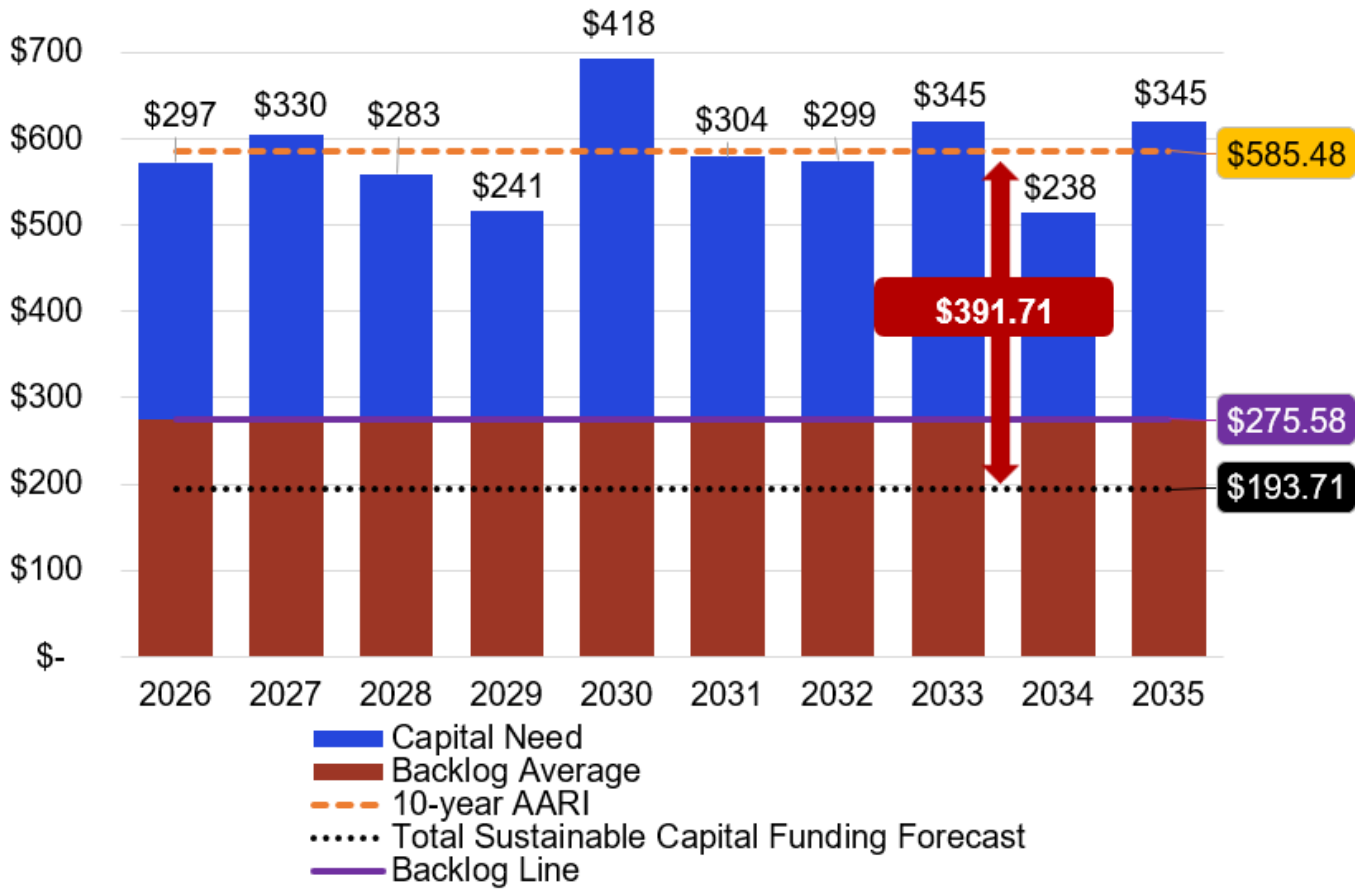


Table 1 shows a comparison of various financial measures between 2021 and 2025 and the corresponding percentage changes.

Table 1: Comparison of Financial Measures between 2021 and 2025

Financial item	2021 $ million	2025 $ million	Change
Replacement value	9,816.84	12,129.94	23.56%
Backlog	$2,479.65	$2,755.84	11.12%
10-year AARI including backlog (excluding CSG**)	$437.86	$585.48	33.78%
Average sustainable capital funding forecast	112.81	$193.71	71.71%
Annual funding gap over 10 years*	325.05	$391.77	20.53%
Required Water and Wastewater Rate increase to fund the gap	7.22%	7.25%	0.42%
Required Levy increase to fund the gap	3.82%	3.79%	-0.79%
Required Special Levy – Transit increase to fund the gap	N/A	0.88%	N/A
Required Special Levy – Waste Management increase to fund the gap	0.04%	0.04%	0.00%

*A different methodology was adopted for calculating the funding gap for 2025, and this was adjusted for 2021.
**CSG – Canada Summer Games Park. A separate funding strategy is applied in alignment with the consortium direction.

When comparing the AARI average of $585.48 million to the available sustainable financing of $193.77 million, there is a shortfall of $391.77 million. The Region's capital projects are financed through various sources, including:

- Levy
- Rates
- Grants
- Contributions from local area municipalities (cost-sharing), and,
- Other external funds

Some of these sources are one-time or application-based, such as specific stimulus announcements, making it impractical to rely on them as a sustainable funding source for the future. The Region has a sustainable average annual funding of approximately $193.71 million

from all sustainable revenue sources, which is 71.71% higher than 2021 as a result of overall annual budget increases being higher than what was estimated in 2021, as well as repurposing debt funding and changing assumptions on grant funding.

The changes in the 2025 CAMP recommended by service areas by the program to achieve a sustainable level of funding over a 10-year period (2025-2034) to alleviate the backlog and attain the required capital needs funding levels are as follows:

- General Levy: 3.79%
- Special Levy – Waste Management: 0.04%
- Special Levy – Transit: 0.88%
- Water & Wastewater: 7.25%

As shown in Table 2, since the 2021 Asset Management Plan, Council-approved increases to both levy and Water/Wastewater rates have been consistently lower than the levels recommended by the 2021 CAMP. The only exception is 2025 when the approved Water and Wastewater rate increase matched the recommended 7.22%.

Table 2: Comparison of Annual Rate and Levy Increase from 2022 to 2025

Financial item	2022	2023	2024	2025
Water and Wastewater Rate (Budget approved)	3.15%	5.00%	4.10%	7.22%
Water and Wastewater Rate (recommended by 2021 CAMP and W/WW Financial Plan)	7.22%	7.22%	7.22%	7.22%
Levy (2025 Budget approved)	1.00%	2.50%	1.50%	2.50%
Levy (recommended by 2021 CAMP)	3.82%	3.82%	3.82%	3.82%

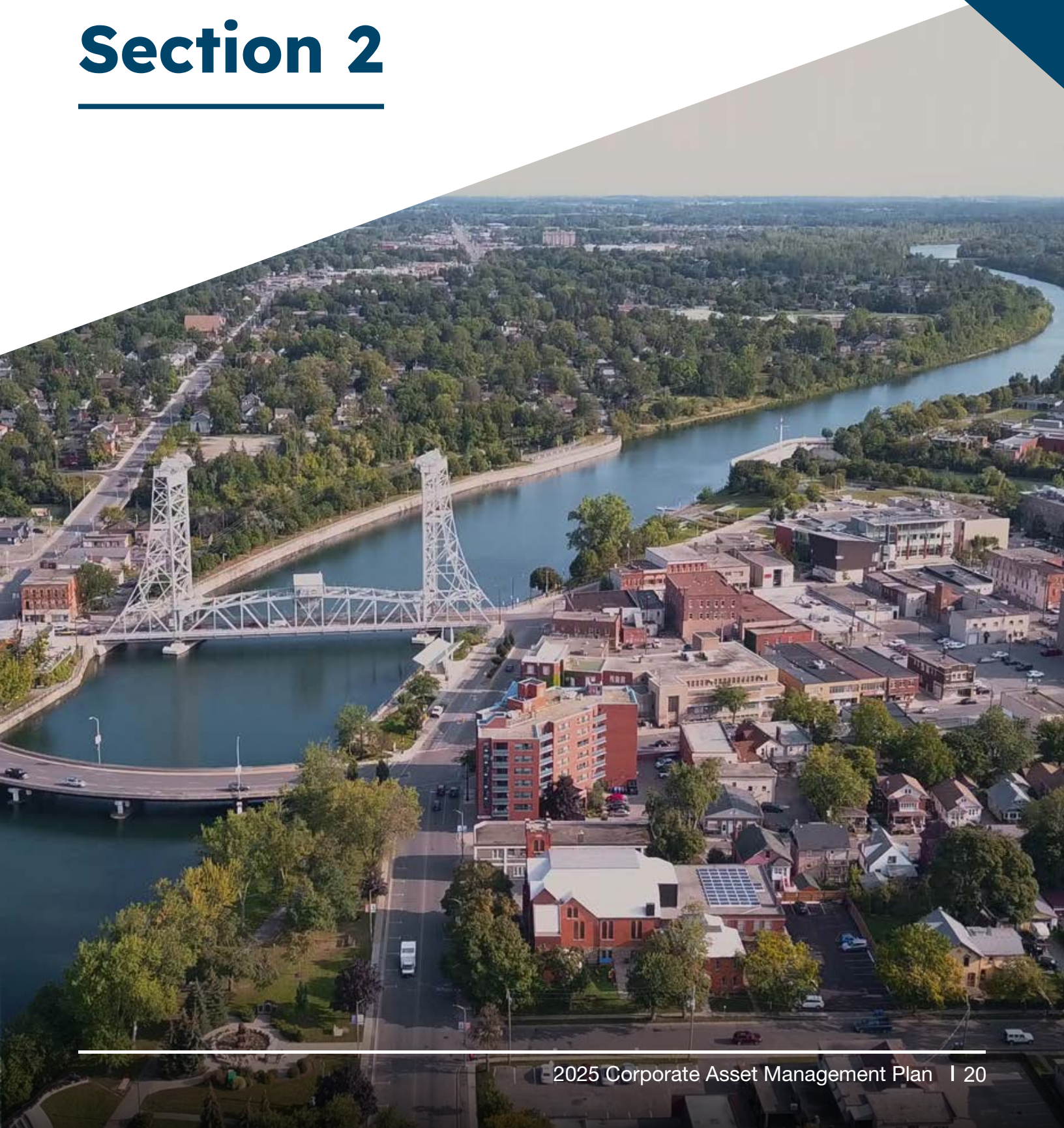
Failing to increase rates and levy to meet the increasing backlog of deferred capital needs will raise the risk of asset failures and unplanned service interruptions. As assets deteriorate faster due to insufficient maintenance and reinvestment, the cost to repair or replace them in the future increases. In response, operations may be forced to shift toward reactive maintenance, diverting resources away from proactive asset planning and placing strain on staff and budgets. This reactive approach can impact customer levels of service, introduce safety and regulatory compliance risks, and reduce the overall efficiency, asset performance, and resilience of service delivery.

ES.6. Continuous Improvement of Asset Management

The Region's asset management system is a strategic approach to directing, coordinating, and managing activities related to assets and the services they support. Continuously improving this system enhances the data and information used as inputs for asset management decisions, ultimately increasing the value of the assets and the effectiveness of service delivery across the Region.

Key areas of improvement include expanding the use of empirical condition assessments to inform evidence-based decisions, developing the levels of service (LOS) framework, and establishing a centralized asset register to ensure consistent, reliable data for planning and reporting. Additionally, the Region is implementing a standardized asset risk management framework, improving maintenance and project delivery processes, and incorporating climate change considerations into lifecycle planning.

Section 2



1. Introduction

The Regional Municipality of Niagara (the Region) is an upper tier municipality located in Southwestern Ontario, serving an estimated population of 525,352 people in 2023 over an area of approximately 1,800 square kilometers. The Region is comprised of 12 local area municipalities including the Cities of St. Catharines, Niagara Falls, Welland, Thorold and Port Colborne, the Towns of Fort Erie, Grimsby, Lincoln, Pelham and Niagara-on-the-Lake, and the Townships of Wainfleet and West Lincoln as seen in Figure 5.

Figure 5: Map of the Niagara Region

The Region's asset management vision is to achieve excellence and efficiency in service delivery through all capital assets (owned in whole or in part, leased or managed by the Region), at sustainable asset lifecycle costs, and acceptable levels of risk. The Region's 2025 Corporate Asset Management Plan (2025 CAMP, or the Plan) provides the framework for management of the Region's assets and presents consolidated information for all of the Region's assets. Legislative requirements, the Region's policies and objectives, and industry practice guided the preparation of the Plan.

Niagara Regional Council's (Council) 2023-2026 Strategic Plan provides a guide for the organization's work over the term of Council and focuses on the services provided at the

Regional level. Four [4] strategic priorities (https://www.niagararegion.ca/priorities/) were identified in the Council's 2023-2026 Strategic Plan:

- **An Effective Region:** Remaining an employer of choice by transforming service delivery in a way that is innovative, collaborative, and fiscally responsible.
- **A Green and Resilient Region:** Focusing on reducing our collective carbon footprint and preparing to adapt to climate change impacts by ensuring current and future infrastructure is resilient.
- **An Equitable Region:** Providing opportunities for a safe and inclusive Niagara by listening and responding to our current community needs and planning for future growth.
- **A Prosperous Region:** Advocating with senior governments for future growth and enhancing Niagara's transportation network to help support a diverse economy by creating a region where new and existing businesses can thrive and grow locally, nationally, and internationally.

1.1. Overview of the Region's Asset Management Journey

The Region's asset management journey (https://niagararegion.ca/projects/asset-management/default.aspx) began with the 2014 Asset Management Plan (2014 AMP) in response to the Ontario Ministry of Infrastructure's "Building Together: Guide for Municipal Asset Management Plans". It covered roads, bridges, water and wastewater systems, Regional housing, and waste management assets. The 2016 CAMP expanded the scope to include most of the Region's assets, meeting Federal Gas Tax funding requirements and incorporating services such as transportation, community housing, public health (including Emergency Medical Services), community services, information technology, facilities, and police. The 2021 CAMP further refined asset management by integrating updated data. Risk assessments and long-term financial strategies to enhance service levels and infrastructure sustainability. This 2025 CAMP will build on this foundation, ensuring continued alignment with regulatory requirements and evolving community needs.

To support corporate-wide asset management, the Region adopted the Asset Management Policy (AM Policy) in May 2019 to align with the Ontario Regulation 588/17, "Asset Management Planning for Municipal Infrastructure" (O. Reg. 588/17), providing a framework for sustainable service delivery. This policy was updated in June 2024 to strengthen risk-based decision-making and enhance financial planning for long-term infrastructure resilience.

Additionally, to advance asset management practices, the Region established a governance structure in 2019, leading to the creation of:

- **Corporate Asset Management Steering Team (CAMST):** Comprised of senior management from all Region commissions, boards and agencies providing governance and oversight of asset management within the Region.
- **Corporate Asset Management Office (AMO):** Centrally staffed to lead and support the development of a corporate-wide asset management system with implementation within departments.
- **Director Asset Management Steering Team (DAMT):** a group of directors responsible for evaluating asset management strategies, plans, and resourcing and making recommendations to the Corporate Asset Management Steering Committee (CAMST).
- **Asset Management Working Group (AMWG):** Region-wide body of department staff involved with developing, delivering, and supporting the asset management program, providing input and helping with asset management communications.

These initiatives ensure a structured, coordinated approach to asset management, supporting effective decision-making and long-term infrastructure sustainability.

1.2. Summary of the Region's Services

The 2025 CAMP includes 16 service areas within six of the Region's Departments and the Niagara Regional Police Services as shown in the next page.

Departments and corresponding service areas in the corporate asset management plan for the Region

Public Works	**Water** **Wastewater** **Waste Management Services** **Transportation** **Fleet**
Niagara Transit Commission	**Niagara Transit**
Community Services	**Seniors Services** **Community Housing** **Children's Services** **Social Assistance and Employment Opportunities**
Public Health and Emergency Services	**Public Health** **Niagara Emergency Medical Services**
Corporate Services	**Information Technology** **Construction, Energy and Facilities Management** **Court Services**
Niagara Regional Police Services	**Police Services**

All assets supporting the service area are reported under the service area, regardless of the managing department. For example, Police buildings, although managed by Corporate Services, report under the Police Services area. Two exceptions to the service area reporting structure are Information Technology (IT) and Fleet. All the Region's IT assets report under IT except for Police IT assets. The entire Region fleet reports under Fleet except for Police, EMS and transit, who report their fleet respectively. Descriptions of the 16 services are summarized in the divisional sections of the report.

1.2.1. Legislation and Standards

Asset management planning supports the long-term strategic investment planning practices, crucial to infrastructure sustainability in an asset-intensive organization such as the Region. While these activities are sound business decisions, there has also been a legislative and regulatory push for the development of formal asset management plans for public sector entities to formalize these practices. The regulations listed below are not exhaustive; additional regulations relevant to specific divisions are outlined in their respective section of this report.

1.2.2. Ontario Regulation. 588 /17

In 2017, the Ontario government released a new regulation under the Infrastructure for Jobs and Prosperity Act, 2015 – Ontario Regulation 588/17, Asset Management Planning for Municipal Infrastructure (O. Reg. 588/17), which outlines deadlines for achieving a strategic Asset Management (AM) program. The new regulations have been crucial in advancing Niagara Region's asset management practices for municipal asset planning and financial forecasting. The Region's current status on the primary requirements is summarized in the following Table 3.

Table 3: O. Reg. 588/17 Requirements

O. Reg. 588/17	Summary of Requirement	Deadline	Status
s.3.(1)	Strategic AM policy, approved and publicly available.	July 1, 2019	Completed April 25, 2019
s.5.(1)	Asset Management Plan – core infrastructure, approved and publicly available.	July 1, 2022	Completed June 22, 2022
s.5.(1)	Asset Management Plan – all infrastructure, approved and publicly available.	July 1, 2024	Completed June 27, 2024
s.6.(1)	Asset Management Plan – update to include the proposed level of service and financing strategy, which is approved and publicly available.	July 1, 2025	On council approval, the 2025 CAMP will ensure compliance with requirements.

1.2.3. Canada Community Building Fund (formerly "Federal Gas Tax")

In June 2024, the Region renewed the 10-year municipal funding agreement with the Association of Municipalities of Ontario for the transfer of Canada Community-Building Funds (CCBF; formerly named Federal Gas Tax). The agreement required the Region to develop and implement an Asset Management plan, culture, and methodology in accordance with legislation and regulation established by the Government of Ontario and continue to improve data describing level of service provided by the Region, and condition, long-term cost and risks associated with infrastructure assets.

1.2.4. Development Charges Act

Ontario's Development Charges Act requires asset management plans that demonstrate that the assets included in the background study are financially feasible over their full lifecycle. The Act also requires detailed asset management plans to support Transit development charge (DC) By-laws and less detailed asset management plans for all other DC eligible services. The most current development charge background study (https://www.niagararegion.ca/business/property/background-study.aspx), dated 2022, is being used in this 2025 CAMP report. The next study is expected in 2027 and will be included and updated in the next iteration of the corporate asset management plan to reflect better the current growth, service levels, and financial challenges The Region is facing.

1.3. Excluded Assets

While the asset management plan aims to provide a comprehensive view of the Region's assets, certain assets are excluded and not reported in 2025 CAMP:

- Furniture and fixtures
- Some service specific equipment, such as:
  - NRPS forensics lab
  - Water/Water wastewater lab equipment
- Land
- Natural assets
- Niagara Peninsula Conservation Authority (NPCA)
- Some leased facilities were excluded due to the limited availability of asset details at this time. However, the Region has specific obligations regarding both capital and operational aspects and needs at some of the leased facilities.

- Other excluded assets include lower-value assets that fall below the Region's tangible capital asset threshold, lower-criticality assets, and those that do not warrant detailed data tracking or lifecycle management.

1.4. Asset Management Plan Methodology

The Plan fulfills the Region's legislated requirements under O. Reg. 588/17 for the preparation of an asset management plan and follows the Building Together: Guide for Asset Management Plans of the Province of Ontario.

Additionally, the Region's AM Policy describes the vision and objectives of asset management in the Region. The AM Policy outlines four [4] principles that have been implemented in the Plan are:

- **Service focused:** Assets support the service delivered. Plan and manage the performance of assets keeping in mind the service delivered. Set service levels expected by customers and other stakeholders respecting cost, value, and risk.
- **Value-based and affordable:** Whole of lifecycle evaluation considers both operational and capital costs. Identify the best combination of investments that deliver the greatest benefit while respecting funding, resource, and timing constraints including customers' willingness and ability to pay.
- **Risk-based:** Make informed asset management decisions to address existing or potential risks to Region's objectives while understanding the likely outcomes and results of the actions.
- **Holistic:** Consider all assets in a service context and account for their interrelationships. The objective is to optimize the system as a whole and think broadly across all departments at the Region, local municipalities and Province when managing assets.

The Plan is a consolidated summary of the asset management plans of each of the services provided by the Region. Staff from across the Region with the Asset Management Office developed these service areas AM plans participating in workshops, providing information, and validating results.

2. Demand for Service

The goal of service demand analysis is to identify the required new or augmented service and related assets. Anticipated future demand provides details or forecast of growth, changes in requirements and changes in asset utilization. The forecast is enabled by describing drivers of change in demand and how the demand changes may influence service and assets. Demand analysis leads to investment planning necessary to meet the demand forecast.

Service demand is often interpreted as growth or capacity. Demand is also defined by other attributes such as quality, accessibility, and condition. As such, demand analysis closely links with levels of service.

Demand for services can exceed current capacity and may result in the need to expand, augment or upgrade assets, procure additional contracted services, or implement programs to reduce demand such as with conservation programs. Conversely, demand for services may also decrease, such as a move to more online services instead of in-person as has been experienced during the pandemic.

Change in demand can occur because of a variety of factors such as population and demographics, changes in customer expectations, and external factors such as climate change. Demand forecasting helps analyze service needs to define future requirements and development of strategies to meet anticipated changes. Examples of service impacts include:

- Reduce, expand, or remove the need for the service.
- Maximize the capacity, life span and serviceability of existing assets.
- Seek alternatives to investing in the assets, and/or alternative treatments.
- Explore ways to provide the services, e.g. own forces, contractors, or agencies.
- Explore funding options (government, non-government funding, and private sector investment).

The cost associated with meeting the change in demand can be included in the long-range financial forecast including cost of future operating, maintenance, and asset renewal activities.

2.1. Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing requirements for services, and the activities and assets required to support those services. Most drivers identified result in

changes to operational requirements rather than changes to the assets utilized in the provision of the service. These key drivers include:

- Population change
- Development trends
- Legislation and higher Government
- Organizational goals and objectives
- Social issues and trends
- Customer expectations
- Demographic changes
- Economic factors
- Pandemic
- Climate change
- Technology change
- Operational efficiency
- Other service provider changes
- Asset management

To better understand the impact which these drivers have on corporate service delivery they were further grouped into the following five [5] generalized drivers:

- Population, demographic and development changes
- Social and economic trends
- Corporate objectives and customer expectations
- Technology and service delivery partners
- Significant global event
- Development

Please refer to Appendix A - Definitions for detailed definitions of the demand drivers.

3. Levels of Service

3.1. Current Levels of Service

Levels of Service (LOS) are key business drivers that influence decisions about managing assets. LOS statements describe the quality of service the Region is striving to provide to customers and other stakeholders, and commonly relate to service attributes such as availability, reliability, suitability, health and safety, affordability, environmental sustainability, responsiveness, and timeliness. Performance indicators and targets are used to describe, quantify, and communicate the services that customers and other stakeholders expect to receive and to determine whether the Region is delivering as expected.

The Current Level of Service (CLOS) represents the standards and performance metrics that the Region is currently achieving in the delivery of its services. Understanding CLOS is essential for evaluating how well the Region meets its service delivery objectives and for identifying areas that require improvement to meet future service demands.

For municipal service providers, LOS are guided by a combination of customer and other stakeholder expectations, regulatory and legislated requirements, and internal policies, strategies and procedures. In many cases, LOS are also implied based on past performance and system design. Effective asset management requires that LOS be formalized and supported through a framework of performance measures, targets, and timeframes to achieve targets, and that the costs to deliver the documented LOS be understood. Niagara Region has organized its LOS framework under the categories: corporate LOS, customer LOS, technical LOS and legislated LOS.

The individual service sections describe the level of service and requirements. This section provides more detail on the corporate level of service, and an overview with examples of legislated, customer and technical level of service.

3.1.1. Corporate LOS

Corporate LOS are statements that describe what the Region intends to focus on for the term of the Council Strategic Plan. Council engaged in a number of public consultations on what residents expected from the Region and current trends and drivers amongst other relevant issues and used the results to develop Councils' Strategic Plan for 2023-2026, see section 1.

Within each of the four focus themes, the Region has identified specific actionable objectives. Examples of these are investment in Transit, Community Housing, Social Equity, and in asset management.

3.1.2. Legislated LOS

Legislated requirements define the standards according to which the Region is obligated to provide services to the community. These standards typically relate to service and asset safety and reliability. The Region delivers services in adherence to applicable legislative requirements, including required compliance monitoring and reporting.

Ontario Regulation 588/17, “Asset Management Planning for Municipal Infrastructure” (O. Reg. 588/17) includes legislated customer levels of services for ‘core municipal infrastructure assets’ (O. Reg. 588/17 refers to them as ‘Community LOS’ which the Plan utilizes when referencing the O. Reg. 588/17 requirements) and requires qualitative descriptions that describe the scope, quality of reliability of the services provided. O. Reg. 588/17 also specifies Technical LOS for municipal infrastructure assets.

3.1.3. Customer LOS

Customer level of service is generally qualitative and written to describe the service delivered. Examples in this category are:

- Wastewater: Provide adequate wastewater collection and treatment capacity to prevent sewage backups and overflows
- Waste Management: Waste is disposed of economically.
- Information Technology: Public access municipal information and services when, where and how it is convenient to them.

3.1.4. Technical LOS

The Region must translate customer expectations and legislative requirements into technical objectives, performance measures, and targets. Technical LOS define what the Region must do to deliver services that meet customer and legislated LOS.

Compliance with legislated requirements has always been a primary driver for the Region, with changes to legislation driving continuous update to associated technical LOS over time. Technical LOS to support customer and other stakeholder requirements are more dynamic than those defined to support legislative requirements – they must be adapted to changes in the local, regional, and global business environments. Examples in this category are:

- Water: Number of boil water advisories issues
- Roads: Overall average pavement condition grade
- Various: Percentage compliance with regulatory obligations

3.2. Proposed Levels of Service

The Proposed Level of Service (PLOS) outlines future service expectations and targets that the Region aims to achieve, often as part of long-term strategic planning and continuous improvement initiatives. PLOS is instrumental in guiding resource allocation, capital investments, and operational strategies to meet evolving community needs and regulatory requirements.

PLOS development involves a comprehensive analysis of current service performance, stakeholder expectations, legislative trends, and emerging best practices in asset management. This proactive approach ensures that the Region can adapt to changing circumstances and continue to deliver high-quality services efficiently and sustainably.

3.2.1. Approach to Proposed Levels of Service

The Region has adopted an approach where the Current Level of Service (CLOS) is set as the Proposed Level of Service (PLOS) due to financial constraints, infrastructure challenges, and community expectations. This approach ensures that service levels remain stable while addressing key concerns such as asset deterioration, funding limitations, and regulatory compliance under O. Reg. 588/17.

According to Statistics Canada, region's population is projected to reach 694,000 in 2051. The region's 2022 Development Charge (DC) study summarized the growth forecast to be approximately 546,360 by mid-2032, 608,200 by mid-2041, and 676,800 by mid-2051. Total employment for the Region is also anticipated to reach approximately 175,860 by mid-2032, 192,030 by mid-2041, and 215,350 by mid-2051. These projections reinforce the need to align infrastructure planning with anticipated growth and service demands.

Ontario Regulation 588/17, Section 5. (2).6.vi, requires the Region to integrate the following information into its asset management plans:

"For each of the 10 years following the year for which the current levels of service under paragraph 1 are determined, the estimated capital expenditures and significant operating costs related to the lifecycle activities required to maintain the current levels of service in order to accommodate projected increases in demand caused by growth, including estimated capital

expenditures and significant operating costs related to new construction or to upgrading of existing municipal infrastructure assets."

The Niagara Region's 2022 Development Charges Background Study evaluated the capital requirements related to development for most service areas over the next 10 years, using the average from a historical 10-year level of service (LOS) calculation. However, there is still a need to develop and implement a detailed asset management strategy incorporating lifecycle costs and action plans to ensure the sustainability of existing and new assets. To better understand the impact of growth, the upcoming Development Charges (DC) Study project will address and review the Region's short, medium, and long-term needs and further incorporate that into financial planning and asset lifecycle needs.

Further work is necessary to support asset management needs and inform financial planning that aligns with the Region's anticipated population and employment growth. This will help assess the growth impact and determine the additional funding and resources needed to adequately support asset acquisition, operations, maintenance, and renewal.

Additionally, there is a need to update asset management frameworks based on industry best practices. This includes conducting a level of service assessment that evaluates "what" the Region provides to the community and the nature and quality of that service. Based on recent asset performance capacity, this assessment should link service levels with expected performance results, such as condition, function, or capacity. However, several challenges exist, including resource constraints, current underinvestment, asset management maturity assessment, the absence of key performance indicators or metrics for measuring service delivery, upper levels of government requirements with limited support, and reluctance to increase funding.

The CAMP 2025 has identified the necessary capital needs for the next ten or 50 years related to upgrades of existing infrastructure assets, while the DC study 2022 can still be used as a baseline for understanding projected increases in demand caused by growth, including estimated capital expenditures and significant operating costs related to new construction.

The existing service levels will serve as the proposed customer levels of service across all Regional service areas. However, technical levels of service will require further analysis and review to assess their potential impact. Findings from this analysis will be included in the next iteration of the CAMP.

Once the technical service levels have been reviewed, staff will present the LOS framework and service-level alternatives to the Council, along with financial implications and risk

considerations. Public consultation will follow to ensure that the plan aligns with community needs and regulatory requirements. The Region will also continue to monitor service levels annually, allowing for future adjustments based on asset performance.

Table 4 outlines the potential impacts of maintaining, increasing, or decreasing levels of service (LOS) on asset condition, funding needs, and customer experience. Adjustments to LOS influence investment requirements, infrastructure sustainability, risk, and long-term service reliability.

Table 4: Impact of Level of Service Adjustments on Assets and Funding

Level of service	Impact
Maintain current LOS	• Customers will receive the same level of service. • Continued maintenance investment is needed to prevent deterioration. • Revenue must increase to address the infrastructure gap. • Risk management will remain reactive, and pressure on assets ma grow despite meeting basic service and regulatory requirements.
Increase LOS	• Increased service levels will enhance customer satisfaction. • Additional investment is needed to expand service capacity and support growth. • This investment improves asset reliability, performance, capacity, and utilization while minimizing asset failures and emergency funding requests. • Requires increased revenue to sustain improved service levels.
Decrease LOS	• A reduction in service levels will result in a diminished customer experience and increased service disruptions. • Short-term savings, but long-term costs rise due to accelerated asset decline. There is also the risk of non-compliance with regulations in selected service areas from reduced investments. • Asset condition, performance, capacity, and usage will decrease and increase the risk planning for continuing to maintain assets. • Overall asset performance and reliability will decline.

Maintaining CLOS as PLOS reflects the reality that the assets are not funded at the minimum levels required to maintain the current levels of service and the Region faces a significant infrastructure deficit and capital backlog. Regions' asset replacement costs and backlog continue to rise, widening the funding gap; given these financial pressures, any service level

enhancements require council direction and a clear understanding of the long-term tax levy and rate impacts.

By adopting this approach, the Region can prioritize sustainable financial planning, focus on maintaining existing assets, and comply with regulatory requirements, while also positioning itself for a more detailed assessment of future funding strategies. The next iteration of the CAMP will re-evaluate this strategy based on updated financial projections, legislative changes, and evolving service demands.

4. State of Infrastructure

The state of infrastructure (SOI) provides the current state of the Region's assets to facilitate informed infrastructure investment decisions, in particular for asset rehabilitation and renewal. SOI provides the basis for determining the amount of funding required to sustain the levels of service at an acceptable level to Niagara Region residents and the community at large and informs the decision-making process to keep assets in an acceptable state of repair.

SOI addresses four traditional asset management questions:

- What assets does the Region own (quantity)?
- What are they worth (replacement value)?
- What is the asset performance level (condition in this asset management plan with some risk information)?
- What is the expected and remaining useful life?

Furthermore, this section highlights the Region's intention to shift the approach to asset management decision-making from condition to risk based. The shift will incorporate a greater emphasis on risk-based economic decision making to enable the explicit trade-off between level of service, cost and risk. As such, risk information is included as part of the assessment for the assets:

- What is the risk level associated with the assets?

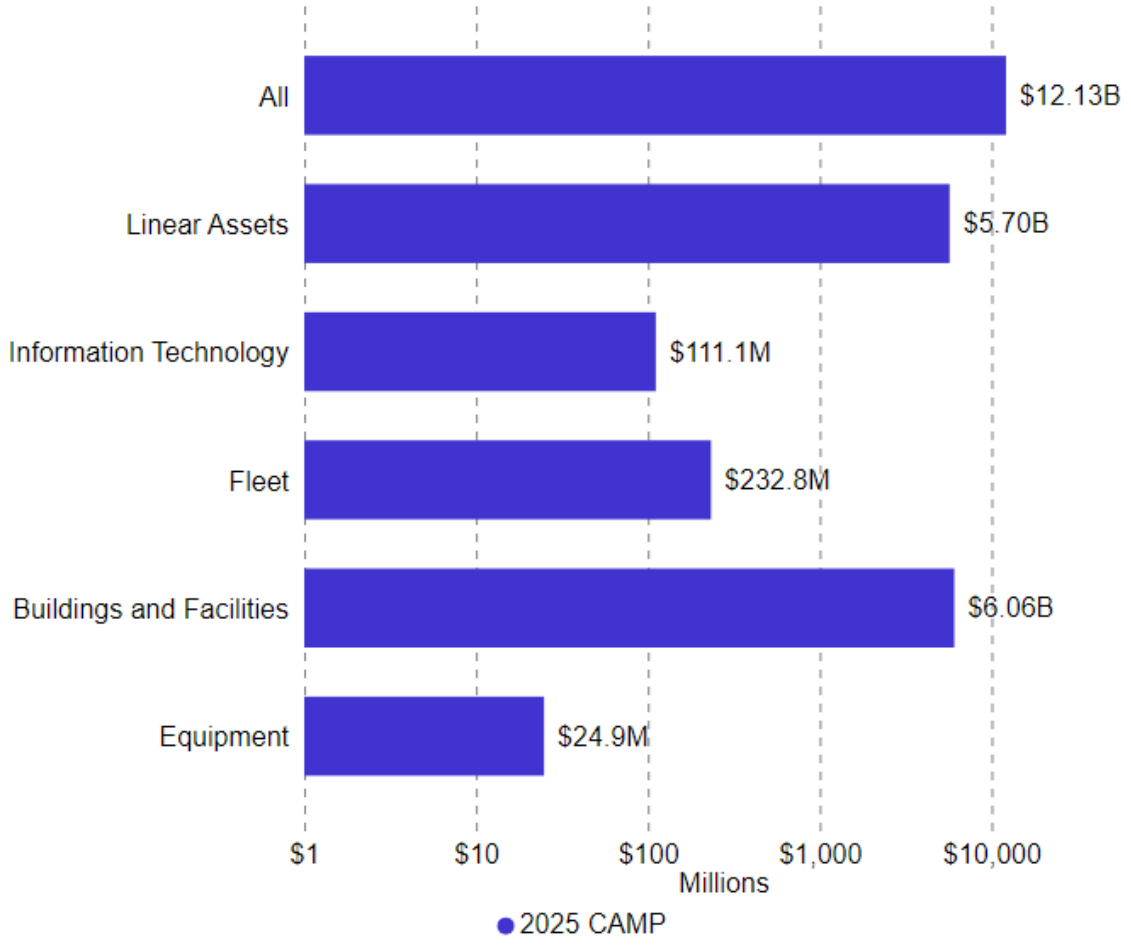
This section includes summary information for all asset owned and operated by the Region on:

- Asset classes or types and quantity
- Replacement cost
- Asset age distribution and asset age as a proportion of useful expected life (UEL)
- Asset condition
- Risk including probability and consequence of failure.

4.1. Asset Inventory and Replacement Cost

The assets required to support the services provided by the Region are estimated to cost $12.13 billion to replace, as summarized by asset category in Figure 6.

Figure 6: Asset Replacement Cost



From an asset management perspective, current replacement cost valuations are useful for long-term decision-making since it provides a key decision-making parameter for understanding the future commitments for replacing assets at their end of useful life or upon asset failure. The current replacement cost was derived from a variety of source data and methods depending on the asset type. The most common types are:

- **Index from previous cost estimate**
  Indexing is a forecast of the current replacement value uses an appropriate indicator starting from a recent asset valuation (replacement cost estimate). The most common index in a municipal setting is Canada's Non-Residential Building Construction Price Index (NRBCPI) (https://shorturl.at/66GgX) - NRBCPI is applicable for facilities, infrastructure, and major equipment.

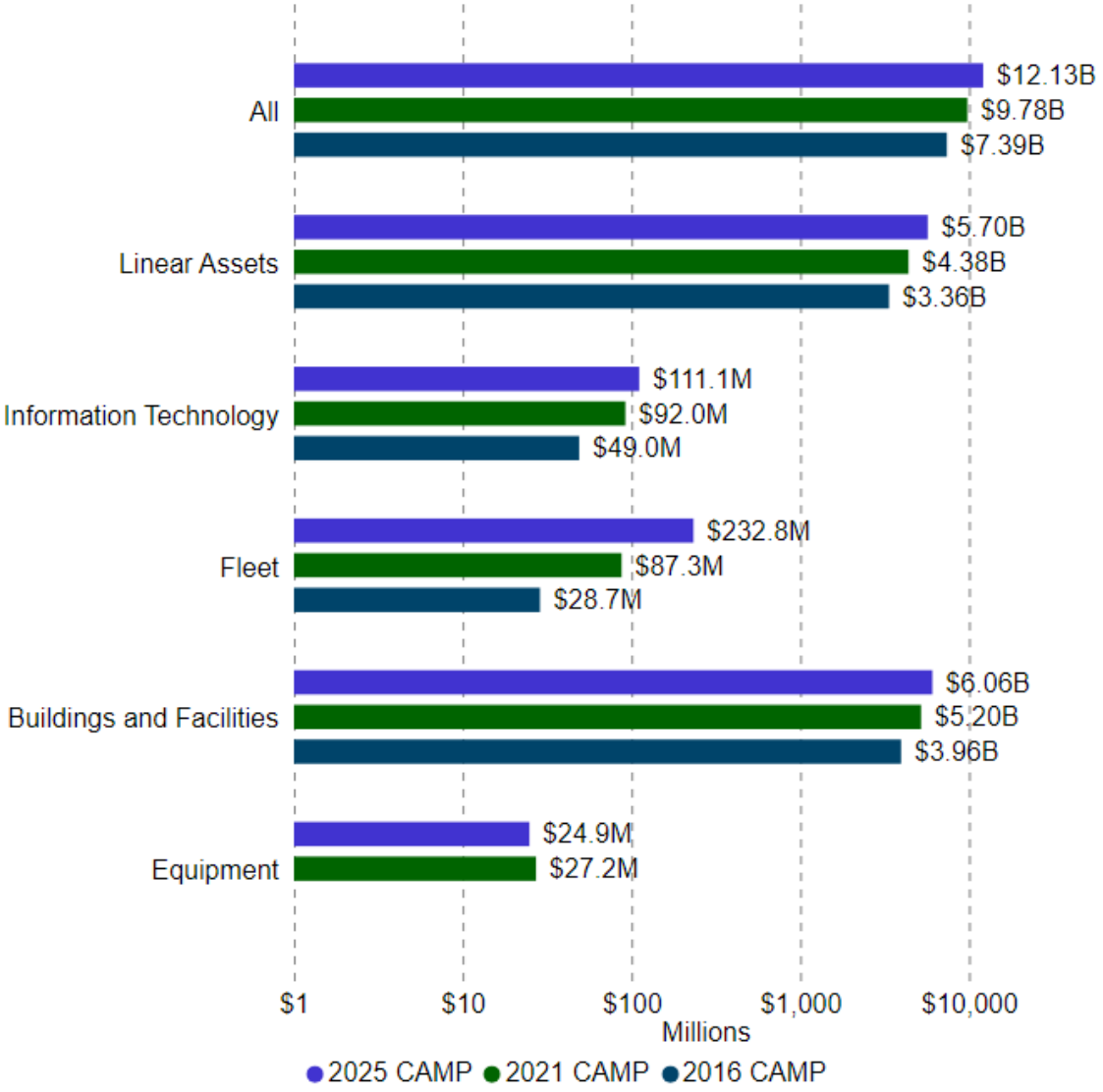
- **Market price**
  Market price is the recent purchase price of the same or similar asset that is commercially available. Market price is applicable for commonly purchased and relatively short-lived assets including vehicles, computers, and equipment.
- **Cost models**
  Cost models rely on units of measure and a unit cost derived from modelling and combining different sources and methods for the unit cost. The Region has some informal cost models and very few formal cost models.

4.2. Changes in Replacement Value from 2021 to 2025

Niagara Region's total asset replacement value increased from $9.78 billion in 2021 to $12.13 billion in 2025, as illustrated in Figure 7. This represents a 23.56% increase and reflects the addition of new assets since 2021, updated replacement values of existing assets, inflationary impacts, and revisions to valuation methodologies.

The Equipment asset category decreased by 8.66% due to the Material Recycling Facility equipment no longer being owned by the Region following its divestment. Conversely, Fleet assets increased by 166.58%, primarily due to the amalgamation of assets from the Niagara Transit Commission.

Figure 7: Changes in Replacement Value from 2016 to 2025



4.3. Asset Age Distribution

Traditionally, the age of an asset indicates its remaining life based on its useful expected life (UEL). In absence of condition or risk assessments, the age distribution of assets relative to their respective UEL provides a broad and high-level assessment of remaining useful life. This ratio of age to UEL informs the development of a planning horizon for future asset replacements. This is especially the case when an organization has limited condition or failure

data. The average age and average UEL, based on weighted average cost, are summarized by service in Figure 8 and Table 5.

Figure 8: Average Age and UEL in Years

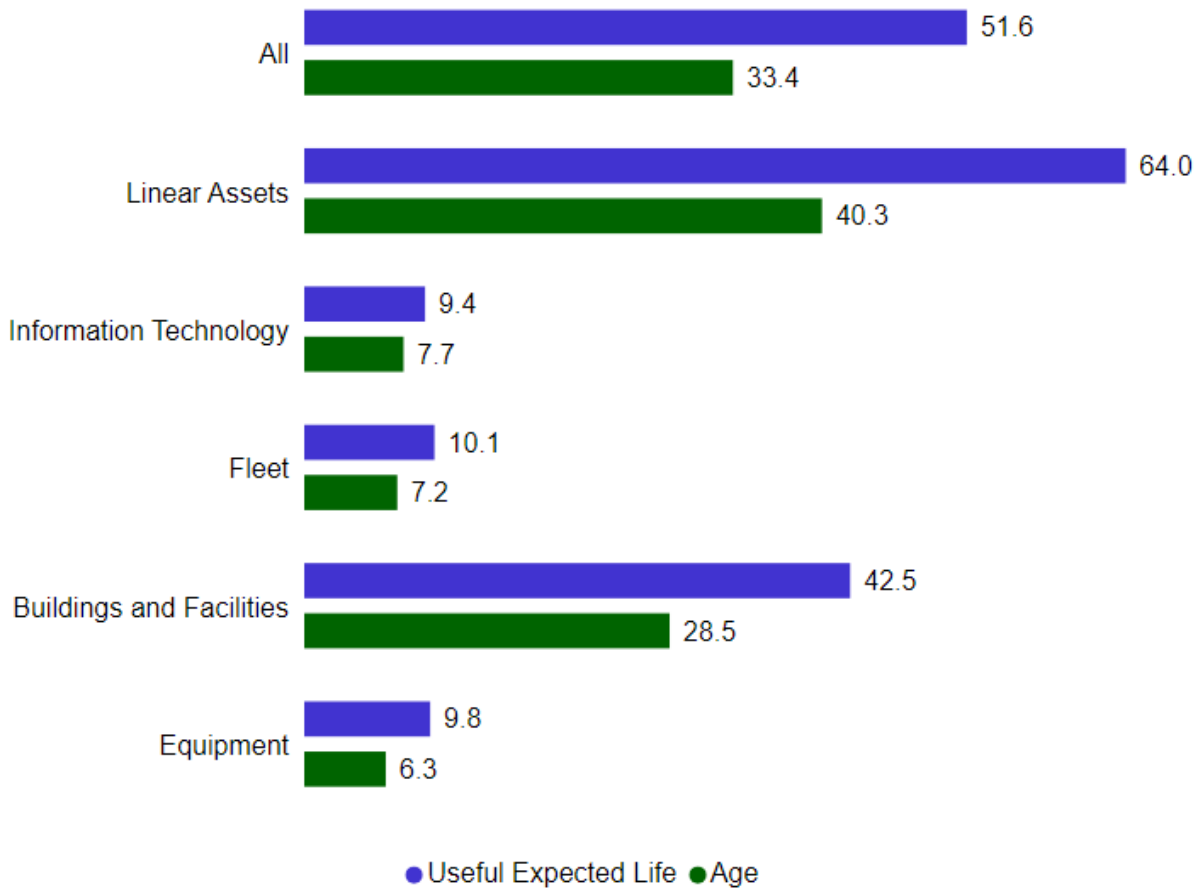


Table 5: Average Age and UEL in Years

Asset Category	Average Age	Average UEL	Average Remaining Life
Buildings and Facilities	28.5	42.5	14.1
Equipment	6.3	9.8	3.5
Fleet	7.2	10.1	2.9
Information Technology	7.7	9.4	1.7
Linear Assets	40.3	64.0	23.7
Grand Total	**33.4**	**51.6**	**18.2**

An asset reaching useful expected life does not mean that the asset is in a failed state. An asset that is as old as or older than its useful expected life generally is in poorer condition than a newer or younger asset. However, some assets continue to perform beyond useful expected life but with an increased risk of failure or with lower performance.

This performance concept is important to understand when addressing asset backlog. For example, keeping a vehicle on the road past the useful expected life is possible. This subjects the vehicle to higher maintenance costs to keep it running and higher risk of failure of a major component including breaking down at unexpected times. Both these outcomes affect level and cost of service.

The shorter the useful expected life, the higher the capital investment for asset replacement. Ideally, the useful expected life correlates with the expected performance and level of service of an asset. However, the risk of assets at any age should inform decisions about asset replacement to enable balance of cost and level of service with risk.

Overall, the Region has a balanced age distribution across its assets. On average, Facilities and Linear Assets –the two largest categories- have a substantial portion of their useful life remaining, indicating capacity to support ongoing service delivery needs. The specific age distribution within these broad categories provides a more granular view on imminent investment needs in the near future. From the perspective of planning asset replacement programs, the Region uses asset age distributions relative to their UEL for ranking high priority assets for further consideration.

Figure 8 represents the asset categories as averages, and therefore may represent new assets as well as assets beyond their useful life. There are in fact assets beyond their useful expected life meaning they are overdue for replacement and represent an investment backlog or deferred investment.

4.4. Asset Condition

The assessment of asset condition provides a more refined approach to estimating an asset's remaining UEL when condition is directly measured. The Region uses a number of techniques for assessing asset condition, namely structured visual inspections, model-based condition deterioration assessments and condition assessments correlated with asset age distributions.

To enable comparison of condition and condition trends over time between different asset types, a generic condition grading scale translates detailed engineering data about assets into information that the public and council can compare across asset groups. For this purpose, an

industry standard general condition grading system was used based on the International Infrastructure Management Manual (IIMM), summarized in Table 6.

Table 6: General Condition Rating Scale (from IIMM)

Condition Rating	Description
Very good (VG)	Asset is physically sound and is performing its function as originally intended. Required maintenance costs are well within standards and norms. Typically, asset is new or recently rehabilitated.
Good (G)	Asset is physically sound and is performing its function as originally intended. Required maintenance costs are within acceptable standards and norms but are increasing. Typically, asset has been used for some time but is still within early to mid-stage of its expected life.
Fair (F)	Asset is showing signs of deterioration and is performing at a lower level than originally intended. Some components of the asset are becoming physically deficient and component replacement may be necessary. Maintenance requirements and costs are continuing to increase. Typically, asset has been used for a long time and is within the mid- to later stage of its expected life.
Poor (P)	Asset is showing significant signs of deterioration and may be performing to a much lower level than originally intended. A major portion of the asset is physically deficient. Required maintenance costs exceed acceptable standards and norms. Typically, asset is approaching the end of its expected life.
Very poor (VP)	Asset is physically unsound and/or not performing as originally intended. The asset is still operational but has higher probability of failure or failure is imminent. Maintenance costs are unacceptable, and rehabilitation is not cost effective. Replacement / major refurbishment are required.

Asset condition, based on weighted average cost, is summarized by asset category in Figure 9 and Table 7.

Figure 9: Asset Condition as % of Value by Asset Category

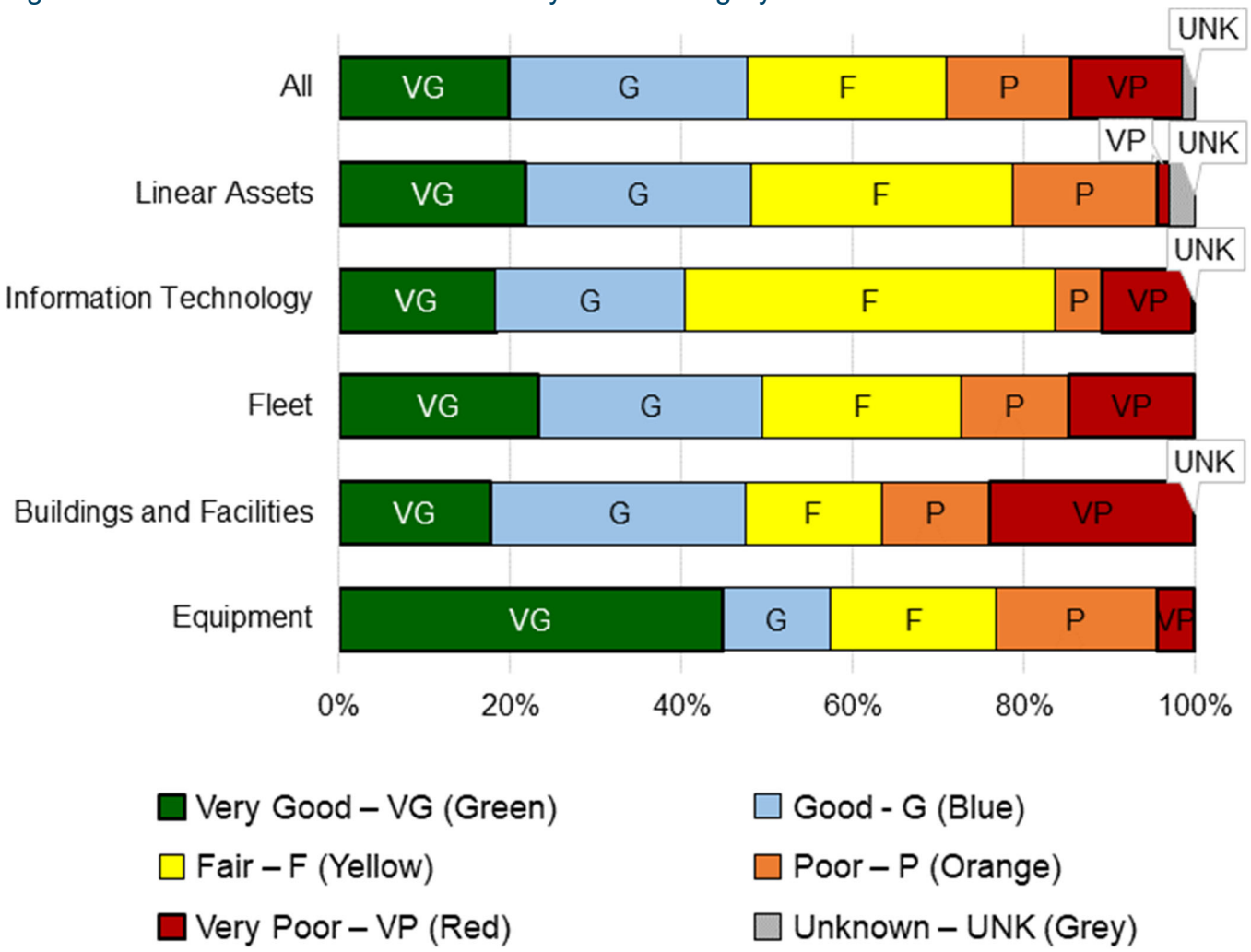


Table 7: Region's Asset Condition as % of Value by Asset Category

Condition rating (colour indicator)	Overall	Linear Assets	Information Technology	Fleet	Buildings and Facilities	Equipment
Very Good – VG (Green)	19.88%	21.87%	18.33%	23.32%	17.81%	44.86%
Good - G (Blue)	27.89%	26.22%	22.04%	26.18%	29.70%	12.58%
Fair – F (Yellow)	23.20%	30.63%	43.34%	23.24%	15.86%	19.29%
Poor – P (Orange)	14.62%	16.87%	5.47%	12.50%	12.74%	18.94%
Very Poor – VP (Red)	12.99%	1.44%	10.60%	14.76%	23.85%	4.33%
Unknown – UNK (Grey)	1.42%	2.97%	0.22%	0.00%	0.04%	0.00%

The Region's portfolio of assets is predominantly in fair, good, and very good condition, with 70.97% of assets rated as fair or better. Although some of these assets deteriorate at a faster pace (e.g., IT equipment, vehicles, etc.) relative to long-lived infrastructure assets, it can generally be assumed that the Region has a healthy mix of assets in various condition states. However, 12.99% of assets are rated in very poor condition. Assets in this group are high risk and candidates for immediate replacement.

The condition distribution by service area provides a more granular view on imminent investment needs required by the services, as shown in Figure 10 and Table 8.

Figure 10: Asset Condition as % of Value by Service

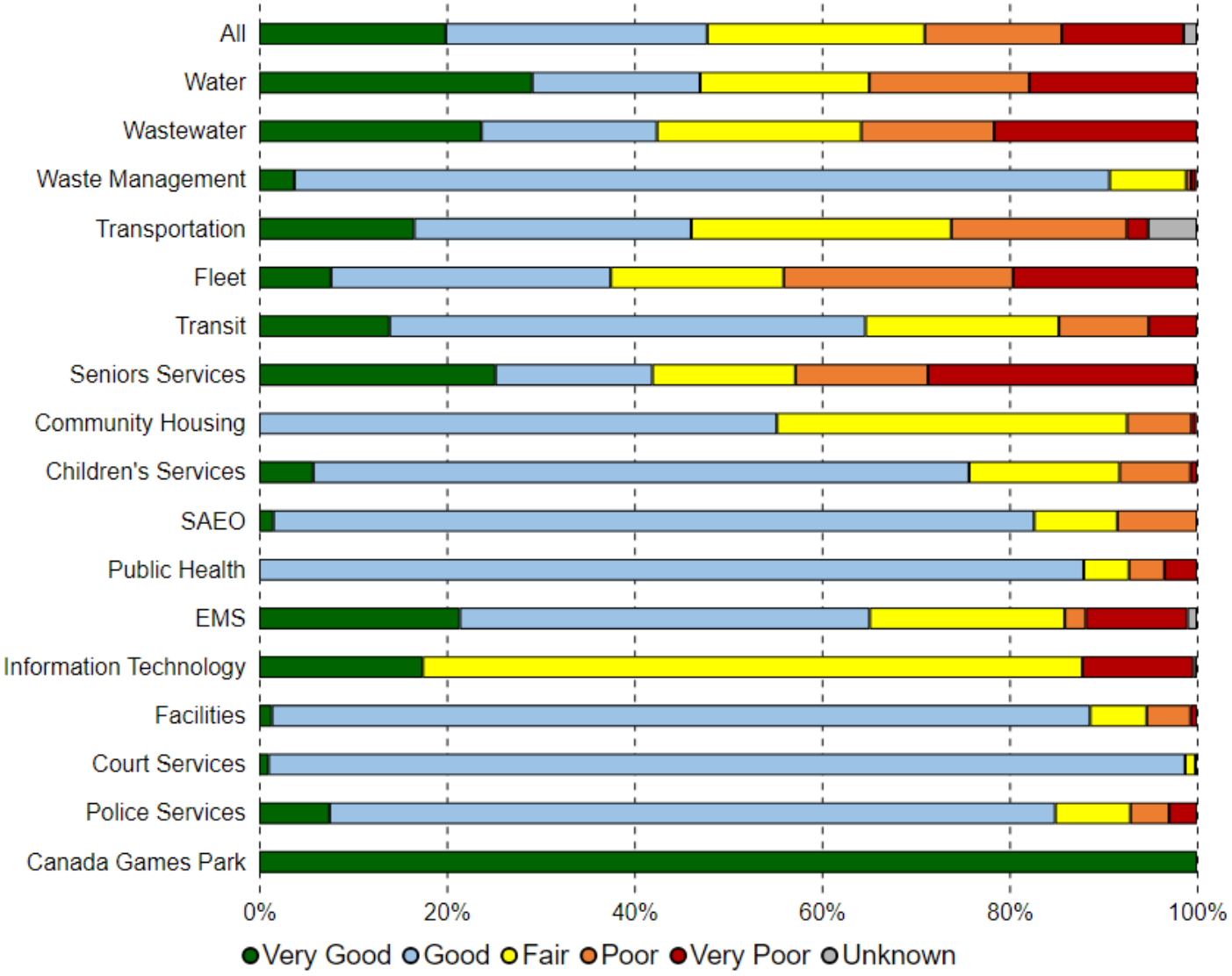


Table 8: Region's Asset Condition as % of Value by Service

Services	Very Good	Good	Fair	Poor	Very Poor	Unknown
Water	29.11%	17.91%	18.05%	17.06%	17.87%	0.00%
Wastewater	23.70%	18.71%	21.78%	14.18%	21.62%	0.00%
Waste Management	3.75%	86.94%	8.17%	0.51%	0.54%	0.10%

Services	Very Good	Good	Fair	Poor	Very Poor	Unknown
Transportation	16.53%	29.55%	27.72%	18.73%	2.27%	5.21%
Transit	13.90%	50.75%	20.63%	9.58%	5.14%	0.00%
Fleet	7.65%	29.84%	18.43%	24.47%	19.61%	0.00%
Senior's Services	25.19%	16.75%	15.25%	14.14%	28.50%	0.18%
Community Housing	0.00%	55.21%	37.34%	6.87%	0.50%	0.07%
Children's Services	5.76%	69.93%	16.07%	7.56%	0.68%	0.00%
SAEO	1.51%	81.13%	8.86%	8.49%	0.00%	0.00%
Public Health	0.00%	87.93%	4.82%	3.78%	3.47%	0.00%
NEMS	21.39%	43.71%	20.81%	2.23%	10.85%	1.01%
Information Technology	17.45%	0.00%	70.34%	0.00%	11.83%	0.38%
General Administration	1.35%	87.25%	6.04%	4.69%	0.67%	0.00%
Court Services	1.00%	97.73%	1.10%	0.17%	0.00%	0.00%
NRPS	7.50%	77.39%	8.01%	4.14%	2.96%	0.00%
Overall	**19.88%**	**27.89%**	**23.20%**	**14.62%**	**12.99%**	**1.42%**

Where available, actual data on condition and performance assess current state and forecast infrastructure needs. When gaps in data exist, an action plan establishes the steps necessary for more comprehensive data and information. The action plan improves the level of confidence in the use of the information, which is to forecast infrastructure investment requirements.

4.5. Risk

Table 10 is a standardized risk matrix to represent assets with their current replacement cost and percentage of total asset replacement cost, respectively, according to their probability of failure (POF) and consequence of failure (COF). For each asset, POF is determined using a Weibull probability function to indicate its current cumulative asset failure likelihood. The cumulative distribution function is asset-specific in terms of the UEL and increasing POF over the lifetime for each asset.

COF represents an assets' criticality to provide service to society, and is defined by social, environmental, and financial impact in the event that an asset fails.

- Environmental impact is a measure for the consequential impact of an asset failure on the environment, and includes pollution to air, water bodies and soil contamination.
- Social impact of asset failure evaluates Health & Safety, Well-being, Compliance and Reputational impact on the residents and employees of the Region.
- Financial impact considers the direct cost to the Region as well as compensation to affected residents. The impact of asset failure is represented as a monetary cost.

From an asset management planning perspective, the risk matrix facilitates the review and targeted action of high-risk assets and lays the foundation for risk-based asset management planning, e.g. in prioritizing asset replacements or rehabilitation of assets using cost benefit analysis, where risk reduction is considered a benefit.

Risks relating to asset failure may be further mitigated through more detailed condition and risk assessments, preventative and corrective maintenance planning, and capital renewal programs. The activities are intended to ensure that the appropriate work is completed to sustain the desired LOS delivered. Asset service risk distribution is summarized in Table 10.

A note on the colour scheme in the matrix is that it is similar to that of the condition grade colour scheme but is not precisely the same. The main difference is assets that have a very high consequence of failure always require a higher degree of treatment regardless of the probability of failure. Risks can indicate required action, standardized responses to existing risks by risk category as shown in Table 9.

Table 9: Risk Category Definition

Risk category	Definition
Very low (VL)	A very low risk has a low probability of risk occurring, and low impact to service delivery. This risk can be responded to by maintaining routine procedures, and planning renewals in the longer term.
Low (L)	A low risk has a low-moderate probability of occurring, and low-moderate impact to service delivery. This risk can be responded to by establishing a monitoring program and planning renewals in the intermediate to long term.
Moderate (M)	A moderate risk has a moderate probability of occurring, and a moderate impact to service delivery. This risk can be responded to by establishing a monitoring program, and planning renewals in the intermediate term.
High (H)	A high risk has a moderate-high probability of occurring, and moderate-high impact to service delivery. This risk can be responded to by establishing a monitoring program with frequent risk assessments, and planning renewals in the intermediate to near term. Consideration should also be made for additional preventative or correction actions.
Very high (VH)	A very high risk has a high probability of occurring, and high impact to service delivery. This risk can be responded to by establishing a monitoring program with frequent risk assessments, and planning renewals in the near term. Consideration should also be made for additional preventative or correction actions.

Table 10: Distribution of the Region's Asset Risk (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$14.4	$89.8	$320.4	$869.7	$0.2
High	$2.5	$197.4	$70.6	$434.7	$0.1
Moderate	$1.9	$25.0	$385.0	$778.0	$1.6
Low	$29.0	$166.0	$998.3	$397.9	$34.3
Very low	$1.5	$906.9	$4,829.6	$1,343.5	$93.7

POF = Probability of failure COF = Consequence of failure

Table 11 represents the percentage of total asset replacement cost according to the risk of asset failure. Considering that 7.17% of assets (weighted by asset value) fall into the category of very high risk, these assets should be further validated and prioritized for subsequent asset

management activities, including capital asset replacement and auditing emergency response planning.

Table 11: Region Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$937.4	7.73%
L	Low (L)	$4,997.5	41.20%
M	Moderate (M)	$3,458.0	28.51%
H	High (H)	$1,729.3	14.26%
VH	Very high (VH)	$870.0	7.17%
	Unknown	$137.8	1.14%
	Total	**$12,129.9**	**100.00%**

4.6. Lifecycle Strategies

Lifecycle delivery is the asset management element to manage assets from the time it is acquired to its disposal. Lifecycle delivery includes a strategy or approach for actions to maintain, rehabilitate and replace assets. In its simplest form, these actions, referenced as infrastructure solutions, are the lifecycle asset strategy (LAS). In the asset management plan these actions, their costs, and timing inform the level of service and the cost of service.

In addition to infrastructure solutions, the LAS includes non-infrastructure solutions and associated costs. There are five [5] categories of LAS as summarized in Table 12.

Table 12: The Five Categories of Lifecycle Asset Strategies

No.	Solution	Description
1	Service	Service delivery solutions may or may not involve the asset portfolio. Service decisions focus on the extent of service provided and on service delivery. Service based lifecycle management includes contracted service as a non-asset solution.
2	Maintenance	Operations and maintenance of the asset portfolio according to maintenance or operations strategies. This includes regularly scheduled inspection, condition assessments, routine maintenance, and more significant repairs including those due to unexpected events. Maintenance helps assets achieve expected life whereas incorrect maintenance leads to not achieving expected life.

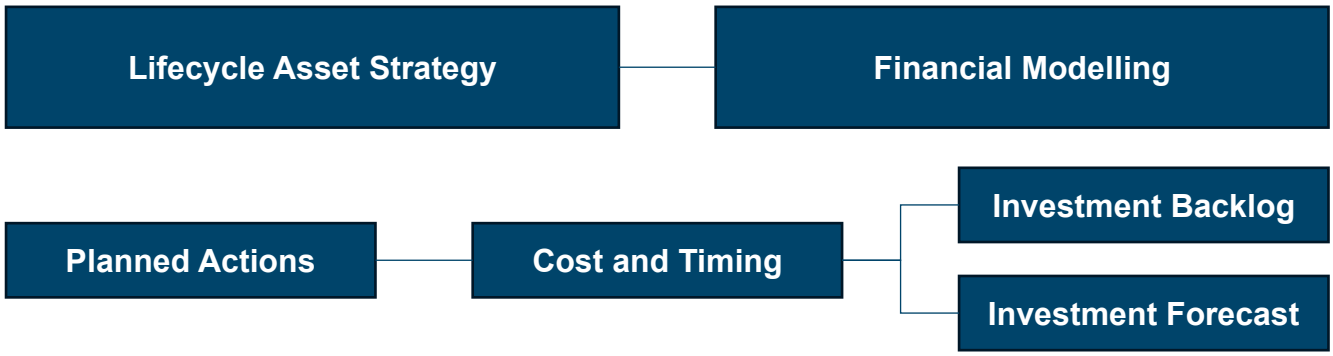
No.	Solution	Description
3	Renewal	Renewal is enhancement of the assets or services, and rehabilitation or replacement of existing assets. Generally, rehabilitation is different from maintenance because of the higher cost, that it is a capital expense and that it enhances the asset in some way such as extending the asset life. Replacement occurs when rehabilitation is no longer a viable option, and the asset has reached the end of its useful life.
4	Expansion	Expansion is planned activities to extend services to previously un-serviced areas or expand services to meet growth demands. For assets, it is the addition of new assets or new asset capacity.
5	Non-asset	Non-asset solutions are those that do not involve the acquisition, maintenance, or renewal of assets. They are actions or policies that can lower costs or extend asset life, e.g., better integrated infrastructure planning and land use planning, demand management such as conservation or business process optimization. Master or service planning and management are the main processes identifying non-asset solutions.

The LAS is the planned actions that enable assets to provide the desired level of service in an efficient and sustainable way.

Efficient means providing service at the lowest lifecycle cost. To achieve the lowest lifecycle cost includes delaying investment as long as possible. Delaying investment means managing risk of failure or interruption of service delivery within tolerable limits. Risk is an important determiner in asset management decision making; it impacts when it is best to maintain, rehabilitate or to replace an asset.

Sustainable means fully funding the service needs and actions. The basis of determining funding needs or investment is the lifecycle asset strategy. Figure 11 shows the relationship between the lifecycle asset strategy and financial modelling.

Figure 11: Lifecycle Asset Strategy and Financial Modelling



4.6.1. Lifecycle Asset Strategies for the Region's Assets

The Region uses three [3] basic lifecycle asset strategies in the financial model for all existing assets. These are maintenance, rehabilitation, and replacement. The financial model uses the expansion strategy for all assets to support growth that the Region's Development Charges Bylaw identifies. After acquiring the asset, the financial model employs one of the three strategies for existing assets as applicable as described in Table 12 previously.

The Region uses five [5] categories for all its assets and further subdivides the category for different classes of assets. An example is Buildings and Plant within the Facility category. In addition to maintenance, which is a strategy for virtually every asset in the Region, there is a general strategy for each asset category in Table 13.

Table 13: Lifecycle Asset Strategy for the Region's Assets

Asset category	Class	Lifecycle asset strategy
Facility	Buildings	Rehabilitation and replacement
Facility	Plant	Rehabilitation and replacement
Facility	Landfill	Replacement
Equipment	Equipment	Replacement
Linear network	Roads	Rehabilitation and replacement
Linear network	Bridges	Rehabilitation and replacement
Linear network	Other Transportation	Replacement
Linear network	Pipelines	Replacement
Fleet	Fleet	Replacement
Information Technology	Hardware	Replacement
Information Technology	Software	Replacement

4.6.2. Performance Modelling

Performance modelling is the basis of lifecycle analysis. Analysis requires a model of change in asset performance over time and change because of lifecycle actions. An example of performance change is the improvement of condition and lowering of risk after rehabilitation.

All assets degrade over time and this degradation may have linear or non-linear degradation curves. Deterioration profiles for an asset can be determined from a variety of sources, including historical performance, local knowledge, and best practice. Some organizations have developed bespoke deterioration profiles using failure and performance data. More typically, organizations adopt typical performance curves approximating an industry standard. Provided an organization collects performance data, it is possible to customize these standard deterioration curves over time.

Based on empirical data and experience, specific points along the degradation curve can be set as thresholds for actions of maintenance, rehabilitation, or replacement. Table 14 illustrates examples of lifecycle strategies implemented in Region's assets.

Table 14: Examples of Lifecycle Strategy in Region's Assets

Lifecycle Strategy	Example of implementation in Region's assets
Non-Asset Solutions	• Standard Operating Procedures (SOPs) • Master Plans/Future Directions • Climate Change Action Plan • Road Needs Studies (RNS) • Building Condition Assessments (BCA) • Ontario Structural Inspection Manuals (OSIMs) • Service demand studies on the assets (i.e., studies or modelling that consider capacity, future needs
Operations & Maintenance	• Utilities, snow plowing and salting. • Catch basin cleaning, storm sewer flushing. • Legislated fire equipment inspections • Repairing of street lighting • Traffic signal inspections and repairs • Playground (at Regional Childcare Centres) inspections in alignment with Canadian Standard Association (CSA) guidelines

Lifecycle Strategy	Example of implementation in Region's assets
Renewal/ Rehabilitation	• Road rehabilitation treatments (resurfacing, mill, and pave) • Pipe re-lining. • Roof replacement, boiler replacement, HVAC replacement • Replacement of structural components of bridges, guiderails, supporting poles, fixtures, and lighting poles • Refurbishment of vehicles
Replacement	• Bridge replacement as recommended through biennial inspections. • Asset condition/performance are monitored regularly, but in general, assets are replaced at end-of-life, e.g. vehicles, buses, furniture, and equipment.
Disposal/ Demolition	• Road right-of way property disposal or repurposing • Dispose of assets under regulation or by-law because an asset is no longer functional. • Disposal of demolished assets a part of replacement of the structure • Disposal of IT hardware to a vendor for the purpose of either destroying and issuing a certificate of destruction, or recycling it at no cost • Trade-in programs
Acquisition/Expansion/ Rebuild	• Constructing or procuring new assets (e.g., roads, buildings, buses, traffic signals) • Expanding/new garage facilities (e.g., incorporating additional and/or new fleet technology) • On-street bus stop infrastructure (e.g., new, or larger shelters, bus shelter pads, pedestrian landing pads, concrete bus landing pads)

4.6.3. Risk of Not Following the Lifecycle Asset Strategy

The selected strategies reflect the best information and practice at this time. The Region has designed the strategies to be appropriate, cost-effective and ensure service sustainability. Deviating from the defined strategies increase the risk of service delivery risks and risk from asset failures. It is worth noting the Region may choose to vary from the strategies and resulting forecast investment rate for a time due to various economic or political factors. However,

eventually funding must follow the strategy and the forecast investment amounts to avoid increasing the backlog and realizing asset risks.

The timing of a lifecycle strategy action, one of the three [3] used in the financial model, relies on timely and accurate asset management activities such as inspections, assessments, analysis, and forecasts. If the Region does not complete the actions and activities in the right way, at the right time, or for the right reason, it exposes the Region to risk. The outcomes of the risk are general and typical for most assets. A general description is in Table 15.

Table 15: Risks of Not Following the Lifecycle Asset Strategy

Risk	Strategy	Potential outcomes
Work timed too late incorrect assessment: lower performance than actual	Maintenance, Rehabilitation, Replacement	Reduced level of service, fail to avoid failure and consequences, more expensive maintenance or repair, missing an opportunity for minor works
Work timed too early. Incorrect assessment: higher performance than actual	All	Ineffective use of funding and resources Reducing asset utilization may lead to decreased service levels and lower asset performance, which could generate value.
Work timed too late	Expansion	Stalled growth and revenue, overcapacity pressure on existing assets
Incorrect lifecycle model timing	Maintenance, Rehabilitation, Replacement	Incorrect forecast of investment and either under or over funded
Incorrect risk assessment	Maintenance, Rehabilitation, Replacement	Suboptimal prioritization and performance
Incorrect work performance or strategy	All	Suboptimal performance, ineffective use of funding and resources If resources are not increased to manage, operate, and maintain new and existing assets, lower service levels and heightened risks will result.

4.6.4. Measuring Risk

The risk model in this asset management plan is similar to the risk model from the annual capital budget process, the Corporate Asset Management Resource Allocation Model or CAMRA.

The CAMRA model is a methodology that assesses the Region's exposure to operational risks in the context of its corporate priorities. It uses a customized risk assessment methodology within the triple bottom line consequences of Environment, Social and Financial consequence.

The risk model in CAMRA uses a standard formula of probability multiplied by consequence of a risk event with the following criteria for consequence:

- Health and safety
- Well-being
- Compliance
- Reputational risk
- Environmental
- Consequential costs

This provides a framework for consistent, defensible and replicable risk assessments that are sufficiently generic to be comparative across all the Region's services.

In the annual budget, for individual projects staff select probability of failure (POF) from six pre-set values using a corresponding description for each. The pre-set values range from 2% to 100%. Staff assign a rating for each individual project and for each of the five consequence factors using a standard scale. This approach works well when there is a limited number of individual projects to assess such as the several hundred in the annual budget. However, for the asset management plan there are tens of thousands of assets to assess so a modelled approach is better.

The model risk assessment for consequence of failure uses a similar approach to assess assets at the class level.

With the modelled approach, it is possible to measure risk for every asset in the Region. However, the model and its use need further improvement before using it to optimize the timing of forecast lifecycle actions and resulting investments. For now, the Region has a foundation from which to work towards the legislative requirements of the 2025 CAMP.

5. Financial Strategy

5.1. Key Financial Insights and Highlights

Per the asset management plan under O. Reg. 588/17, the financial strategy integrates long-term asset management, forecasting, and financing plans to sustain services, manage risks, and evaluate funding options through a 10-year capital plan and 50-year forecasts. This requires identifying the annual average renewal investment, the sustainable funding available and a life cycle management financial strategy to achieve the proposed level of service for a 10-year period.

The annual average renewal investment (AARI) required to sustain assets is $585.48 million (2021 – $437.85 million). The Region has approximately $193.71 million (2021 - $112.81 million) available for capital projects per year from sustainable revenue sources, creating an annual funding gap of $391.77 million (2021 – $325.04 million). Please note the funding gap calculation methodology has been updated in 2025. For comparability, the previous year's figure has been recalculated using the new methodology.

The AARI % guides annual budget setting to sustain assets in a state of good repair. To achieve a sustainable level of funding of $585.48 million by 2035, the 10-year financial strategy recommends the annual increases as shown in Table 16.

Table 16: Recommended Annual Rate Increase

Program	2025	2021
General Levy	3.79%	3.82%
• Regional Departmental Levy	3.18%	N/A
• Court Services	0.00%	N/A
• Niagara Regional Police Services Fleet/Equipment	0.11%	N/A
• Niagara Regional Housing	0.50%	N/A
Special Levy - Waste Management / (Landfill Liability)	0.04% / (0.00%)	0.04% / (N/A)
Special Levy - Transit	0.88%	N/A
Water / Wastewater	7.25%	7.22%

The 2025 capital budget is $376.11 million, with $201.76 million for renewal projects. Council approved increases of 2.50% to the general levy and 7.22% to water and wastewater rates. The 2025 AARI percentages will be presented as part of the 2026 budget process with consideration of balancing affordability and sustainability.

Although Council has committed to increasing capital funding in previous years, Niagara Region is still confronted with a funding gap as outlined below. In accordance with O. Reg. 588/17, the financial strategy proposes a long-term approach that balances financial sustainability with the necessity to keep assets in good repair. Niagara Region has the options of either increasing financing, reducing service levels, or employing a combination of both. Niagara Region's infrastructure financing faces several challenges, which include:

Service delivery challenges:

- Aging Infrastructure: Significant investment is needed to address the Region's aging, deteriorating infrastructure, which exceeds available resources.
- Capacity and Expertise: Limited staff and expertise to plan, prioritize, and manage complex infrastructure projects.
- Balancing Competing Priorities: The Region must balance capital priorities across infrastructure renewal, growth, services, environmental goals, finances, and community needs for sustainable, equitable delivery.
- Cost Escalation and Inflation: Rising costs, inflation, and unexpected expenses (tariffs) strain budgets, leading to scope changes & additional financing.
- Growth requirements: Increasing growth in the Region strains existing service levels without adequate funding to maintain the current levels of service.
- Regulatory and Environmental Compliance: Projects may incur additional costs to meet stringent environmental or regulatory standards, further complicating financing efforts.

Funding challenges:

- Taxpayer affordability: Limited funding can delay or reduce infrastructure projects to maintain taxpayer affordability.
- Grant Dependency: Uncertain and competitive grants hinder the Region's ability to plan and deliver major infrastructure projects from key master plans. (E.g. NEMS master plan, Water and Wastewater Master Servicing Plan, etc.)
- Lack of Reserve Funds: The Region lacks sufficient capital reserves to manage unexpected infrastructure failures or emergencies, limiting their flexibility.
- Debt Financing: The Region is not recommending debt financing for state of good repair. As per the Region's C-F-027 Capital Financing Policy, debt is recommended to be used for strategic and growth-related projects.

5.2. Purpose of a Financial Strategy

The financial strategy funds the Region's lifecycle asset plan by modeling asset behavior, deterioration, and risk. It forecasts costs, service impacts, and investment needs while integrating economic, financial, and budget planning. This long-term plan ensures service sustainability and is reviewed annually to maintain financial stability.

O. Reg. 588/17 requires a 10-year capital plan detailing lifecycle costs and asset management activities. The financing strategy includes a 10-year capital renewal budget, 10-year AARI, and a 50-year AARI forecast. It assesses asset sustainability while maintaining service levels, evaluating funding options like reserves, debt, and grants.

An asset management plan should align with a long-term financial plan for effectiveness. A comprehensive financial plan helps Niagara Region secure resources for sustainable asset management, considering asset inventories, service levels, budgets, master plans, and growth.

This report presents a financial plan evaluating funding availability, affordability, and sustainability, leading to recommendations. It models different scenarios, considering:

- Financial needs for assets and service levels
- Growth from development charges
- Traditional funding (tax levies, user fees, reserves, debt)
- Non-traditional funding (partnerships, municipal support)
- Government funding (CCBF, grants)

These factors shape the Region's financial strategy, based on the 2025 CAMP. It assesses asset value, condition, risks, and lifecycle activities while considering the 2025 budget, affordability, and service level refinements for future growth.

The financial strategy section outlines the projected investment requirements for assets based on inventory data and lifecycle activities discussed in section 4.6, which details the lifecycle asset strategy. The core principle of this strategy is to perform routine maintenance throughout the asset's lifespan, along with periodic rehabilitation or refurbishment. The decision to replace an asset is guided by its useful expected life (UEL), which helps determine when it should be replaced, and a new asset created. This replacement process restarts the lifecycle of the asset once again.

The key components of developing a financial strategy include:

- Understanding the changes to inputs to the Asset Management Plan including data quality, asset inventory, life cycle strategies and other assumptions
- Available municipal funding
- Future renewal investment needs
- Current state of expenditures
- Other matters that impact the financial strategy

5.3. Changes Since the Previous Asset Management Plan

Table 17 below presents a comparative analysis of key asset management and financial indicators for the Niagara Region between 2021 and 2025. It highlights notable changes in asset replacement value, infrastructure backlog, and projected annual investment needs over both 10- and 50-year horizons. The notable changes impact the required percentage increases the sustainable funding source to match the project annual investment needs.

Table 17: Comparison between 2021 and 2025

Measure	2021 $ million	2025 $ million	% Change
Replacement value	9,816.84	12,129.94	23.56%
Backlog	2,479.65	2,755.84	11.12%
10-year AARI including backlog (excluding CSG**)	437.86	585.48	33.78%
Annual funding gap over 10 years*	325.04	391.77	20.53%
50-year AARI including backlog in each of the next 50 years (excluding CSG**)	340.83	443.90	30.24%
Sustainable funding source (All programs excluding CSG**)	112.81	193.71	71.71%
Required Water and Wastewater Rate annual increase over 10 years to fund gap	7.22%	7.25%	0.42%
Required Levy annual over 10 years increase to fund gap	3.82%	3.79%	-0.79%
Required Special Levy - Transit annual increase over 10 years to fund gap	N/A	0.88%	N/A
Required Special Levy – Waste Management annual increase over 10 years to fund gap	0.04%	0.04%	0.00%

*A different methodology was adopted for calculating the funding gap for 2025 and this had been adjusted for 2021.
**CSG – Canada Summer Games Park – see detail in section 5.7.3

The financial strategy outlined herein is based on data that has been vetted by subject matter experts. However, inherent risks remain due to potential human error, incomplete asset inventories, and gaps in inspection data. These limitations may materially impact financial projections, investment planning, and long-term asset management decisions. As additional information becomes available and best practices in asset management are further implemented at the Niagara Region, this strategy will be updated accordingly to enhance accuracy and reliability. Interested parties should consider these factors when interpreting financial recommendations and making investment decisions.

The 2021 AMP, which was approved in 2022, has guided the Council's decisions regarding investments in sustainable infrastructure and the approval of the budget. These decisions have contributed to the 71.71% increase in the sustainable funding in the Table 17. The increases in enhanced capital financing over the past five years are outlined in the Table 18.

Table 18: Approved Enhanced Capital Financing

Program	2021	2022	2023	2024	2025
Levy	0.52%	1.00%	2.50%	1.50%	2.50%
Water/Wastewater	N/A	N/A	5.00%	4.10%	7.22%
Special Levy - Transit	N/A	N/A	N/A	0.30%	3.71%
Special Levy – Waste Management	N/A	N/A	N/A	N/A	N/A

With these increases the Region has been able to continue to react to the growth of the infrastructure backlog, however, will still require continued increases to investment at 3.79% for the levy, 7.25% for Water & Wastewater, 0.88% for Special Levy – Transit and 0.04% for Special Levy – Waste Management; based on the 2023 data analysed and used for the CAMP 2025. The Region is experiencing rapid growth, which may create additional infrastructure demands and affect our service levels. As assets deteriorate significantly and the funding gap increases, asset performance further reduces, and risks of maintaining or improving service levels increase. Asset management employs risk to help determine an appropriate balance between the level of service delivered and the cost to deliver the service. Risk assessment provides the Region with the ability to make informed decisions when or under what circumstances it may be acceptable to defer investments. To inform the rate and levy decision, the Region will work on improving asset management strategies for the next iteration of the CAMP in ongoing basis through an annual state of infrastructure (SOI) review. This includes identifying alternative levels of service, costs of the alternative levels of service, the associated risk to service delivery and the corresponding change to rates and levy. Appropriate rate and levy amounts require a decision on a revenue increase, or a reduction in level of service, or

both. The integration of the approved enhanced capital financing along with other funding assumptions provide for the sustainable capital funding. Further analysis on this is in section 5.4.2.

5.4. Current State of Municipal Financing

5.4.1. Capital Budget

As part of the annual capital budget process, each service area develops a one-year budget and a nine-year forecast. As there is not enough annual funding available to approve all the capital project requests each year, the Region prioritizes capital projects using a corporate model that assesses risk and alignment with strategic priorities. The risk model applies a triple bottom-line approach (social, environmental, economic) and evaluates asset failure consequences, project cost, and probability of failure to generate a risk-based return on investment (R-ROI).

- The model ranks projects using objective, evidence-based criteria:
- R-ROI value
- Risk (failure consequence * probability)
- Corporate priority alignment
- Staff professional judgment and model factors.

The Region's Corporate Asset Management Steering Team reviews and approves the final prioritization list for recommendation to the Council. To evaluate the financial sustainability of these capital investments, the 2025 AMP includes long-term projections for each service, covering 50 and 100 years (refer to Section 5.5 Future renewal investment needs). This analysis ensures that significant expenditures beyond the next 10-year period are considered for sustaining assets and developing suitable reserves for peak investment needs.

In 2019 Council approved C-F-027 Capital Financing Policy (CF Policy), which establishes guiding principles for capital funding. A description of the primary funding sources and the CF Policy principles for applying funding based on project type are summarized in Table 19.

Table 19: Funding Sources and CF Policy Principles for Use

Funding source	Description	CF Policy principles for use
Reserves	Pay-as-you-go funding provided from the tax levy or user rates	State of good repair projects

Funding source	Description	CF Policy principles for use
Debt	Long-term borrowing, repaid over the useful life of the underlying assets, funding for repayment from the tax levy or rates	Strategic investments/Growth-driven projects
Development charges	Funding collected from developers under the DC Bylaw to fund growth-related infrastructure	Growth-driven projects
Other	Government grants, cost-sharing contributions, or other external sources	Depends on funding agreement terms

The funding sources identified in the 2025 Capital Budget and 9-Year Forecast are summarized in Table 20, highlighting the estimated proportion of each service area's capital program aligned with the Capital Financing Policy principles. The 9-year forecast estimates that 47% of the capital program in the next 10 years will be strictly for renewal.

Table 20: Proportion of Funding Sources by Service Area

Service	Reserves	Debt	Development charges	CCBF	Provincial Gas Tax	External sources*
Water	50%	0%	50%	0%	0%	0%
Wastewater	57%	0%	31%	6%	0%	6%
Waste Management	98%	0%	2%	0%	0%	0%
Transportation	55%	0%	29%	13%	0%	3%
Police	99%	0%	1%	0%	0%	0%
Niagara Transit Commission	25%	0%	10%	0%	26%	39%
Facilities	4%	0%	96%	0%	0%	0%
Emergency Medical Services	3%	0%	97%	0%	0%	0%
Community Housing	95%	0%	0%	0%	0%	5%
Total	**47%**	**0%**	**39%**	**6%**	**2%**	**6%***

*Included in External sources - funding from grants, local area municipalities (cost-sharing) or other external sources.

The Capital budget process is also driven by other financial policies and Council reports that directly impact capital budget information. This includes:

- C-F-003 Capital Asset Management Policy addresses how tangible capital assets are recorded in the Region's financial statements.

- C-F-013 Reserve and Reserve Funds Policy establishes target reserve balances and outlines any restrictions on use of funds.
- CSD 37-2024 Debt Strategy Update, provides an update on discussions with Local Area Municipalities and the Region regarding current and future debt planning and strategy considerations.

As of the approved 2025 budget, the Region currently has a conservative estimate of $193.71 million annually over the 9-year forecast (2026 to 2034) This estimate is comprised of operating contributions, reliable external funding sources and estimate of grant funding for renewal projects. Assumptions on how this figure is calculated is in the next section.

5.4.2. Sustainable Capital Funding

Sustainable funding is a cornerstone of effective asset management, ensuring that municipalities can maintain, renew, and replace infrastructure over its lifecycle while delivering reliable services to the community. This is the baseline to calculate the required increases communicated to Council as part of the budget process to match the AARI over the 10-year period. For conservativeness, the basis of the methodology including changes in assumptions from the 2021 CAMP are as follows:

- Base budget transfers to capital of $151.21 million (2021 – $73.99 million) from approved 2025 budget which has increased by 104.37% since the 2021 CAMP due to Council adopting increases to support renewal.
- Assumed Provincial Gas Tax / CCBF funding of $21.29 million (2021 - $14.00 million) is consistent and flat post the agreement timeline. These amounts have increased slightly in alignment to the new funding agreement signed in 2024.
- An estimate based on historical 20-year funding for “State of Good Repair” grant funding of $6.9 million. This was not estimated in the 2021 CAMP.
- Debt charges falling off are repurposed for base budget transfers of $14.31 million. In the 2021 AMP, debt charges falling off were used for new debt issuances of $24.8 million annually. This strategy shift annually reduces sustainable funding by $10.49 million but avoid interest of $5.53 million (assuming 10 years at 4.00%).
- No debt per debt strategy. Please refer to the other matters section for more information.

This approach provides for $193.71 million (2021 - $112.81 million) annually over the 9-year forecast.

5.4.3. Operating Budget

Annually, each of the Region's services develops a current year operating budget and a 2-year forecast (referred to as the multi-year operating budget), which outline the financial requirements to support service delivery. To maintain the current levels of service, the Region includes planned maintenance and operations works in its annual operating budget.

Inflation over the last five years was 4.03% annually. In comparison, the historical 5-year average operating base (excluding program changes and enhanced capital financing) shows increases in the general levy at 3.54%; water at 2.08%; wastewater at 3.28%; and waste management at 1.80%. These increases have been mindful of balancing affordability; however, continuing at this rate over the next 10 years would prove unsustainable. This is primarily due to several key factors, including:

- the rising costs of inflation, which continue to outpace budget expectations.
- the potential introduction of new programs or services may place further strain on financial resources.
- project or program execution risks, such as unforeseen delays or cost overruns.
- new legislative requirements or political environments (e.g. Tariffs) could impose additional operational and compliance costs, further complicating financial planning.

Without adjustments, maintaining such increases may lead to an unsustainable fiscal trajectory.

Table 21 outlines the approved 2025 operating budget by service, summarized at object of expenditure level, which includes operating and maintenance related expenditures. It also further breaks out of program specific costs into the capital reserve transfers and debt charges. The National Research Council of Canada recommends 4.00% of the replacement value as a minimum benchmark for assets; 2.00% for maintenance and 2.00% for renewal. With that benchmark the Region, the operating budget provides for 0.69% (2021 – 0.56%) for maintenance and 1.77% for renewal (2021 - 1.44%).

Table 21: 2025 Operating Budget Summary (in $ million)

Service	Staffing	Utilities	Operating & maintenance	Program specific (inclusive of capital from operating)	Operating Budget	Capital reserves transfers	Debt charges	Capital from Operating
Water	9.17	3.21	3.50	41.74	57.62	26.60	2.12	28.72
Wastewater	14.60	7.60	7.84	90.98	121.02	38.78	14.06	52.84
Waste Management	4.54	0.15	4.18	44.16	53.03	4.79	0.05	4.84
Transportation	16.37	0.89	10.56	59.72	87.55	36.37	17.82	54.19
Transit	47.61	0.94	16.43	22.49	87.47	4.33	2.16	6.50
Fleet	2.10	-	3.66	6.79	12.55	6.42	0.00	6.42
Seniors Services	120.02	3.45	4.69	25.45	153.61	4.21	10.62	14.83
Community Housing	7.04	6.01	7.88	62.21	83.14	8.96	6.60	15.56
Children's Services	10.92	0.08	0.23	187.77	199.00	1.18	0.10	1.29
SAEO	28.36	0.58	8.52	134.93	172.39	0.68	0.08	0.76
Public Health	40.43	0.11	0.68	9.81	51.02	2.03	1.16	3.20
Emergency Medical Services	67.65	0.21	5.25	13.41	86.51	7.77	0.37	8.14
Information Technology	7.50	0.03	1.10	6.96	15.59	0.64	0.02	0.65
Facilities	3.10	0.58	1.15	1.25	6.09	0.66	0.18	0.84
Courts	5.72	0.05	0.15	13.66	19.58	0.29	0.53	0.82
Police Services	213.36	1.00	8.41	27.28	250.05	6.31	8.80	15.11

The approved 2025 gross operating budget is $1,562.40 million. The difference between the table above and the approved 2025 gross operating budget are due to overhead departments which support the service area such as human resources, procurement, finance etc. These operating costs were excluded to ensure consistency to other asset management plans; however, it is important to highlight the connection between the service area and the overhead departments. Increases in level of service at the service area will result in secondary requirements to increase overhead support.

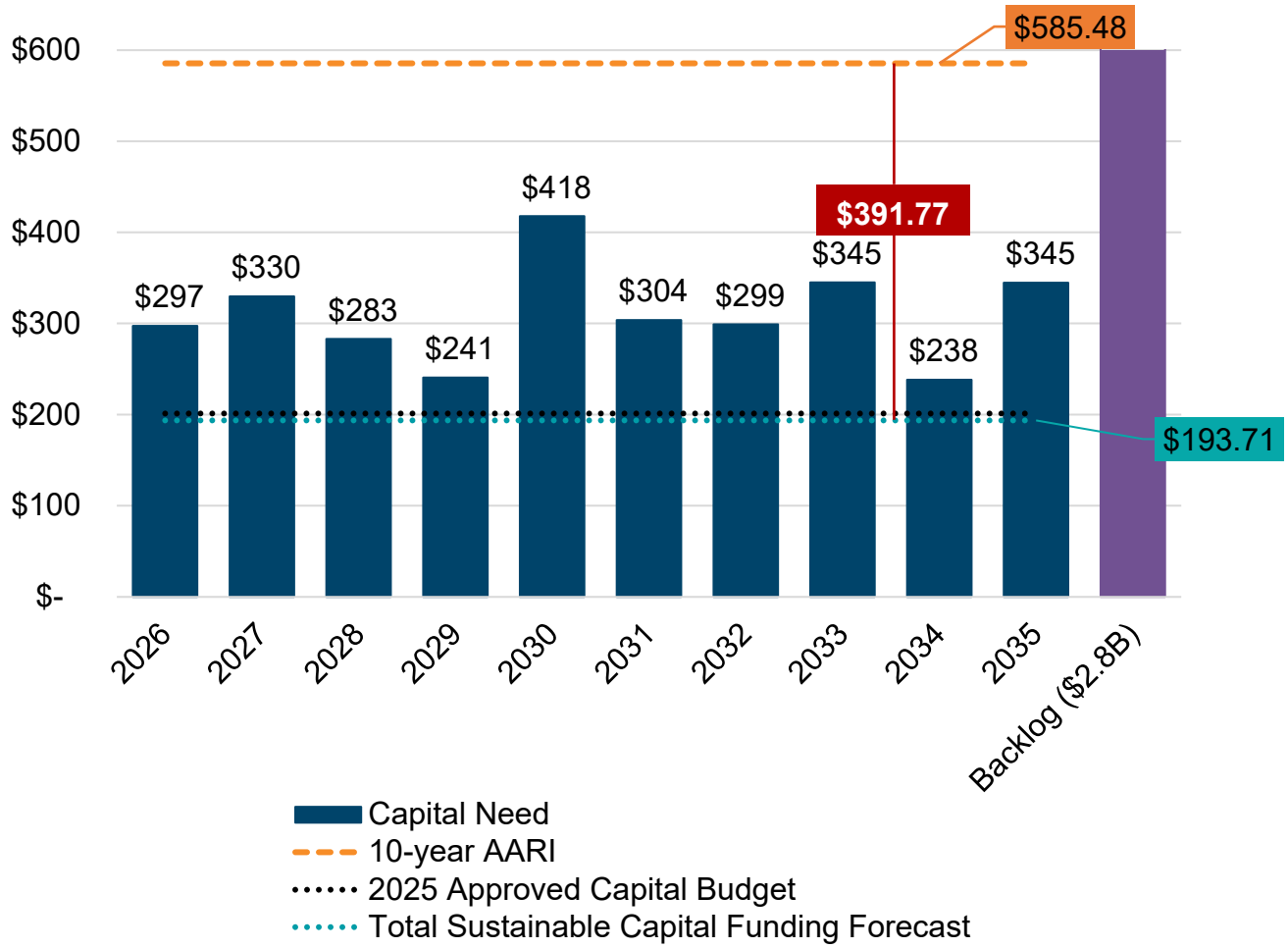
5.5. Future Renewal Investment Needs

The 2025 CAMP forecasts AARI for each service that is necessary to sustain the Region's existing assets (valued at $12.13 billion). For the purposes of including growth assets in the CAMP, the initial growth proportion of the capital project are generally funded with development charges. For funding strategies application, AARI is presented for the 10-year term to provide a conservative view of the short and longer-term needs of the Region, which will inform the development of a sustainable financial strategy.

The AARI forecast in the 2025 CAMP includes the replacement of the assets at the end of the useful expected life (UEL), as well as expenditures for lifecycle strategies to sustain assets and lower overall cost of ownership. For assets that are paid for through development charges, the cost of acquisition is assumed to be nil for the Region. Following acquisition, the future renewal and replacement costs have been included in the AARI forecast. The 10-year AARI includes the average annual spending necessary to eliminate the current backlog of $2,755.84 million over the 10-year period. This is in addition to the level of average investment required annually based on the Region's lifecycle asset strategies. As shown in Figure 12, when the 10-year AARI is compared to the forecasted sustainable funding of $193.71 million annually, there is a difference of $391.77 million. This difference in average annual investment is the funding gap.

With the funding gap, the AARI % can be calculated. The AARI % is the annual increase over the 10-year period on the respective program budget to close the funding gap by increasing sustainable funding to match the AARI.

Figure 12: Region's Total Future Renewal Investment Needs (in $ million)



Future renewal investments, backlog, and projected infrastructure funding gap vary between services. Table 22 provides a summary of the 10-year Capital Budget renewal investment, 10-year AARI, infrastructure funding gap, and backlog by service. Some important notes are as follows:

- Facilities 10-year average capital budget in Table 22 includes budgets for facilities managed by the corporate Facilities service. Currently, there is insufficient detail in the capital budget requests to allocate costs to specific services. Table 22 also excludes asset acquisition costs that are funded through development charges as it is a net $zero cost to the Region. The lifecycle costs after acquisition are included in the 10-year AARI forecast. Note: a positive infrastructure gap indicates a positive surplus.
- Departments flagged with "~" are funded by the general levy. This general levy sustainable funding was prorated based on the approved 2025 Capital budget. The sustainable funding

for all departments excluding Water, Wastewater, Waste Management and Transit is not restricted and thus can be reallocated depending on need. For Regional departments (excluding ABC's) the AARI% was prorated based on the 10-year AARI forecast.

Table 22: Service Renewal Investments (in $ million)

Service	10-year Average Sustainable Funding	10-year AARI	Infrastructure gap	Backlog	AARI % Increase
Transportation~	59.62	242.09	-182.47	1,339.77	2.67%
Fleet~	10.62	6.54	4.08	15.59	0.07%
Seniors Services~	2.97	19.30	-16.33	68.62	0.21%
Children's Services~	1.25	0.40	0.85	0.00	0.01%
SAEO~	0.00	1.11	-1.11	1.67	0.01%
Public Health~	0.00	1.05	-1.05	0.20	0.01%
Emergency Medical Services~	10.88	4.89	5.99	4.54	0.05%
Information Technology~	10.53	6.78	3.75	0.00	0.07%
Facilities~	4.42	2.28	2.14	4.85	0.03%
Police Services~ (Facilities)	0.00	4.96	-4.96	5.54	0.05%
Regional Department Levy~	**100.29**	**289.45**	**-189.11**	**1,440.78**	**3.18%**
Courts~	0.00	0.05	-0.05	0.00	0.00%
Police Services (Fleet/Equip) ~	4.51	10.08	-5.57	24.14	0.11%
Community Housing~	2.97	30.13	-27.16	0.00	0.50%
Total Levy	**107.77**	**329.66**	**-221.89**	**1,464.92**	**3.79%**
Waste Management – Core	1.78	1.94	-0.16	4.45	0.04%
Waste Management – Landfill Liability	2.82	1.57	1.25	0.00	0.00%
Waste Management	**4.60**	**3.51**	**1.09**	**4.45**	**0.04%**
Transit	**10.61**	**16.17**	**-5.56**	**15.16**	**0.88%**
Water	27.18	82.09	-54.91	417.21	7.30%
Wastewater	43.54	154.06	-110.52	854.12	7.22%
Water/ Wastewater Combined	**70.73**	**236.15**	**-165.42**	**1,271.32**	**7.25%**
Total	**193.71**	**585.48**	**-391.77**	**2,755.84**	**N/A**

5.6. Actual Capital Expenditures

Since the previous figures are budget and forecast, this section focuses on how the capital program is approved program is spent after approval. Table 23 provides context on the execution of the capital program. The average capital budget from 2020 to 2024 is $335.85 million. The current capital program is on average spending 62% (46% - 2021) of the approved capital budget annually. This is caused by but not limited to staffing capacity constraints, approval delays, public consultation, or legal/land issues.

Table 23: Actual Capital Expenditures (in $ million)

Service	2020	2021	2022	2023	2024
Water	36.90	24.10	25.34	29.65	30.37
Wastewater	28.50	32.60	48.57	59.10	49.45
Waste Management	6.00	2.40	1.42	6.29	8.03
Roads Network	53.20	29.60	44.53	59.90	38.79
Transit	3.50	0.90	0.00	13.37	7.51
Fleet	0.20	0.10	0.96	1.86	2.40
Seniors Services	1.70	1.00	1.27	1.47	0.96
Community Housing	13.40	36.10	19.16	26.94	24.86
Children's Services	0.00	0.00	0.00	0.00	0.00
SAEO	0.00	0.00	0.00	0.00	0.00
Public Health	0.00	0.00	0.00	0.00	0.00
Emergency Medical Services	4.50	3.10	5.19	3.34	5.31
Information Technology	2.50	2.40	2.77	5.62	4.97
Facilities	18.80	23.50	64.83	65.86	29.52
Courts	0.00	0.00	0.00	0.00	0.00
Police Services	4.90	5.50	3.31	4.12	9.56
Total	**174.1**	**161.3**	**217.35**	**277.52**	**211.73**

Capital funds for initial construction of assets, funded by Development Charges, are included. Therefore, a direct comparison to the future forecasts in section 5.5 is not appropriate. Also, expenditures for centrally managed facilities such as childcare centres and public health offices, are recorded in this table under Facilities.

5.7. Other Matters

5.7.1. Niagara Region Debt Strategy

In 2019 Council approved C-F-027 Capital Financing Policy (CF Policy), which establishes guiding principles for capital funding, including limiting debt approvals for strategic investments and/or growth-driven projects. The current debt strategy is to not approve any new debt for Region's projects. The reasons are as follows:

- Rising Debt Levels: The Region and Local Area Municipalities (LAMs) anticipate their combined debt burden to double over the next five years, primarily due to infrastructure renewal needs. To manage this escalation, the Region plans to avoid approving new debt issuances in the short term, focusing instead on previously approved capital projects.
- Credit Rating Preservation: The Region holds an AA+ stable credit rating from Standard & Poor's (S&P). A higher debt burden could jeopardize this rating, leading to increased borrowing costs and reduced investor interest.
- Infrastructure Ontario (IO) Sector Limit: The Region is approaching its IO sector limit of $623.00 million for debt issuances. Exceeding this limit would restrict access to favorable borrowing terms from IO, necessitating more expensive alternatives. By curbing new debt, the Region preserves its capacity within this limit.
- Sustainable Funding Models: Transitioning to a pay-as-you-go approach by increasing annual transfers to capital reserves allows the Region to fund more projects without incurring additional debt. While this strategy may lead to higher operating budgets in the short term, it promotes long-term financial health and reduces reliance on borrowing.
- Collaborative Debt Planning: The Region is working with LAMs to coordinate debt planning, aiming for predictable annual debt issuances. This collaboration enhances the Region's appeal to investors and helps secure favorable borrowing terms when debt issuance becomes necessary.

By implementing these measures, the Niagara Region seeks to manage its debt prudently, ensuring financial stability and the continued delivery of essential services to its residents.

5.7.2. Expanding Scope of Municipal Responsibilities

The Region faces growing responsibilities due to federal and provincial initiatives, expanding beyond traditional services like roads, water, and transit to areas such as affordable housing, climate change, and social services. These additional duties often lack the necessary financial support, straining already limited budgets.

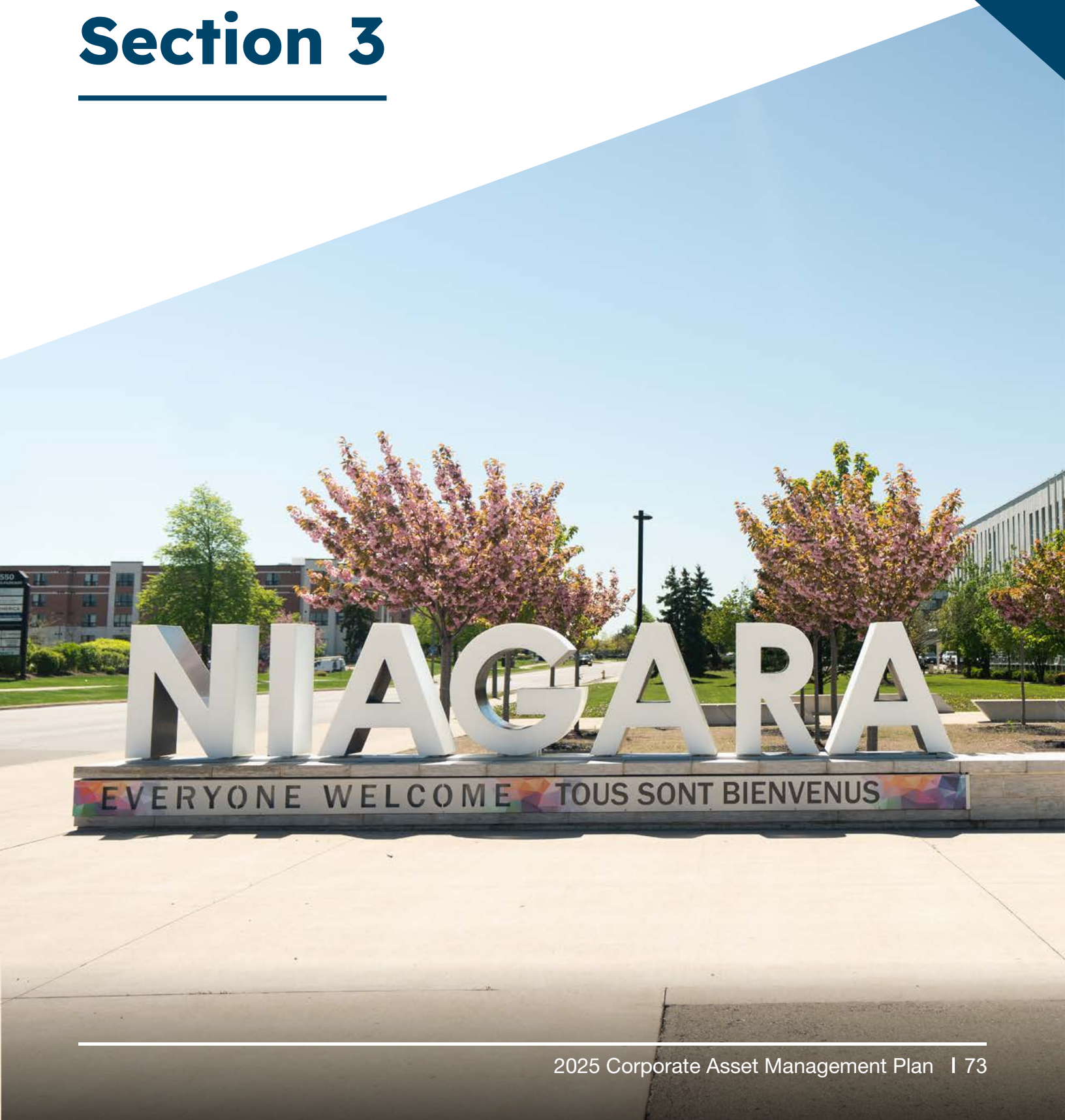
New mandates and funding opportunities can divert resources from maintaining existing infrastructure, as municipalities are required to allocate funds, staff, and expertise to comply with grants and reporting requirements. Public pressure to address issues like housing affordability and climate resilience can lead to deferred maintenance and increased long-term costs.

The lack of predictable, sustainable funding from higher levels of government exacerbates this issue, forcing municipalities into reactive decision-making. To address this, the Region advocates for long-term, stable funding and stronger asset management practices to balance priorities and ensure infrastructure remains reliable while meeting evolving community needs.

5.7.3. Canada Games Park

Canada Games Park is a partnership of the Regional Municipality of Niagara, Brock University, the Corporation of the City of St. Catharines, and the Corporation of the City of Thorold. The Region is responsible for funding 25.00% of the capital contribution that is decided as part of the Consortium of the four joint partners. The Region is not involved in the operations or operating levels of service. Canada Games Park has been included in this section to calculate the required financial strategy to support the Park based on the facility data. To sustain Canada Games Park, the Region would require an 0.01% increase annually over 10 years to sustain the Region’s share of the asset.

Section 3



Water

6. Water

6.1. Introduction

Water service in the Niagara Region operates under a two-tiered delivery model. The Region of Niagara is responsible for drawing and treating raw water, managing outstations, and transmitting treated water to 11 of the 12 participating Local Area Municipalities (LAMs). These municipalities then distribute the water through local transmission mains to residents and businesses. However, the Region does not provide water services to the Township of Wainfleet. Through the above delivery model, Water Services provides services to over 453,000 (2021 census) users across the Niagara Region. Assets used to provide the services are summarized in Table 24.

Table 24: Assets Used to Provide Water Services

Asset Description	Count
Water Treatment Plant	6 units
Chlorine Facility	6 units
Elevated Tank	7 units
Pumping Station	7 units
Reservoir	11 units
Standpipe	1 unit
Transmission	311 kilometres

Water service aims to provide safe, reliable, and affordable drinking water to our communities to meet established service levels while continuously optimizing and improving our operations. Through efficient resource management, innovation, and a focus on sustainability, Water Services ensures and supports protecting public health and the environment, delivering the highest quality of service with integrity and accountability.

The Division's asset management planning capability aims to ensure the safe, reliable, and cost-effective management of water assets through the strategic, planned and targeted renewal of existing assets and supporting the planning of new growth-related assets. By focusing on the entire life cycle of asset ownership, including operation and maintenance, the Division manages an asset portfolio balanced regarding asset performance, costs, and risks to meet Council-approved service levels.

Water services customers should expect:

- Safe, reliable, and efficient delivery of Water services
- Potable water meeting all regulatory standards.
- Adequate pressure at the point of handover to LAM
- Facilities and pipes are maintained to a fit state of good repair.
- The provision of services at an affordable rate

Water Objectives:

- Carefully Balance Growth Investment with Sustainability Investment
- Reverse the Rate of a Deteriorating Asset Base – Reduce % of Assets in Very Poor Condition
- Maintain Risk at an Acceptable Level
- Optimize Financial Resources and Enhance Financial Performance
- Enhance Service Delivery
- Support Strategic Decision Making
- Streamline Divisional and Corporate Communication

6.2. Water Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing requirements for services and the activities and assets required to support those services. Some of the drivers identified in this report can be used to inform specific, measurable changes to service delivery; others are more qualitative in nature. These key drivers include:

- Planning trends (including Population Change & Growth)
- Legislation and higher government
- Asset management (Aging Infrastructure)
- Climate change

The most significant demand drivers are planning trends and aging infrastructure. Infrastructure investments to address growth pressures conflict with investments to address a fit state of-repair.

6.2.1. Planned Asset Portfolio Growth and Enhancements

Niagara Region is part of the Greater Golden Horseshoe (GGH), one of North America's fastest-growing areas. The Government of Ontario's Places to Grow Act 2005 outlines significant

population and employment growth for the GGH until 2051, with the Niagara area anticipated to see substantial development. Key to this growth is the 2021 Master Servicing Plan Update (MSP), which is updated on a 5-year cycle and addresses water and wastewater servicing needs.

Recent legislative updates, including the 2022 Development Charges By-law, support growth capital projects. The estimated costs for these projects over the next 30 years were detailed in the 2022 Development Charges Background Study. The Regional Council approved this by-law on August 25, 2022, effective September 1, 2022.

The expected growth in the population of Niagara will place significant pressure on the capacity of existing assets and create demand for new assets. The Region has updated master plans that outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to future state, including requirements for new, expanded, and enhanced assets. Based on this analysis, the population is expected to grow by 85,000 by 2035 as per the 2021 W/WW Master Servicing Plan (MSP).

Table 25 highlights large investment capital projects for Water Services that are forecast to address growth or enhancement needs. For additional information on growth-related projects, please see Table 26 and Table 27.

Table 25: Water Forecast Asset Portfolio Growth and Enhancement Projects

Asset class	Growth or enhancement forecasted
Water Treatment Plants (WTPs)	Capacity expansion of at least $60 million at various water treatment plants to support the growth of approximately 85,000 additional people by 2035, as recommended through the 2021 W/WW Master Servicing Plan (MSP).
Treated Water Storage	Capacity expansion through construction of new reservoirs and elevated tanks and upgrades to booster pumping stations and high lift pumps of at least $155 million to support the growth of approximately 85,000 additional people by 2035 as recommended through the 2021 W/WW Master Servicing Plan (MSP).
Water Distribution Systems	At least $206 million worth of new trunk water mains at multiple locations will be added to support the new growth of approximately 85,000 additional people by 2035.

The following Table 26 is an extraction of the growth projects identified in the 2022 Development Charge Background Study (2022 DCBS) and Table 27 lists the projects closed between 2022 and 2024.

Table 26: Water Infrastructure Costs in the DC Calculation

Increased service needs attributable to anticipated development	Timing	Gross capital cost estimate ($ million)	Net cost funded by Region. ($ million)	Other funding sources ($ million)	Potential DC cost recovery ($ million)
Pumping	2022-2026	$13.0	$3.9	$0.0	$9.1
Pumping	2027-2031	$27.4	$10.2	$0.0	$17.1
Pumping	2042-2051	$1.7	$0.5	$0.0	$1.2
Storage	2022-2026	$89.8	$27.0	$0.0	$62.7
Storage	2027-2031	$60.7	$24.4	$0.0	$36.3
Storage	2032-2041	$1.8	$1.3	$0.0	$0.5
Storage	2042-2051	$45.5	$15.6	$0.0	$30.0
Treatment	2022-2026	$73.9	$14.8	$0.0	$59.1
Watermain	2022-2026	$179.8	$72.8	$0.0	$107.0
Watermain	2027-2031	$16.7	$10.5	$0.0	$6.2
Watermain	2032-2041	$118.3	$36.6	$0.0	$81.7
Watermain	2042-2051	$26.2	$14.8	$0.0	$11.3
Studies	2023-2048	$0.8	$0.0	$0.0	$0.8
Studies	2025-2051	$4.5	$0.0	$0.0	$4.5

Table 27: The DC Portion of Water Services Capital Projects Completed Between 2022 and 2024, as Identified in the DC Study

Increased service needs attributable to anticipated development	Closed Year	Total cost ($ million)
Watermain	2024	$2.02
Pumping	2024	$0.20

6.3. Water Levels of Service

Table 28 summarizes the current and target values for each level of service indicator. The Division is considering the implications of carrying forward funding levels consistent with the 2024 Safe Drinking Water Act Financial Plan, which requires rate funding to increase by 2.75% (enhanced capital financing strategy), which is a component of the overall Water-Wastewater

blended 5.15% rate increase each year for a period of 10 years. The targets suggested in Table 28 are estimates of what could be achieved after 10 years under this rate increase scenario.

Table 29 summarizes the O. Reg. 588/17 mandated technical and customer levels of service. See Appendix B for Water Service area map, which illustrates regional and municipal coverage.

Table 28: Water Technical Levels of Service

LOS Category	Key Performance Indicator	Current LOS (Year End 2023)	Benchmark LOS Target (based on blended 5.15% requisition rate increase for 2025 - 2034)
Cost	Capital Reinvestment Rate / Total Asset Replacement Value	1.20%	1.72% [1]
Cost	Total Cost to deliver Water per ML (megalitre)	$661.62	Unknown[2]
Cost	Total Requisition per day per household	$0.69	Unknown[3]
Performance (Reliability)	% of assets in very poor condition	17.87%	9%
Performance (Growth)	Replacement value of new assets added to the system to address Growth and Capacity	$16,870,000	Optimize[4]
Performance (Growth)	Total Niagara Region Population	478,000 (2021 census)	563,000

Level of Service Statement: Protect public health and the environment by providing safe drinking water for the communities we serve.

[1] Reinvestment rate of 2.5% is industry standard replacement cycle, for reference.
[2] Expect costs to increase as more investments are going into state of good repair. However, with the growth strategy, more future rate payers may reduce the affordability burden on the Region. Future work to better understand this target.
[3] Target unknown because future requisition per household requires that the number of future households are known. However, this will be tracked year upon year.
[4] The target needs to optimize growth investments with state of good repair investments.

Table 29: O. Reg 588/17 Mandated Water Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer / Community	Scope	Provide safe drinking water to LAMs, including raw water uptake, treatment, bulk water storage, and transmission to LAMs for distribution to end-users	Niagara Region owns and operates five drinking-water systems that ensure the safe treatment and transmission of drinking water to 11 of the 12 LAMs	Maintain standard
Effective Region	Technical	Scope	Percentage of properties connected to the municipal water system	11 of 12 LAMs	N/A
Effective Region	Customer / Community	Scope	Provide adequate volumes of water at adequate pressures to meet fire flow requirements in serviced areas	The Region's 2021 W/WW Master Serving Plan sets fire flow criteria for transmission mains at 250L/s at 30psi residual pressure. System pressures are ideally maintained between 50-80psi (min 40 psi, max 100psi) through treated water discharge, storage, and booster pumping, While LAMs manage local distribution and fire flow compliance, the Region supports adjustments via booster pumps, pressure relief valves, and bulk water management.	Maintain standard
Effective Region	Technical	Scope	Percentage of properties where fire flow is available.	Unknown (N/A to the Regional system)	N/A
Effective Region	Technical	Reliability	Number of connection-days per year where a boil water advisory is in place compared to the total number of properties connected to the municipal water system.	Zero boil-water advisories	Maintain standard

6.3.1. Legislated Level of Service (Regulatory Requirements)

Water Services strives to maintain compliance with all legislative and regulatory requirements. Major legislation relevant to Water Services includes but is not limited to:

- Safe Drinking Water Act, 2006: The Safe Drinking Water Act (SDWA) regulates safe drinking water systems in Ontario. All municipal systems must obtain an operating license by meeting criteria such as having an accredited authority, a drinking water works permit, and approved operational plans. The operating authority of the system shall ensure at all times the drinking water system:
  - is operated in accordance with the requirements under this Act,
  - is maintained in a fit state of repair, and
  - satisfies the requirements of the standards prescribed for the system or the class of systems to which the system belongs.
- Source water protection: Clean Water Act, 2006, and associated regulations.
- Water-taking: O. Reg. 387/04, “Water Taking and Transfer”.
- Water treatment and distribution: Safe Drinking Water Act, 2002, and associated regulations, particularly:
- O. Reg. 188/07, “Licensing of Municipal Drinking Water Systems”
- O. Reg. 169/03, “Ontario Drinking Water Quality Standards”
- O. Reg. 170/03, “Drinking Water Systems”
- O. Reg. 128/04, “Certification of Drinking Water System Operators and Water Quality Analysts”
- System-specific instruments: Permits to Take Water, Municipal Drinking Water Licenses

6.3.2. Backup Capacity and/or Equipment Redundancy

Within the scope of its Water and Wastewater Quality Management Systems, the Division undertakes routine risk assessments for each of its water systems; capacity and redundancy concerns are explicitly considered, and the condition and performance reviews of assets are prioritized in areas where there is no redundancy to ensure continued service delivery in the event of an asset’s failure.

Water assets are generally high-criticality assets, as they serve large populations and have the potential to impact health and wellbeing negatively, as well as economic activity, if there is a service outage. Typically, there are various “layers of protection,” such as stand-by systems, excess capacity, monitoring and control capabilities, and emergency response

procedures. Assets may fail, but individual processes continue operating and functioning (due to built-in redundancies), and public service is provided without interruption.

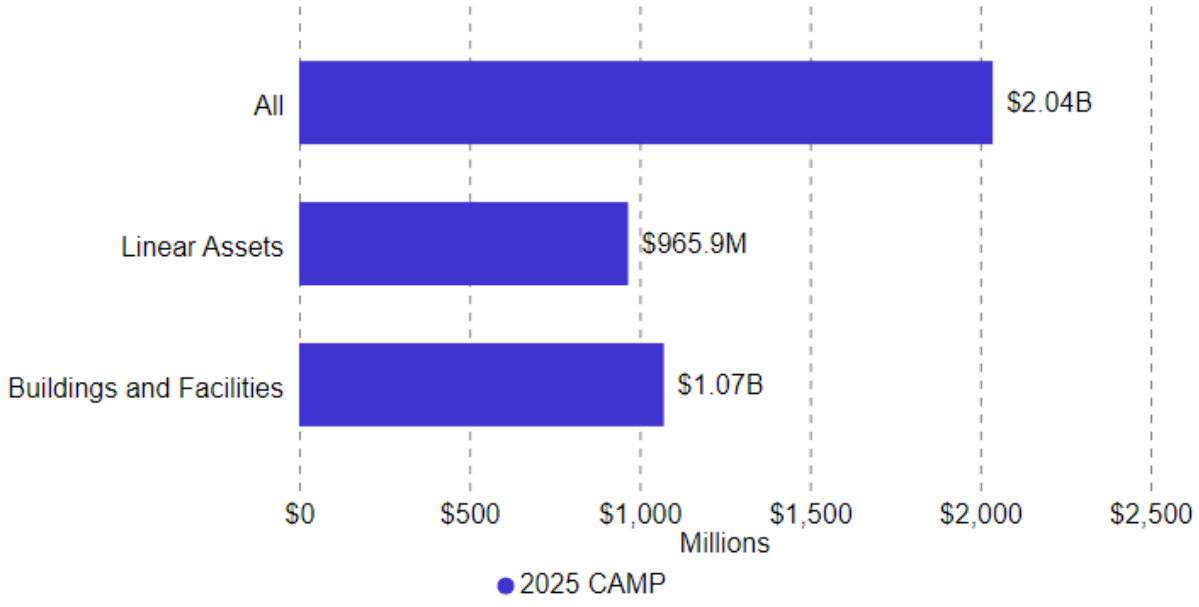
6.4. Water State of Infrastructure

6.4.1. Water Asset Inventory and Replacement Cost

The first step in the Region's CAMP is assessing the value of its Water Services assets. As illustrated in Figure 13. The estimated replacement value of Water Services assets is $2,036.8 million. This includes $1,070.9 million of buildings and facilities assets, which mostly accounts for the replaceable items within the Water Services buildings and facilities, including all equipment and components, such as process equipment used in operations, rather than the structure itself.

The assets required to support the services provided by Water include buildings and facilities, and linear network assets. Replacement costs for water assets were estimated by indexing current replacement values, identifying market pricing, and/or preparing cost models. The estimated replacement cost of $2,036.8 million shows a 14.28% increase from the 2021 valuation of $1,782.3 million. The increase in replacement values may be attributed to inflationary pressures, improved costing data, and asset growth or coverage.

Figure 13: Water Inventory and Replacement Cost



6.4.2. Water Asset Age Distribution

Water linear assets are generally more than halfway through their useful expected life (UEL); while water buildings and facilities are predominantly close to the end of their useful expected life (UEL). Water has undertaken several significant treatment plant and treated water storage facility upgrades in recent years, and several more are forecasted within the ten-year horizon, depending on available funding. With significant growth projected in the Region over the planning horizon (to 2051), upcoming capital projects will address growth needs and rehabilitation work that is required, once again, depending on available funding. The average age and estimated service life of Water assets, weighted by replacement value, is summarized by asset category in Figure 14 and Table 30.

The age distribution of buildings and facilities encompasses the age of building structures and the replaceable equipment and components within them, such as process equipment, instrumentation, electrical, and mechanical components, which generally have shorter lifespans than the buildings. The shortest life elements, such as the process instrumentation, process electrical, and process piping and equipment, have a 10, 20, and 30-year useful life, respectively. When averaging the useful life of these shorter life elements with the longer life elements, like the structure, the overall average useful life comes to 42.6 years.

Figure 14: Water Average Age by Asset Category

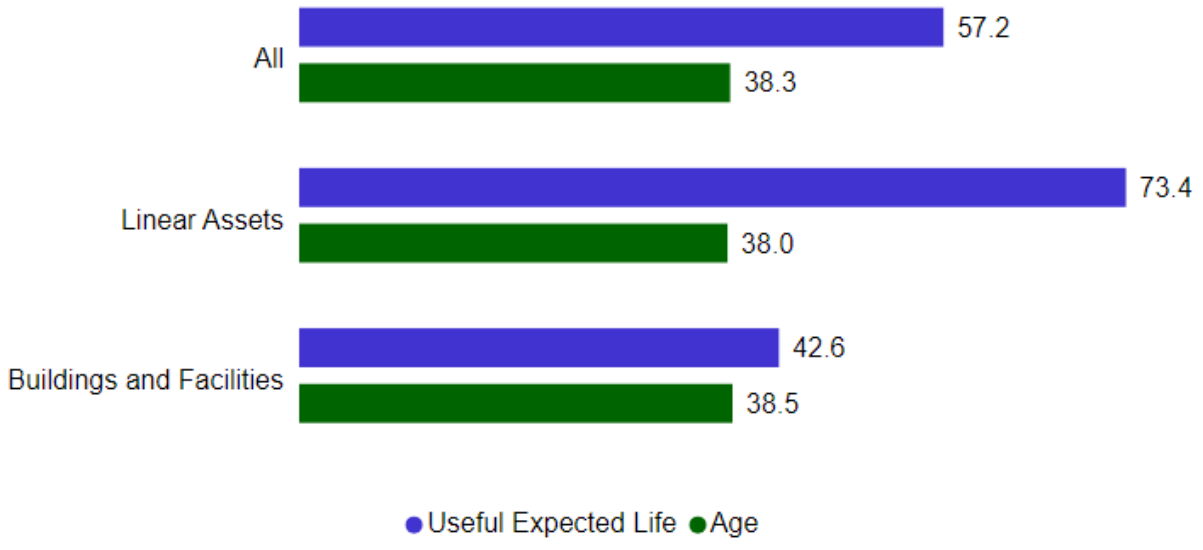


Table 30: Water Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Linear Assets	38.0	73.4	35.4
Buildings and Facilities	38.5	42.6	4.1
Total	**38.3**	**57.2**	**18.9**

6.4.3. Water Asset Condition

The general condition of Water Services' assets is derived from various sources, including pipe break history, building condition assessments, professional judgment, historical asset failure data, and age-based condition estimates calculated using Weibull analysis. The Division assesses the condition of its vertical assets through a ‘capital validation’ process where the capital planning team provides site assessment of critical assets, which is then verified through input from the maintenance management teams. This information is captured in the asset management systems. Outside of the Division’s capital validation process, the Water and Wastewater Division uses Weibull functions to generate estimated remaining service lives for vertical Water assets where actual empirical condition assessments are unavailable.

Water Services assesses the condition of its linear assets through several means. Weibull functions are applied to linear assets to provide an indication of the remaining service life for pipe segments and other linear assets, and the remaining service life is then coupled with pipe break history to generate a condition score using the same 1-5 rating system in Table 6: General condition rating scale (from IIMM). Water Services is targeting to achieve a reduced backlog of 9% of assets in very poor condition, within the next 10 years, based on the 2024 Safe Drinking Water Act Financial Plan.

Although condition assessments provide valuable insights into the state of assets, they have limitations. In the Water sector, reliability-centred approaches to asset management are more important. This includes monitoring asset failures, determining the mean time between failures (MTBF), and using advanced statistical models to model asset failure trends. These performance assessments provide more insights than visual inspections and condition assessments alone can, allowing for proactive maintenance and replacement strategies.

Water assets are rated as good, with 47.02% rated as good or very good. However, 34.93% of assets are classified as being in very poor or poor condition by replacement value, indicating areas that require targeted investment. The average condition of Water assets, weighted by replacement value, is summarized by asset category in Figure 15 and Table 31.

Figure 15: Water Asset Condition as % of Value.

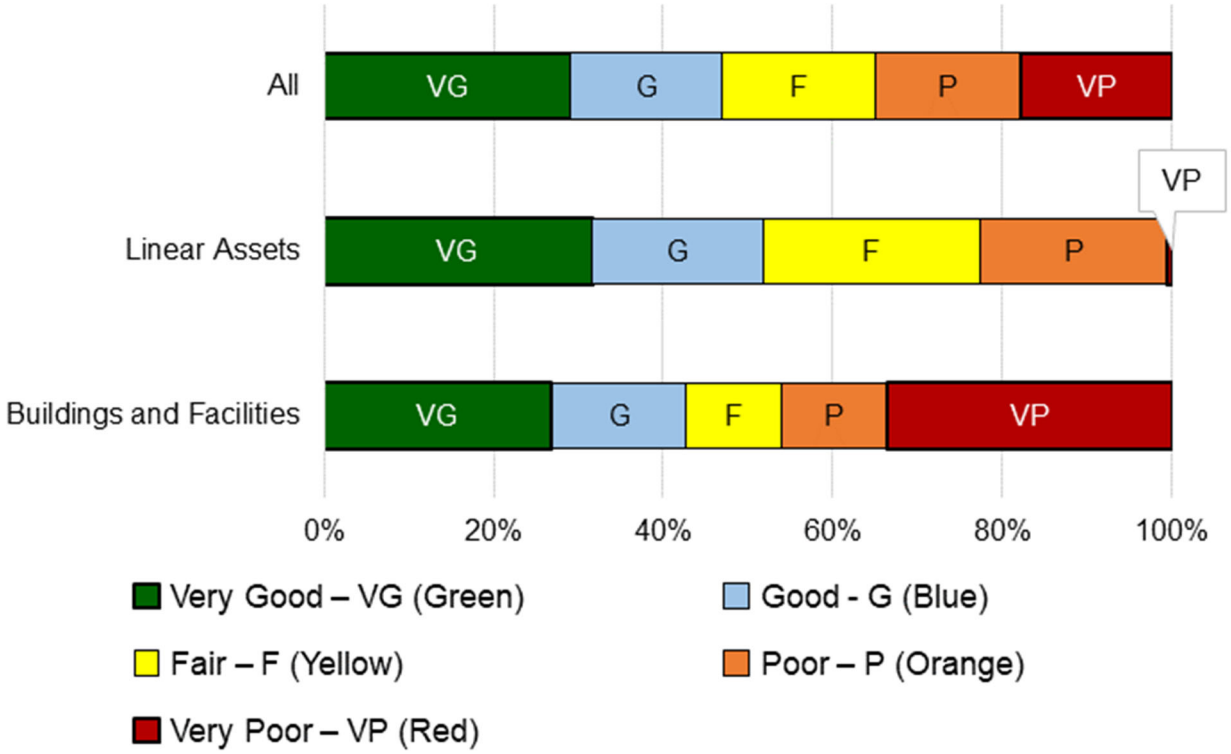


Table 31: Water Asset Condition as % of Value

Condition rating (colour indicator)	Linear Assets	Buildings and Facilities	Total
Very Good – VG (Green)	31.64%	26.82%	29.11%
Good - G (Blue)	20.10%	15.95%	17.91%
Fair – F (Yellow)	25.73%	11.12%	18.05%
Poor – P (Orange)	22.05%	12.56%	17.06%
Very Poor – VP (Red)	0.50%	33.55%	17.87%

6.5. Water Risk

Water conducts detailed annual risk assessments for all six of its drinking water systems under the scope of its Drinking Water Quality Management System (DWQMS). The Division Asset Register also includes risk assessments for all physical assets and serves as the primary source of information for asset risks. These assessments include examination of both asset-based and process-based risks, and equipment reliability and redundancy are explicitly considered. Outputs of the risk assessments are fed into the capital planning process via the initiation of capital needs requests for select assets. Water continues to work on strengthening linkages between DWQMS risk assessment outputs, condition assessment information, and capital planning.

The division has identified a long-range, phased capital management approach to manage the levels of service, risks, and the reality of financial constraints. See 4.6 Lifecycle strategies for more information.

Table 32 is a standardized risk matrix that represents assets with their current replacement cost according to the risk of asset failure.

This table represents only the replacement value of assets and does not consider other consequential risks, such as health and safety impacts, reputational impacts, service interruptions, environmental risks, social impacts, operational risks, and strategic risks that may arise due to asset failure.

Table 32: Water Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.00	$126.70	$0.00	$0.00
High	$0.00	$0.00	$7.83	$0.00	$0.00
Moderate	$0.00	$0.05*	$9.66	$0.00	$0.00
Low	$0.21*	$3.11*	$185.89	$1.46*	$0.04*
Very low	$0.00	$0.00	$1,701.82	$0.00	$0.00

POF = Probability of failure COF = Consequence of failure

*The values correspond to the Central Maintenance Facility, which is overseen by the Region's Construction, Energy, and Facility Management (CE&FM). The COF (Consequences of Failure) and POF (Probability of Failure) are based on the latest Building Condition Assessment, which was conducted as part of the risk matrix evaluation for Water and Wastewater (W/WW) assets.

Table 33 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 33: Water Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$0.21	0.01%
L	Low (L)	$1,704.93	83.71%
M	Moderate (M)	$197.05	9.67%
H	High (H)	$134.57	6.61%

VH	Very high (VH)	$0.00	0.00%
	Total	**$2,036.76**	**100.00%**

In addition to the asset risks above, the Division has anticipated the following strategic and operational risks identified in Table 34.

Table 34: Water Risk Mitigation Strategy

Risk	Impact	Proposed Mitigation
Lack of Information	Very few assets have assessed condition information available. Without this information, the Division risks sub-optimal spending and unexpected failures of high-risk assets	Undertake more condition assessments and studies to understand asset and service needs
Resourcing Imbalances	Inadequate staffing in critical functions limits the ability to plan proactively and efficiently to asset needs	Consider further investigation to workforce and staffing needs
Inadequate Funding	Historically, rate increases to Water and Wastewater have not kept pace with the evolving asset needs. Without increased funding, the backlog will continue to grow	Advocate for funding increases to match renewal investment needs more closely, in addition to undertaking more proactive lifecycle management to better utilize limited funds.
Growth and Development	Investments to accommodate new development is subsidized by Rate funded reserves. Over allocation of rates to subsidize growth can exacerbate the backlog. Alternatively, growth will increase the Region's population and bring in more rate payer funds for system investments. These competing trade-offs are not yet fully understood.	Evaluate Growth and Development needs alongside State of Good Repair needs within the capital planning framework to optimize investments.
Large-Scale Projects	Some current projects needs are identified at over $100 million. Such large projects exceed the funding available in any one year, resulting in perpetual deferral of high-risk projects.	Invest in major maintenance programs and scope review to manage costs. Additionally, consider building multi-year special reserves to fund large investments.

Risk	Impact	Proposed Mitigation
Over-emphasis on reactive maintenance	Reactive maintenance tends to be less cost effective than planned or preventative maintenance.	Transition towards a reliability-centered maintenance strategy that is more proactive
Unexpected failures	As more assets enter poor and very poor condition, the risk of unexpected breakdowns increases	Consider developing emergency response plans and a critical spares inventory. Develop service continuity plans for planned and unplanned shutdowns
Limited Risk Identification	Very few assets have assessed condition information available. Without this information the Division risks sub-optimal spending and unexpected failures of high-risk assets	Undertake more condition assessments and studies to understand asset and service needs. Ensure assets posing health and safety risks to the public and staff are monitored closely

6.6. Water Lifecycle Strategies

Water preserves assets through maintenance and renewal (i.e. rehabilitation and replacement) activities and investments. Maintenance and renewal activities are timed to reduce the risk of service failure from deterioration in asset condition and to minimize the total cost of ownership. Sufficient investment, doing the right thing to the right asset at the right time for the right reason, is achieved through the capital planning process.

The Capital Planning process is comprised of the following major components, outlined in the following: Needs Identification, Initial risk review and budget forecast, Capital Validation Meetings, risk review and budget forecast finalization, and finalization of business cases. Generally, project needs are identified through a project identification request process, through risk and condition assessments, or by recommendations carried forward from designs or master servicing plans. Once requests are vetted through an approval process, projects are evaluated and ranked by risk reduction per capital investment (ROI). Using the initial rankings from the Integrated Capital Planning Module (ICPM), the capital budget priorities are refined through meetings with various stakeholders. Once stakeholders have been consulted, capital priorities may shift and the ICPM and budget forecast are further updated before being finalized for the business case process.

A key component of this process is the ICPM, developed by the Division to implement a standardized methodology that incorporates social, financial, and environmental decision-making

criteria into an evaluation and prioritization of infrastructure needs to formulate a long-term capital investment plan. The module integrates with a Financial Planning Model (FPM) based on the 2024 Financial Plan that differentiates between rate funding for Water and Wastewater, respectively, and funding sources from development charges. The Financial Planning Model provides the funding constraints for each source fund (e.g. rate increases, etc.), thus enabling a longer term to forecast on affordable planning.

The division has identified a long-range strategy, executed in two phases to manage its assets. This phased approach is adopted to balance immediate risk mitigation with long-term sustainability, ensuring effective use of limited capital resources. This strategy utilizes the Council-approved 2024 SDWA Financial Plan recommended blended 5.15% rate increase, which is 2.75% for Water, outlined in the Levels of Service section. Even with this rate increase, the assets in very poor condition will grow slightly until it peaks in 2030, then will steadily drop off over the following 15 years.

Phase 1 (Years 2025 - 2030): The first phase focuses on managing the deterioration of assets in very poor condition by mitigating operational risks. Key strategies include prioritizing capital projects for critical and high-risk assets, establishing a reliability program, and implementing temporary operational adjustments such as increased maintenance budgets and rebalancing staffing levels between Water and Wastewater divisions. Additionally, emergency preparedness plans will be developed, and investments will be made in condition assessment programs to monitor asset performance. The Table 35 identifies initiatives undertaken in Phase 1.

Table 35: Summary of Initiatives in Phase 1 of the Proposed Asset Management Strategy

Initiative	Impact
Risk-based capital project prioritization	Direct investment to the most critical projects, reducing the risk from major asset failures.
Rebalancing large engineering projects with major maintenance projects	Facilitates medium-scale upgrades for deferred capital projects. This targets assets in poor and very poor condition and will lead assets to increase to fair condition.
Maintenance Staffing Levels	Increasing staffing of the maintenance teams will increase the capacity to undertake critical maintenance and small capital projects.
Operational Risk Mitigation	Temporary operational adjustments to manage risks of deteriorating assets. This can include adjustments to staffing, reserve levels, and the reliability and maintenance budget.
Emergency Preparedness Planning	Developing enhanced emergency response plans for assets that pose a high risk of failure due to poor condition.

Initiative	Impact
Criticality Assessment	Identifying the criticality of key components within plants and outstations will allow for more targeted investments in renewal and performance monitoring, better optimizing limited budgets.
Asset Performance Assessment Programs	Invest in condition assessments and performance monitoring programs to better understand asset performance. These results will identify critical assets, allowing funds to be optimized. Over time, these assessments will direct the work of the long-term capital planning.

There are a number of initiatives currently under way that support Phase 1. These include:

- Maintenance Management Review
- Engineering Services Review
- Condition Assessment Program (CCTV and Pumping Stations)
- Updated Replacement Costs
- Capital Planning Process Improvements

Phase 2 (Years 2031 - 2046): The second phase focuses on stabilizing and improving asset conditions by reducing backlog of assets in very poor condition by increasing capital investments. This includes targeted asset renewal, transitioning from reactive to preventative maintenance, and continuously monitoring asset condition to direct ongoing planning. The focus will also be on rationalizing infrastructure in alignment with asset growth and reducing operational risks. Table 36 identifies initiatives undertaken in Phase 2.

Table 36: Summary of Initiatives in Phase 2 of the Proposed Asset Management Strategy

Initiative	Impact
Capital Investment in Critical Assets	Significant investments in asset renewal and rehabilitation will begin to reduce the backlog of very poor condition assets
Targeted Asset Renewal	Key infrastructure will undergo renewal to reverse the deterioration trend, improving reliability and reducing operational risks, while seeking opportunities to rationalize infrastructure in conjunction with asset growth.
Transition from reactive to preventative maintenance	Preventative maintenance activities that are increasingly deferred in Phase 1 will be addressed to restore service life and functionality to non-critical assets.
Asset Condition monitoring	Continuous monitoring and assessment of asset conditions will be essential to track progress and adjust the strategy.

By the end of phase 2, the goal is to reduce very poor-condition assets and fully reinstate a preventative maintenance program to extend asset life. This phased approach balances immediate risk mitigation with long-term sustainability by gradually improving asset reliability and condition, ensuring that limited capital resources are used effectively.

6.7. Water Financial Strategy

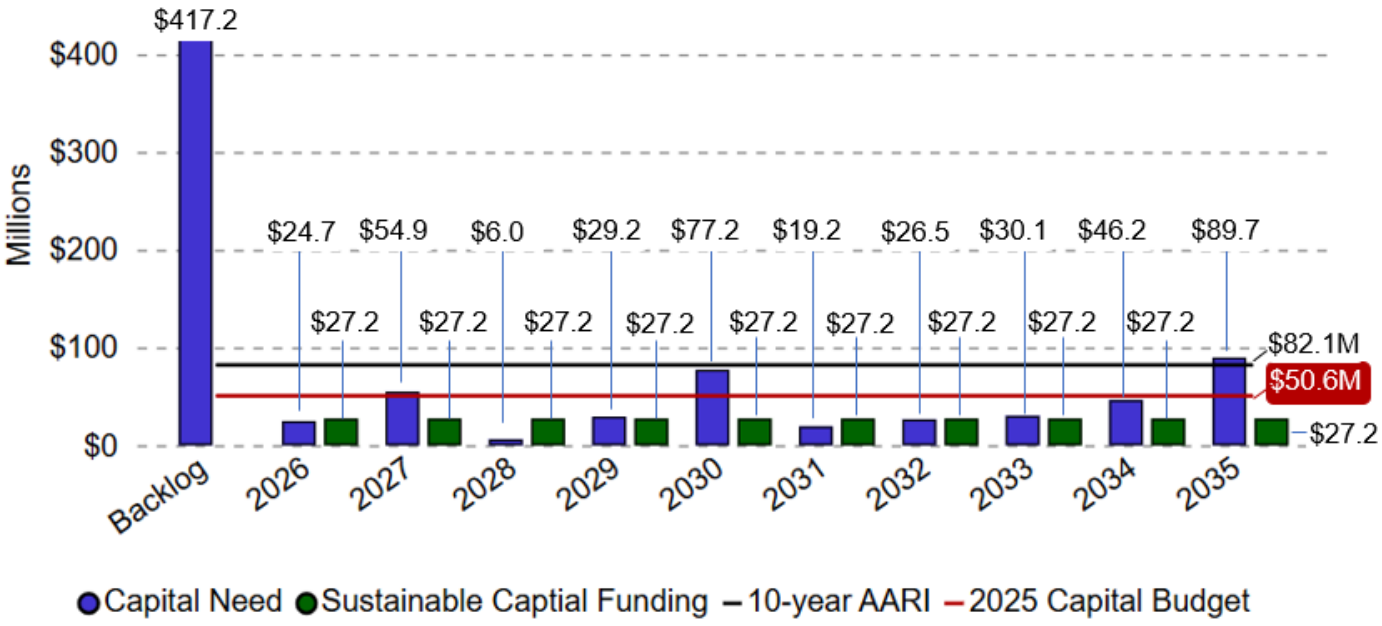
For water service assets, the renewal forecast is based on recommended activities drawn from lifecycle asset strategies and related operations and maintenance data. The lifecycle analysis aims to extend an asset's useful life as much as possible to minimize lifecycle costs while maintaining the required service levels. The timing of renewal activities in the forecast is determined by the asset's current condition, age, and estimated service life, against a funding envelope. The estimated service life included in the forecasts considers how long an asset can continue to provide the necessary service levels before it needs replacement.

Based on these factors, the average annual revenue required to sustain the Region's Water service assets from 2026 to 2035 is projected to be $82.09 million in CAMP 2025, which is equivalent to an annual increase in capital funding by 7.25% plus inflation for 10 years.

The Water and Wastewater Financial Plan recommends an annual rate increase of 5.15% blended water/wastewater increase to capital over 10 years (2024-2033), which is an annual 2.75% rate increase for Water specifically. When the Water and Wastewater Financial Plan outcomes are compared to the CAMP 2025 forecast from 2026-2035 required capital needs of $403.7 million and the total required sustainable capital funding forecast of $271.84 million, it shows a considerable gap to maintaining existing infrastructure, while also supporting the fostering growth priority by providing new infrastructure to support growth and economic development.

Figure 16 presents the AARI necessary to support existing assets and current levels of service for Water of $82.09 million in the 10-year forecast. The backlog is calculated through a lifecycle model, and it refers to overdue renewal investments. This includes both annual requirements for the 10-year period, as well as addressing the identified capital spending backlog of $417.21 million during the same period. By comparison, the Council-approved 2024 SDWA Financial Plan, a 5.15% capital rate increase, will project a capital transfer of $45.5 million, which is only 55.43% of the 10-year AARI. This presents a significant funding gap. Note that the $50.55 million approved 2025 budget is significantly higher than what has been historically approved.

Figure 16: Water AARI and Forecasted Capital & Sustainable Needs



6.7.1. Water Financial Indicators

The cost of service delivery for Water includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for Water is presented in Table 37.

Table 37: Water Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$9.17
Utilities	$3.21
Operating & maintenance	$3.50
Program specific	$41.74
Capital reserve transfers	$26.60
Debt charges	$2.12

The approval of the Water Services Operating Budgets and the 10-year Capital Budget and Forecast should be reviewed annually and align service delivery risk and cost impacts for water services.

Wastewater

7. Wastewater

7.1. Introduction

Wastewater services in Niagara are provided through a two-tiered service delivery model. In this model, 11 of the 12 Local Area Municipalities (LAMs) collect sewage from residents and businesses and transport it to the Niagara Region system via local collection mains. These LAM collection systems connect to larger, Region-owned sewage transmission mains that convey and pump the sewage to wastewater treatment plants. This delivery model serves over 420,000 users across the Niagara Region, according to the 2021 census. An overview of the assets used to provide these services are summarized in Table 38.

Table 38: Assets Used to Provide Wastewater Services

Asset Description	Count
Wastewater Treatment Plant	11 units
Biosolids Storage Facility	1 unit
Combined Sewage Detention Facility	2 units
Flume	9 units
Odour Control Facility	3 units
Sewage Pumping Station	111 units
Storm Water Pumping Station	1 unit
Force Main	160 kilometres
Sanitary Gravity Pipe	143 kilometres

Wastewater Services are dedicated to providing our communities with safe, reliable, and affordable collection and treatment services to meet established service levels while continuously optimizing and improving our operations. Through efficient resource management, innovation, and a commitment to sustainability, protect public health and the environment and deliver high-quality service with integrity and accountability.

The Division's asset management planning capability ensures the safe, reliable, and cost-effective management of wastewater assets. This is achieved through the strategic renewal of existing assets and the planning of new growth-related assets. By focusing on the entire lifecycle of asset ownership, including operation and maintenance, we maintain a balanced asset portfolio that considers performance, costs, and risks to meet Council-approved service levels, aimed to achieve optimal investment and maintenance outcomes by fostering collaboration among these groups, carefully balancing sustainability, and affordability.

Wastewater customers should expect:

- Safe, reliable, and efficient delivery of Wastewater services
- Wastewater collection and treatment must meet all regulatory standards.
- Facilities and sewers are maintained to a fit state of good repair.
- The provision of services at an affordable rate

Wastewater's objectives:

- Carefully balance growth investment with sustainability investment
- Reverse the rate of a deteriorating asset base – reduce % of assets in very poor condition.
- Maintain risk at an acceptable level.
- Optimize financial resources and enhance financial performance.
- Enhance service delivery.
- Support strategic decision making.
- Streamline divisional and corporate communication.

7.2. Wastewater Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for a service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Some of the drivers identified in this report can be used to inform specific, measurable changes to service delivery; others are more qualitative. Drivers and the estimated significance of the impact on service are summarized below:

- Planning trends (including Population Change & Growth)
- Legislation and higher government
- Asset management (Aging Infrastructure)
- Climate change

The most significant demand drivers are planning trends and aging infrastructure. Infrastructure investments to address growth pressures conflict with investments to address a fit state of-repair for existing assets.

7.2.1. Planned Asset Portfolio Growth and Enhancements

Niagara Region is part of the Greater Golden Horseshoe (GGH), one of North America's fastest-growing areas. The Government of Ontario's Places to Grow Act 2005 outlines significant population and employment growth for the GGH until 2051, with the Niagara area anticipated to see substantial development. Key to this growth is the 2021 Master Servicing Plan Update

(MSP), which is updated on a 5-year cycle and addresses water and wastewater servicing needs.

Recent legislative updates, including the 2022 Development Charges By-law, support growth capital projects. The estimated costs for these projects over the next 30 years were detailed in the 2022 Development Charges Background Study. The Regional Council approved this by-law on August 25, 2022, effective September 1, 2022.

The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. The Region has updated master plans that outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to the future state, including requirements for new, expanded, and enhanced assets. Based on this analysis, the population is expected to grow by 85,000 by 2035 as per the 2021 W/WW Master Servicing Plan (MSP).

Table 39 highlights large investment capital projects for Wastewater that are forecasted to address these growth or enhancement needs. For additional information on growth-related projects, please see Table 40 and Table 41.

Table 39: Wastewater Forecast Asset Portfolio Growth and Enhancement Projects

Asset class	Growth or enhancement forecasted
Wastewater Treatment Plants (WWTPs)	Capacity expansion of at least $205 million at various wastewater treatment plants to support the growth of approximately 85,000 additional people by 2035, as recommended through the 2021 Master Servicing Plan (MSP).
Wastewater Treatment Plants (WWTPs)	Region-wide WWTP process upgrades of at least $25 million to re-establish Environmental Compliance Approval (ECA) capacity to support the growth of approximately 85,000 additional people by 2035 as recommended through the 2021 Master Servicing Plan (MSP)
Wastewater Treatment Plants (WWTPs)	Region-wide WWTP process upgrades of at least at least $20 million to improve odour control
Pumping Stations, Combined Sewer Overflows	Capacity upgrades of at least $115 million to region-wide sewage pumping stations to support the growth of approximately 85,000 additional people by 2035, as recommended through the development of roughly 85,000 additional people by 2035, as recommended through the 2021 Master Servicing Plan (MSP).

Asset class	Growth or enhancement forecasted
Wastewater Collection Systems	Addition of at least $255 million worth of new trunk sewers and force mains capacity at multiple locations to support the growth of approximately 85,000 additional people by 2035.

Table 40 is an extraction of the growth projects identified in the 2022 Development Charge Background Study (2022 DCBS) and Table 41 lists the projects closed between 2022 and 2024.

Table 40: Wastewater Infrastructure Costs in the DC Calculation

Increased service needs attributable to anticipated development	Timing	Gross capital cost estimate ($ million)	Net cost funded by Region. ($ million)	Other funding sources ($ million)	Potential DC cost recovery ($ million)
Forcemain	2022-2031	$116.6	$42.6	$0.0	$74.1
Forcemain	2032-2041	$3.1	$1.1	$0.0	$2.0
Forcemain	2042-2051	$5.0	$1.7	$0.0	$3.3
Pumping	2022-2031	$158.6	$57.2	$0.0	$101.3
Pumping	2032-2041	$11.6	$3.2	$0.0	$8.4
Pumping	2042-2051	$27.1	$10.5	$0.0	$16.6
Sewer	2022-2031	$176.2	$39.3	$0.0	$136.8
Sewer	2032-2041	$61.4	$18.6	$0.0	$42.8
Sewer	2042-2051	$27.1	$19.0	$0.0	$8.1
Treatment	2022-2031	$208.8	$106.5	$0.0	$102.3
Treatment	2022-2051	$90.0	$45.0	$0.0	$45.0
Treatment	2032-2041	$126.2	$26.4	$0.0	$99.8
Wet Weather Reduction	2022-2051	$237.0	$118.5	$0.0	$118.5
Studies	2022-2027	$15.5	$7.8	$0.0	$7.8
Studies	2023-2048	$0.8	$0.0	$0.0	$0.8
Studies	2025-2051	$4.5	$0.0	$0.0	$4.5

Table 41: The DC Portion of Wastewater Services Capital Projects Completed Between 2022 and 2024, as Identified in the DC Study

Increased service needs attributable to anticipated development	Closed Year	Total cost ($ million)
Studies	2023	$0.50
Pumping	2022	$0.03
Pumping	2024	$0.53

7.3. Wastewater Levels of Service

Table 42 summarizes the current and target values for each level of service indicator. The Division is considering the implications of carrying forward funding levels consistent with the 2024 Safe Drinking Water Act Financial Plan, which requires rating funding to increase by 5.15% each year for a period of 10 years. The targets suggested in Table 42 are estimates of what could be achieved after 10 years under this rate increase scenario.

Table 43 summarizes the O. Reg. 588/17 mandated technical and customer levels of service. Please see Appendix B for Wastewater Service area map, which illustrates regional and municipal coverage.

Table 42: Wastewater Technical Levels of Service

LOS Category	Key Performance Indicator (KPI)	Current LOS measures (Year End 2023)	Target Benchmark (based on 5.15% increase for 2025 - 2034)
Cost	Capital Reinvestment Rate / Total Asset Replacement Value	0.61%	2.32%
Cost	Total Cost to deliver Wastewater per ML (megalitre)	$1,070.41[5]	TBD
Cost	Total Requisition per day per household ($/day)	$1.30	Unknown[6]
Performance (Reliability)	% of assets in very poor condition	21.62%	17%
Performance (Growth)	Replacement value of new assets added to the system to address Growth and Capacity	$13,339,200.00	Optimize
Performance (Growth)	Total Niagara Region Population	478,000 (2021 census)	563,000

Level of Service Statements: Protect public health and the environment by providing effective wastewater management for the communities we serve.

[5] Expect costs to increase as more investments are going into state of good repair. However, with the growth strategy, more future rate payers may reduce the affordability burden on the Region. Future work to better understand this target.
[6] Target unknown because future requisition per household requires that the number of future households are known. However, this will be tracked year upon year.

Table 43: O. Reg 588/17 Mandated Wastewater Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer / Community	Scope	Provide efficient and environmentally sound wastewater services to LAMs, including wastewater collection and pumping, treatment, and effluent discharge to the environment.	Niagara Region owns and operates eleven wastewater systems, which provide adequate collection and treatment capacity and prevent sewage backups and overflows for 11 of the 12 LAMs.	Maintain Standard
Effective Region	Technical	Scope	Percentage of properties connected to the municipal wastewater system	95%	N/A
Effective Region	Customer / Community	Reliability	Provide adequate wastewater collection and treatment capacity to prevent sewage backups and overflows.	Sanitary sewers in the Region's collection systems are designed to accommodate peak wet weather flows. Most pumping stations have redundant pumps and backup power to prevent backups and overflows, and some are equipped with overflow tanks at both Regional and LAM levels.	Maintain Standard
Effective Region	Technical	Reliability	Number of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system.	N/A to Regional system	N/A

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Technical	Reliability	Number of connection days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system	N/A to Regional system	N/A
Effective Region	Customer / Community	Reliability	Provide efficient and environmentally sound wastewater services to LAMs, including wastewater collection and pumping, effective treatment, and effluent discharge to the environment.	Effluent discharge is regulated at federal and provincial levels to protect recipient waters. All Regional wastewater plans provide secondary treatment, with most disinfecting seasonally, except Stevensville/Douglas town Lagoon (no disinfection) and Seaway WWTP (year-round disinfection). The Region monitors effluent quality to ensure compliance with regulatory standards.	Maintain Standard
Effective Region	Technical	Reliability	Number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system	15 exceedances per year per 213,137 connected properties	N/A

7.3.1. Legislated Levels of Service (Regulatory Requirements)

Wastewater strives to maintain compliance with all legislative and regulatory requirements. Major legislation relevant to Wastewater includes but is not limited to:

- Sewage works:
  - Ontario Water Resources Act, R.S.O. 1990, and associated regulations, particularly O. Reg. 129/04, “Licensing of Sewage Works Operators.”
  - Environmental Protection Act, R.S.O. 1990, and associated regulations, particularly O. Reg. 675/98, “Classification and Exemption of Spills and Reporting of Discharges.”
- Wastewater effluent discharge:
  - Fisheries Act, R.S.C., 1985, and associated regulations, particularly the Wastewater Systems Effluent Regulations (SOR/2012-139)
- Biosolids management:
  - Nutrient Management Act, 2002
- Pollution control:
  - Canadian Environmental Protection Act, 1999, specifically, requirements around pollution control plans and National Pollutant Release Inventory reporting
- System-specific instruments:
  - Environmental Compliance Approvals

The fundamental purpose of the Ontario Water Resources Act is to “provide for the conservation, protection and management of Ontario’s waters and for their efficient and sustainable use, to promote Ontario’s long-term environmental, social and economic well-being.” This purpose is supported by the Fisheries Act, which aims to “provide a framework for the conservation and protection of fish and fish habitat, including by preventing pollution.”

7.3.2. Backup Capacity and/or Equipment Redundancy

Within the scope of its Water and Wastewater Quality Management Systems, the Division undertakes routine risk assessments for each of its wastewater systems; capacity and redundancy concerns are explicitly considered, and the condition and performance reviews of assets are prioritized in areas where there is no redundancy to ensure continued service delivery in the event of an asset’s failure.

Wastewater assets are generally high-criticality assets, as they serve large populations and have the potential to negatively impact health and wellbeing, as well as economic activity, if there is a service outage. Typically, there are various “layers of protection,” such as stand-by systems, excess capacity, monitoring and control capabilities, and emergency response

procedures. Assets may fail, but individual processes continue to operate and function (due to built-in redundancies), and public service is provided without interruption.

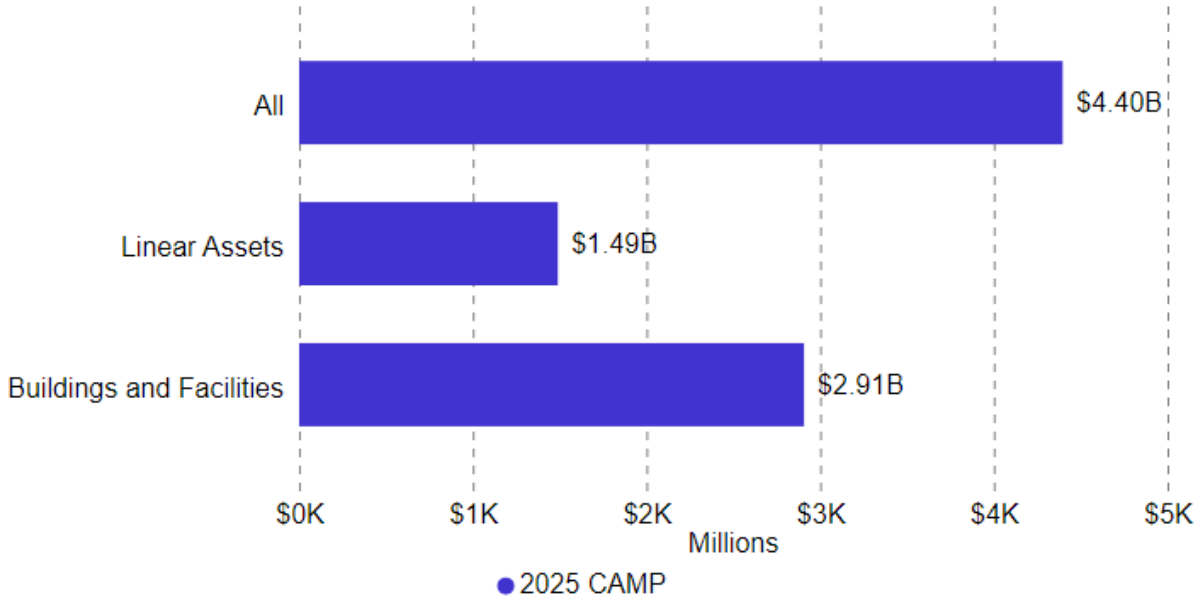
7.4. Wastewater State of Infrastructure

7.4.1. Wastewater Asset Inventory and Replacement Cost

The Region's initial step in recognizing the value of its assets within the CAMP is to evaluate the worth of Wastewater Service assets. As illustrated in Figure 17, the estimated replacement value of Wastewater services assets is $4,396.3 million. However, the value of buildings and facilities assets is $2,907 million, which mainly accounts for the replaceable items within the Wastewater Services buildings and facilities, not the structure itself, which generally has an estimated useful life of approximately 70 to 100 years.

The assets required to support the services provided by wastewater include facility and linear network assets. Replacement costs for wastewater assets were estimated by indexing current replacement values, identifying market pricing, and/or preparing cost models. The assets required to support the services provided by Wastewater are estimated to cost $4,396.3 million to replace, as summarized in Figure 17. This is an increase of 32.45% over the 2021 value of $3,319.3 million. The increase in replacement values may be attributed to inflationary pressures, improved costing data, and asset growth or coverage.

Figure 17: Wastewater Inventory and Replacement Cost



7.4.2. Wastewater Asset Age Distribution

Wastewater linear assets, on average, are halfway through their UEL, while wastewater buildings and facilities are predominately at the end of their life. Wastewater has made significant capital investments in recent years, and numerous upgrades to treatment plants, pumping stations, and linear assets are either in progress or completed. Significant future investments are also forecasted within the ten-year horizon, depending on available funding. The average age and estimated service life of Wastewater assets, weighted by replacement value, are summarized by asset category in Figure 18 and Table 44.

The age distribution of buildings and facilities encompasses the age of building structures and the replaceable equipment and components within them, such as process equipment, instrumentation, electrical, and mechanical components, which generally have shorter lifespans than the buildings. The shortest life elements, such as the process instrumentation, process electrical, and process piping and equipment have a 10-, 20-, and 30-year useful life respectively. When averaging the useful life of these shorter life elements with the longer life elements, like the structure, the overall average useful life comes to 42.6 years.

Figure 18: Wastewater Average Age by Asset Category

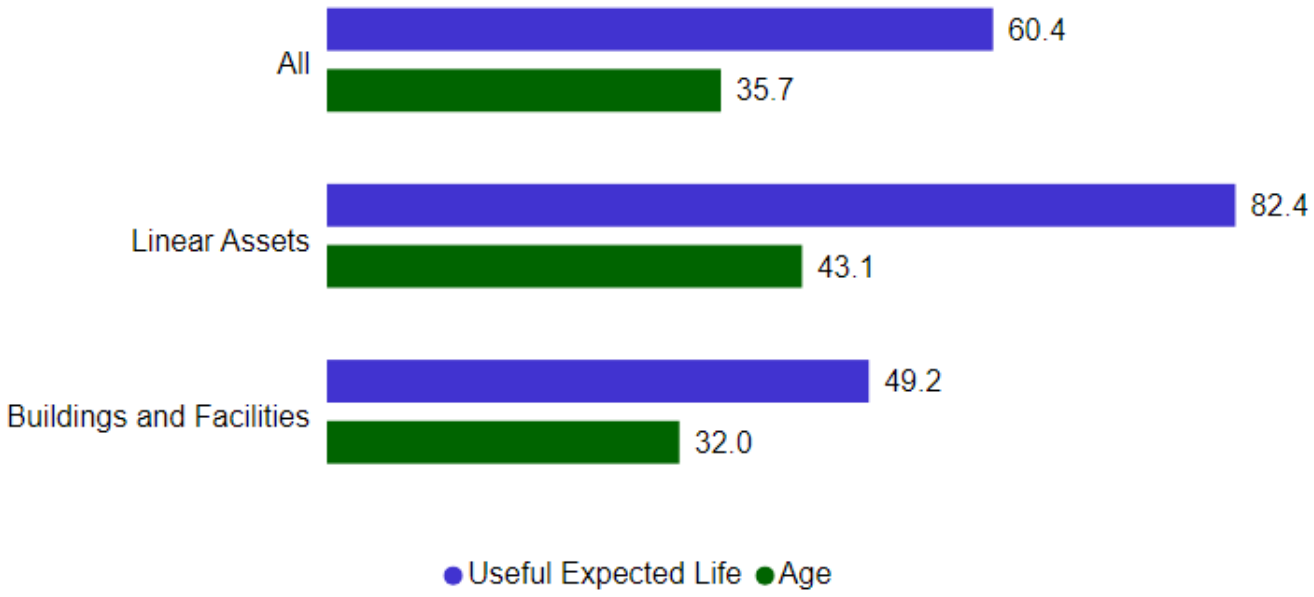


Table 44: Wastewater Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Linear Assets	43.1	82.4	39.3
Buildings and Facilities	32.0	49.2	17.2
Total	**35.7**	**60.4**	**24.7**

7.4.3. Wastewater Asset Condition

The general condition of Wastewater assets is derived from various sources, including Pipeline Assessment and Certification Program (PACP) assessments, pipe break history, building condition assessments, professional judgment, historical asset failure data, and age-based condition estimates calculated using Weibull analysis. Wastewater assesses the condition of its vertical assets through a “capital validation” process where the capital planning team provides site assessment of critical assets, which are then verified through input from the maintenance management teams. This information is captured in Water and Wastewater Divisional asset management systems”. Outside of Wastewater’s capital validation process, the Water and Wastewater Division uses Weibull functions to generate estimated remaining service lives for vertical Wastewater assets where actual empirical condition assessments are unavailable.

Wastewater assesses the condition of its linear assets through several means. Weibull functions are applied to linear assets to provide an indication of the remaining service life for pipe segments and other linear assets, and the remaining service life is then coupled with pipe break history to generate a condition score using the same 1-5 rating system as described above. Specific to wastewater, conventional sanitary gravity sewers are inspected on a three-year cycle, and the outputs from this inspection program are used to inform linear infrastructure rehabilitation and replacement programs. Wastewater is targeting to achieve a reduced backlog of 17% of assets in very poor condition, within the next 10 years, based on the 2024 Safe Drinking Water Act Financial Plan.

At present, much of the condition data for discrete Wastewater assets is collected through informal visual assessment of asset condition, observed changes in asset or process performance, or other subjective means. Formal condition assessments are occasionally completed, but these are typically reserved for situations with known gaps in asset condition or performance, with the outputs used to scope capital work. A tiered condition assessment approach is being developed using cost-effective technologies on assets where condition data is the most relevant. Condition ratings for sanitary force mains are typically based on age and break history. The condition of sanitary gravity mains is assessed through the Region’s CCTV

inspection program; the structural grade is rated on a scale from 1-5, which translates directly to a 'probability of failure' score for the asset.

Although condition assessments provide valuable insights into the state of assets, they have limitations. In the Wastewater sector, reliability-centred approaches to asset management are more critical. This includes monitoring asset failures, determining the mean time between failures (MTBF), and using advanced statistical models, enabling the modelling of asset failure trends. These performance assessments provide more insights than visual inspections and condition assessments alone can, allowing for proactive maintenance and replacement strategies.

Wastewater assets are rated as fair, with 64.20% of assets rated as fair, good or very good condition. However, 35.80% of assets are classified as being in very poor or poor condition by replacement value, indicating areas that require targeted investment. The average condition of Wastewater assets, weighted by replacement value, is summarized by asset category in Figure 19 and Table 45.

Figure 19: Wastewater Asset Condition as % of Value.

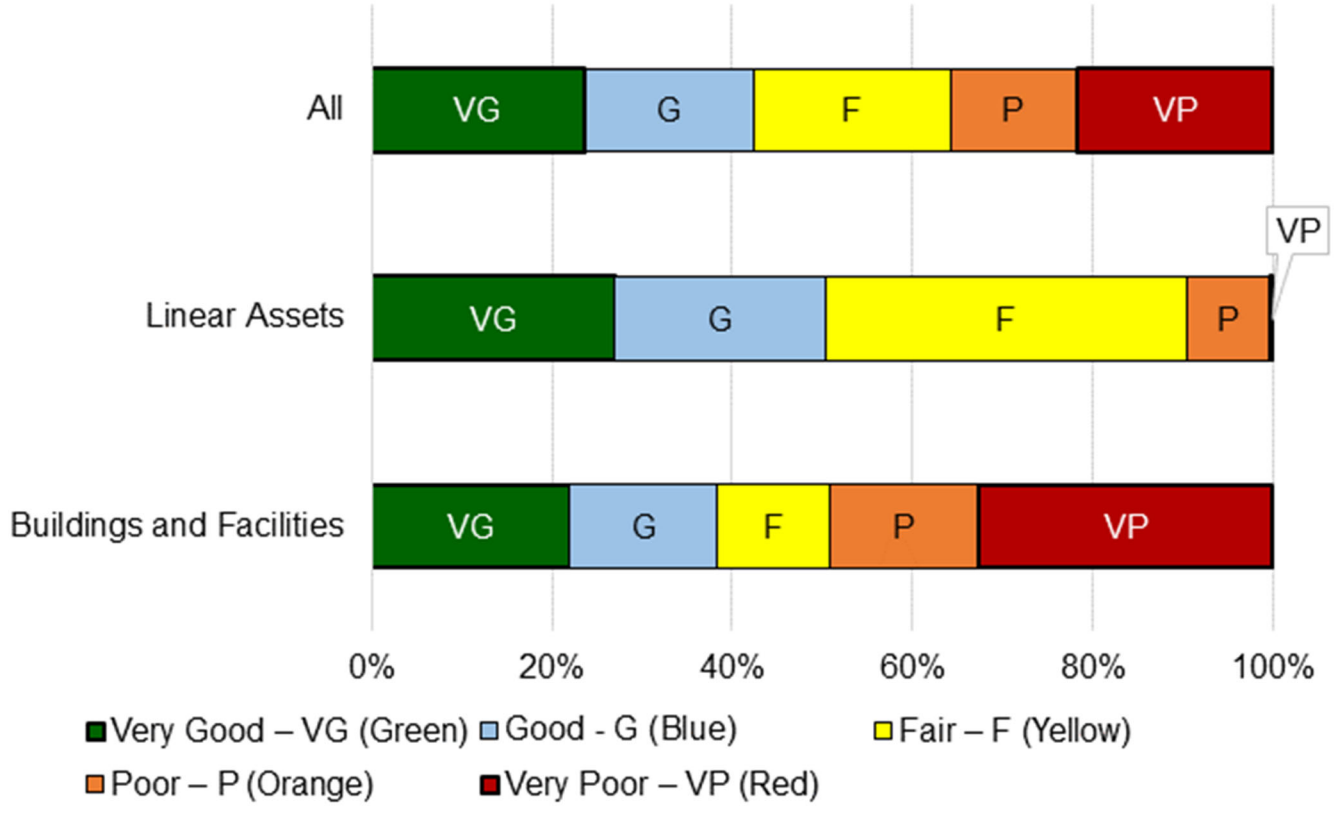


Table 45: Wastewater Asset Condition as % of Value

Condition rating (colour indicator)	Linear Assets	Buildings and Facilities	Total
Very Good – VG (Green)	26.98%	22.02%	23.70%
Good - G (Blue)	23.45%	16.29%	18.71%
Fair – F (Yellow)	39.95%	12.47%	21.78%
Poor – P (Orange)	9.39%	16.64%	14.18%
Very Poor – VP (Red)	0.23%	32.58%	21.62%

7.4.4. Wastewater Risk

Wastewater conducts detailed annual risk assessments for all 11 of its wastewater systems under its Quality Management System (QMS) scope. The Division Asset Register also includes risk assessments for all physical assets and serves as the primary source of information for asset risks. These assessments include examination of both asset-based and process-based risks, and equipment reliability and redundancy are explicitly considered. Outputs of the risk assessments are fed into the capital planning process via initiating capital needs requests for select high-scoring asset risks. Wastewater continues to work on strengthening linkages between QMS risk assessment outputs, condition assessment information, and capital planning.

The division has identified a 10-year, phased capital management approach to manage service levels, risks and the reality of financial constraints. See section 7.5 Lifecycle strategies for more information.

Table 46 and Table 47 provide a high-level evaluation based on the weighted replacement value of assets and their percentages. This method illustrates the Region's asset risk exposure and prioritization throughout the asset lifecycle. However, this assessment is limited to the financial cost of asset replacement. It does not consider other operational or consequential risks that could affect the Region's ability to maintain established service levels. These factors need to be monitored and addressed throughout the useful life of the wastewater services assets.

Table 46: Wastewater Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$87.16	$46.21	$0.00	$0.00
High	$0.00	$180.16	$12.08	$0.00	$0.00
Moderate	$0.00	$0.00	$21.56	$0.00	$0.00
Low	$0.00	$0.00	$434.25	$0.00	$0.00
Very low	$0.00	$877.41	$2,737.47	$0.00	$0.00

POF = Probability of failure COF = Consequence of failure

Table 47 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 47: Wastewater Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$877.41	19.96%
L	Low (L)	$2,737.47	62.27%
M	Moderate (M)	$635.97	14.47%
H	High (H)	$145.44	3.31%
VH	Very high (VH)	$0.00	0.00%
	Total	**$4,396.30**	**100.00%**

In addition to the asset risks above, the Division has anticipated the following strategic and operational risks identified Table 48.

Table 48: Wastewater Risk Mitigation Strategy

Risk	Impact	Proposed Mitigation
Lack of Information	Very few assets have assessed condition and performance information available. Without this information, the Division risks sub-optimal spending and unexpected failures of high-risk assets.	Undertake more condition and performance assessments and studies to understand asset and service needs

Risk	Impact	Proposed Mitigation
Resourcing Imbalances	Inadequate staffing in critical functions limits the ability to plan proactively and efficiently to asset needs	Consider further investigation to workforce and staffing needs
Inadequate Funding	Historically, rate increases to Water and Wastewater have not kept pace with the evolving asset needs. Without increased funding, the backlog will continue to grow	Advocate for funding increases to match our renewal investment needs more closely, in addition to undertaking more proactive lifecycle management to better utilize limited funds.
Growth and Development	Investments to accommodate new development is subsidized by rate-funded reserves. Over-allocation of rates to subsidize growth can exacerbate the backlog. Alternatively, growth will increase the Region's population and bring in more ratepayer funds for system investments. These competing trade-offs are not yet fully understood.	Evaluate Growth and Development needs alongside State of Good Repair needs within the capital planning framework to optimize investments.
Large-Scale Projects	Some current project needs are identified at over $100 million. Such large projects exceed the funding available in any one year, resulting in perpetual deferral of high-risk projects.	Invest in major maintenance programs and scope review to manage costs. Additionally, consider building multi-year special reserves to fund large investments.
Over-emphasis on reactive maintenance	Reactive maintenance tends to be less cost-effective than planned or preventative maintenance.	Transition towards a reliability-centered maintenance strategy that is more proactive
Unexpected failures	As more assets enter poor and very poor condition, the risk of unexpected breakdowns increases	Consider developing emergency response plans and a critical spares inventory. Develop service continuity plans for planned and unplanned shutdowns

Risk	Impact	Proposed Mitigation
Limited Risk Identification	Very few assets have assessed condition information available. Without this information, the Division risks sub-optimal spending and unexpected failures of high-risk assets	Undertake more condition assessments and studies to understand asset and service needs. Ensure that assets posing health and safety risks to the public and staff are monitored closely

7.5. Wastewater Lifecycle Strategies

Wastewater preserves assets through maintenance and renewal (i.e. rehabilitation and replacement) activities and investments. Maintenance and renewal activities are timed to reduce the risk of service failure from asset deterioration and minimize the total cost of ownership. The capital planning process achieves sufficient investment, doing the right thing to the right asset at the right time for the right reason.

The capital planning process is comprised of the following major components: Needs identification, initial risk review and budget forecast, capital validation meetings, risk review and budget forecast finalization, and finalization of business cases. Generally, project needs are identified through a project identification request process, risk and condition assessments, or recommendations from designs or master servicing plans. Once requests are approved, projects are evaluated and ranked by risk reduction per capital investment (ROI). Using the initial rankings from the Integrated Capital Planning Module (ICPM), the capital budget priorities are refined through meetings with various stakeholders. Once stakeholders have been consulted, capital priorities may shift, and the ICPM and budget forecast will be updated before being finalized for the business case process.

A key component of this process is the ICPM, developed by the Division to implement a standardized methodology that incorporates social, financial, and environmental decision-making criteria into evaluating and prioritizing infrastructure needs to formulate a long-term capital investment plan. The module integrates with a Financial Planning Model (FPM) based on the 2024 Financial Plan that differentiates between rate funding for Water and Wastewater, respectively, and funding sources from development charges. The Financial Planning Model provides the funding constraints for each source fund (e.g. rate increases, etc.), thus enabling a longer-term forecast on affordable planning.

Wastewater has identified a long-range plan, executed in two phases, to manage its assets. This phased approach balances immediate risk mitigation with long-term sustainability, ensuring

the effective use of limited capital resources. This strategy utilizes the Council-approved 2024 SDWA Financial Plan recommended blended 5.15% rate increase, which is 6.20% for wastewater, outlined in the Levels of Service section. Even with this rate increase, the assets in very poor condition will grow slightly until they peak in 2030, then steadily drop off over the following 15 years.

Phase 1 (Years 2025-2030): The first phase focuses on managing the deterioration of assets in very poor conditions while mitigating operational risks. Key strategies include prioritizing capital projects for critical and high-risk assets, establishing a reliability program, and implementing temporary operational adjustments such as increased maintenance budgets and rebalancing staffing levels between Water and Wastewater divisions. Additionally, emergency preparedness plans will be developed, and investments will be made in condition assessment programs to monitor asset performance. Table 49 identifies initiatives undertaken in Phase 1.

Table 49: Summary of Initiatives in Phase 1 of the Proposed Asset Management Strategy

Initiative	Impact
Risk-based capital project prioritization	Direct investment in the most critical projects, reducing the risk of major asset failures.
Rebalancing large engineering projects with significant maintenance projects	Facilitates medium-scale upgrades for deferred capital projects. This targets assets in poor and very poor condition and will lead to an increase in assets to fair condition.
Maintenance Staffing Levels	Increasing staffing of the maintenance teams will increase the capacity to undertake critical maintenance and small capital projects.
Operational Risk Mitigation	Temporary operational adjustments to manage risks of deteriorating assets. This can include adjustments to staffing, reserve levels, and the reliability and maintenance budget.
Emergency Preparedness Planning	Developing enhanced emergency response plans for assets with a high risk of failure due to poor condition.
Criticality Assessment	Identifying the criticality of key components within plants and outstations will allow for more targeted investments in renewal and performance monitoring, better optimizing limited budgets.

Initiative	Impact
Asset Performance Assessment Programs	Invest in condition assessments and performance monitoring programs to better understand asset performance. These results will identify critical assets, allowing funds to be optimized. Over time, these assessments will direct the work of the long-term capital planning.

There are several initiatives currently underway that support Phase 1. These include:

- Maintenance management review
- Engineering services review
- Condition assessment program (CCTV and pumping stations)
- Updated replacement costs
- Digesters consolidation and optimization strategy
- Fort Erie Wastewater long-term servicing strategy
- Capital planning process improvements.

Phase 2 (Years 2031-2046): The second phase focuses on stabilizing and improving asset conditions by reducing the backlog of very poor-condition assets and increasing capital investments. This includes targeted asset renewal, transitioning from reactive to preventative maintenance, and continuously monitoring asset conditions to direct ongoing planning. The focus will also be on rationalizing infrastructure in alignment with asset growth and reducing operational risks. Table 50 identifies initiatives undertaken in Phase 2.

Table 50: Summary of Initiatives in Phase 2 of the Proposed Asset Management Strategy

Initiative	Impact
Capital Investment in Critical Assets	Significant investments in asset renewal and rehabilitation will begin to reduce the backlog of very poor condition assets.
Targeted Asset Renewal	Key infrastructure will undergo renewal to reverse the deterioration trend, improving reliability and reducing operational risks. In conjunction with asset growth, opportunities will be sought to rationalize infrastructure.
Transition from reactive to preventative maintenance	To restore service life and functionality to non-critical assets, preventative maintenance activities that are increasingly deferred in Phase 1 will be addressed.
Asset Condition monitoring	Monitoring and assessing asset conditions will be essential to track progress and adjust the strategy.

By the end of phase 2, the goal is to reduce very poor-condition assets and fully reinstate a preventative maintenance program to extend asset life. This approach balances immediate risk mitigation with long-term sustainability by gradually improving asset reliability and condition, ensuring that limited capital resources are used effectively.

7.6. Wastewater Financial Strategy

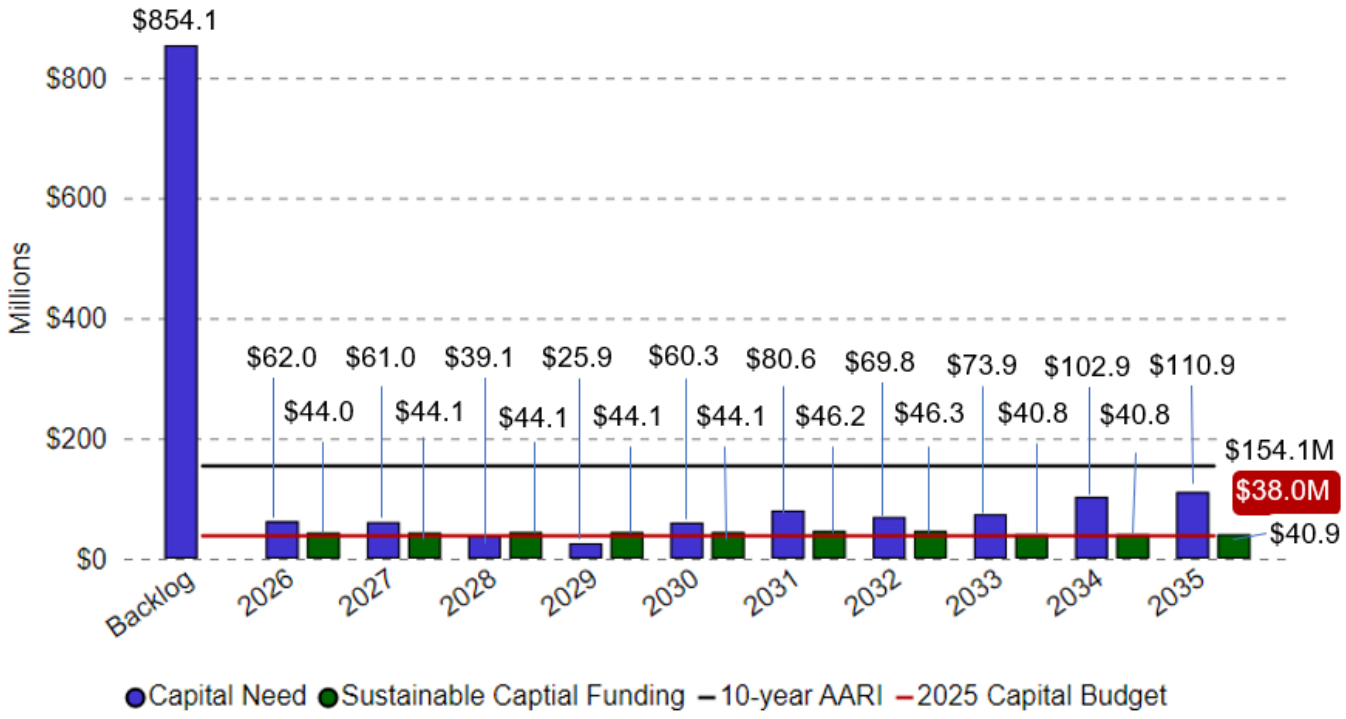
For Wastewater service assets, the renewal forecast is based on recommended activities drawn from lifecycle asset strategies and related operations and maintenance data. The lifecycle analysis aims to extend an asset's useful life as much as possible to minimize lifecycle costs while maintaining the required service levels. The timing of renewal activities in the forecast is determined by the asset's current condition, age, and estimated service life against a funding envelope. The estimated service life included in the forecasts considers how long an asset can continue to provide the necessary service levels before it needs replacement.

Based on these factors, the average annual revenue required to sustain the Region's Wastewater service assets from 2026 to 2035 is projected to be $154.06 million in CAMP 2025, which is equivalent to an annual increase in capital funding by 7.25% plus inflation for 10 years. The AARI of $154.06 million represents 3.50% of the overall replacement value of Wastewater Services, estimated at $4.4 billion.

The Water and Wastewater Financial Plan recommends an annual rate increase of 5.15% blended water/wastewater increase to capital over 10 years (2024 – 2033), which is an annual 6.20% rate increase to Wastewater specifically.

Figure 20 presents the AARI necessary to support existing assets and current levels of service for Wastewater of $154.06 million in the 10-year forecast. This includes both annual requirements for the 10-year period and addressing the identified capital spending backlog of $854.12 million during the same period. By comparison, the council-approved 2024 SDWA Financial Plan 5.15% capital rate increase projects a capital transfer of $137.2 million by 2035, which is 89.06% of the AARI.

Figure 20: Wastewater AARI and Forecasted Capital & Sustainable Needs



7.6.1. Wastewater Financial Indicators

The cost-of-service delivery for Water includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for Wastewater is presented in Table 51.

Table 51: Wastewater Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$14.60
Utilities	$7.60
Operating & maintenance	$7.84
Program specific	$90.98
Capital reserve transfers	$38.78
Debt charges	$14.06

The approval of the Wastewater Services Operating Budgets and the 10-year Capital Budget and Forecast should be reviewed annually and align service delivery risk and cost impacts for water services.

Waste Management Services

8. Waste Management Services

8.1. Introduction

Waste Management Services (WMS) include planning, managing, and operating residential and commercial curbside waste, as well as recycling and organics collection programs. WMS's mission is to provide fiscally responsible waste management and resource recovery services to meet the community's needs and promote environmental sustainability. In 2023, the Region processed 61,000 tonnes of garbage, 19,000 tonnes of recyclables, and 12,000 tonnes of leaf and yard waste.

Niagara Region has a partnership agreement with Walker Environmental Group (Walker) to process curbside-collected organics, including food waste and leaf and yard waste, from all twelve municipalities. In 2023, Walker processed 52,000 tonnes of source-separated organics on behalf of the Niagara Region.

In October 2020, every-other-week (EOW) garbage collection commenced. This collection frequency has led to a decrease in the amount of garbage collected at the curb compared to the period before EOW garbage collection. Recycling and organics continue to be collected weekly.

On April 21, 2023, Niagara Region sold its material recovery facility (MRF). The recyclable data reported above covers only the tonnage processed in the first 3.75 months of 2023 when the Region owned the MRF. It includes approximately 7,000 tonnes of recycling from Haldimand and Waterloo, which had contracts with Niagara Region to process recyclables. On January 1, 2024, Niagara Region transitioned to full producer responsibility, after which the Region no longer had operational or financial control over the residential Blue Box program.

The Region’s landfills to accommodate waste, leaf and yard processing, and other operational activities. A large portion of WMS infrastructure that is included under Buildings and Facilities (shown in Figure 21) are required to mitigate potential impacts to the environment. Assets utilized to provide the services are summarized in Table 52.

Table 52: Number of Assets Used to Provide Waste Management Services

Asset Type	Asset Class	Examples Of Assets	Count
Buildings and Facilities	Landfill	Berms, Compost Pads, Fencing, Monitoring Wells, Roads, Parking Areas, Electrical Equipment, Weigh Scales, Fencing, Maintenance & Administrative Buildings	1659 Assets
Buildings and Facilities	Landfill Gas Collection and Control System	Landfill Gas Lines, Gas Chambers, Landfill Gas Systems	206 Assets
Buildings and Facilities	Leachate Collection System	Leachate Piping, Manholes,	595 Assets
Buildings and Facilities	Recreation	Trails, Signs, Benches, Pavilions	172 Assets
Buildings and Facilities	Stormwater Management System	Ditches, Ponds, Culverts, Drainage Systems	511 Assets
Linear Assets	Leachate Collection System	Off-site Leachate Piping	4 Assets

Federal and Provincial legislation and internally developed plans are primary drivers that guide and direct delivery of WMS services in Niagara region. Through reporting updates and the Region's Corporate Strategy and Priorities, Council also provide direction for the delivery of service. Legislation and documents that guide service delivery include but not limited to the following:

- Environmental Protection Act (Environmental Compliance Approvals [ECA], O. Reg. 347, O. Reg. 232/98)
- Environmental Assessment Act (Notice of Approval to Proceed with the Undertaking)
- Waste Diversion and Transition Act, 2016; Resource Recovery and Circular Economy Act, 2016 (O. Reg. 449/21); Waste-Free Ontario Act, 2016.
- Waste Management Strategic Plan (In Development)

8.2. WMS Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements, as well

as the activities and assets required to support those services. Most of the drivers for WMS result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Population change
- Development trends
- Legislation and Regulations
- Social issues and trends
- Technology changes
- Other service provider changes
- Asset management

The Waste Management Strategic Plan (WMSP), which is currently under development, will offer a framework and guidance for Waste Management Services (WMS) over the next 25 years. The WMSP consists of three phases.

- Phase One (assessment of system) analyzed the current Waste Management system, including waste generation rates, types of waste managed, and sources to identify opportunities for growth and improvement.
- Phase Two (development of direction and system options) resulted in a shortlist of options that underwent Triple Bottom Line (TBL) analysis incorporating public feedback to refine the WMSP's mission, vision, and goals.
- Phase Three (preferred system) will enable the public to offer feedback on the final WMSP. Initiatives will be categorized into immediate actions for the next five years and long-term strategies at five-year intervals. The WMSP will comprise recommendations for:
  - diversion and disposal technologies
  - optimal service levels for each recommended opportunity
  - facilities and resources required.
  - operating and capital planning needs; and
  - key strategies, actions, and measures for each of the recommendations

The WMSP will be completed in the fall of 2025, following the completion of the CAMP. Staff have utilized existing assumptions to prepare the estimated costs required for the CAMP. This ensures the proper allocation of funds for the necessary capital infrastructure to support the required landfill capacity.

8.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. The Region has updated master plans that outline current service levels and associated existing assets, recommend future service levels

and related assets, and identify the actions required to move from the current to the future state, including requirements for new, expanded, and enhanced assets.

Table 53 lists a currently active capital work in progress projects for WMS that is addressing growth or enhancement needs. For additional information on growth-related projects, please see section 8.7.

Table 53: WMS Forecast Asset Portfolio Growth and Enhancement Projects

Asset class	Growth or enhancement forecasted
Facility – Bridge St., NR-12 and Humberstone	Improvements to active drop-off depots

8.3. WMS Levels of Service

Table 54 summarizes information on customer and technical measures for levels of service (LOS) that relate to the operation, maintenance, and renewal of assets to sustain WMS's current LOS.

The current levels of service for WMS assets will be maintained as the proposed levels of service through 2034 for customer LOS, whereas technical LOS will require further review to assess the impact, which will be reported in the next iteration of the CAMP. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risks on operations and capital budgets while incorporating the Region's updated growth needs and requirements. The division continues to monitor the levels of service provided by WMS assets annually. This will allow for the future adjustment of proposed service levels, recognizing that WMS assets also include replaceable components essential for the associated service delivery.

Table 54: WMS Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Technical	Cost Efficiency	Solid Waste Compaction Rate (kg/m3)	750	750
Effective Region	Technical	Cost Efficiency	Solid waste average operating cost per tonne	$247.60	247.60
Green and Resilient Region	Technical	Environmental Stewardship	Ministry of the Environment, Conservation and Parks Compliance (number of orders per year)	100%	100%

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Technical	Reliability	Percentage of Closed Landfills with engineering controls inspected per year	100%	100%

8.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on WMS are as follows:

- Environmental Protection Act 1990
  - Ontario's Environmental Protection Act (EPA) is a key piece of legislation designed to protect the environment and public health by regulating pollution, waste management, and the use of hazardous substances. It establishes rules for air, water, and land quality, while giving authorities the power to enforce compliance through penalties and remedial actions.
  - Ontario Regulation 347
    - O. Reg. 347 is a regulation under Ontario's Environmental Protection Act that outlines the rules for the classification, handling, and management of waste in the province, including requirements for waste disposal sites and transportation.
  - Ontario Regulation 232/98
    - O. Reg. 232/98 is a regulation under Ontario's Environmental Protection Act that sets out requirements for the management and disposal of hazardous waste, including the tracking, transportation, and storage of such materials.
- Waste Diversion Transition Act 2016
  - The Waste Diversion Transition Act is provincial legislation promoting waste reduction, reuse, and recycling. It facilitates the operation and orderly winding up of waste diversion programs and industry funding organizations, transitioning responsibility for waste management under the Resource Recovery and Circular Economy Act of 2016.
- Resource Recovery and Circular Economy Act 2016
  - The Resource Recovery and Circular Economy Act is a provincial legislation focused on resource recovery and waste reduction. It establishes full producer responsibility, making producers accountable for the environmental impact of their products and packaging. The Act creates a resource productivity and recovery authority to manage a registry and oversee compliance. It emphasizes treating end-of-life materials as resources, promoting the creation of durable and reusable goods, and encouraging

investment and business opportunities (O. Reg, 449/21 – Hazardous and Special Products).

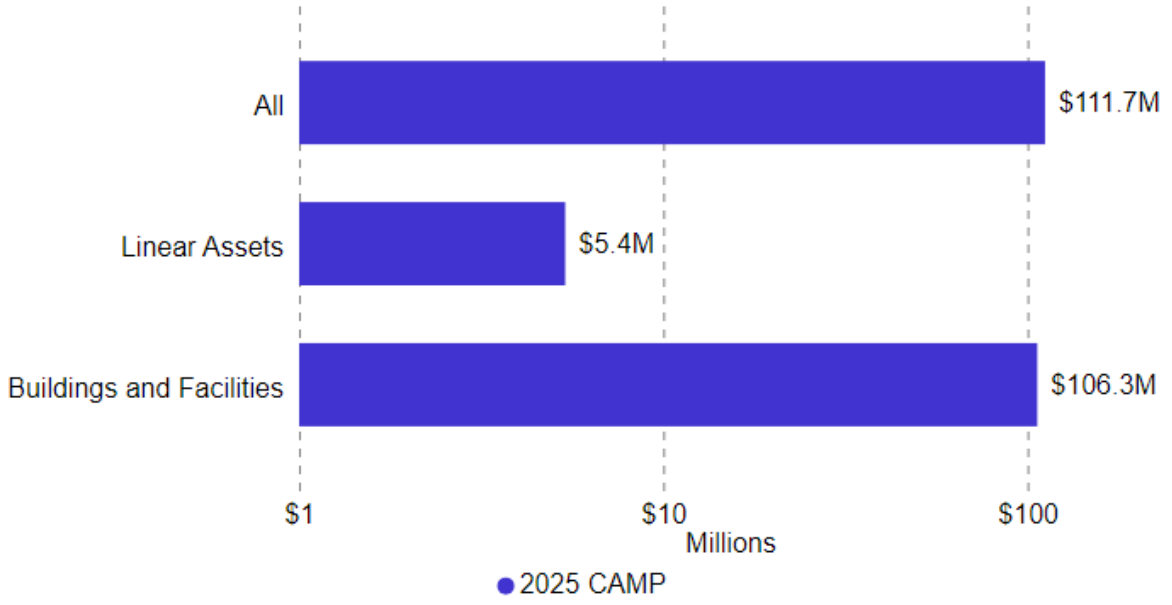
- Waste-Free Ontario Act 2016
  - The Waste-Free Ontario Act is a provincial law designed to implement the Resource Recovery & Circular Economy Act and the Waste Diversion Transition Act. It aims to protect the environment by reducing waste generation. The Act outlines the responsibilities of businesses involved in designing, producing, and marketing products or packaging in Ontario, including aspects related to convenience packaging and waste from transportation.

8.4. WMS State of Infrastructure

8.4.1. WMS Asset Inventory and Replacement Cost

The assets required to support the services provided by WMS include linear assets, equipment, and WMS buildings and facilities. The linear assets totalling $5.4 million are made up of assets that are not located on a landfill site (i.e., Line 5 and NR-12 force mains and chambers). Buildings and facilities housed at WMS landfills sites are inclusive of both major building and facility type assets (i.e., active and closed landfills, material drop-off and house-hold hazardous waste depots), in addition to all on-site infrastructure (i.e., extensive underground piping, manholes, pumping stations, electrical lines, etc.). As illustrated in Figure 21, the estimated cost to replace the assets is $111.7 million. This includes $106.3 million of buildings and facilities.

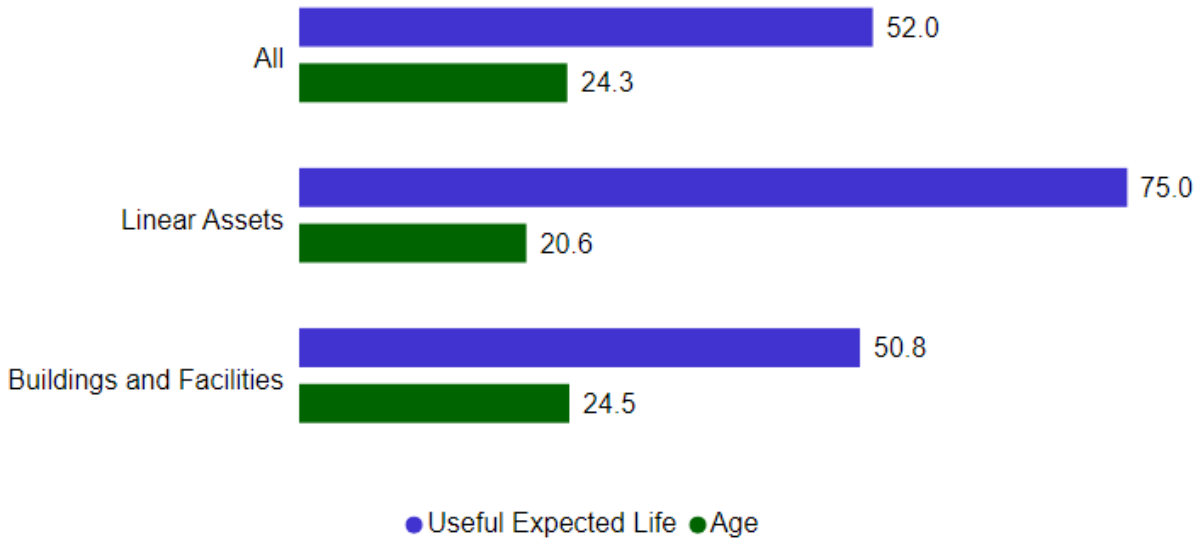
Figure 21: WMS Inventory and Replacement Cost



8.4.2. WMS Asset Age Distribution

WMS assets are approximately halfway through their useful expected life (UEL). The average age and estimated service life of WMS assets, weighted by replacement value, are summarized by asset category in Figure 22 and Table 55. The average age of these replaceable assets within the buildings and facilities asset category is slightly less than half of their average UEL.

Figure 22: WMS Average Age by Asset Category



Average asset by age includes the age distribution of WMS buildings and facilities. This encompasses the age of the replaceable equipment and components within them (i.e., building components, landfill gas collection and control system, leachate collection system, and in a few cases, process equipment), which generally have shorter lifespans than the buildings. Consequently, the overall expected useful life of the building and facility asset category is shorter than that of a typical facility, which usually ranges from 70 to 100 years.

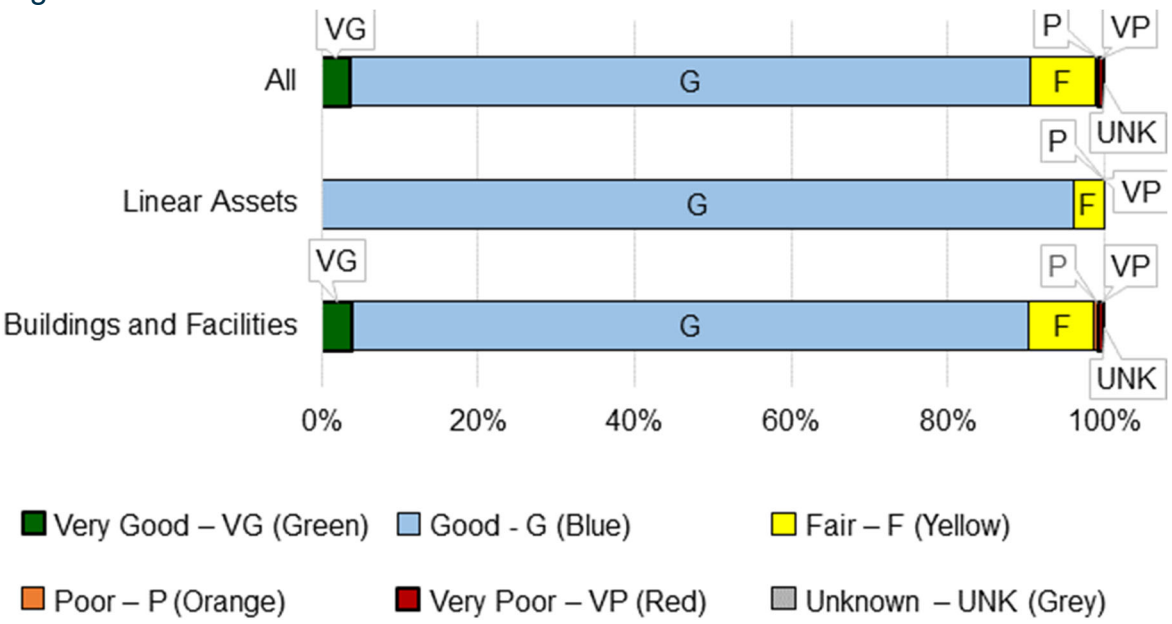
Table 55: WMS Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Linear Assets	20.6	75.0	54.4
Buildings and Facilities	24.5	50.8	26.3
All	**24.3**	**52.0**	**27.7**

8.4.3. WMS Asset Condition

The graph below visually illustrates the average WMS asset condition on a very-good to very-poor scale. Condition data is derived from internal WMS assessments and an age-based model, which estimates current conditions when direct condition information is unavailable. WMS asset portfolio is rated as good, with 90.69% of assets rated as good or better. The condition of WMS assets, weighted by replacement value, is summarized by asset category in Figure 23 and Table 56.

Figure 23: WMS Asset Condition as % of Value.



The WMS team regularly monitors the average condition of all assets to ensure acceptable service levels. To that end, WMS is in the process of completing a condition assessment program, with results expected to be reported before the end of Q2 2025. If a decline in condition is observed, the WMS team will reassess the lifecycle management strategy to identify the appropriate combination of maintenance, rehabilitation, and replacement activities needed to enhance the overall condition of the asset. Furthermore, each asset class UEL is reviewed periodically to ensure alignment with the actual service life observed for each asset type.

Table 56: WMS Asset Condition as % of Value

Condition rating (colour indicator)	Linear Assets	Buildings and Facilities	Total
Very Good – VG (Green)	0.00%	3.75%	3.75%
Good - G (Blue)	96.04%	82.32%	86.94%
Fair – F (Yellow)	3.96%	7.97%	8.17%
Poor – P (Orange)	0.00%	0.51%	0.51%
Very Poor – VP (Red)	0.00%	0.54%	0.54%
Unknown – UNK (Grey)	0.00%	0.10%	0.10%

8.4.4. WMS Risk

Table 57 is a standardized risk matrix that represents assets with their current replacement cost according to the risk of asset failure.

The risk assessments outlined in Table 57 and Table 58 provide a high-level evaluation based on the weighted replacement value of assets and their percentages. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for the assets in the WMS asset category. It is essential to emphasize that this does not consider other operational or consequential risks that could affect the Region's ability to maintain established service levels. These factors need to be monitored and addressed throughout the useful life of the WMS assets.

Table 57: WMS Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$14.33	$1.13	$1.32	$0.00	$0.00
High	$0.27	$0.37	$2.39	$0.00	$0.00
Moderate	$$0.00	$1.02	$3.09	$0.00	$0.00
Low	$0.03	$3.21	$9.30	$0.00	$0.00
Very low	$0.57	$12.24	$60.21	$0.00	$0.00

POF = Probability of failure COF = Consequence of failure

Table 58 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 58: WMS Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$12.84	11.50%
L	Low (L)	$63.42	56.79%
M	Moderate (M)	$28.38	25.41%
H	High (H)	$4.84	4.33%
VH	Very high (VH)	$0.00	0.00%
	Unknown	$2.21	1.97%
	Total	**$111.68**	**100.00%**

8.5. WMS Lifecycle Strategies

WMS's lifecycle asset strategy is to replace assets at the end of their UEL, which is informed by industry best practices when available. Operational planning completed within WMS helps

define the timelines for new cell construction and phases of landfill gas collection systems, to name two examples.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to ensure reliability, all while operating within available financial resources. Strategies for managing asset lifecycles are typically categorized as indicated in Table 12, which describes lifecycle asset categories. They are also influenced by the service levels outlined in Section 3 and the need to manage the associated WMS risks using the same risk strategies and methodology discussed in Section 4.5.

WMS incorporates robust planning for maintenance, condition assessments, and active interventions. WMS also consider climate change concerning new construction and renewal activities. Assessing asset vulnerability will inform necessary lifecycle adjustments. Waste Management Services regularly audit asset data to ensure information remains current and introduce classifications for lifecycle activities. Capital investments in existing assets are recorded in the relevant asset data. Additionally, the Region capture annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to evaluate performance against targets. For missing data, a strategy for collection and integration is applied as part of continuous improvement.

8.6. WMS Financial Strategy

The renewal forecast for WMS assets is based on industry best practices. The lifecycle analysis focuses on extending the asset life as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The timing of renewal activities in the forecast is based on the current condition, age, and estimated service life of assets, which is currently under assessment by WMS. Based on the work currently underway, the schedule will be updated based on data. The estimated service life included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement. The ongoing assessment exercise for WMS, scheduled for Q2 2025, will enable WMS to refine forecasts.

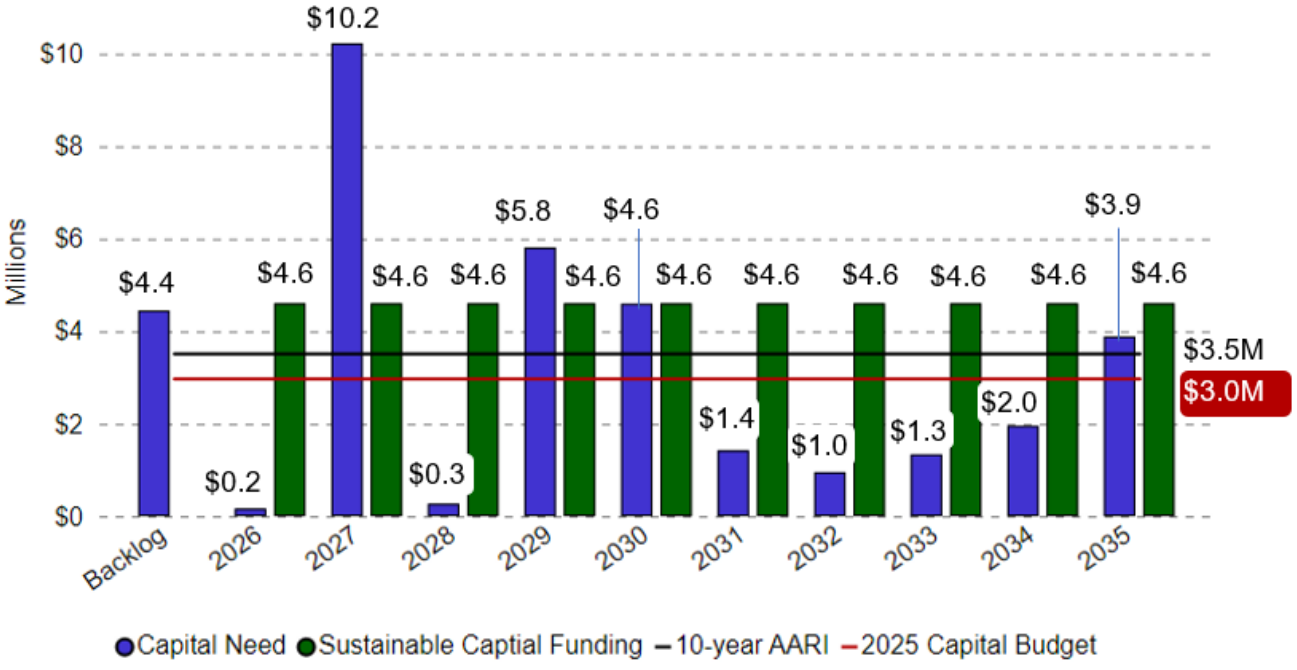
Figure 24 presents the AARI necessary to support existing assets and current levels of service for WMS of $3.51 million in the 10-year forecast, which also has considered the 10-year landfill liability model forecast, with an average AARI of $1.56 million annually. The AARI represents 3.14% of the WMS replacement value, which is estimated at $111.68 million. This includes annual requirements for the 10-year period and addressing the identified capital spending backlog of $4.45 million during the same period. The backlog includes projects that have not been completed as of the end of 2024 and are considered work in progress (WIP). For

comparison, the 50-year AARI is forecast at $3.96 million because of a new waste management facility is included in the 50-year forecast.

Figure 24 also presents the sustainable capital funding forecast and the forecasted 10-year capital needs. Between 2026 and 2035, the capital funding forecast is $46.02 million and the forecasted capital needs are estimated to be $30.63 million. This situation suggests a favourable balance that supports the sustainable and affordable maintenance of existing infrastructure while prioritizing growth by developing new infrastructure that fosters economic development. However, further analysis is necessary to understand how these increases will impact future projects and infrastructure development due to financial pressure, rising costs, and inflation.

The sustainable capital funding forecast ($4.6 million annually) is WMS current contribution to the Waste Management Capital Reserve (Capital) and Landfill Liability Reserve (LL Reserve) based on an updated reserve strategy. The reserve strategy supports contributions to Capital based on the CAMP, and contributions to the LL Reserve based on our landfill liability model (LL model). The LL model includes forecasted capital needs that would meet the post closure landfill requirements over the landfill's lifespan, which extends over a 212-year period (i.e., 2024 to 2236), and is updated accordingly based on the best information available to management. The LL model is a more holistic approach and is the funding approach we will continue to use for contributions to the LL Reserve. The contribution to LL Reserve included in the sustainable capital funding forecast is $2.8 million.

Figure 24: WMS AARI and Forecasted Capital & Sustainable Needs



8.6.1. WMS Cost to Deliver Service

The cost-of-service delivery for WMS includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for WMS is presented in Table 59.

Table 59: WMS Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$4.54
Utilities	$0.15
Operating & maintenance	$4.18
Program specific	$44.16
Capital reserve transfers	$4.79
Debt charges	$0.05

8.7. WMS 2022 Development Charge Background Study Projects

Table 60 is an extraction of the growth projects identified in the 2022 Development Charge Background Study (2022 DCBS).

Table 60: WMS Infrastructure Costs in the DC Calculation

Increased service needs attributable to anticipated development	Timing	Gross capital cost estimate ($ million)	Net cost funded by Region. ($ million)	Other funding sources ($ million)	Potential DC cost recovery ($ million)
Bridge Street Public Drop Off Depot Improvement*	2023-2026	$1.6	$0.5	$0.0	$1.1
NR-12 - Drop-Off Depot Improvements (dump pad, access improvements and one rehab of one bunker currently out of service) *	2023-2026	$0.4	$0.3	$0.0	$0.14

Increased service needs attributable to anticipated development	Timing	Gross capital cost estimate ($ million)	Net cost funded by Region. ($ million)	Other funding sources ($ million)	Potential DC cost recovery ($ million)
Humberstone - Drop-Off Depot Improvements (incl. grading and functional improvements to the Depot) *	2023	$0.4	$0.0	$0.0	$0.27
Waste Management Long-term Strategic Plan	2023-2025	$1.5	$1.1	$0.0	$0.38
Walker Organics Facility Expansion	2022-2029	$3.5	$0.0	$0.0	$3.5
Organics Transfer Station	2022-2031	$1.0	$0.0	$0.0	$1.0
Provision for Additional Vehicles, Equipment, and Containers	2022-2031	$2.7	$0.0	$0.0	$2.7

*These projects were substantially performed in 2024

Transportation

9. Transportation

9.1. Introduction

Transportation services include responsibility for the stewardship of all related assets within the road right-of-way (ROW), including roads, bridges, culverts, stormwater, traffic signals and luminaires. Assets utilized to provide the services are summarized in Table 61.

Table 61: Assets Used to Provide Transportation Services

Asset Description	Count
Patrol Yard	4 units
Cross Culverts	1,711 units
Driveway Culverts	6,605 units
Guiderails	924 units
Retaining Walls	713 units
Pavement	1,750,040 lane metres
Bridges	129 units
Structural Culverts	90 units
Signalized Intersections	287 units
Luminaires	690 units
Gravity main	105 kilometers
Oil Grit Separators	14 units

The CAMP enables transportation services to develop a forecast of spending requirements that must be integrated with both current and future needs. The CAMP needs to include the direction established by strategies, plans, and objectives, as identified in the Transportation Master Plan (TMP), and those established for the entire Region. The AMP will both utilize and influence many of the Corporate and business unit processes and documents that outline the direction for enhancing or expanding services.

Provincial objectives for services, with applicable legislation, are primary drivers that guide and direct the delivery of Transportation services in the Niagara Region. Through reporting updates and the Region's Corporate Strategy and Priorities, the Council also provide direction for the delivery of service. Other legislation and documents that guide service delivery include the following:

- Transportation Master Plan (TMP) 2019

- Niagara Region Complete Streets Design Guidelines June 2017
- Niagara Region Guidelines for Transportation Impact Studies 2012
- Strategic Cycling Network Development Technical Paper 2017

9.2. Transportation Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Most drivers for Transportation result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Population change
- Development trends
- Legislation and higher government
- Transportation trends
- Climate change

The forthcoming release of the Transportation Master Plan (TMP) will strive to link with components of the Region's Official Plan (update in progress) and strategic financial investments to address new transportation requirements and maintain service levels. The forecasts included in the TMP are incorporated in the 2022 Development Charge Background Study.

9.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in the population of Niagara will place significant pressure on the capacity of existing assets and create demand for new assets. The Region has updated various master plans that outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to future state, including requirements for new, expanded, and enhanced assets.

Table 62 lists forecast capital projects of over $20 million for transportation that are required to address these growth or enhancement needs. For additional information on growth-related projects, please see the section 9.7.

Table 62: Transportation Forecast Asset Portfolio Growth and Enhancement Projects

Asset class	Growth or enhancement forecasted
Bridges	Carlton St. extension and new bridge
Roads	Casablanca Blvd. capacity improvements
Roads	Creek Rd. capacity improvements

Asset class	Growth or enhancement forecasted
Roads	Hwy 406 and Third St. Louth interchange
Roads	Lundy's Lane capacity improvements
Roads	Merritt Rd. capacity improvements
Roads	Montrose Rd. capacity improvements
Roads	Niagara Escarpment Crossing – new road construction
Roads	Niagara Stone Rd. capacity improvements
Roads	Ontario St. capacity improvements
Roads	Rice Rd. capacity improvements
Roads	Sodom Rd. capacity improvements
Roads	Stanley Ave. capacity improvements
Roads	Thorold Stone Rd capacity improvements
Roads	Collier Rd capacity improvements
Roads	McLeod Rd capacity improvements
Roads	Livingston Ave capacity improvements
Roads	East Main St capacity improvements
Roads	Airport Rd. capacity improvements
Luminaires	Annual enhancement program
Signals	Annual enhancement program
Intersections	Annual enhancement program

9.3. Transportation Levels of Service

Table 63 summarizes information on technical measures for levels of service (LOS) that relate to the operation, maintenance, and renewal of assets to sustain Transportation's current LOS.

The current levels of service for Transportation assets will be maintained as the proposed levels of service for customer LOS, whereas technical LOS will require further review to assess the impact, which will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risks on operations and capital budgets while incorporating the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the service levels provided by Transportation assets annually. This will allow for the future adjustment of proposed service levels, recognizing that building and facility assets also include replaceable components

essential for the associated service delivery. Please see Appendix B for Transportation Service area map. Table 64 summarizes the O. Reg. 588/17 mandated technical and customer levels of service.

Table 63: Transportation Services Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Prosperous Region	Technical	Cost Efficiency	Annual Capital reinvestment for roads per lane-km	Over the past 5 years, the average annual investment in road construction projects has been $42.9 million, while road resurfacing has averaged $9.4 million annually	N/A
Prosperous Region	Technical	Cost Efficiency	Annual Capital reinvestment for bridges and structural culverts per lane-km	Based on our 2022 Bridge Management system our average annual investment for bridge and structural culverts is $21.9 million. This investment is a like-for-like replacement and does not include capacity expansion or added active transportation. It should also be noted that there is a backlog of rehabilitation and replacements that need to be scheduled in the next 1-5 years	N/A
Effective Region	Technical	Reliability	The average condition index for signal assets in the Region is measured, with a percentage classified as Good or Very Good (or at least Fair and Better)	Fair or better condition	Maintain Standard

Table 64: O. Reg 588/17 Mandated Technical and Customer Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer	Reliability	Description or images of the condition of bridges and structural culverts and how this would affect their uses.	Regional bridges and structural culverts support all traffic, with load restrictions in place in some cases. Overweight travel is managed through an application process and rerouted if necessary to protect structural integrity. Bridges are inspected every two years per O. Reg. 104/97, overseen by a professional engineer. Inspections follow Ontario's Structure Inspection Manual (OSIM), rating bridge elements as Excellent, Good, Fair, or Poor. Deficiencies are noted, and maintenance or renewal recommendations are made. Strength evaluations are conducted for structures identified for a follow-up to ensure load capacity meets Canadian Highway Bridge Design Code standards	Maintain Standard
Effective Region	Technical	Reliability	The average bridge condition index (BCI) value for bridges and structural culverts in the Region.	Fair or better condition	Maintain Standard

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Green and Resilient Region	Customer	Scope	Description, which may include maps of the user groups or areas of the Region that are protected from flooding, including the extent of the protection provided by the Region's stormwater management system	The stormwater system protects the regional Right of Way (RoW) and is designed for a 5-year storm event. However, climate change is increasing flood risks, and the Region is assessing the system's capacity for a 100-year storm event	Maintain Standard
Green and Resilient Region	Technical	Reliability	Percentage of properties in municipality resilient to a 100-year storm	Zero (0) % for a 100-year storm event	N/A
Green and Resilient Region	Technical	Reliability	Percentage of the municipal stormwater management system resilient to a 5-year storm	100% 5-year storm event	Maintain Standard
Prosperous Region	Customer	Scope	Description of road network	The region manages a transportation network that integrates provincial and local roads to ensure safe and efficient movement. It includes eight provincial highways regulated by the MTO, with local municipalities maintaining road networks. Total lane km = 1,750 km of arterial roads. Roads occupy 20.9 km2 for a total portion of 1.12%	Maintain Standard

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Prosperous Region	Technical	Reliability	Description or images that illustrate the different levels of road class pavement condition	Fair or better condition	Maintain Standard
Green and Resilient Region	Customer	Scope	Description of the traffic that is supported by Regional bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	Regional bridges and structural culverts support various traffic types, including heavy transport and emergency vehicles. Load restrictions may apply, with an approval process for overweight travel to maintain structural integrity	Maintain Standard
Green and Resilient Region	Technical	Reliability	Percentage of bridges in the Region with loading or dimensional restrictions	2% of bridges have loading restrictions	Maintain Standard

9.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on Transportation are as follows:

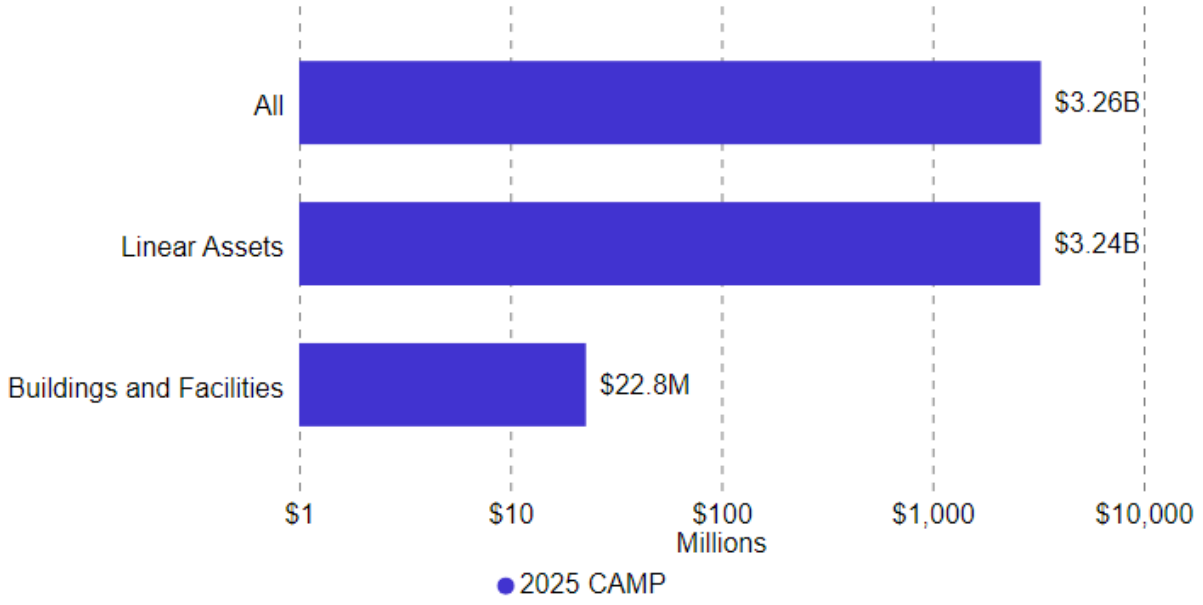
- Highway Traffic Act
  - This is an Ontario regulation describing the rules of operating vehicles on public roads including types of operators, drivers and loads.
- Drainage Act R.S.O 1990
  - The Drainage Act is a provincial legislation assigning the municipality responsible for maintaining the drainage works after construction.
- Minimum Maintenance Standards for Municipal Highways – O. Reg. 239/02(previous O. Reg. 366/18)
  - This Act establishes the minimum maintenance standards, including inspection frequency and repair of municipal highways and the assets that support them.
- Standards For Bridges O. Reg. 104/97 (previous O. Reg. 472/10)
  - The Act requires that all provincial and municipal bridges be inspected every two years under the direction of a professional engineer using the Ministry's Ontario Structure Inspection Manual (Inspection Manual).
- Asset Management Planning for Municipal Infrastructure O. Reg 588/17
  - This Ontario regulation sets out requirements for municipal asset management planning, including specific provisions for many transportation assets, such as roads, culverts, and bridges, which are identified as core assets under this regulation.

9.4. Transportation State of Infrastructure

9.4.1. Transportation Asset Inventory and Replacement Cost

As illustrated in Figure 25, the estimated replacement value of Transportation assets is $3,259.2 million, which accounts for Transportation linear assets such as pavement, bridges, signalized intersections, etc. However, the value of buildings and facilities assets is $22.8 million, mainly for the replaceable items within the Transportation buildings and facilities, not the structure itself.

Figure 25: Transportation Inventory and Replacement Cost



9.4.2. Transportation Asset Age Distribution

Figure 26 and Table 65 summarize the average age and useful expected life (UEL) of the assets discussed in this report, weighted by their replacement value. The average age of linear assets is over two-thirds of their average useful expected life (UEL). Transportation utilizes comprehensive condition inspection programs for the majority of its assets which forms the basis for managing the lifecycle rehabilitation and replacement activities. Where conditions are not identified, Age against UEL are used to form the decision-making process.

The Transportation Services division utilizes the buildings and facilities in this section; however, they are managed by the Facilities division, which is responsible for capital requests and oversight. The average age of these replaceable facility assets is more than half of their average useful expected life (UEL). It's important to note UEL in Figure 26 represents replaceable items within Transportation buildings and facilities. The building structures and foundations generally have an estimated useful life of approximately 70 to 100 years.

Figure 26: Transportation Average Age by Asset Category

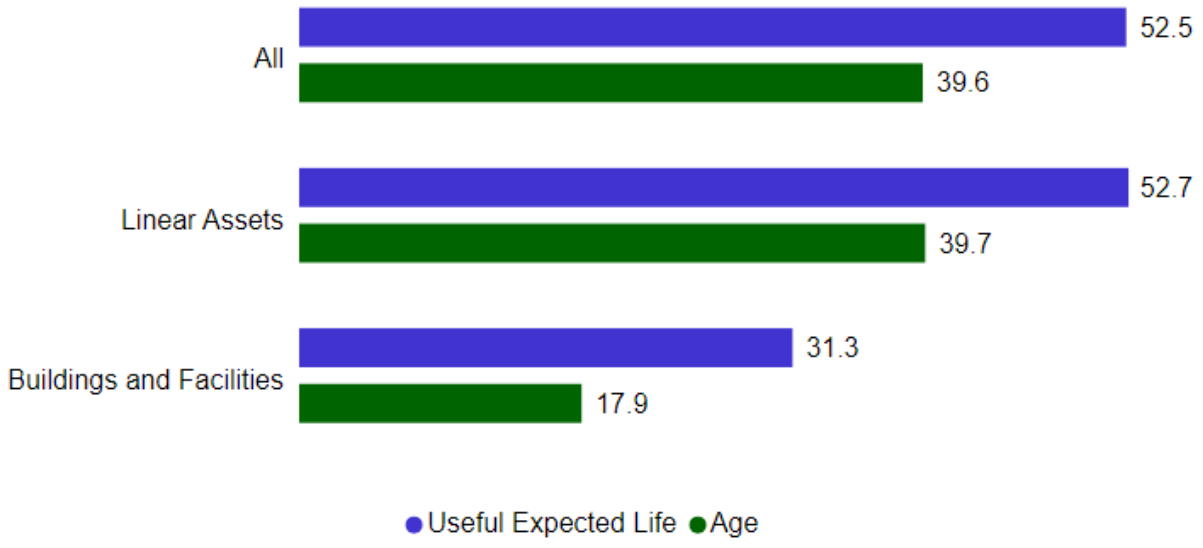


Table 65: Transportation Average Age by Asset Category

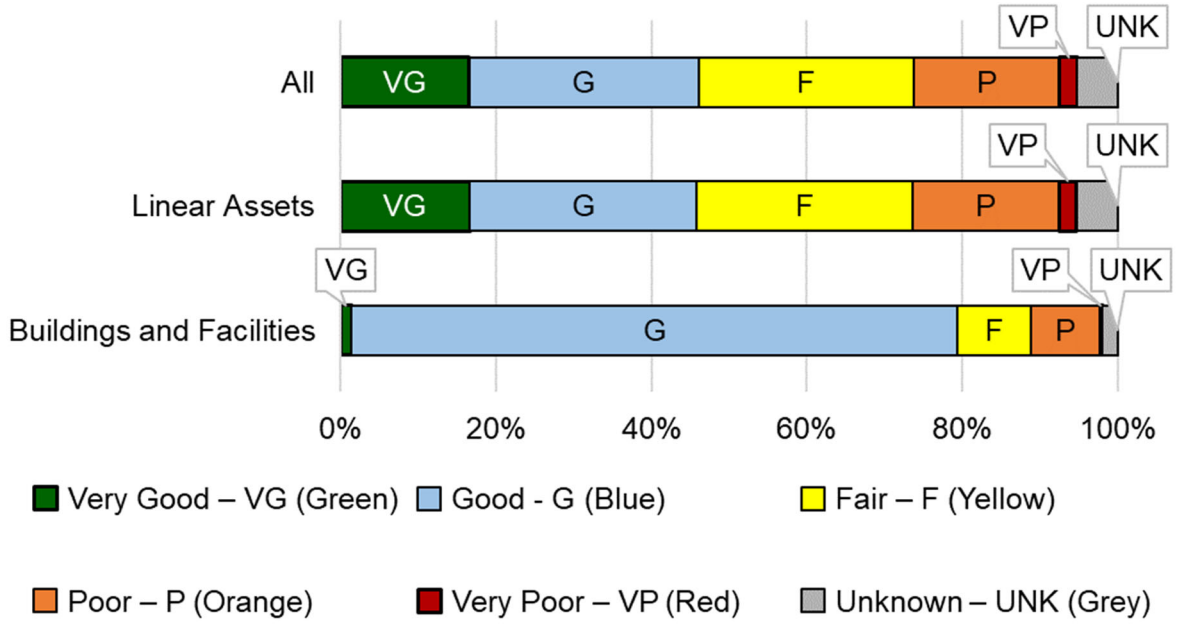
Asset Category	Average Age	Average UEL	Average Remaining Life
Linear Assets	39.7	52.7	12.9
Buildings and Facilities	17.9	31.3	13.4
All	**39.6**	**52.5**	**12.9**

9.4.3. Transportation Asset Condition

The graph in Figure 27 and Table 66 below shows the average condition of Transportation linear and facility assets on a very good to very poor scale. The condition of linear assets is based on the Pavement Condition Index (PCI), Bridge Condition Index (BCI), and field inspections undertaken in 2023. However, the condition of the buildings and facilities in the transportation section is based on Building Condition Assessments (BCAs) undertaken between 2022 and 2023.

Transportation assets are rated as fair, with 73.80% of value rated as fair, good, or very good. The condition of Transportation assets, weighted by replacement value, is summarized by asset category in Figure 27, Table 66 and Table 67.

Figure 27: Transportation Asset Condition as % of Value.



The Transportation division regularly monitors the average condition of all assets to ensure that its assets continue providing an acceptable service level. If the average condition declines, the Transportation team reassess the asset lifecycle management strategy. This assessment identifies the appropriate combination of maintenance, rehabilitation, and replacement activities needed to enhance the overall condition of the buildings. Furthermore, each asset's Useful Expected Life (UEL) is reviewed periodically to determine if adjustments are necessary to align with the service life. One of the challenges in maintaining assets in good repair is the unpredictability of operating and capital funding from year to year. This inconsistency in available funding limits the division's ability to proactively address asset needs and keep them in a state of good repair.

Table 66: Transportation Asset Condition as % of Value

Condition rating (colour indicator)	Linear Assets	Buildings and Facilities	Total
Very Good – VG (Green)	16.63%	1.39%	16.53%
Good - G (Blue)	29.21%	78.02%	29.55%
Fair – F (Yellow)	27.85%	9.38%	27.72%
Poor – P (Orange)	18.80%	8.96%	18.73%
Very Poor – VP (Red)	2.28%	0.32%	2.27%
Unknown – UNK (Grey)	5.23%	1.93%	5.21%

Table 67: Transportation Condition by Assets as % of Value

Assets	Very good	Good	Fair	Poor	Very poor	Unknown
Pavement	19.98%	15.18%	30.07%	30.71%	4.06%	0.00%
Bridges	16.86%	43.96%	27.80%	10.34%	1.04%	0.00%
Cross Culverts	15.12%	22.40%	47.03%	10.98%	4.47%	0.00%
Driveway Culverts	17.84%	19.19%	31.83%	29.79%	0.00%	1.35%
Guiderails	17.43%	64.46%	14.93%	3.18%	0.00%	0.00%
Retaining Walls	5.20%	61.35%	17.75%	3.50%	0.00%	12.20%
Signalized Intersections	0.00%	57.42%	41.21%	0.34%	0.00%	1.03%
Storm sewer Network	0.74%	2.18%	0.00%	2.44%	0.00%	94.64%
Buildings and Facilities	1.39%	78.02%	9.38%	8.96%	0.32%	1.93%
Total	16.53%	29.55%	27.72%	18.73%	2.27%	5.21%

9.4.4. Transportation Risk

Table 68 is a standardized risk matrix that represents assets with their current replacement cost according to the risk of asset failure. The risk assessment in Table 68 and Table 69 provide a high-level evaluation based on the weighted replacement value of assets and their associated percentages. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for the assets in the Transportation division. It is essential to emphasize that this does not relate to operational services risk.

Table 68: Transportation Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.00	$0.00	$831.61	$0.00
High	$0.00	$0.00	$0.00	$415.59	$0.00
Moderate	$0.00	$0.00	$0.00	$608.98	$0.00
Low	$1.16	$6.38	$7.72	$185.18	$0.08
Very low	$0.00	$0.00	$0.51	$1,088.77	$0.00

POF = Probability of failure COF = Consequence of failure

Table 69 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 69: Transportation Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$1.16	0.04%
L	Low (L)	$6.89	0.21%
M	Moderate (M)	$1,281.67	39.33%
H	High (H)	$1,024.65	31.44%
VH	Very high (VH)	$831.61	25.52%
	Unknown	$113.19	3.47%
	Total	**$3,259.17**	**100.00%**

9.5. Transportation Lifecycle Strategies

For linear assets managed by Transportation Services, risks relating to infrastructure failure are mitigated through inspection and maintenance programs. These provide the necessary data to identify the work required to achieve the established LOS. Risk assessment, annual inspection programs and daily operational inspections drive asset renewal. The strategy for managing facilities-related assets concentrates on utilizing lifecycle activities to achieve cost-effective and sustainable management of building resources. Overall, Transportation assets are generally in good shape and sufficiently meet the demands of the current service level. The Region's methodology aims to preserve the condition and functionality of its Transportation assets to ensure that customer service standards remain intact.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12, which describes lifecycle asset categories.

Transportation asset management team applies a proactive approach for maintenance planning, condition assessment, and renewal activities. Assessing the condition of these assets guide necessary lifecycle adjustments. To support this, the division audit asset data to ensure accuracy and implement standardized classifications for lifecycle activities. However, inconsistent capital and operating funding limits the division’s ability to execute timely asset renewals, which are critical to sustaining service levels. In response, the division continues to review assets and operations to prioritize interventions to optimize the use of limited available funds.

9.6. Transportation Financial Strategy

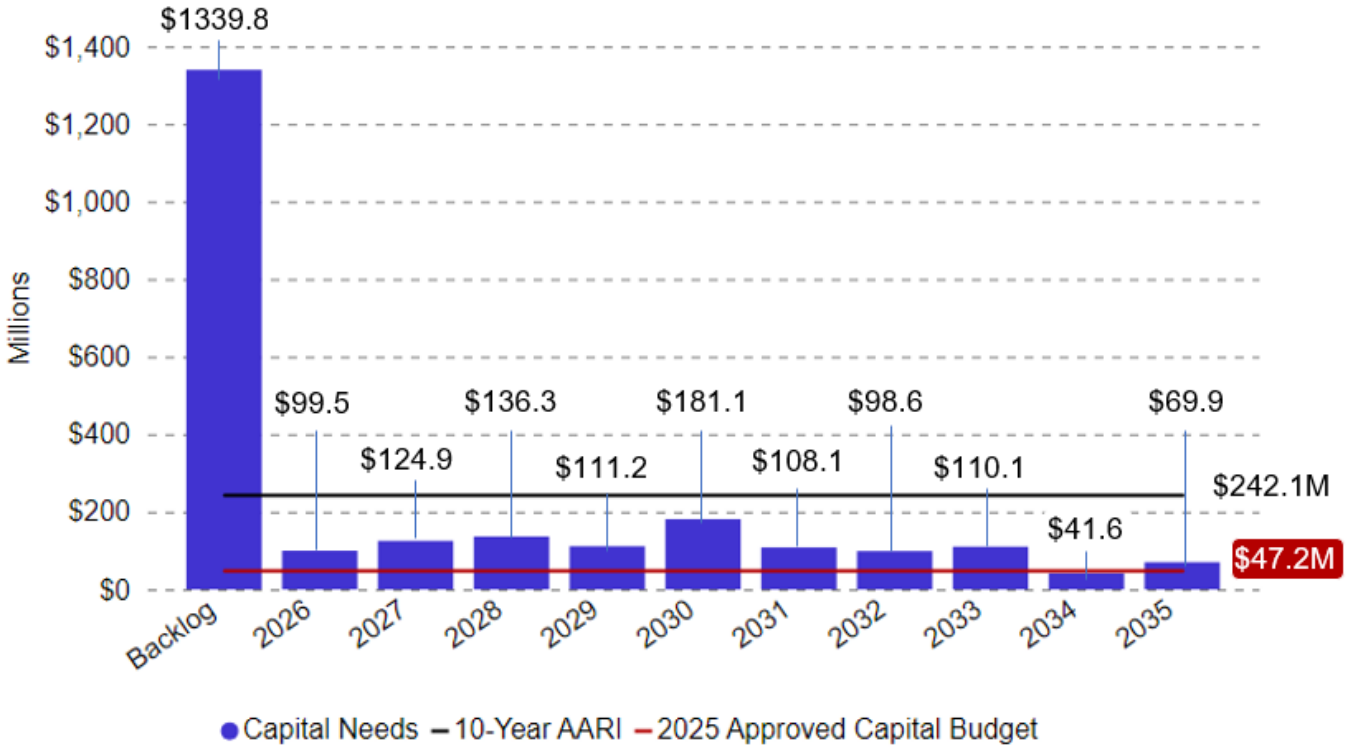
For linear assets, the renewal forecast is based on Useful Expected Life (UEL) and associated capital maintenance data. The lifecycle analysis focuses on extending asset life span as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The asset class, previous rehabilitation and construction projects, current condition, age, and the UEL determine the timing of renewal activities in the forecast. The estimated UEL included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement.

Figure 28 illustrates that Transportation assets will require an average annual renewal investment (AARI) of $242.09 million from 2026 to 2035 to maintain operations and service levels. This equates to a capital requirement of $2,420.94 million over the 10-year period, which includes:

- $1,081.18 million in projected capital needs for 2026-2035
- $1,339.77 million in deferred capital spending backlog

The 10-year AARI represents 7.43% of the total Transportation's asset replacement value, which is estimated at $3,259.2 million. For comparison, the 50-year AARI is forecasted to be $138.72 million, as the backlog would be spread over a more extended period. The approved capital budget for 2025 is $47.19 million. Note that the division's annual capital budget allocation can fluctuate, and this figure is not intended to imply a guaranteed annual amount moving forward, rather, it highlights the disparity between the most recent allocated budget and the required average annual renewal investment of $242.09 million. However, further analysis is necessary to understand sustainability and affordability and the impact of financial pressure, rising costs, and inflation on future projects and infrastructure development.

Figure 28: Transportation AARI and Forecasted Capital Needs



9.6.1. Transportation Cost to Deliver Service

The cost-of-service delivery for Transportation includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for Transportation is presented in Table 70.

Table 70: Transportation Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$16.37
Utilities	$0.89
Operating & maintenance	$10.56
Program specific	$59.72
Capital reserve transfers	$36.37
Debt charges	$17.82

9.7. Transportation 2022 Development Charge Background Study Projects

Table 71 is a summary of the growth projects identified in the 2022 Development Charge Background Study (2022 DCBS) based on the underlying assets and expected timing of the projects and Table 72 lists the projects closed between 2022 and 2024.

Table 71: Transportation Infrastructure Costs in the DC Calculation

Increased service needs attributable to anticipated development	Timing	Gross capital cost estimate ($ million)	Net cost funded by Region. ($ million)	Other funding sources ($ million)	Potential DC cost recovery ($ million)
Active transport	2022-2026	$12.2	$9.1	$0.0	$3.1
Active transport	2022-2031	$11.7	$8.8	$0.0	$2.9
Active transport	2027-2036	$12.2	$9.1	$0.0	$3.1
Annual programs	2022-2041	$459.5	$392.3	$0.0	$67.2
New bridge	2032-2041	$112.5	$11.2	$0.0	$101.3
Bridge reconstruction	2022-2031	$91.4	$74.4	$0.5	$16.5
Culvert reconstruction	2022-2031	$3.7	$2.9	$0.0	$0.8
Intersection improvement	2022-2026	$44.0	$2.5	$0.0	$41.5
Intersection improvement	2027-2041	$31.5	$15.7	$0.0	$15.8
Capacity Improvements	2022-2031	$970.0	$405.3	$3.3	$561.4
Capacity Improvements	2031-2035	$22.5	$8.0	$0.0	$14.5
Capacity Improvements	2036-2041	$43.4	$28.2	$0.0	$15.2
Studies	2022-2031	$4.2	$0.2	$0.0	$4.0
Studies	2022-2041	$13.1	$1.3	$0.0	$11.8

Table 72: The DC Portion of Transportation Capital Projects Completed Between 2022 and 2024, as Identified in the DC Study

Increased service needs attributable to anticipated development	Closed Year	Total cost ($ million)
Road Capacity Improvement	2022	$1.58
Road Capacity Improvement	2023	$0.49
Road Capacity Improvement	2024	$1.84
Intersection Improvement	2024	$0.36
Bridge Reconstruction	2022	$5.94
Annual Program	2023	$0.03
Annual Program	2024	$0.08

Fleet

10. Fleet

10.1. Introduction

Fleet Services includes providing a full range of vehicle and equipment services including maintenance and repair, disposal, and acquisition for internal Regional divisions except for Emergency Medical Services and Niagara Regional Police Services. Fleet Services uses three asset categories: fleet vehicles, equipment, and buildings and facilities. In this section, “Fleet” as an asset category refers specifically to the vehicles used by Fleet Services and should not be confused with the Fleet Services division as a whole. Metrics such as replacement value, age, and condition for “Fleet” apply only to vehicle assets and do not represent the full scope of Fleet Services operations. Assets utilized to provide the services are summarized in Table 73.

Table 73: Assets Used to Provide Fleet Services

Asset Description	Count
Vehicles	223 units
Equipment	107 units
Buildings and Facilities	1 unit

The delivery of fleet services is primarily driven by the Regions’ service requirements. Relevant legislation and regulations provide additional guidance, outlining specific business operating constraints and unit operation requirements that inform service delivery. Other legislation and documents that guide service delivery include the: following:

- O. Reg. 424/97: Commercial motor vehicle operators' information
- Highway Traffic Act
- Environmental Protection Act R.S.O. 1990

10.2. Fleet Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Most of the drivers for Fleet result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Legislation
- Growth
- Technology

10.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in the population of Niagara will place significant pressure on the capacity of existing assets and create demand for new assets. The Region has updated various master plans that outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to future state, including requirements for new, expanded, and enhanced assets.

10.3. Fleet Levels of Service

Table 74 summarizes information on customer and technical measures for levels of service (LOS) that relate to the operation, maintenance, and renewal of assets for the sustainment of Fleet's current LOS.

The current levels of service for Fleet assets will be maintained as the proposed levels of service through 2034 for customer LOS, whereas technical LOS will require further review to assess the impact, which will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risks on operations and capital budgets while incorporating the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by Fleet assets annually. This will allow for the adjustment of proposed service levels in the future.

Table 74: Fleet Services Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer / Community	Reliability	Facilities are maintained to an appropriate standard and are safe and accessible.	Compliant	Maintain Standard
Effective Region	Technical	Reliability	Facility condition index (% of deferred maintenance of overall facility replacement cost)	3.84%	N/A
Effective Region	Technical	Reliability	Fleet assets utilization rate	95%	Maintain Standard
Effective Region	Technical	Reliability	Fleet assets planned maintenance percentage	65%	Maintain Standard

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Green and Resilient Region	Technical	Reliability	Carbon emission rate meets Ontario Drive ON Emission Requirements	100%	Maintain Standard

10.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on the Fleet are as follows:

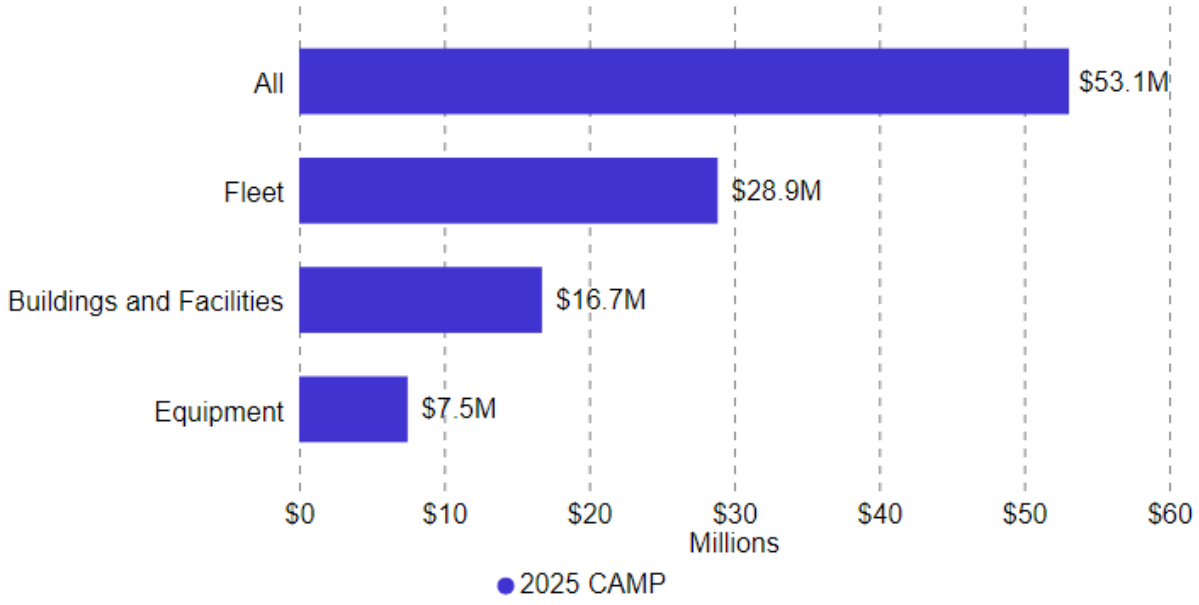
- O. Reg. 424/97: Commercial motor vehicle operators' information
  - The Ministry of Transportation has developed an annual renewal program whereby Commercial Vehicles Operators Registration (CVOR) holders must update their operating information annually.
- Highway Traffic Act
- Environmental Protection Act R.S.O. 1990
  - The purpose of this Act is to provide for the protection and conservation of the natural environment. The Act makes provisions for improved air, water, and land pollution control by regulating waste management and emissions control.
  - This Ontario regulation describes the rules for operating vehicles on public roads, including the types of operators, drivers, and loads.

10.4. Fleet State of Infrastructure

10.4.1. Fleet Asset Inventory and Replacement Cost

The first step for the Region in developing the Fleet Services section under the CAMP is to understand the assets it currently owns. As illustrated in Figure 29 The estimated replacement value under Fleet Services is $53.09 million. The vehicles and equipment account for $28.86 million and $7.48 million, respectively. However, the value of buildings and facilities assets is $16.75 million, primarily for the replaceable items within the buildings and facilities, not the structure itself. The Fleet Services division utilizes the buildings and facilities in this section; however, they are managed by the Facilities division, which is responsible for capital requests and oversight.

Figure 29: Fleet Inventory and Replacement Cost



10.4.2. Fleet Asset Age Distribution

Figure 30 and Table 75 summarize the average age and useful expected life (UEL) of the assets used to provide fleet services, weighted by their replacement value. The average age of a vehicle nearly approaches the useful expected life (UEL), and the average age of equipment has succeeded UEL.

The average age of these replaceable facility assets is more than one-third of their average useful expected life (UEL). It's important to note UEL in Figure 30 represents replaceable items within Fleet buildings and facilities. The building structures and foundations generally have an estimated useful life of approximately 70 to 100 years.

Figure 30: Fleet Average Age by Asset Category

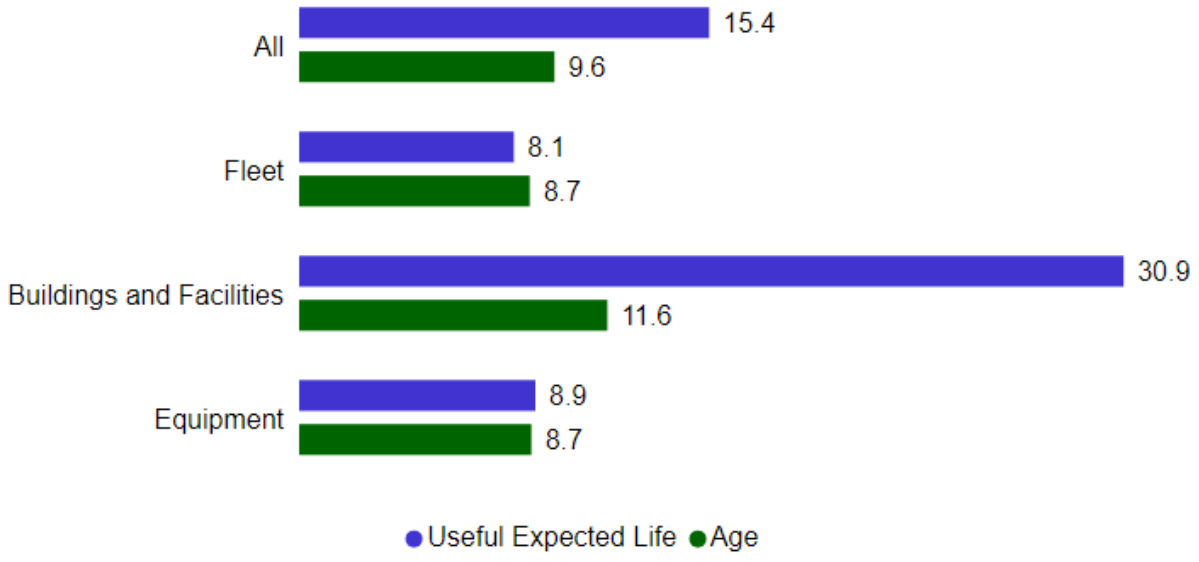


Table 75: Fleet Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Fleet	8.7	8.1	-0.6
Buildings and Facilities	11.6	30.9	19.4
Equipment	8.7	8.9	0.2
Total	**9.6**	**15.4**	**5.8**

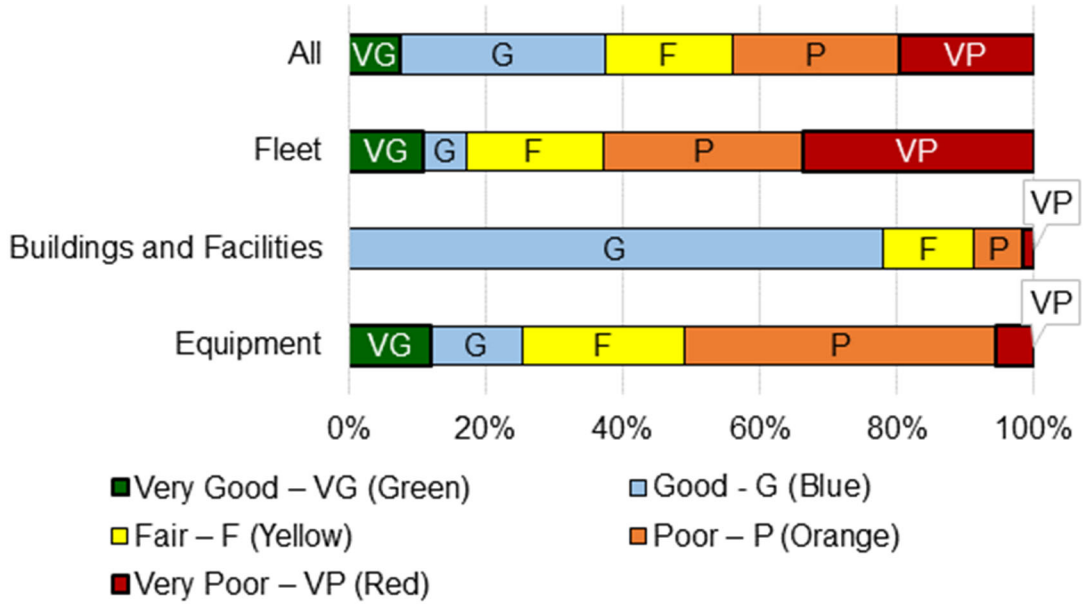
10.4.3. Fleet Asset Condition

Figure 31 visually illustrates the average condition of Fleet vehicles, equipment, and facility assets on a very good to very poor scale. The condition of vehicles and equipment is based on the annual condition assessments undertaken. However, the condition of the buildings and facilities in the Fleet Services section is based on Building Condition Assessments (BCAs) undertaken between 2022 and 2023.

Fleet Services' assets are overall rated as fair, with 55.92% rated as fair, good, or very good. However, a closer examination of the asset categories reveals a nuanced picture. Fleet vehicles and Equipment are in relatively poor condition, with 62.81% and 50.98% of assets by replacement value, respectively, rated as poor or very poor. In contrast, Buildings and Facilities are generally in better condition, with 91.29% of assets by replacement value rated as fair,

good, or very good. The condition of Fleet Service assets, weighted by replacement value, is summarized by asset category in Figure 31 and Table 76.

Figure 31: Fleet Asset Condition as % of Value.



As part of its regular operational process, Fleet Services performs annual vehicle and equipment condition assessment to ensure its assets are maintained at the stated service levels. One of the challenges in maintaining assets in good repair is the unpredictability of operating and capital funding from year to year. This inconsistency in available funding limits the division's ability to proactively address asset needs and keep them in a state of good repair.

Table 76: Fleet Asset Condition as % of Value

Condition rating (colour indicator)	Fleet	Buildings and Facilities	Equipment	Total
Very Good – VG (Green)	10.94%	0.0%	12.10%	7.65%
Good - G (Blue)	6.24%	78.0%	13.18%	29.84%
Fair – F (Yellow)	20.01%	13.3%	23.74%	18.43%
Poor – P (Orange)	29.10%	7.1%	45.47%	24.47%
Very Poor – VP (Red)	33.71%	1.6%	5.51%	19.61%

10.4.4. Fleet Risk

Table 77 is a standardized risk matrix that represents assets with their current replacement cost according to the risk of asset failure. The risk assessment in Table 77 and Table 78 provide a

high-level evaluation based on the weighted replacement value of assets and their percentages. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for the assets in the Fleet division. It is essential to emphasize that this does not relate to operational services risk.

Table 77: Fleet Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.00	$20.14	$0.39	$0.00
High	$0.00	$0.00	$2.99	$0.00	$0.00
Moderate	$0.00	$0.00	$5.39	$0.28	$0.00
Low	$0.45	$5.26	$6.88	$5.04	$0.14
Very low	$0.00	$0.14	$5.44	$0.55	$0.00

POF = Probability of failure COF = Consequence of failure

Table 78 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 78: Fleet Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$0.60	1.13%
L	Low (L)	$10.70	20.16%
M	Moderate (M)	$17.86	33.64%
H	High (H)	$23.54	44.34%
VH	Very high (VH)	$0.39	0.73%
	Total	**$53.09**	**100.00%**

10.5. Fleet Lifecycle Strategies

For vehicles and equipment managed by Fleet Services, risks relating to asset failure are mitigated through inspection and maintenance programs, which provide the necessary data to ensure that the work required to achieve the established LOS is identified. Asset renewal decisions are primarily driven by asset condition index which is informed by a combination of annual condition assessment programs, daily operational inspections, and risk assessments. Overall, assets used to provide fleet services, specifically the fleet vehicles and equipment are

generally in poor shape and require further investment to ensure they can sufficiently meet the demands of the current service level. The Region's methodology aims to preserve the condition and functionality of its assets at a level to ensure that service standards for customers remain intact.

To fulfill its program goals and sustain service standards, the Region enhances existing assets to satisfy functional needs and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12 on page no 49. They are influenced by the service levels detailed in Section 3 (page no 30) and the necessity of managing the associated Fleet Services risks using the same risk strategies and methodology discussed in Section 4.5 (page no 47).

10.6. Fleet Financial Strategy

For Fleet assets, the renewal forecast is based on Useful Expected Life (UEL) and associated capital maintenance data. The lifecycle analysis focuses on extending the asset life span as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The estimated UEL included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement.

Figure 32 illustrates that the Fleet assets will require an average annual renewal investment (AARI) of $6.54 million from 2026 to 2035 to maintain operations and service levels. This equates to a total capital requirement of $65.39 million over the 10-year period, which includes:

- $49.80 million in projected capital needs for 2026-2035
- $15.59 million in deferred capital spending backlog

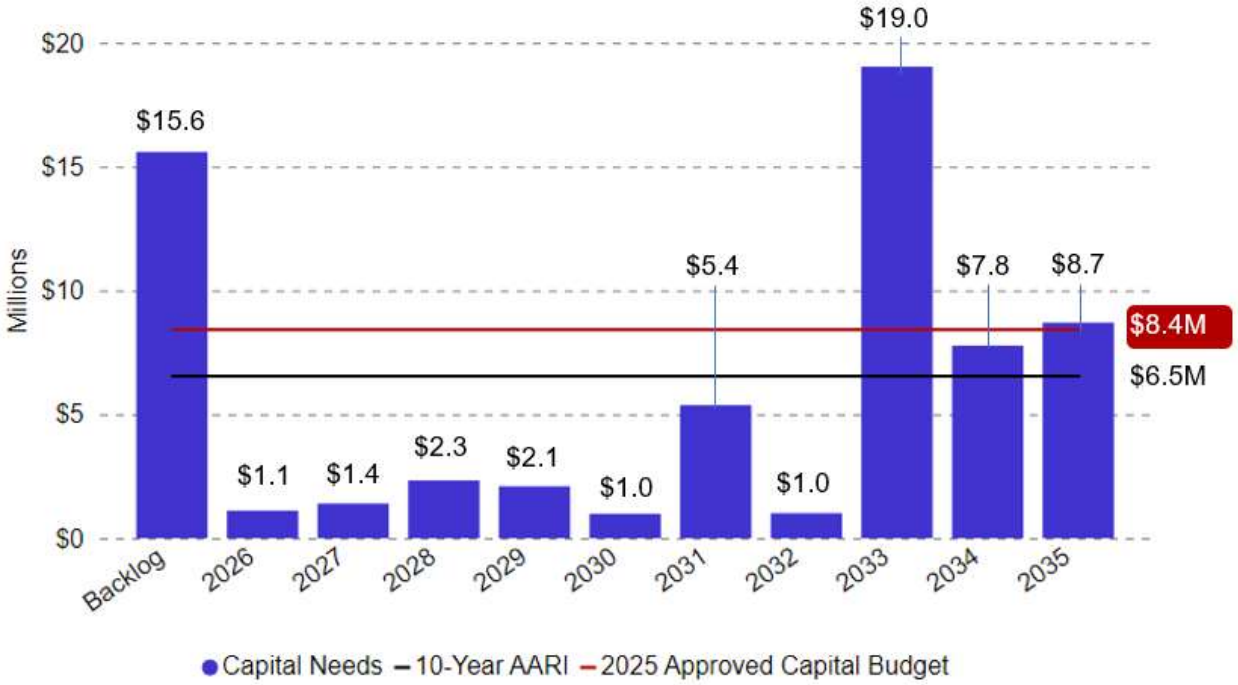
The 10-year AARI represents 12.32% of the total Fleet asset replacement value, which is estimated at $53.09 million. For comparison, the 50-year AARI is forecasted to be $5.01 million, as the backlog would be spread over a more extended period. However, it is important to consider the nature of Fleet assets: Fleet vehicles has an average UEL of 8.1 years and Equipment has an average UEL of 8.9 years, while both categories currently have an average age of 8.7 years evidencing that these assets have already exceeded their useful life and are operating in their final stages. Deferring investment over a longer timeline may not be advisable, as it increases the risk of asset failure and can lead to unplanned service disruptions.

The approved capital budget for 2025 is $6.54 million. Note that the division's annual capital budget allocation can fluctuate, and this figure is not intended to imply a guaranteed annual amount moving forward, rather, it highlights the disparity between the most recent allocated

budget and the required average annual renewal investment of $8.41 million. However, further analysis is necessary to understand sustainability and affordability and the impact of financial pressure, rising costs, and inflation on future projects and infrastructure development.

Figure 32 illustrates the anticipated 2026-2035 revenue derived from an analysis of all the Fleet assets.

Figure 32: Fleet AARI and Forecasted Capital Needs



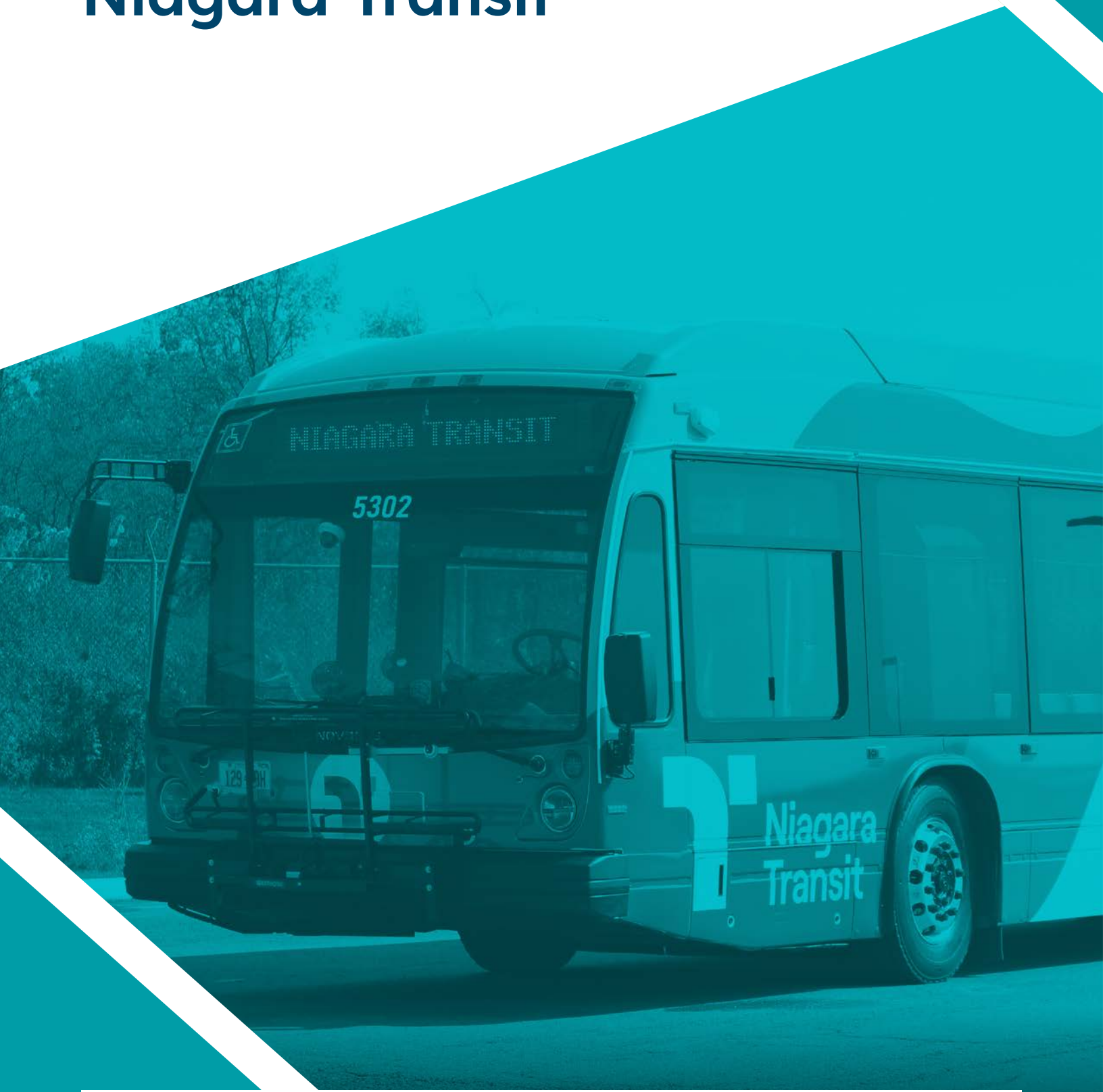
10.6.1. Fleet Cost to Deliver Service

Fleet's service delivery cost includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for Fleet is presented in Table 79.

Table 79: Fleet Summary of Costs to Deliver Services

Area of expenditure	2025 budget (in millions)
Staffing	$2.10
Utilities	$0.00
Operating & maintenance	$3.66
Program specific	$6.79
Capital reserve transfers	$6.42

Niagara Transit



11. Niagara Transit Commission

11.1. Introduction

The creation of the Niagara Transit Commission (NTC) on May 27, 2022, marked a significant moment in the Region's history. This collaborative initiative among the Niagara Region and its 12 local municipalities aims to transform the transit landscape by establishing an integrated system to improve access to employment and services while stimulating economic growth.

The Regional Council officially established the Niagara Transit Commission as a municipal service board through By-law No. 2022-38, which was passed on May 26, 2022, under the Municipal Act. The composition of the Transit Commission board reflects a commitment to local representation, as it includes members from both Regional and Local Municipal Councils. This ensures that all municipalities have a voice in this transformative project, reassuring the Niagara community. Effective January 1, 2023, the Transit Commission was responsible for all Niagara public transit routes and services except WEGO. Assets utilized to provide the services are summarized in Table 80.

Table 80: Assets Used to Provide NTC Services

Asset Description	Count
Transit Vehicles	226 units
IT devices	1129 units
Fleet-related equipment	56 units
Transit facilities	3 units
Transit terminal	1 unit
Bus stops	1835 units

The Transit Commission and Regional Council, through reporting updates and the Transit Commission’s vision, mission, and strategic core values, provide direction for service delivery. The mission statement is to provide safe, reliable, and sustainable service in Niagara. Other legislation and documents that guide service delivery include the following:

- Niagara Region By-Law 2022-38- Establish the Niagara Transit Commission as a Municipal Service Board
- Niagara Region Transit Governance Study
- Niagara Region Transportation Master Plan
- Niagara Region Transportation Master Plan – Transit strategy technical paper

- Niagara Transit Service Delivery and Governance Strategy
- Niagara Specialized Transit Study
- Inter-Municipal Transit Service Implementation Strategy

11.2. NTC Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Most of the drivers for the NTC result in changes to operational requirements and assets needed to support the service. These key drivers include:

- Population change
- Legislation and upper levels of government
- Social issues and trends
- Customer expectations
- Economic factors
- Other service provider changes
- Asset management

11.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. NTC is completing its first consolidated Transit Master Plan, which will help guide the future direction of transit in the Niagara Region. The Niagara Transit Master Plan is anticipated to be completed in the summer of 2025, and it will outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to the future service levels, including requirements for new, expanded, and enhanced assets.

11.3. NTC Levels of Service

Table 81 summarizes customer and technical measures for levels of service (LOS) related to the operation, maintenance, and renewal of assets to sustain NTC's current LOS.

The current levels of service for NTC assets will be maintained as the proposed levels of service for customer LOS, whereas technical LOS will require further review to assess the impact, which will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risks on operations and capital budgets while incorporating the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service

provided by Fleet assets annually. This will allow for the adjustment of proposed service levels in the future.

Table 81: NTC Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Technical	Scope	Accessible ridership – annual specialized transit ridership	119,000	N/A
Effective Region	Technical	Scope	Accessible ridership - annual total ridership (inclusive of specialized)	10.9 million	N/A

11.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical. Some examples of regulations and their impact on NTC are as follows:

- Environmental Protection Act R.S.O. 1990
  - The purpose of this Act is to provide for the protection and conservation of the natural environment. The Act makes provisions for improved air, water, and land pollution control by regulating waste management and emissions control.
- Highway Traffic Act
  - This Ontario regulation describes the rules for operating vehicles on public roads, including the types of operators, drivers, and loads.
- O. Reg. 424/97: Commercial motor vehicle operators' information
  - The Ministry of Transportation has developed an annual renewal program whereby Commercial Vehicles Operators Registration (CVOR) holders must update their operating information annually.

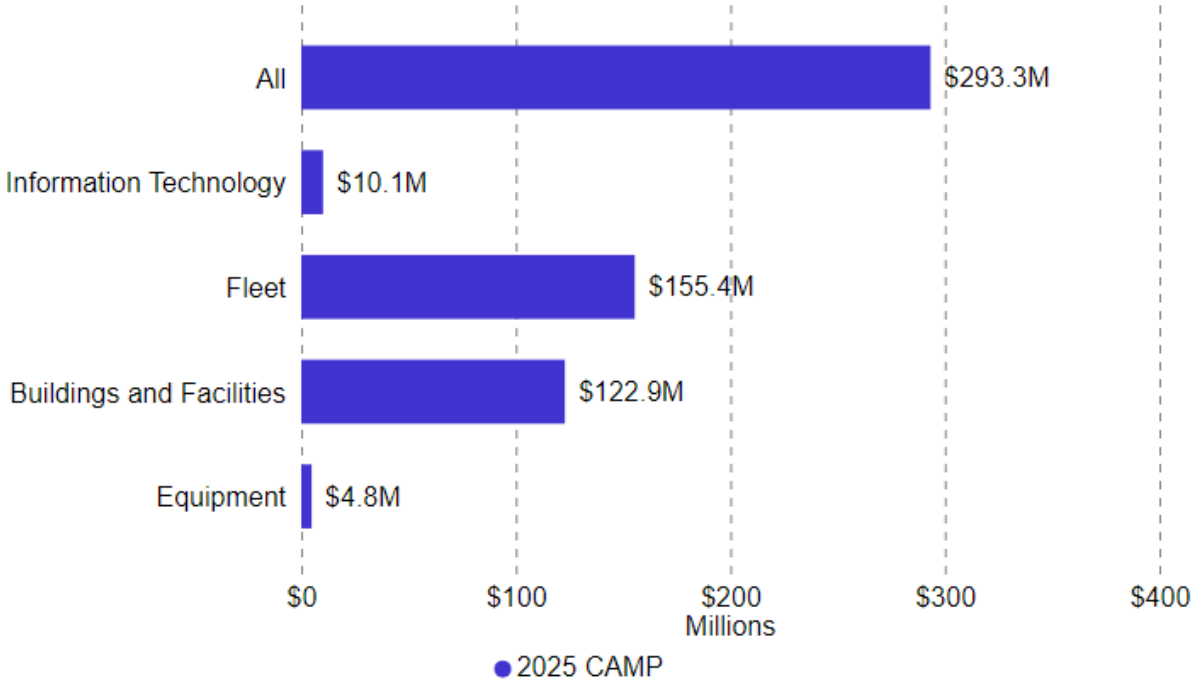
11.4. NTC State of Infrastructure

11.4.1. NTC Asset Inventory and Replacement Cost

The first step for the Region in developing the NTC section under the CAMP is to understand the assets it currently owns. As illustrated in Figure 33 the estimated replacement value under NTC is $293 million. The fleet, equipment, and IT, account for $155.4 million, $4.8 million and $10.1 million, respectively. However, the value of buildings and facilities assets is $122.9 million, primarily for the replaceable items within the buildings and facilities, not the structure

itself. NTC utilizes the buildings and facilities in this section; however, they are managed by the Facilities division, which is responsible for capital requests and oversight.

Figure 33: NTC Inventory and Replacement Cost (in $ million)



11.4.2. NTC Asset Age Distribution

Figure 34 and Table 82 summarizes the average age and useful expected life (UEL) of the assets used to provide transit services, weighted by their replacement value. The average age of NTC assets nearly approaches the useful expected life (UEL), except for the average age of equipment with a relative remaining UEL.

The average age of these replaceable facility assets is more than one-third of their average useful expected life (UEL). It's important to note that UEL in Figure 34 represents replaceable items within NTC buildings and facilities. The building structures and foundations generally have an estimated useful life of approximately 70 to 100 years.

Figure 34: NTC Average Age by Asset Category

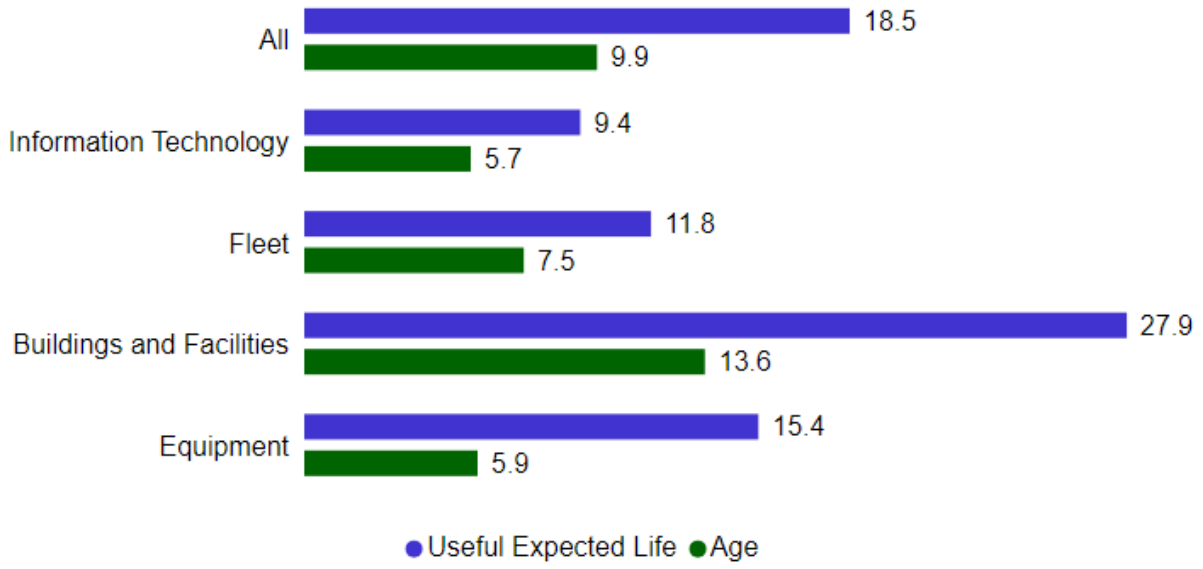


Table 82: NTC Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Fleet*	7.5	11.8	4.3
Information Technology	5.7	9.4	3.7
Equipment	5.9	15.4	9.5
Buildings and Facilities	13.6	27.9	14.3
Total	9.9	18.5	8.6

*For additional context, the average age of fleet sub-asset categories is provided in Table 83 below.

Table 83: NTC Average Age by Fleet Sub-Category

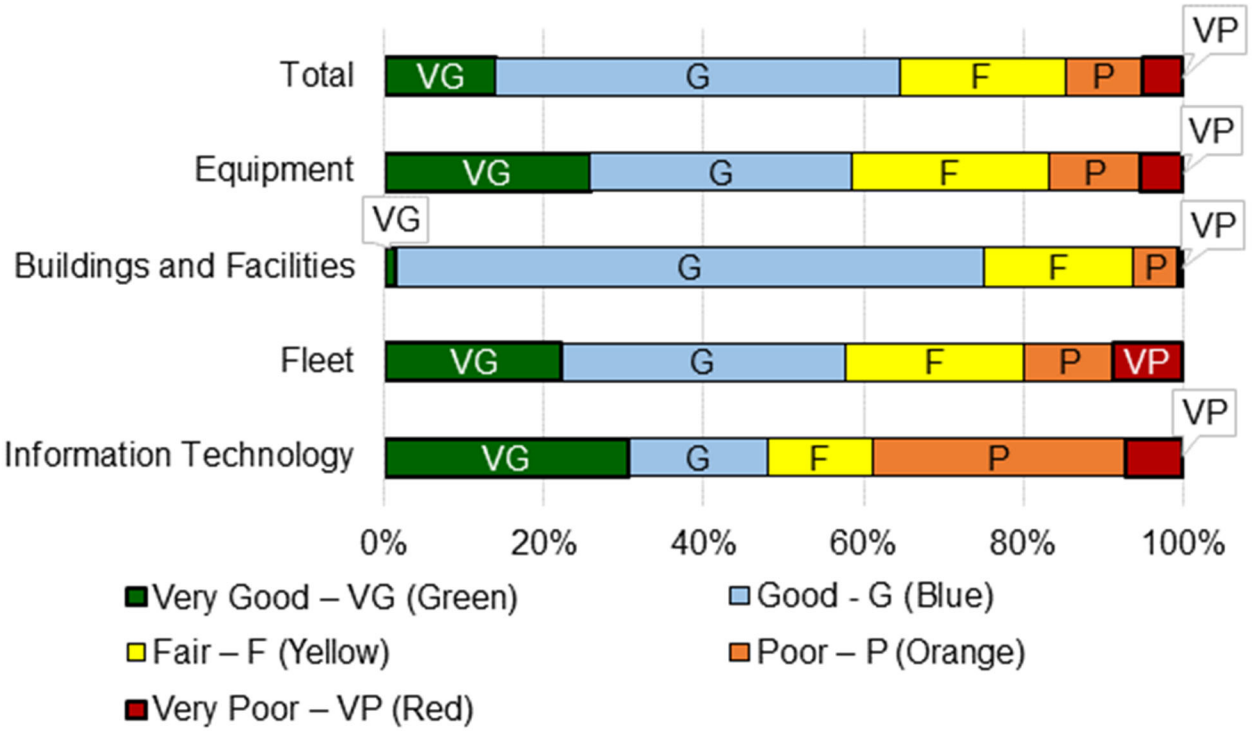
Fleet Sub-category	Average Age	Average UEL	Average Remaining Life
Conventional	7.5	12.0	4.5
Specialized	6.0	8.0	2.0
Non-revenue	7.0	8.0	1.0
Fleet All	7.5	11.8	4.3

11.4.3. NTC Asset Condition

Figure 35 visually illustrates the average condition of NTC fleets, equipment, buildings and facilities assets on a very good to very poor scale. The condition of the fleet and equipment is based on various methodologies such as asset age, staff assessment, and mileage assessment undertaken in 2024. However, the condition of the buildings and facilities used to deliver service in NTC is based on Building Condition Assessments (BCAs) undertaken between 2022 and 2023.

NTC assets are rated as fair, with 85.28% rated as fair, good, or very-good. The condition of NTC assets, weighted by replacement value, is summarized by asset category in Figure 35 and Table 84

Figure 35: NTC Asset Condition as % of Value.



The NTC team regularly monitor the average condition of all assets to ensure that they continue providing an acceptable service level. If the average condition declines, the NTC team reassess the asset lifecycle management strategy. This assessment identifies the appropriate combination of maintenance and replacement activities needed to enhance the overall condition of assets. Furthermore, Useful Expected Life (UEL) is reviewed periodically to determine if adjustments are necessary to align with the actual service life.

Table 84: NTC Asset Condition as % of Value

Condition rating (colour indicator)	Information Technology	Fleet	Buildings and Facilities	Equipment	Total
Very Good – VG (Green)	30.62%	22.28%	1.46%	25.74%	13.90%
Good - G (Blue)	17.33%	35.45%	73.57%	32.82%	50.75%
Fair – F (Yellow)	13.12%	22.40%	18.84%	24.72%	20.63%
Poor – P (Orange)	31.88%	11.23%	5.58%	11.37%	9.58%
Very Poor – VP (Red)	7.05%	8.64%	0.55%	5.34%	5.14%

11.4.4. NTC Risk

Table 85 is a standardized risk matrix that presents NTC's assets with their current replacement value according to the risk of asset failure. The risk assessment in Table 85 and Table 86 provide a high-level evaluation based on the weighted replacement value of assets and their percentages. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for NTC assets. It is essential to emphasize that this does not relate to operational services risk.

Table 85: NTC Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.02	$12.39	$0.00	$0.00
High	$0.00	$6.89	$7.34	$0.01	$0.00
Moderate	$0.00	$2.84	$134.64	$0.02	$0.01
Low	$9.71	$29.87	$60.54	$24.56	$0.13
Very low	$0.00	$4.22	$0.12	$0.00	$0.00

POF = Probability of failure COF = Consequence of failure

Table 86 represents the percentage of total asset replacement value according to the risk of asset failure.

Table 86: NTC risk exposure summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$13.93	4.75%
L	Low (L)	$29.99	10.22%
M	Moderate (M)	$229.47	78.24%
H	High (H)	$19.91	6.79%
VH	Very high (VH)	$0.00	0.00%
	Total	**$293.30**	**100.00%**

11.5. NTC Lifecycle Strategies

NTC's lifecycle asset strategies (LAS) involve replacing assets at the end of UEL, which is informed by manufacturer recommendations and studies when available, such as building condition assessments for facilities. For fleet and equipment managed by NTC, risks relating to asset failure are mitigated through inspection and maintenance programs, which provide the necessary data to ensure that the work required to achieve the established LOS is identified. Risk assessment, annual inspection programs, and daily operational inspections drive asset renewal or replacement decisions. Overall, assets used to provide transit services are generally in good shape and sufficiently meet the demands of the current service level. The Region's methodology aims to preserve the condition and functionality of its assets to ensure that service standards for customers remain intact.

To fulfill its program goals and sustain service standards, the Region enhances existing assets to satisfy functional needs and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12 in page no 49. They are influenced by the service levels detailed in Section 3 (page no 30) and the necessity of managing the associated Transit Services risks using the same risk strategies and methodology discussed in Section 4.5 (page no 47).

The transit services asset management team incorporate strong planning for operations, maintenance, condition assessment, and active interventions in climate change considerations in new acquisition, construction, maintenance, and renewal activities. Assessing the vulnerability of these assets will guide necessary lifecycle adjustments. The Transit team audits asset data to keep information current and introduce classifications for lifecycle activities. Capital investments in existing assets is also documented in the corresponding asset data. Additionally, Transit team capture annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to assess performance against targets.

11.6. NTC Financial Strategy

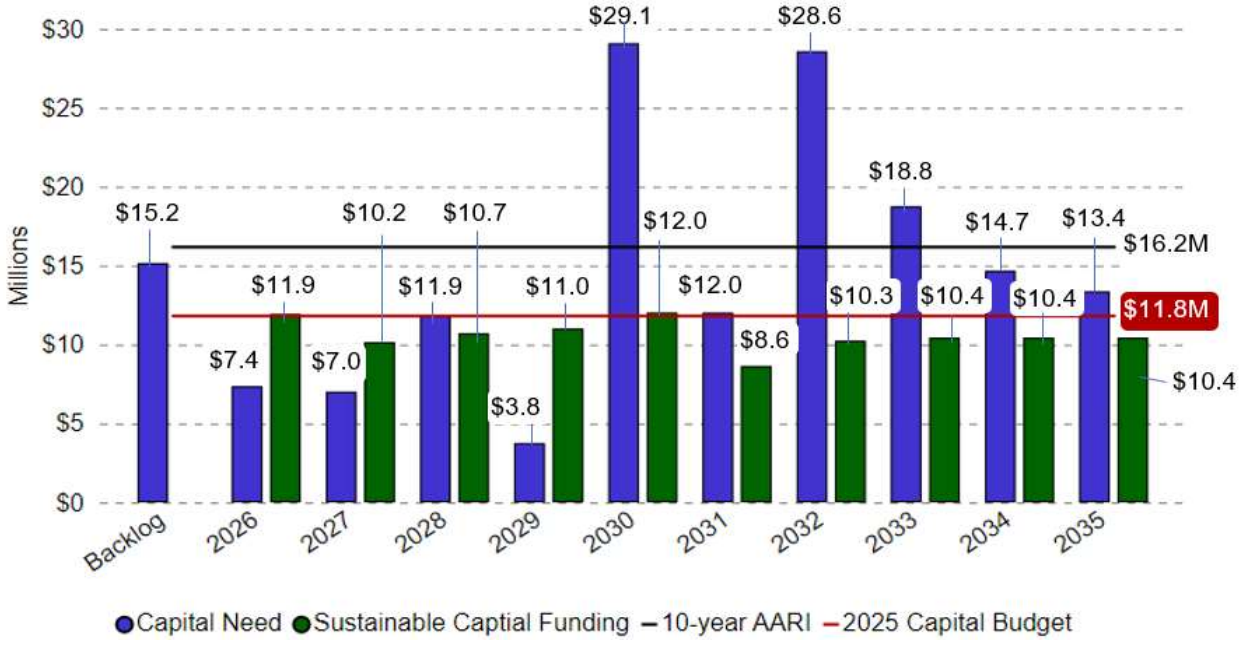
For NTC assets, the renewal forecast is based on Useful Expected Life (UEL) and associated capital maintenance data. The lifecycle analysis focuses on extending the asset life span as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The asset class, previous rehabilitation and construction projects, current condition, age, and the UEL determine the timing of renewal activities in the forecast. The estimated UEL included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement.

Figure 36 illustrates that the Transit assets will require an average annual renewal investment (AARI) of $16.17 million from 2026 to 2035 to maintain operations and service levels. This equates to a total capital requirement of $161.68 million over the 10-year period, which includes:

- $146.52 million in projected capital needs for 2026-2035
- $15.16 million in deferred capital spending backlog

The 10-year AARI represents 5.51% of the total Transit asset replacement value, which is estimated at $293.3 million. For comparison, the 50-year AARI is forecasted to be $15.17 million, as the backlog would be spread over a more extended period.

Figure 36: NTC AARI and Forecasted Capital & Sustainable Needs



Between 2026 and 2035, the total capital requirements are estimated to be $161.68 million, while the projected funding for sustainable capital needs is $106 million from all sources of

financing, including grants. It shows a considerable gap in maintaining existing infrastructure while also supporting the fostering growth priority by providing new infrastructure to support growth and economic development. However, further analysis is necessary to understand the impact on future projects and infrastructure development due to financial pressure, rising costs, and inflation.

11.6.1. NTC Cost to Deliver Service

The cost-of-service delivery for NTC includes operating expenses, capital expenditures and revenues. A summary of NTC's budget is presented in Table 87 below.

Table 87: NTC Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$47.61
Utilities	$0.94
Maintenance & operations	$16.43
Program specific	$22.49
Capital reserve transfers	$4.33
Debt charges	$2.16

Seniors Services

12. Seniors Services

12.1. Introduction

Seniors Services in the Niagara Region is dedicated to providing a wide array of healthcare services tailored to seniors' needs, whether they reside in Long-Term Care facilities, live independently in the community, or participate in adult day programs. This division supports over 1,300 individuals each year, ensuring they receive the care and services necessary to maintain their well-being and quality of life. Assets utilized to provide the services are summarized in Table 88. Long-term care Homes, Supportive Housing and residential equipment are categorized as Buildings and Facilities in the asset hierarchy and are reported as such in this section.

Table 88: Assets Used to Provide Seniors Services

Asset Description	Count
Long-Term Care Homes - Building	8 units
Deer Park Villa – Supportive Housing	1 unit
Long-Term Care Homes - Residential Equipment	2,165 units

The framework for delivering these services is built upon a foundation of provincial guidelines, legislation, and strategic directives set forth by the Niagara Region Council. The recently developed Seniors Services Strategic Plan 2024-2027 plays a central role in shaping the division's priorities and actions. This strategic plan emphasizes the importance of person-centred care, fostering a supportive and skilled workforce, ensuring safety, adopting innovative service delivery methods, and strengthening partnerships with the community.

In alignment with the Niagara Region's broader strategic priorities, the Seniors Services division supports the Council's vision of "Modern communities growing better together" and the mission of delivering service excellence through collaborative and innovative leadership. The division operates within a framework guided by principles such as diversity, equity, inclusion, Indigenous reconciliation, fiscal responsibility, innovation, sustainability, climate change, transparency, and accountability.

To guide its operations, Seniors Services relies on several key documents:

- The Seniors Services Strategic Plan 2024-2027: Outlines a vision for the future, focusing on enhancing care through integrating new technologies, prioritizing the safety and well-being of residents, and promoting continuous learning and development among staff.

- The Long-Term Care (LTC) Home Renewal Strategy ensures that the region's care facilities comply with current standards and are equipped to provide residents with a safe and comfortable environment.
- The Quality Improvement Program (AD04-002): Integral to maintaining high standards in service delivery, this program includes a structured approach to planning and improving services, ensuring that all actions align with the division's strategic goals and the community's needs.
- Furthermore, the Seniors Services division's objectives align with the broader goals of Niagara Region's Council Strategic Priorities for 2023-2026, including delivering fiscally responsible and sustainable core services, building resiliency into regional infrastructure, ensuring inclusivity and safety in the community, and supporting economic prosperity by creating a region where businesses and communities can thrive.

12.2. Seniors Services Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. The drivers for senior services result in changes to operational requirements and the assets required to support the service. These key drivers include:

Population and demographics

- Legislation and Regulatory Requirements
- Organizational goals and objectives
- Risk reduction of Communicable Diseases, Public Health Significance, Epidemics
- Operational efficiency
- Customer expectations
- Other service providers
- Emergency Preparedness
- Environmental and Sustainability Goals
- Facility Aging and Condition

In addition, the demand for service change is managed through several means, including demand studies and optimization exercises. Some of these business improvement studies are listed below:

- Collaboration on Built Environment Research in LTC
- Seniors Facilities MMS Maintenance Care Project

- Dietary Department Efficiency Study
- Essential Laundry Continuous Improvement Review
- Region of Niagara Long-Term Care (LTC) Home Redevelopment March 2018 (alternative service delivery)

12.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. The Region's current master plans outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to the future state, including requirements for new, expanded, and enhanced assets.

Table 89 lists forecasted capital projects for senior services required to address these growth or enhancement needs. For additional information on growth-related projects, please see the section 12.7 (page no 181).

Table 89: Seniors Services Forecast Asset Portfolio Growth and Enhancement Projects

Asset class	Growth or enhancement forecasted
Long-Term Care Facilities	Three of the Region’s Long-Term Care Homes are undergoing redevelopment under the Long-Term Care Home Renewal Strategy. Linhaven is currently under construction, while Gilmore Lodge and Upper Canada Lodge were transitioned to the new Gilmore facility in Q4 2024 to align with the Ministry of Health and Long-Term Care’s latest design standards.
Equipment	Expansion of Innovative Service Delivery Technology Integration: There is a clear emphasis on increasing the use of technology to enhance care delivery. This includes expanding residents' and clients' access to digital tools and leveraging data-driven decision-making to improve care outcomes. Digital Health Initiatives: Strengthening the use of digital health platforms to support residents in Long-Term Care and Community Programs is a significant area of focus.
Equipment	Sustainability and Environmental Initiatives Implementation of High-Efficiency Systems: There is an ongoing commitment to sustainability through the installation of ozone laundry systems, high-efficiency heating systems, and water-saving fixtures. These enhancements

Asset class	Growth or enhancement forecasted
	are expected to reduce energy and water consumption, contributing to environmental sustainability and operational cost savings. Expansion of Conservation Efforts: Building on the success of current sustainability initiatives, further upgrades to facilities, including more widespread adoption of green technologies and practices, are anticipated. This will align with broader regional goals of creating a more resilient and environmentally conscious community.
Equipment	Facility Upgrades and Long-Term Care Home Renewal Infrastructure Modernization: The Long-Term Care Home Renewal Strategy outlines plans for renewing and modernizing care facilities across the region. This will likely involve significant capital investments to upgrade existing facilities, ensuring they meet modern standards for safety, accessibility, and comfort. Capacity Expansion: To accommodate the growing needs of the aging population, the resident care equipment of Long-Term Care Homes and enhancements to supportive housing facilities may increase.

12.3. Seniors Services Levels of Service

Table 90 summarizes information on customer and technical measures of levels of service (LOS) that relate to the operation, maintenance, and renewal of assets to sustain Seniors Services' current LOS.

The current levels of service for Seniors Services assets will be maintained as the proposed levels of service for customer LOS, whereas technical LOS will require further review for impact that will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risk on operations and capital budgets while capturing the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by building and facilities assets annually. This will allow for the future adjustment of proposed service levels, recognizing that building and facility assets also include replaceable components essential for the associated service delivery.

Table 90: Seniors Services Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer	Reliability	Facilities are maintained to an appropriate standard and are safe and accessible.	Compliant	Maintain Standard
Prosperous Region	Customer	Reliability	Residents may live with dignity and in security, safety and comfort and have their physical, psychological, social, spiritual and cultural needs adequately met	Accreditation with Exemplary Standing. 92% Satisfaction (2020)	Maintain Standard
Effective Region	Technical	Reliability	Facility condition index (% of deferred maintenance of overall facility replacement cost)	4.7%	N/A
Green and Resilient Region	Technical	Environmental Stewardship	Annual electric energy usage per square foot	17 kWh/SF	N/A
Effective Region	Technical	Cost Efficiency	Reduction in the Operational cost for the Contracted services	$200,000	N/A
Green and Resilient Region	Technical	Environmental Stewardship	Annual natural gas consumption per square foot	26 ekWh/SF	N/A
Green and Resilient Region	Technical	Environmental Stewardship	Annual water consumption per resident client day	181 m3/resident Annual	N/A

12.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on senior services are as follows:

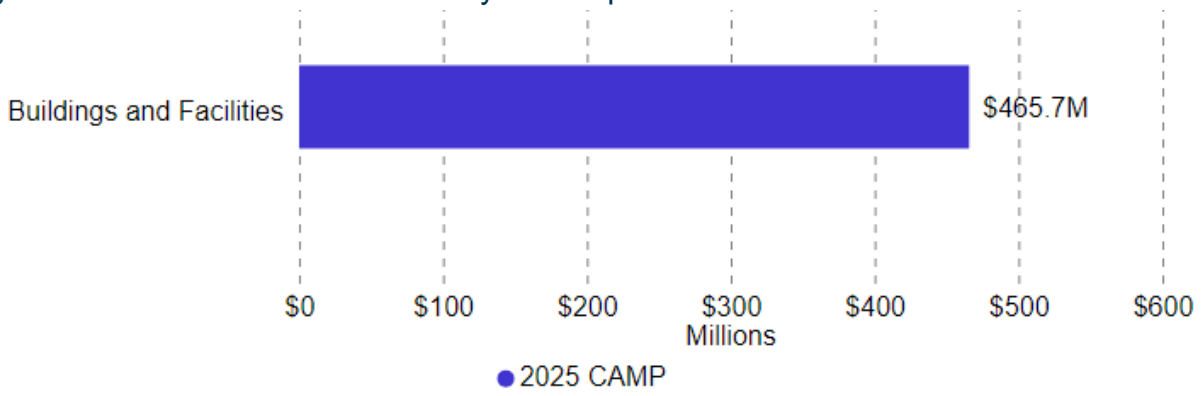
- Fixing Long-Term Care Act, 2021
  - Establishes mandatory care standards, including staffing ratios, resident rights, infection prevention, and quality improvement requirements.
- Ontario Fire Code & Building Code
  - Mandates fire safety measures, emergency preparedness, and structural requirements to ensure resident safety.
- Ministry of Long-Term Care Inspections & Compliance
  - Enforces standards related to medication management, infection control, staffing qualifications, and resident well-being.
- Occupational Health and Safety Act (OHSA)
  - Protects staff and residents by regulating workplace safety, equipment uses, and reporting requirements for hazards or incidents.
- Personal Health Information Protection Act (PHIPA)
  - Governs the collection, use, and disclosure of resident health information to maintain privacy and confidentiality.
- Food Premises Regulation
  - Ensures safe food handling, meal preparation, and dietary accommodations for residents.
- Long-Term Care Home Quality Inspection Program
  - Conducts compliance inspections and enforces corrective actions for homes that do not meet provincial standards.

12.4. Seniors Services State of Infrastructure

12.4.1. Seniors Services Asset Inventory and Replacement Cost

The first step for the Region in developing the Senior Services facilities section under the CAMP is to understand the assets it currently owns. As illustrated in Figure 37, the estimated cost of replacing the Senior Services assets is $465.7 million, which only accounts for the building's replaceable items and residential equipment within Long-Term Care Homes, including furniture and fixtures.

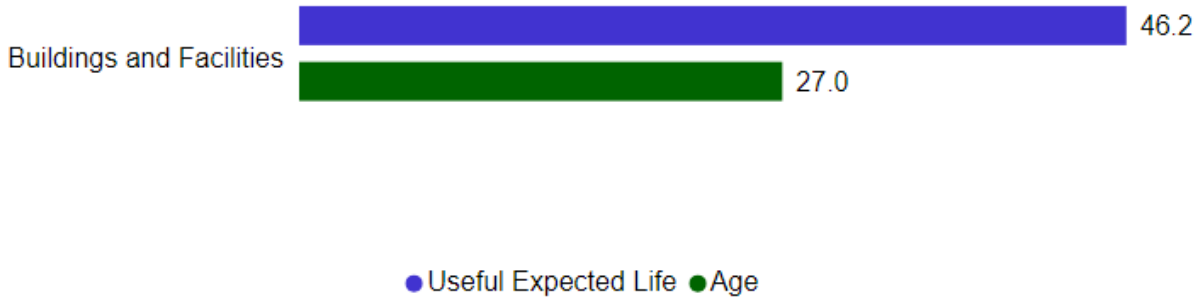
Figure 37: Seniors Services Inventory and Replacement Cost



12.4.2. Seniors Services Asset Age Distribution

Figure 38 summarizes the average age and useful expected life (UEL) of the senior services buildings and facility assets discussed in this report, weighted by their replacement value. The average age of these replaceable facility assets and residential equipment is over half their average useful expected life (UEL), which does not account for the entire building. Both Figure 38 and Table 91 present the average age and estimated useful life of these assets, categorized by asset type and weighted by replacement value.

Figure 38: Seniors Services Average Age by Asset Category



Average asset by age illustrates the age distribution of buildings and facilities. This encompasses the age of building structures and the replaceable equipment and components within them, which generally have shorter lifespans than the buildings. Consequently, this asset category's overall expected useful life is shorter than that of a typical facility, which ranges from 70 to 100 years.

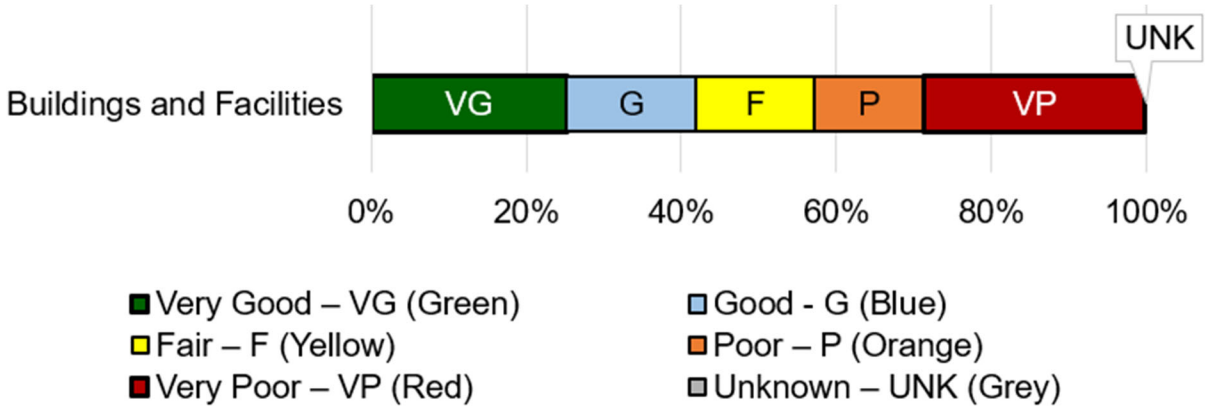
Table 91: Seniors Services Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Buildings and Facilities	27.0	46.2	19.2
Total	**27.0**	**46.2**	**19.2**

12.4.3. Seniors Services Asset Condition

The graph below visually illustrates the average condition of senior services buildings and facilities assets on a very good to very poor scale. The condition of Long-Term Care Home buildings and residential equipment is based on staff assessment and inspection. The Senior Services asset portfolio is rated as fair, with 57.18% of the overall assets rated as fair, good, or very good. 100% of the residential equipment is in fair or better condition. The estimated condition of assets, weighted by replacement value, is summarized by asset category in Figure 39 and Table 92.

Figure 39: Seniors Services Asset Condition as % of Value.



The Senior Services team regularly monitors the average condition of all assets to ensure acceptable service levels. If a decline in condition is observed, the Seniors Services team reassesses the facility's lifecycle management strategy to identify the appropriate combination of maintenance, rehabilitation, and replacement activities needed to enhance the overall condition of the buildings. Furthermore, each asset class's Useful Expected Life (UEL) is reviewed periodically to ensure alignment with the actual service life observed for each building and residential equipment.

Table 92: Seniors Services Asset Condition as % of Value.

Condition rating (colour indicator)	Buildings and Facilities	Total
Very Good – VG (Green)	25.19%	25.19%
Good - G (Blue)	16.75%	16.75%
Fair – F (Yellow)	15.25%	15.25%
Poor – P (Orange)	14.14%	14.14%
Very Poor – VP (Red)	28.50%	28.50%
Unknown – UNK (Grey)	0.18%	0.18%

12.4.4. Senior Services Risk

The risk assessments outlined in Table 93 and Table 94 provide a high-level evaluation based on the weighted replacement value of the assets and their associated percentages. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for the assets in the Seniors Services asset category. It is essential to emphasize that this does not relate to operational services risk.

Table 93: Seniors Services Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.00	$80.01	$22.01	$0.00
High	$0.00	$0.00	$29.08	$1.61	$0.00
Moderate	$0.00	$0.17	$55.31	$11.20	$0.00
Low	$0.00	$2.32	$28.63	$14.37	$29.76
Very low	$0.00	$0.48	$38.59	$56.11	$93.66

POF = Probability of failure
COF = Consequence of failure

Table 94 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 94: Seniors Services Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$0.48	0.10%
L	Low (L)	$40.91	8.79%
M	Moderate (M)	$248.24	53.31%
H	High (H)	$151.66	32.57%
VH	Very high (VH)	$22.01	4.73%
	Unknown	$2.38	0.51%
	Total	**$465.69**	**100.00%**

12.5. Senior Services Lifecycle Strategies

For buildings and facilities managed by Seniors Services, risks relating to building infrastructure failure are mitigated through inspection and maintenance programs. These provide the necessary data to identify the work required to achieve the established LOS. Asset lifecycles, facility operator reviews on site, annual site walk-through inspections, and input from the program department drive asset renewal. The strategy for managing facilities-related assets concentrates on utilizing lifecycle activities and building conditions assessment (BCAs) to achieve cost-effective and sustainable management of building resources. Overall, the Region's Senior Services facilities are generally in good shape and sufficiently meet the demands of the current service level. The Region's methodology aims to preserve the condition and functionality of its facilities to ensure that service standards for customers remain intact.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12 (page no 49), which describes lifecycle asset categories. They are influenced by the service levels detailed in Section 3 (page no 30) and the necessity of managing the associated facilities' risks using the same risk strategies and methodology discussed in Section 4.5 (page no 47).

Senior Services and the Region’s facility asset management team incorporate robust planning for operations, maintenance, condition assessment, and active interventions in climate change considerations in new construction, maintenance, and renewal activities. Assessing the

vulnerability of these assets will guide necessary lifecycle adjustments. The Region regularly audits facility asset data to keep information current and introduce classifications for lifecycle activities. Capital investments in existing assets is documented in the corresponding asset data. Additionally, the region captures annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to assess performance against targets. For missing data, a strategy for collection and integration is implemented.

12.6. Senior Services Financial Strategy

For Seniors Services assets, the renewal forecast is based on asset lifecycles and associated building maintenance data. The lifecycle analysis focuses on extending the building envelope as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The timing of renewal activities in the forecast is determined by the asset's current condition, age, and the estimated service life specified in the building condition assessment. The estimated service life included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement.

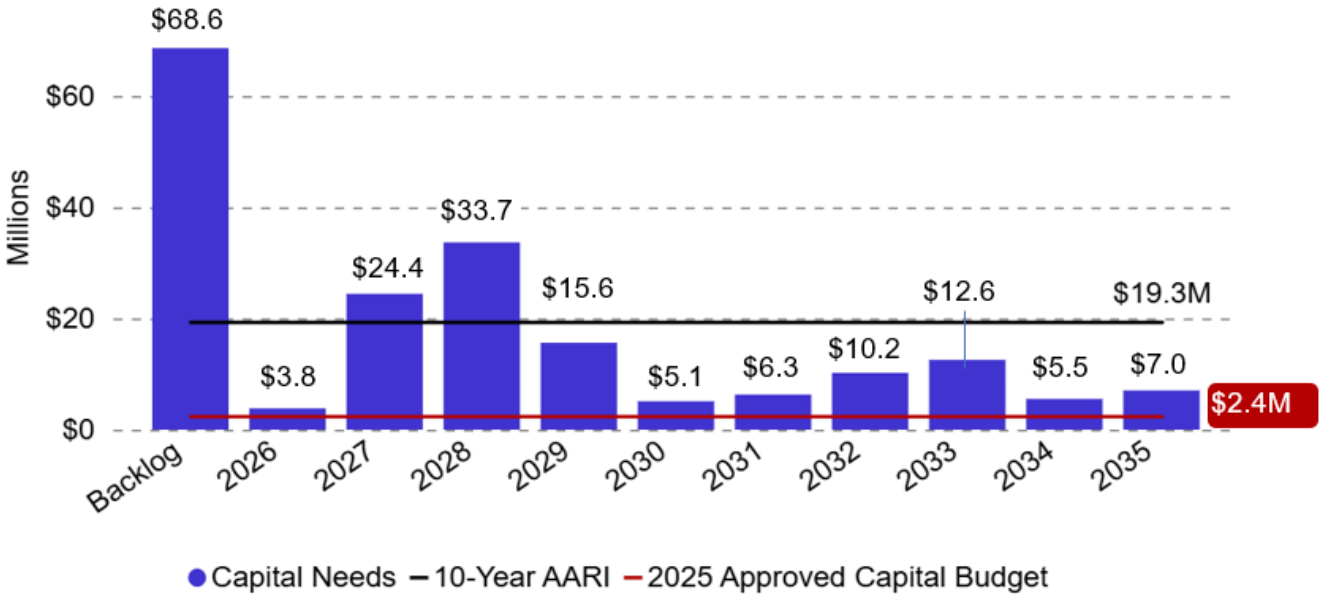
It's important to note that this approach does not account for the eventual replacement of the entire building, which may be warranted for strategic reasons or changes in functional requirements independent of the Senior Services' assets' state-of-good repair needs.

Based on these assumptions, Figure 40 illustrates that the Senior's Services assets will require an average annual renewal investment (AARI) of $19.30 million from 2026 to 2035 to maintain operations and service levels. This equates to a total capital requirement of $192.97 million over the 10-year period, which includes:

- $124.35 million in projected capital needs for 2026-2035
- $68.62 million in deferred capital spending backlog

The 10-year AARI represents 4.14% of the total Senior's Services asset replacement value, which is estimated at $465.9 million. For comparison, the 50-year AARI is forecasted to be $16.99 million, as the backlog would be spread over a more extended period. However, further analysis is necessary to understand sustainability and affordability and the impact of financial pressure, rising costs, and inflation on future projects and infrastructure development.

Figure 40: Seniors Services AARI and Forecasted Capital Needs



12.6.1. Senior Services Financial Indicators

Cost-of-service delivery for senior services includes operating expenses, capital expenditures, and revenues. A summary of the 2025 operating budget for Seniors Services is presented in Table 95

Table 95: Seniors Services Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$120.02
Utilities	$3.45
Operating & maintenance	$4.69
Program specific	$25.45
Capital reserve transfers	$4.21
Debt charges	$10.62

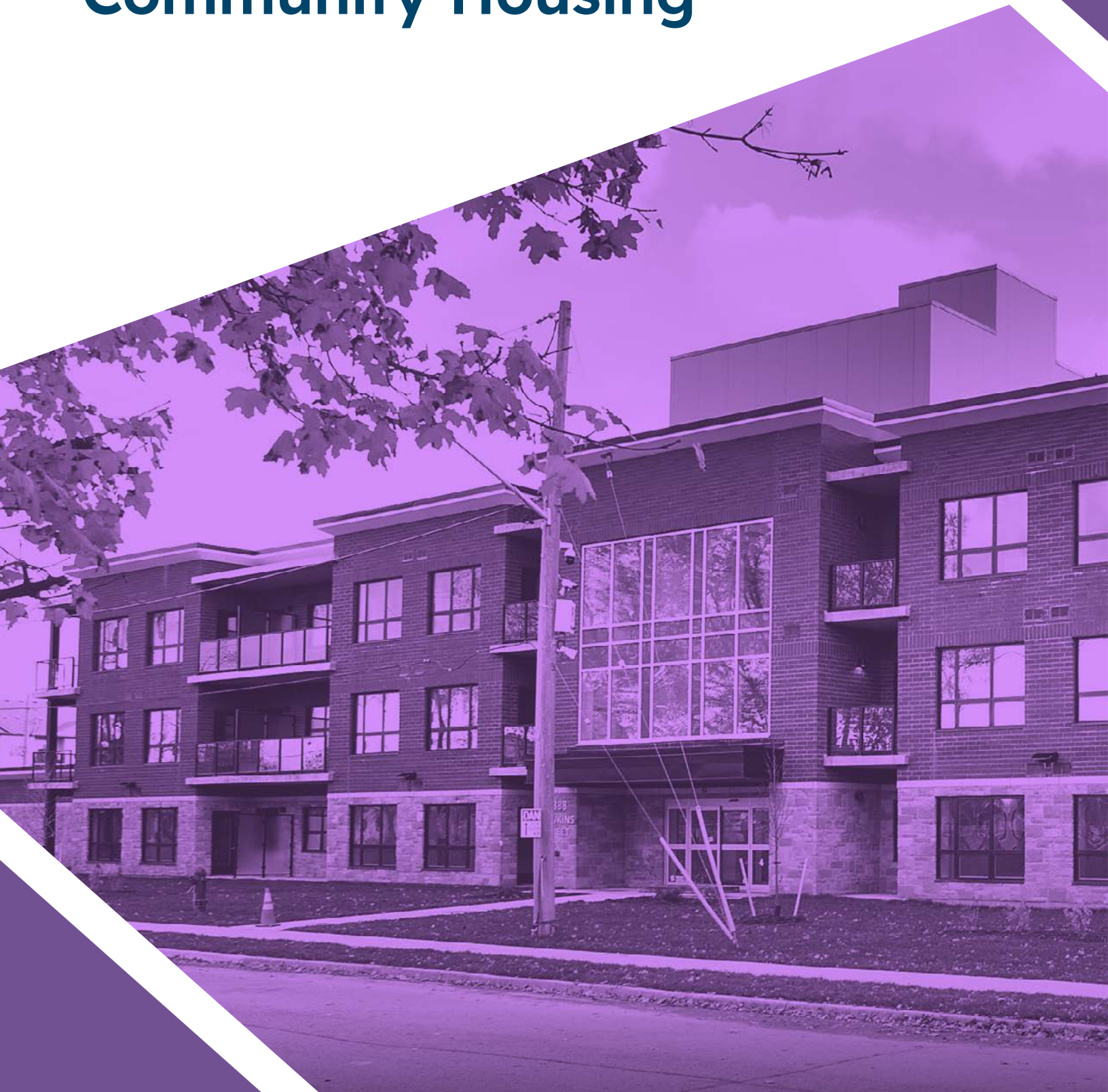
12.7. Seniors Services 2022 Development Charge Background Study Projects

Table 96 is an extraction of the growth projects identified in the 2022 Development Charge Background Study (2022 DCBS).

Table 96: Seniors Services Infrastructure Costs in the DC Calculation

Increased service needs attributable to anticipated development	Timing	Gross capital cost estimate ($ million)	Net cost funded by Region. ($ million)	Other funding sources ($ million)	Potential DC cost recovery ($ million)
Provision for Future Long-Term Care Home Redevelopment	2028-2031	$27.5	$0.0	$0.0	$27.5

Community Housing



13. Community Housing

13.1. Introduction

Niagara Housing Services (Community Housing) administers the Region's Community Housing program. Community Housing owns and operates approximately 3000 units and has legislative oversight of approximately 3,100 private sector or non-profit units. Community Housing strives to lead and promote affordable housing opportunities in Niagara. The community housing unit is a community partner working collaboratively with stakeholders to ensure equitable and fair access to affordable housing. Community Housing customers are adults, seniors and families in lower income brackets seeking to rent affordable housing units throughout the Region. Assets utilized to provide the services are summarized in Table 97.

Table 97: Assets Used to Provide Community Housing Services

Asset Description	Count
Apartment	2,110 units
Semi	230 units
Single	97 units
Townhouse	629 units
Walk-up	28 units

Provincial objectives for Community Housing services and related legislation are primary drivers that guide and direct the delivery of Housing services in the Niagara Region. The Council, through reporting updates and the Region's Corporate Strategy and Priorities, also provides direction for the delivery of service through reporting updates and the Region's Corporate Strategy and Priorities direction for service delivery. Other legislation and documents that guide service delivery include the following:

- Canada Mortgage and Housing Corporation (CMHC)
- Social Housing Agreement (SHA)
- Ministry of Municipal Affairs and Housing – Community Housing Renewal Strategy
- Niagara Region Housing and Homelessness Action Plan
- Consolidated Housing Master Plan (CHMP) 2022
- Housing Services Act (HSA) 2011
- Residential Tenancies Act 2006
- Bill 204, Helping Tenants and Small Businesses Act, 2020. (2021 Rent Freeze)
- O. Reg. 517/06: Maintenance Standards

13.2. Community Housing Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. The drivers for demand changes to community housing, which result in changes to operational requirements and the assets utilized. These drivers are listed below:

- Population and demographics
- Legislation and higher government
- Social issues and trends
- Customer expectations
- Economic factors
- Operational efficiency
- Other service provider changes
- Asset management

The demand for service change is managed through the 2013 Homelessness and Housing Action Plan (HHAP) and the 2022 Community Housing Consolidated Housing Master Plan (CHMP). These documents identify the demand for the service and project needs in the future. The plans identify operational improvements by collaborating with other stakeholders in the space and ensuring alignment with the Regional strategic plan.

13.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. The Region's current master plans outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to the future state, including requirements for new, expanded, and enhanced assets.

Table 98 lists forecasted capital projects for Community Housing that are required to address these growth or enhancement needs. For additional information on growth-related projects, please see section 13.7.

Table 98 Community Housing Forecast Asset Portfolio Growth and Enhancement Projects

Asset class	Growth or enhancement forecasted
Facility – Low and high-rise	105-unit new build in St. Catharines. Three to Six story buildings with a budget of $36 Million
Facility – Low rise	New build with 50 shelter beds in Welland. Single-story building with a budget of $3 Million.

Asset class	Growth or enhancement forecasted
Facility – Low rise	50-unit Permanent Shelter Site in St. Catharines. Multi-story building with a budget of $6 Million.

13.3. Community Housing Levels of Service

Table 99 summarizes customer and technical measures for levels of service (LOS) related to the operation, maintenance, and renewal of assets to sustain Community Housing's current LOS.

The current levels of service for Community Housing assets will be maintained as the proposed levels of service through 2034 for customer LOS, whereas technical LOS will require further review to assess the impact, which will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risks on operations and capital budgets while incorporating the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by Community Housing assets annually. This will allow for the future adjustment of proposed service levels, recognizing that Community Housing assets also include replaceable components essential for the associated service delivery.

Table 99: Community Housing Services Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS target
Equitable Region	Customer	Reliability	Facilities are maintained to an appropriate standard and are safe and accessible.	Compliant	Maintain Standard
Equitable Region	Technical	Reliability	Facility condition index (% of deferred maintenance of overall facility replacement cost)	1.98%	Maintain Standard
Equitable Region	Customer/ Council	Reliability	Percentage of municipal housing overall condition in Fair to Very Good condition	92.55%	Maintain Standard

13.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on Community Housing are as follows:

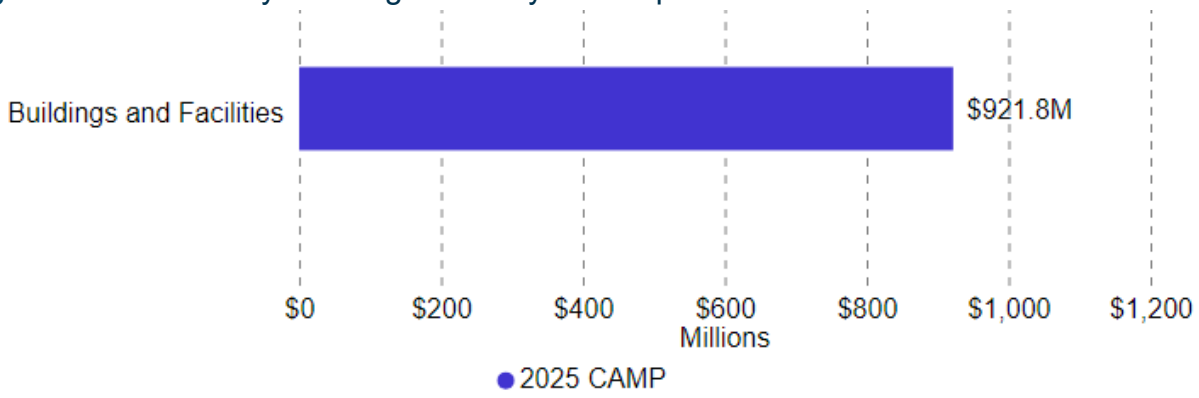
- O. Reg. 517/06: Maintenance Standards
  - Mandates the standard to which facilities are maintained i.e. the minimum condition.
- The Housing Services Act (HSA)
  - This is a Provincial legislation containing ten parts. The purpose of this Act is to provide for community-based planning and delivery of housing and homelessness services with general provincial oversight and policy direction.
- Residential Tenancies Act 2006
  - Outlines roles and responsibilities of landlords and tenants, the act allows for the following. To provide protection for residential tenants from unlawful rent increases and unlawful evictions. To establish a framework for the regulation of residential rents. To balance the rights and responsibilities of residential landlords and tenants. To provide for the adjudication of disputes and for other processes to informally resolve disputes.
- Building code
  - The Building Code Act is an Ontario regulation that describes the requirements for built facilities.

13.4. Community Housing State of Infrastructure

13.4.1. Community Housing Asset Inventory and Replacement Cost

The assets required to support the services provided by Community Housing include buildings and facilities categorized as high-rise, low-rise, townhouses and single/semi-communities. As illustrated in Figure 41, the estimated cost to replace the assets is $921.8 million. The replacement value consists of the replaceable items within the Community Housing buildings and facilities, including all equipment and components in the buildings rather than the structure alone.

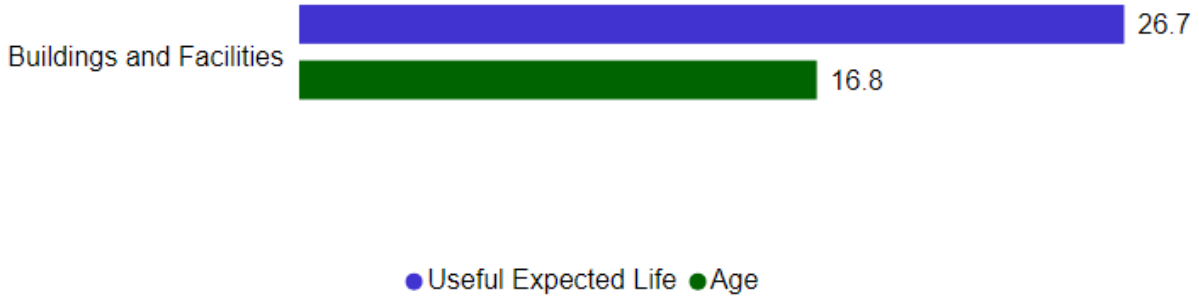
Figure 41: Community Housing Inventory and Replacement Cost



13.4.2. Community Housing Asset Age Distribution

Community Housing assets, on average, are past the first half of their useful expected life (UEL). The average age and estimated service life of Community Housing assets, weighted by replacement value, is summarized by asset category in Figure 42 and Table 100.

Figure 42: Community Housing average Age by Asset Category



Average asset by age includes the age distribution of Community Housing's buildings and facilities. This encompasses the age of building structures and the replaceable equipment and components within them, such as HVAC systems, roofs, windows, doors, and other similar components, which generally have shorter lifespans than buildings. Consequently, this asset category's overall expected useful life is shorter than that of a typical facility, which typically ranges from 70 to 100 years.

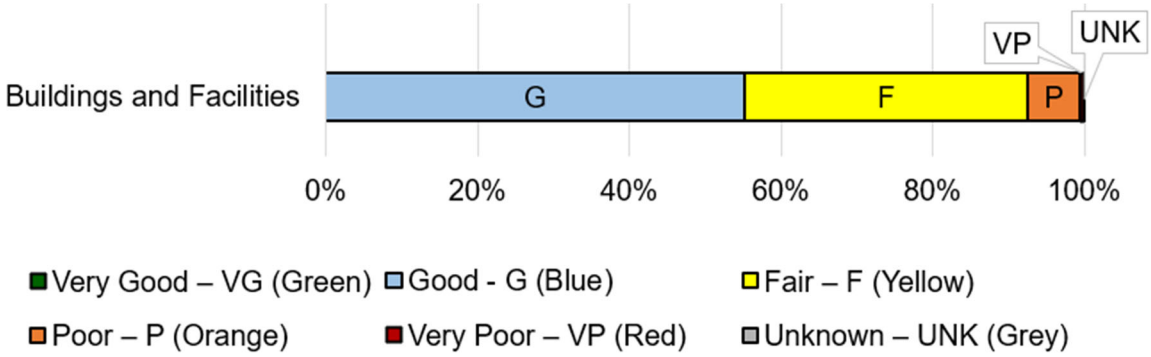
Table 100 Community Housing Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Facility	16.8	26.7	10.0

13.4.3. Community Housing Asset Condition

The graph in Figure 43 below illustrates the average condition of Community Housing's buildings and facility assets on a very good to very poor scale. Condition for Community Housing is based on Building Condition Assessments (BCAs) undertaken to ensure complete physical evaluation. The Community Housing portfolio of assets is rated in good condition, with 92.55% of the assets rated as fair or better. The estimated condition of Community Housing assets, weighted by replacement value, is summarized by asset category in Table 101 and Figure 43.

Figure 43: Community Housing Asset Condition as % of Value.



The Community Services team regularly monitors the average condition of all assets to ensure acceptable service levels. If a decline in condition is observed, the Community Housing team reassesses the facility's lifecycle management strategy to identify the appropriate combination of maintenance, rehabilitation, and replacement activities needed to enhance the overall condition of the buildings. Furthermore, each asset class's Useful Expected Life (UEL) is reviewed periodically to ensure alignment with the actual service life observed for each building and replaceable asset type.

Table 101: Community Housing Asset Condition as % of Value

Condition rating (colour indicator)	Buildings and Facilities	Total
Very Good – VG (Green)	0.00%	0.00%
Good - G (Blue)	55.21%	55.21%
Fair – F (Yellow)	37.34%	37.34%
Poor – P (Orange)	6.87%	6.87%
Very Poor – VP (Red)	0.50%	0.50%
Unknown – UNK (Grey)	0.07%	0.07%

13.4.4. Community Housing Risk

Table 102 is a standardized risk matrix that represents assets with their current replacement cost according to the risk of asset failure. The risk assessment in Table 102 and Table 103 provides a high-level risk evaluation based on the weighted replacement value of assets and percentage. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for the assets in Community Housing. It is essential to emphasize that this does not relate to operational services risk.

Table 102: Community Housing Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.00	$0.37	$1.00	$0.00
High	$0.00	$0.00	$0.00	$14.25	$0.00
Moderate	$0.00	$0.00	$92.43	$144.91	$0.00
Low	$0.00	$0.00	$171.22	$103.54	$0.00
Very low	$0.00	$0.00	$217.01	$175.86	$0.00

POF = Probability of failure COF = Consequence of failure

Table 103 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 103: Community Housing Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$0.00	0.00%
L	Low (L)	$217.01	23.54%
M	Moderate (M)	$543.06	58.91%
H	High (H)	$159.54	17.33%
VH	Very high (VH)	$1.00	0.11%
	Unknown	$1.18	0.13%
	Total	**$921.8**	**100.00%**

13.5. Community Housing Lifecycle Strategies

The lifecycle asset strategy of Community Housing is generally to replace components at the end of their Useful Expected Life (UEL), and risks related to building infrastructure failure are

mitigated through inspection and maintenance programs. These provide the necessary data to identify the work required to achieve the established LOS. Asset renewal is driven by building condition assessments (BCAs), on-site operator reviews, annual site walk-through inspections, and staff input. The strategy for managing building assets concentrates on utilizing lifecycle activities to achieve cost-effective and sustainable management of building resources. Overall, the region's facilities are generally in good shape and sufficiently meet the demands of the current service level. The region's methodology aims to preserve the condition and functionality of its facilities to ensure that service standards for customers remain intact.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12, which describes lifecycle asset categories. They are influenced by the service levels detailed in Section 3 and the necessity of managing the associated facilities' risks using the same risk strategies and methodology discussed in Section 4.5.

Community Housing incorporates robust planning for operations, maintenance, condition assessment, and active interventions in climate change considerations in new construction, maintenance, and renewal activities. Assessing the vulnerability of these assets guide necessary lifecycle adjustments. The Region regularly audits facility asset data to keep information current and introduce classifications for lifecycle activities. Capital investments in existing assets is documented in the corresponding asset data. Additionally, the Region capture annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to assess performance against targets. For missing data, a strategy for collection and integration is introduced.

13.6. Community Housing Financial Strategy

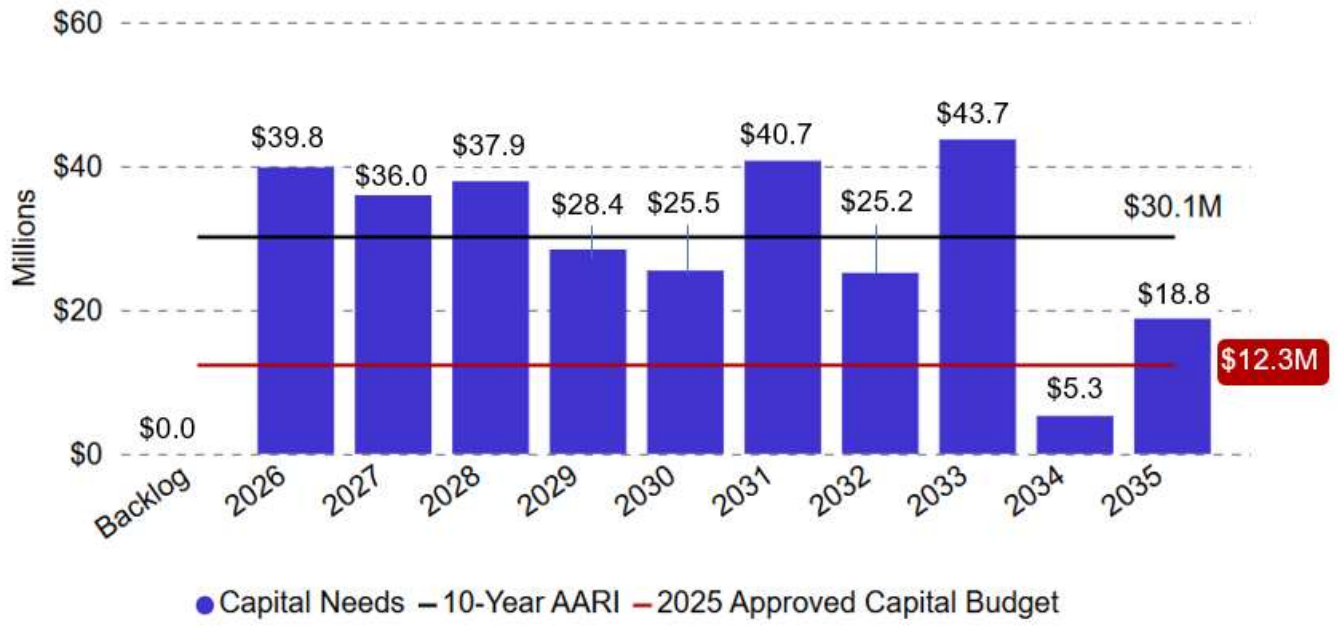
The lifecycle analysis focuses on extending the building envelope as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The timing of renewal activities in the forecast is determined by the asset's current condition, age, and the estimated service life specified in the building condition assessment. The estimated service life included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement.

It's important to note that this approach does not account for the eventual replacement of the entire building, which may be warranted for strategic reasons or changes in functional requirements independent of the facility assets' state-of-good repair needs. Based on these

assumptions, the average annual revenue needed to sustain Community Housing from 2026 to 2035 is projected to be $30.13 million. This amount represents 3.27% of the current replacement value of assets, which is estimated at $921.78 million.

Figure 44 presents the 10-year Average Annual Renewal Investment (AARI) necessary to support existing assets and current service levels for Community Housing, which is $30.13 million in the 10-year forecast. For comparison, the 50-year AARI is forecast at $20.77 million, as the investment is spread over a longer period.

Figure 44: Community Housing AARI and Forecasted Capital Needs



13.6.1. Community Housing Financial Indicators

The cost of service delivery for Community Housing includes operating expenses, capital expenditures, and revenues. Table 104 summarizes the 2025 operating budget for Community Housing.

Table 104: Community Housing Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$7.04
Utilities	$6.01
Operating & maintenance	$7.88
Program specific	$62.21

Area of expenditure	2025 budget ($ million)
Capital reserve transfers	$8.96
Debt charges	$6.60

13.7. Community Housing 2022 Development Charge Background Study Projects

Table 105 is an extraction of the growth projects identified in the 2022 Development Charge Background Study (2022 DCBS), and Table 106 lists the projects closed between 2022 and 2024.

Table 105: Community Housing Infrastructure Costs in the DC Calculation

Increased service needs attributable to anticipated development	Timing	Gross capital cost estimate ($ million)	Net cost funded by Region. ($ million)	Other funding sources ($ million)	Potential DC cost recovery ($ million)
Provision for Additional Units	2022-2031	$36.0	$0.0	$0.0	$36.0
12 St. Davids & 52 Ormond	2022-2025	$1.3	$0.0	$0.0	$1.3
Niagara Falls Library Location (20 new bridge units)	2022	$3.6	$0.0	$0.0	$3.6
Apartments at POA Location (42 apartment units)	2022-2023	$14.5	$0.0	$10.5	$4.0
745 Crest Rd. Fort Erie	2022	$6.5	$0.0	$0.0	$6.5

Table 106: The DC Portion of Community Housing Capital Projects Completed Between 2022 and 2024, as Identified in the DC Study

Increased service needs attributable to anticipated development	Closed Year	Total cost ($ million)
Niagara Falls Supportive Housing Renovation	2023	$1.10
New Development	2023	$14.13

Children's Services

14. Children's Services

14.1. Introduction

Children's Services provides for the overall planning and management of services to children from birth to 12 years of age and their families. The Ministry of Education, under the Childcare and Early Years Act, 2014, designated the Region as a Service System Manager for Children's Services. Assets utilized to provide the services are summarized in Table 107.

Table 107: Assets Used to Provide Children's Services

Asset Description	Count
Region-owned childcare facilities *Playground area and equipment included	4 each
Leased facility (Port Colborne Regional CCC)	1 each

Provincial objectives and related legislation are primary drivers that guide and direct the planning and delivery of Children's Services in the Niagara Region. Through reporting updates and the Region's Corporate Strategy and Priorities, the Council also provide direction for delivering this service. Other legislation and documents that guide service delivery include the following:

- Ontario Works Act, 1997, S.O. 1997, c.25, Sched. A

14.2. Children's Services Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing requirements for services, and the activities and assets required to support those services. Most of the drivers for Children's Services result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Population and demographics
- Development trends
- Legislation and higher government
- Customer expectations
- Economic factors
- Canada Wide Early Learning and Childcare

14.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in the population of Niagara will place significant pressure on the capacity of existing assets and create demand for new assets. The Region has updated various master plans that outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to future state, including requirements for new, expanded, and enhanced assets. Currently, no specific growth is planned for Children's Services.

14.3. Children's Services Levels of Service

Table 108 summarizes information on customer and technical measures for levels of service (LOS) that relate to the operation, maintenance, and renewal of assets for the sustainment of Children's Services' current LOS.

The current levels of service for Children's Services assets will be maintained as the proposed levels of service for customer LOS, whereas technical LOS will require further review for impact, which will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risk on operations and capital budgets while capturing the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by building and facilities assets annually. This will allow for the future adjustment of proposed service levels, recognizing that building and facility assets also include replaceable components essential for the associated service delivery.

Table 108: Children's Services Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer	Customer Satisfaction	Facilities are maintained to an appropriate standard and are safe and accessible.	Compliant	Maintain Standard
Green and Resilient Region	Technical	Reliability	Facility condition index (% of deferred maintenance of overall facility replacement cost)	7.96%	N/A

14.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on Children's Services are as follows:

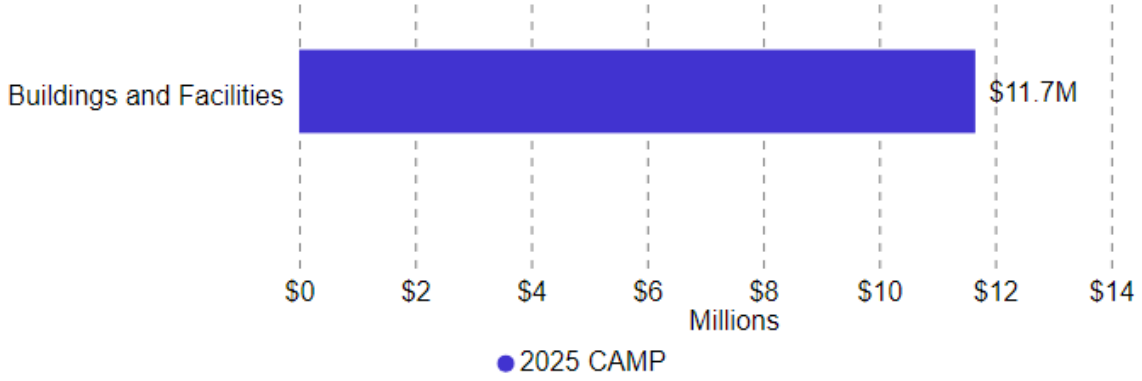
- The Child Care and Early Years Act, 2014 S.O. 2014 (the Act)
  - Focuses on requirements for operating or providing child care services. Beyond, the technical requirements the regulation and polices intends to strengthen the quality of child care programs and ensure positive outcomes in relation to children's learning, development, health, and well-being.

14.4. Children's Services State of Infrastructure

14.4.1. Children's Services Asset Inventory and Replacement Cost

The first step for the Region in developing the Children's Services facilities section under the CAMP is to understand the assets it currently owns. As illustrated in Figure 45, the estimated cost to replace the Children's Services assets is $11.7 million, which only accounts for the replaceable items within the facilities.

Figure 45: Children's Services Inventory and Replacement Cost

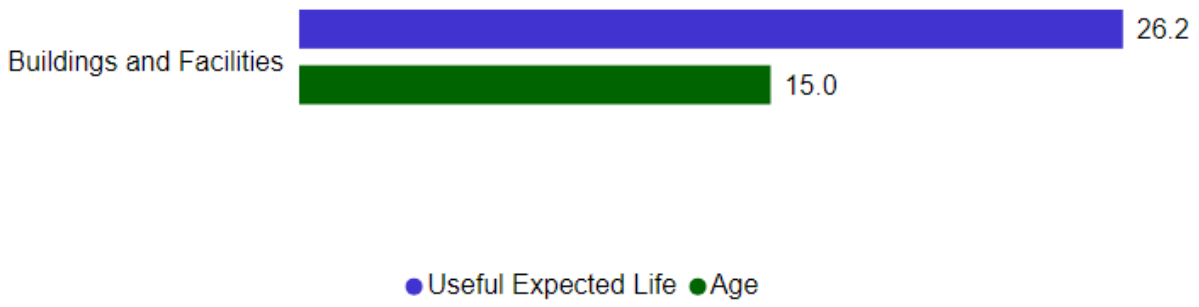


14.4.2. Children's Services Asset Age Distribution

Figure 46 summarizes the average age and useful expected life (UEL) of the Children's Services buildings and facility assets discussed in this report, weighted by their replacement value. The average age of these replaceable facility assets is less than half of their average useful expected life (UEL), which does not account for the entire building. Both Figure 46 and

Table 109 present the average age and estimated useful life of these assets, categorized by asset type, and weighted by replacement value.

Figure 46: Children's Services Average Age by Asset Category



Average asset by age illustrates the age distribution of buildings and facilities. This encompasses the age of building structures and the replaceable equipment and components within them, which generally have shorter lifespans than the buildings. Consequently, this asset category's overall expected useful life is shorter than that of a typical facility, which ranges from 70 to 100 years.

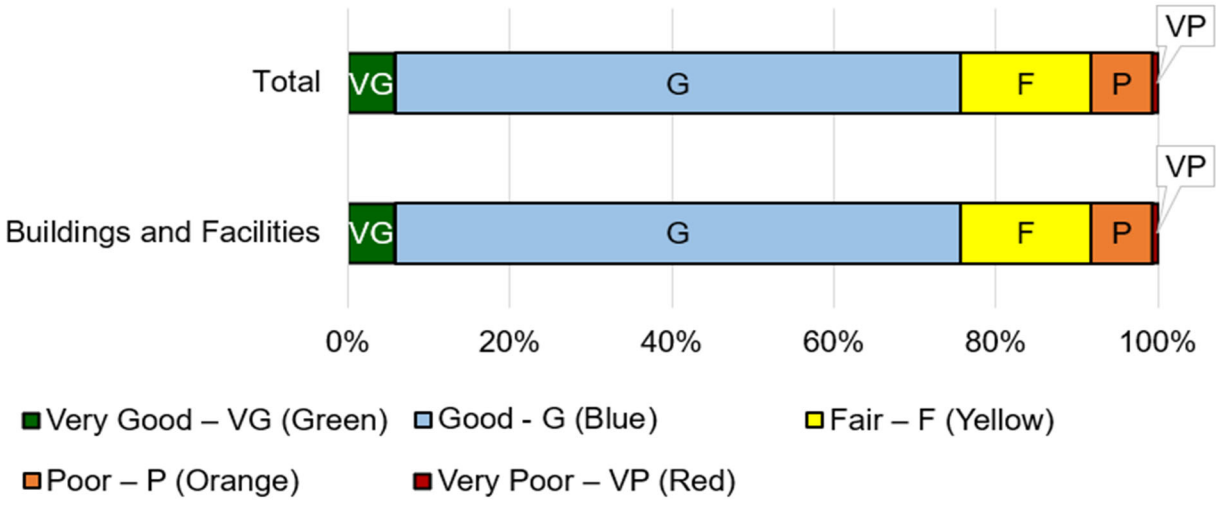
Table 109: Children's Services Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Buildings and Facilities	15.0	26.2	11.2

14.4.3. Children's Services Asset Condition

The graph below visually illustrates the average condition of buildings and facilities assets on a very good to very poor scale. The condition of the assets is based on building condition assessments (BCAs) undertaken between 2022 and 2023. The Children's Services portfolio of assets is rated in good condition, with 75.69% of the assets rated as good or very good. The condition of Children's Services assets weighted by replacement value is summarized by asset category in Figure 47 and Table 110.

Figure 47: Children's Services Asset Condition as % of Value.



The Children's Services team regularly monitors the average condition of all assets to ensure acceptable service levels. If a decline in condition is observed, the Children's Services team reassesses the facility's lifecycle management strategy to identify the appropriate combination of maintenance, rehabilitation, and replacement activities needed to enhance the overall condition of the buildings. Furthermore, each asset class's Useful Expected Life (UEL) is reviewed periodically to ensure alignment with the actual service life observed for each building and residential equipment.

Table 110: Children's Services Asset Condition as % of Value

Condition rating (colour indicator)	Buildings and Facilities	Total
Very Good – VG (Green)	5.76%	5.76%
Good - G (Blue)	69.93%	69.93%
Fair – F (Yellow)	16.07%	16.07%
Poor – P (Orange)	7.56%	7.56%
Very Poor – VP (Red)	0.68%	0.68%

14.4.4. Children's Services Risk

The risk assessment in Table 111 and Table 112 provides a high-level risk evaluation based on the weighted replacement value of assets and percentage. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for the assets in Children's Services division. It is essential to emphasize that this does not relate to operational services risk.

Table 111: Children's Services Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.39	$0.30	$0.05	$0.00
High	$0.00	$0.15	$0.74	$0.17	$0.01
Moderate	$0.22	$1.33	$0.89	$0.32	$0.09
Low	$0.45	$4.58	$0.80	$0.81	$0.00
Very low	$0.06	$0.00	$0.00	$0.26	$0.00

POF = Probability of failure COF = Consequence of failure

Table 112 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 112: Children's Services risk exposure summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$0.51	4.40%
L	Low (L)	$4.81	41.23%
M	Moderate (M)	$4.25	36.46%
H	High (H)	$2.02	17.37%
VH	Very high (VH)	$0.06	0.54%
	Total	**$11.66**	**100.00%**

14.5. Children's Services Lifecycle Strategies

For buildings and facilities managed by Children's Services, inspection and maintenance programs mitigate the risks of building infrastructure failure. These provide the necessary data to identify the work required to achieve the established LOS. Asset lifecycles, facility operator reviews on site, annual site walk-through inspections, and input from the program department drive asset renewal. The strategy for managing facilities-related assets concentrates on utilizing lifecycle activities and building conditions assessment (BCAs) to achieve cost-effective and sustainable management of building resources. Overall, the Region's Children's Services facilities are generally in good shape and sufficiently meet the demands of the current service level. The Region's methodology aims to preserve the condition and functionality of its facilities to ensure that service standards for customers remain intact.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12, which describes lifecycle asset categories. They are influenced by the service levels detailed in Section 3 and the necessity of managing the associated Children's Services' risks using the same risk strategies and methodology discussed in Section 4.5.

Children's Services and the Region's facility asset management team incorporates robust planning for operations, maintenance, condition assessment, and active interventions in climate change considerations in new construction, maintenance, and renewal activities. Assessing the vulnerability of these assets guides necessary lifecycle adjustments. The Region regularly audits facility asset data to keep information current and introduce classifications for lifecycle activities. Capital investments in existing assets is documented in the corresponding asset data. Additionally, the region captures annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to assess performance against targets. For missing data, a strategy for collection and integration is implemented.

14.6. Children's Services Financial Strategy

The renewal forecast for Children's Services assets is based on asset lifecycles and associated building maintenance data. The lifecycle analysis focuses on extending the building envelope as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The timing of renewal activities in the forecast is determined by the asset's current condition, age, and the estimated service life specified in the building condition assessment. The estimated service life included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement.

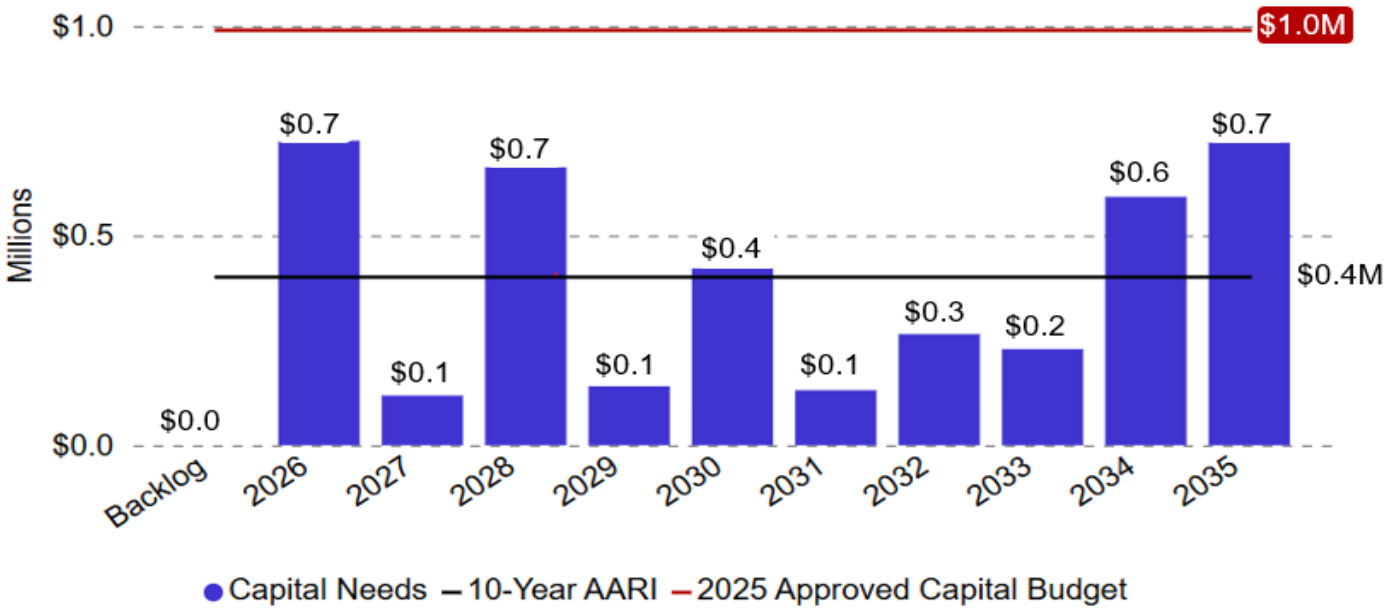
It's important to note that this approach does not account for the eventual replacement of the entire building, which may be warranted for strategic reasons or changes in functional requirements independent of the Children Services' assets' state-of-good repair needs.

Figure 48 illustrates that Children's Services' assets will require an average annual renewal investment (AARI) of $0.40 million from 2026 to 2035 to maintain operations and service levels. This equates to a total projected capital needs requirement of $4.01 million over the 10 years.

The 10-year AARI represents 3.44% of the total Children's Service's asset replacement value, which is estimated at $11.66 million. For comparison, the 50-year AARI is forecasted to be

$0.17 million, as the capital needs would be spread over a more extended period. However, further analysis is necessary to understand sustainability and affordability and the impact of financial pressure, rising costs, and inflation on future projects and infrastructure development.

Figure 48: Children's Services AARI and Forecasted Capital Needs



14.6.1. Children's Services Financial Indicators

The cost-of-service delivery for Children's Services includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for Children's Services is presented in Table 113.

Table 113: Children's Services Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$10.92
Utilities	$0.08
Operating & maintenance	$0.23
Program specific	$187.77
Capital reserve transfers	$1.18
Debt charges	$0.10

Niagara Region | Growing Better Together

Social Assistance and Employment Opportunities

15. Social Assistance and Employment Opportunities

15.1. Introduction

Social Assistance and Employment Opportunities (SAEO) manages and oversees the Region's social assistance and employment opportunities services, Ontario Works, on behalf of the province. Assets utilized to provide the services are summarized in Table 114.

Table 114: Assets Used to Provide SAEO Services

Asset Description	Count
Region-owned Social Assistance and Employment offices	2 units
Leased Social Assistance and Employment offices	3 units*

*Two of the three leased SAEO facilities are excluded from the State of Infrastructure and Financial Strategy in this section due to the limited availability of asset details. Information on the excluded assets can be found in the Excluded Assets in section 1.3 (page no 26).

Provincial objectives and related legislation are primary drivers that guide and direct the planning and delivery of SAEO services in the Niagara Region. The Council also provides direction for delivering this service through reporting updates and the Region's Corporate Strategy and Priorities. Other legislation and documents that guide service delivery include the following:

- Ontario Works Act, 1997, S.O. 1997, c.25, Sched. A

15.2. SAEO Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Most of the drivers for SAEO result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Legislation and higher government
- Social issues and trends
- Customer expectations
- Economic factors
- Operational efficiency
- Other Service provider changes

15.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in the population of Niagara will place significant pressure on the capacity of existing assets and create demand for new assets. The Region has updated various master plans that outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to future state, including requirements for new, expanded, and enhanced assets. At this time, there is no specific growth planned for SAEO's Services.

15.3. SAEO Levels of Service

Table 115 summarizes information on customer and technical measures for levels of service (LOS) that relate to the operation, maintenance, and renewal of assets to sustain SAEO's current LOS.

The current levels of service for SAEO Services assets will be maintained as the proposed levels of service for customer LOS, whereas technical LOS will require further review for impact, which will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risk on operations and capital budgets while capturing the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by building and facilities assets annually. This will allow for the future adjustment of proposed service levels, recognizing that building and facility assets also include replaceable components essential for the associated service delivery.

Table 115: SAEO Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer	Customer Satisfaction	Facilities are maintained to an appropriate standard and are safe and accessible.	Compliant	Maintain Standard

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Technical	Reliability	Facility condition index (% of deferred maintenance of overall facility replacement cost)	3.48%	N/A

15.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on SAEO are as follows:

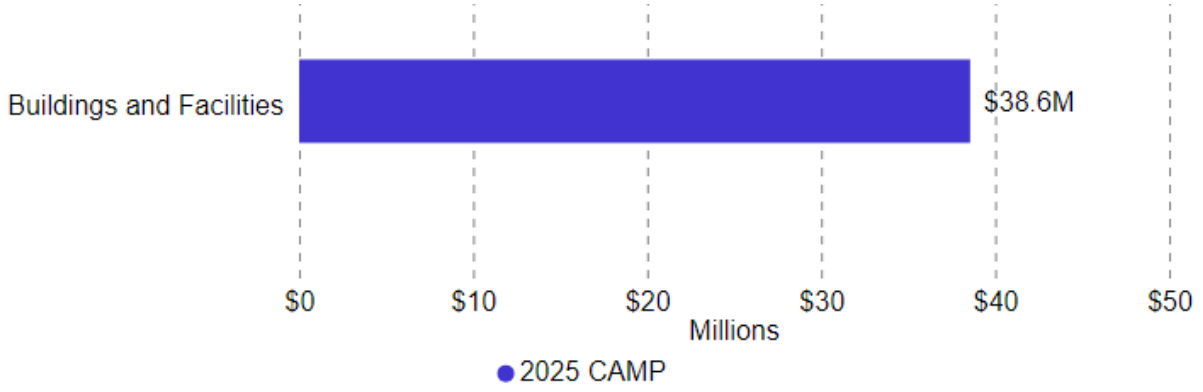
- Ontario Works Act, 1997, S.O. 1997, c.25, Sched. A
  - Regulatory requirements dictate the requirements of the service provided. The guidelines established by the Province of Ontario determine the extent of services for the two components of income support and other benefits to Ontario Works clients.

15.4. SAEO State of Infrastructure

15.4.1. SAEO Asset Inventory and Replacement Cost

The first step for the Region in developing the SAEO's Services facilities section under the CAMP is to understand the assets it currently owns. As illustrated in Figure 49 the estimated cost of replacing the assets is $38.6 million, which only accounts for the replaceable items within the facilities.

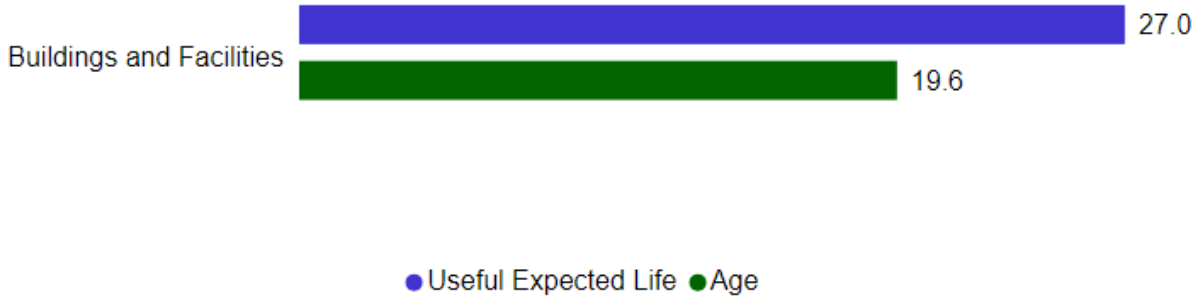
Figure 49: SAEO Inventory and Replacement Cost



15.4.2. SAEO Asset Age Distribution

Figure 50 summarizes the average age and useful expected life (UEL) of the SAEO service buildings and facility assets discussed in this report, weighted by their replacement value. The average age of these replaceable facility assets is more than half of their average useful expected life (UEL), which does not account for the entire building. Both Figure 50 and Table 116 present the average age and estimated useful life of these assets, categorized by asset type and weighted by replacement value.

Figure 50: SAEO Average Age by Asset Category



Average asset by age illustrates the age distribution of buildings and facilities. This encompasses the age of building structures and the replaceable equipment and components within them, which generally have shorter lifespans than the buildings. Consequently, this asset category's overall expected useful life is shorter than that of a typical facility, which ranges from 70 to 100 years.

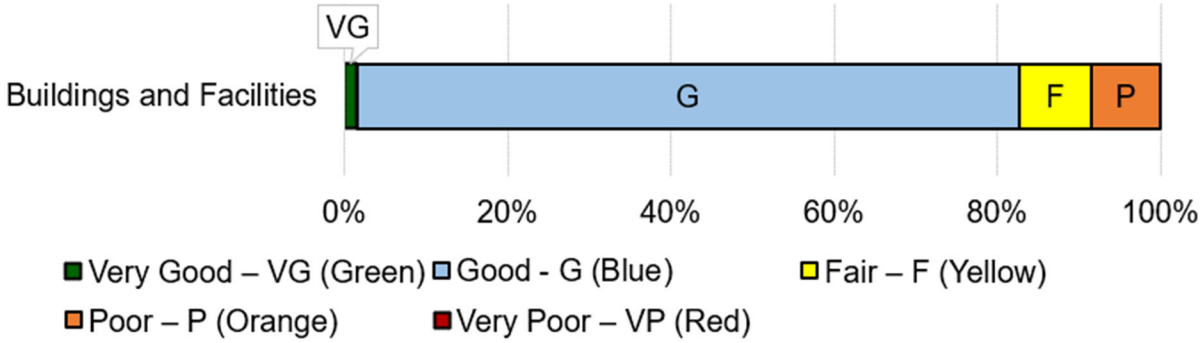
Table 116: SAEO Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Facility	19.6	27.0	7.5

15.4.3. SAEO Asset Condition

The graph below visually illustrates the average condition of buildings and facilities assets on a very good to very poor scale. The condition of the assets is based on building condition assessments (BCAs) undertaken between 2022 and 2023. The condition of SAEO assets is rated as good, with 82.65% of assets rated as good to very good. The condition of SAEO assets weighted by replacement value is summarized by asset category in Figure 51 and Table 117.

Figure 51: SAEO Asset Condition as % of Value.



The SAEO Services team regularly monitors the average condition of all assets to ensure acceptable service levels. If a decline in condition is observed, the SAEO Services team reassesses the facility's lifecycle management strategy to identify the appropriate combination of maintenance, rehabilitation, and replacement activities needed to enhance the overall condition of the buildings. Furthermore, each asset class's Useful Expected Life (UEL) is reviewed periodically to ensure alignment with the actual service life observed for each building and residential equipment.

Table 117: SAEO Asset Condition as % of Value

Condition rating (colour indicator)	Buildings and Facilities	Total
Very Good – VG (Green)	1.51%	1.51%
Good - G (Blue)	81.13%	81.13%
Fair – F (Yellow)	8.86%	8.86%
Poor – P (Orange)	8.49%	8.49%
Very Poor – VP (Red)	0.00%	0.00%

15.4.4. SAEO Risk

The risk assessment in Table 118 and Table 119 provides a high-level risk evaluation based on the weighted replacement value of assets and percentage. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for the SAEO assets. It is essential to emphasize that this does not relate to operational services risk.

Table 118: SAEO Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.00	$0.20	$0.69	$0.00
High	$1.33	$3.48	$2.32	$1.83	$0.03
Moderate	$0.47	$4.17	$2.31	$1.00	$0.41
Low	$0.51	$5.95	$4.06	$1.23	$0.13
Very low	$0.25	$2.66	$2.60	$2.94	$0.00

POF = Probability of failure COF = Consequence of failure

Table 119 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 119: SAEO Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$3.41	8.85%
L	Low (L)	$9.02	23.38%
M	Moderate (M)	$19.52	50.62%
H	High (H)	$5.89	15.28%
VH	Very high (VH)	$0.72	1.86%
	Total	**$38.56**	**100.00%**

15.5. SAEO Lifecycle Strategies

For buildings and facilities managed by SAEO Services, risks relating to building infrastructure failure are mitigated through inspection and maintenance programs. These provide the necessary data to identify the work required to achieve the established LOS. Asset lifecycles, facility operator reviews on site, annual site walk-through inspections, and input from the program department drive asset renewal. The strategy for managing facilities-related assets concentrates on utilizing lifecycle activities and building conditions assessment (BCAs) to achieve cost-effective and sustainable management of building resources. Overall, the Region's SAEO service facilities are generally in good shape and sufficiently meet the demands of the current service level. The Region's methodology aims to preserve the condition and functionality of its facilities to ensure that service standards for customers remain intact.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12 (page no 49), which describes lifecycle asset categories. They are influenced by the service levels detailed in Section 3 (page no 30) and the necessity of managing the associated SAEO risks using the same risk strategies and methodology discussed in Section 4.5 (page no 47).

SAEO Services and the Region's facility asset management team incorporates robust planning for operations, maintenance, condition assessment, and active interventions in climate change considerations in new construction, maintenance, and renewal activities. Assessing the vulnerability of these assets guides necessary lifecycle adjustments. The Region regularly audits facility asset data to keep information current and introduce classifications for lifecycle activities. Capital investments in existing assets is documented in the corresponding asset data. Additionally, the region captures annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to assess performance against targets. For missing data, a strategy for collection and integration is implemented.

15.6. SAEO Financial Strategy

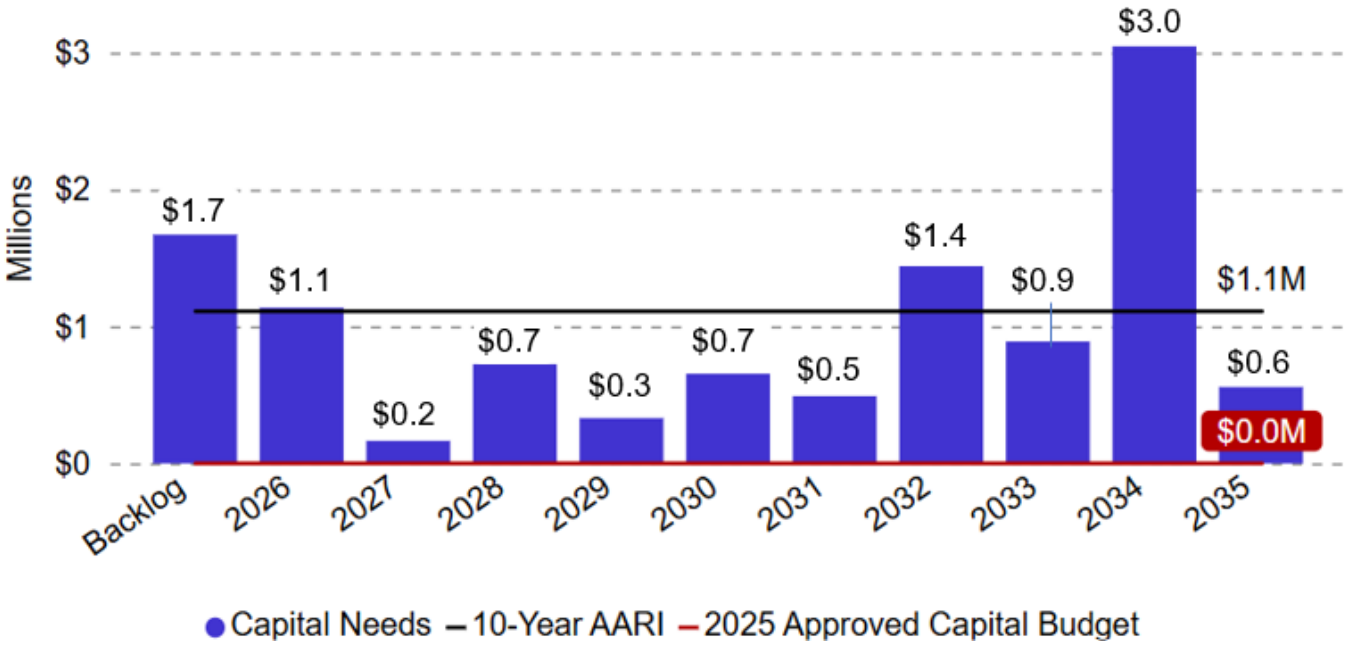
The renewal forecast for SAEO Services assets is based on asset lifecycles and associated building maintenance data. The lifecycle analysis focuses on extending the building envelope as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The timing of renewal activities in the forecast is determined by the asset's current condition, age, and the estimated service life specified in the building condition assessment. The estimated service life included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement. It is important to note that this approach does not account for the eventual replacement of the entire building, which may be warranted for strategic reasons or changes in functional requirements independent of the SAEO Services' assets' state-of-good repair needs.

Based on these assumptions, Figure 52 illustrates that SAEO assets will require an average annual renewal investment (AARI) of $1.1 million from 2026 to 2035 to maintain operations and service levels. This results in a total capital requirement of $11.11 million over the 10-year period, which includes:

- $9.44 million in projected capital needs for 2026-2035
- $1.67 million in deferred capital spending backlog

The 10-year AARI represents 2.85% of the total asset replacement value, which is estimated at $38.6 million. For comparison, the 50-year AARI is forecasted to be $0.39 million, as the backlog would be spread over a more extended period.

Figure 52: SAEO AARI and Forecasted Capital Needs



15.6.1. SAEO Financial Indicators

The cost-of-service delivery for SAEO includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for SAEO is presented in Table 120.

Table 120: SAEO Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$28.36
Utilities	$0.58
Operating & maintenance	$8.52
Program specific	$134.93
Capital reserve transfers	$0.68
Debt charges	$0.08

The program-specific benefits outlined in Table 120, totaling $134.25 million, are direct client benefits from provincial contributions with no cost implications for the Region.

Public Health

16. Public Health

16.1. Introduction

Niagara Region Public Health and Emergency Services (Public Health / PH) advances health and health equity in Niagara by using strategies to protect and promote health and prevent disease and injury in the population. The Ontario Public Health Standards (OPHS) are province-wide standards that set the minimum requirements of fundamental programs and services delivered by the Board of Health/Regional Council. Protocols, guidance documents, and best practices support the OPHS.

Public Health provides mental health services for adults and youth across Niagara Region, and also protects residents by controlling infectious diseases through regulatory inspections and enforcement and by preventing or reducing exposure to environmental hazards; promotes health by educating the public on healthy lifestyles, working with community partners, and advocating for public policy that supports a healthy population; and prevents disease and injury by the surveillance of outbreaks, immunization to control infectious disease, and promoting healthy behaviours. Assets utilized to provide the services are summarized in Table 121.

Table 121: Assets Used to Provide Public Health Services

Asset Description	Count
Public Health Satellite Offices (Region owned)	1 unit
Public Health Satellite Offices (Leased)	4 units*
Mobile Dental Clinic	1 unit

*One of the four leased Public Health facilities is excluded from the State of Infrastructure and Financial Strategy in this section due to the limited availability of asset details. Information on the excluded assets can be found in the Excluded Assets in section 1.3 (page no 26).

16.2. Public Health Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Most of the drivers for Public Health result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Demographics
- Legislation and higher government
- Socio-economic issues and trends
- Technology
- Asset management
- Economic development

16.2.1. Planned asset Portfolio Growth and Enhancements

The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. The Region's current master plans outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to the future state, including requirements for new, expanded, and enhanced assets. Explicit impacts on Public Health have not been forecasted at this time.

16.3. Public Health Levels of Service

Table 122 summarizes information on customer and technical measures for levels of service (LOS) that relate to the operation, maintenance, and renewal of assets to sustain Public Health's current LOS.

The current levels of service for Public Health assets will be maintained as the proposed levels for customer LOS, whereas technical LOS will require further review for impact that will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risk on operations and capital budgets while capturing the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by Public Health assets annually. This will allow for the future adjustment of proposed service levels.

Table 122: Public Health Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Equitable Region	Customer	Customer Satisfaction	Public Health services are accessible and provided in a clean and safe environment.	Compliant	Maintain Standard
Effective Region	Technical	Reliability	Facility condition index (% of deferred maintenance of overall facility replacement cost)	0.32%	N/A

16.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on Public Health are as follows:

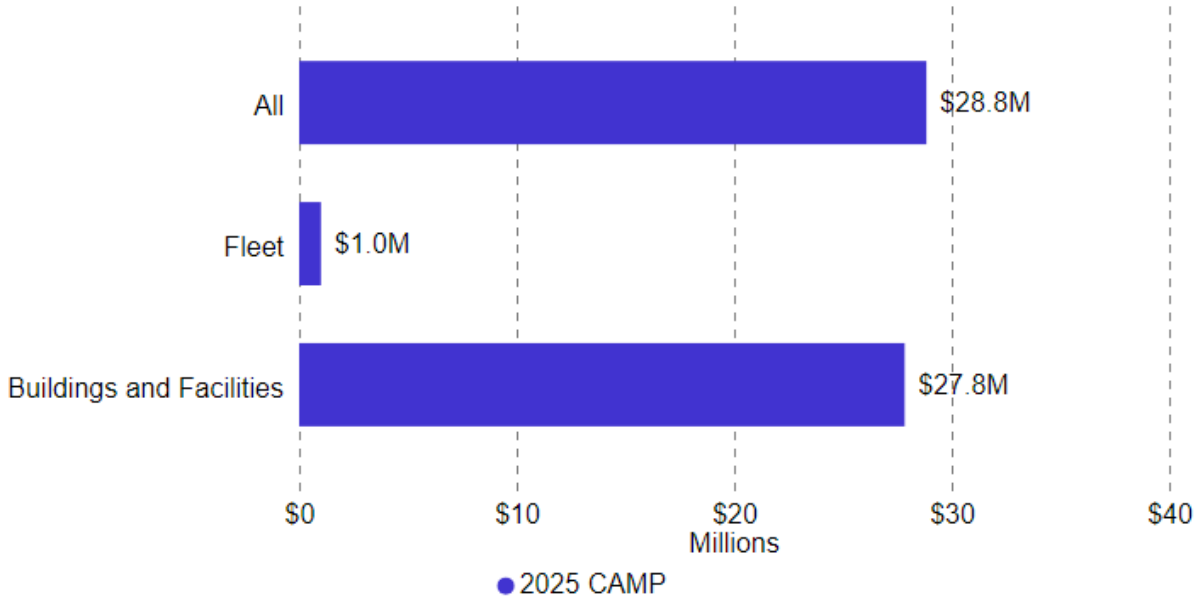
- Ontario Public Health Standard (OPHS)
  - Requirements for programs, services, and accountability for mandatory health programs and services by the Minister of Health and Long-Term Care under Section 7 of the Health Protection and Promotion Act.
- Food Safety and Quality Act, 2001
  - Provincial statute to ensure that food sold in Ontario is safe and suitable for human consumption and meets all standards in the Regulations.
- Health Protection and Promotion Act, R.S.O. 1990
  - Provincial statute that gives boards of health their legal mandate.
- Designation of Diseases, Reg. 135/18
  - Designates diseases of public health significance and classifies them into communicable or virulent diseases.

16.4. Public Health State of Infrastructure

16.4.1. Public Health Asset Inventory and Replacement Cost

The first step for the Region in developing the Public Health assets section under the CAMP is to understand the assets it currently owns. As illustrated in Figure 53 the estimated cost of replacing the Public Health assets is $28.8 million. This includes buildings and facilities worth $27.8 million. The buildings and facilities portion only accounts for the buildings' replaceable items and equipment, including furnishings and fixtures.

Figure 53: Public Health Inventory and Replacement Cost



16.4.2. Public Health Asset Age Distribution

Figure 54 and Table 123 summarize Public Health assets' average age and estimated service life, weighted by replacement value and asset category. Public Health's fleet assets are past their useful expected life (UEL) and the buildings and facility assets are in the first half of their UEL.

Majority of Public Health assets by replacement value comprise buildings and facilities. The age distribution of these assets considers the age of replaceable equipment and components, such as HVAC, electrical, plumbing, furnishings, and fixtures, which have shorter lifespans than the buildings themselves. As a result, this asset category's overall expected useful life is shorter than that of a typical facility, which can range from 70 to 100 years.

Figure 54: Public Health Average Age by Asset Category

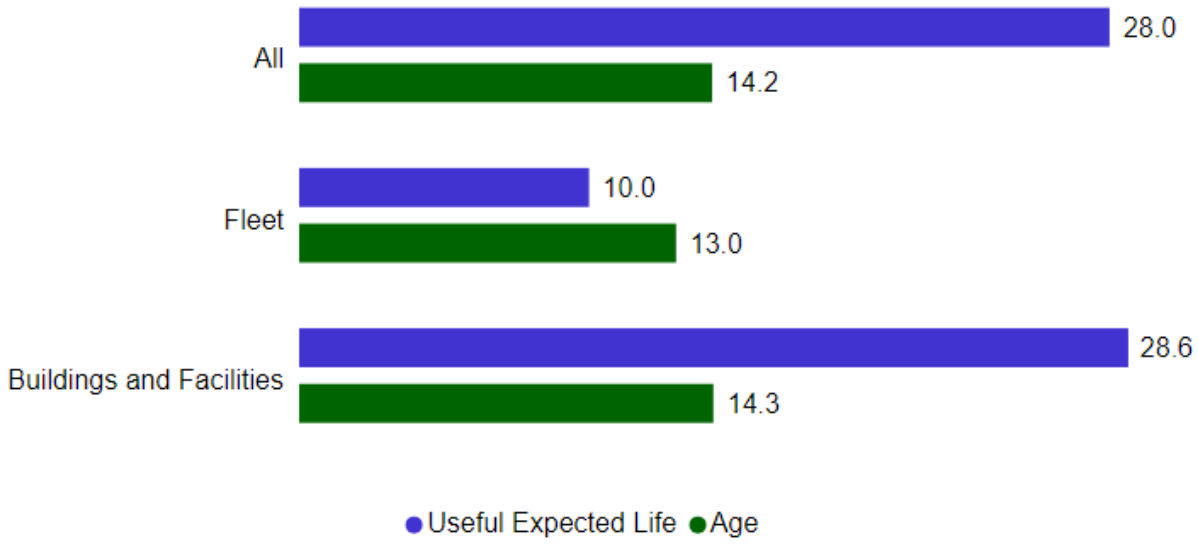


Table 123: Public Health Average Age by Asset Category

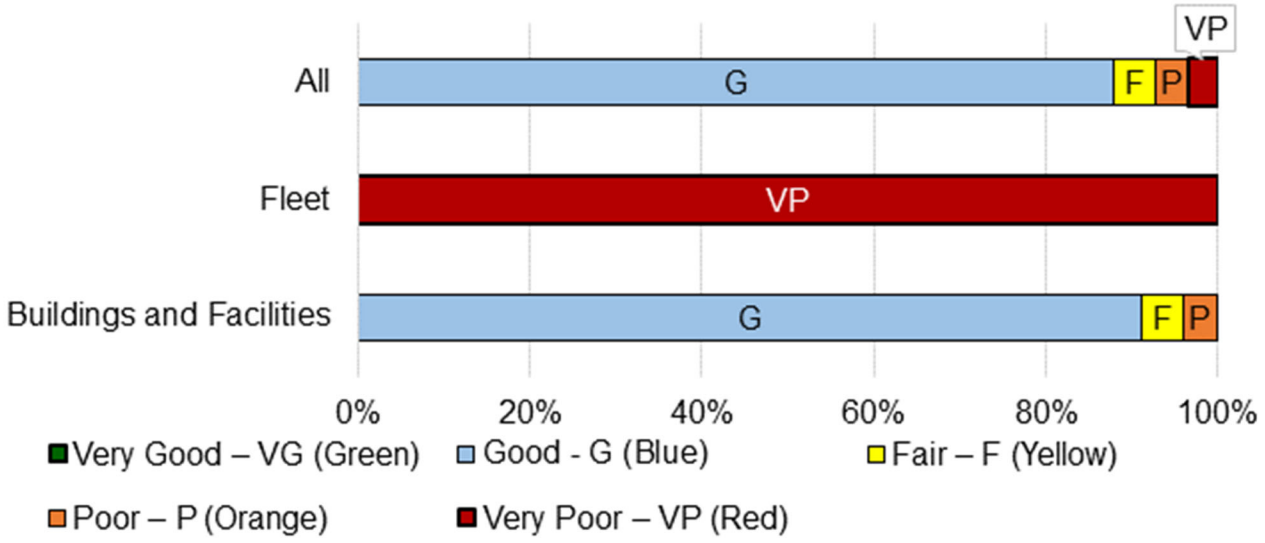
Asset Category	Average Age	Average UEL	Average Remaining Life
Fleet	13.0	10.0	-3.0
Buildings and Facilities	14.3	28.6	14.3

In Table 123, the fleet assets category shows a negative remaining life (-3.0 years) because these assets are currently in service beyond their useful expected life (UEL) and are being replaced. See Table 124 for condition information on this asset category.

16.4.3. Public Health Asset Condition

The graph in Figure 55 below visually illustrates the average condition of Public Health assets on a very good to very poor scale, summarised by asset category. The condition of Public Health assets is obtained using building condition assessments (BCA), usage, and based on age. The Public Health asset portfolio is rated as good, with 87.93% of the overall assets rated as good.

Figure 55: Public Health Asset Condition as % of Value.



The Public Health team regularly monitors the average condition of all assets to ensure acceptable service levels. If a decline in condition is observed, the Public Health team reassesses the facility's lifecycle management strategy to identify the appropriate combination of maintenance, rehabilitation, and replacement activities needed to enhance the overall condition of the buildings. Furthermore, each asset class's Useful Expected Life (UEL) is reviewed periodically to ensure alignment with the actual service life observed for each asset class.

Table 124: Public Health Asset Condition as % of Value

Condition rating (colour indicator)	Fleet	Buildings and Facilities	Total
Very Good – VG (Green)	0.00%	0.00%	0.00%
Good - G (Blue)	0.00%	91.09%	87.93%
Fair – F (Yellow)	0.00%	5.00%	4.82%
Poor – P (Orange)	0.00%	3.92%	3.78%
Very Poor – VP (Red)	100.00%	0.00%	3.47%

16.4.4. Public Health Risk

The risk assessments outlined in Table 125 and Table 126 represents the percentage of total asset replacement cost according to the risk of asset failure.

provide a high-level evaluation based on the weighted replacement value of the assets and their associated percentages. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for the assets in the Public Health asset category. It is essential to emphasize that this does not relate to operational services risk.

Table 125: Public Health Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.00	$0.00	$1.00	$0.00
High	$0.00	$0.00	$0.00	$0.00	$0.00
Moderate	$0.00	$0.00	$0.00	$0.00	$0.00
Low	$1.86	$10.66	$8.24	$5.83	$0.59
Very low	$0.00	$0.00	$0.00	$0.00	$0.00

POF = Probability of failure COF = Consequence of failure

Table 126 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 126: Public Health Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$1.86	6.44%
L	Low (L)	$10.66	36.96%
M	Moderate (M)	$14.07	48.79%
H	High (H)	$0.59	2.05%
VH	Very high (VH)	$1.00	3.47%
	Unknown	$0.66	2.30%
	Total	**$28.84**	**100.00%**

16.5. Public Health Lifecycle Strategies

Public Health mitigates risks associated with asset failure through inspection and maintenance programs. This involves relying on annual inspections and daily operational checks to guide fleet asset renewal. Similarly, building condition assessments (BCA), facility operator reviews, and annual site walk-through inspections inform asset renewal decisions for buildings and

facilities. The Region's methodology aims to preserve the condition and functionality of its assets to ensure that service standards for customers remain intact.

To fulfill its program goals and sustain service standards, the Region enhances existing assets to satisfy functional needs and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12 (page no 49). They are influenced by the service levels detailed in Section 3 (page no 30) and the necessity of managing the associated Fleet Services risks using the same risk strategies and methodology discussed in Section 4.5 (page no 47).

Public Health and the Region’s facility asset management team incorporates robust planning for operations, maintenance, condition assessment, and active interventions in climate change considerations in new construction, maintenance, and renewal activities. Assessing the vulnerability of these assets guides necessary lifecycle adjustments. The Region regularly audits facility asset data to keep information current and introduce classifications for lifecycle activities. Capital investments in existing assets is documented in the corresponding asset data. Additionally, the region captures annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to assess performance against targets. For missing data, a strategy for collection and integration is implemented.

16.6. Public Health Financial Strategy

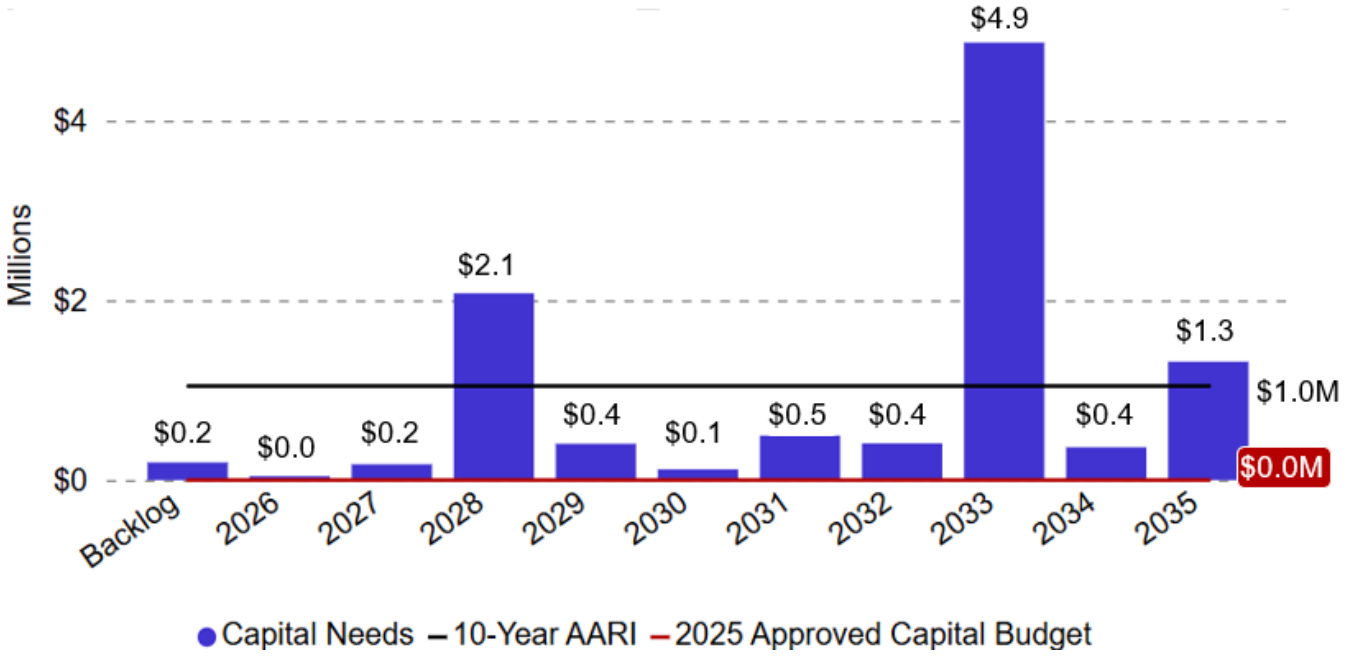
For Public Health assets, the renewal forecast is based on asset lifecycles and associated maintenance data. The lifecycle analysis focuses on extending the asset life as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The timing of renewal activities in the forecast is determined by the asset's current condition, age, and estimated service life. The estimated service life included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement. It is important to note that, for Public Health’s building assets, this approach does not account for the eventual replacement of the entire building, which may be warranted for strategic reasons or changes in functional requirements independent of the Public Health's assets' state-of-good repair needs.

Figure 56 illustrates that Public Health assets will require an average annual renewal investment (AARI) of $1.05 million from 2026 to 2035 to maintain operations and service levels. This results in a total capital requirement of $10.47 million over the 10-year period, which includes:

- $10.27 million in projected capital needs for 2026-2035
- $0.20 million in deferred capital spending backlog

The 10-year AARI represents 3.70% of the total asset replacement value, which is estimated at $28.4 million. For comparison, the 50-year AARI is forecasted to be $0.44 million, as the backlog would be spread over a more extended period.

Figure 56: Public Health AARI and Forecasted Capital Needs



16.6.1. Public Health Financial Indicators

Public Health's service delivery cost includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for Public Health is presented in Table 127.

Table 127: Public Health Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$40.43
Utilities	$0.11
Operating & maintenance	$0.66
Program specific	$9.81
Capital reserve transfers	$2.03
Debt charges	$1.16

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Appendix 1

Niagara Emergency Medical Services

17. Emergency Medical Services

17.1. Introduction

Niagara Emergency Medical Services (NEMS) provides 24-hour evidence-based emergency pre-hospital medical care and transportation to individuals experiencing injury or illness. NEMS customers include all residents and visitors of the Niagara Region. Assets utilized to provide the services are summarized in Table 128.

Table 128: Assets Used to Provide Emergency Medical Services

Asset Description	Count
Vehicles	92 units
Program Equipment	48 units
Region-owned NEMS facilities	9 units
Leased NEMS facilities	16 units*

*13 of the 16 leased NEMS facilities are excluded from this NEMS State of Infrastructure and Financial Strategy section because of limited asset details. Information on the excluded assets can be found in the excluded assets in section 1.3 (page no 26).

Provincial objectives for public health services and related legislation are primary drivers that guide and direct the delivery of NEMS. The Council provides direction for service delivery through reporting updates and the Region's Corporate Strategy and Priorities. Other NEMS-specific documents that guide service delivery include the following:

- Niagara Region Public Health's Strategic Plan
- Regional Municipality of Niagara Emergency Medical Services Master Plan- 2025
- Niagara Region Approved Response Time Performance Plan PHD 07-2019
- Health Equity Strategic Plan 2018

17.2. NEMS Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Most of the drivers for NEMS result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Demographics
- Legislation and higher government
- Socio-economic issues and trends
- Operational efficiency
- Call Volume & Acuity
- Asset management
- Tourism/transient population

The NEMS Master Plan, which is being released soon, will provide a 10-year projection of service demand, and identify the capital needs required to support those demands.

17.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. The Region's current master plans outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to the future state, including requirements for new, expanded, and enhanced assets.

Table 129 lists forecasted capital projects for NEMS required to address these growth or enhancement needs. For additional information on growth-related projects, please see the section 17.7.

Table 129: NEMS Forecast Asset Portfolio Growth and Enhancement Projects

Asset class	Growth or enhancement forecasted
Facility	NEMS central hub including Fleet, Training, Administration and Dispatch
Fleet	Additional ambulances and supporting equipment
Fleet	Additional response units and supporting equipment
Fleet	Incident Command Trailer, Emergency Support Unit, Utility Transport Vehicle (Offroad)

17.3. NEMS Levels of Service

Table 130 summarizes information on customer and technical measures for levels of service (LOS) that relate to the operation, maintenance, and renewal of assets to sustain NEMS's current LOS.

The current levels of service for NEMS assets will be maintained as the proposed levels of service for customer LOS, whereas technical LOS will require further review for impact, which will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risk on operations and

capital budgets while capturing the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by building and facilities assets annually. This will allow for the future adjustment of proposed service levels, recognizing that building and facility assets also include replaceable components essential for the associated service delivery.

Table 130: NEMS Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Equitable Region	Customer	Reliability	Facilities are maintained to an appropriate standard and are safe and accessible.	Compliant	Maintain Standard
Green and Resilient Region	Technical	Reliability	Facility condition index (% of deferred maintenance of overall facility replacement cost)	4.59%	N/A
Effective Region	Customer	Accessibility	Service available broadly - Hours per day and days per week in which service is available. Area in which service is available.	24 hours per day, 7 days/week, covering entire Niagara Region	N/A

17.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on NEMS are as follows:

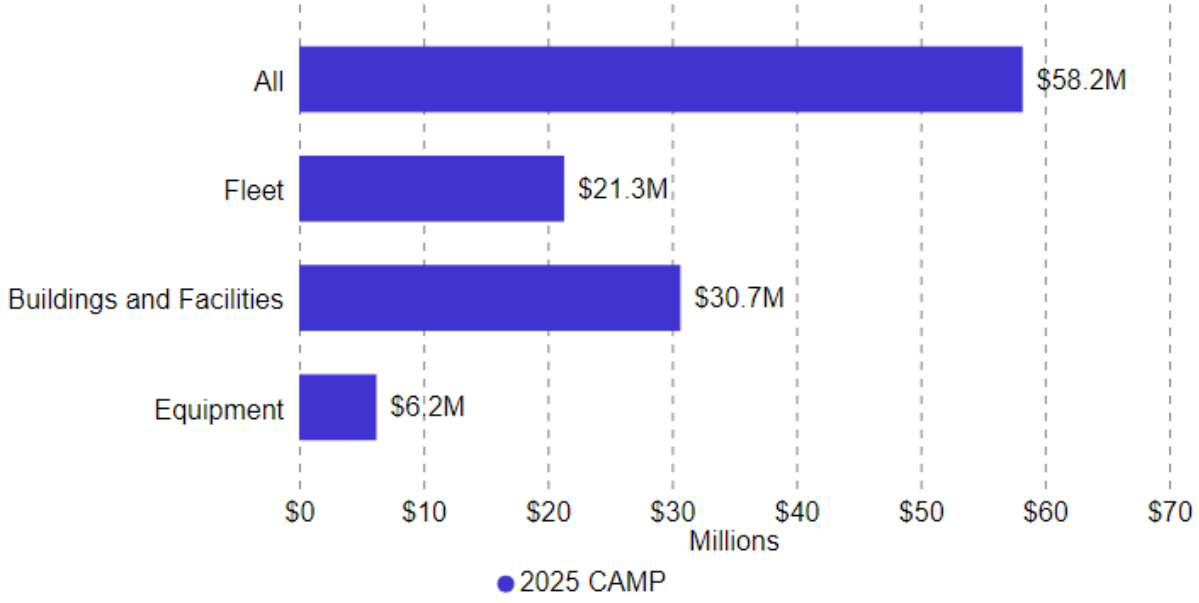
- Ambulance Act, R.S.O. 1990, c. A.19
  - Outlines the provincial and upper-tier municipalities' requirements for providing ambulance service.
- Numerous related regulations and standards including Ontario EMS Vehicle and Equipment Standards, Ontario Patient Transport Standards, Ontario Patient Documentation Standard, and Advanced Life Support/Basic Life Support Patient Care Standards.

17.4. NEMS State of Infrastructure

17.4.1. NEMS Asset Inventory and Replacement Cost

The first step for the Region in developing the NEMS section under the CAMP is to understand the assets it currently owns. As illustrated in Figure 57, the estimated cost of replacing the NEMS assets is $58.2 million, which includes fleet, equipment, and the building's replaceable items within facilities.

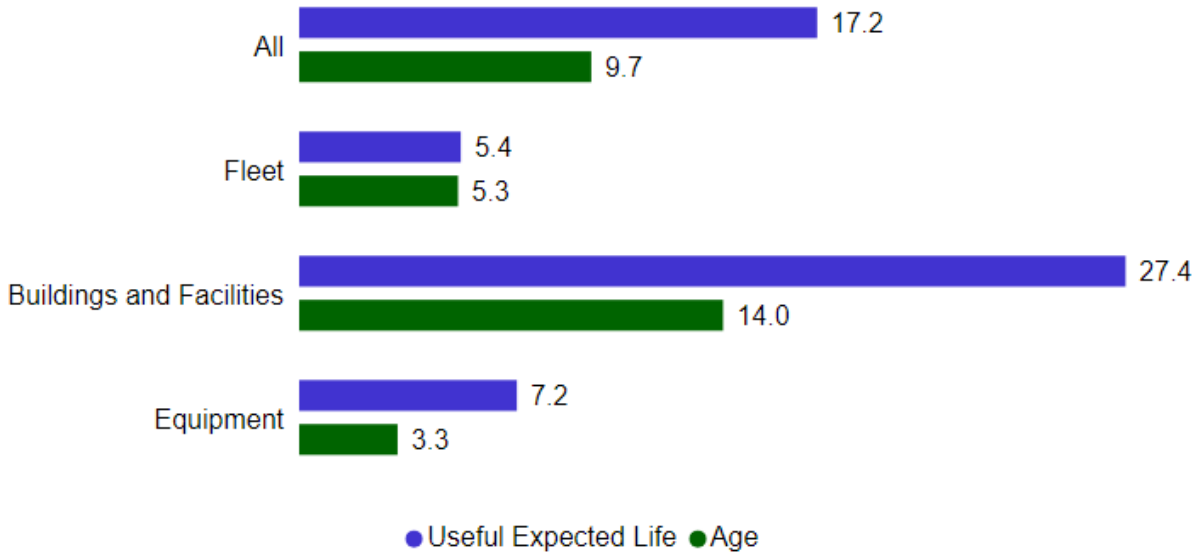
Figure 57: NEMS Inventory and Replacement Cost



17.4.2. NEMS Asset Age Distribution

Figure 58 summarizes the average age and useful expected life (UEL) of the NEMS fleet, equipment, and buildings and facilities assets discussed in this report, weighted by their replacement values. The average age of fleet assets is approaching the average useful expected life (UEL). The average age of equipment is less than half of the average UEL. The average age of the replaceable building assets is over half of the average UEL, which does not account for the entire building. Both Figure 58 and Table 131 present the average age and estimated useful life of these assets, categorized by asset category, and weighted by replacement values.

Figure 58: NEMS Average Age by Asset Category



The age of the replaceable equipment and components within buildings and facilities generally has shorter lifespans than the buildings themselves. Consequently, this asset category's overall expected useful life is shorter than that of a typical facility, which ranges from 70 to 100 years.

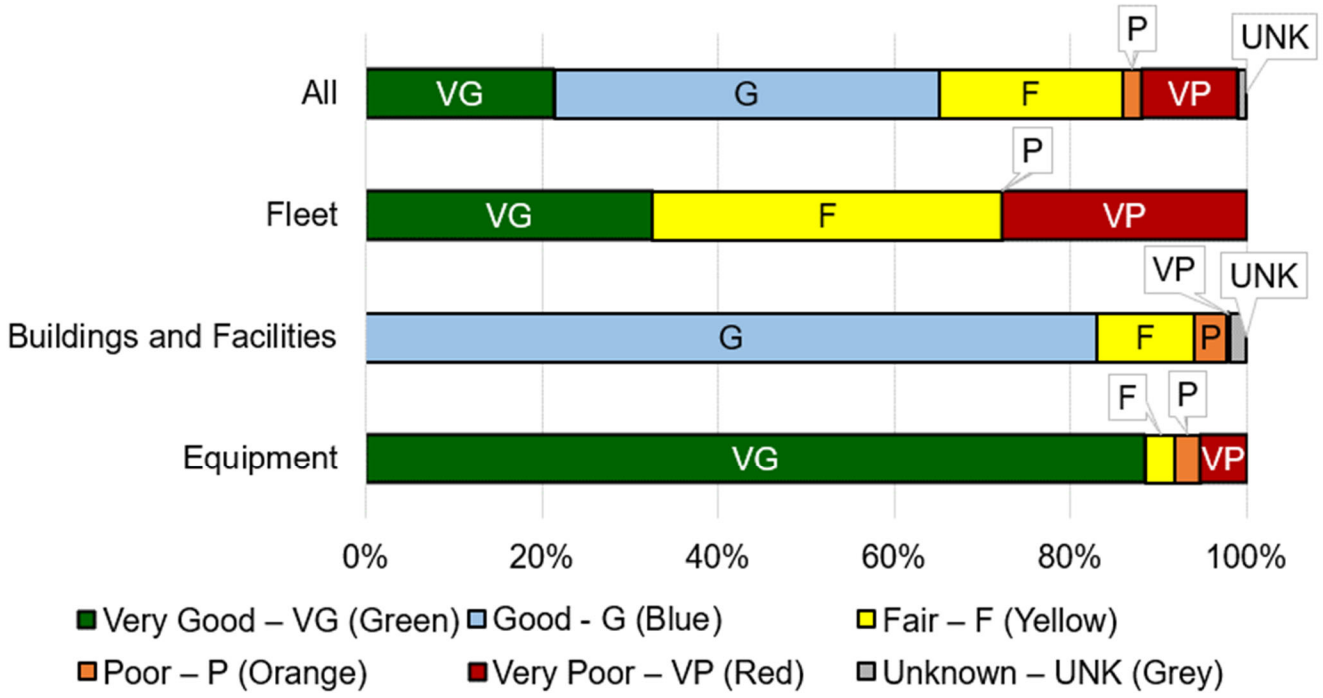
Table 131: NEMS Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Fleet	5.3	5.4	0.1
Equipment	3.3	7.2	4.0
Buildings and Facilities	14.0	27.4	13.3

17.4.3. NEMS Asset Condition

The graph below visually illustrates the average condition of the NEMS fleet, equipment, and buildings and facilities assets on a very good to very poor scale. The NEMS fleet and equipment conditions are derived from the age-based calculation. The condition of buildings is based on building condition assessments (BCAs) undertaken between 2022 and 2023. The NEMS asset portfolio is rated as good, with 65.10% of the overall assets rated as good or very good. The estimated condition of assets, weighted by replacement value, is summarized by asset category in Figure 59 and Table 132.

Figure 59: NEMS Asset Condition as % of Value.



The NEMS team regularly monitors the average condition of all assets to ensure acceptable service levels. If a decline in condition is observed, the NEMS team reassesses the asset lifecycle management strategy to identify the appropriate combination of maintenance and replacement activities needed to enhance the overall condition of the assets. Furthermore, each asset class's Useful Expected Life (UEL) is reviewed periodically to ensure alignment with the actual service life observed for each asset category.

Table 132: NEMS Asset Condition as % of Value

Condition rating (colour indicator)	Fleet	Equipment	Buildings and Facilities	Total
Very Good – VG (Green)	32.60%	88.52%	0.00%	21.39%
Good - G (Blue)	0.00%	0.00%	82.95%	43.71%
Fair – F (Yellow)	39.73%	3.38%	11.18%	20.81%
Poor – P (Orange)	0.00%	2.90%	3.65%	2.23%
Very Poor – VP (Red)	27.66%	5.21%	0.30%	10.85%
Unknown – UNK (Grey)	0.00%	0.00%	1.92%	1.01%

17.4.4. NEMS Risk

The risk assessment in Table 133 and Table 134 provides a high-level risk evaluation based on the weighted replacement value of assets and percentage. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for the NEMS assets. It is essential to emphasize that this does not relate to operational services risk.

Table 133: NEMS Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.08	$0.20	$1.31	$5.18	$0.17
High	$0.33	$1.39	$0.80	$0.61	$0.09
Moderate	$0.32	$3.58	$1.90	$8.75	$0.21
Low	$1.26	$8.43	$4.54	$2.92	$0.33
Very low	$0.64	$0.82	$1.09	$12.61	$0.08

POF = Probability of failure COF = Consequence of failure

Table 134 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 134: NEMS Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$2.72	4.67%
L	Low (L)	$9.84	16.90%
M	Moderate (M)	$27.43	47.13%
H	High (H)	$12.20	20.96%
VH	Very high (VH)	$5.43	9.33%
	Unknown	$0.59	1.01%
	Total	**$58.21**	**100.00%**

17.5. NEMS Lifecycle Strategies

For NEMS assets, risks relating to asset failure are mitigated through inspection and maintenance programs. These provide the necessary data to identify the work required to achieve the established LOS. Asset lifecycles, facility operator reviews on site, annual site walk-through inspections, and input from the program department drive asset renewal. The strategy

for managing facilities-related assets concentrates on utilizing lifecycle activities and building conditions assessment (BCAs) to achieve cost-effective and sustainable management of building resources. Overall, the Region's NEMS assets are generally in good shape and sufficiently meet the demands of the current service level. The Region's methodology aims to preserve the condition and functionality of its assets to ensure that service standards for customers remain intact.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12 (page no 49), which describes lifecycle asset categories. They are influenced by the service levels detailed in Section 3 (page no 30) and the necessity of managing the associated facilities' risks using the same risk strategies and methodology discussed in Section 4.5 (page no 47).

NEMS and the Region’s facility management team incorporate robust planning for operations, maintenance, condition assessment, and active interventions in climate change considerations in new construction, maintenance, and renewal activities. Assessing the vulnerability of these assets guides necessary lifecycle adjustments. The Region regularly audits facility asset data to keep information current and introduce classifications for lifecycle activities. Capital investments in existing assets is documented in the corresponding asset data. Additionally, the region captures annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to assess performance against targets. For missing data, a strategy for collection and integration is implemented.

17.6. NEMS Financial Strategy

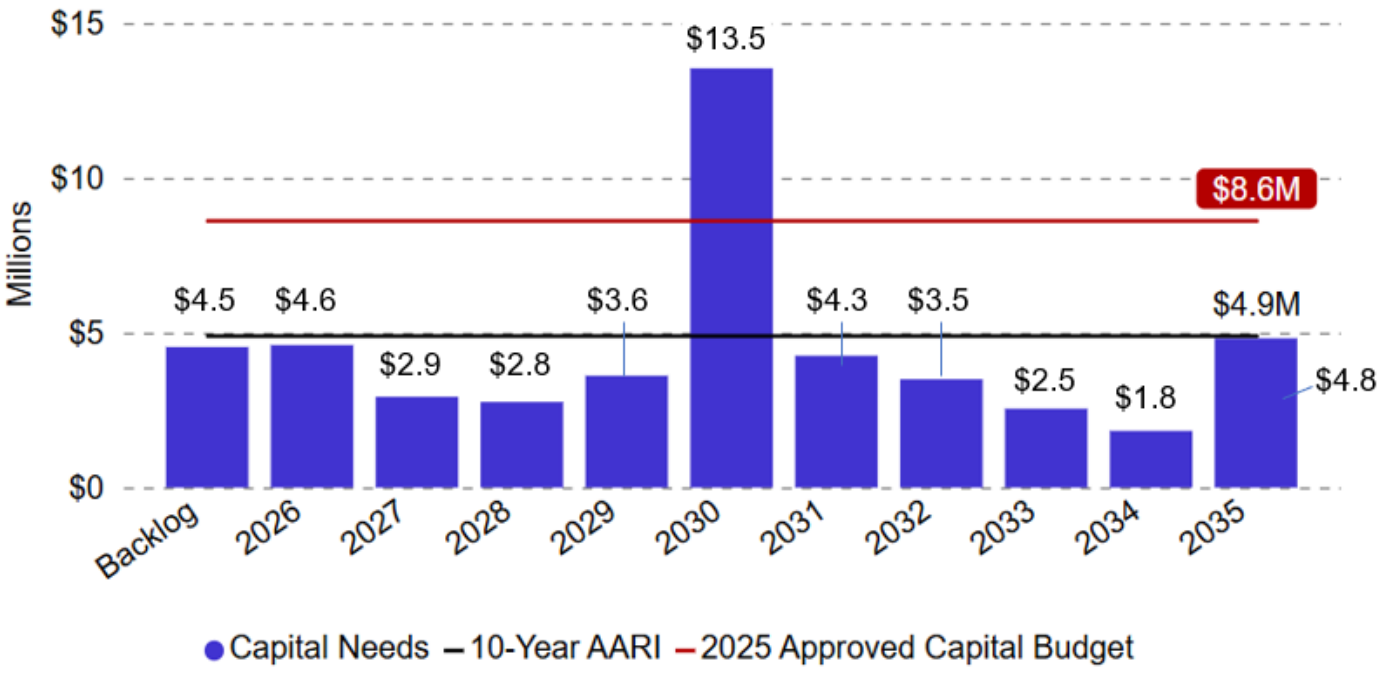
For NEMS assets, the renewal forecast is based on asset lifecycles and associated maintenance data. The lifecycle analysis focuses on extending the life span as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The timing of renewal activities in the forecast is determined by the asset's current condition, age, and estimated service life. The estimated service life included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement. It's important to note that this approach does not account for the eventual replacement of the entire building, which may be warranted for strategic reasons or changes in functional requirements independent of the facility assets' state-of-good repair needs.

Based on these assumptions and analysis, Figure 60 illustrates that, NEMS assets will require an average annual renewal investment (AARI) of $4.9 million from 2026 to 2035 to maintain operations and service levels. This results in a total capital requirement of $49 million over the 10-year period, which includes:

- $45 million in projected capital needs for 2026-2035
- $4.54 million in deferred capital spending backlog

The 10-year AARI represents 8.42% of the total fleet replacement value, which is estimated at $58.2 million. For comparison, the 50-year AARI is forecasted to be $5.2 million, as the backlog would be spread over a more extended period. However, further analysis is necessary to understand sustainability and affordability and the impact of financial pressure, rising costs, and inflation on future projects and infrastructure development.

Figure 60: NEMS AARI and Forecasted Capital Needs



17.6.1. NEMS Financial Indicators

The cost-of-service delivery for NEMS includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for NEMS is presented in Table 135.

Table 135: NEMS Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$67.65
Utilities	$0.21
Operating & maintenance	$5.25
Program specific	$13.41
Capital reserve transfers	$7.77
Debt charges	$0.37

17.7. NEMS 2022 Development Charge Background Study Projects

Table 136 is an extraction of the growth projects identified in the 2022 Development Charge Background Study (2022 DCBS) and Table 137 lists the projects closed between 2022 and 2024.

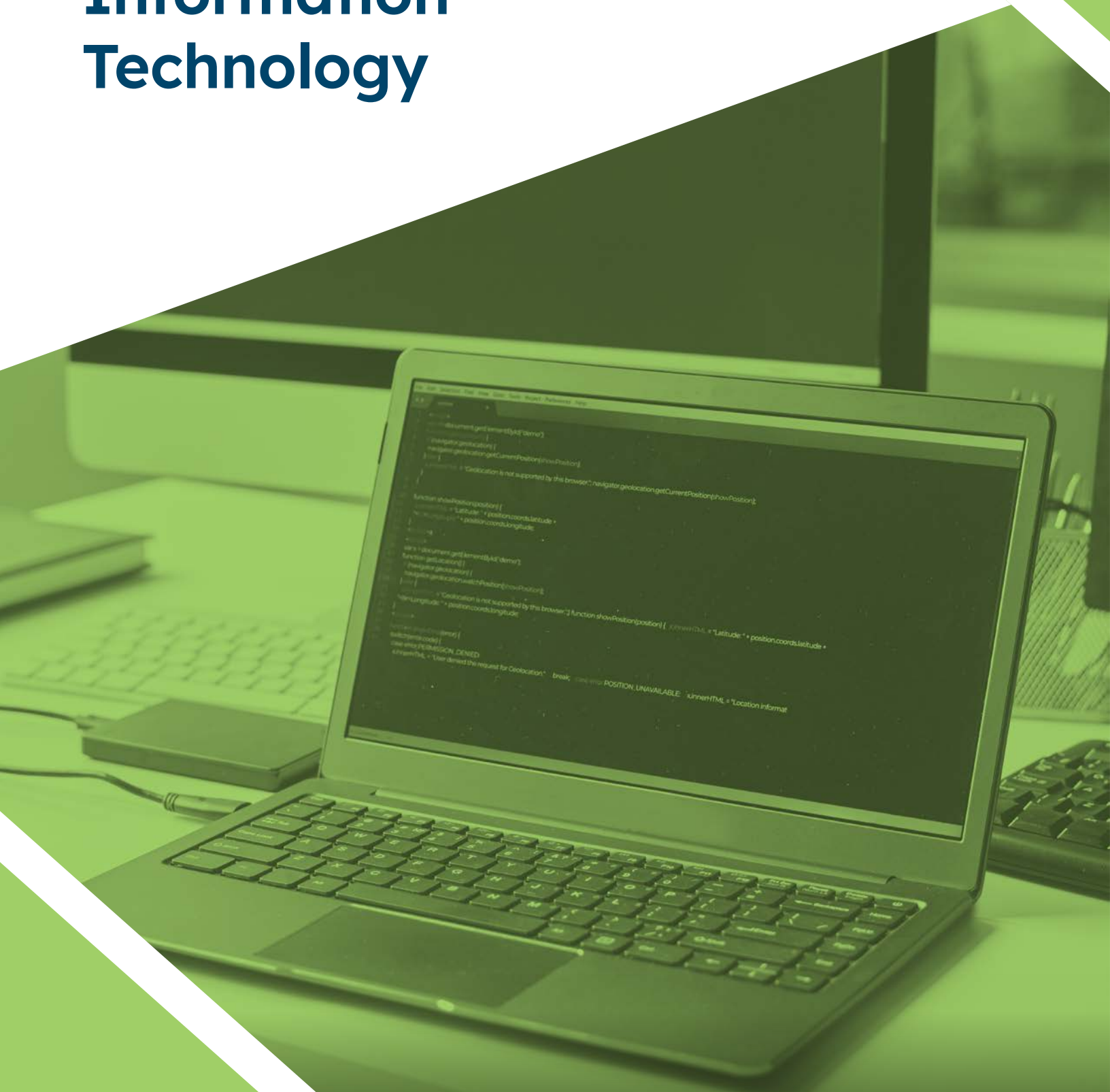
Table 136: NEMS Infrastructure Costs in the DC Calculation

Increased service needs attributable to anticipated development	Timing	Gross capital cost estimate ($ million)	Net cost funded by Region. ($ million)	Other funding sources ($ million)	Potential DC cost recovery ($ million)
Central hub and training facility (includes financing)	2023-2027	$100.2	$93.0	$0.0	$7.2
Ambulances (10)	2022-2031	$3.2	$0.0	$0.0	$3.2
Response units (8)	2022-2031	$0.8	$0.0	$0.0	$0.8

Table 137: NEMS DC Portion of Closed Growth Projects from 2022 to 2024

Increased service needs attributable to anticipated development	Closed Year	Total cost ($ million)
Additional Ambulances	2024	$0.20

Information Technology



18. Information Technology

18.1. Introduction

Information Technology includes activities to plan, build, sustain and secure the enterprise architecture, software applications, computer equipment and telecommunications networks used by the Region in support of municipal service delivery. Assets utilized to provide the services are summarized in Table 138.

Table 138: Assets Used to Provide IT Services

Asset Description	Count
Client Services (Hardware)	4,263 each
IT Application (software)	235 each
IT Infrastructure (Networking, Servers, Storage etc.)	824 each

Specific to IT, provincial objectives, related legislation, digital modernization and cyber threats are drivers that guide and direct planning and delivery of IT services in Niagara Region. The Council also provides direction for delivering this service through reporting updates and the Region's Corporate Strategy and Priorities. Some examples of these planning documents are:

- Governance of IT Services
- IT Asset Replacement Policy
- Information Technology Strategic Plan

18.2. IT Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Most of the drivers for IT result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Legislation and higher government
- Social issues and trends
- Customer expectations
- Economic factors
- Operational efficiency
- Asset management

18.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. The Region's current master plans outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to the future state, including requirements for new, expanded, and enhanced assets. The direct impact of growth will impact other Regional service areas that IT supports. Explicit impacts on IT have not been forecasted at this time.

18.3. IT Levels of Service

Table 139 summarizes information on customer and technical measures of levels of service (LOS) that relate to the operation, maintenance, and renewal of assets to sustain IT's current LOS.

The current service levels for IT assets will be maintained as the proposed levels for customer LOS, whereas technical LOS will require further review to assess the impact, which will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risks on operations and capital budgets while incorporating the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by IT assets annually to allow for the future adjustment of proposed service levels.

Table 139: IT Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer / Community	Accessibility	Accessibility	Access municipal information and services when, where and how it is convenient	Maintain Standard
Effective Region	Technical	Accessibility	Number of visitor sessions to the municipal website per capita.	5.8	N/A

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer / Community	Reliability	Reliability	Reliable communication systems and networks	Maintain
Effective Region	Technical	Additional	Percent satisfaction with the reliability of communication systems and networks.	80%	N/A

18.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical. Some examples of regulations and their impact on IT are as follows:

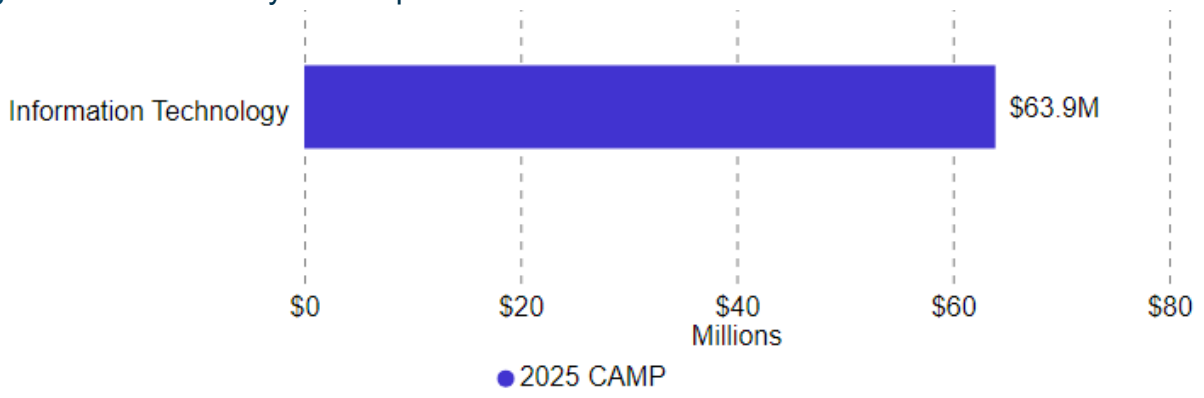
- O. Reg. 429/07: Accessibility standards for customer service
  - This Regulation establishes customer service accessibility standards that public sector organizations must follow.
- Municipal Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. M.56
  - Provide public access to municipal information while protecting individual privacy.
- Freedom of Information and Protection of Privacy Act, R.S.O. 1990, c. F.31
  - Provide access to government information while safeguarding individual privacy.
- Bill 194, Strengthening Cyber Security and Building Trust in the Public Sector Act, 2024
  - The Act addresses public sector entities' cyber security and artificial intelligence systems.

18.4. IT State of Infrastructure

18.4.1. IT Asset Inventory and Replacement Cost

The first step for the Region in developing the senior IT services section under the CAMP is to understand the assets it currently owns. The assets required to support the IT services across the Region include information technology such as hardware and software. The estimated cost to replace the assets is $63.9 million, as summarized in Figure 61, the 2025 CAMP includes assets supporting IT, including IT Infrastructure (network equipment, servers, storage, etc.), Client Service Hardware, and IT Applications (software).

Figure 61: IT Inventory and Replacement Cost



18.4.2. IT Asset Age Distribution

IT assets, on average, are in the last half of their useful expected life (UEL). The average age and estimated service life of IT assets, weighted by replacement value, are summarized by asset category in Figure 62 and Table 140.

Figure 62: IT Average Age by Asset Category

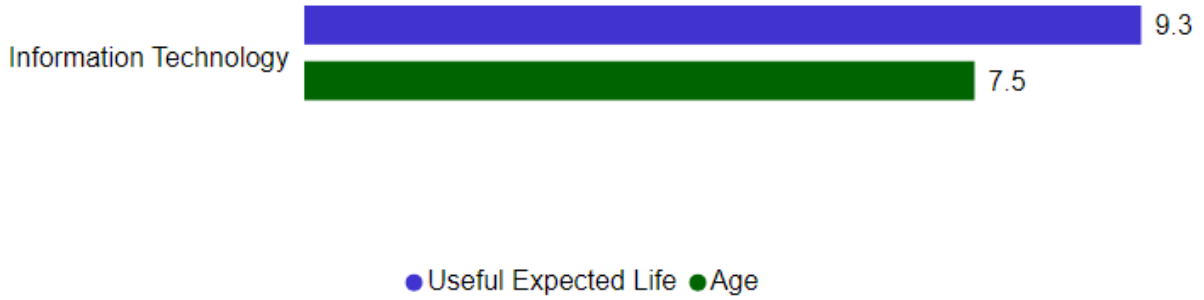


Table 140: IT Average Age by Asset Category

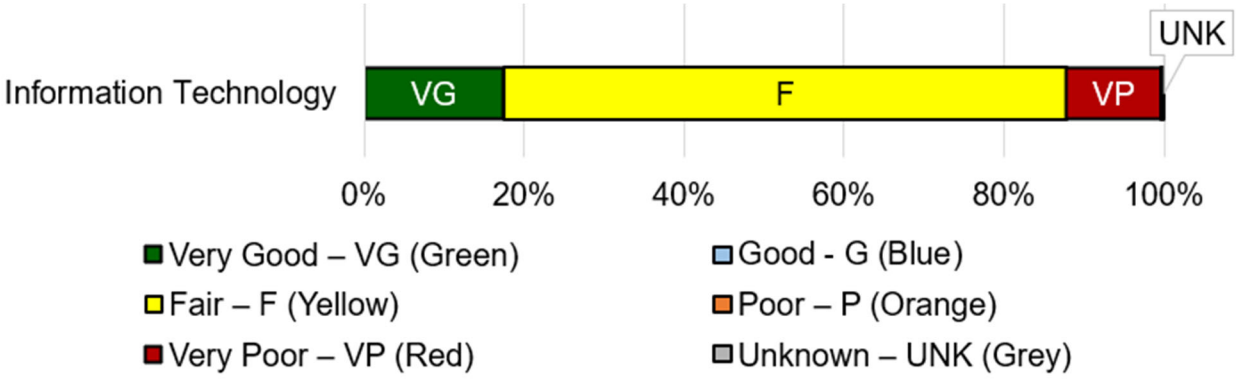
Asset Category	Average Age	Average UEL	Average Remaining Life
Information Technology	7.5	9.3	1.9

18.4.3. IT Asset Condition

The condition of IT assets is based on an aged-based model that estimates current conditions without relying on empirical assessment methodologies. The condition of IT assets is rated as

fair, with 87.79% of assets rated as fair or very good. The condition of IT assets, weighted by replacement value, is summarized by asset category in Figure 63 and Table 141.

Figure 63: IT Asset Condition as % of Value.



The IT team regularly monitors the average condition of all assets to ensure acceptable service levels. If a decline in condition is observed, the IT team reassesses the asset's lifecycle management strategy to identify the appropriate combination of hardware upgrades, software updates, and equipment replacement activities needed to enhance the overall condition of IT assets. Furthermore, each asset class's Useful Expected Life (UEL) is reviewed periodically to ensure alignment with the actual service life observed for each asset type.

Table 141: IT Asset Condition as % of Value

Condition rating (colour indicator)	Information Technology	Total
Very Good – VG (Green)	17.45%	17.45%
Good - G (Blue)	0.00%	0.00%
Fair – F (Yellow)	70.34%	70.34%
Poor – P (Orange)	0.00%	0.00%
Very Poor – VP (Red)	11.83%	11.83%
Unknown – UNK (Grey)	0.38%	0.38%

18.4.4. IT Risk

The risk assessment in Table 142 and Table 143 provides a high-level risk evaluation based on the weighted replacement value of assets and percentage. This approach illustrates the Region's asset risk exposure and prioritization throughout the asset lifecycle. However, this assessment is limited to the financial cost of asset replacement. It does not account for other consequential risks that could impact the Region's ability to meet established levels of service. They need to be monitored and addressed throughout the useful life of the assets.

Table 142 is a standardized risk matrix that represents assets with their current replacement cost according to the risk of asset failure.

Table 142: IT Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.18	$6.46	$1.17	$0.00
High	$0.00	$0.00	$0.00	$0.00	$0.00
Moderate	$0.00	$0.99	$43.26	$0.71	$0.00
Low	$0.00	$0.00	$0.00	$0.00	$0.00
Very low	$0.00	$3.46	$7.69	$0.00	$0.00

POF = Probability of failure COF = Consequence of failure

Table 143 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 143: IT Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$3.46	5.42%
L	Low (L)	$7.69	12.03%
M	Moderate (M)	$44.26	69.24%
H	High (H)	$7.34	11.49%
VH	Very high (VH)	$1.17	1.83%
	Total	**$63.92**	**100.00%**

18.5. IT Lifecycle Strategies

The lifecycle asset strategy IT employs for hardware and software involves replacement as required by operational requirements and the need for advancement or at the end of their expected useful life (UEL) determined using an age-based model where condition data is unavailable. The region is transitioning some software assets to subscription-based services (SaaS), shifting costs from capital expenditures to operating expenses. This transition is expected to provide benefits, including reduced upfront costs, access to automatic updates security fixes, and reduced reliance on internal IT resources for maintenance and support.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12 (page no 49), which describes lifecycle asset categories. They are influenced by the service levels detailed in Section 3 (page no 30) and the necessity of managing the associated asset risks using the same risk strategies and methodology discussed in Section 4.5 (page no 47).

The corresponding asset data document capital investments in existing assets. Additionally, the region captures annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to assess performance against targets. For missing data, a strategy for collection and integration is implemented as part of continuous improvement.

18.6. IT Financial Strategy

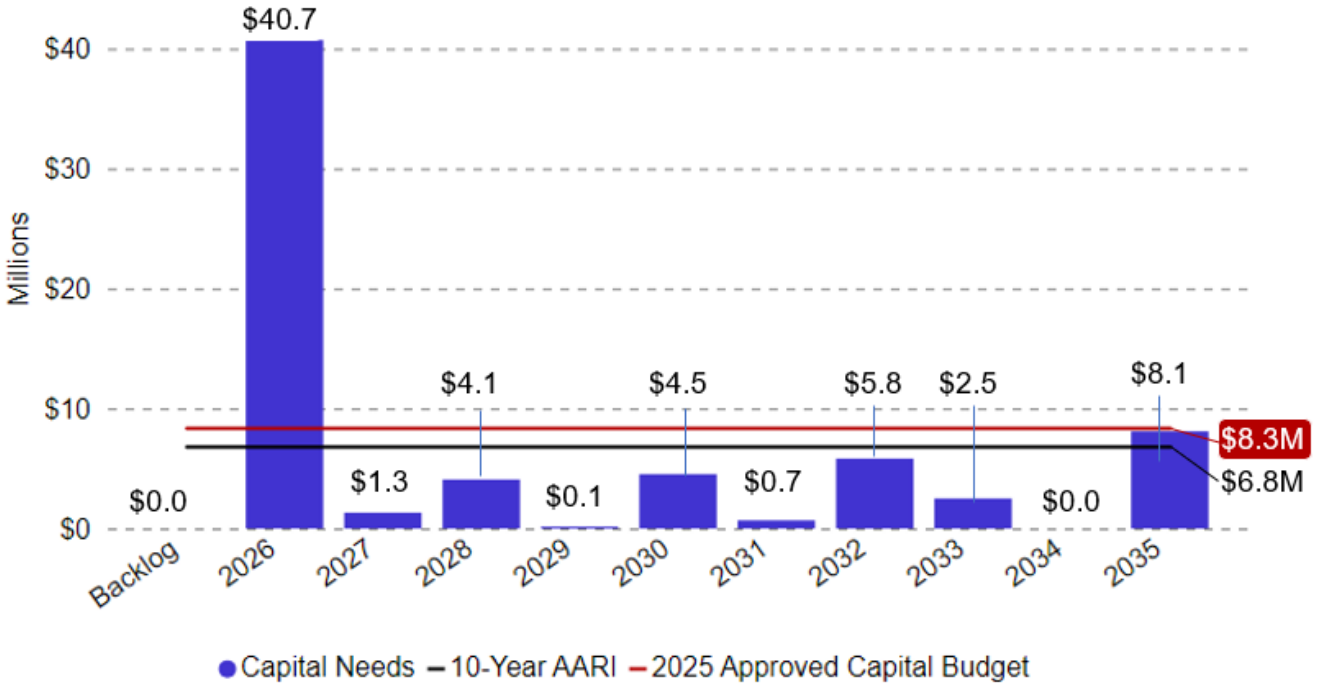
For IT assets, the renewal forecast is based on industry best practices, focusing on extending the asset life as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The timing of renewal activities in the forecast is based on the current condition, age, and estimated service life of assets. Where available, forecasted data from conditions informs the schedule; otherwise, an age-based model is applied for IT assets. The estimated service life included in the forecast considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement. IT assets will require an average annual renewal investment (AARI) of $6.78 million from 2026 to 2035 to maintain operations and service levels. This results in a total capital requirement of $67.84 million over the 10-year period, which includes:

- $67.84 million in projected capital needs for 2026-2035
- There is no deferred capital spending backlog for IT services.

The 10-year AARI represents 10.61% of the total IT services replacement value, which is estimated at $63.92 million. For comparison, the 50-year AARI is forecasted to be $7.45 million, as the backlog would be spread over a more extended period. Figure 64 illustrates the anticipated revenue from analyzing all the fleet assets from 2026 to 2035.

Figure 64 presents the AARI necessary to support existing assets and current IT service levels of $6.78 million in the 10-year forecast. This includes annual requirements for the 10 years and addressing any identified capital spending backlog during the same period. For comparison, the 50-year AARI is forecast at $7.45 million.

Figure 64: IT AARI and Forecasted Capital Needs



18.6.1. IT Financial Indicators

The cost-of-service delivery for IT includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for IT is presented in Table 144.

Table 144: IT Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$7.50
Utilities	$0.03
Operating & maintenance	$1.10
Program specific	$6.96
Capital reserve transfers	$0.64
Debt charges	$0.02

Construction, Energy and Facilities Management

19. Facilities

19.1. Introduction

Under Construction Energy & Facilities Management (CE&FM), the facility management team manages an extensive portfolio of buildings for the Niagara Region, maintaining current service levels while effectively managing risks and costs. Some of these facilities and buildings are essential for the Niagara Region to provide services in Public Health, Community Services, Public Works, Police, Transit, General Administration, etc. As part of the Region's Asset Management initiative, CE&FM catalogues and tracks individual building components to ensure all equipment is in state-of-good-repair. The facilities team tracks the remaining useful life of all critical components to provide adequate budget planning for capital replacements before component failure.

Facilities listed in Table 145 are corporate buildings that CE&FM centrally manages but are not reported in this section. These facilities are reported under their respective service area sections, except Niagara Region's headquarters and the environmental centre reported in this section in Table 146. Management includes providing professional project management, facilities operations and energy management services to ensure a safe, secure, functional and aesthetically pleasing environment for Regional staff, Council and members of the public. Facilities support the clients' functional requirements while meeting broader organizational objectives, ensuring efficient and cost-effective use of staff and building resources, and maximizing the useful life of the Region's building portfolio.

Table 145: Assets Managed by CE&FM

Service	Asset Description	Count
Water	Service Centre	1 unit
Transportation	Patrol Yard	4 units
Transit	Niagara Region Transit Centre	4 units
Fleet	Service Centre	1 unit
Children's Services	Daycare	4 units
SAEO	Employment Office	3 units*
Public Health	Health Care Centre	4 units*
NEMS	Ambulance Station	12 units*
Facilities	Niagara Region Headquarter	1 unit
Facilities	Environmental Centre	1 unit
Court Services	Provincial Court	1 unit

Service	Asset Description	Count
Police Services	Buildings & Fleet	9 units

*Some facilities are excluded from the State of Infrastructure and Financial Strategy sections of the respective divisional sections due to the limited availability of asset details. Information on the excluded assets can be found in the excluded assets in section 1.3 (page no 26) of the corporate documentation.

Table 146: Assets That Are Detailed in the Facilities Section

Asset Description	Count
Niagara Region Headquarter	1 unit
Environmental Centre	1 unit

Provincial objectives and related legislation are primary drivers of direct guiding and directing planning and delivery of Facilities services in the Niagara Region. The Council also provides direction for delivering this service through reporting updates and the Region's Corporate Strategy and Priorities. Other legislation and documents that guide service delivery include the following:

- 2024-2028 Energy Conservation and Demand Management Plan
- Niagara Region Accessibility Plan, 2018-2023
- OBC (Ontario Building Code)
- Ontario Fire code
- AODA (Accessibility for Ontarians with Disabilities Act)
- EPA (Environmental Protection Act)
- MOE (Ministry of the Environment)
- TSSA (Technical Standards and Safety Authority)
- ESA (Electrical Safety Authority)
- OSHA (Occupational Health and Safety Act)
- NUDS (Niagara Universal Design Standards)

19.2. Facilities Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Most of the drivers for Facilities result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Legislation and higher government
- Organizational goals and objectives
- Social issues and trends
- Customer expectations

- Pandemic
- Climate change
- Technology
- Asset management
- Accessibility

19.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. The Region's current master plans outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to the future state, including requirements for new, expanded, and enhanced assets. Table 147 lists forecasted capital projects for Facilities required to address these growth or enhancement needs.

Table 147: Facilities Asset Portfolio Growth-Related and Enhancement Projects

Asset class	New growth or enhancement forecasted
Seniors Service	New Long-Term-Care Home in Fort Erie (Gilmore Lodge)
Senior Services	New Long-Term-Care Home in St. Catharines (Linhaven)
Police Services	New Backup 911 Dispatch Centre at 5 Lincoln Street in Welland.
Emergency Medical Services	New Backup 911 Dispatch Centre at 5 Lincoln Street in Welland.
Emergency Medical Services	Proposed new NEMS Hub (Location TBD)

19.3. Facilities Levels of Service

Table 148 summarizes information on customer and technical measures of levels of service (LOS) that relate to the operation, maintenance, and renewal of assets to sustain the Facilities' current LOS.

The current levels of service for facilities assets will be maintained as the proposed levels of service for customer LOS, whereas technical LOS will require further review to assess the impact, which will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risks on operations and capital budgets while incorporating the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by Facility assets annually. This will allow for the future adjustment of proposed service

levels, recognizing that building and facility assets also include replaceable components essential for the associated service delivery.

Table 148: Facilities Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer	Reliability	Facilities are maintained to an appropriate standard and are safe and accessible.	Compliant	Maintain Standard
Effective Region	Technical	Reliability	Facility condition index (% of deferred maintenance of overall facility replacement cost)	10.78%	N/A

19.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on Facilities are as follows:

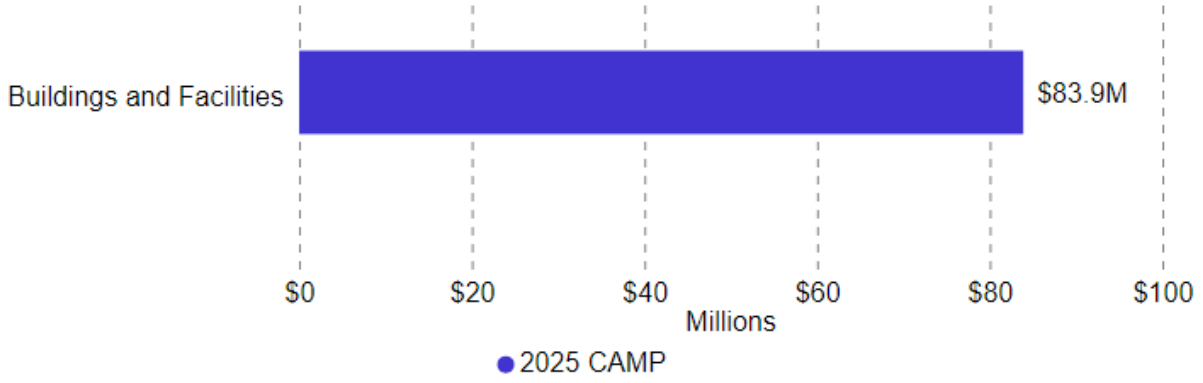
- Building Code Act, 1992, S.O. 1992, c. 23: The Building Code Act is an Ontario regulation describing the facilities' requirements.
- O. Reg. 191/11: Integrated accessibility standards: This regulation established accessibility standards for information and communications, employment, transportation, the design of public spaces, and customer service.
- 2024-2028 Energy Conservation and Demand Management Plan
- Niagara Region Accessibility Plan, 2018-2023
- OBC (Ontario Building Code)
- Ontario Fire code
- AODA (Accessibility for Ontarians with Disabilities Act)
- EPA (Environmental Protection Act)
- MOE (Ministry of the Environment)
- TSSA (Technical Standards and Safety Authority)
- ESA (Electrical Safety Authority)
- OSHA (Occupational Health and Safety Act)
- NUDS (Niagara Universal Design Standards)

19.4. Facilities State of Infrastructure

19.4.1. Facilities Asset Inventory and Replacement Cost

The first step for the Region in developing facilities section under the CAMP is to understand the assets it currently owns. As illustrated in Figure 65, the estimated replacement value of the facility assets is $83.9 million, which only accounts for the replaceable items within the facilities. Assets supporting Facilities included in the 2025 CAMP include shared services facilities such as regional headquarters and the environmental center.

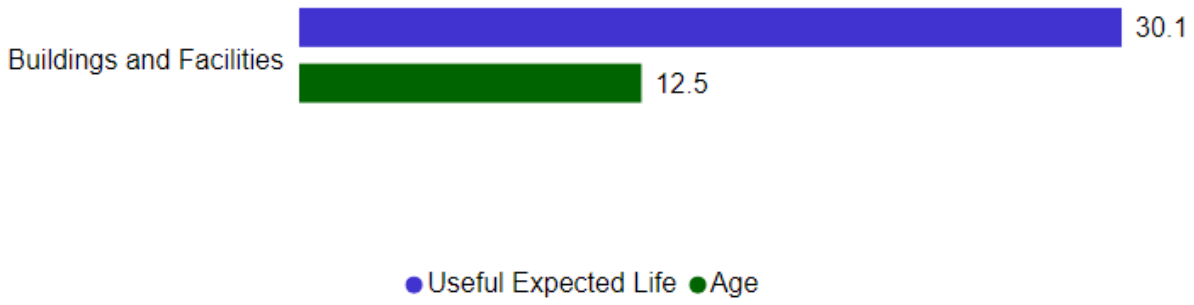
Figure 65: Facilities Inventory and Replacement Cost



19.4.2. Facilities Asset Age Distribution

Figure 66 summarizes the average age and useful expected life (UEL) of the facility assets discussed in this report, weighted by their replacement value. The average age of these replaceable facility assets is less than half of their average useful expected life (UEL), which does not account for the entire building. Both Figure 66 and Table 149 present the average age and estimated useful life of these assets, categorized by asset type and weighted by replacement value.

Figure 66: Facilities Average Age by Asset Category



Average Asset by Age illustrates the age distribution of buildings and facilities. This encompasses the age of building structures and the replaceable equipment and components within them, such as process equipment, which generally has shorter lifespans than the buildings. Consequently, this asset category's overall expected useful life is shorter than that of a typical facility, which ranges from 70 to 100 years.

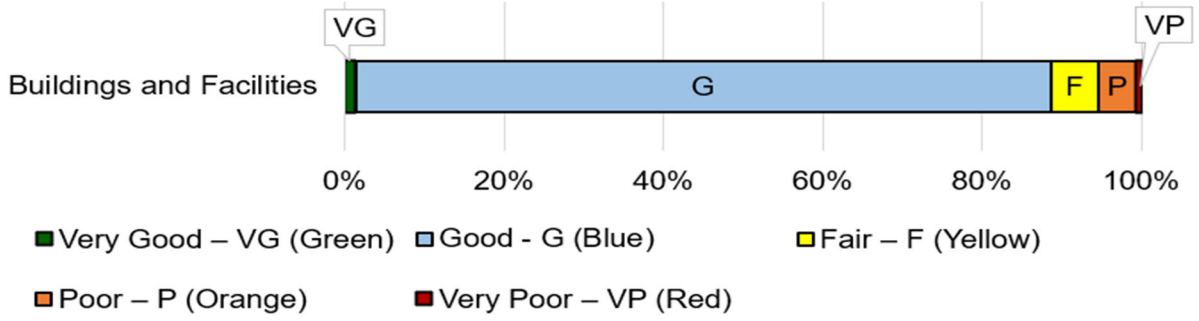
Table 149: Facilities Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Buildings and Facilities	12.5	30.1	17.5

19.4.3. Facilities Asset Condition

The graph below visually illustrates the average condition of buildings and facilities assets on a very good to very poor scale. The condition of facilities' assets is based on building condition assessments (BCAs) undertaken between 2022 and 2023. The Facilities asset portfolio is rated as good, with 88.61% of the assets rated as good and very good. The estimated condition of Facilities assets, weighted by replacement value, is summarized by asset category in Figure 67 and Table 150.

Figure 67: Facilities Asset Condition as % of Value.



The CE&FM team regularly monitors the average condition of all assets to ensure acceptable service levels. If a decline in condition is observed, the CE&FM team reassesses the facility's lifecycle management strategy to identify the appropriate combination of maintenance, rehabilitation, and replacement activities needed to enhance the overall condition of the buildings. Furthermore, each asset class's Useful Expected Life (UEL) is reviewed periodically to ensure alignment with the actual service life observed for each building and replaceable asset type.

Table 150: Facilities Asset Condition as % of Value

Condition rating (colour indicator)	Facility	Total
Very Good – VG (Green)	1.35%	1.35%
Good - G (Blue)	87.25%	87.25%
Fair – F (Yellow)	6.04%	6.04%
Poor – P (Orange)	4.69%	4.69%
Very Poor – VP (Red)	0.67%	0.67%

19.4.4. Facilities Risk

The risk assessment in Table 151 and Table 152 provides a high-level risk evaluation based on the weighted replacement value of assets and percentage. It illustrates the relationship between the probability of failure (POF) and the consequences of failure (COF) for the Facilities divisional assets. It is essential to emphasize that this does not relate to operational services risk.

Table 151: Facilities Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.70	$1.85	$0.11	$0.00
High	$0.63	$4.98	$3.50	$0.58	$0.00
Moderate	$0.88	$10.89	$7.11	$1.56	$0.84
Low	$2.36	$13.08	$7.12	$9.77	$0.45
Very low	$0.00	$5.43	$5.42	$6.27	$0.00

POF = Probability of failure COF = Consequence of failure

Table 152 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 152: Facilities Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$7.79	9.29%
L	Low (L)	$19.38	23.10%
M	Moderate (M)	$46.77	55.76%
H	High (H)	$9.47	11.29%
VH	Very high (VH)	$0.11	0.13%
	Unknown	$0.37	0.44%
	Total	**$83.88**	**100.00%**

19.5. Facilities Lifecycle Strategies

For facilities managed by the corporate facilities service, risks relating to building infrastructure failure are mitigated through inspection and maintenance programs. These provide the necessary data to ensure that the work required to achieve the established LOS is identified. Asset renewal is driven by building condition assessments (BCAs), facility operator reviews on site, annual site walk-through inspections, and input from the program department. The strategy for managing facilities-related assets concentrates on utilizing lifecycle activities to achieve cost-effective and sustainable management of building resources. Overall, the region's facilities are generally in good shape and sufficiently meet the demands of the current service level. The region's methodology aims to preserve the condition and functionality of its facilities to ensure that service standards for customers remain intact.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12, which describes lifecycle asset categories. They are influenced by the service levels detailed in Section 3 and the necessity of managing the associated facilities' risks using the same risk strategies and methodology discussed in Section 4.5.

Building asset management incorporate climate change considerations in new construction, maintenance, and renewal activities. Assessing the vulnerability of these assets will guide necessary lifecycle adjustments. The Region regularly audits facility asset data to keep information current and introduce classifications for lifecycle activities. Capital investments in existing assets is documented in the corresponding asset data. Additionally, the region captures annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to assess

performance against targets. For missing data, a strategy for collection and integration is implemented.

19.6. Facilities Financial Strategy

For facility assets, the renewal forecast is based on recommended activities derived from building condition assessments (BCA) and associated building maintenance data. The lifecycle analysis focuses on extending the building envelope as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The timing of renewal activities in the forecast is determined by the asset's current condition, age, and the estimated service life specified in the building condition assessment. The estimated service life included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement.

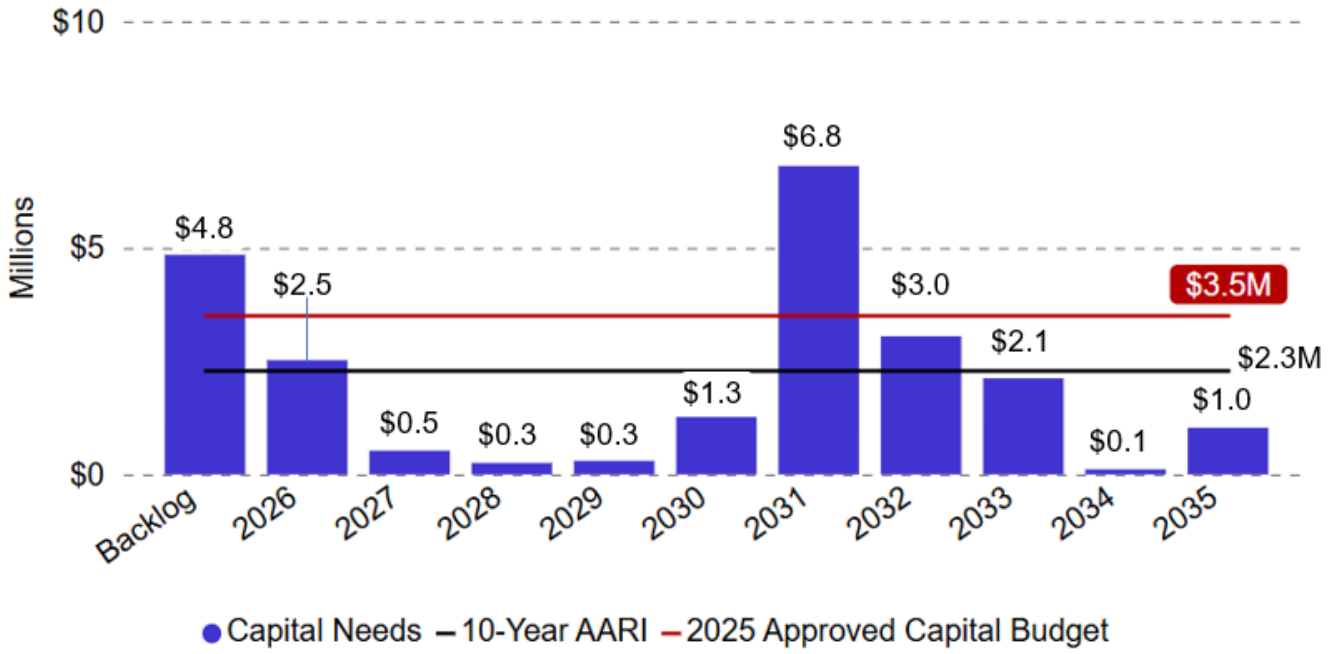
It's important to note that this approach does not account for the eventual replacement of the entire building, which may be warranted for strategic reasons or changes in functional requirements independent of the facility assets' state-of-good repair needs.

Based on these assumptions, Figure 68 illustrates that, the Facilities' assets will require an average annual renewal investment (AARI) of $2.28 million from 2026 to 2035 to maintain operations and service levels. This equates to a total capital requirement of $22.83 million over the 10-year period, which includes:

- $18 million in projected capital needs for 2026-2035
- $4.85 million in deferred capital spending backlog

The 10-year AARI represents 2.72% of the total Facilities' asset replacement value, which is estimated at $83.9 million. For comparison, the 50-year AARI is forecasted to be $1.46 million, as the backlog would be spread over a more extended period.

Figure 68: Facilities AARI and Forecasted Capital Needs



19.6.1. Facilities Financial Indicators

The cost-of-service delivery for Facilities includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for Facilities is presented in Table 153.

Table 153: Facilities Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$3.10
Utilities	$0.58
Operating & maintenance	$1.15
Program specific	$1.25
Capital reserve transfers	$0.66
Debt charges	$0.18

Court Services

20. Court Services

20.1. Introduction

Court Services provides administration of the Provincial Offences Courts in the Region, the prosecution of certain provincial offence matters and fine processing and collection services. Assets utilized to provide the services are summarized in Table 154.

Table 154: Assets Used to Provide Court Services

Asset Description	Count
Provincial offences court	1 unit

Provincial objectives for Court Services and related legislation are primary drivers that guide and direct the delivery of services to courts. Through reporting updates and the Region's Corporate Strategy and Priorities, the Joint Board of Management and Regional Council also provide direction for the delivery of service. Other legislation and documents that guide service delivery include the following:

- Provincial Offences Act R.S.O. 1990
- Charter of Rights and Freedoms
- POA Transfer Agreements (Memorandum of Understanding [MOU] & Local Side Agreement)
- Inter-Municipal Agreement (IMA) between the Region and the LAMs

20.2. Court Services Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Most of the drivers for Court Services result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Legislation and higher government
- Social issues and trends
- Development trends/unique geographic factors
- Charging volumes
- Community safety initiatives
- Customer expectations
- Economic factors
- Operational efficiency
- Asset Management

20.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in the population of Niagara will place significant pressure on the capacity of existing assets and create demand for new assets. The Region has updated various master plans that outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to future state including requirements for new, expanded, and enhanced assets.

Table 155 lists forecasted capital projects for Court Services that are required to address these growth or enhancement needs. For additional information on growth-related projects, please see section.

Table 155: Court Services Forecast Asset Portfolio Growth and Enhancement

Asset class	Growth or enhancement forecasted
Facility	Provision for additional Court space

20.3. Court Services Levels of Service

Table 156 summarizes information on customer and technical measures for levels of service (LOS) that relate to the operation, maintenance, and renewal of assets to sustain Court Service's current LOS.

The current levels of service for Court Services assets will be maintained as the proposed levels of service for customer LOS, whereas technical LOS will require further review for impact that will be reported in the next iteration of the report. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risk on operations and capital budgets while capturing the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by building and facilities assets annually. This will allow for the future adjustment of proposed service levels, recognizing that building and facility assets also include replaceable components essential for the associated service delivery.

Table 156: Court Services Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer	Reliability	Facilities are clean and presentable and maintained in an appropriate state of repair.	Compliant	Maintain Standard
Effective Region	Technical	Reliability	Facility condition index (% of deferred maintenance of overall facility replacement cost)	0.00%	N/A

20.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on Court Services are as follows:

- Provincial Offences Act R.S.O 1990
  - Establishes standards for court services and summarizes the conviction procedure for prosecuting provincial offences.
- Charter of Rights and Freedoms
  - Protects several rights and freedoms, including freedom of expression and the right to equality.
- POA Transfer Agreements (Memorandum of Understanding [MOU] & Local Side Agreement)
  - Establishes requirements of the Region as delivery agent for POA on behalf of the Ministry of the Attorney General
- Inter-Municipal Agreement (IMA) between the Region and the LAMs
  - Establishes requirements for the Region as “Agent” on behalf of the 12 Local Area Municipalities (LAMs) for administration of the POA program.

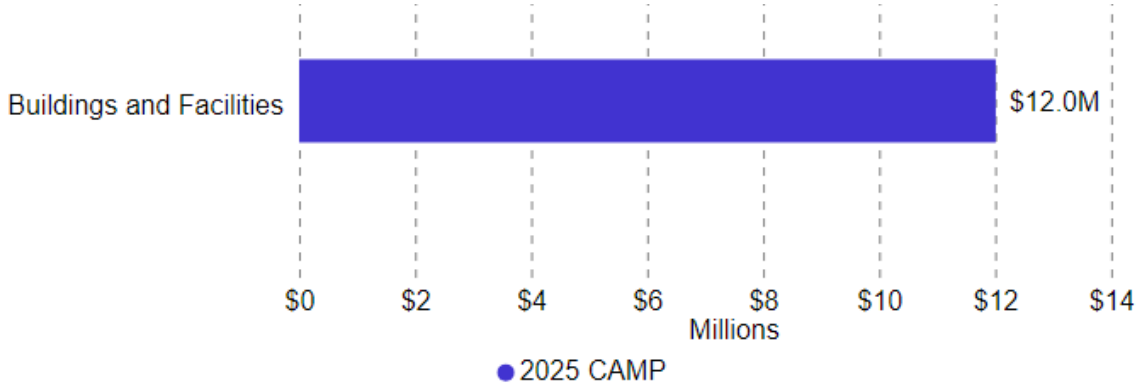
20.4. Court Services State of Infrastructure

20.4.1. Court Services Asset Inventory and Replacement Cost

The first step for the Region in developing the Court Services facilities section under the CAMP is to understand the assets it currently owns. As illustrated in Figure 69 the estimated cost of

replacing the assets is $12.0 million, which only accounts for the replaceable items within the facilities.

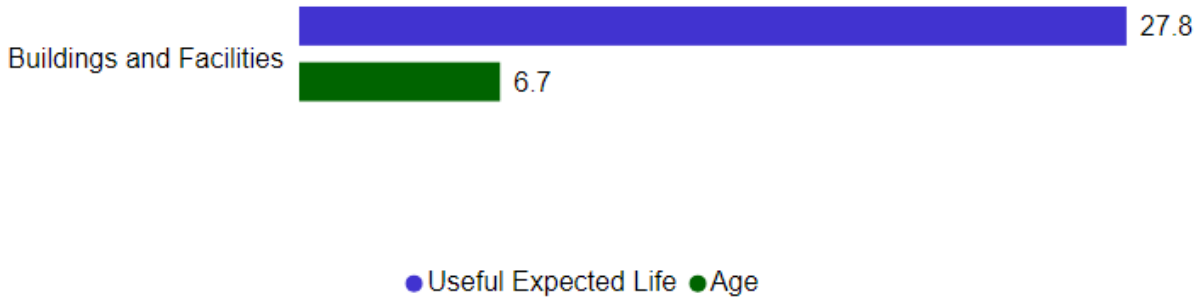
Figure 69: Court Services Inventory and Replacement Cost



20.4.2. Court Services Asset Age Distribution

Figure 70 summarizes the average age and useful expected life (UEL) of the Court Services' buildings and facility assets discussed in this report, weighted by their replacement value. The average age of these replaceable facility assets is less than half of their average useful expected life (UEL), which does not account for the entire building. Both Figure 70 and Table 157 present the average age and estimated useful life of these assets, categorized by asset type and weighted by replacement value.

Figure 70: Court Services Average Age by Asset Category



Average asset by age illustrates the age distribution of buildings and facilities. This encompasses the age of building structures and the replaceable equipment and components within them, which generally have shorter lifespans than the buildings. Consequently, this asset

category's overall expected useful life is shorter than that of a typical facility, which ranges from 70 to 100 years.

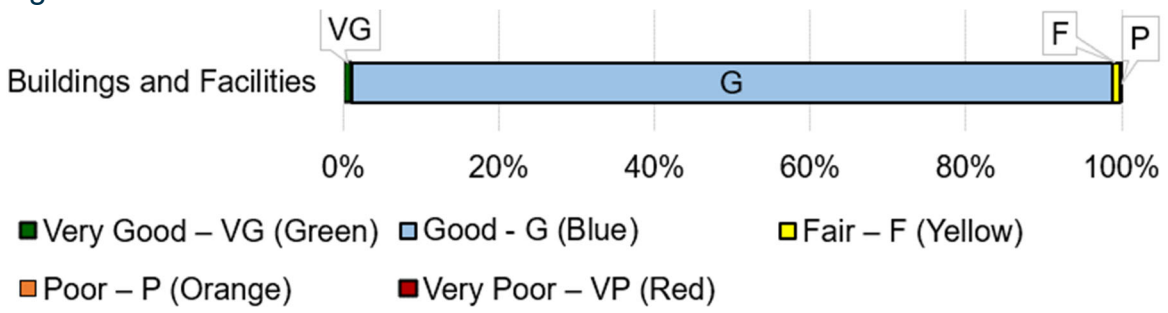
Table 157: Court Services Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Buildings and Facilities	6.7	27.8	21.0

20.4.3. Court Services Asset Condition

The graph below visually illustrates the average condition of buildings and facilities assets on a very good to very poor scale. The condition of the assets is based on building condition assessments (BCAs) undertaken between 2022 and 2023. The court's portfolio of assets is rated in good condition, with 98.73% of the assets rated as good or very good. The estimated condition of Courts' assets, weighted by replacement value, is summarized by asset category in Figure 71 and Table 158.

Figure 71: Court Services Asset Condition as % of Value.



The Court Services team regularly monitors the average condition of all assets to ensure acceptable service levels. If a decline in condition is observed, the Court Services team reassesses the facility's lifecycle management strategy to identify the appropriate combination of maintenance, rehabilitation, and replacement activities needed to enhance the overall condition of the buildings. Furthermore, each asset class's Useful Expected Life (UEL) is reviewed periodically to ensure alignment with the actual service life observed for each building and residential equipment.

Table 158: Court Services Asset Condition as % of Value

Condition rating (colour indicator)	Buildings and Facilities	Total
Very Good – VG (Green)	1.00%	1.00%
Good - G (Blue)	97.73%	97.73%
Fair – F (Yellow)	1.10%	1.10%

Condition rating (colour indicator)	Buildings and Facilities	Total
Poor – P (Orange)	0.17%	0.17%
Very Poor – VP (Red)	0.00%	0.00%

20.4.4. Court Services Risk

The risk assessment in Table 159 and Table 160 provides a high-level risk evaluation based on the weighted replacement value of assets and percentage. This approach illustrates the Region's asset risk exposure and prioritization throughout the asset lifecycle. However, this assessment is limited to the financial cost of asset replacement. It does not account for other consequential risks that could impact the Region's ability to meet established service levels. They need to be monitored and addressed throughout the useful life of the facilities.

Table 159: Court Services Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.00	$0.00	$0.00	$0.00
High	$0.00	$0.00	$0.00	$0.00	$0.00
Moderate	$0.00	$0.00	$0.00	$0.00	$0.00
Low	$1.66	$4.26	$3.83	$2.08	$0.18
Very low	$0.00	$0.00	$0.00	$0.00	$0.00

POF = Probability of failure COF = Consequence of failure

Table 160 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 160: Court Services Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$1.66	13.83%
L	Low (L)	$4.26	35.45%
M	Moderate (M)	$5.91	49.22%
H	High (H)	$0.18	1.50%
VH	Very high (VH)	$0.00	0.00%
	Total	**$12.01**	**100.00%**

20.5. Court Services Lifecycle Strategies

For buildings and facilities managed by Court Services, risks relating to building infrastructure failure are mitigated through inspection and maintenance programs. These provide the necessary data to identify the work required to achieve the established LOS. Asset lifecycles, facility operator reviews on site, annual site walk-through inspections, and input from the program department drive asset renewal. The strategy for managing facilities-related assets concentrates on utilizing lifecycle activities and building conditions assessment (BCAs) to achieve cost-effective and sustainable management of building resources. Overall, the Region's Court Services facilities are generally in good shape and sufficiently meet the demands of the current service level. The Region's methodology aims to preserve the condition and functionality of its facilities to ensure that service standards for customers remain intact.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12 (page no 49), which describes lifecycle asset categories. They are influenced by the service levels detailed in Section 3 (page no 30) and the necessity of managing the associated Court Services' risks using the same risk strategies and methodology discussed in Section 4.5 (page no 47).

Court Services and the Region’s facility asset management team continue to incorporate robust planning for operations, maintenance, condition assessment, and active interventions in climate change considerations in new construction, maintenance, and renewal activities. Assessing the vulnerability of these assets guides necessary lifecycle adjustments. The Region regularly audits facility asset data to keep information current and introduce classifications for lifecycle activities. Capital investments in existing assets is documented in the corresponding asset data. Additionally, the region should capture annual updates on Levels of Service (LOS) and Key Performance Indicators (KPI) to assess performance against targets. For missing data, a strategy for collection and integration is implemented.

20.6. Court Services Financial Strategy

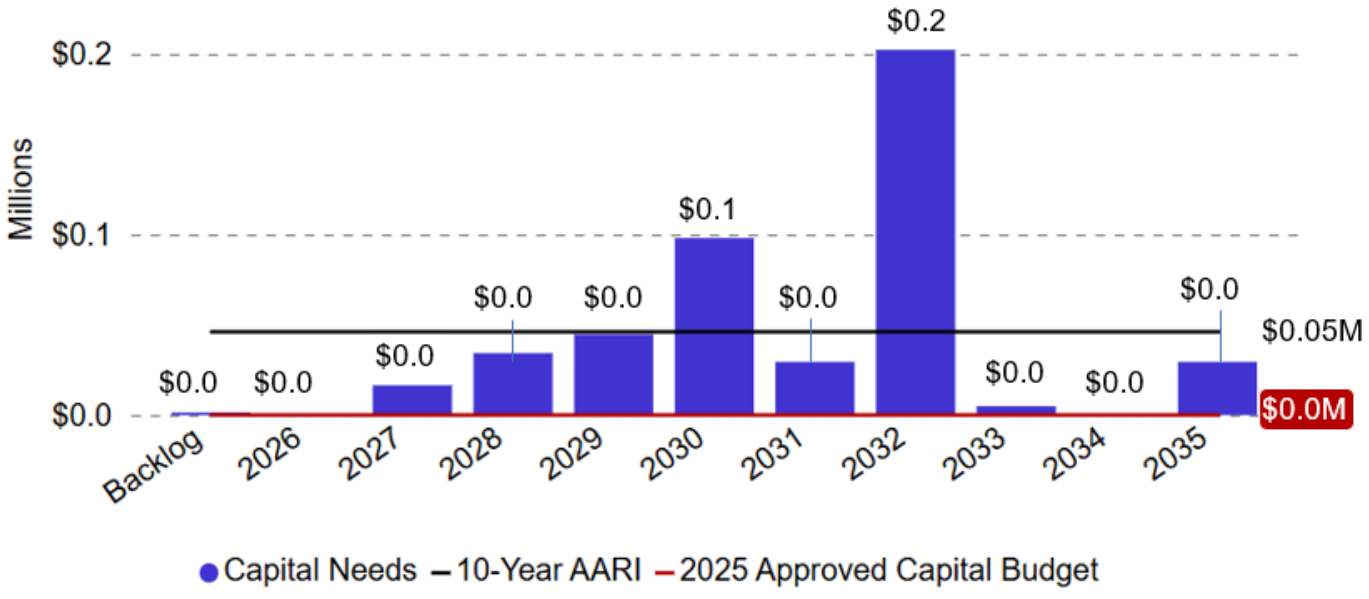
For Court Services assets, the renewal forecast is based on asset lifecycles and associated building maintenance data. The lifecycle analysis focuses on extending the building envelope as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The timing of renewal activities in the forecast is determined by the asset's current condition, age, and the estimated service life specified in the building condition assessment.

The estimated service life included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before requiring replacement.

It's important to note that this approach does not account for the eventual replacement of the entire building, which may be warranted for strategic reasons or changes in functional requirements independent of the Court Services' assets' state-of-good repair needs.

Based on these assumptions, Figure 72 illustrates that the Court Services' assets will require an average annual renewal investment (AARI) of $0.05 million from 2026 to 2035 to maintain operations and service levels. This equates to a total capital requirement of $0.46 million over the 10-year period, which is comprised of projected capital needs for 2026-2035. The 10-year AARI represents 0.42% of the total Court Services' asset replacement value, which is estimated at $12 million. For comparison, the 50-year AARI is forecasted to be $0.22 million, as the backlog would be spread over a more extended period.

Figure 72: Court Services AARI and Forecasted Capital Needs



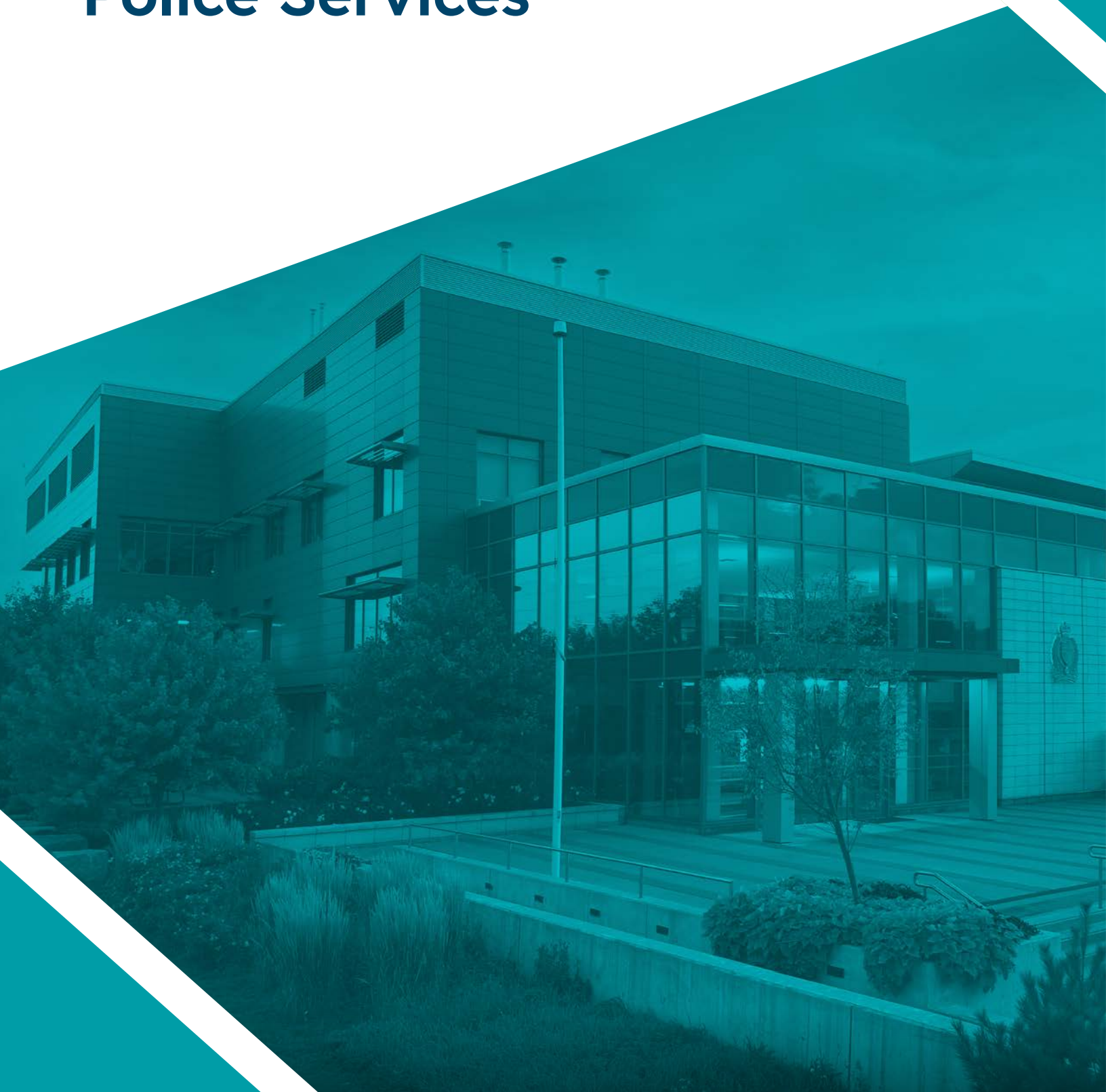
20.6.1. Court Services Financial Indicators

The cost-of-service delivery for Court Services includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for Court Services is presented in Table 161.

Table 161: Court Services Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$5.72
Utilities	$0.05
Operating & maintenance	$0.15
Program specific	$13.66
Capital reserve transfers	$0.29
Debt charges	$0.53

Police Services



21. Police Services

21.1. Introduction

Established on January 1, 1971, the Niagara Regional Police Service (NRPS) is the oldest regional police service in Ontario. NRPS serves one of Ontario's largest geographic regions by patrolling an area of over 1,800 square kilometres, covering 12 municipalities. Niagara Regional Police Services provide police services, including Crime prevention, Law enforcement, Assistance to victims of crime, public order maintenance, and emergency response. NRPS customers include all residents and visitors of the Niagara Region. Assets used to provide services are summarized in Table 162.

Table 162: Assets Used to Provide Police Services

Asset Description	Count
Buildings and Facilities	9 units
Fleet	351 units
Information Technology	11,066 units
Equipment	1,789 units

Provincial objectives for police services and related legislation are primary drivers that guide and direct the delivery of police services in the Niagara Region. Through reporting updates and the Region’s Corporate Strategy and Priorities, the Council also provide direction for the delivery of service. Other legislation and documents that guide service delivery include the following:

- Niagara Regional Police Service Strategic Plan 2022-2025
- Niagara's Community Safety and Well-Being Plan, 2021-2025
- Community Safety and Policing Act, 2019
- Adequate and Effective Policing (General). O. Reg. 392/23
- Policing Standards Manual Ontario 2019

The Niagara Regional Police Service’s 2022-2025 Strategic Plan results from collaborative efforts from Police Services Board members, NRPS personnel, and community stakeholders. This plan builds on the successes of previous strategic initiatives. It plays a vital role in guiding the division's priorities and actions. The emphasis of this strategic plan is on fostering community engagement and delivering excellence in service.

21.2. NRPS Demand Drivers

Demand drivers are the underlying factors that direct change in the demand for the service. Drivers and their influence help define and measure the changing service requirements and the activities and assets required to support those services. Most of the drivers for NRPS result in changes to operational requirements rather than changes to the assets utilized. These key drivers include:

- Demographics and Population Growth
- Legislation and higher government
- Socio-economic issues and trends
- Technology
- Asset management
- Crime rates

NRPS conducts trend analysis on calls for service levels and degree of severity (e.g., priority 1, 2, and 3). In addition, NRPS analyzes changes in call categories (e.g., welfare check, domestic dispute, etc.) to project future resource requirements for service delivery. The demand for service change is also managed through several means, including studies identified in the Niagara Regional Police Service's 2022-2025 Strategic Plan.

21.2.1. Planned Asset Portfolio Growth and Enhancements

The expected growth in Niagara's population will place significant pressure on the capacity of existing assets and create demand for new assets. NRPS has commissioned a third-party firm to develop an 8-year master facility plan to consider the impacts of growth on staffing compliments for the period 2026-2033. In addition to that, the Region's current master plans outline current service levels and associated existing assets, recommend future service levels and associated assets, and identify the actions required to move from the current to the future state, including requirements for new, expanded, and enhanced assets.

Table 163 lists forecasted capital projects for NRPS that are required to address these growth or enhancement needs.

Table 163: NRPS Forecast Asset Portfolio Growth and Enhancement Projects

Asset class	Growth or enhancement forecasted
Fleet	Niagara Regional Police has purchased 15 additional frontline Cruisers through 2022-2025 Capital Funding - Purchases have been made based on 5 per year.

21.3. NRPS Levels of Service

Table 164 summarizes information on customer and technical measures of levels of service (LOS) related to the operation, maintenance, and renewal of assets to sustain NRPS's current LOS.

The current levels of service for NRPS assets will be maintained as the proposed levels of customer LOS, whereas technical LOS will require further review to assess the impact, which will be reported in the next iteration of CAMP. This will remain in effect until a comprehensive Levels of Service (LOS) framework is developed during the next iteration of the CAMP. This framework will reflect the impact of asset performance, conditions, and risks on operations and capital budgets while incorporating the Region's updated growth needs and requirements. It is recommended that the Region continues to monitor the levels of service provided by NRPS assets annually. This will allow for the future adjustment of proposed service levels, recognizing that building and facility assets also include replaceable components essential for the associated service delivery.

Table 164: NRPS Levels of Service

Strategic Priority	Focus	Service Attribute	Service Performance Measure	Current LOS	Proposed LOS
Effective Region	Customer	Reliability	Facilities are maintained to an appropriate standard and are safe and accessible.	Compliant	Maintain Standard
Effective Region	Technical	Reliability	Facility condition index (% of deferred maintenance of overall facility replacement cost)	2.75%	N/A

21.3.1. Legislated Levels of Service (Regulatory Requirements)

Regulations govern many aspects of service delivery at the program level, and much of it is very technical in nature. Some examples of regulations and their impact on NRPS are as follows:

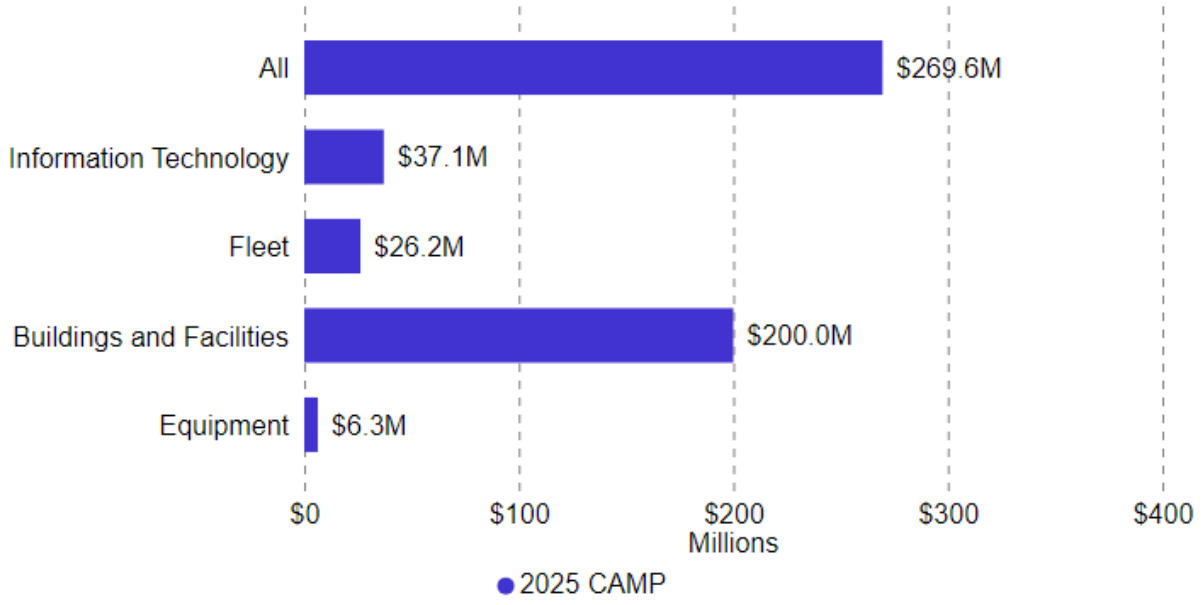
- Community Safety and Policing Act, 2019
  - Outlines several principles with which police services are to follow, such as ensuring the safety and security of all persons and property in Ontario and the importance of safeguarding the fundamental rights guaranteed by the Canadian Charter of Rights and Freedoms and the Human Rights Code.

21.4. NRPS State of Infrastructure

21.4.1. NRPS Asset Inventory and Replacement Cost

As illustrated in Figure 73, the estimated replacement value of the NRPS assets is $269.6 million. This total includes $200.0 million for buildings and facilities assets, mainly for the replaceable items within the Police Services' buildings and facilities. The remaining $69.6 million is attributable to other NRPS asset categories, including information technology, fleet, and equipment.

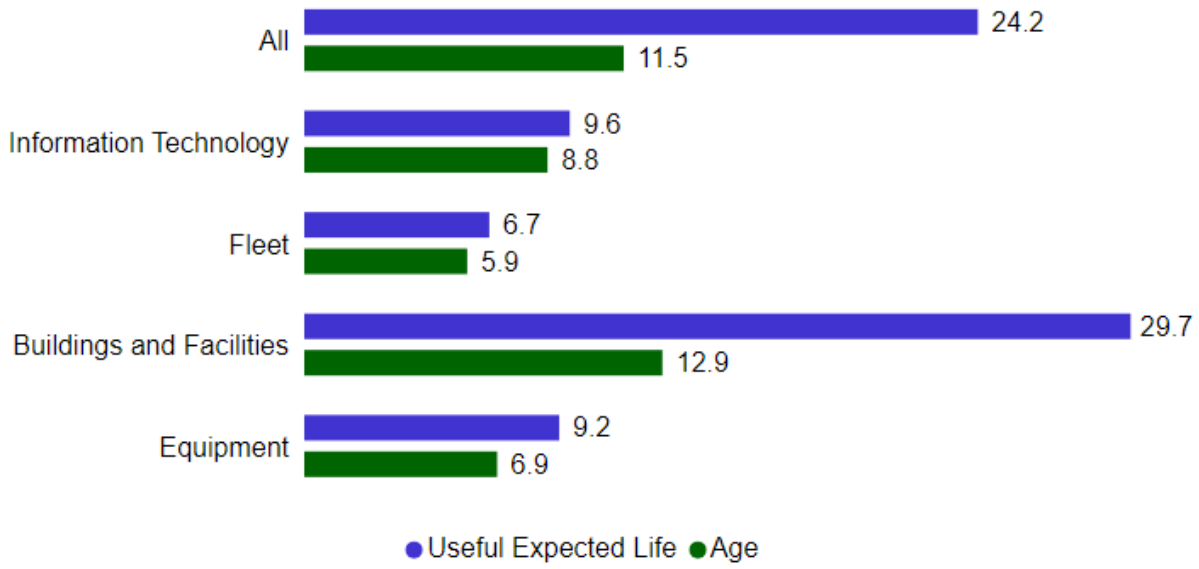
Figure 73: NRPS Inventory and Replacement Cost



21.4.2. NRPS Asset Age Distribution

Figure 74 summarizes the average age and useful expected life (UEL) of NRPS assets discussed in this report, weighted by their replacement value. NRPS's Information technology and fleet assets both are approaching their average UEL, and equipment assets completed two-thirds of their UEL. The average age of replaceable facility assets for buildings and facilities is less than half of their average UEL, which does not account for the entire building. Both Figure 74 and Table 165 present the average age and estimated useful life of these assets, grouped by asset category and weighted by replacement value.

Figure 74: NRPS Average Age by Asset Category



The average UEL of buildings encompasses the lifespan of building structures and the replaceable equipment and components within them, which generally have shorter lifespans than the buildings themselves. Consequently, this asset category's overall expected useful life is shorter than that of a typical facility, which ranges from 70 to 100 years.

Table 165: NRPS Average Age by Asset Category

Asset Category	Average Age	Average UEL	Average Remaining Life
Information Technology	8.8	9.6	0.8
Fleet	5.9	6.7	0.8
Buildings and Facilities	12.9	29.7	16.9
Equipment	6.9	9.2	2.2
Total	**11.5**	**24.2**	**12.7**

21.4.3. NRPS Asset Condition

Conditions of NRPS information technology and equipment assets are primarily based on age, while fleet assets are based on mileage. NRPS's buildings and facilities asset conditions are informed by Building Condition Assessments (BCAs) undertaken.

Assets rated ‘very poor’ based on age do not necessarily indicate an imminent failure but indicate assets beyond their expected lifecycle and past the time-based renewal period. Overall, NRPS assets are rated as good, with 84.89% rated as good or very good. The estimated condition of NRPS assets, weighted by replacement value, is summarized by asset category in Figure 75 and Table 166.

Figure 75: NRPS Asset Condition as % of Value.

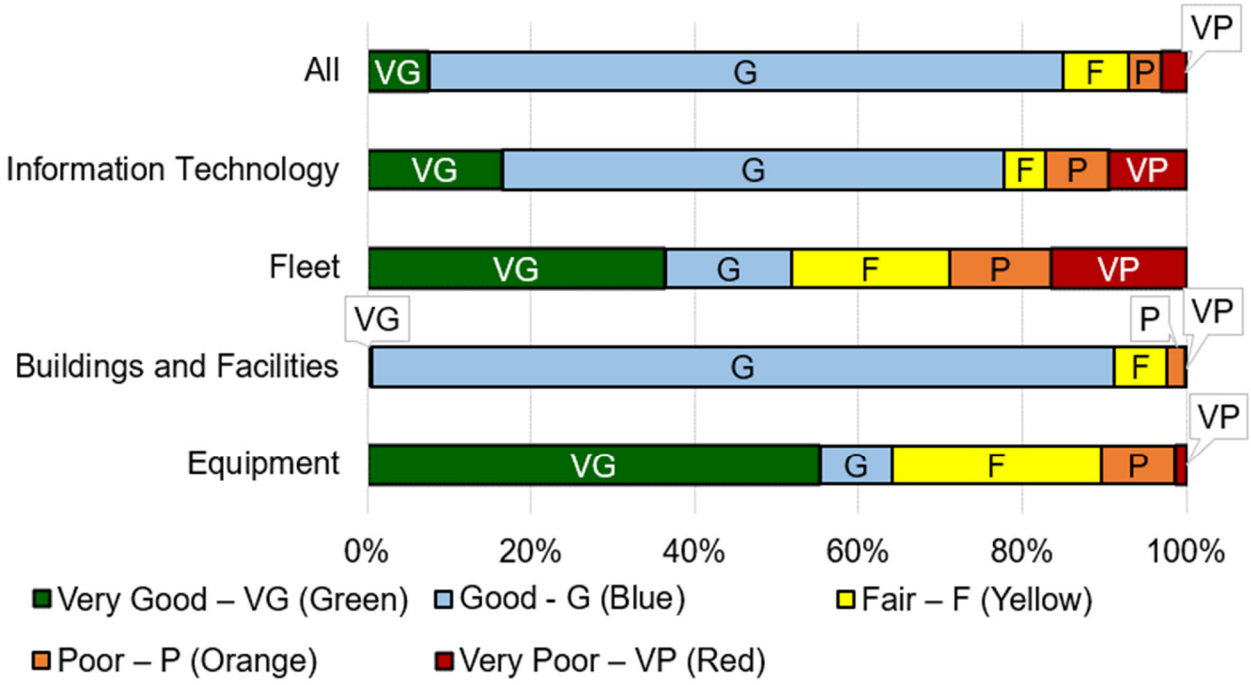


Table 166: NRPS Asset Condition as % of Value

Condition rating (colour indicator)	Information Technology	Fleet	Buildings and Facilities	Equipment	Total
Very Good – VG (Green)	16.50%	36.41%	0.53%	55.31%	7.50%
Good - G (Blue)	61.34%	15.47%	90.65%	8.77%	77.39%
Fair – F (Yellow)	5.03%	19.19%	6.55%	25.54%	8.01%
Poor – P (Orange)	7.68%	12.44%	2.24%	9.09%	4.14%
Very Poor – VP (Red)	9.45%	16.48%	0.04%	1.29%	2.96%

The NRPS team regularly monitors the average condition of all assets to ensure acceptable service levels. If a decline in condition is observed, the NRPS team reassesses the asset lifecycle management strategy to identify the appropriate combination of maintenance and replacement activities needed to enhance the overall condition of the assets. Furthermore, each

asset class's Useful Expected Life (UEL) is reviewed periodically to ensure alignment with the actual service life observed for each asset category.

21.4.4. NRPS Risk

The risk assessment outlined in Table 167 and Table 168 provide a high-level evaluation based on the weighted replacement value of assets and their associated percentages. It illustrates the relationship between the probability of failure (POF) and consequence of failure (COF) for the assets in the NRPS asset category. It is essential to emphasize that this does not relate to operational service risk.

Table 167: NRPS Risk Distribution (in $ million)

COF	Very low	Low	Moderate	High	Very high
POF					
Very high	$0.00	$0.00	$23.13	$6.53	$0.00
High	$0.00	$0.00	$1.53	$0.04	$0.00
Moderate	$0.00	$0.00	$7.47	$ 0.28	$0.00
Low	$9.34	$68.94	$65.33	$41.11	$2.44
Very low	$0.00	$0.00	$26.06	$0.15	$0.00

POF = Probability of failure COF = Consequence of failure

Table 168 represents the percentage of total asset replacement cost according to the risk of asset failure.

Table 168: NRPS Risk Exposure Summary

Colour	Risk category	Asset value ($ million)	% of assets
VL	Very low (VL)	$9.34	3.47%
L	Low (L)	$95.00	35.24%
M	Moderate (M)	$114.06	42.31%
H	High (H)	$27.42	10.17%
VH	Very high (VH)	$6.53	2.42%
	Unknown	$17.22	6.39%
	Total	**$269.56**	**100.00%**

21.5. NRPS Lifecycle Strategies

The lifecycle asset strategy for information technology, fleet, and equipment assets is to replace them at the end of their Useful Expected Life (UEL), which is informed by staff assessment within NRPS. NPRS's buildings and facility asset renewal is driven by building condition assessments (BCAs), facility operator reviews on site, annual site walk-through inspections, and input from the program department.

To fulfill its program goals and sustain service standards, the Region develops new infrastructure to meet capacity demands, enhances existing assets to satisfy functional needs, and oversees current assets to guarantee reliability, all while working with limited financial resources. Strategies for managing asset lifecycles are typically classified as indicated in Table 12 (page no 49), which describes lifecycle asset categories. They are influenced by the service levels detailed in Section 3 (page no 30) and the necessity of managing the associated facilities' risks using the same risk strategies and methodology discussed in Section 4.5 (page no 47).

Police services and the Region's facility asset management team include thorough planning for operations, maintenance, condition assessments, and active interventions in new construction, maintenance, and renewal activities for building facilities. A similar approach is applicable for NRPS equipment assets. Also, NRPS continuously audit asset data to keep information current and introduce classifications for lifecycle activities. Capital investments in existing assets are documented in the corresponding asset data. Levels of Service (LOS) and Key Performance Indicators (KPI) should be regularly updated to assess performance against targets. For missing data, a strategy for collection and integration is implemented as part of continuous improvement.

21.6. NRPS Financial Strategy

The renewal forecast for NRPS assets is based on staff assessment or asset Useful Expected Life (UEL) and recommended activities to sustain asset in state of good repair. For NRPS's building and facility assets this forecast is derived from Building Condition Assessments (BCA) undertaken. For other assets, it is based on manufacturer recommendations or industry best practices. The lifecycle analysis focuses on extending the asset life as long as possible to minimize lifecycle costs while ensuring that required service levels are maintained. The UEL included in the forecasts considers the expected duration during which an asset can continue to provide the necessary service levels before needing replacement.

It's important to understand that this approach does not consider the actual renewal activities of the assets. Just because an asset has reached its expected useful life does not imply it is in a

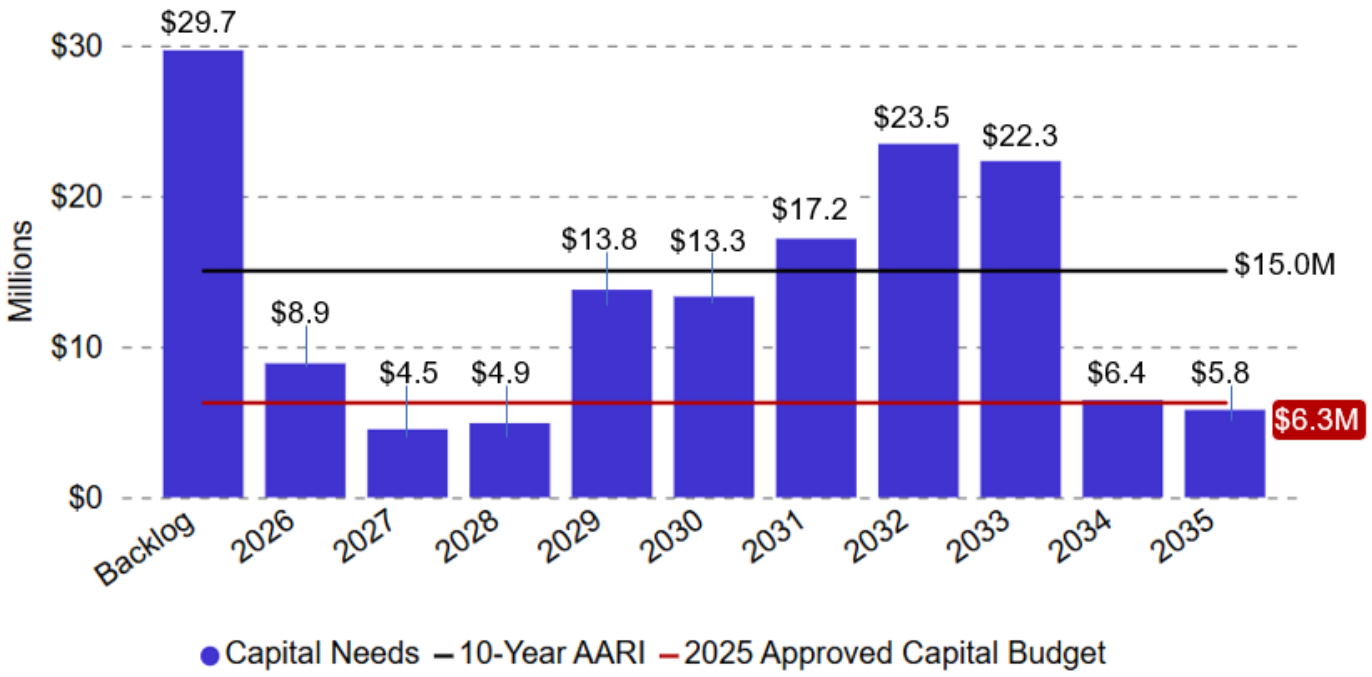
failed state. Typically, an asset as old as or older than its expected useful life is in poorer condition than newer assets. However, some assets can continue to function beyond their expected useful life, although they carry a higher risk of failure or decreased performance. The annual capital budget for NRPS considers risk and other factors as part of the Corporate Asset Management Resource Allocation (CAMRA) process when allocating and prioritizing budget needs.

Figure 76 shows the 2025 approved capital budget for NRPS at $6.27 million; it also illustrates that the NRPS' assets will require an average annual renewal investment (AARI) of $15.03 million from 2026 to 2035 to maintain operations and service levels. This equates to a total capital requirement of $150.33 million over the 10-year period, which includes:

- $120.65 million in projected capital needs for 2026-2035
- $29.68 million in deferred capital spending backlog

The 10-year AARI represents 5.57% of the total NRPS' asset replacement value, which is estimated at $270 million. For comparison, the 50-year AARI is forecasted to be $13.11 million, as the backlog would be spread over a more extended period.

Figure 76: NRPS AARI and Forecasted Capital Needs



21.6.1. NRPS Financial Indicators

The cost-of-service delivery for NRPS includes operating expenses, capital expenditures and revenues. A summary of the 2025 operating budget for NRPS is presented in Table 169.

Table 169: NRPS Summary of Costs to Deliver Services

Area of expenditure	2025 budget ($ million)
Staffing	$213.36
Utilities	$1.00
Operating & maintenance	$8.41
Program specific	$27.28
Capital reserve transfers	$6.31
Debt charges	$8.80

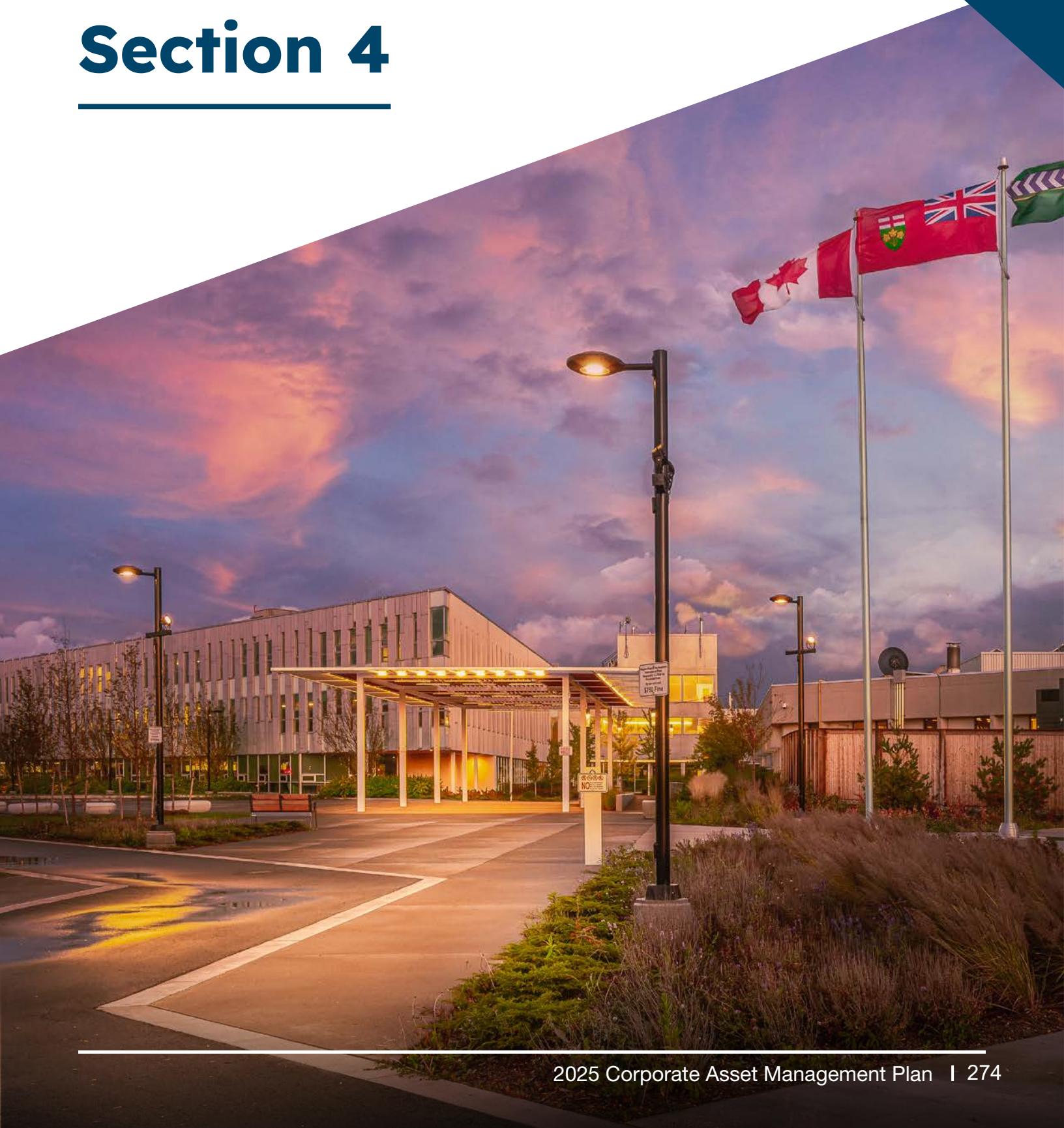
21.6.2. NRPS 2022 Development Charge Background Study Projects

Table 170 Is an extraction of the growth projects identified in the 2022 Development Charge Background Study (2022 DCBS).

Table 170: NRPS Infrastructure Costs in the DC Calculation

Increased service needs attributable to anticipated development	Timing	Gross capital cost estimate ($ million)	Net cost funded by Region. ($ million)	Other funding sources ($ million)	Potential DC cost recovery ($ million)
Patrol and non-patrol vehicles	2022-2041	$1.9	$0.0	$0.0	$1.9
Other police vehicles	2022-2041	$1.5	$0.0	$0.0	$1.5
Equipment and gear	2022-2041	$2.1	$0.0	$0.0	$2.1

Section 4



22. Climate Change, Conservation & Demand Management

22.1. Climate Change

The Region has committed to integrating climate change as part of the risk management framework and embedding it in local asset management planning processes. Climate change is identified as a driver for demand, and requires special consideration throughout asset management, including demand, level of service, state of infrastructure, and lifecycle asset strategies. Changes to environmental weather factors from climate change include wind speed and direction, temperature changes, increased storm intensity, and changes in sunlight exposure.

This asset management plan incorporates climate change by examining its impact on the assets that support service delivery. It provides an overview of how climate change influences asset management planning. Below are several examples illustrating how climate change interacts with various aspects of asset management.

22.2. Conservation & Demand Management Plan (CDMP)

It should be noted that the definition of “Demand” in this context is different from how demand is referred to in the rest of this document (i.e. demand for services). Demand here refers to the energy draw from the electricity grid. Times of peak demand, such as high electrical loads from air conditioners during hot summer days, can strain the province’s electrical grid and thus there is a need to plan for reducing these loads.

The Conservation and Demand Management Plan (CDMP) outlines Niagara Region’s plan over the next five years (2024-2028) to manage and reduce energy consumption and greenhouse gas (GHG) emissions across its facilities. The Plan was crafted in alignment with the requirements of Ontario Regulation 25/23 (O. Reg 25/23) and supports Regional Council’s broader commitment of attaining Net-Zero GHG emissions (Scope 1 and 2) by 2050.

The CDMP was developed in conjunction with the Niagara Region’s 2024 Corporate Climate Change Action Plan (CCAP). The reduction targets and associated projects described in the CDMP effectively form the short-term goals and plans in the CCAP for buildings and Water Waste Water (W&WW) facilities. Alignment of these documents means that each updated CDMP (per the 5-year O. Reg 25/23 cycle) will continuously inform updated CCAP goals in the defined sectors. The integration with the CCAP, and Asset Management Plan, allows for

sustained momentum towards the Net-Zero goal and reaffirms Region of Niagara's commitment to environmental and fiscal responsibility.

For the period of 2024-2028, the Regional Municipality of Niagara has set an ambitious 20% emissions reduction target for all Region owned and leased buildings and water and wastewater (W&WW) facilities relative to 2023 levels. This includes:

- Water & Wastewater Facilities
- Waste Management buildings.
- Transportation Fleet buildings
- Transit buildings.
- Seniors Services
- Community Housing
- Children's Services buildings
- Social Assistance and Employment Opportunities buildings
- Public Health buildings
- NEMS buildings
- Facilities buildings
- Court Services building
- Police Services buildings

The CDMP outlines a series of future Energy Conservation Measures, as well as highlights the critical role of transitioning from natural gas to electric heating systems to achieve these reduction targets.

As of Q1 2025, we are reviewing reports from a Pathway to Net Zero study on 12 buildings that would outline the costs over 25 years to reach zero emissions by 2050. The study will be looking at three different pathways:

1. Minimum performance (50% by 2030, Net Zero by 2050)
2. Rapid Decarbonization
3. Asset-life replacement

It is very likely that Option 3 (the pathway to replace or upgrade energy related assets with lower emissions options when each asset is at end of life) will be recommended and followed, but with the guidance goal of achieving 20% emissions reduction by 2028. The framework applied to the 12 buildings studied will be used to plan for all buildings.

22.3. Demand Management Plan Drivers

Changes to engineering, environmental and planning requirements to address climate change could result in the need for accelerated rehabilitation or replacement programs and related increases in capital and operational cost.

Each of the Region's services' identified drivers that impact demand for services, and many indicated climate change as a primary driver. The increased demand is often for more robust assets, such as facilities with more insulation, or storm water systems with increased capacity to withstand a 100-year storm event. These asset upgrades would both mitigate and adapt to the effects of climate change.

In other cases, climate change may have an indirect impact on a demand driver. For example, social issues and trends or demographic changes may be driven by other issues like climate change. These drivers may result in need more assets or more robust assets.

22.4. Climate Change Impact on Levels of Service

Levels of service (LOS) can be sustained by considering the implications of climate change when designing assets. An example can be seen in a storm water system, by designing infrastructure capacity to manage events with greater intensity that are expected to occur more frequently. The resulting system is more resilient and better designed to continue delivering the desired LOS.

22.5. State of Infrastructure and Climate Change Considerations

Risk is considered across assets which support service. Risk is comprised of a probability of failure (POF) and consequence of failure (COF). As both POF and COF can be impacted by climate change, the Region's risk profile will be impacted by climate change.

For example, climate change may result in environmental conditions which accelerate the rate at which materials degrade, which increases the POF. In other cases, climate change may increase the COF, such as flooding impacts when the storm water system capacity is exceeded with increased frequency and severity of storms.

22.6. Climate Change and Lifecycle Strategies

It is clear that climate change can both increase the likelihood of risks occurring and, in some cases, amplify the consequences when those risks are realized These additional risks can be managed by developing appropriate lifecycle strategies.

These strategies should consider the impacts of climate change and consider opportunities to develop services which are more resilient to the impacts of climate change. These lifecycle strategies may include non-asset, service, maintenance, renewal, or expansion. Increased renewal is a likely solution given the expected increased rate of degradation due to environmental conditions described earlier.

22.7. Mitigation: Greenhouse Gas Emissions and Energy Costs

It is crucial to recognize that greenhouse gas (GHG) emissions present an ongoing risk that must be considered alongside adaptation in asset management planning. Integrating mitigation efforts into asset management planning ensures that infrastructure investments contribute not only to adapting to climate change but also to reducing its underlying causes.

Energy costs present another significant risk. Many asset management decisions - such as those related to infrastructure operation and maintenance - are influenced by energy requirements. Increasing energy demands or rising energy costs can impose additional financial and operational pressures. By embedding energy-efficient practices and renewable energy sources into asset management, the Region can reduce its exposure to this risk while supporting broader sustainability goals.

An important element in addressing mitigation risks is the evaluation of the Region's Corporate Asset Management Resource Allocation (CAMRA) model. The CAMRA model, which guides the allocation of resources for asset management decisions, must be adapted to account for mitigation strategies. This includes evaluating and incorporating factors like energy efficiency, emissions reduction, and sustainability targets into resource allocation processes. The model should also consider the long-term cost implications of GHG emissions and energy consumption, ensuring that investments are aligned with both current and future mitigation goals.

Considering mitigation within asset management planning strengthens the Region's ability to address climate change holistically. Incorporating strategies to reduce GHG emissions and energy dependence complements adaptation measures, ensuring the long-term resilience and sustainability of assets.

23. Data Management

23.1.1. Introduction

Data management is the practice of collecting, keeping, and using data securely, efficiently, and cost-effectively. The goal of data management is to help people, organizations, and connected things optimize the use of data within the bounds of policy and regulation so that they can make decisions and take actions that maximize the benefit to the organization.

In asset management, data management practices are often categorized in two [2] parts:

- Asset hierarchy, the definition of an asset, its relationship to other assets and systems, and the components that make up the asset.
- Asset information, the inventory and performance attributes that describe the asset.

23.1.2. Asset Hierarchy

An asset hierarchy allows an organization to effectively and efficiently manage the assets utilized in service delivery and ensure the necessary asset information is complete across all services. The Region has finalized the corporate asset hierarchy in 2023 and the asset hierarchy has been implemented in this 2025 CAMP. The hierarchy strategically addresses the diverse business needs related to asset management, including finance, operations, maintenance, and capital renewal.

To complete this 2025 CAMP, asset information was streamlined and collected from service areas. The asset information has been broken down into six hierarchy levels, which are shown below:

- Level 1 Service Division
- Level 2 Asset Category
- Level 3 Asset Class
- Level 4 Assets
- Level 5 Sub Assets
- Level 6 Individual Units / Components

23.2. Asset Information

This CAMP is the culmination of efforts from staff across the organization who are involved with managing infrastructure assets, including finance staff involved with funding capital projects and operating programs, technical staff involved with planning and executing the construction of infrastructure assets, and on-the-ground staff who operate and maintain infrastructure assets.

Data is maintained using a variety of spreadsheets, computerized maintenance management systems (CMMS), and the geographic information system (GIS). As part of the Region's ongoing asset management system improvements, a corporate-wide asset register will be developed. For the development of the 2025 CAMP, a minimum of nine [9] asset data attributes were required:

- Asset hierarchy levels
- Asset ID - unique
- Year installed.
- Units of measure
- Useful life
- Replacement cost
- Condition
- Consequence of failure (COF)
- Probability of failure (POF)

As the quality and completeness of asset data attribute information varies across the Region's services, two [2] parameters were used to assess the quality of the asset information:

- Source of asset information
- Completeness

A data confidence analysis was undertaken to evaluate the quality of asset information with respect to these asset data attributes against the quality parameters. In most of the case the data requirements are fulfilled, however in some instances there is missing information, or the quality parameters are insufficient. In these situations, surrogate data was used, such as data that was estimated through transformations. Where existing data is not available or of sufficient quality, an action plan should be established to reach a desired data quality.

The analysis was completed at asset category level by evaluating the source of asset information, including how the information was created, processed, and analyzed. The source of information was subsequently aggregated by the completeness of data and compared to the maximum possible rating.

Data confidence is rated as very high when the aggregated rating is greater than 95% of the maximum possible rating. Higher than 90% of the maximum is rated as high and higher than 75% is deemed as fair. The consolidated results can be found in Table 171.

Table 171: Data Quality Assessment Results

Asset Category	Rating
Buildings and Facilities	High
Linear Assets	Very high
Fleet Assets	High
Information Technology	Fair
Equipment	High

24. Continuous Improvement

24.1. Introduction

The asset management system is a management approach to direct, coordinate, and control activities for assets and the services the assets support. The asset management system is not software. It provides a structured and consistent approach to managing assets and service delivery. The output from the asset management system is achieving the greatest value from the assets the Region owns. The assets, and their careful management, helps the Region achieve its service delivery goals.

The asset management plan is the most recognizable output of the asset management system. A primary output of the asset management plan is long-range investment needs and financial planning to ensure sustainability. Financial sustainability requires a careful balance and decisions between competing forces. These forces are:

- the demand and level of service customers require,
- the state of assets including risk, and
- the available funding through taxes, rates, grants, and other sources.

Higher levels of service cost more while lower levels increase risk of service interruptions and of customer satisfaction. Asset management helps achieve the right balance of risk, cost, and level of service.

Continuously improving the asset management system enhances the data and information used for asset management decisions. These improvements increase the value from the assets and the service delivery of the Region.

24.2. Improvements to the Asset Management System

Asset Management Office Strategic Plan captures planned improvements to the asset management system over the next three years. The Strategic Plan builds from changes identified in the previous 2021 AMP and a recent assessment of the state of practice of asset management in the Divisions, Departments and Boards of the Region.

The Strategic Plan is a series of initiatives leading to compliance with the requirements of Ontario's asset management regulation, O. Reg. 588/17. It also leads to comparative levels of practice across all the different services of the Region leading to better investment decisions.

The improvement initiatives are within five focus themes spread over a three-year period. Below are highlights of the themes and improvements.

- Deliver sustainable LOS to our communities through modernizing asset management practices.
- Advance asset management competencies to support modernization of asset management practices.
- Gauge the effectiveness of the asset management program in advancing council strategic priorities.
- Improving project management for the annual delivery of capital investment projects with a focus on project performance monitoring and cost estimation.
- Improving the integration of maintenance with capital asset renewal planning and improving the software systems and data that support maintenance management.

24.3. Natural Assets

The Region is currently advancing efforts to better understand, inventory, and manage its natural assets through participation in the Municipal Natural Assets Initiative (MNAI). Natural assets such as forests, wetlands, and groundwater sources provide essential services including stormwater management, water filtration, flood mitigation, and recreation. Through this initiative, the Region has developed a detailed inventory of natural assets, assessed their condition, and identified key risk and priorities for their protection and integration into broader asset management practices.

Although this 2025 CAMP report does not formally include natural assets, this remains an area of continuous improvement. Future iterations of the CAMP will seek to incorporate natural assets data, service contributions, and investment planning, aligning with the Region's long-term goals for sustainability and climate resilience.

24.4. Improvement Plan

Although the Region conducts many of the current practices for asset management, the improvements require additional effort to develop, implement and continue to deliver as part of routine operations.

The following improvement areas outline key steps in a focused action plan towards that direction. These initiatives aim to strengthen asset management capabilities in the Region. Key improvements planned are identified in Table 172 below.

Table 172 Asset Management Areas of Improvement

Areas of improvement	Details
Increased reliance on empirical condition assessments	Provides objective condition data, where appropriate, for prioritizing maintenance and rehabilitation work.
Level of service (LOS) framework review	Clarifies service expectations and target performance aligns investment decisions and supports compliance with regulations.
Creation of a central asset register	A single source of truth for asset data allows for consistency, better asset lifecycle planning, and strategic planning.
Asset risk management framework	Enables consistent risk assessment and mitigation, aligning with best-in-class practices and building on top divisional initiatives.
Refining maintenance management systems and data	Better tracking and planning of maintenance activities
Enhancing project management for capital project delivery	Improves timely and cost-effective delivery of capital works, reducing delays and budget overruns.
Incorporating climate change considerations	To ensure that asset management plans consider the impact of climate change on the asset lifecycle.

There are several resources needed to improve and deliver asset management.

- Technology to support asset management initiatives.
- Additional monitoring and assessment for asset management activities
- Technical support (external)

Approval for the resources will be through the annual capital and operating budget process.

24.5. Monitoring and Review Procedures

By regulation, the Region must conduct an annual review of its asset management progress and the progress in implementing the asset management plan:

- Adherence to the plan and schedule of improvements in the Asset Management Office Strategic Plan and Reimagined Focused Action Plan.
- Revenue adjustments made to meet the long-term financial requirements.
- Alignment between projects in the annual capital plans and the forecast of investment needs during short, medium, and long-term planning horizons.

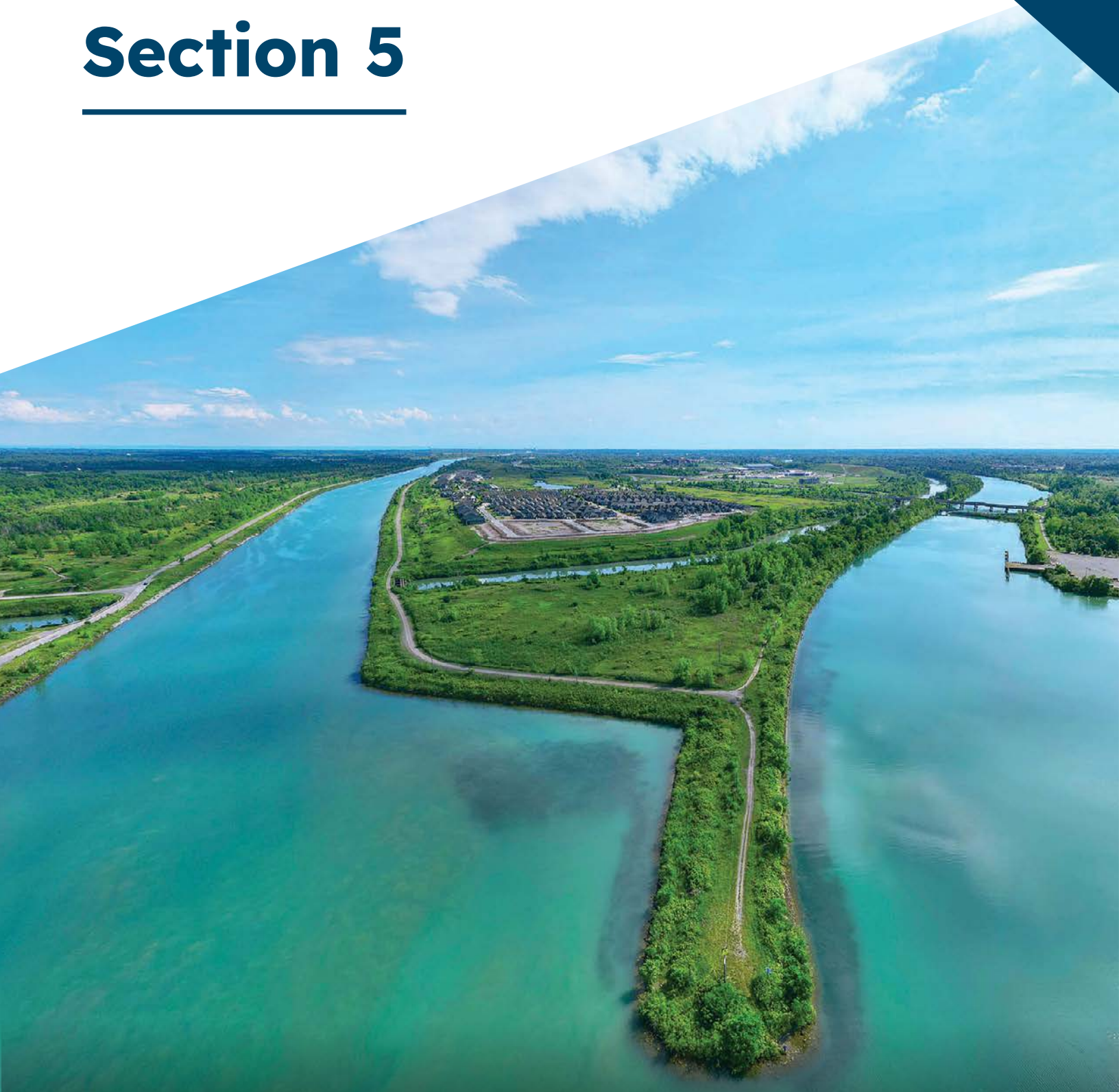
24.6. Growth and Progress from 2021 CAMP

The 2025 Corporate Asset Management Plan (CAMP) exhibits progress made since the 2021 edition of CAMP. Key advancements include:

- Establishment of a corporate asset hierarchy: A standardized asset hierarchy was completed and applied to the 2025 CAMP, improving consistency across asset classes.
- Streamlined data collection process: Asset data collection was streamlined with clearly defined attributes and validation mechanisms which strengthened data quality.
- Inclusion of division-led initiatives: Incorporated division's efforts in condition assessment and replacement cost evaluation, providing more accurate asset information.
- Stronger collaboration with service areas: Improved collaboration with corporate divisions and service areas; incorporated outcome of formal programs including condition assessment and replacement cost evaluation.
- Refined lifecycle forecasting: Improved methodology in lifecycle forecast including reconciling approved budget from capital investment backlog resulting in more realistic asset investment planning.
- Improved methodology in sustainable capital funding including factoring-based budget transfers to capital from 2025 approved budget, and historical funding for state of good repair.

Together, these improvements reflect the growing maturity of the Region's asset management system and practices, advancing a more reliable, evidence-based, and financially sustainable approach.

Section 5



25. Appendix A - Definitions

25.1. Demand Drivers Definition

Population, Demographic and Development Changes
Population is forecasted to grow from 525,352 in 2023 to 694,000 in 2051. If population increases as forecasted, significant development will occur. This development would likely be a combination of densification of existing areas and new development beyond current urban areas. These changes would have an impact on the Region's services, such as new dwellings requiring Water and Wastewater services, Transportation network requiring additional capacity, and social services demand increase in line with the population increase.

Social and Economic Trends
Social and economic trends encompass a wide range of impacts and are based on a large number of factors and events. An example of this can be found in Community Housing services which provides affordable housing to those in need. Some scholars predict a growing economic polarization in the coming years, which will likely cause an increase in demand for social services such as those provided by Community Housing.

Social trends may dictate how or what services are delivered, and the changes may even be dictated by legislation to implement. For example, the trend over the last several years to invest in Transit is driven by the need to improve social conditions and economic opportunity through enhanced mobility in addition to climate change considerations.

Corporate Objectives and Customer Expectations
Corporate objectives refer to customer expectations, operational efficiency and organizational goals and objectives. For example, NEMS has a system transformation initiative to find internal efficiencies to ensure the service is operating efficiently and cost effectively.

Technology and Service Delivery Partners
New technology and its use in service delivery may result in changes to asset useful lives, quality of services delivered, or efficiencies in service delivery. For example, Waste Management can use GPS technology to identify compaction levels within a landfill, which may lead to actions resulting in a reduced need for additional cell capacity.

Significant Global Event
Significant global events, such as climate change or the COVID-19 pandemic, has a direct impact on Regional services. For example, climate change impacts Wastewater with an

increase in frequency and severity of storms that the network must be designed to endure. Whereas COVID-19 pandemic impacts to Facilities may reduce the amount of space maintained if remote work arrangement extend beyond the near term.

Development

The forecast population increase is a significant driver of new assets. Planning for growth is part of master plans such as for Transportation, Water and Wastewater, and Community Housing. Funding for new assets required to support growth may come from Development Charges.

Development Charges (DCs) are fees collected from developers at the time of building permit approval to assist the municipality with covering the initial capital costs of new infrastructure to accommodate the proposed development. A Development Charge By-law is legislated to be in effect for no more than five years. The last completed Development Charge Background Study (DCBS) for the entire Region is from 2022 and there is currently progress towards an update in 2027. As a result, the 2025 CAMP includes assets from the 2022 DCBS.

26. Appendix B – Level of Service Maps

Figure 77: Water Service Area Map

Niagara Region Water System

Regional and Area Municipal Service Coverage

CSD 27-2025
June 5, 2025
Appendix 1-B

Lake Ontario

City of Hamilton

Haldimand County

New York State

Grimsby W.T.P.

DeCew Falls W.T.P.

Niagara Falls W.T.P.

Welland W.T.P.

Port Colborne W.T.P.

Rosehill W.T.P.

Grimsby
Lincoln
West Lincoln
Pelham
St. Catharines
Niagara-on-the-Lake
Thorold
Niagara Falls
Welland
Wainfleet
Port Colborne
Fort Erie

Water Treatment Plant
Pumping Station
Chlorine Facility
Elevated Tank
Reservoir
Standpipe
RMoN Water Main
LAM Water Main
Urban Area

1 : 260,000

0 2.5 5 10 15 20 km

Esri, NASA, NGA, USGS, FEMA

2025 Corporate Asset Management Plan

Figure 78: Wastewater Service Area Map

Niagara Region Wastewater System

Regional and Area Municipal Service Coverage

CSD 27-2025
June 5, 2025
Appendix 1-B

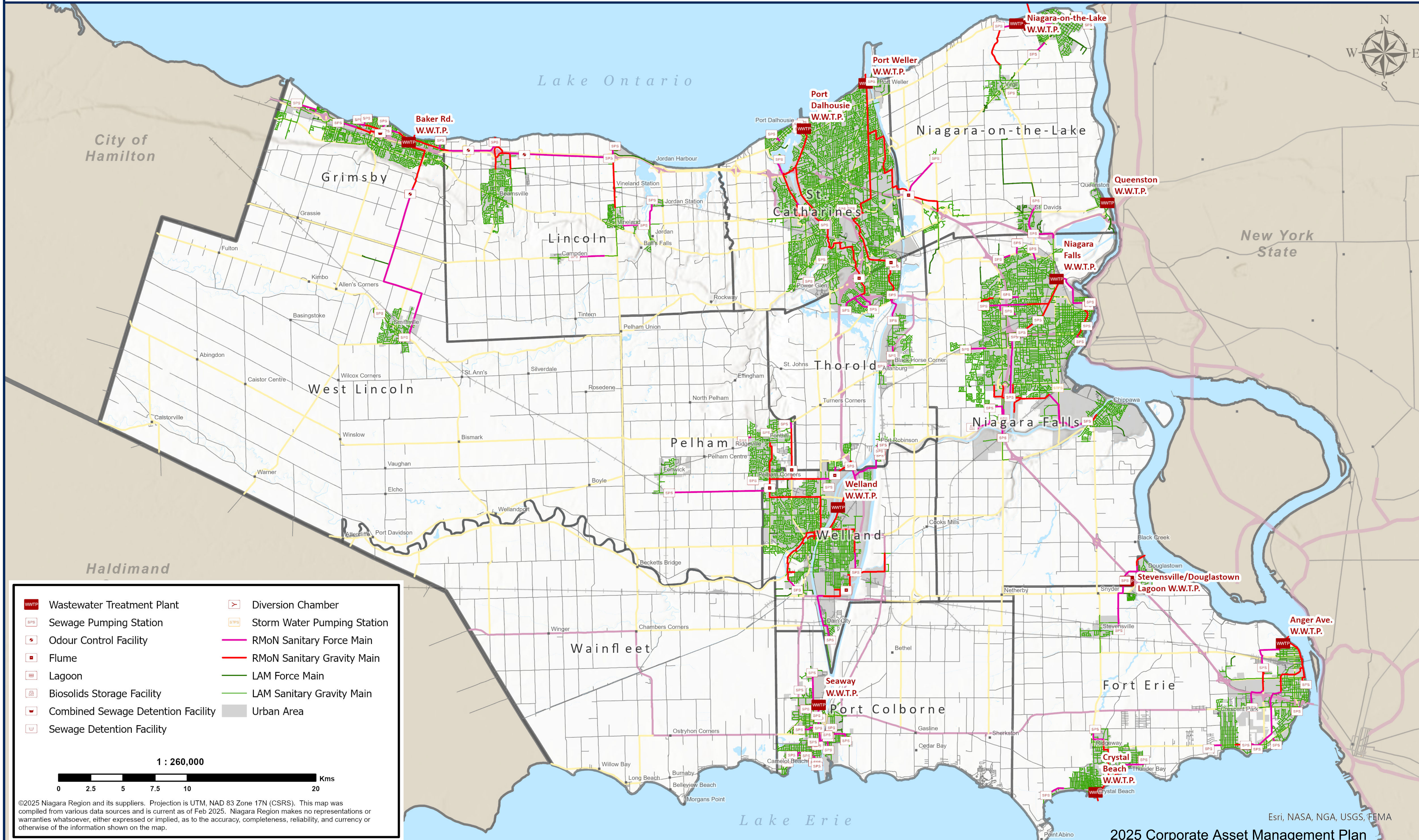
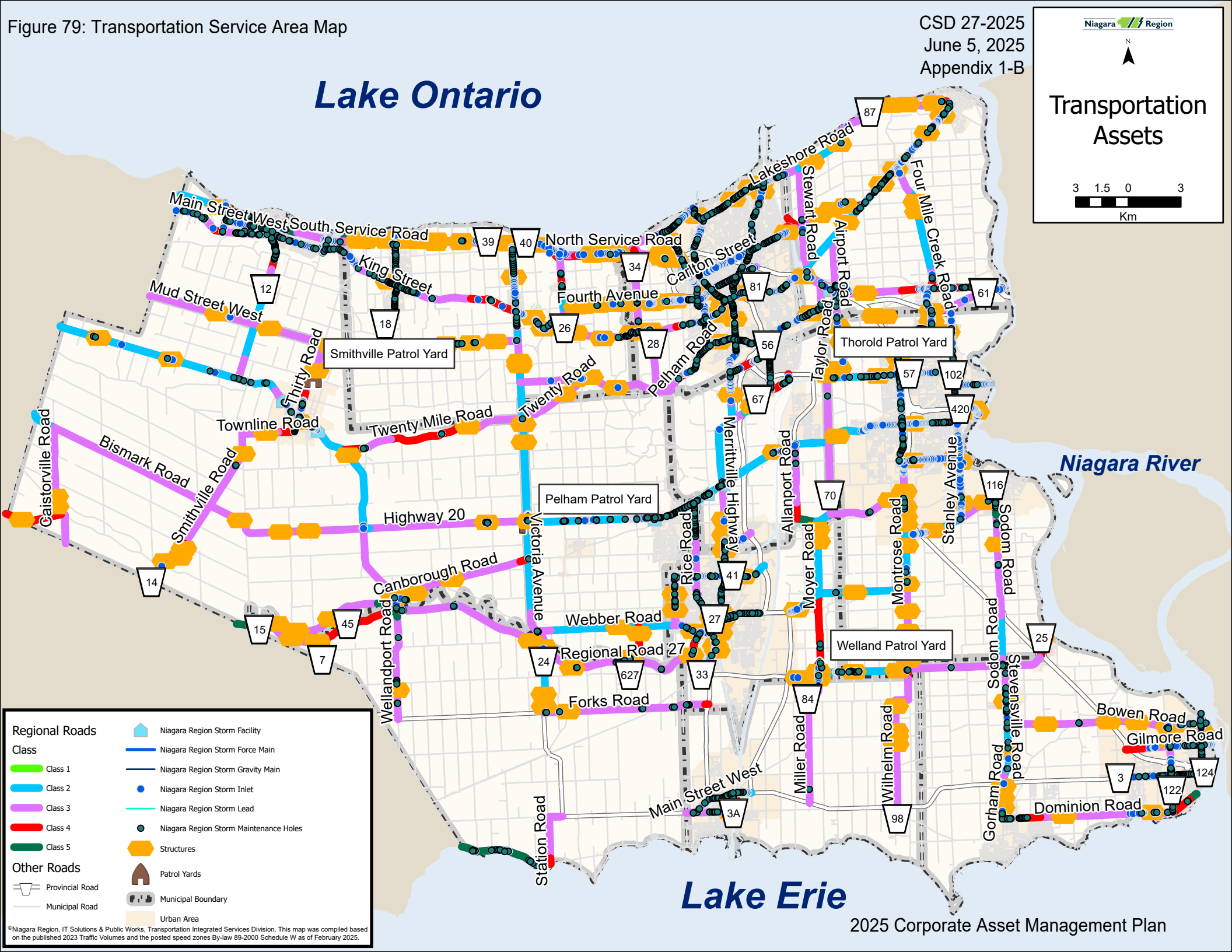


Figure 79: Transportation Service Area Map

CSD 27-2025
June 5, 2025
Appendix 1-B



Growing Better Together

Niagara Region

2025 Corporate Asset Management Plan

niagararegion.ca

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June 2025