

City of Welland Corporate Asset Management Plan 2025





This document titled City of Welland Corporate Asset Management Plan 2025 has been developed to meet the requirements of the Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure.

I, Rob Axiak endorse the City of Welland Corporate Asset Management Plan 2025 prepared by City Staff and GEI Consultants Canada Ltd. As Chief Administrative Officer of the City of Welland, I acknowledge the accuracy of the document of the findings presented in this plan.

Signature:

A handwritten signature in blue ink, appearing to be 'Rob Axiak', is written over a horizontal line.

Rob Axiak, CAO City of Welland

Date: May 23, 2025

Executive Summary

Asset Management Plan Overview

The City of Welland is located in the centre of beautiful Niagara Region between two great lakes, along the Welland Canal. The Welland River and the Welland Recreational Canal offer natural beauty and recreation opportunities. Welland has many attractions for both residents and visitors to enjoy including annual festivals, downtown restaurants, heritage buildings, outdoor sports, and beautiful public green spaces. All these activities and more are supported by the infrastructure network that the City works to maintain. This asset management plan (AMP) outlines key information about the assets that provide services to residents.

Similar to our last plan, this asset management plan works to answer the following questions:

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

The objective of Asset Management is to outline and establish a set of planned actions, based on best practice that will enable assets to provide a sustainable Level of Service (LOS), while managing risk at the lowest lifecycle cost. The forecast scenarios provided in this plan analyze the current infrastructure investment requirements and compare them to current budgets to determine if the City of Welland is facing an infrastructure gap, based on the best information available on the City's assets.

Through this plan, the City meets all 2025 asset management plan requirements of Ontario Regulation 588/17. This plan further expands on the 2024 AMP, with details on infrastructure lifecycle activity requirements for reaching proposed level of service, and the cost to achieve these targets.

City's Infrastructure Valuation and Condition Distribution

The City of Welland owns and operates approximately \$2.7B in assets across ten different service delivery groups. Each of these groups contributes to a quality standard of living for residents throughout the City of Welland. Figure 0-1 shows the overall asset valuation for each asset category.

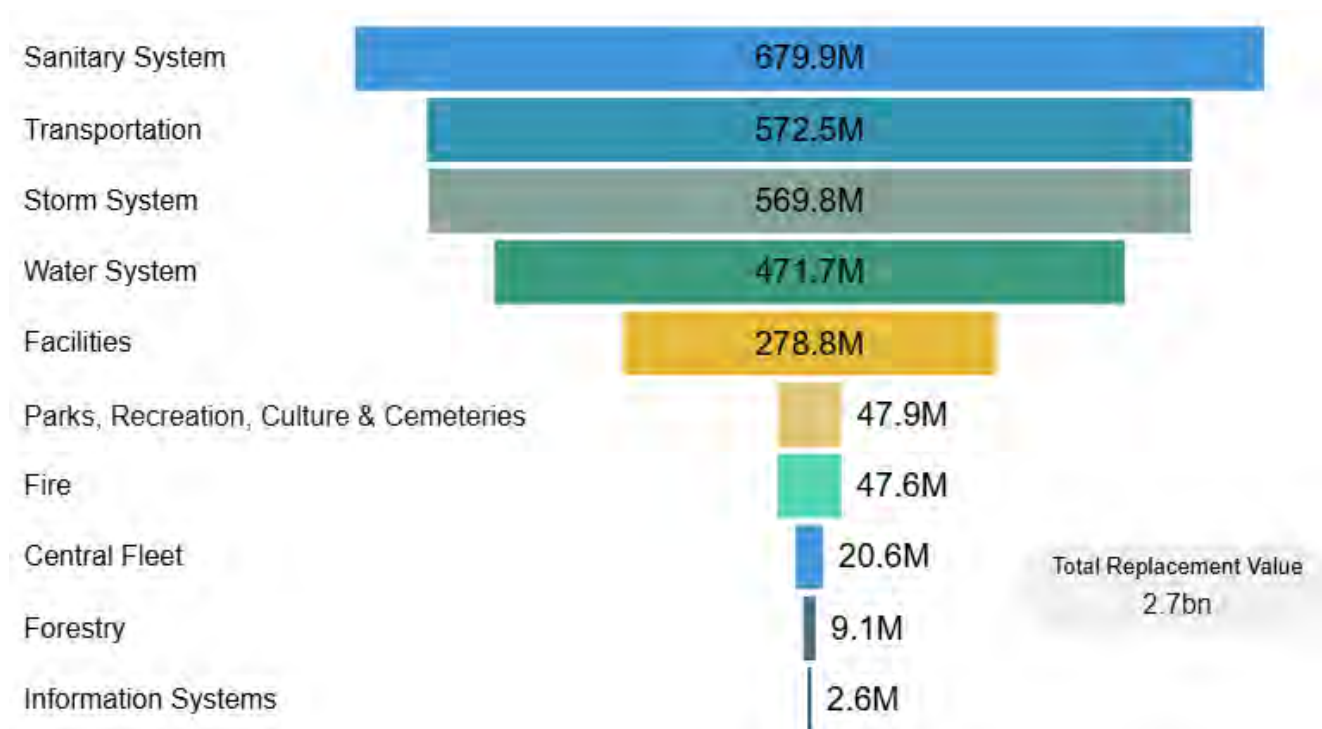


Figure 0-1. Overall Asset Valuation¹

Each asset category has its own chapter detailing the asset inventory and valuation, asset condition, asset age, levels of service, lifecycle management strategy and data confidence and improvement plan. Asset condition is an important metric used throughout this asset management plan, allowing the City to track progress in achieving levels of service and continuing to provide quality services to residents.

Figure 0-2 shows the overall asset condition by asset value. On average, assets in the City are in Fair condition. Over 50% of assets in the City are in Fair or better condition.

Figure 0-3 compares the asset category conditions based on replacement value. Detailed information on the City's assets can be found in the individual asset chapters. The City has put significant efforts in to collect information on all asset categories, including updated condition information. These efforts can be seen in the below figure, where there is minimal condition information that is unknown for all asset types. The only outlier is for forestry, as tree condition data is difficult to collect, and keep up to date, but the City has

¹ Forestry includes only street trees, an estimate of the replacement value of the Tree Canopy has been provided in the Forestry Chapter.

collected information on the tree’s diameter and valuation, which can be viewed in its dedicated chapter.

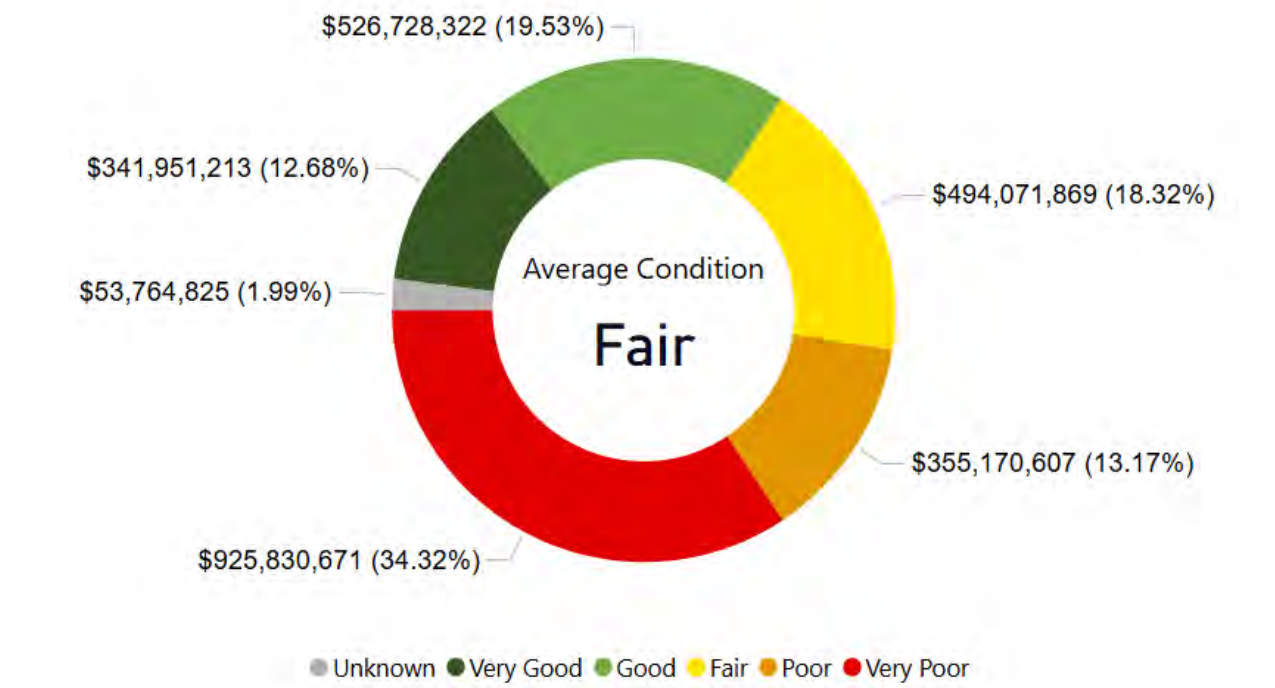


Figure 0-2. Overall Asset Condition Distribution (By Replacement Value)

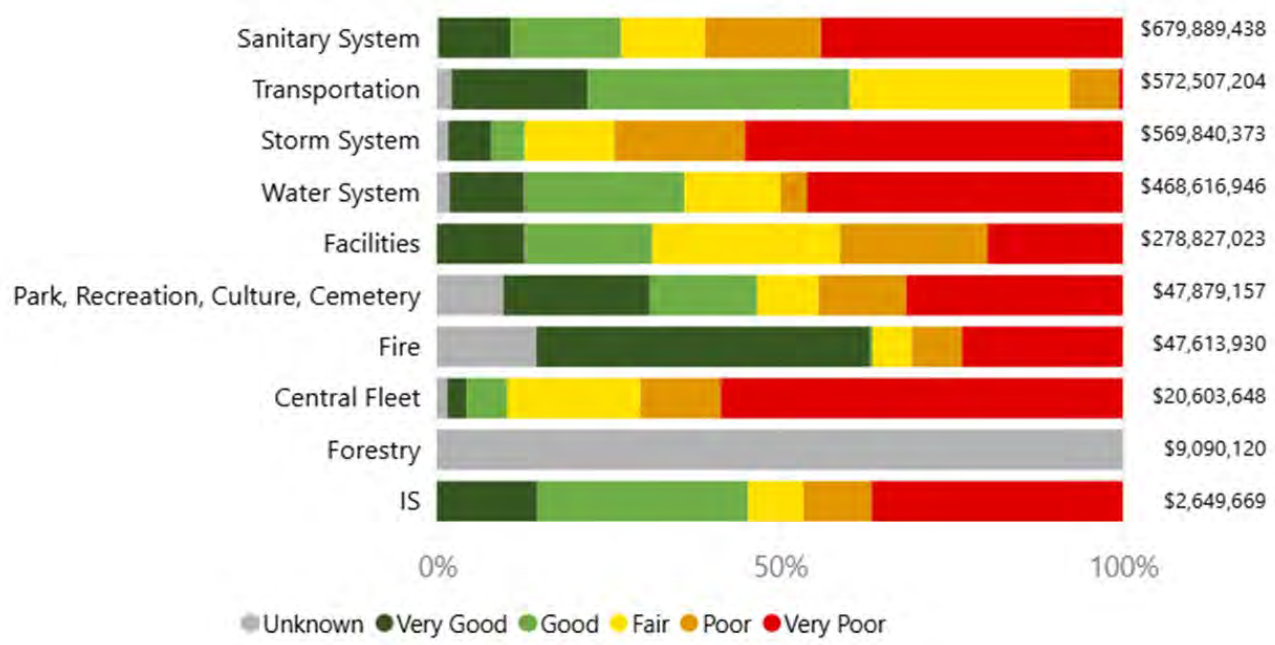


Figure 0-3. Asset Category Condition Profile (by Replacement Value)

Levels of Service

Levels of Service (LOS) metrics provide key performance information that supports the provisions of the respective asset categories within this plan. They support the organization's strategic goals and are derived from customer needs, Council strategic priorities, legislative and regulatory requirements, and the financial capacity of the municipality to deliver those service levels.

O.Reg. 588/17 has prescribed LOS metrics for core assets (including Bridges and Structures, Roads, Storm, Wastewater and Water assets). All other LOS, including those for non-core assets, were developed in consultation with City staff to be in line with strategic goals. These metrics can be found within the asset category chapters. This plan reports on both the current LOS performance and the proposed, or a target, performance for these metrics.

LOS are crucial for the City to establish the standards and expectations for service delivery to the community. By tying assets to these service levels, the City can effectively assess and benchmark performance in meeting community needs and expectations. The City will have the ability to review their progress in meeting the proposed LOS target in the annual update to Council on the progress of implementing the AMP, which is a requirement of the regulation after 2025.

Lifecycle Management

The lifecycle management strategies, documented for the purposes of this AMP, outline and establish a set of planned actions, based on best practices that will ensure the City's assets can provide a sustainable LOS to residents, while managing risk at the lowest possible lifecycle cost. The City has documented all lifecycle activities and strategies to maintain the City's assets. The costs associated with these strategies have been assessed through different scenarios to determine the cost of these strategies and are further outlined in the asset chapters.

Lifecycle management activities are categorized to summarize the various lifecycle activities that asset owners complete during the lifecycle of an asset. For the purposes of this plan, the lifecycle categories are as follows:

- **Disposal Activities:** Associated with disposing of an asset once it has reached the end of its useful life or is otherwise no longer needed by the municipality.
- **Growth Activities:** Planned activities required to extend services to previously unserved areas or expand services to meet growth demands to maintain LOS.
- **Non-Infrastructure Solution:** Actions or policies that can lower costs and contribute to the management of assets.
- **Operations & Maintenance Activities:** Including regulatory scheduled inspection and maintenance, or more significant repair and activities associated with unexpected events.
- **Service Improvement:** Planned activities to improve LOS. Example, an asset's capacity, quality, or system reliability. Not driven by growth needs.

- **Renewal/Replacement Activities:** Significant repairs designed to extend the life of the asset, or activities that are expected to occur once an asset has reached the end of its useful life and renewal/rehab is no longer an option.

These lifecycle categories define all the activities that are required throughout an asset's life. By documenting these strategies, and the cost of them, the City can more effectively plan for the true cost of their assets.

Financial Strategy

The financial strategy in this AMP is based on the City of Welland's 2023 budget to determine the funding available to support infrastructure needs. All forecasted dollars are presented in 2024 dollars, and no inflationary measure has been included in the needs. This financial strategy provides an analysis of the average annual funding available, the funding required to maintain current LOS, as well as to meet proposed LOS based on the lifecycle strategies identified throughout this plan. The analysis developed for this AMP included the following scenarios:

Scenario 1: Maintain Current Level of Service maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.

Scenario 2: Current Budget reviews the current budget available to fund lifecycle activities, including renewals, rehabilitations, and replacements.

Based on analysis of the 2024 AMP scenarios that also include an ideal scenario to follow lifecycle strategies, the updated scenarios for the 2025 AMP, risk, current condition, community expectations, data reliability, affordability, achievability, compliance, and subject matter recommendations, a scenario was developed to determine the lifecycle activity expenditures required for the rehabilitation and replacement activities to meet the proposed LOS.

Scenario 3: Proposed Level of Service determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

The results of the analysis have been broken out to rate supported and tax supported assets to reflect the different sources of revenue of these asset categories, as well as compiled for information purposes. Rate supported assets can be found in Figure 0-4 and Table 0-1. Tax supported assets can be found in Figure 0-5 and Table 0-2.

This asset management plan has identified an overall average annual funding gap of \$40M in order to achieve the proposed levels of service for all asset categories as described in this AMP.

Rate Supported Infrastructure Gap

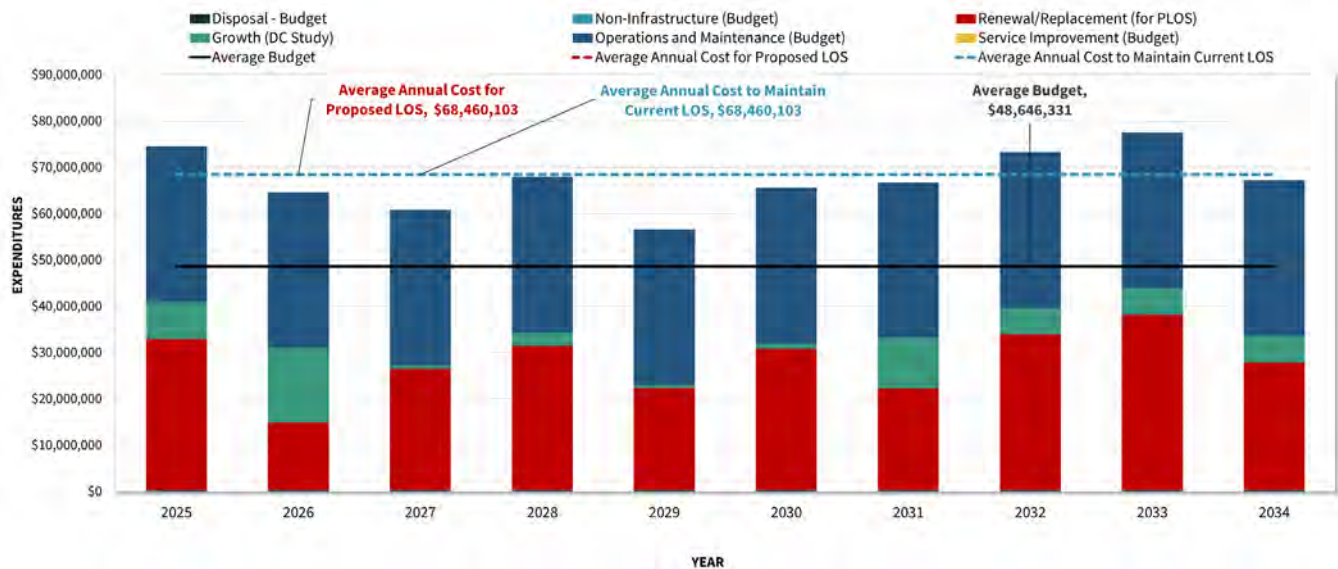


Figure 0-4. Lifecycle Expenditures –Rate Supported

Table 0-1. Rate Supported Lifecycle Activity Investments & Annual Average Infrastructure Gap

Lifecycle Activity	Annual Average Budget	Average Annual Expenditure to Maintain Current LOS (Scenario 1)	Average Annual Expenditure for Proposed LOS (Scenario 3)
Disposal	\$156,000	\$156,000	\$156,000
Growth	\$5,787,026	\$5,787,026	\$5,787,026
Non-Infrastructure	\$140,400	\$140,400	\$140,400
Renewal, Rehab & Replacement	\$8,997,899	\$27,832,425	\$27,832,425
Service Improvement	\$0	\$0	\$0
Total Expenditures	\$15,081,325	\$33,915,852	\$33,915,852
Capital Funding Gap		\$18,834,526	\$18,834,526
Operations and Maintenance	\$33,565,006	\$34,544,252	\$34,544,252
Operation & Maintenance Required to Accommodate Growth		\$979,246	\$979,246
Total Expenditures	\$48,646,331	\$68,460,103	\$68,460,103
Total Average Annual Funding Gap		\$19,813,772	\$19,813,772
Gap as a Percent of CRV		1.7%	1.7%

Tax Supported Infrastructure Gap

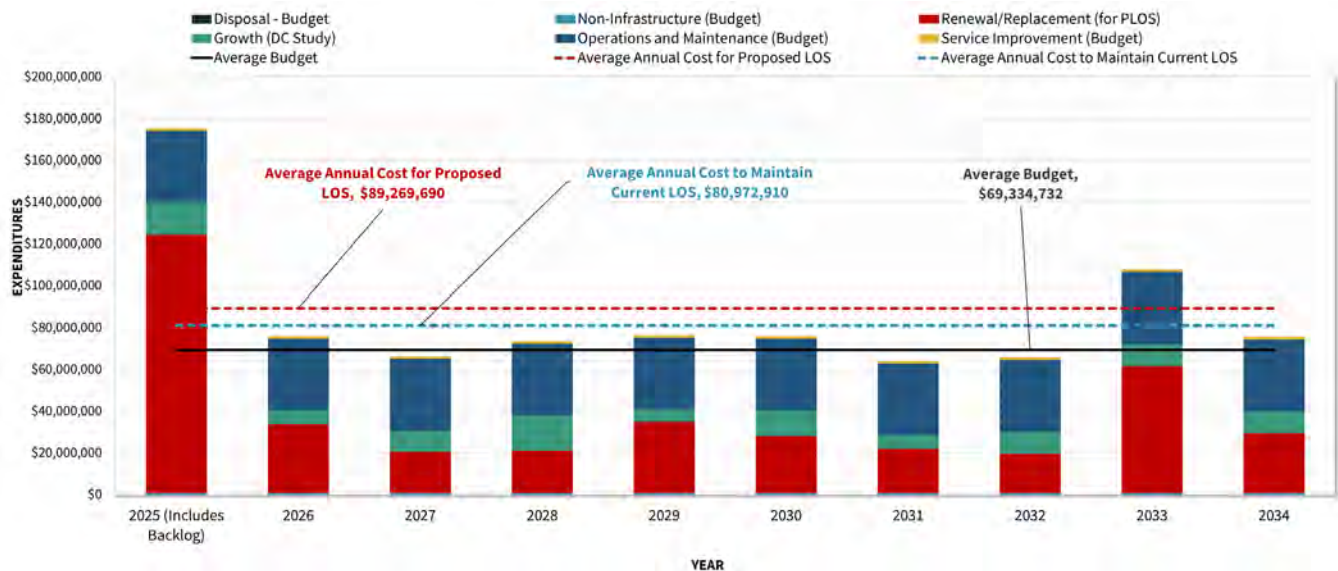


Figure 0-5. Lifecycle Expenditures –Tax Supported

Table 0-2. Tax Supported Lifecycle Activity Investments & Annual Average Infrastructure Gap

Lifecycle Activity	Annual Average Budget	Average Annual Expenditure to Maintain Current LOS (Scenario 1)	Average Annual Expenditure for Proposed LOS (Scenario 3)
Disposal	\$0	\$0	\$0
Growth	\$10,402,385	\$10,402,385	\$10,402,385
Non-Infrastructure	\$622,180	\$622,180	\$622,180
Renewal, Rehab & Replacement	\$22,542,037	\$30,586,840	\$38,883,620
Service Improvement	\$1,275,388	\$1,275,388	\$1,275,388
Total Expenditures	\$34,841,991	\$42,886,794	\$51,183,574
Capital Funding Gap		\$8,044,803	\$16,341,583
Operations and Maintenance	\$34,492,741	\$38,086,116	\$38,086,116
Operation & Maintenance Required to Accommodate Growth		\$3,593,375	\$3,593,375
Total Expenditures	\$69,334,732	\$80,972,910	\$89,269,690
Total Average Annual Funding Gap		\$11,638,178	\$20,627,664
Gap as a Percent of CRV		0.8%	1.3%

Table 0-3 compiles the individual asset categories and the associated proposed LOS gap for both rate and tax supported assets.

Table 0-3. Asset Overview & Infrastructure Gap by Asset Category

Asset Category	Total Replacement Value	Average Annual Budget	Average Annual Need for PLOS	Average Annual Gap for PLOS	Gap as Percentage of Replacement Value
Water	\$468,616,946	\$21,113,327	\$26,316,780	\$5,203,453	1.1%
Sanitary	\$679,889,438	\$27,533,004	\$42,143,324	\$14,610,320	2.1%
Rate-Supported Total	\$1,148,506,383	\$48,646,331	\$68,460,104	\$19,813,773	1.73%
Storm	\$569,840,373	\$5,806,685	\$18,345,210	\$12,538,525	2.2%
Transportation	\$572,507,204	\$20,161,695	\$19,506,202	No Gap	No Gap
Central Fleet	\$20,603,648	\$3,846,753	\$4,467,661	\$620,908	3.0%
Facilities	\$278,827,023	\$12,654,177	\$17,585,458	\$4,931,281	1.8%
Fire	\$47,613,930	\$15,583,892	\$16,353,945	\$770,052	1.6%
Forestry	\$9,090,120	\$876,858	\$839,644	Unknown ²	Unknown
Information Systems	\$2,649,669	\$2,273,176	\$2,884,311	\$611,135	23.1%
Parks	\$47,879,157	\$8,131,496	\$9,287,259	\$1,155,763	2.4%
Tax-Supported Total	\$1,549,011,124	\$69,334,732	\$89,269,690	\$20,627,664	1.33%
Total	\$2,697,517,507	\$117,981,063	\$157,729,794	\$40,441,437	1.50%

² There is currently insufficient information on forestry asses to determine whether additional lifecycle activities and, their associated cost, are required.

This AMP provides both financial and non-financial strategies to close the gap. By maintaining robust asset management practices and implementing a diverse range of strategies tailored to community needs, the City can effectively meet its long-term objectives. Addressing the gap is not achievable in the short term, but by implementing strategies now, the City ensures it can continue to provide services to the community both now and in the future.

The risks of not closing the infrastructure gap and following recommended asset lifecycle strategies can be significant and long-term. The risks associated with not maintaining the City's assets can be found within the Financial Strategy section of the AMP. Significant infrastructure gaps are common throughout municipalities, as they struggle with the many pressures faced by asset owners, including inflation, increased construction costs, competing priorities, and limited funding. To address these issues, many strategies will need to be employed to ensure the City can provide safe and reliable services to residents.

Figure 0-6 shows the cumulative capital gap for both current LOS and proposed LOS. This represents a worst-case scenario, based on the information available in the development of this AMP, and does not account for any non-financial strategies that may offer lower cost alternatives.

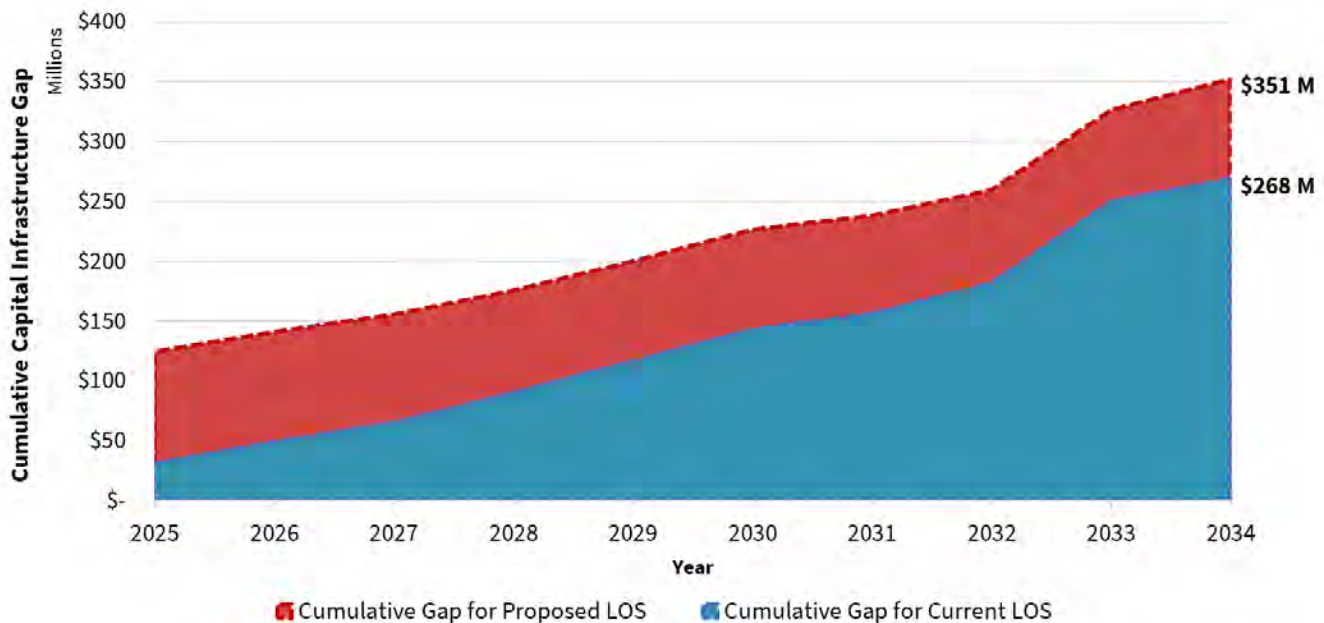


Figure 0-6. Cumulative Capital Infrastructure Gap for Current and Proposed LOS

Improvement and Monitoring

Continual improvement in asset management is essential for the City to enhance efficiency, effectiveness, and sustainability of its infrastructure and to be able to continue to provide services to the community. Many improvements have been made since the 2021 AMP update thanks to the tremendous efforts of City staff to implement the recommendations from the previous plan. The 2025 AMP provides an overview of the legislated requirements as well as other opportunities for improvement.

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1.0 Introduction

1 Introduction

The City's assets provide the foundation upon which the City delivers services essential to the health and well-being of its residents and businesses. The City currently owns and operates approximately \$2.7B in assets which contribute to community enjoyment and satisfaction and enables the City's future growth. By integrating various asset management strategies such as planning investments, operating, maintaining, renewing, and replacing assets efficiently, the City can optimize its resources and enhance community satisfaction.

The Asset Management Plan describes the rationale used to deliver programs to design, construct, maintain, operate, and renew City assets to strike a balance between:

- The service provided by the asset,
- The costs associated with asset ownership, and
- The risks inherent in owning large critical networks of infrastructure.

This document was a collaborative effort among Asset Leads and staff, ensuring that diverse perspectives are considered in the decision-making process. This collaborative approach leads to more comprehensive and effective asset management strategies. This 2025 Asset Management Plan (AMP) represents the City's commitment to compliance and best practices in asset management by linking organization objectives, with service levels, required work on assets and associated costs. The AMP provides a transparent and rational framework for decision-making, enabling the City to prioritize investments effectively.

This AMP has been developed as an update to the 2024 AMP update to add applicable requirements from Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure and the City's Asset Management Policy. Upon endorsement of the CAO, and approval by Council resolution, this plan will be made available on the City's website. Any background information and reports used to inform the state of the infrastructure which are not publicly available may be requested through the City's clerk's office.

A glossary of terms can be found in **Appendix A**.

1.1 Purpose and Regulation

1.1.1 Asset Management Plan Purpose

The purpose of this plan is to:

- Ensure compliance with AMP regulatory requirements.
- Provide a summary of the City assets, including valuation, condition, and average age.

- Provide recommendations regarding future AMP regulatory requirements and enhanced AM practices.
- Describe current levels of service.
- Develop proposed Levels of Service that are financially tolerable, balance risk and are implementable in the long term.
- Identify the ways in which assets can fail and describe the lifecycle management options applied to mitigate the failure.
- Forecast expenditures required to sustain current levels of service for the next 10 years.
- Support the line of sight between Council approved plans and initiatives, and asset investment needs.
- Provide increased transparency related to the City's AM practices, challenges and opportunities.

1.1.2 Ontario Regulation 588/17 Overview

On January 1, 2018, Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure (O.Reg.588/17) came into effect. The regulation sets out requirements for municipal asset management planning to help municipalities better understand their infrastructure needs and inform infrastructure planning and investment decisions. The regulation is being phased in over six years and in 2025 has culminated in the development of an Asset Management Plan that addresses the future investment needs for all infrastructure assets owned by the City. Key legislative deadlines for all Ontario municipalities are shown in Table 1-1.

Table 1-1. Legislative Milestones

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

This AMP is a comprehensive update of the 2024 AMP, and is compliant to the July 1, 2025 requirements. This plan provides a base from which the City will manage their infrastructure assets in the long-term.

1.2 Asset Management Program in the City of Welland

1.2.1 Asset Management Stakeholders Roles & Responsibilities

The following roles and responsibilities for asset management for the City of Welland are outlined in the City's Strategic Asset Management Policy are as follows:

Council and Committees of Council are responsible for approving the Asset Management Policy and approving budgetary decisions, and are the overall authority for policy approvals, and budgetary decisions as defined in the Municipal Act. Council has the authority to make asset management decisions related to investment, design, construction, acquisition, operation, maintenance, renewal, replacement and decommissioning of infrastructure assets.

The Chief Administrative Officer is responsible for establishing and endorsing the Asset Management Policy and the Asset Management Plan. The CAO has the authority to execute or delegate the duties defined above, and the authority to make asset management decisions related to investment, design, construction, acquisition, operation, maintenance, renewal, replacement and decommissioning of infrastructure assets.

The Director of Infrastructure Services is responsible for ensuring the Asset Management Policy and Plan is relevant, suitable, adequate, reviewed and updated as required. This role is responsible for communicating land-use or master plans, forecasts, policies and other planning or financial commitments related to municipal infrastructure assets. This role is also responsible for coordinating with the Directors to align asset management planning with budgets, land-use or master plans, forecasts, policies and other planning or financial commitments. Appropriate authority to carry out these responsibilities is assigned.

Asset Leads are responsible for, and assigned the authority for, making asset recommendations related to assigned portfolios, in adherence with the Asset Management Policy and Plan. Asset Leads have the authority to make asset management decisions related to investment, design, construction, acquisition, operation, maintenance, renewal, replacement and decommissioning of infrastructure assets.

1.3 Alignment to the City of Welland's Strategic Goals

1.3.1 Alignment with Welland's Strategic Plan

This AMP sits among the City's other significant planning documents, including the City's 2023–2026 Strategic Plan. This AMP aligns with the 4 values outlined in the Strategic Plan:

Efficiency: The AMP helps to formalize and communicate the strategies used to manage assets efficiently.

Resiliency: The AMP is a forward-looking document to help the City prepare to address future challenges.

Innovation: AM at the City is continuously evolving to drive improvements to service delivery.

Integrity: The AMP is a tool to communicate and share information about the City's core assets, providing transparency, building trust, and demonstrating the good work done by City's Council and staff.

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

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



1.3.2 Alignment with Welland's Strategic Asset Management Policy

This AMP was developed in accordance with the City's Strategic AM Policy (2019). The Policy is required to be reviewed and updated every 5 years. The Policy will be updated in 2025 to align with the full AMP update.

As part of its asset management planning processes for municipal infrastructure, the City is committed to considering the following as outlined by the Policy:

- Opportunities for input from municipal residents and other interested parties.

- Coordinating asset management planning for assets that are interrelated with neighbouring municipalities and other agencies such as Welland Hydro, Enbridge Gas, Bell, and the Niagara Region.
- Considering climate change.

1.4 Development & Methodology of the Asset Management Plan

1.4.1 Asset Management Plan Scope

This Asset Management Plan (AMP) includes all the City's "core" and "non-core" assets, as defined in O.Reg. 588/17. This includes the following services:



1.4.2 Asset Management Plan Structure & Methodology

The AMP is divided into chapters for each asset group listed above in Section 1.4.1 Asset Management Plan Scope. Each chapter outlines the State of the Infrastructure, Levels of Service, Lifecycle Management, and Data Confidence and Improvement Plan. The chapters are followed by the Financing Strategy and Improvement and Monitoring Plan for the City.

The methodology for each section is described below.

State of the Infrastructure

The State of the Local Infrastructure section provides a quantitative assessment of the infrastructure owned by the City. The primary objective is to provide a high-level inventory and insights into the overall age, condition, replacement value, and key metrics of the assets owned by the City, as per O.Reg. 588/17. The information is developed based on provided datasets and documents that were assessed for data confidence and discussed with Asset Leads.

Asset Register

The asset register, or inventory, was developed by City staff. Data was pulled from multiple sources to compile the required information for asset management planning. Required information includes:

- Asset Identifier
- Install Date
- Current Replacement Value
- Estimated Useful Life
- Condition
- Asset type specific information

The resulting register provides the basis for the analysis completed for the asset management plan, including State of the Infrastructure, Levels of Service, and Lifecycle Management Strategies.

Current Replacement Value

The Current Replacement Value (CRV), reported in 2024 dollars, of an asset refers to the cost that would be incurred to replace the asset with a similar one. It represents the current market value of the asset, considering factors such as inflation and changes in market conditions and includes all costs required to replace and/or construct an asset with a comparable asset. Where required, these costs may include engineering and design, project management, materials, and labour. There is no growth, technology change, or enhancement assumptions included in these costs (unless identified).

Determining the current replacement value is important for asset management purposes, as it helps the City assess the financial implications of asset replacement and plan for future capital expenditures.

City staff have undergone a lengthy process to review, assess and update CRVs across all asset categories for the purposes of this AMP. To update these values, several strategies have been leveraged, including market assessment, analyzing recent contracts of similar assets, staff expertise, engineering estimates and professional appraisals. This is an on-going effort, which will be continually improved upon for asset management purposes.

CRVs used in this AMP represent the best available information during the development of this document and will continue to be evaluated. Current market conditions have been

reflected in this AMP, and in some cases are dramatically different than those provided in the previous AMP.

Estimated Service Life

Estimated Service Life in asset management planning refers to the anticipated duration over which an asset is expected to remain operational and provide its intended function. This estimate may be based on various factors such as design specifications, historical performance data, maintenance practices, environmental condition, and technological advancements. The purpose of estimating service life for asset management planning is to enable organizations to allocate resources for maintenance, repairs, replacements, and new acquisitions over the asset's lifecycle. It allows for budgeting long-term capital expenditures through replacement planning, risk management, optimizing maintenance and performance evaluation.

For the purposes of this AMP, staff reviewed and assessed estimated service lives to confirm appropriate values were used to ensure accurate forecasting for infrastructure spending needs.

Asset Condition

Assigning condition ratings to assets across each asset category using a consistent rating scale is a crucial step in asset management. By using standardized scales, the City of Welland can facilitate benchmarking with other Canadian municipalities and gain insights into the overall condition of its assets, regardless of asset category. However, there is no standardized way to assess how assets are tracked or valued, so it is challenging to compare, and depends on the methodologies and practices in use by other municipalities. The condition rating scale consists of a numerical or categorical value that represents the condition of the assets.

Within this AMP, condition ratings were assigned based on numerous methods and then standardized into a condition rating scale of Very Poor to Very Good. Where condition assessment data was available, these condition values were used and input into the condition rating scale, which is described in the category chapters.

Where assessed condition was not available, the condition estimate was based on its remaining life as estimated by comparing its age and estimated service life. This assessment involves categorizing the percentage of remaining life into different condition categories, as outlined in Table 1-2.

Table 1-2. Condition Rating Scale

Condition	Age/ESL	Description
Very Good	>80% life remaining	The asset is fit for the future. It is well maintained, in good condition, new or recently rehabilitated.
Good	60–80% life remaining	The asset is adequate. It is acceptable and generally within the mid-stage of its expected service life.
Fair	40–60% life remaining	The asset requires attention. The asset shows signs of deterioration, and some elements exhibit deficiencies.
Poor	20–40% life remaining	There is an increasing potential for its condition to affect the service it provides. The asset is approaching the end of its service life, the condition is below the standard and a large portion of the system exhibits significant deterioration.
Very Poor	0–20% life remaining	The asset is unfit for sustained service. It is near or beyond its expected service life and shows widespread signs of advanced deterioration. Some assets may be unusable.
Unknown		Not enough data exists to determine condition.

Levels of Service

Levels of Service (LOS) are measures of what the City, through its assets, provides to its customers, residents, and visitors. They support the organization's strategic goals and are derived from customer needs and expectations, Council objectives, City policies, legislative and regulatory requirements, standards, and the financial capacity of the municipality to deliver those LOS.

The LOS section provides metrics that support the provision of services for each service area. O.Reg. 588/17 has prescribed LOS for water, sewer, storm, road, bridge and culvert assets (considered "core" assets within the regulation), and the remaining asset's LOS were developed by City staff. Key Performance Indicators (KPIs) were also developed which provide a way for the City to monitor the progress in implementing this plan.

The LOS sections for each service area provide the following information:

Level of Service Statement

A brief description presented in plain language for public understanding of the service provided by each asset category to residents based upon the City's core values and mission.

Key Service Attribute

Categorizes the LOS metrics to specific areas of customer interest which are recognizable to the customer/public. These attributes are tied to the City's strategic objectives. See Table 1-3 for the City's Key Service Attributes and their alignment to the City's Strategic Values and Priorities.

Table 1-3. Level of Service Attributes Alignment to City's Strategic Priorities

City's Strategic Values	Efficiency	Innovation	Integrity	Resiliency
Strategic Priorities	Economic Growth	Environmental Stewardship	Healthy & Well-being	Livability
AMP LOS Attributes	I have access to services when I need them.	My City is considerate of the environment.	Services are safe to use. My property is protected	I have quality services. My City maintains what it owns.

Levels of Service Metric

A statement that describes quantifiable metrics of the service delivery outcomes from the perspective of the customer and service provider, expressed in terms that can be easily understood by customer. This AMP provides the current performance of these metrics, along with target, or proposed, performance that the City would like to achieve.

Key Performance Indicators

A measurable value that shows how effectively the City is implementing the AMP. For the purposes of this AMP, these are values that the City cannot set a specific target to but will assist the City in documenting their progress in implementing the asset management strategies developed in this plan.

Process to Set Proposed Level of Service

The proposed LOS refers to the future standard of performance that the City wants its infrastructure and services to achieve. It sets clear goals for service quality, helps prioritize investments and maintenance, and it shows the public what improvements will cost to deliver.

Considering the analysis of the lifecycle management strategy, along with factors such as risk, current condition, community expectations, data reliability, affordability achievability, compliance and expert recommendations, the proposed level of service was set. This process is outlined in Figure 1-1.

Figure 1-1. Process for Setting Proposed LOS



Staff and CLT were tasked with providing the recommended Proposed LOS. Following the approval of this AMP, the City is required to provide an annual update to Council on the progress implementing this plan. By updating the LOS and KPI metrics on an annual basis, will allow the City to assess if the service delivery goals, financial commitments, and infrastructure performance are meeting expectations, and allow an opportunity to adjust the targets, investment strategies, and risk mitigation measures if needed.

Lifecycle Management

The Lifecycle Management Strategy defines the set of planned actions taken on an asset throughout its entire lifecycle from installation/construction to decommissioning. When managed effectively, these strategies enable the assets to provide their desired level of service in a sustainable way while mitigating risks and reducing costs throughout their life. The goal of this assessment is to capture the activities that are required to sustain the assets within each service area. For the purposes of this plan, the lifecycle activity categories are as follows:

Lifecycle Management Activities

Lifecycle management activities are categorized to summarize the various lifecycle activities that asset owners complete during the lifecycle of an asset. For the purposes of this plan, the lifecycle categories are as follows.

Disposal Activities: Associated with disposing of an asset once it has reached the end of its useful life or is otherwise no longer needed by the municipality.

Growth Activities: Planned activities required to extend services to previously unserved areas or expand services to meet growth demands to maintain LOS.

Non-Infrastructure Solution: Actions or policies that can lower costs and contribute to the management of assets.

Operations & Maintenance Activities: Including regulatory scheduled inspection and maintenance, or more significant repair and activities associated with unexpected events.

Renewal/Replacement Activities: Significant repairs designed to extend the life of the asset, or activities that are expected to occur once an asset has reached the end of its useful life and renewal/rehab is no longer an option.

Service Improvement: Planned activities to improve LOS. Example, an asset's capacity, quality, or system reliability. Not driven by growth needs.

The lifecycle activities for each asset class are detailed in the individual asset category chapters. These activities are aligned with the asset hierarchies and includes the frequency at which they are performed in terms of the assets' Estimated Service Life. Each asset type is unique in the needs for the activities that are completed within the assets' lifecycle.

Funding Lifecycle Activities

This section outlines the estimated future funding requirements for the City's assets and determines if there is a gap in funding to meet these requirements.

The condition of each asset was forecasted using the current condition (or age where condition information was not available) and the estimated degradation of that condition over time based on the estimated service life of the asset. Once an asset reached a certain target condition estimate, the associated lifecycle intervention was assumed to take place and that cost was tracked. The forecast of expenditures was calculated from the sum of all the interventions in each year.

The City has implemented Brightly Predictor, which is a Decision Support System to continue its efforts to make informed decisions on asset investments. Predictor is a capital planning software that provides asset lifecycle prediction modeling. The benefits of using this tool include:

- Ability to predict asset life based on asset specific, condition-based degradation profiles.
- Comparison of various funding scenarios to compare the impact on asset condition.
- Tailor made project planning pulling together information from various sources to include asset data and condition information.
- Repeatable asset lifecycle prediction modeling that can be leveraged for capital planning and budgeting purposes.

The City will continue to leverage this tool in the future and further enhance the inputs to the data and lifecycle strategies which will provide reliable forecasts for infrastructure expenditure requirements to meet the community's needs and expectations of services. This tool has been used for the analysis of the scenarios outlined below.

To complete this analysis, the infrastructure renewal needs for each service area were determined by forecasting the condition of assets over a 25-year time period, factoring in interventions such as rehabilitation and replacement based on the asset's defined lifecycle strategies. The scenario comparison and expenditure requirements have been analyzed for a 10-year period, as per O.Reg. 588/17 requirements.

This AMP includes three main forecasted scenarios:

The analysis developed for this AMP included the following scenarios:

Scenario 1: Maintain Current Level of Service maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.

Scenario 2: Current Budget reviews the current budget available to fund lifecycle activities, including renewals, rehabilitations, and replacements.

Based on analysis of the 2024 AMP scenarios that also include an ideal scenario to follow lifecycle strategies, the updated scenarios for the 2025 AMP, risk, current condition, community expectations, data reliability, affordability, achievability, compliance, and subject matter recommendations, a scenario was developed to determine the lifecycle activity expenditures required for the rehabilitation and replacement activities to meet the proposed LOS.

Scenario 3: Proposed Level of Service determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

By comparing these scenarios, City staff are able to determine if there is a gap in the funding needed to address future infrastructure needs. This information can then support decision-making on how to address this gap, which may include reducing these needs through changes to lifecycle management strategies and/or the level of service being provided or finding ways to increase funding.

Continuing to defer renewal works can put the City of Welland at risk in not achieving intergenerational equality. Future generations will be unable to maintain the level of service customers currently enjoy. Continued project deferral can also lead to significantly higher operational and maintenance costs, affecting the availability of services in the future. Properly funded timely renewals can ensure that assets will continue to perform as expected into the future.

Data Confidence and Improvement Plan

Each section will provide information on the data confidence and improvement plan specific to that service area. This section will provide further information on the sources used to develop the asset register and provide a data quality grade based on the criteria outlined below in Table 1–4. Improvements for the data included in the chapter will then be provided.

Table 1–4. Data Confidence Rating Scale

Grade		Criteria
A	Very Good	No assumptions, with available condition data from a reliable data source, and age and current replacement value are known.
B	Good	Minor assumptions are made for condition, age, or replacement values (e.g. most of condition, age, and replacement values are known). Data sources are reliable.
C	Fair	Assumptions are made for condition, age, or replacement values from moderately reliable sources.
D	Poor	Data comes from significantly out of date documents, data sources are moderately reliable, or values are unknown or unreliable.

Financing Strategy

The financial discussion and strategy of an AMP sets out the approach to ensuring that the appropriate funds are available to support the delivery of infrastructure services. The financing strategy is continually reviewed and adjusted to reflect changing pressures and priorities across the community.

This financing strategy starts by providing an overview of the future forecasted financial situation prior to discussing the options for addressing the infrastructure funding gap.

The long-term financing strategy forecast was prepared so that it can be used in conjunction with the annual budget process. Figure 1–2 provides a visual representation of how various financing methods can be used for both initial asset purchases, as well as asset replacements.

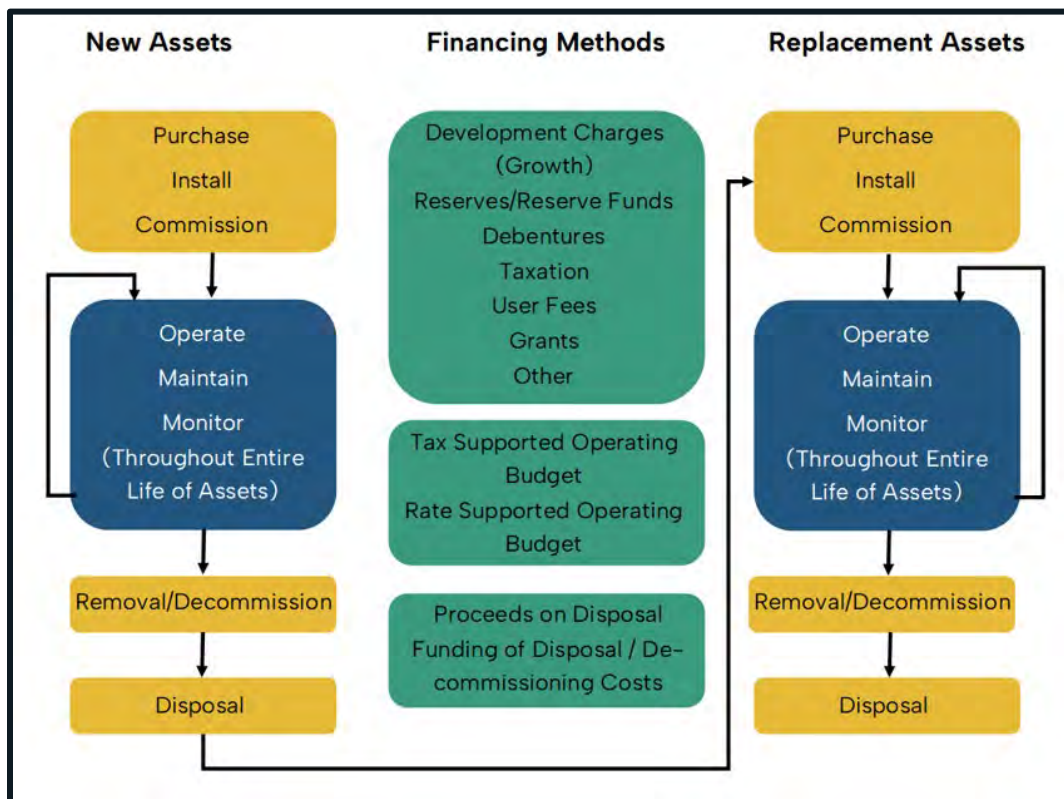


Figure 1-2: Financing Methods of Lifecycle Activities

Improvement and Monitoring Plan

As the City matures in their Asset Management journey, the processes for Asset Management Planning will continue to evolve and improve. Within the service area chapters, the data confidence and improvement plan provide service area specific opportunities for improvements, while the Improvement and Monitoring Plan will speak to the opportunities for maturity on a city-wide or program level.

1.5 Asset Management Plan Assumptions and Limitations

This Asset Management Plan was developed based on the best available information and by employing professional judgement and assumptions to address gaps where necessary. Asset specific assumptions are recorded in the service area chapters.

Where gaps or opportunities were identified, they have been included in the improvement plan.

Assumptions:

- The scope of this AMP covers the assets directly owned by the City of Welland.
- All costs (including in the financial forecast) are presented in 2024 dollars, unless specified otherwise.
- Capital costs required for growth (identified by expenditures funded from development charges) have been identified within the lifecycle activities required for each asset category.
- Service improvement to an asset is generally not included in replacement costs. Some exceptions include if it is standard practice to upgrade infrastructure such as replacing a cast iron pipe with PVC.
- The City has not implemented an asset risk management strategy that goes beyond legislative requirements for all assets. This is recommended to be reviewed for future iterations of this AMP.
- It is assumed that the projected capital budgets and expected available reserve funds will occur as planned over the period of analysis.
- This AMP assumes that the current budgets are sufficient to meet current needs for non-infrastructure, operations and maintenance, growth, and service improvement activities to maintain current levels of service.

1.6 Asset Management Pressures

The management of public assets faces various pressures that can impact its operations, strategies, and overall success. Some of these pressures include:

Market Volatility: Asset managers must navigate constantly changing market conditions, including fluctuations in asset prices, and interest rates. Market volatility can make it challenging to appropriately plan for future asset needs.

Regulatory Changes: Municipalities are often subject to a wide range of regulations that can vary by jurisdiction. Changes in regulations, such as those related to reporting requirements, can require asset managers to adapt their processes and systems.

Population Growth and Urbanization: Growing populations and urbanization place increased strain on municipal infrastructure and services. Municipalities must manage the demands for housing, transportation, utilities, and public amenities while ensuring sustainable development, and balancing the current asset portfolios.

Budget Constraints & Funding Options: Municipalities often operate within tight budget constraints, limiting their ability to invest in infrastructure maintenance, upgrades, and new projects. Balancing competing priorities within limited budgets. Municipalities must explore various funding and financing options to support asset management initiatives, and other infrastructure needs. Identifying sustainable funding sources and securing financing on favourable terms can be challenging.

Aging Infrastructure: Many municipalities face aging infrastructure. Maintaining and upgrading this infrastructure requires significant investment, but funding may be insufficient to address all needs.

Environmental Regulations: Municipalities must comply with environmental regulations related to air, water quality, waste management and land use. Meeting these regulations often requires investment in infrastructure upgrades and environmental mitigation measures. There is also significant staff time required for data tracking and reporting to ensure compliance.

Climate Change and Natural Disasters: Climate change poses significant challenges for municipal asset management, including increased risk of extreme weather events such as floods and storms. Municipalities must invest in resilience measures to protect infrastructure and communities from climate-related risks.

Limited Human Resources: Municipalities may face challenges in recruiting and retaining qualified staff with expertise.

Political and Public Pressure: Asset management decisions are often subject to political and public scrutiny. Balancing the needs and preferences of various stakeholders, including elected officials, residents, and businesses can be complex and contentious.

Data Management and Technology Adoption: Effective asset management relies on accurate data collection, analysis, and decision-making. This requires reliable asset data and implementing systems and processes that leverage technology to optimize asset performance.

Resilience and Sustainability Goals: There are increasingly greater pressures to prioritize resilience and sustainability in asset management practices. This includes incorporating green infrastructure, renewable energy, and sustainable transportation solutions into asset planning and management.

Overall, municipal asset management requires navigating a complex landscape of financial, regulatory, environmental, and social pressures to effectively manage infrastructure and deliver services to residents.

1.7 Growth and Climate Change

1.7.1 Growth

As the demand for infrastructure services grows, the City may focus on expanding the capacity of existing assets to accommodate increased usage. This could involve adding lanes to roadways, increasing the capacity of public transportation systems, or expanding the capacity of water treatment plants. We can efficiently plan for new infrastructure as well as the upgrade or disposal of existing infrastructure by monitoring the key growth drivers. Population and employment forecasts aid in estimating the fluctuating need on the infrastructure. Development charges (DC) are a means of financing projects that arise from population growth. Asset planning is also informed, where available, by demographic estimates since the community's demand for our services may fluctuate.

1.7.1.1 Population and Employment Forecast

The City of Welland's current population as per the 2021 Census is 55,750, which is over a 6% increase since the 2016 Census. As per O.Reg. 588/17, municipalities with populations of 25,000 or more within the Greater Golden Horseshoe growth area plan (but do not have employment forecasts set out in Schedule 3 or 7), are required to report on the portion of the forecasts allocated to the municipality in the official plan of the upper-tier municipality it is a part of. The Niagara Official Plan (November 2022) forecasted minimum growth for population and employment. The high-level minimum population and employment forecasts from the Niagara Official Plan are shown in Table 1-5. Employment information was not available in the 2021 Census.

Table 1-5. Population Forecasts, Niagara Official Plan

Forecast	2021 ³	2051
Population	55,750	83,000
Households	23,656	37,540
Employment	Not available	28,790

According to the Niagara Official Plan, the City will see a rise in population (approximately 49%) in 30 years (by 2051). To accommodate this growth, the City of Welland with Niagara Region has established a residential intensification target of 75%. This intensification target is to be accommodated within the built-up area in the City. Downtown Welland has been identified as a Regional Growth Centre, as such there is a particular focus on intensification in this area for significant population and employment growth.

³ City of Welland 2021 Census, statcan.gc.ca

The City of Welland completed a DC Background Study (August 2022) and Housing Needs Assessment (September 2022), which projects higher population growth in comparison to the Regional forecasts. These numbers are shown in Table 1-6.

Table 1-6. Population Forecasts, Welland DC Background Study

Forecast	Current Population (2024)	2021 ⁴	2041	2051
Population	57,933	55,750	105,975	129,525
Dwelling Units	Not available	Not available	22,420	33,035

The DC Background Study forecasted growth until 2041. The 2051 values for population and dwelling units were calculated using the same per year growth rate. These numbers are much higher in comparison to the Niagara Official Plan minimum forecasts, with a population increase of 85% in 20 years (to 2041), compared to an increase of 49% in 30 years (to 2051, as projected in the Niagara Official Plan). The City feels that the numbers from the DC Background Study are more representative of the actual and projected growth.

The City's population is expected to increase, affecting services such as emergency, transportation, recreation, water, wastewater, and stormwater. Intensification in built-up areas will put further pressures on existing infrastructure. It is important to ensure that existing infrastructure can support intensification, and plan for upgrades where necessary to accommodate for increased wastewater capacity or increased fire-flow as needed. Development charges are one way the City can help fund upgrades to existing assets or new assets. With this information, the City can plan for upgrades throughout the City to ensure that demand can be met.

1.7.1.2 Assessing Growth-Related Asset Needs

Growth triggers the need for more assets, and the need for additional funds to maintain these new assets, to allow us to continue to maintain current levels of service that the community experiences. Planning for forecasted population growth may require the expansion of the existing asset portfolio and services, and the addition of new assets.

The capital expenditures required for Growth identified within this plan have been determined based on the City's 2022 Development Charge Study. It is recommended that the City update their master plans and update the development charge study to ensure continual line of site on the expenditures required for growth and that development charges are keeping pace with the infrastructure required to accommodate growth.

⁴ City of Welland 2021 Census, statcan.gc.ca

Operating expenditures required for growth have been determined by adding the capital growth expenditures to the current replacement value of the asset categories within this AMP. The current spending on operations and maintenance (O&M) was analyzed in comparison to the current replacement value, to determine the percent being spent on these activities. It was assumed that to accommodate growth, the City at a minimum, would need to maintain this percentage.

The following conclusions included within the report show the impact of these new assets on future funding needs:

- The total accumulative 10-year increase in operating costs is estimated to be approximately \$134.8 million, with \$77.2 million being funded from future taxpayers, and \$57.6 million being funded from future rate payers.
- The total 10-year accumulative increase in capital costs (not funded by development charges due to deductions) is estimated to be approximately \$108.5 million, with tax supported services estimated to be \$68.9 million and rate supported services approximately \$39.6 million.

1.7.2 Climate Change

Climate change can have a substantial impact on asset's lifespan, durability, and performance, posing significant challenges to infrastructure asset management. We must efficiently prepare our communities and infrastructure for climate-related hazards including flooding, rising temperatures, and extreme weather events.

To address the issue, we are currently in the process of finalizing the Corporate Climate Adaptation Plan (CCAP). The draft CCAP includes actions that the City of Welland will undertake to adapt to climate change. These actions correspond to six high-level goals with high-level intentions that the City will undertake.

The goals that will guide the City of Welland include:

- Goal 1: Integrate climate change thinking and response.
- Goal 2: Protect and maintain public health and safety.
- Goal 3: Reduce risk to buildings and property by strengthening infrastructure resilience.
- Goal 4: Protect biodiversity of natural landscapes and enhance ecosystem functions.
- Goal 5: Reduce community service disruptions.
- Goal 6: Increase knowledge and skills to build community resilience.

The development of Welland's CCAP is being carried out in partnership with six other Niagara-area municipalities—Lincoln, Niagara Falls, Niagara-on-the-Lake, Pelham, Port Colborne, and St. Catharines—under a 2025 joint initiative. This collaborative project supports each municipality's sustainability goals while leveraging shared resources and regional coordination. The initiative also aligns with the Partners for Climate Protection (PCP) five-milestone framework, with a focus on achieving the first three milestones:

- Developing a baseline GHG emissions inventory;
- Setting measurable emissions reduction targets; and
- Creating a robust Corporate Climate Action Plan.

The CCAP will include an implementation strategy identifying responsible departments, estimating potential costs, and outlining funding opportunities. It will also feature a monitoring framework with key performance indicators to track progress and support continuous improvement.

This Asset Management Plan (AMP) creates a foundational avenue for embedding climate considerations into long-term infrastructure planning. As the CCAP is implemented, its recommendations will be integrated into asset management practices, influencing risk assessments, lifecycle strategies, and level-of-service metrics that reflect climate resilience. Together, the AMP and CCAP will ensure that Welland makes sustainable, data-driven infrastructure decisions that protect both the community and its natural environment in the face of a changing climate.



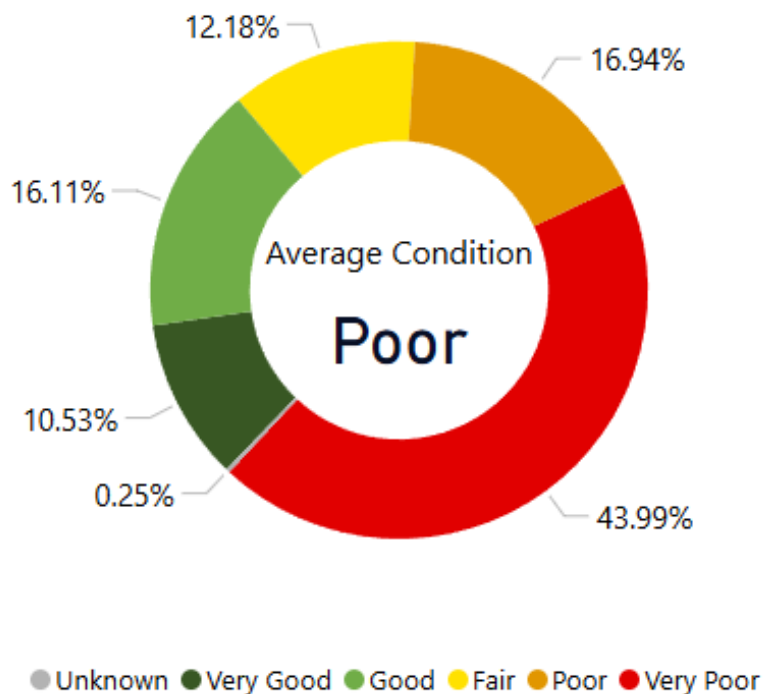
Sanitary System



Replacement Value

\$679,889,438

Overall Average Asset Condition



Quick Facts

The Sanitary System has:

- 2 Sanitary Pump Stations
- 242 km of Sanitary Sewers

2 Sanitary System

2.1 State of the Infrastructure

Welland's sanitary system is made up of the sewers and pump stations used to transmit wastewater from individual properties to a treatment facility. The sanitary sewers include all appurtenances that are included in the sanitary system including services, and manholes. Table 2-1 below shows the full inventory and estimated replacement cost for this system. The Sanitary System assets include sewers (which includes all appurtenances), and the sanitary pump stations. The sanitary pump station is only considering Lincoln Street Pump station, as Fitch Street Pump Station is planned to be decommissioned in the upcoming years. All other Sanitary facilities within Welland are owned and operated by the Niagara Region, and therefore not included within the scope of this plan.

Table 2-1. Inventory and Current Replacement Value – Sanitary System

Asset Type	Count	Quantity Unit	2024 Estimated Replacement Value
Sanitary Pump Station	2	Each	\$3,640,000 ⁵
Sanitary Sewer	242	Km	\$676,249,438
Total			\$679,889,438

2.1.1 Asset Condition

Overall, the sanitary system's assets are in **Poor Condition**.

Condition for the Sanitary System was assigned based on Table 2-2. The Lincoln Pump Street pump station was assessed as a whole facility (not componentized), based on the age and service life of the facility. Condition ratings (PACP ratings from CCTV data) for the sanitary sewers were applied where available, based on the likelihood of failure score on the pipe structural.

⁵ Replacement Value is for only one pump station. Fitch Street Pump Station is planned to be decommissioned and has not been assessed for replacement value or condition within this AMP.

Table 2-2. Condition Rating – Sanitary System

Condition	Age/ESL	Sewers – Assessed Condition Rating
Very Good	>80% life remaining	1: Failure unlikely in foreseeable future
Good	60–80% life remaining	2: Pipe unlikely to fail for at least 20 years
Fair	40–60% life remaining	3: Pipe may fail in 10–20 years
Poor	20–40% life remaining	4: Pipe will probably fail in 5–10 years
Very Poor	0–20% life remaining	5: Pipe failed or likely to fail within 5 years

The methodology to assign condition for this AMP were adjusted from the 2021 AMP to provide a more accurate assessment, which includes the following key points:

- Condition assessments were only used where data was no more than 6 years old.
- Likelihood of failure was calculated based on NASSCO methodology from structural score, which provides an assessed remaining life (which differs from actual age and remaining life). Age-ESL was then applied as per Table 2-2.
- Estimated Service Lives were updated to reflect the variances in pipe material for how long pipes typically last.
- Condition mapping was updated so that assets with 20% or less of life remaining are very poor to follow best practices and be in line with other asset classes (the previous AMP did not consider an asset in very poor condition until after it was past its service life).

A breakdown of the condition distribution based on asset value is shown in Figure 2-1 and Figure 2-2 below. As these figures demonstrate, 61% of the assets fall at or below Fair condition.

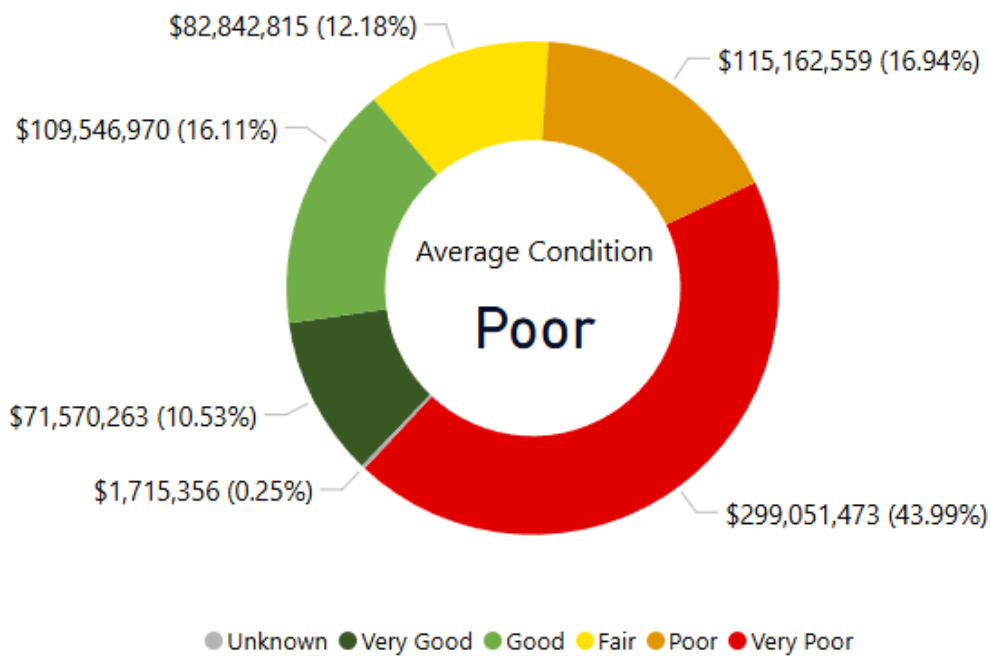


Figure 2-1. Sanitary System Condition Distribution (By Replacement Value) – Overall

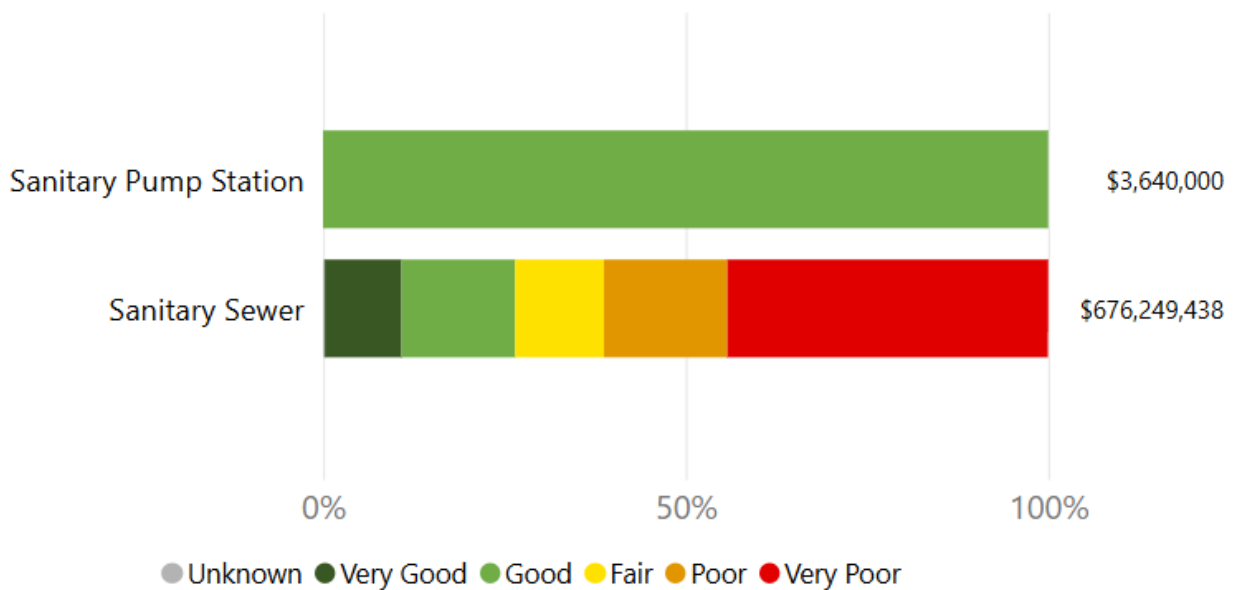


Figure 2-2. Sanitary System Condition Distribution (By Replacement Value) – Asset Category Breakdown

2.1.2 Average Age

A breakdown of the average age and estimated service life (ESL) per asset category is provided in Figure 2-3. As this figure demonstrates, on average, sanitary system assets are nearing the end of their ESL.

It should be noted that estimated service life has been updated since the 2021 AMP. The previous AMP assumed one service life for all pipe types and materials. This has been updated to reflect real-world conditions for the various pipe materials. This was an important update for this AMP, as materials like PVC (which is now used for new pipes), last much longer than pipe materials that historically were used. This update was required to ensure accurate forecasting for future replacements and expenditures.

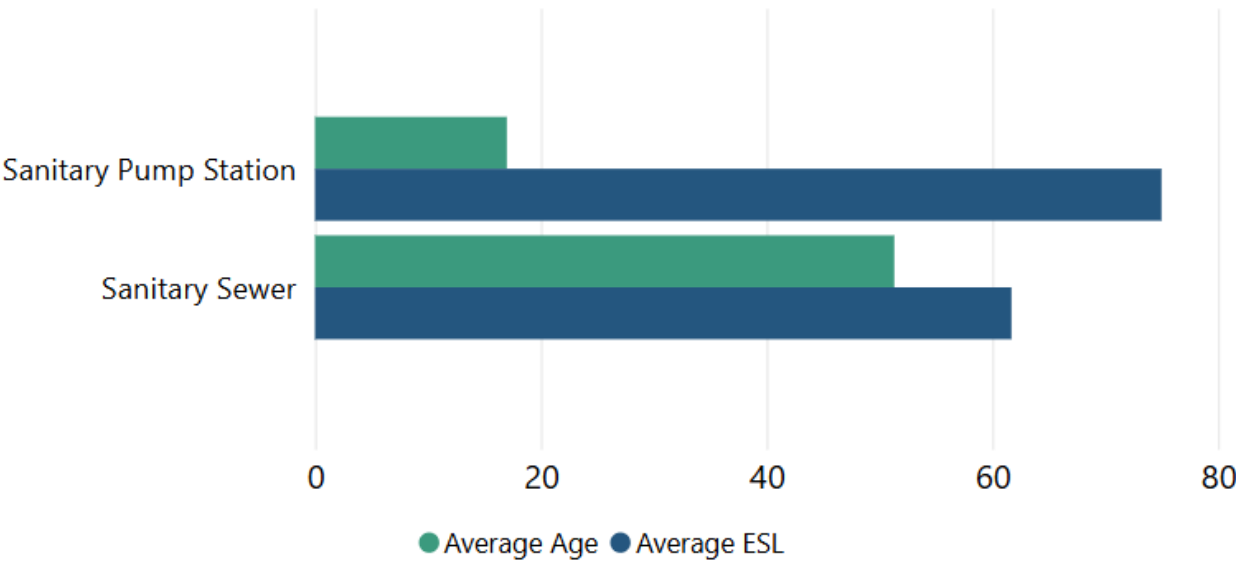


Figure 2-3. Sanitary System Average Age vs. ESL – Asset Category Breakdown

2.2 Levels of Service

Levels of service refer to specific parameters that describe the extent and quality of services that a municipality provides to its residents. These parameters largely dictate the need for infrastructure, resources, and ultimately the costs associated with providing a service. In the context of this AMP, LOS are outlined based on legislated metrics, and City defined metrics. These levels of service are described from a community experiential perspective and may include both qualitative and technical metrics.

The LOS metrics and the current performance and proposed performance are detailed in Table 2-3. Key performance indicators (KPI) are listed in Table 2-4, which are metrics that do not have a target set but will allow the City to monitor the progress in implementing this AMP on an annual basis.

Proposed, or target LOS, are required to be defined within this AMP, along with a financial strategy to achieve the targets. The proposed change between the current level of service and proposed level of service has been documented in the table below. For Sanitary, although the proposed level of service was determined to be the current level of service, there is still a funding gap to meet this target in comparison to the current budget allocated to this asset category.

Table 2-3. Level of Service – Sanitary System

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Community LOS				
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system*	Sanitary & Combined Sewer Network Map (Appendix B)	N/A	N/A
Reliability	Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches*	40 events in 2023, volume 141.8 ML	Decrease	↘
Reliability	Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid events described in paragraph 3 (see O.Reg. 588/17)*	To minimize sewage overflow into streets or backup into homes, the City has established design standards to convey flows under ultimate conditions, design sheets for capacity needs that include infiltration inflow.	N/A	N/A
Reliability	Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system*	N/A – Niagara Region responsibility	N/A	N/A

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Reliability	Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes*	The City no longer constructs combined sewers. To avoid basement flooding and backups into homes, existing combined sewers have a sewer system overflow to provide system relief. Sewer overflows exist to prevent Wastewater sewer backup into basements by instead relieving overloaded Wastewater sewers into an adjacent storm sewer or receiving water body. Sewer overflows exist on both combined sewer locations and on otherwise separated sewer locations. Many have been retroactively installed after basement flooding experiences. The design varies greatly among the many overflow locations. The frequency varies from site to site but are largely triggered by wet weather (rainfall) events or snow melt. Welland has a Pollution Prevention and Control Plan (PPCP) which details all the overflow locations, along with characterizing each overflow site and setting priorities/strategies for remediation.	N/A	N/A

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Reliability	Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes*	Infiltration and inflow into Wastewater sewers may be from groundwater and surface runoff, both of which are not intended to be in Wastewater system. Infiltration can enter through a variety of sources (cracks in pipes and maintenance holes), and inflow may enter through direct connections of storm outlets into the system, such as weeping tile connections or cross connections with storm outlets or downspouts. This excess and unplanned flow can overwhelm the Wastewater system.	N/A	N/A
Technical LOS				
I have quality services	Percentage of properties connected to the municipal wastewater system.*	91% (20,205)	Maintain	↔
I have quality services	Total Backlog (Backlog as a Percent of Total Replacement Value)	\$172.9 M (25.4%)	\$172.9 M (25.4%)	↔
I have quality services	Percentage of total replacement cost of assets in good to very good condition.	27.67%	33% (10-year average)	↗

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
My property is protected from flooding	The 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.*	40 events in 2023 Volume: 141.8 ML	Maintain	↔
My property is protected from flooding	The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system.*	237 private drain cleaning (sewer rodding) orders	Maintain	↔
My City is considerate of the environment	The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system.*	None	Maintain	↔

*O.Reg. 588/17 Requirement

Table 2-4: Key Performance Indicators – Sanitary System

Key Service Attribute	Performance Measure	Current Performance (2024)
Community LOS		
My City maintains what it owns	Current reinvestment rate	0.34%
My City maintains what it owns	Cost per household	\$960.63
Technical LOS		
My City maintains what it owns	Percent of sewer mains maintained in conformance with defined lifecycle strategies.	54.81%
My City is considerate of the environment	Km of combined sewers.	5.6 km

2.3 Lifecycle Management Strategy

The objective of the Lifecycle Management Strategy is to outline and establish a set of planned actions, based on best practice that will enable our assets to provide a sustainable level of service, while managing risk at the lowest lifecycle cost.

The City strives to coordinate rehabilitation and replacement projects across asset groups where opportunities exist. This may result in asset strategies being delayed or advanced to accommodate the overall benefit of coordinated work.

The City continues to improve its approach to the management of its assets and will continue to put in place processes, procedures, and tools to enable a more consistent approach across the City's Service Areas. Detailed below is a brief overview of some of the current asset management practices in place across the City.

2.3.1 Lifecycle Activities

Specific lifecycle activities, or planned actions, for the Sanitary System are outlined in Table 2-5 . These activities have been broken down into the Lifecycle Categories detailed in Section 1.4 and detail the activities that take place during the asset's lifecycle. Lifecycle activities ultimately help provide efficiencies and ensure assets can continue providing services at the level required, and at the lowest possible cost. Completing these activities will ensure the expected service function and reliability of the assets.

By implementing these lifecycle activities, the City can effectively manage their Sanitary System assets, optimize operational efficiency, minimize costs, ensure regulatory compliance, and maximize the value and lifespan of their assets. These activities are also critical for maintaining safe and efficient infrastructure. Following the lifecycle activities and strategies will ensure the City can avoid risks associated with asset ownership. These risks are further outlined in Section 12.2.2. Implementing the lifecycle activities and strategies in this plan will enhance the resilience and sustainability of infrastructure while mitigating potential risks.

Table 2-5. Lifecycle Management Activities – Sanitary System

Asset Management Practices / Planned Actions	Frequency
Non-Infrastructure	
• Disconnecting downspouts to manage sewer demand	• On-going
• Weeping tile disconnection to manage sewer demand (SWAP Program)	• On-going
• Use of CSOs for demand management	• On-going
• Inspection of Sanitary networks using CCTV & Zoom inspection	• Annual
• Flow and level monitoring	• Annual
• GIS for record management	• On-going
• Inflow and infiltration reduction monitoring	• On-going
• Wastewater Master Plan and Pollution Prevention Control Plan	• 5 years
Operations & Maintenance Activities	
• Maintenance and inspection programs (cleaning and flushing, minor repairs, and maintenance hole repairs)	• Regularly (unscheduled or unplanned emergency activities)
• Maintenance hole adjustments and minor sewer repairs	• Regularly (unscheduled or unplanned emergency activities)
Renewal/Replacement Activities	
• Replacement of clay pipe	• Annual, priority program
• Replacement of sewers	• Annual, as identified
Disposal Activities	
• Pipe removal or abandonment, in line with replacements	• As required
Service Improvement & Growth Activities Planned	
• Separation of combined sewers into independent sanitary and stormwater sewers	• Coordinated with ROW work
• New assets to accommodate growth	• As needed
• Asset upgrades to meet capacity as identified in studies	• As identified

2.4 Funding the Lifecycle Activities

The City uses the lifecycle management strategies described above in Section 2.3 to plan work and determine future expenditure needs for Sanitary System assets. These activities, along with the scenarios outlined below provide a comprehensive forecast of expenditures required for managing infrastructure assets and ensuring the City can meet the demands of current services and existing infrastructure.

The scenarios below forecast renewal, rehabilitation and replacement lifecycle activity cost and needs. These lifecycle activities ensure infrastructure remains in a state of good repair and can continue to provide services to residents. Further details of the expenditures required for the remaining lifecycle activities (non-infrastructure, service improvements, operations and maintenance, and growth) can be found below in Figure 2-5 and Table 2-6.

which are informed based on the City's capital and operating budgets, and the latest DC Background Study. For the purposes of this AMP, these activities, and their costs, are assumed to be enough to meet the community's expectations. This AMP does not provide an analysis on optimizing these activities and costs, with the exception of required expenditures for operations and maintenance to accommodate growth.

The City has implemented Predictor, which is a Decision Support System to continue its efforts to make informed decisions on asset investments. This tool has been used for the analysis of the scenarios outlined below. The condition profiles provide an outlook to the performance of assets for 25 years. For the purposes of this AMP, the scenario comparison and infrastructure gap has only been evaluated for the next 10 years, as required by O.Reg. 588/17.

An overview of the scenarios that were evaluated for the purposes of this AMP include:

- **Scenario 1: Maintain Current Level of Service** – This scenario aims to maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.
- **Scenario 2: Current Budget** – This scenario forecasts the condition of the assets under the current funding level that the City anticipates allocating towards each asset category. The current budgets were obtained from the City's 2023 budget and is used as the average spending for the 10-year forecast. This is used to illustrate the change in performance (condition) under anticipated funding levels. Only renewal, rehabilitation and replacement activities are completed that fit within the current funding allotted to the asset category are completed as part of this forecast.
- **Scenario 3: Proposed Levels of Service** – This scenario determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that

was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

The impacts to the condition of the City's assets based on the described scenarios and the associated costs and comparison of these scenarios can be found in Figure 2-4 and Figure 2-5.

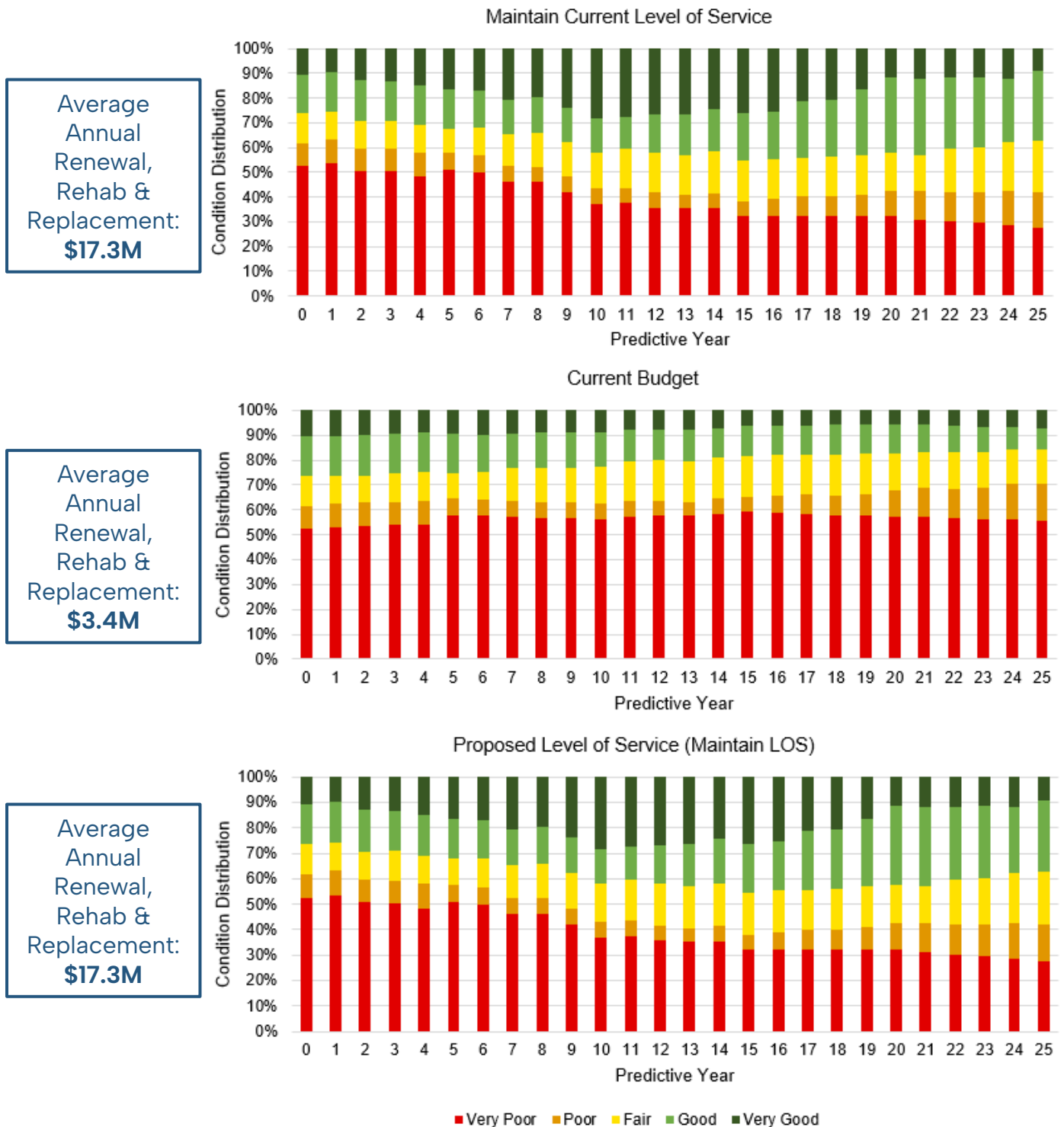


Figure 2-4. Condition Profile for Service Level Scenarios – Sanitary System

For sanitary system assets, PLOS was established to maintain current LOS. Therefore, for this service area, the performance forecast for this scenario is the same as the forecast for Scenario 1 (Maintain Current LOS). This scenario sees an improvement in the overall condition of the assets, while also ensuring the backlog does not increase. Achieving the PLOS would require approximately \$17.3M annually in rehabilitation and replacement activities. The average annual capital funding gap to achieve PLOS is \$13.9M.

Under current budget scenario, there is no improvement in the overall asset condition, and approximately half of the assets remain in very poor condition throughout the forecast period.

By comparing the scenarios above, City staff can better understand how each one affects asset conditions over the long-term. Combined with Figure 2-5, which highlights the lifecycle expenditures required, and any identified funding gaps, this analysis is intended to support informed decision-making. The lifecycle activities required for proposed LOS have been colour coded below, and show the average annual budget, and the average annual expenditures required for both the current and proposed LOS.

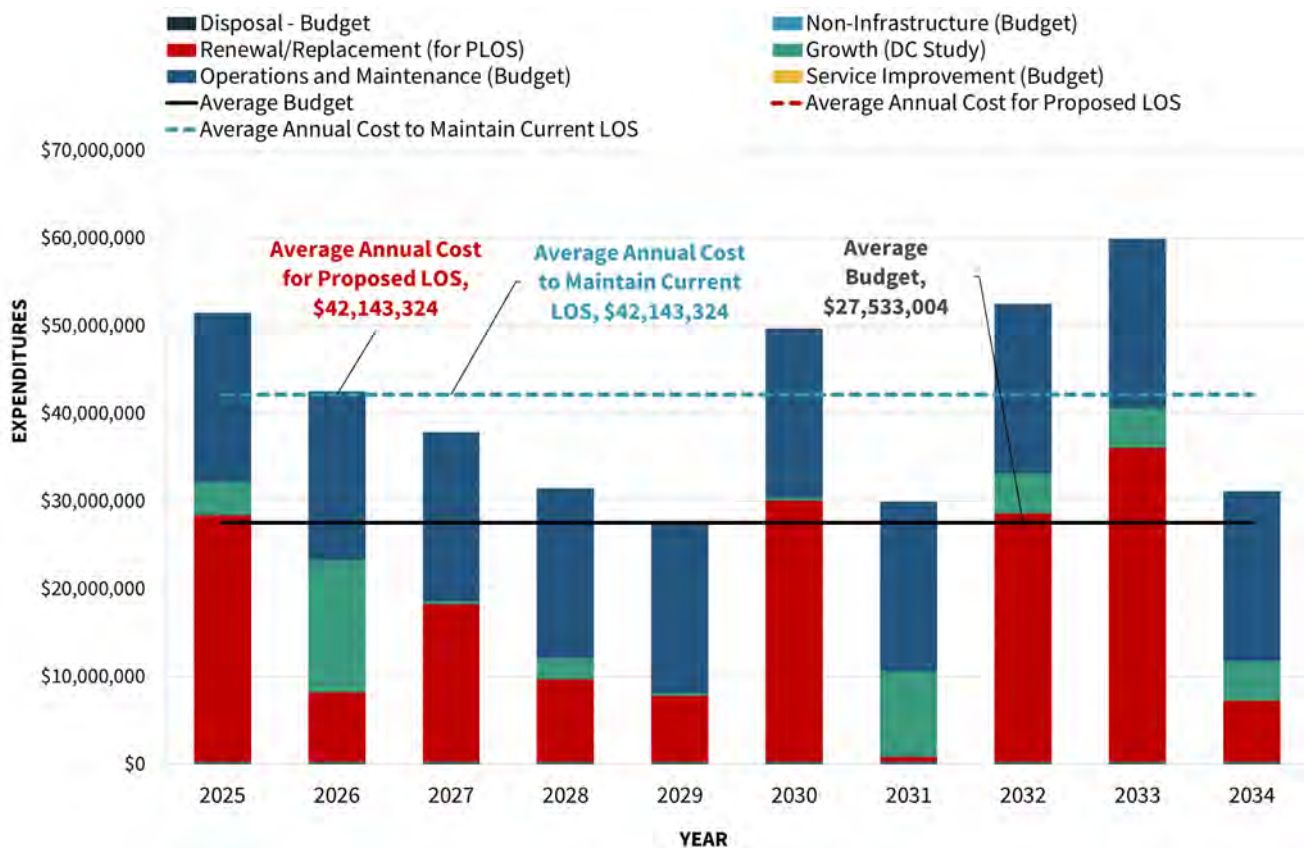


Figure 2-5. Sanitary System Scenario Comparison

The scenario comparison indicates that the Sanitary System has an average annual capital funding gap of \$13.9M to achieve the proposed LOS. This funding gap underscores the challenge the City faces in adequately funding the necessary renewal, rehabilitation, and replacement activities for Sanitary System assets.

Although this gap is significant, the City evaluates the pipes on a case-by-case basis to determine what pipes are candidates for more cost-effective interventions (pipe relining, spot repairs), to prolong the life of the assets, while improving performance. These strategies at this time have not been factored into the forecast.

The growth and operations and maintenance expenditures shown in Figure 2-5 are shown in greater detail in Figure 2-6, which estimates the annual funding required for operations and maintenance to accommodate growth. The growth expenditures were informed by the City’s most recent DC Background Study, which were added to the City’s current replacement value to forecast the future expenditures required. The expenditures currently being spent on operations and maintenance were compared to the current replacement value to determine a percent of replacement value being spent on these activities. This percent was then applied to the current replacement value with the addition of growth expenditures to determine if any additional expenditures would be required to accommodate growth. Based on this analysis, it is anticipated additional support for operations and maintenance will be required for the increasing asset portfolio, as shown in Figure 2-6. This analysis assumes that the amount currently spent on O&M is adequate to meet the City’s needs, the identified additional cost required is strictly to address growth. Optimizing maintenance and leveraging new technologies can enhance operational efficiency and extend the lifespan of assets, ensuring that assets are being provided and maintained at the lowest possible cost.

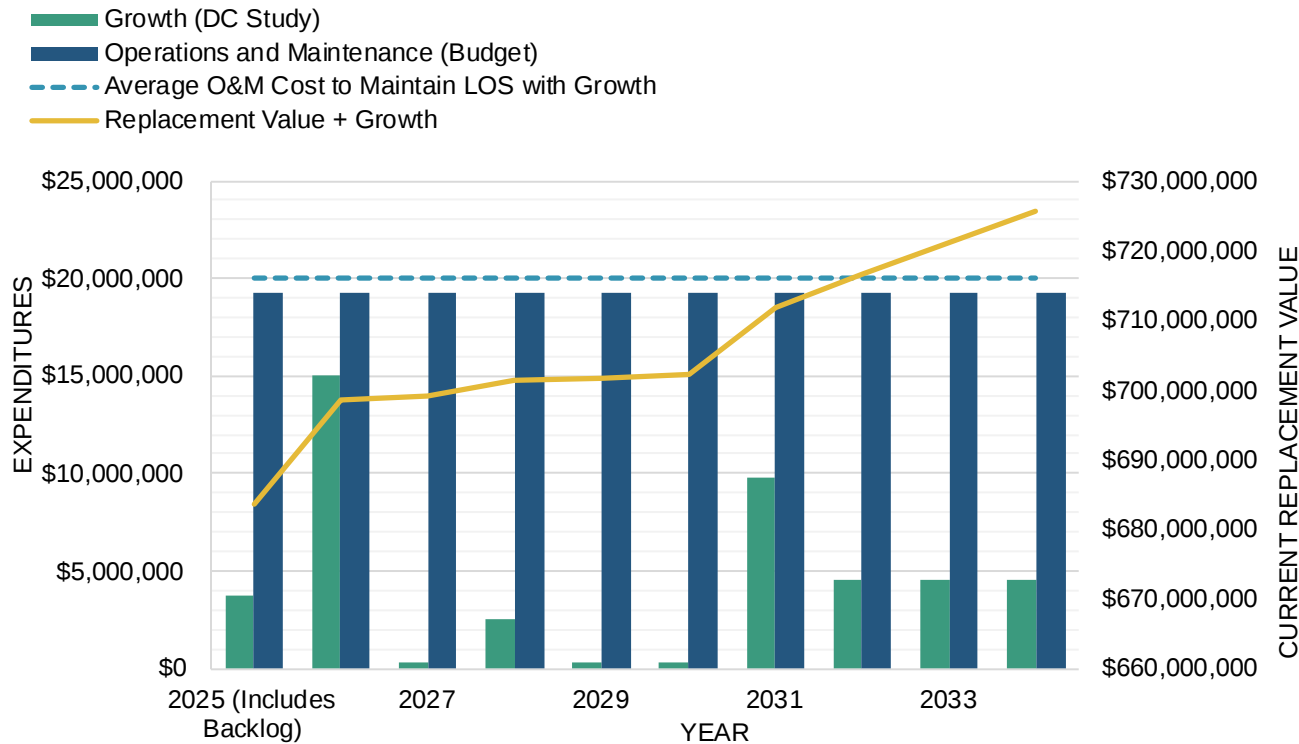


Figure 2-6. Growth – Operations & Maintenance Considerations – Sanitary System

Table 2-6 illustrates that total renewal, rehabilitation, and replacement expenditures of \$17.3M are needed to sustain the current LOS and achieve the PLOS compared to the

average annual budget of \$3.4M. There is an average annual capital funding gap of \$13.9M to maintain current LOS and achieve PLOS.

In addition to capital infrastructure gap, additional \$746.3K annual O&M expenditures will be required to accommodate growth based on the 10-year growth forecast and established O&M service levels and is assumed to be sufficient in meeting both current and proposed service levels.

Table 2-6. Lifecycle Activity Investments & Annual Average Infrastructure Gap – Sanitary System

Lifecycle Activity	Average Budget	Average Annual Cost to Maintain Current LOS	Average Annual Cost for Proposed LOS
Disposal	\$156,000	\$156,000	\$156,000
Growth (DC Study)	\$4,574,559	\$4,574,559	\$4,574,559
Non-Infrastructure	\$98,800	\$98,800	\$98,800
Renewal, Rehabilitation & Replacement	\$3,403,167	\$17,267,222	\$17,267,222
Service Improvement	\$0	\$0	\$0
Total Expenditures	\$8,232,526	\$22,096,581	\$22,096,581
Capital Funding Gap		\$13,864,055	\$13,864,055
Operations & Maintenance	\$19,300,478	\$20,046,743	\$20,046,743
Operation & Maintenance Required to Accommodate Growth		\$746,265	\$746,265
Total Expenditures	\$27,533,004	\$42,143,324	\$42,143,324
Total Funding Gap		\$14,610,320	\$14,610,320
Gap as Percentage of CRV		2.1%	2.1%

With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Sanitary System infrastructure network for current and future generations.

The activities and strategies listed within this chapter also provide the City's best chance to avoid the risks associated with asset ownership. The risks associated with not following the lifecycle strategies and activities can be significant and wide-ranging, which are further explained in Section 12.2.2 Risk Associated with Lifecycle Strategies. Addressing these risks requires a proactive approach to infrastructure planning, investment, and management. By prioritizing operations and maintenance, asset renewal and strategic investments, the City can enhance resilience and sustainability.

2.5 Data Confidence and Improvement Plan

Table 2-7 shows the main data sources and data confidence for Sanitary System assets.

Table 2-7. Data Confidence – Sanitary Systems

Asset Type	Data Source	Data Confidence
Sanitary Pump Stations	GIS, Spreadsheet	C
Sanitary Sewer	GIS, CCTV Condition Assessments	A

2.5.1 Recommendations for Improvements

The following recommendations for the Sanitary System include:

Pump Stations

- Break down Pump Station to components to better understand the infrastructure needs of this station.

Sewers

- Continue efforts to fill in gaps to CCTV/PACP scores where updated information is not available.
- Assess data derived from CCTV data and continue to develop lifecycle strategies based on assessments completed. – put these strategies into predictor.

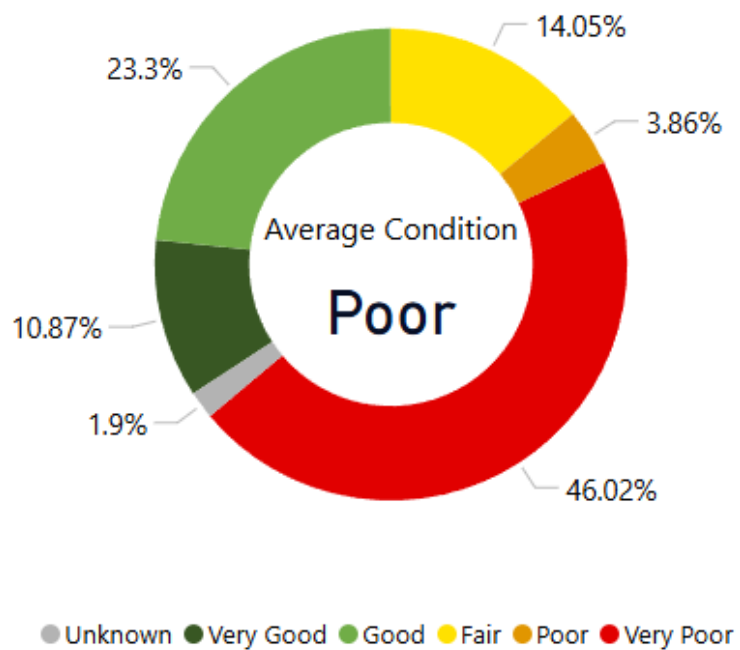


Water System

Replacement Value

\$471,736,946

Overall Average Asset Condition



Quick Facts

The Water System includes:

- Approximately 22,000 water meters
- 292 km of distribution water mains
- Booster Pumping Station

3 Water System

3.1 State of the Infrastructure

The Water System is a critical component of the City’s infrastructure, supporting public health, safety, economic prosperity, and environmental sustainability. Welland’s water system is made up of the watermains, which are a network of pipes used to distribute water from the treatment plant to individual properties, water meters used to track usage and a booster pumping station, which helps to maintain consistent pressure and provide adequate flow throughout the system. The water distribution system plays a crucial role in supporting public health, economic development, fire protection, and overall quality of life in communities. Table 3-1 below shows the full inventory and estimated replacement cost for this system.

Table 3-1. Inventory and Current Replacement Value – Water System

Asset Type	Count	Quantity Unit	2024 Estimated Replacement Value
Water Meter	21,999	Each	\$19,447,116
Water Main (includes all appurtenances, including valves, hydrants, etc.)	292	Km	\$449,169,830
Water Booster Pumping Station	1	Each	\$3,120,000
Total			\$471,736,946



3.1.1 Asset Condition

Overall, the water system's assets are in **Poor Condition**.

A breakdown of the condition distribution based on asset value is shown below in Figure 3-1 and Figure 3-2 below. As these figures demonstrate, most of the asset value falls at or below Fair condition. Watermain and water meter assets are currently assessed for condition based on age and estimated service life. The condition rating scale is shown below in Table 3-2.

Table 3-2. Condition Rating – Water System

Condition	Age/ESL
Very Good	>80% life remaining
Good	60–80% life remaining
Fair	40–60% life remaining
Poor	20–40% life remaining
Very Poor	0–20% life remaining
Unknown	

Water meter assets were pooled together based on approximate installation date. Very few condition categories are missing for the water system, with less than 2% of assets missing installation dates.

There has been a significant increase since the 2020 AMP in the amount of watermains in very poor condition. This is a result of similar factors which include:

- This AMP has updated the service lives of the pipes for different types/materials to be more reflective of real-world conditions.
- The condition categories have been changed to be in line with other asset categories with assessed conditions, and best practices.

The breakdown of condition distribution based on asset value is shown below in Figure 3-1 and Figure 3-2 below.

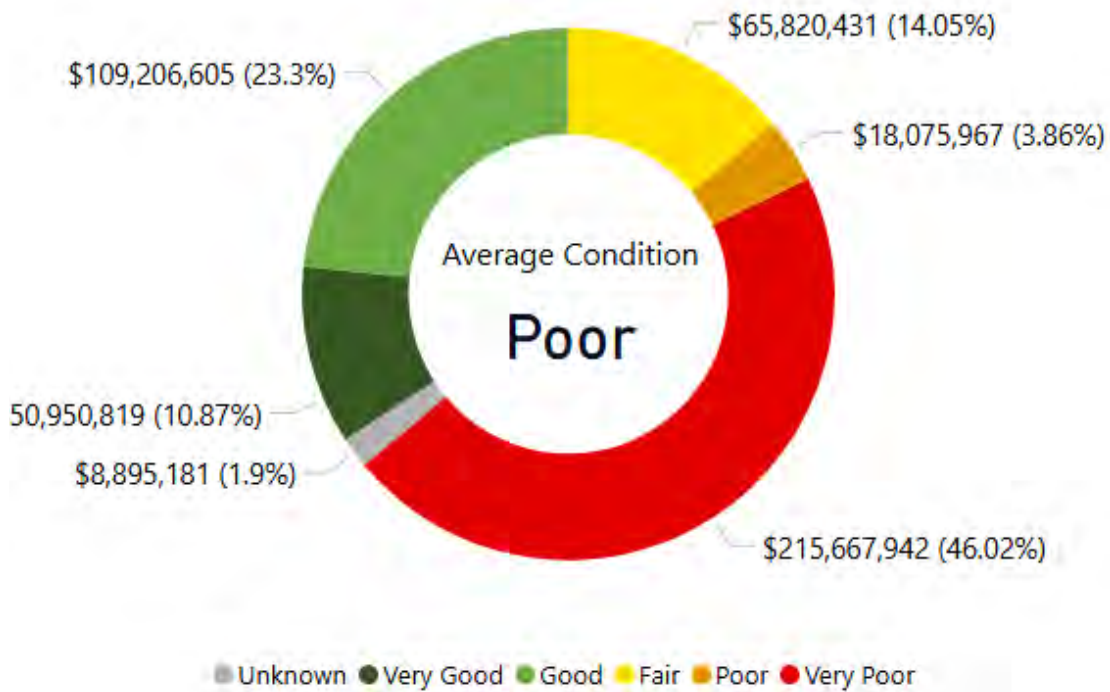


Figure 3-1. Water System Condition Distribution (By Replacement Value) – Overall

Although a large portion of the assets are in very poor condition (approximately 43% of the watermains), as a result of the portions of assets in fair or better condition (approximately 48%), the average condition of the system is in **poor** condition.

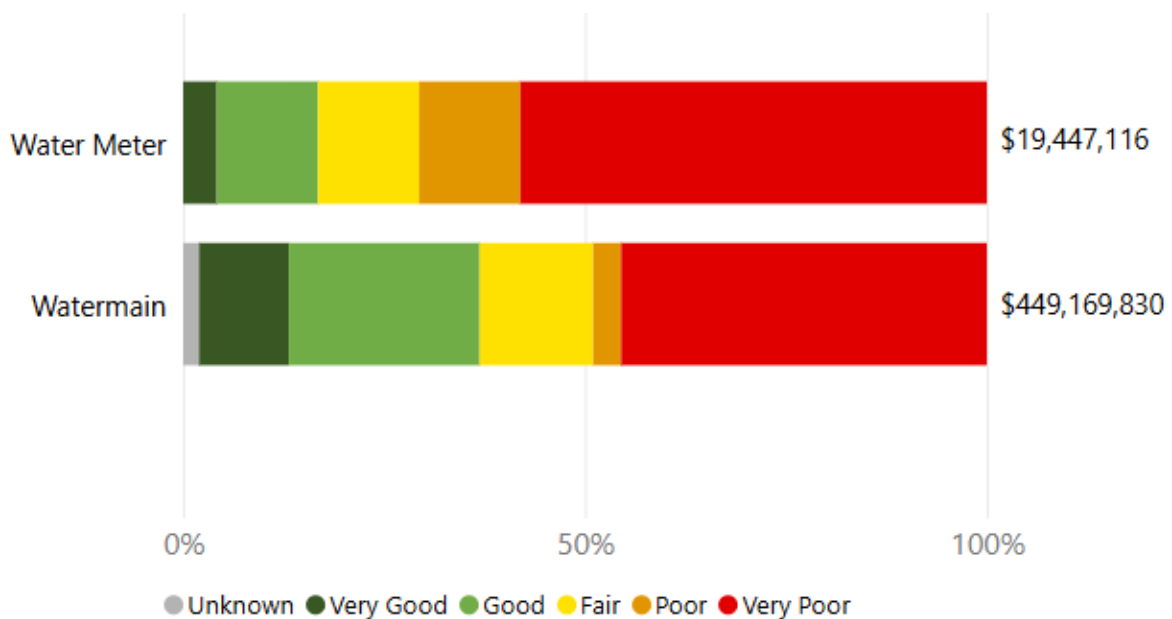


Figure 3-2. Water System Condition Distribution (By Replacement Value) – Asset Category Breakdown

3.1.2 Average Age

A breakdown of the average age and estimated service life (ESL) per asset category is provided in Figure 3–3. As this figure demonstrates, on average, watermains and water meters have not reached the end of their service life.

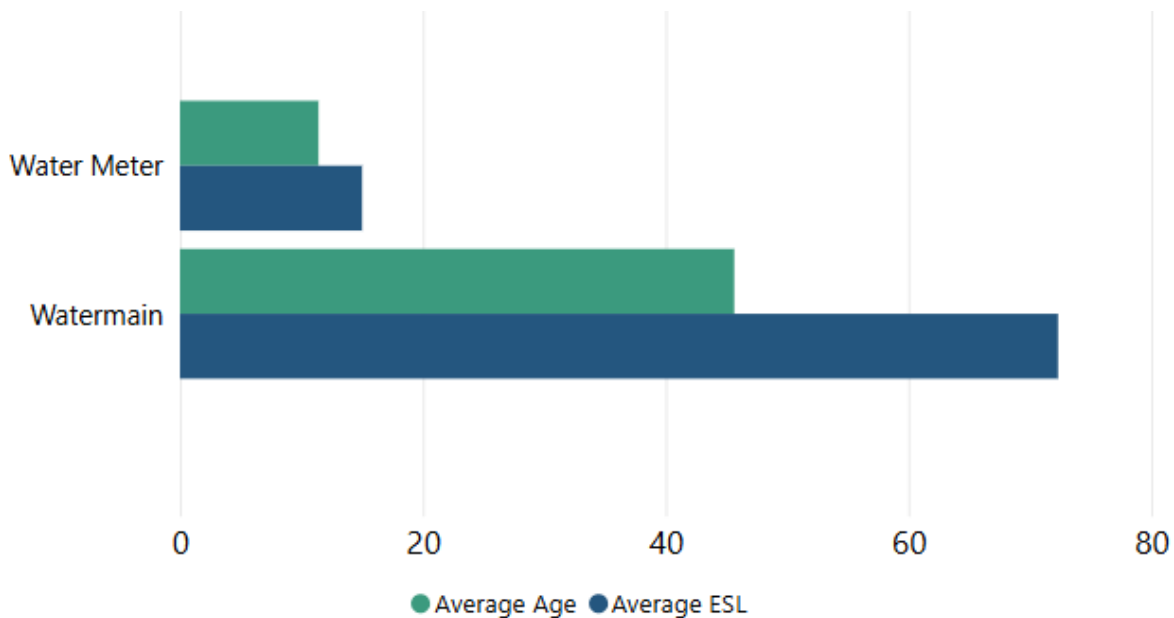


Figure 3–3. Water System Average Age vs. ESL – Asset Category Breakdown

3.2 Levels of Service

The water distribution system plays a crucial role in supporting public health, economic development, fire protection, and overall quality of life in communities.

Levels of service refer to specific parameters that describe the extent and quality of services that a municipality provides to its residents. These parameters largely dictate the need for infrastructure, resources, and ultimately the costs associated with providing a service. In the context of this AMP, LOS are outlined based on legislated metrics, and City defined metrics. These levels of service are described from a community experiential perspective and may include both qualitative and technical metrics.

The LOS metrics and the current and proposed performance are detailed in Table 3–3. KPIs are listed in Table 3–4, which are metrics that do not have a target set but will allow the City to monitor the progress in implementing this AMP on an annual basis.

Proposed, or target LOS, are required to be defined within this AMP, along with a financial strategy to achieve the targets. The proposed change between the current level of service and proposed level of service has been documented in the table below. For Water, although the proposed level of service was determined to be the current level of service, there is still a funding gap to meet this target in comparison to the current budget allocated to this asset category.

Table 3-3. Level of Service – Water System

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Community LOS				
I have quality services	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system*	Water Network Map (Appendix C)	N/A	N/A
My property is protected	Description, which may include maps, of the user groups or areas of the municipality that have fire flow*	Water Hydrant Network Map (Appendix D)	N/A	N/A
I have quality services	Description of boil water advisories and service interruptions*	The City is proactive in preventing unplanned service disruptions during watermain replacement projects by ensuring contractors obtain accurate locates of existing infrastructure before construction, and by requiring through the contract that contractors resolve any service disruptions ASAP using DWQMS guidelines.	N/A	N/A
Technical LOS				
I have quality services	Percentage of properties connected to the municipal water system*	92.4%	Maintain	↔
My property is protected	Percentage of properties where fire flow is available*	90.76%	Maintain	↔

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
I have access to services when I need them	The number of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system*	293	Maintain	↔
I have quality services	The number of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system*	0	Maintain	↔
I have quality services	Total Backlog (Backlog as a Percent of Total Replacement Value)	\$100.1 M (21.2%)	\$100.1 M (21.2%)	↔
I have quality services	Percentage of total replacement cost of assets in good to very good condition	34.84%	37% (10-year average)	↗

*O.Reg. 588/17 Requirement

Table 3-4. Key Performance Indicators – Water System

Key Service Attribute	Performance Measure	Current Performance (2024)
Community LOS		
My City maintains what it owns	Current reinvestment rate	0.96%
My City maintains what it owns	Cost per household	\$788.28
Technical LOS		
My City maintains what it owns	Percent of watermains maintained in conformance with defined lifecycle strategies	84.79%
I have quality services	Boil water advisories issued	0
My City maintains what it owns	Percent of water meters (residential) maintained in conformance with defined lifecycle strategies	100%
My City maintains what it owns	Percent of water meters (commercial) maintained in conformance with defined lifecycle strategies	100%

3.3 Lifecycle Management Strategy

The objective of the Lifecycle Management Strategy is to outline and establish a set of planned actions, based on best practice that will enable our assets to provide a sustainable level of service, while managing risk at the lowest lifecycle cost.

The City strives to coordinate rehabilitation and replacement projects across asset groups where opportunities exist. This may result in asset strategies being delayed or advanced to accommodate the overall benefit of coordinated work.

The City continues to improve its approach to the management of its assets and will continue to put in place processes, procedures, and tools to enable a more consistent approach across the City's Service Areas. Detailed below is a brief overview of some of the current asset management practices in place across the City.

3.3.1 Lifecycle Activities

Specific lifecycle activities, or planned actions, for the Water System are outlined in Table 3-5. These activities have been broken down into the Lifecycle Categories detailed in Section 1.4 and detail the activities that take place during the asset's lifecycle. Lifecycle activities ultimately help provide efficiencies and ensure assets can continue providing services at the level required, and at the lowest possible cost. Completing these activities will ensure the expected service function and reliability of the assets.

Renewal, Rehabilitation and Replacement activities have been incorporated into the infrastructure needs forecast scenarios that are included in Section 2.4. Non-Infrastructure Solutions, Operations and Maintenance, Service Improvement and Growth Activities have been incorporated in the full-lifecycle cost of these assets but have not been analyzed for their adequacy to meet the City's needs.

By implementing these lifecycle activities, the City can effectively manage their Water System assets, optimize operational efficiency, minimize costs, ensure regulatory compliance, and maximize the value and lifespan of their assets. These activities are also critical for maintaining safe and efficient infrastructure. Following the lifecycle activities and strategies will ensure the City can avoid risks associated with asset ownership. These risks are further outlined in Section 12.2.2. Implementing the lifecycle activities and strategies in this plan will enhance the resilience and sustainability of infrastructure while mitigating potential risks.

Table 3-5. Lifecycle Management Activities – Water System

Asset Management Practices / Planned Actions	Frequency
Non-Infrastructure	
• Water Master Plan	• 5 years
• DWQMS Risk Assessment	• Annual
Operations & Maintenance Activities	
• Fire flow prevention; hydrant watermain preventative measure. Monitoring with hydrant flow tests for fire flow/hydrants	• Ongoing
• DWQMS Infrastructure Maintenance Procedure, Repair Procedure, and Infrastructure Review Procedure. Monitor other watermain-related items	• Ongoing
• Preventive tasks and repairs for breaks and breakdowns	• Ongoing
• Valve exercising program	• Annual
• Hydrant flow and code program	• Ongoing
• Dead end flushing program	• Ongoing
• Maintenance hole adjustments for chambers	• As required
Renewal/Replacement Activities	
• Refurbishment of booster station components, valves, and hydrants	• As identified
• Replacement of old cast iron watermains	• Annual
Disposal Activities	
• Pipe removal or abandonment, in line with replacements	• As required
Service Improvement & Growth Activities Planned	
• New watermains to accommodate growth	• As needed

3.4 Funding the Lifecycle Activities

The City uses the lifecycle management strategies described above in Section 3.3 to plan work and determine future expenditure needs for Water System assets. These activities, along with the scenarios outlined below provide a comprehensive forecast of expenditures required for managing infrastructure assets and ensuring the City can meet the demands of current services and existing infrastructure.

The scenarios below forecast renewal, rehabilitation and replacement lifecycle activity cost and needs. These lifecycle activities ensure infrastructure remains in a state of good repair and can continue to provide services to residents. Further details of the funding required for the remaining lifecycle activities (non-infrastructure, service improvements, operations and maintenance, and growth) can be found below in Figure 3–5, which are informed based on the City’s capital and operating budgets, and the latest DC Background Study. For the purposes of this AMP, these activities, and their costs, are assumed to be enough to meet the community’s expectations. This AMP does not provide an analysis on optimizing these activities and costs, with the exception of required expenditures for operations and maintenance to accommodate growth.

The City has implemented Predictor, which is a Decision Support System to continue its efforts to make informed decisions on asset investments. This tool has been used for the analysis of the scenarios outlined below. The condition profiles provide an outlook to the performance of assets for 25 years. For the purposes of this AMP, the scenario comparison and infrastructure gap has only been evaluated for the next 10 years, as required by O.Reg. 588/17.

An overview of the scenarios that were evaluated for the purposes of this AMP include:

- **Scenario 1: Maintain Current Level of Service** – This scenario aims to maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.
- **Scenario 2: Current Budget** – This scenario forecasts the condition of the assets under the current funding level that the City anticipates allocating towards each asset category. The current budgets were obtained from the City’s 2023 budget and is used as the average spending for the 10-year forecast. This is used to illustrate the change in performance (condition) under anticipated funding levels. Only renewal, rehabilitation and replacement activities are completed that fit within the current funding allotted to the asset category are completed as part of this forecast.
- **Scenario 3: Proposed Levels of Service** – This scenario determines the cost of the lifecycle activities to achieve the asset category’s proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City’s Corporate Leadership Team.

The impacts to the condition of the City's assets based on the described scenarios and the associated costs and comparison of these scenarios can be found in Figure 3-4 and Figure 3-5.

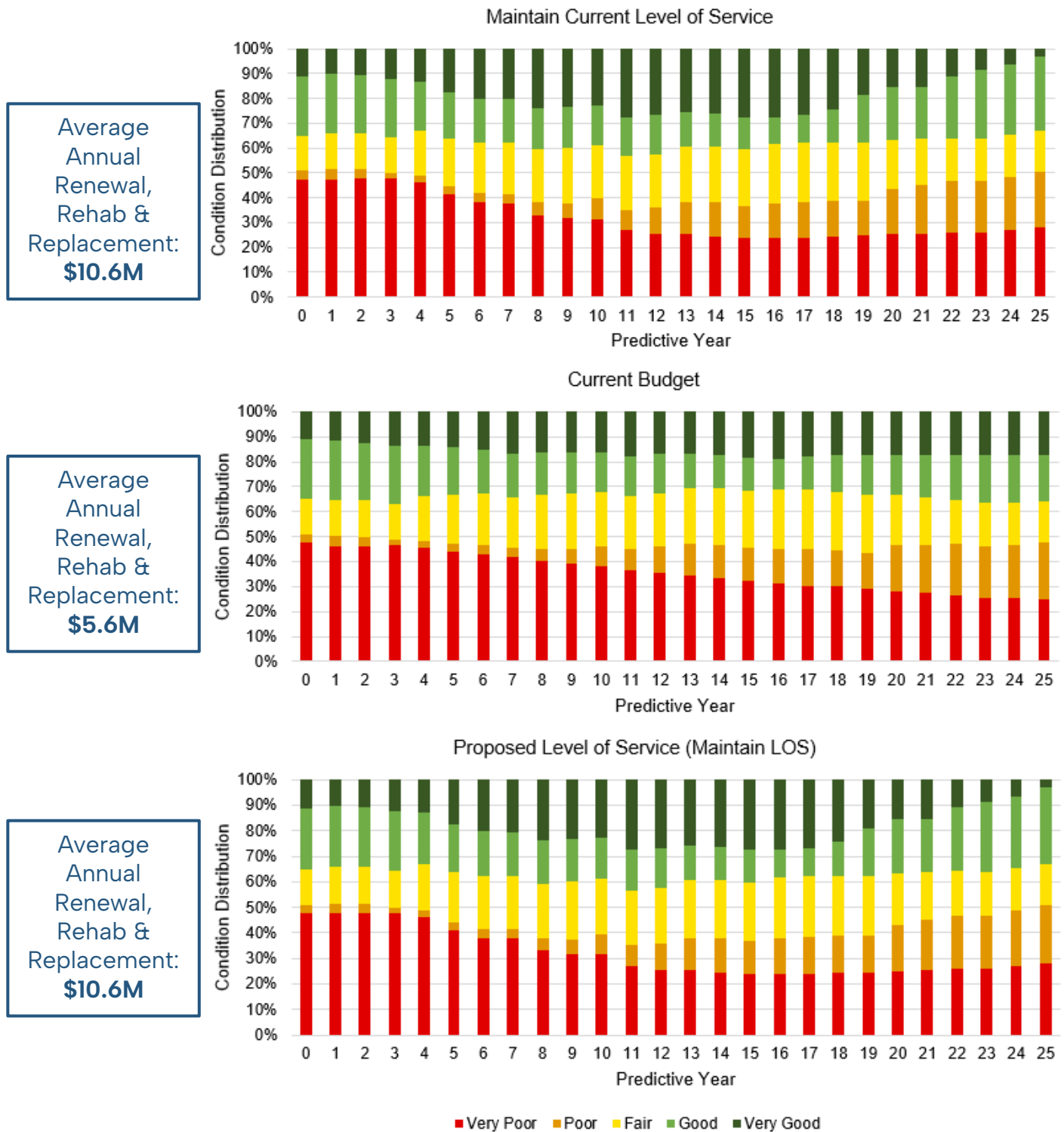


Figure 3-4. Condition Profile for Service Level Scenarios –Water System

For water system assets, PLOS was established to maintain current LOS. Therefore, for this service area, the performance forecast for this scenario is the same as the forecast

for Scenario 1 (Maintain Current LOS). This scenario sees an improvement in the overall condition of the assets, while also ensures the backlog does not increase. To achieve PLOS would require approximately \$10.6M annually in rehabilitation and replacement activities. The average annual capital funding gap to achieve PLOS is \$4.9M.

Under current budget scenario, the assets do see an improvement in condition than their current state, this scenario sees more assets in very poor condition than the proposed scenario. average amount of assets in good to very good condition is 37% for the PLOS/current LOS scenario in comparison to 34% for the current budget scenario. The average amount of assets in very poor condition decreases from 43% under the current budget scenario to 40% under the PLOS/current LOS scenario. While these may seem like small improvements, the renewal and replacement cost to reach this level of service equates to approximately \$4.9M average annual capital funding gap.

By comparing the scenarios above, City staff can better understand how each one affects asset conditions over the long-term. Combined with Figure 3-5, which highlights the lifecycle expenditures required, and any identified funding gaps, this analysis is intended to support informed decision-making. The lifecycle activities required for proposed LOS have been colour coded below, and show the average annual budget, and the average annual expenditures required for both the current and proposed LOS.

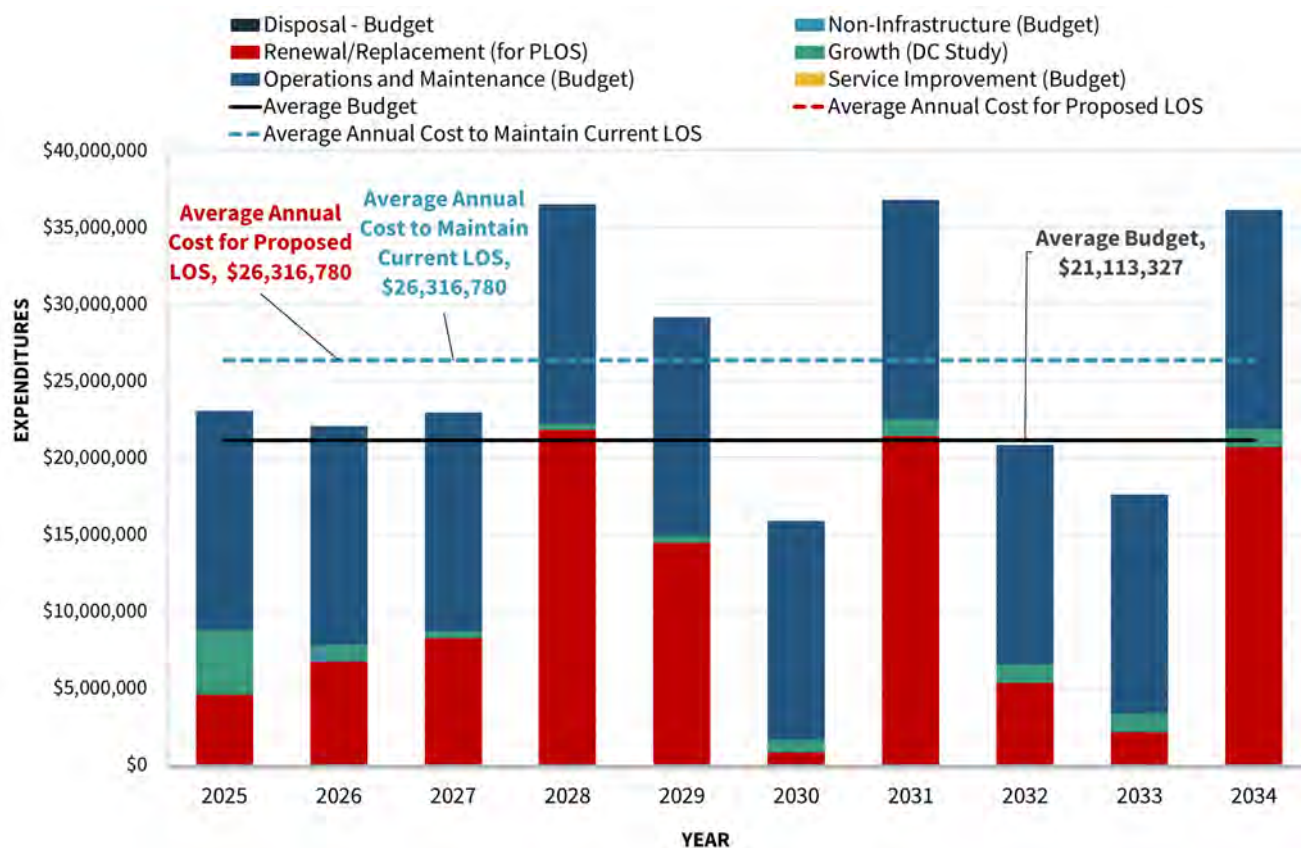


Figure 3-5. Water System Scenario Comparison

The scenario comparison indicates that the Water System has a gap of \$5.2M to achieve the proposed LOS. This funding gap underscores the challenge the City faces in

adequately funding the necessary renewal, rehabilitation, and replacement activities for Water System assets.

The growth and operations and maintenance expenditures shown in Figure 3-5 are shown in greater detail in Figure 3-6 which estimates the annual funding required for operations and maintenance to accommodate growth. The growth expenditures were informed by the City's most recent DC Background Study, which were added to the City's current replacement value to forecast the future expenditures required. The expenditures currently being spent on operations and maintenance were compared to the current replacement value to determine a percent of replacement value being spent on these activities. This percent was then applied to the current replacement value with the addition of growth expenditures to determine if any additional expenditures would be required to accommodate growth. Based on this analysis, it is anticipated additional support for operations and maintenance will be required for the increasing asset portfolio, as shown in Figure 3-6. This analysis assumes that the amount currently spent on O&M is adequate to meet the City's needs, the identified additional cost required is strictly to address growth. Optimizing maintenance and leveraging new technologies can enhance operational efficiency and extend the lifespan of assets, ensuring that assets are being provided and maintained at the lowest possible cost.

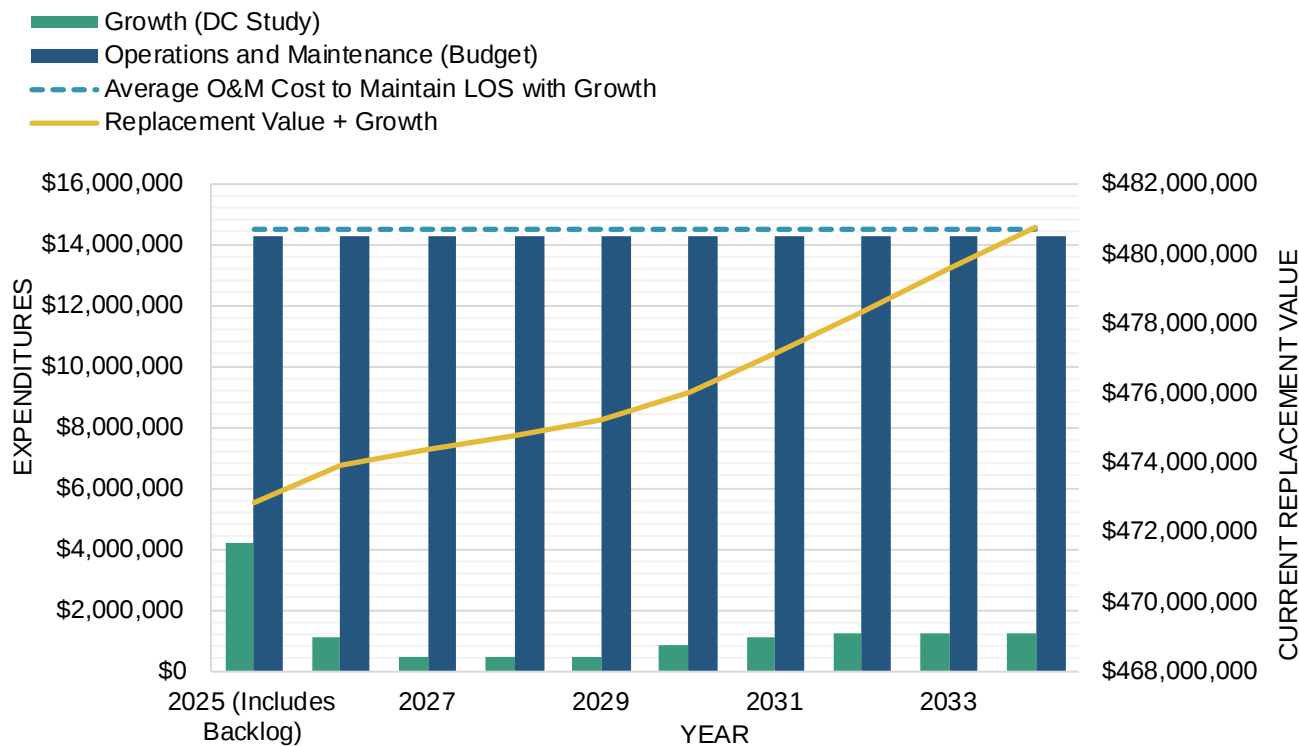


Figure 3-6. Growth – Operations & Maintenance Considerations – Water System

Table 3–5 illustrates that total renewal, rehabilitation, and replacement expenditures of \$10.5M are needed to sustain the current LOS and achieve the PLOS compared to the average annual budget of \$5.6M. There is an annual capital funding gap of \$4.9M to maintain current LOS and achieve PLOS.

In addition to capital infrastructure gap, additional \$233K annual O&M expenditures will be required to accommodate growth based on the 10–year growth forecast and established O&M service levels and is assumed to be sufficient in meeting both current and proposed service levels.

Table 3–6. Lifecycle Activity Investments & Annual Average Infrastructure Gap – Water System

Lifecycle Activity	Average Budget	Average Annual Cost to Maintain Current LOS	Average Annual Cost for Proposed LOS
Disposal	\$0	\$0	\$0
Growth (DC Study)	\$1,212,467	\$1,212,467	\$1,212,467
Non-Infrastructure	\$41,600	\$41,600	\$41,600
Renewal, Rehabilitation & Replacement	\$5,594,732	\$10,565,204	\$10,565,204
Service Improvement	\$0	\$0	\$0
Total Expenditures	\$6,848,799	\$11,819,271	\$11,819,271
Capital Funding Gap		\$4,970,472	\$4,970,472
Operations & Maintenance	\$14,264,528	\$14,497,509	\$14,497,509
Operation & Maintenance Required to Accommodate Growth		\$232,981	\$232,981
Total Expenditures	\$21,113,327	\$26,316,780	\$26,316,780
Total Funding Gap		\$5,203,453	\$5,203,453
Gap as Percentage of CRV		1.1%	1.1%

With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Water System infrastructure network for current and future generations.

The activities and strategies listed within this chapter also provide the City’s best chance to avoid the risks associated with asset ownership. The risks associated with not following the lifecycle strategies and activities can be significant and wide-ranging, which are further explained in Section 12.2.2 Risk Associated with Lifecycle Strategies. Addressing these risks requires a proactive approach to infrastructure planning, investment, and

management. By prioritizing operations and maintenance, asset renewal and strategic investments, the City can enhance resilience and sustainability.

3.5 Data Confidence and Improvement Plan

The main data sources and overall data confidence for Water System assets is in Table 3-7.

Table 3-7. Data Confidence – Water System

Asset Segment	Data Source	Data Confidence
Water Meter	GIS, Spreadsheet from staff	C
Watermain	GIS	B

3.5.1 Recommendations for Improvements

Opportunities for improvement for the Water System include:

Water Meter

- Review current data sources for water meters and update information for historical records of water meters that have been removed.
- Update process for tracking water meter data to ensure updated register of water meters is maintained for current status.

Watermain

- Fill any remaining gaps on watermain system data (install date)
- Although age and estimated service life is commonly used to determine condition for watermains, develop more in-depth process to assign condition of watermains that takes into account other factors such as watermain breaks, capacity, fire flow, etc.

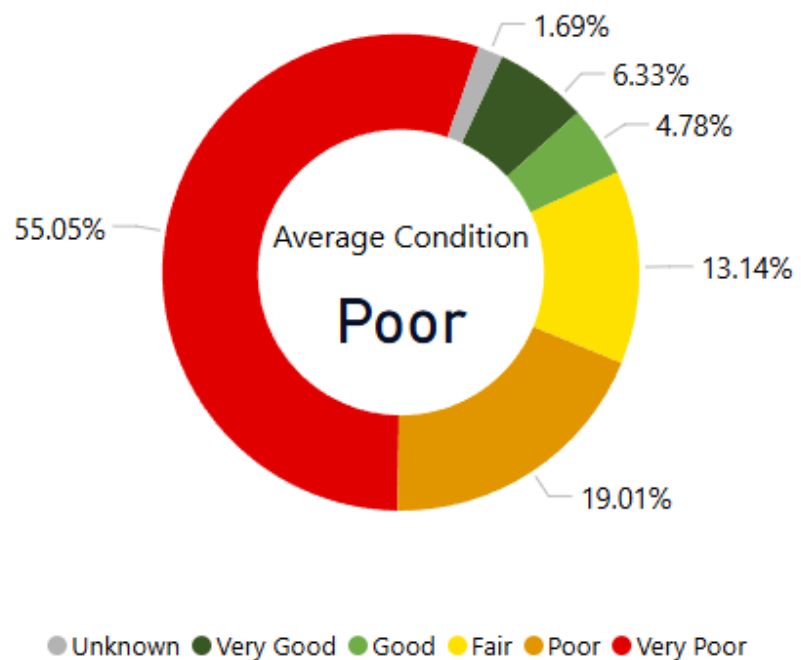


Storm System

Replacement Value

\$569,840,373

Overall Average Asset Condition



Quick Facts

The Storm System has:

- 182 km of storm sewer & 16 km of culverts throughout the urban area boundary
- 15 storm water management ponds

4 Storm System

4.1 State of the Infrastructure

The City's storm system is designed to mitigate flooding risks to both private and public properties. By effectively managing stormwater through infrastructure like culverts, ponds and sewers, the City can minimize risks of property damage and maintain the overall safety and functioning of urban areas during heavy rainfall events. Welland's storm system is made up of the storm culverts and sewers which collect and transmit rain run-off, as well as the oil and grit separators (OGS) and stormwater ponds that store and improve the quality of this runoff. Table 4-1 below shows the full inventory and estimated replacement cost for this system.

Table 4-1. Inventory and Current Replacement Value – Storm System

Asset Type	Count	Quantity Unit	2024 Estimated Replacement Value
Oil and Grit Separator	16	Each	\$832,000
Storm Culvert	16	Km	\$7,249,320
Storm Pond	15	Each	\$7,800,000
Storm Sewer	182	Km	\$553,959,053
Total			\$569,840,373

4.1.1 Asset Condition

Overall, the storm system's assets are in **Poor Condition**.

Condition for the Storm System was assigned based on Table 4-2. Similar to the changes referenced in the Sanitary System State of the Infrastructure, the same methodology was applied to the Storm System. Condition ratings (PACP ratings from CCTV data) for the were applied where available, based on the likelihood of failure score on the pipe structural ratings (approximately 52% of the system). Where condition information was not available, age and service life were used to assess the condition of the pipes (approximately 48% of the storm sewers, as well as for OGS, ponds). Culverts were assessed for condition using a 1-10 rating and applied to the condition rating scale, which can be seen below.

The City has made many efforts to improve the accuracy of the information for this AMP since the previous version, which has led to more accurate forecasts of needs, so that the City is better able to plan for the future to support infrastructure that provides services to residents.

Table 4-2. Condition Rating – Storm

Condition	Age/ESL	Storm Sewer Assessed Condition Rate	Storm Culverts
Very Good	>80% life remaining	1: Failure unlikely in foreseeable future	=10->8
Good	60-80% life remaining	2: Pipe unlikely to fail for at least 20 years	=8->6
Fair	40-60% life remaining	3: Pipe may fail in 10-20 years	=6->4
Poor	20-40% life remaining	4: Pipe will probably fail in 5-10 years	=4->2
Very Poor	0-20% life remaining	5: Pipe failed or likely to fail within 5 years	=2->0
Unknown			

A breakdown of the condition distribution based on asset value is shown in Figure 4-1 and Figure 4-2 below. As these figures demonstrate, the majority of the asset value falls at or below Fair condition, based largely on the condition of the storm sewers.

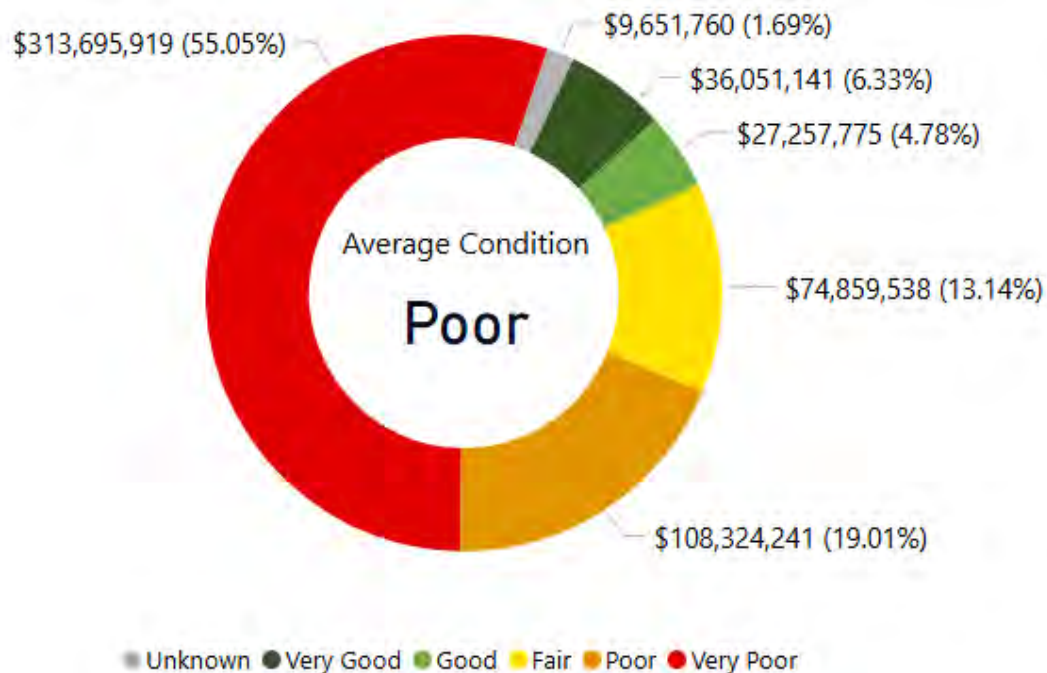


Figure 4-1. Storm System Condition Distribution (By Replacement Value) – Overall

Storm sewers have approximately 1.7% worth of assets missing a condition value (this is a result of not having an assessed condition, or information regarding installation). This highlights the concerted efforts that have been made to collect and maintain up-to-date

condition information on their assets, as this is an asset class that typically has large gaps of information in most municipalities.

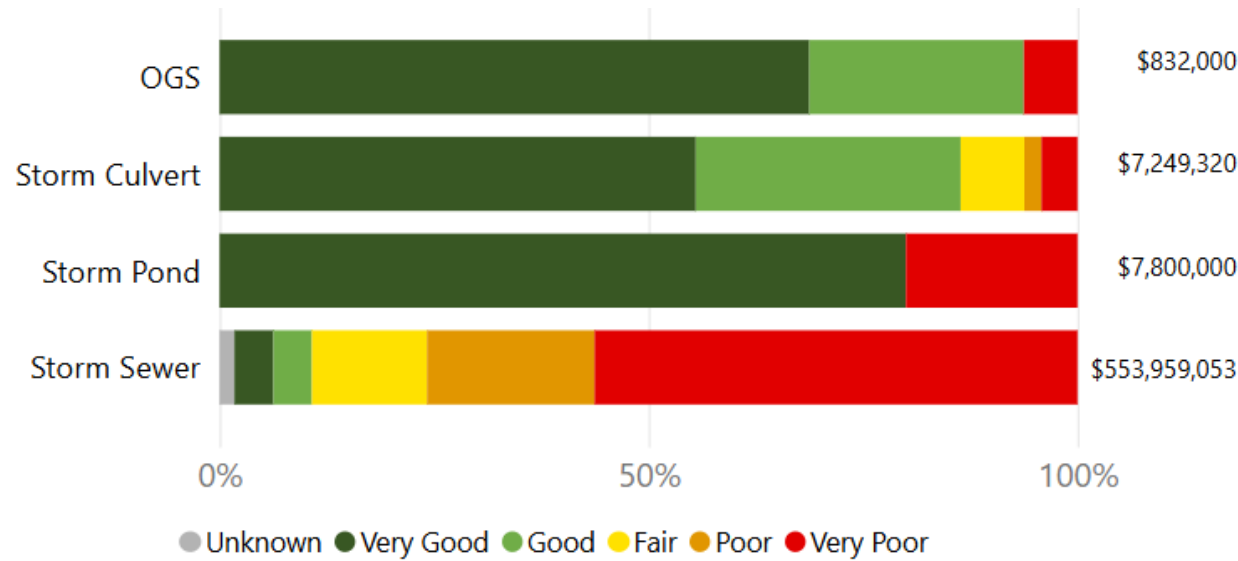


Figure 4-2. Storm System Condition Distribution (By Replacement Value) – Asset Category Breakdown

4.1.2 Average Age

A breakdown of the average age and estimated service life (ESL) per asset category is provided in Figure 4-3. As this figure demonstrates, on average, the storm sewers are nearing the end of their ESL, while the OGS are relatively new. The stormwater ponds ESL was determined to be 40 years to account for the approximate time until ponds will be required to be dredged/cleaned out. This will continue to be evaluated and improved upon in future iterations of the AMP. No age data is available for the storm culverts, but all culverts have an assessed condition to improve planning and forecasting for these assets.

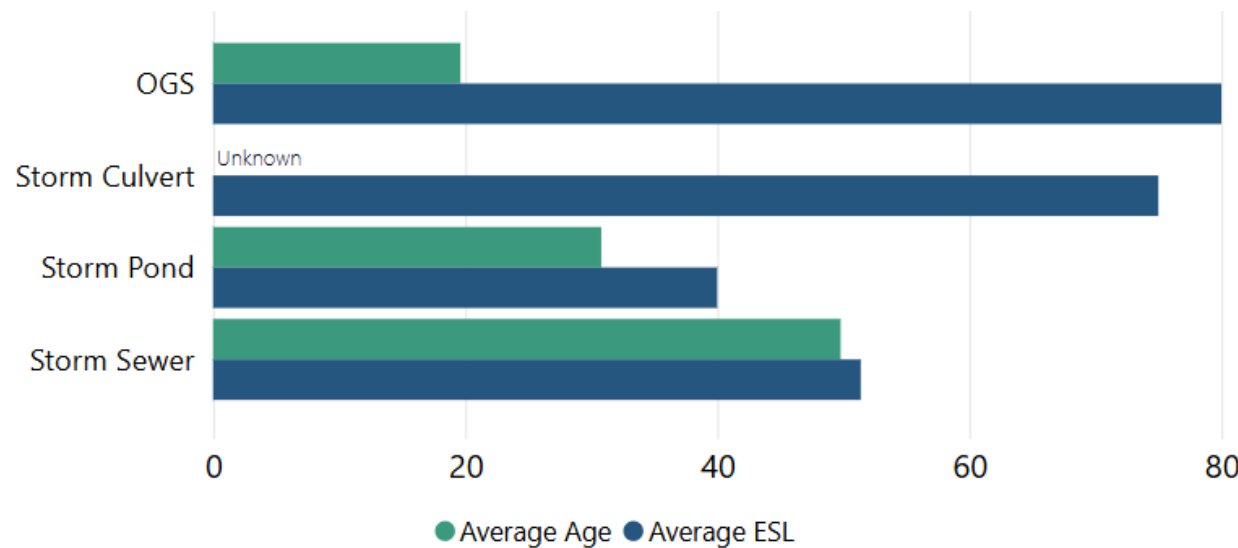


Figure 4-3. Storm System Average Age vs. ESL – Asset Category Breakdown

4.2 Levels of Service

Levels of service refer to specific parameters that describe the extent and quality of services that a municipality provides to its residents. These parameters largely dictate the need for infrastructure, resources, and ultimately the costs associated with providing a service. In the context of this AMP, LOS are outlined based on legislated metrics, and City defined metrics. These levels of service are described from a community experiential perspective and may include both qualitative and technical metrics. The LOS metrics and the current performance are detailed in Table 4-3.

The LOS metrics and the current and proposed performance are detailed in Table 4-3. KPIs are listed in Table 4-4, which are metrics that do not have a target set but will allow the City to monitor the progress in implementing this AMP on an annual basis.

Proposed, or target LOS, are required to be defined within this AMP, along with a financial strategy to achieve the targets. The proposed change between the current level of service and proposed level of service has been documented in the table below. For Storm, although the proposed level of service was determined to be the current level of service, there is still a funding gap to meet this target in comparison to the current budget allocated to this asset category.



Table 4-3. Level of Service– Storm System

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Community LOS				
My property is protected from flooding	Description, which may include maps, of the user groups or areas of the municipality that are protected from flooding, including the extent of the protection provided by the municipal stormwater management system*	Storm Sewer Network Map (Appendix E)	N/A	N/A
Technical LOS				
My property is protected from flooding	Percentage of properties in municipality resilient to a 100-year storm*	12.10%	Maintain	↔
My property is protected from flooding	Percentage of the municipal stormwater management system resilient to a 5-year storm*	8.12%	Maintain	↔
I have quality services	Total Backlog (Backlog as a Percent of Total Replacement Value)	\$235.5 M (41.3%)	\$235.5 M (41.3%)	↔
I have quality services	Percentage of total replacement cost of assets in good to very good condition.	11.1%	18% (10-year average)	↗

*O.Reg. 588/17 Requirement

Table 4-4. Key Performance Indicators– Storm System

Key Service Attribute	Performance Measure	Current Performance (2024)
Community LOS		
My City maintains what it owns	Current reinvestment rate	0.38%
My City maintains what it owns	Cost per household	\$114.02
Technical LOS		
My City maintains what it owns	Percent of storm mains maintained in conformance with defined lifecycle strategies	60.86%



4.3 Lifecycle Management Strategy

The objective of the Lifecycle Management Strategy is to outline and establish a set of planned actions, based on best practice that will enable our assets to provide a sustainable level of service, while managing risk at the lowest lifecycle cost.

The City strives to coordinate rehabilitation and replacement projects across asset groups where opportunities exist. This may result in asset strategies being delayed or advanced to accommodate the overall benefit of coordinated work.

The City continues to improve its approach to the management of its assets and will continue to put in place processes, procedures, and tools to enable a more consistent approach across the City's Service Areas. Detailed below is a brief overview of some of the current asset management practices in place across the City.

4.3.1 Lifecycle Activities

Specific lifecycle activities, or planned actions, for the Storm System are outlined in Table 4-5. These activities have been broken down into the Lifecycle Categories detailed in Section 1.4 and detail the activities that take place during the asset's lifecycle. Lifecycle activities ultimately help provide efficiencies and ensure assets can continue providing services at the level required, and at the lowest possible cost. Completing these activities will ensure the expected service function and reliability of the assets.

Renewal, Rehabilitation and Replacement activities have been incorporated into the infrastructure needs forecast scenarios that are included in Section 4.4. Non-Infrastructure Solutions, Operations and Maintenance, Service Improvement and Growth Activities have been incorporated in the full-lifecycle cost of these assets but have not been analyzed for their adequacy to meet the City's needs.

By implementing these lifecycle activities, the City can effectively manage their Storm System assets, optimize operational efficiency, minimize costs, ensure regulatory compliance, and maximize the value and lifespan of their assets. These activities are also critical for maintaining safe and efficient infrastructure. Following the lifecycle activities and strategies will ensure the City can avoid risks associated with asset ownership. These risks are further outlined in Section 12.2.2. Implementing the lifecycle activities and strategies in this plan will enhance the resilience and sustainability of infrastructure while mitigating potential risks.

Table 4-5. Lifecycle Management Activities – Storm System

Asset Management Practices / Planned Actions	Frequency
Non-Infrastructure	
• Inspection of storm networks using movable and stationary (zoom) televised inspection	• Annual
• Flow and level monitoring	• Ongoing
• Storm pond sediment surveys and inspections	• Annual
• Ditch and culvert data collection	• Ongoing
• OGS inspections	• Annual
• Storm Subwatershed Studies	• As required
Operations & Maintenance Activities	
• OGS and catch basin flushing/cleaning	• As required
• Storm system flushing	• As required
• Ditch cleaning	• As required
• Storm pond dredging / cleaning	• As required
• Maintenance to address erosion	• As identified
• Maintenance hole adjustments	• As needed
Renewal/Replacement Activities	
• Lining and trenchless technologies	• As identified
• Replacement of sewers	• As identified
Disposal Activities	
• Pipe removal or abandonment, in line with replacements	• As required
Service Improvement & Growth Activities Planned	
• New assets to accommodate growth	• As needed
• Expansion of pipes to address climate change impacts of increased frequency of severe weather	• As identified

4.4 Funding the Lifecycle Activities

The City uses the lifecycle management strategies described above in Section 4.3 to plan work and determine future expenditure needs for Storm System assets. These activities, along with the scenarios outlined below provide a comprehensive forecast of expenditures required for managing infrastructure assets and ensuring the City can meet the demands of current services and existing infrastructure.

The scenarios below forecast renewal, rehabilitation and replacement lifecycle activity cost and needs. These lifecycle activities ensure infrastructure remains in a state of good repair and can continue to provide services to residents. Further details of the funding required for the remaining lifecycle activities (non-infrastructure, service improvements, operations and maintenance, and growth) can be found below in Figure 4-4, which are informed based on the City's capital and operating budgets, and the latest DC Background Study. For the purposes of this AMP, these activities, and their costs, are assumed to be enough to meet the community's expectations. This AMP does not provide an analysis on optimizing these activities and costs, apart from required expenditures for operations and maintenance to accommodate growth.

The City has implemented Predictor, which is a Decision Support System to continue its efforts to make informed decisions on asset investments. This tool has been used for the analysis of the scenarios outlined below. The condition profiles provide an outlook to the performance of assets for 25 years. For the purposes of this AMP, the scenario comparison and infrastructure gap has only been evaluated for the next 10 years, as required by O.Reg. 588/17.

An overview of the scenarios that were evaluated for the purposes of this AMP include:

- **Scenario 1: Maintain Current Level of Service** – This scenario aims to maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.
- **Scenario 2: Current Funding** – This scenario forecasts the condition of the assets under the current funding level that the City anticipates allocating towards each asset category. The current budgets were obtained from the City's 2023 budget and is used as the average spending for the 10-year forecast. This is used to illustrate the change in performance (condition) under anticipated funding levels. Only renewal, rehabilitation and replacement activities are completed that fit within the current funding allotted to the asset category are completed as part of this forecast.
- **Scenario 3: Proposed Levels of Service** – This scenario determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

The impacts to the condition of the City's assets based on the described scenarios and the associated costs and comparison of these scenarios can be found in Figure 4-4 and Figure 4-5.

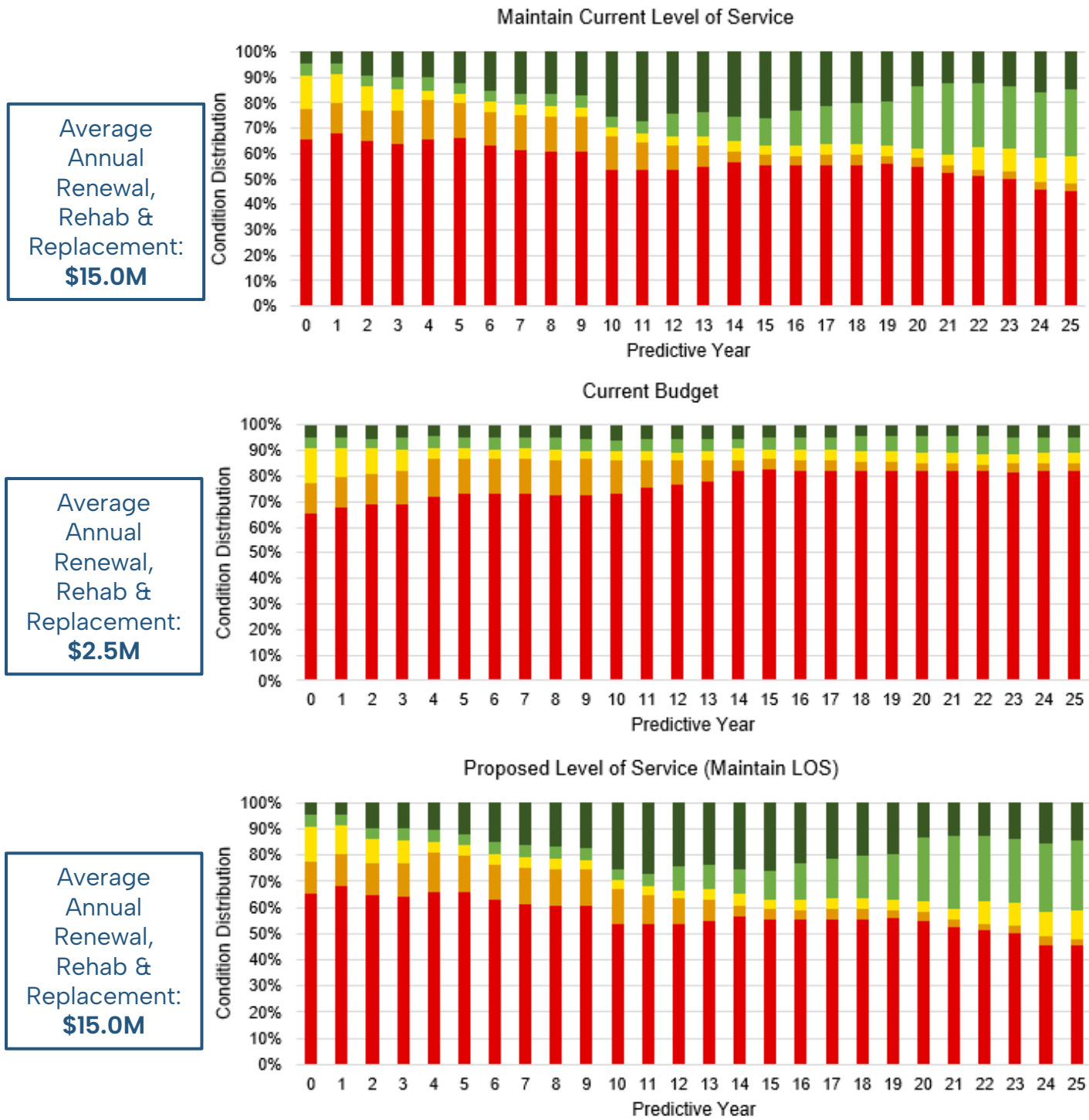


Figure 4-4. Condition Profile for Service Level Scenarios –Storm System

For storm system assets, PLOS was established to maintain current LOS. Therefore, for this service area, the performance forecast for this scenario is the same as the forecast for Scenario 1 (Maintain Current LOS). This scenario sees an improvement in the overall condition of the assets, while also ensures the backlog does not increase. The anticipated annual budget needed for this scenario (to achieve PLOS) was determined to be \$15.0M. The average annual capital funding gap to achieve PLOS is \$12.5M.

In Scenario 2, the anticipated annual funding for Storm System assets is approximately \$2.5M. The condition distribution shows that the overall condition of the storm system continues to deteriorate based on the current funding allocated for storm assets. The storm system is increasingly important with the impacts of climate change and the increase occurrences of significant precipitation events.

By comparing the above scenarios, City staff are able to determine if there are any gaps in funding to address infrastructure needs. This information is intended to support decision-making on how to address any gaps. The compiled expenditure needs under each of the three forecast scenarios are presented in Figure 4-5 which highlights the lifecycle expenditures required, and any identified funding gaps, this analysis is intended to support informed decision-making. The lifecycle activities required for proposed LOS have been colour coded below, and show the average annual budget, and the average annual expenditures required for both the current and proposed LOS.

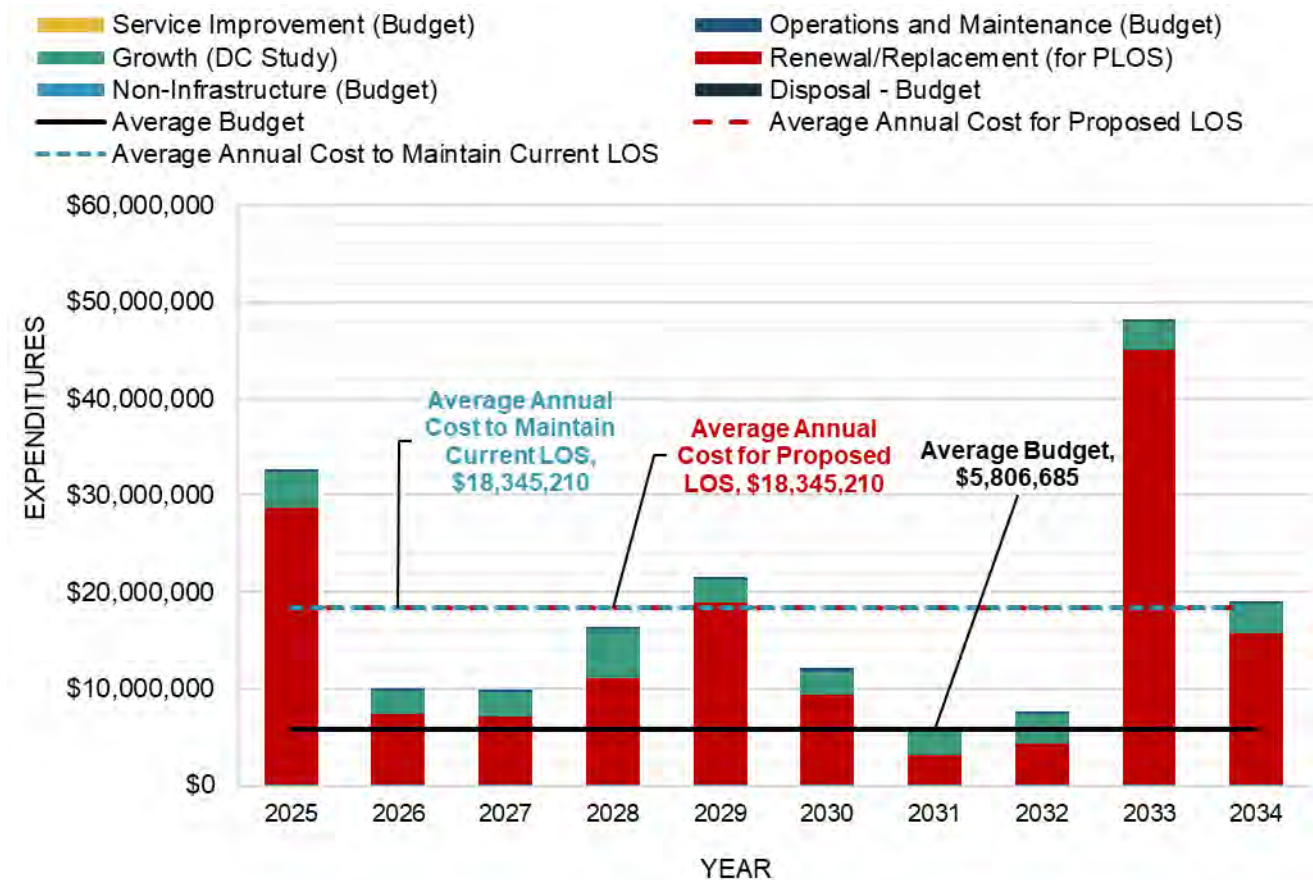


Figure 4-5. Storm System Scenario Comparison

The scenario comparison indicates that the Storm System has an average annual capital funding gap of \$12.5M to achieve the proposed LOS. This funding gap underscores the challenge the City faces in adequately funding the necessary renewal, rehabilitation, and replacement activities for Storm System assets.

The growth and operations and maintenance expenditures shown in Figure 4-5 are shown in greater detail in Figure 4-6 which estimates the annual funding required for operations and maintenance to accommodate growth. The growth expenditures were informed by the City’s most recent DC Background Study, which were added to the City’s current replacement value to forecast the future expenditures required. The expenditures currently being spent on operations and maintenance were compared to the current replacement value to determine a percent of replacement value being spent on these activities. This percent was then applied to the current replacement value with the addition of growth expenditures to determine if any additional expenditures would be required to accommodate growth. Based on this analysis, it is anticipated additional support for operations and maintenance will be required for the increasing asset portfolio, as shown in Figure 4-6. This analysis assumes that the amount currently spent on O&M is adequate to meet the City’s needs, the identified additional cost required is strictly to address growth. Optimizing maintenance and leveraging new technologies can enhance operational efficiency and extend the lifespan of assets, ensuring that assets are being provided and maintained at the lowest possible cost.

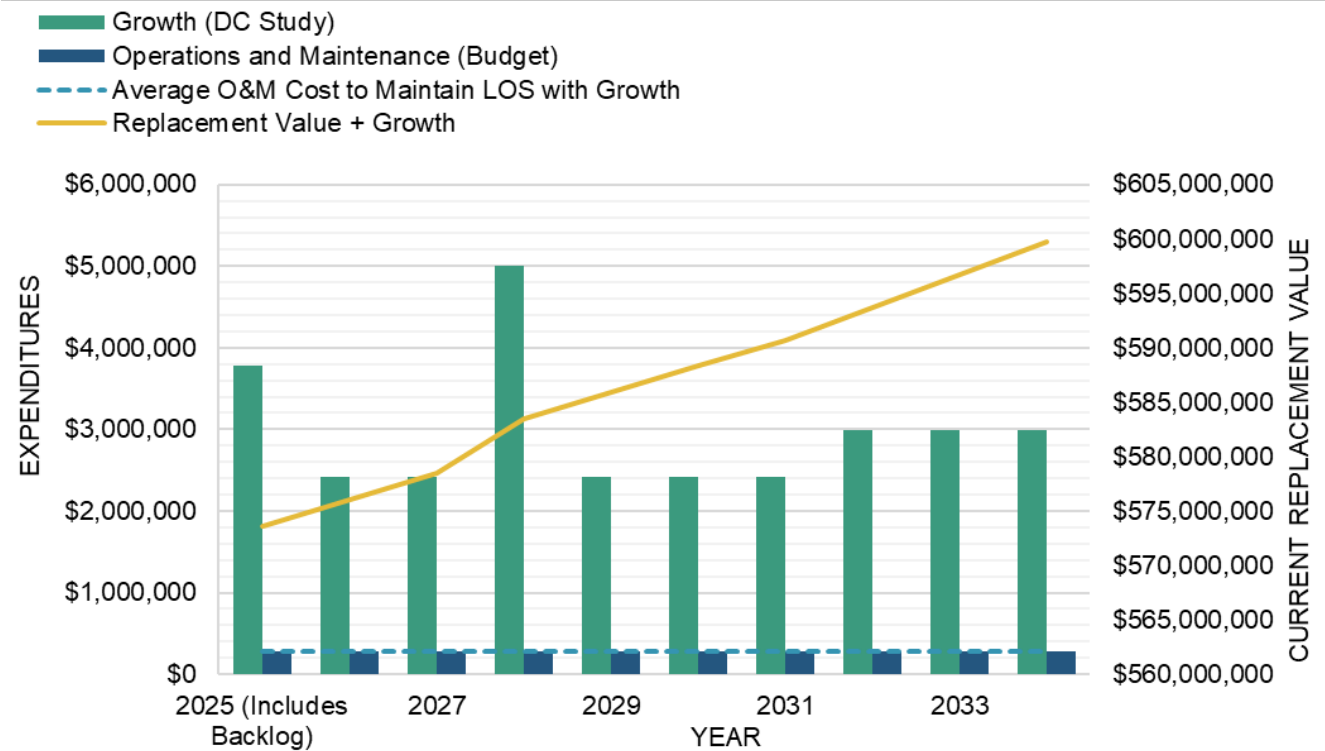


Figure 4-6. Growth – Operations & Maintenance Considerations – Storm System

Table 4-6 illustrates that total renewal, rehabilitation, and replacement expenditures of \$15.0M are needed to sustain the current LOS and achieve the PLOS compared to the

average annual budget of \$2.5M. There is an average annual capital funding gap of \$12.5M to maintain current LOS and achieve PLOS.

In addition to capital infrastructure gap, additional \$8K annual O&M expenditures will be required to accommodate growth based on the 10-year growth forecast and established O&M service levels and is assumed to be sufficient in meeting both current and proposed service levels.

Table 4-6. Lifecycle Activity Investments & Annual Average Infrastructure Gap – Storm System

Lifecycle Activity	Average Budget	Average Annual Cost to Maintain Current LOS	Average Annual Cost for Proposed LOS
Disposal	\$0	\$0	\$0
Growth (DC Study)	\$2,984,076	\$2,984,076	\$2,984,076
Non-Infrastructure	\$48,100	\$48,100	\$48,100
Renewal, Rehabilitation & Replacement	\$2,501,460	\$15,031,925	\$15,031,925
Service Improvement	\$0	\$0	\$0
Total	\$5,533,636	\$18,064,101	\$18,064,101
Capital Funding Gap		\$12,530,465	\$12,530,465
Operations & Maintenance	\$273,049	\$281,109	\$281,109
Operation & Maintenance Required to Accommodate Growth		\$8,060	\$8,060
Total Expenditures	\$5,806,685	\$18,345,210	\$18,345,210
Total Funding Gap		\$12,538,525	\$12,538,525
Gap as Percentage of CRV		2.2%	2.2%

With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Storm System infrastructure network for current and future generations.

The activities and strategies listed within this chapter also provide the City's best chance to avoid the risks associated with asset ownership. The risks associated with not following the lifecycle strategies and activities can be significant and wide-ranging, which are further explained in Section 12.2.2 Risk Associated with Lifecycle Strategies. Addressing these risks requires a proactive approach to infrastructure planning, investment, and management. By prioritizing operations and maintenance, asset renewal and strategic investments, the City can enhance resilience and sustainability.

4.5 Data Confidence and Improvement Plan

Table 4-7 shows the main data sources and overall data confidence for Storm System assets.

Table 4-7. Data Confidence – Storm System

Asset Type	Data Source	Data Confidence
Oil Grit Separators	GIS	A
Storm Culvert	GIS	B
Storm Pond	GIS	B
Storm Sewer	GIS	B

4.5.1 Recommendations for Improvements

Overall, the City's information on the Storm system, but there are some opportunities for improvements. Recommendations for the Storm System data include:

- Continue to fill gaps in assessed condition for the storm sewers, where age is currently being used.
- Assess data derived from CCTV data and continue to develop lifecycle strategies based on assessments completed.

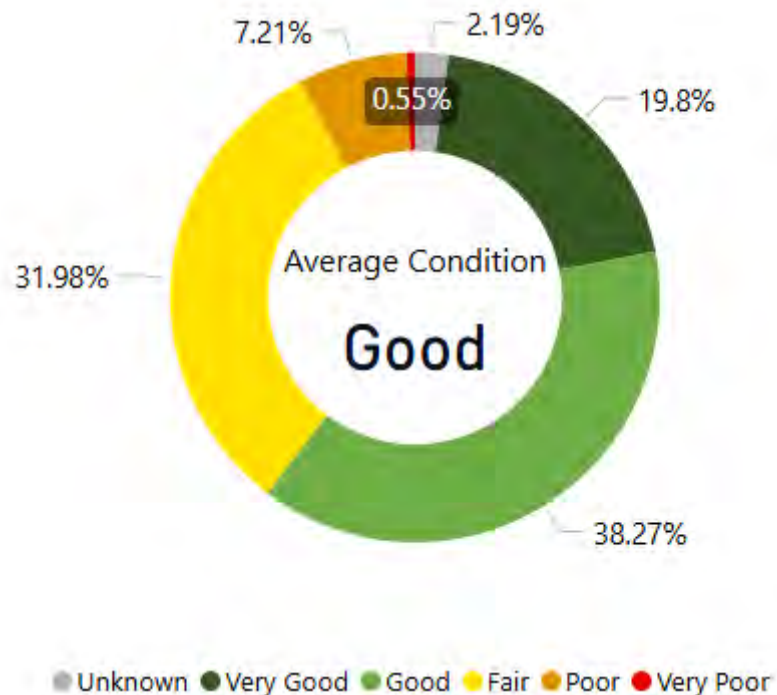


Transportation

Replacement Value

\$572,507,204

Overall Average Asset Condition



Quick Facts

Transportation maintains:

- 303 km of roadway & 345 km of sidewalk throughout the City
- Supporting assets including sign posts, streetlights and poles, traffic signs and signals

5 Transportation

5.1 State of the Infrastructure

Welland's Transportation service area is made up of the roads, sidewalks, signs and traffic assets that support the safe conveyance of people and goods throughout the City. It also includes structural assets such as bridges, culverts and canal walls, as well as parking pay & display machines. Table 5-1 below shows the full inventory and estimated replacement cost for this service area.

Table 5-1. Inventory and Current Replacement Value – Transportation

Asset Type	Count	Quantity Unit	2024 Estimated Replacement Value
Bridge and Culvert	11	Each	\$21,035,820
Canal Wall	1,293	M	Unknown
Parking Pay & Display Machines	3	Each	\$31,200
Roadway	303	Km	\$463,693,625
Sidewalk	345	Km	\$61,019,729
Sign Post	7,228	Each	\$751,712
Streetlight	6,929	Each	\$3,422,926
Street Pole	3,275	Each	\$8,515,000
Traffic Sign	9,549	Each	\$1,986,192
Traffic Signal	23	Each	\$12,051,000
Total			\$572,507,204

As a result of the nature of the canal walls, a replacement value has not been assessed for this asset. The replacement of this asset is not feasible due to the constructability of the asset. However, they are inspected and rehabilitated as required.

5.1.1 Asset Condition

Overall, transportation assets are in **Good Condition**.

Conditions were assigned to the condition categories for the Transportation system based on Table 5-2. Condition assessment ratings for roads, bridges and culverts were used to assess condition. Where assessment values were not available, age and estimated service life were used to assign condition.

Table 5-2. Condition Rating – Transportation

Condition	Age/ESL	Roads	Bridges & Culverts	Sidewalks
Source		2023 Roads Needs Study	2023 OSIM Inspections	2023 Staff Assessment
Very Good	>80% life remaining	PCI 100→85	BCI 100→80	=10→8
Good	60–80% life remaining	PCI 85→70	BCI 80→60	=8→6
Fair	40–60% life remaining	PCI 70→55	BCI 60→40	=6→4
Poor	20–40% life remaining	PCI 55→40	BCI 40→20	=4→2
Very Poor	0–20% life remaining	PCI 40→0	BCI 20→0	=2→0
Unknown				

A breakdown of the condition distribution based on asset value is shown in Figure 5-1 and Figure 5-2 below.

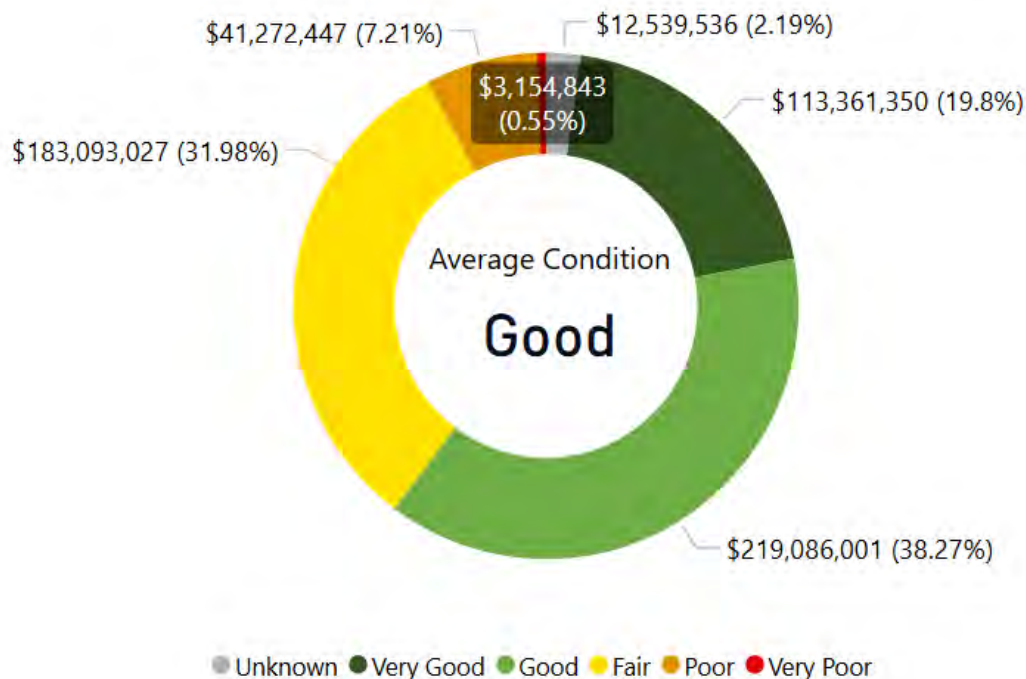


Figure 5-1. Transportation Condition Distribution (By Replacement Value) – Overall

As these figures demonstrate, the majority of the asset value falls into Good condition or above. However, there is no condition data for traffic signs, street poles, and signposts, as well as for gravel roads. Signs, signposts, and street poles are replaced as required/identified, typically through operations and maintenance, so their condition has not been

evaluated as part of this AMP. These assets are reviewed regularly by operations staff during road patrols for minimum maintenance standards deficiencies and are addressed as needed. These assets infrastructure needs are addressed through operating and maintenance expenditures.

Unpaved roads were not assessed as part of the 2023 roads needs study. For these roads, condition values were derived from the previous roads needs study and the condition was degraded to reflect a current condition.

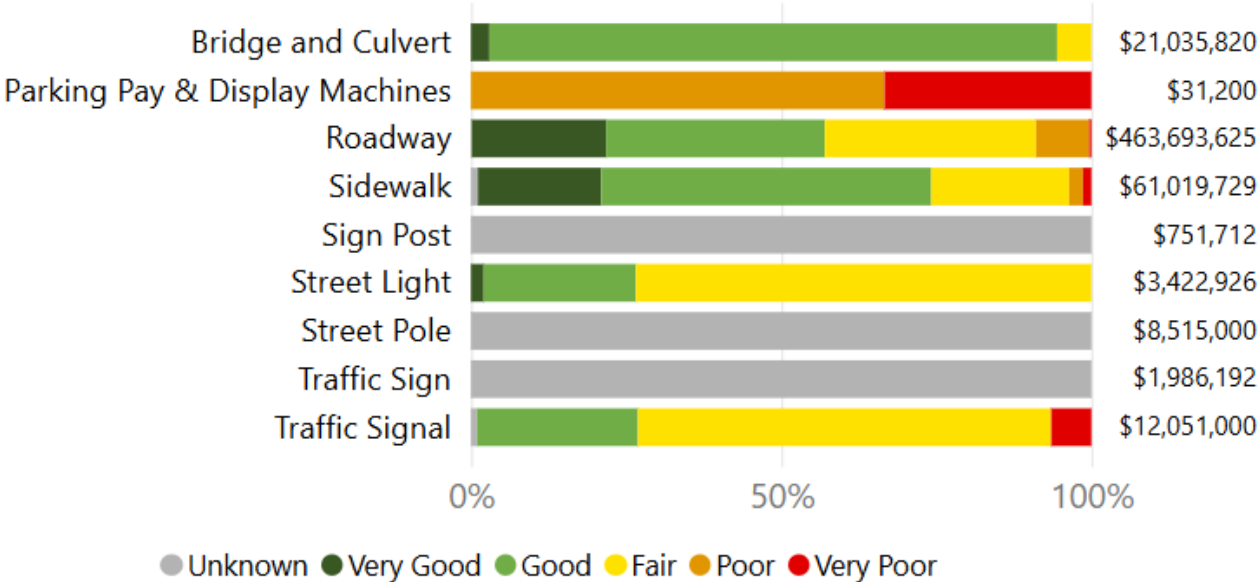


Figure 5-2. Transportation Condition Distribution (By Replacement Value) – Asset Category Breakdown

5.1.2 Average Age

A breakdown of the average age and estimated service life (ESL) per asset category is provided in Figure 5-3. On average, transportation assets have not passed their ESL.

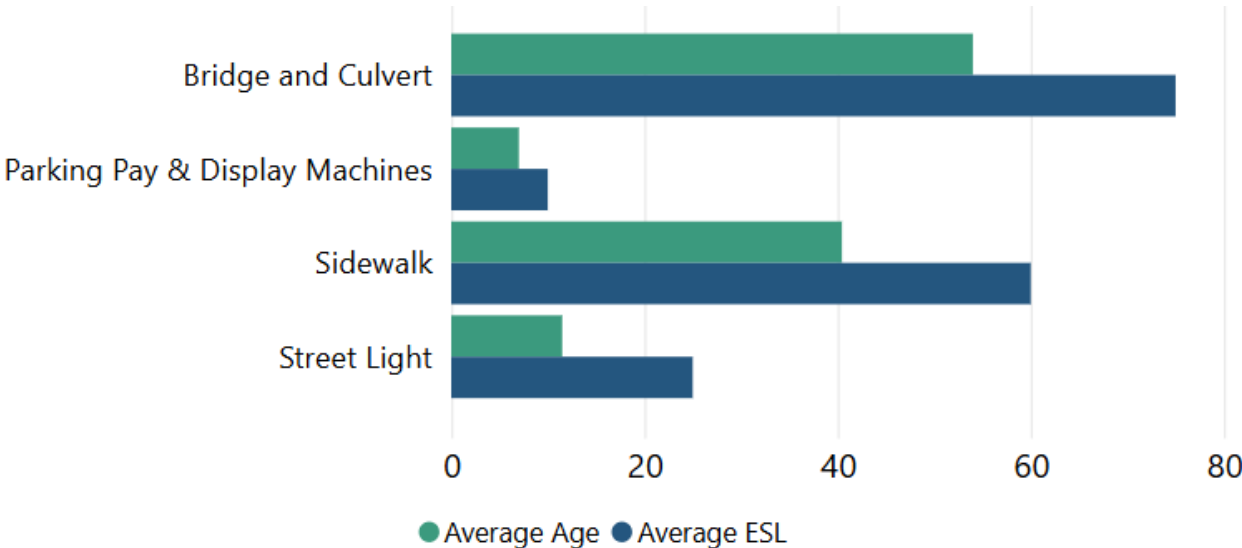


Figure 5-3. Transportation Average Age vs. ESL – Asset Category Breakdown

No age data is available for traffic signals and signs, street poles, signposts, canal walls, and roadways. Age is not typically tracked for roads since these assets are continually resurfaced and reconstructed as required based on current condition (Pavement Condition Index) and other factors to determine needs.

5.2 Levels of Service

Transportation assets support many of the objectives outlined for the City's Strategic Priorities of Economic Growth, Environmental Stewardship, Health and Well-being, and Livability. These assets enable people and goods to move efficiently and safely throughout the community and to connecting region.

Levels of service refer to specific parameters that describe the extent and quality of services that a municipality provides to its residents. These parameters largely dictate the need for infrastructure, resources, and ultimately the costs associated with providing a service. In the context of this AMP, LOS are outlined based on legislated metrics and City defined metrics. These levels of service are described from a community experiential perspective and may include both qualitative and technical metrics.

The LOS metrics and the current and proposed performance are detailed in Table 5-3. KPIs are listed in Table 5-4, which are metrics that do not have a target set but will allow the City to monitor the progress in implementing this AMP on an annual basis.

Proposed, or target LOS, are required to be defined within this AMP, along with a financial strategy to achieve the targets. The proposed change between the current level of service and proposed level of service has been documented in the table below. For Transportation, an increase to the LOS has been proposed to decrease the current backlog and improve asset condition. It should be noted that this proposed LOS is closely in line with the current budget, and there currently is not an infrastructure gap for this service area.

Table 5-3. Level of Service– Transportation

Key Service Attribute	Performance Measure	Current Level of Service (2024)	Proposed Level of Service	Proposed Change
Community LOS				
I can get around the city without restrictions	Description, which may include maps, of the road network in the municipality and its level of connectivity*	Road Network Service Level Map (Appendix F)	N/A	N/A
I can get around the city in a reasonable amount of time	Description or images that illustrate the different levels of road class pavement condition*	Road Network PCI Map (Appendix G)	N/A	N/A
I can get around the city without restrictions	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)*	All types including heavy transport vehicles, motor vehicles, emergency vehicles, cyclists, and pedestrians	N/A	N/A
I can get around the city without restrictions	Description or images of the condition of bridges and how this would affect use of the bridges*	Bridge Network Map (Appendix H)	N/A	N/A
Services are safe to use	Description or images of the condition of culverts and how this would affect use of the culverts*	Bridge Network Map (Appendix H)	N/A	N/A
Technical LOS				
I can get around the city without restrictions	Number of lane-kilometres of each of arterial roads, collector roads and local roads as a proportion of square kilometres of land area of the municipality.*	Arterial = 32.26 km Collector = 18.2 km Local = 256.85 km	Maintain	↔

Key Service Attribute	Performance Measure	Current Level of Service (2024)	Proposed Level of Service	Proposed Change
I can get around the city in a reasonable amount of time	For paved roads in the municipality, the average pavement condition index value.*	74	Maintain	↔
I can get around the city without restrictions	For unpaved roads in the municipality, the average surface condition (e.g. excellent, good, fair or poor).*	Unpaved roads represent 0.4% of the network, and was not assessed in the previous Roads Needs Study	Not forecasted and no target set	↗
I can get around the city without restrictions	Percentage of bridges in the municipality with loading or dimensional restrictions.*	0	Maintain	↔
Services are safe to use	For bridges in the municipality, the average bridge condition index value.*	66	Maintain	↔
Services are safe to use	For structural culverts in the municipality, the average bridge condition index value.*	80	Maintain	↔
I have quality services	Total Backlog (Backlog as a Percent of Total Replacement Value)	\$61.5M (11%)	\$0 (Decrease)	↘
I have quality services	Percentage of total replacement cost of assets in good to very good condition	54.57%	81% (10-year average)	↗

*O.Reg. 588/17 Requirement

Table 5-4. Key Performance Indicators – Transportation

Key Service Attribute	Performance Measure	Current Level of Service Performance (2024)
Community LOS		
My City maintains what it owns	Current reinvestment rate	1.37%
My City maintains what it owns	Cost per household	\$719.39
Technical LOS		
My City maintains what it owns	Percent of roads maintained in conformance with defined lifecycle strategies	100%
I have quality services	Pavement condition by road class	Arterial = 74 Collector = 79 Local = 73
I have quality services	Km of roads have PCI < 60	36.22 km PCI under 60
My City maintains what it owns	Percent of bridges and culverts maintained in conformance with defined lifecycle strategies	72.73%
I have quality services	Percent of sidewalks at least 1.5m wide	24.30%
My City maintains what it owns	Percent of traffic signals maintained in conformance with defined lifecycle strategies	100%
My City maintains what it owns	Percent of streetlight maintained in conformance with defined lifecycle strategies	100%
My City maintains what it owns	Percent of sidewalks maintained in conformance with defined lifecycle strategies	88.14%
Services are safe to use	Percent of sidewalks that meet accessibility standards	N/A
I have quality services	Average condition of sidewalks	Good condition

5.3 Lifecycle Management Strategy

The objective of the Lifecycle Management Strategy is to outline and establish a set of planned actions, based on best practice that will enable our assets to provide a sustainable level of service, while managing risk at the lowest lifecycle cost.

The City strives to coordinate rehabilitation and replacement projects across asset groups where opportunities exist. This may result in asset strategies being delayed or advanced to accommodate the overall benefit of coordinated work.

The City continues to improve its approach to the management of its assets and will continue to put in place processes, procedures, and tools to enable a more consistent approach across the City's Service Areas. Detailed below is a brief overview of some of the current asset management practices in place across the City.

5.3.1 Lifecycle Activities

Specific lifecycle activities, or planned actions, for the Transportation System are outlined in Table 5-5. These activities have been broken down into the Lifecycle Categories detailed in Section 1.4 and detail the activities that take place during the asset's lifecycle. Lifecycle activities ultimately help provide efficiencies and ensure assets can continue providing services at the level required, and at the lowest possible cost. Completing these activities will ensure the expected service function and reliability of the assets.

Renewal, Rehabilitation and Replacement activities have been incorporated into the infrastructure needs forecast scenarios that are included in Section 5-105.4. Non-Infrastructure Solutions, Operations and Maintenance, Service Improvement and Growth Activities have been incorporated in the full-lifecycle cost of these assets but have not been analyzed for their adequacy to meet the City's needs.

By implementing these lifecycle activities, the City can effectively manage the Transportation assets, optimize operational efficiency, minimize costs, ensure regulatory compliance, and maximize the value and lifespan of their assets. These activities are also critical for maintaining safe and efficient infrastructure. Following the lifecycle activities and strategies will ensure the City can avoid risks associated with asset ownership. These risks are further outlined in Section 12.2.2. Implementing the lifecycle activities and strategies in this plan will enhance the resilience and sustainability of infrastructure while mitigating potential risks.

Table 5-5. Lifecycle Management Activities – Transportation

Asset Management Practices / Planned Actions	Frequency
Non-Infrastructure	
Overweight/load permit process for demand management	Ongoing
Half load season on rural roads to manage roadway deterioration	Seasonal
Pavement condition assessments, Roads Need Study	5 years
Ditch inspection	Ongoing
Scheduled inspections and patrols	As defined by Minimum Maintenance Standards (MMS)
OSIM inspections (Bridge and Large Culvert)	Bi-Annual, as defined by provincial regulations
Inspection of Sidewalk	Annual as per MMS
Transportation Master Plan	5 years
Operations & Maintenance Activities	
Pothole repair	Ongoing
Street sweeping	Ongoing
Salting and snow removal	Seasonal
Pavement marking	Annual
Planned routine maintenance	Annual
Sidewalk grinding and minor cold patch repairs	Annual
Renewal/Replacement Activities	
Roads: Crack sealing, resurfacing (urban and semi-urban single lift, rural- expanded asphalt, urban and semi-urban double lift)	Annual
Roads: Surface grinding and full depth asphalt removal/repaving	Annual
Bridges: Structural reinforcement inspection	Bi-annual
Replacement/reconstruction of roads and bridges	Annual
Replace sidewalk panel	Annual

Asset Management Practices / Planned Actions	Frequency
Integrate replacement of all ROW assets	As identified
Disposal Activities	
Dispose of assets in line with replacements	As required
Service Improvement & Growth Activities Planned	
New assets to accommodate growth	As needed
New assets as part of service improvement	As identified in studies



5.4 Funding the Lifecycle Activities

The City uses the lifecycle management strategies described above in Section 5.3 to plan work and determine future expenditure needs for Transportation assets. These activities, along with the scenarios outlined below provide a comprehensive forecast of expenditures required for managing infrastructure assets and ensuring the City can meet the demands of current services and existing infrastructure.

The scenarios below forecast renewal, rehabilitation and replacement lifecycle activity cost and needs. These lifecycle activities ensure infrastructure remains in a state of good repair and can continue to provide services to residents. Further details of the funding required for the remaining lifecycle activities (non-infrastructure, service improvements, operations and maintenance, and growth) can be found below in Figure 5-4, which are informed based on the City's capital and operating budgets, and the latest DC Background Study. For the purposes of this AMP, these activities, and their costs, are assumed to be enough to meet the community's expectations. This AMP does not provide an analysis on optimizing these activities and costs, with the exception of required expenditures for operations and maintenance to accommodate growth.

The City has implemented Predictor, which is a Decision Support System to continue its efforts to make informed decisions on asset investments. This tool has been used for the analysis of the scenarios outlined below. The condition profiles provide an outlook to the performance of assets for 25 years. For the purposes of this AMP, the scenario comparison and infrastructure gap has only been evaluated for the next 10 years, as required by O.Reg. 588/17.

An overview of the scenarios that were evaluated for the purposes of this AMP include:

- **Scenario 1: Maintain Current Level of Service** – This scenario aims to maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.
- **Scenario 2: Current Funding** – This scenario forecasts the condition of the assets under the current funding level that the City anticipates allocating towards each asset category. The current budgets were obtained from the City's 2023 budget and is used as the average spending for the 10-year forecast. This is used to illustrate the change in performance (condition) under anticipated funding levels. Only renewal, rehabilitation and replacement activities are completed that fit within the current funding allotted to the asset category are completed as part of this forecast.
- **Scenario 3: Proposed Levels of Service** – This scenario determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

The impacts to the condition of the City’s assets based on the described scenarios and the associated costs and comparison of these scenarios can be found in Figure 5-4.

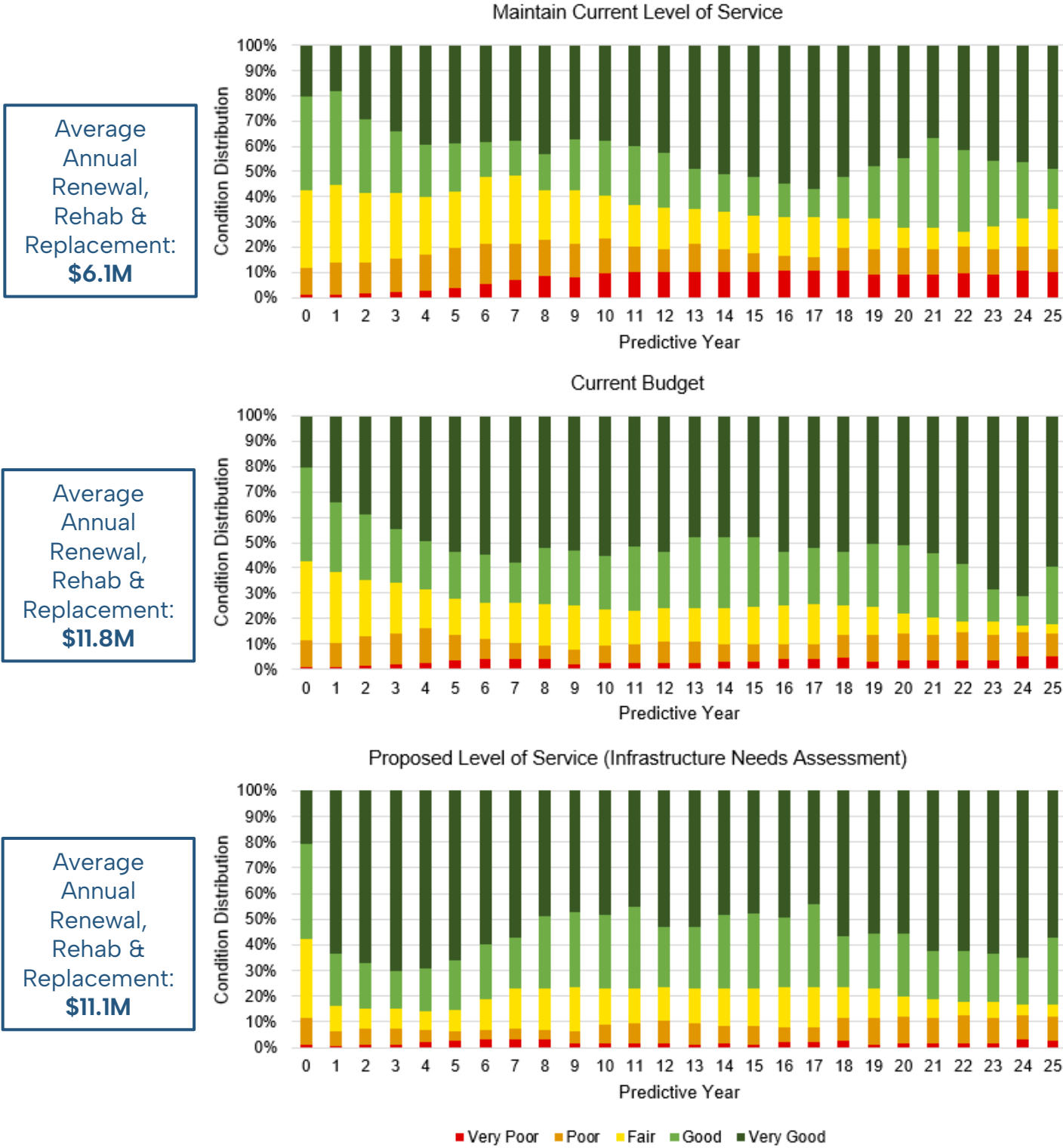


Figure 5-4. Condition Profile for Service Level Scenarios – Transportation

Figure 5-4 shows the impact to the condition of the assets based on the Maintain Current LOS, Current Budget, and Proposed LOS forecast scenarios.

In Scenario 1, the average annual expenditure required for Renewals, Rehabilitations and Replacements for the Transportation assets was determined to be approximately \$6.1M. Overall asset condition is maintained over the 25-year forecast period. The percentage of assets in very poor condition increases to year 10 but remains stable for the remainder of the 25-year forecast period.

In Scenario 2, the anticipated annual funding for Transportation assets is approximately \$11.9M. The condition distribution shows that the overall condition of the transportation network is expected to improve over the 25-year forecast with the current anticipated budget allocations. If the annual spending is less than \$11.9 (as this was based on one year of data) and may have had a higher volume of renewals in this given year. If the City does continue to fund the transportation assets at this level, there is an improvement in the condition of these assets.

For the assets within this service area, PLOS was established to address infrastructure needs and follow the identified strategies to maintain these assets. In Scenario 3, the anticipated annual budget needed for this scenario (to achieve PLOS) was determined to be \$11.1M. The condition distribution shows that the percentage of assets in very poor condition will be maintained below 5%. The PLOS and current budget at this time are closely aligned.

By comparing the scenarios above, City staff can better understand how each one affects asset conditions over the long-term. Combined with Figure 5-5 which highlights the lifecycle expenditures required, and any identified funding gaps, this analysis is intended to support informed decision-making. The lifecycle activities required for proposed LOS have been colour coded below, and show the average annual budget, and the average annual expenditures required for both the current and proposed LOS.

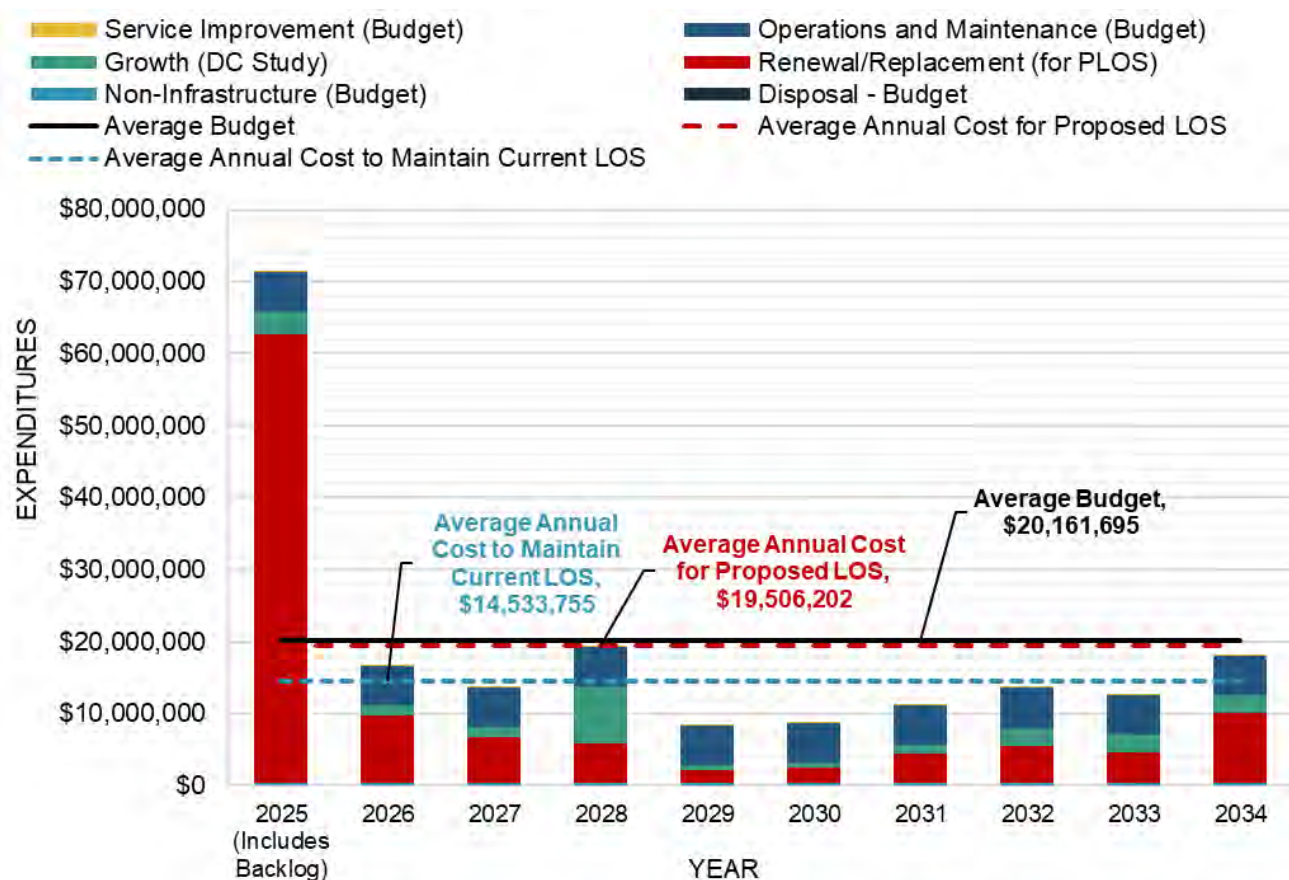


Figure 5-5. Transportation Scenario Comparison

The scenario comparison indicates that there is no gap to achieve the proposed LOS for Transportation assets. This shows that the City's current planned budget is sufficient to achieve proposed LOS.

The growth and operations and maintenance expenditures shown in Figure 5-5 are shown in greater detail in Figure 5-6, which estimates the annual funding required for operations and maintenance to accommodate growth. The growth expenditures were informed by the City's most recent DC Background Study, which were added to the City's current replacement value to forecast the future expenditures required. The expenditures currently being spent on operations and maintenance were compared to the current replacement value to determine a percent of replacement value being spent on these activities. This percent was then applied to the current replacement value with the addition of growth expenditures to determine if any additional expenditures would be required to accommodate growth. Based on this analysis, it is anticipated additional support for operations and maintenance will be required for the increasing asset portfolio, as shown in Figure 5-6. This analysis assumes that the amount currently spent on O&M is adequate to meet the City's needs, the identified additional cost required is strictly to address growth. Optimizing maintenance and leveraging new technologies can enhance operational efficiency and extend the lifespan of assets, ensuring that assets being provided and maintained at the lowest possible cost.

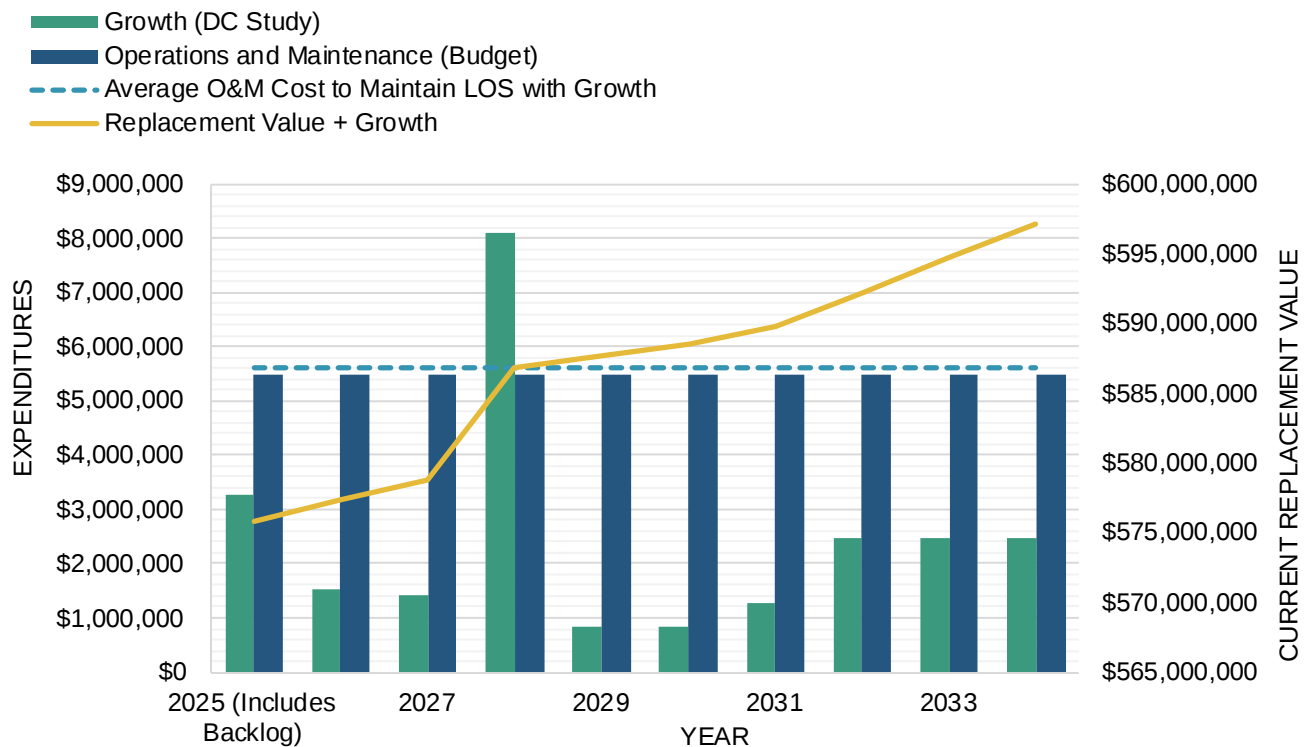


Figure 5-6. Growth – Operations & Maintenance Considerations – Transportation

The infrastructure gap is summarized below in Table 5-6. Current funding for capital budgets and operating budgets is based on the approved 2023 budget and presented as the annual average 2023–2033 fiscal years. With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Transportation infrastructure network for current and future generations.

Table 5-6 illustrates that total renewal, rehabilitation, and replacement expenditures of \$6.1M and \$11.1M are needed to sustain the current LOS and achieve the PLOS, respectively, compared to the average annual budget of \$11.9M. There are no annual funding gaps to maintain current LOS and achieve PLOS.

In addition to capital infrastructure gap, additional \$137K annual O&M expenditures will be required to accommodate growth based on the 10-year growth forecast and established O&M service levels and is assumed to be sufficient in meeting both current and proposed service levels.

Table 5-6. Lifecycle Activity Investments & Annual Average Infrastructure Gap – Transportation

Lifecycle Activity	Average Budget	Average Annual Cost to Maintain Current LOS	Average Annual Cost for Proposed LOS
Disposal	\$0	\$0	\$0
Growth (DC Study)	\$2,466,577	\$2,466,577	\$2,466,577
Non-Infrastructure	\$340,080	\$340,080	\$340,080
Renewal, Rehabilitation & Replacement	\$11,876,734	\$6,111,526	\$11,083,973
Service Improvement	\$3,120	\$3,120	\$3,120
Total	\$14,686,512	\$8,921,303	\$13,893,750
Capital Funding Gap		No Gap	No Gap
Operations & Maintenance	\$5,475,183	\$5,612,452	\$5,612,452
Operation & Maintenance Required to Accommodate Growth		\$137,269	\$137,269
Total Expenditures	\$20,161,695	\$14,533,755	\$19,506,202
Total Funding Gap		No Gap	No Gap
Gap as Percentage of CRV		No Gap	No Gap

With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Transportation infrastructure network for current and future generations.

The activities and strategies listed within this chapter also provide the City's best chance to avoid the risks associated with asset ownership. The risks associated with not following the lifecycle strategies and activities can be significant and wide-ranging, which are further explained in Section 12.2.2 Risk Associated with Lifecycle Strategies. Addressing these risks requires a proactive approach to infrastructure planning, investment, and management. By prioritizing operations and maintenance, asset renewal and strategic investments, the City can enhance resilience and sustainability.

5.5 Data Confidence and Improvement Plan

Table 5-7 shows the main data sources and overall data confidence for Transportation assets.

Table 5-7. Data Confidence – Transportation

Asset Type	Data Source	Data Confidence
Bridges and Culverts	GIS; Bridge Condition Inspections (OSIM)	A
Canal Wall	GIS; Canal Assessment	B
Roadway	GIS; Roads Needs Study	A
Sidewalk	GIS; Staff Condition Assessment	A
Streetlight	GIS	A
Sign Post, Street Pole, Traffic Sign	GIS	C
Traffic Signal	GIS; Condition information provided by the Region	A

5.5.1 Recommendations for Improvements

As roads are highly regulated to assess assets within the right of way, and bridges and culverts, the data for Transportation assets is highly reliable. Opportunities for improvement include:

Signpost, Street Pole, and Traffic Sign

- Condition and installation dates of this asset type is not likely to change the strategies in place for the City on how these assets are managed. But it is good practice to continue to keep the asset register that can be found in the GIS up-to-date and moving forward to collect information like install date.

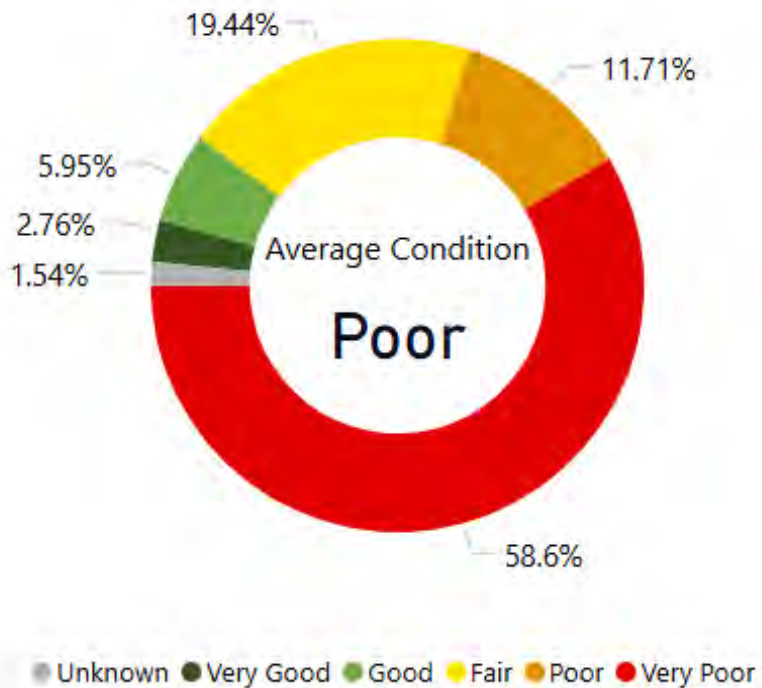


Central Fleet

Replacement Value

\$20,603,648

Overall Average Asset Condition



Quick Facts

Central Fleet has:

- 400 pieces of Equipment & 49 pieces of Heavy Equipment supporting various service delivery groups throughout the City
- 76 Fleet vehicles maintained daily to ensure high quality services are delivered throughout the community

6 Central Fleet

6.1 State of the Infrastructure

Welland's central fleet service area is made up of the vehicles, boats and equipment used to support City services. The Central Fleet assets assist in delivering essential services, maintaining infrastructure, and supporting municipal operations. All fleet and equipment for the City is included in this chapter, with the exception of fire fleet and equipment which has been included in Section 8. Table 6-1 below shows the full inventory and estimated replacement cost for this system.

Table 6-1. Inventory and Current Replacement Value – Central Fleet

Asset Type	Count	Quantity Unit	2024 Estimated Replacement Value
Boat	31	Each	\$530,000
Equipment	400	Each	\$5,760,352
Fleet Vehicles	76	Each	\$4,676,256
Heavy Equipment	49	Each	\$9,636,640
Total			\$20,603,648

6.1.1 Asset Condition

Overall, central fleet assets are in **Poor Condition**.

Conditions were assigned to Central Fleet assets based on age and estimated service life. The condition rating scale is shown in Table 6-2.

Table 6-2. Condition Rating – Central Fleet

Condition	Age/ESL
Very Good	>80% life remaining
Good	60–80% life remaining
Fair	40–60% life remaining
Poor	20–40% life remaining
Very Poor	0–20% life remaining
Unknown	

A breakdown of the condition distribution based on asset value is shown in in Figure 6-1 and Figure 6-2 below. Condition of Central Fleet assets is based on age, not the actual

condition of the asset. As these figures demonstrate, the majority of the asset value falls at or below Fair condition. Although there are many assets in poor to very poor condition, assets in Central Fleet are inspected regularly to ensure that they are in safe working condition.

Approximately 40% of fleet assets are beyond their estimated service life, which is contributing the large portion of assets with Very Poor condition. Timely replacement of fleet assets balance safety, efficiency, costs and environmental impact, ultimately benefiting the organization, as well as the community. These assets support all levels of the City to provide services to the residents.

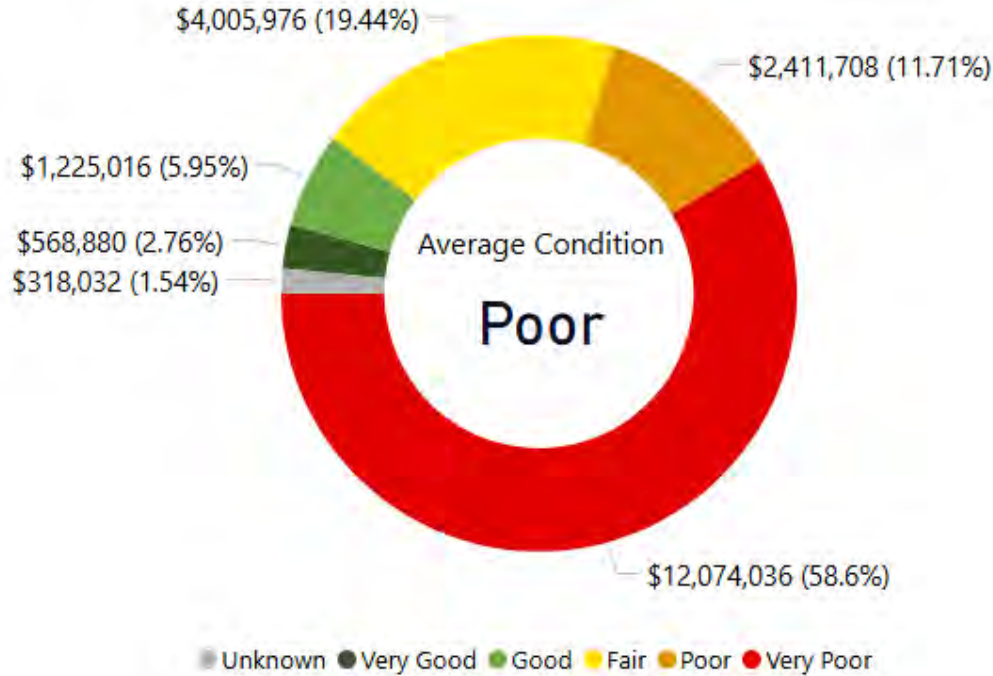


Figure 6-1. Central Fleet Condition Distribution (By Replacement Value) – Overall

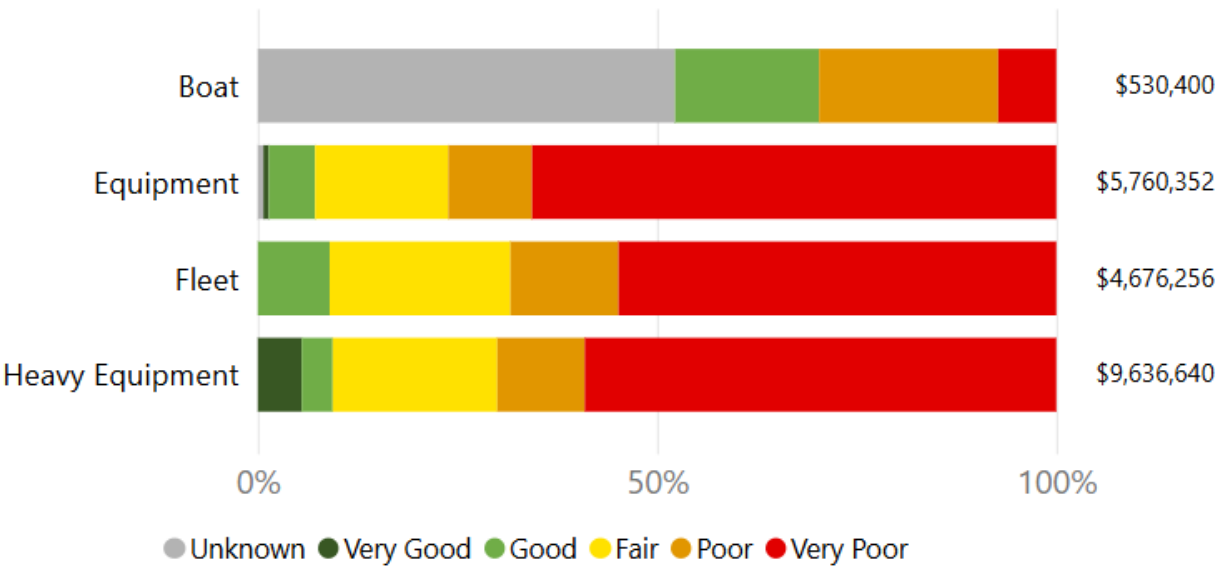


Figure 6-2. Central Fleet Condition Distribution (By Replacement Value) – Asset Category Breakdown

Approximately half of the boats have unknown manufacture dates, so the condition of these assets is unknown. It is recommended the City fill this minor gap in the asset data. Heavy Equipment, Fleet and Equipment all have significant portions of the asset category in very poor condition.

6.1.2 Average Age

A breakdown of the average age and estimated service life (ESL) per asset category is provided in Figure 6–3. As this figure demonstrates, on average, equipment assets have surpassed their ESL, while the fleet, boats and heavy equipment are still within their life expectancy.

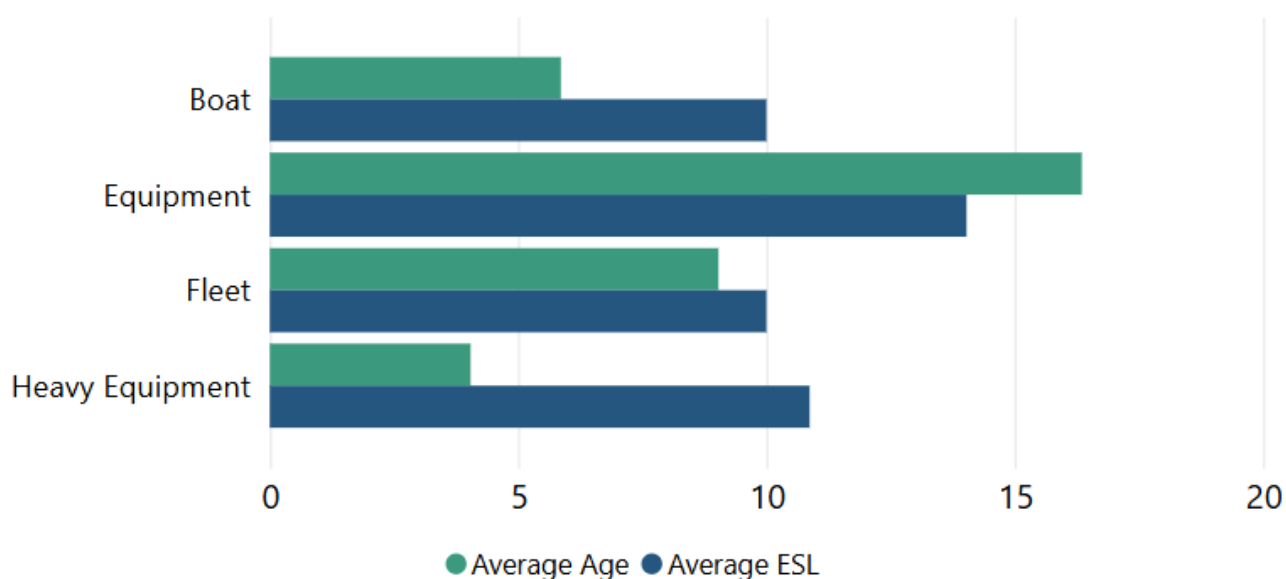


Figure 6–3. Central Fleet Average Age vs. ESL – Asset Category Breakdown

6.2 Levels of Service

The assets under Central Fleet play a crucial role in delivering essential services, maintaining infrastructure, and supporting municipal operations.

Levels of service refer to specific parameters that describe the extent and quality of services that a municipality provides to its residents. These parameters largely dictate the need for infrastructure, resources, and ultimately the costs associated with providing a service. In the context of this AMP, LOS are outlined based on legislated metrics, and City defined metrics. These levels of service are described from a community experiential perspective and may include both qualitative and technical metrics.

The LOS metrics and the current and proposed performance are detailed in Table 6–3. KPIs are listed in Table 6–4, which are metrics that do not have a target set but will allow the City to monitor the progress in implementing this AMP on an annual basis.

Proposed, or target LOS, are required to be defined within this AMP, along with a financial strategy to achieve the targets. The proposed change between the current level of

service and proposed level of service has been documented in the table below. For Central Fleet, an increase to the LOS has been proposed, to decrease the current backlog and improve asset condition.

Table 6-3. Level of Service – Central Fleet

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Technical LOS				
I have quality services	Total Backlog (Backlog as a Percent of Total Replacement Value)	\$10.6M (51.4%)	\$0 (Decrease)	↘
I have quality services	Percentage of total replacement cost of assets in good to very good condition	13.6%	43% (10-year average)	↗

Table 6-4. Key Performance Indicators – Central Fleet

Key Service Attribute	Performance Measure	Current Performance (2024)
Community LOS		
My City maintains what it owns	Current reinvestment rate	7.44%
My City maintains what it owns	Cost per household	\$149.17
Technical LOS		
My City maintains what it owns	Percent of fleet vehicles in conformance with lifecycle strategy	60.25%
My City is considerate of the environment	Number of public charging stations	2

6.3 Lifecycle Management Strategy

The objective of the Lifecycle Management Strategy is to outline and establish a set of planned actions, based on best practice that will enable our assets to provide a sustainable level of service, while managing risk at the lowest lifecycle cost.

The City continues to improve its approach to the management of its assets and will continue to put in place processes, procedures, and tools to enable a more consistent approach across the City's Service Areas. Detailed below is a brief overview of some of the current asset management practices in place across the City.

6.3.1 Lifecycle Activities

Specific lifecycle activities, or planned actions, for the Central Fleet are outlined in Table 6-5. These activities have been broken down into the Lifecycle Categories detailed in Section 1.4 and detail the activities that take place during the asset's lifecycle. Lifecycle activities ultimately help provide efficiencies and ensure assets can continue providing services at the level required, and at the lowest possible cost. Completing these activities will ensure the expected service function and reliability of the assets.

Renewal, Rehabilitation and Replacement activities have been incorporated into the infrastructure needs forecast scenarios that are included in Section 6.4. Non-Infrastructure Solutions, Operations and Maintenance, Service Improvement and Growth Activities have been incorporated in the full-lifecycle cost of these assets but have not been analyzed for their adequacy to meet the City's needs.

By implementing these lifecycle activities, the City can effectively manage their Central Fleet assets, optimize operational efficiency, minimize costs, ensure regulatory compliance, and maximize the value and lifespan of their assets. These activities are also critical for maintaining safe and efficient infrastructure. Following the lifecycle activities and strategies will ensure the City can avoid risks associated with asset ownership. These risks are further outlined in Section 12.2.2. Implementing the lifecycle activities and strategies in this plan will enhance the resilience and sustainability of infrastructure while mitigating potential risks.

Table 6-5. Lifecycle Management Activities – Central Fleet

Asset Management Practices / Planned Actions	Frequency
Non-Infrastructure	
• Ministry of Transportation inspections	• Annual
• Fuel management	• Monthly
Operations & Maintenance Activities	
• Preventative maintenance	• As scheduled
• Reactive maintenance (damage, accidents, breakdowns, etc.)	• As needed
• Spraying of vehicles	• Annual
• Cleaning	• Daily
Renewal/Replacement Activities	
• Vehicle refurbishments	• As needed
• Replacement at end of life	• As required
Disposal Activities	
• Keep vehicle for spare parts (small equipment only)	• Opportunistically
• Sell/Auction	• Opportunistically
• Dispose of asset in environmentally friendly manner	• Opportunistically
Service Improvement & Growth Activities Planned	
• Vehicle/Equipment Upgrade	• As identified
• New Vehicles & Technology	• As identified

6.4 Funding the Lifecycle Activities

The City uses the lifecycle management strategies described above in Section 6.3 to plan work and determine future expenditure needs for Central Fleet assets. These activities, along with the scenarios outlined below provide a comprehensive forecast of expenditures required for managing infrastructure assets and ensuring the City can meet the demands of current services and existing infrastructure.

The scenarios below forecast renewal, rehabilitation and replacement lifecycle activity cost and needs. These lifecycle activities ensure infrastructure remains in a state of good repair and can continue to provide services to residents. Further details of the funding required for the remaining lifecycle activities (non-infrastructure, service improvements, operations and maintenance, and growth) can be found below in Figure 6-4Figure 6-5, which are informed based on the City's capital and operating budgets, and the latest DC Background Study. For the purposes of this AMP, these activities, and their costs, are assumed to be enough to meet the community's expectations. This AMP does not provide an analysis on optimizing these activities and costs, with the exception of required expenditures for operations and maintenance to accommodate growth.

The City has implemented Predictor, which is a Decision Support System to continue its efforts to make informed decisions on asset investments. This tool has been used for the analysis of the scenarios outlined below. The condition profiles provide an outlook to the performance of assets for 25 years. For the purposes of this AMP, the scenario comparison and infrastructure gap has only been evaluated for the next 10 years, as required by O.Reg. 588/17.

An overview of the scenarios that were evaluated for the purposes of this AMP include:

- **Scenario 1: Maintain Current Level of Service** – This scenario aims to maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.
- **Scenario 2: Current Funding** – This scenario forecasts the condition of the assets under the current funding level that the City anticipates allocating towards each asset category. The current budgets were obtained from the City's 2023 budget and is used as the average spending for the 10-year forecast. This is used to illustrate the change in performance (condition) under anticipated funding levels. Only renewal, rehabilitation and replacement activities are completed that fit within the current funding allotted to the asset category are completed as part of this forecast.
- **Scenario 3: Proposed Levels of Service** – This scenario determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

The impacts to the condition of the City's assets based on the described scenarios and the associated costs and comparison of these scenarios can be found in Figure 6-4.

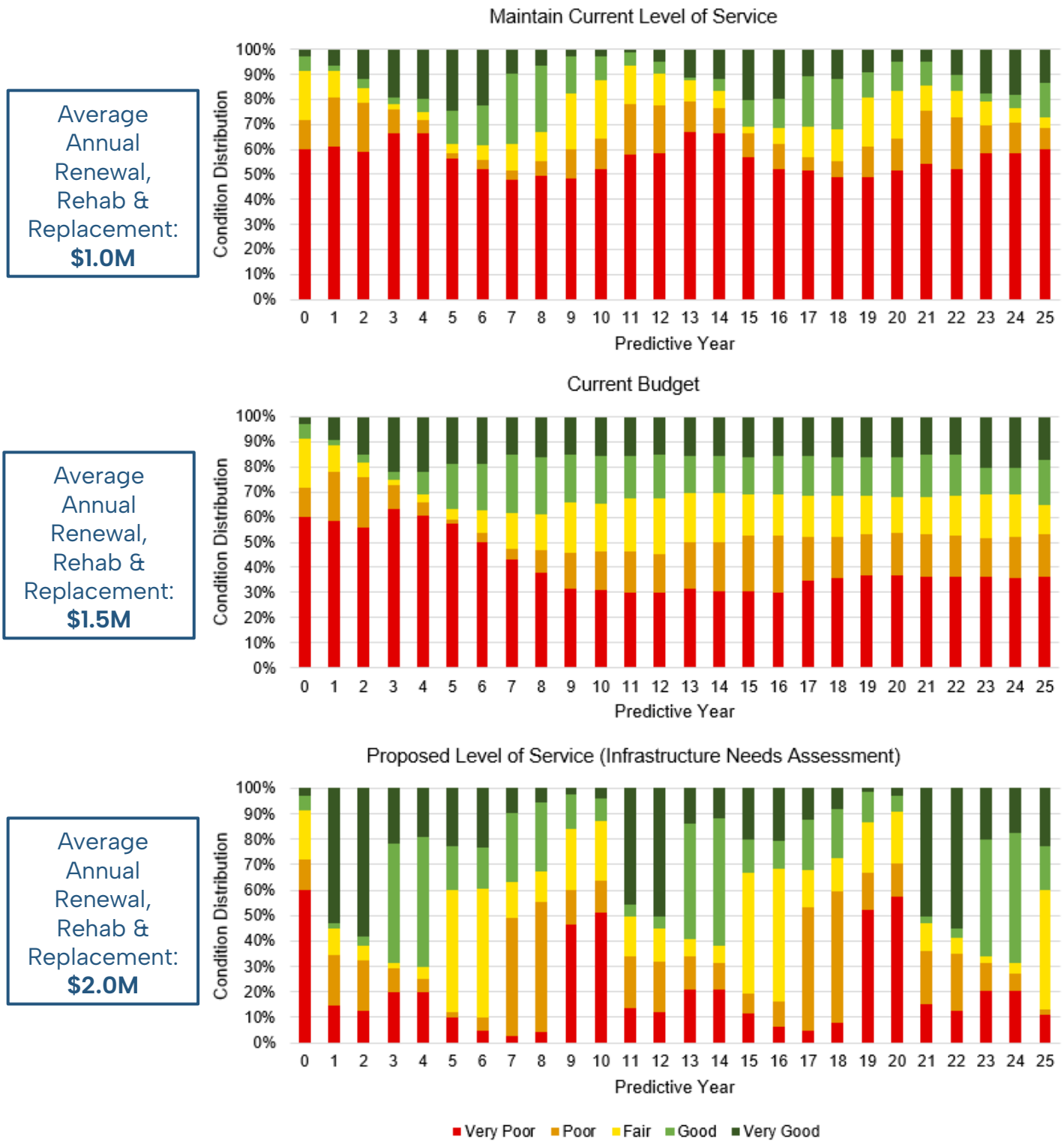


Figure 6-4. Condition Profile for Service Level Scenarios – Central Fleet

Figure 6-4 shows the impact to the condition of the assets based on the Maintain Current LOS, Current Budget, and Proposed LOS forecast scenarios.

In Scenario 1, the average annual expenditure required for Renewals, Rehabilitations and Replacements for the Central Fleet assets was determined to be approximately \$1.0M. Overall asset condition is maintained over the 25-year forecast period. The percentage of assets in very poor condition ranges from 48% to 67%.

In Scenario 2, the anticipated annual funding for Central Fleet assets is approximately \$1.5M. The condition distribution shows that the overall condition of the central fleet portfolio is expected to improve over the next 9 years and then condition is maintained for the remainder of the 25-year forecast with the current anticipated budget allocations.

For the assets within this service area, PLOS was established to address infrastructure needs and follow the identified strategies to maintain these assets. The anticipated annual budget needed to achieve PLOS was determined to be \$2.0M. The condition distribution shows that the initial backlog shown in year 0 is addressed in year 1 and assets are replaced as needed in all subsequent years.

By comparing the scenarios above, City staff can better understand how each one affects asset conditions over the long-term. Combined with Figure 6-5 which highlights the lifecycle expenditures required, and any identified funding gaps, this analysis is intended to support informed decision-making. The lifecycle activities required for proposed LOS have been colour coded below, and show the average annual budget, and the average annual expenditures required for both the current and proposed LOS.



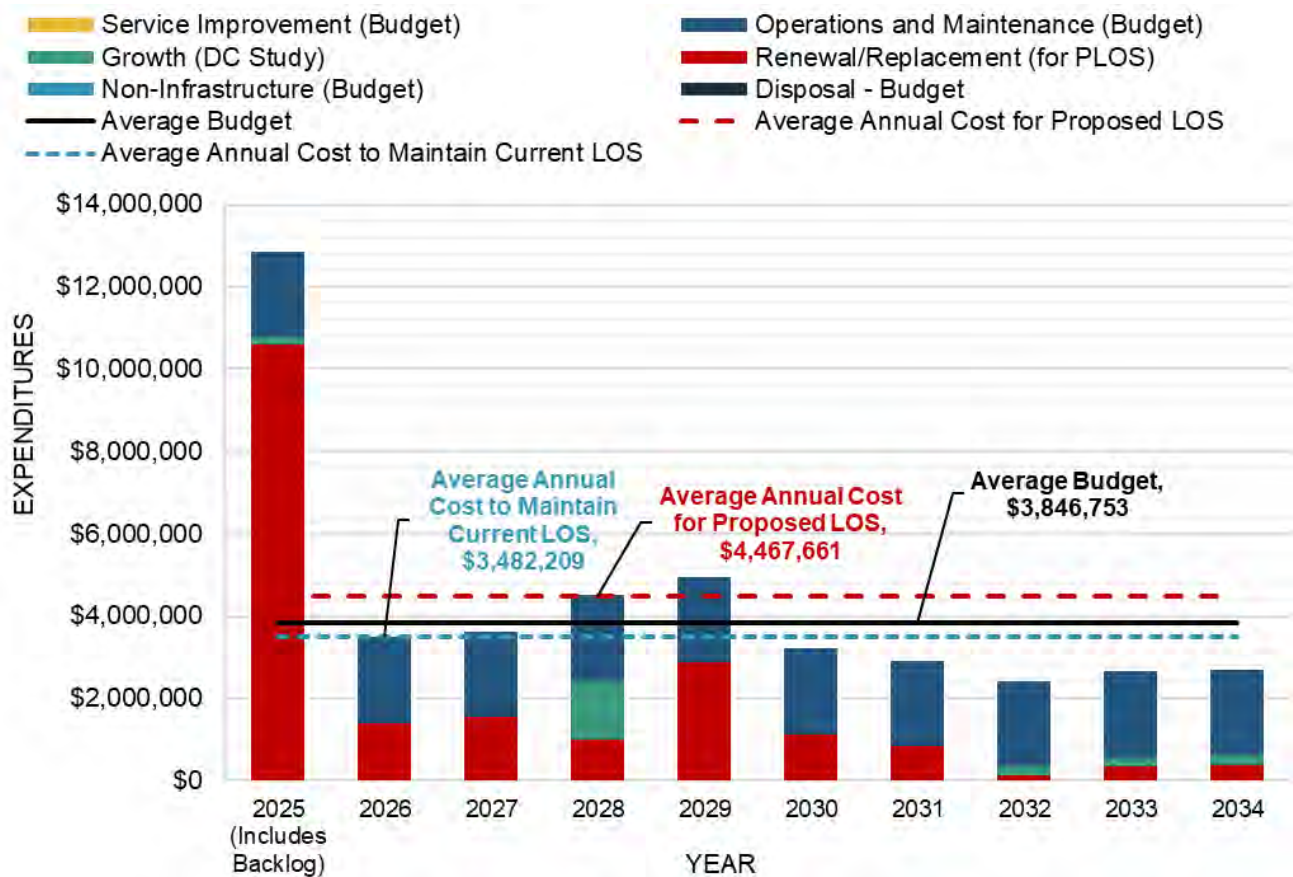


Figure 6-5. Central Fleet Scenario Comparison

The scenario comparison indicates that the Central Fleet has a gap of \$485.6k to achieve the proposed LOS. This funding gap underscores the challenge the City faces in adequately funding the necessary renewal, rehabilitation, and replacement activities for Central Fleet assets.

Figure 6-5 also highlights the substantial backlog in the year 2025 for Central Fleet assets. The backlog represents renewal, rehabilitation and replacement activities that have been identified as necessary but have not been completed. Continuing to defer renewals creates risks of higher financial costs, potential decreased availability, and potential decreased satisfaction with asset performance.

The growth and operations and maintenance expenditures shown in Figure 6-5 are shown in greater detail in Figure 6-6, which estimates the annual funding required for operations and maintenance to accommodate growth. The growth expenditures were informed by the City's most recent DC Background Study, which were added to the City's current replacement value to forecast the future expenditures required. The expenditures currently being spent on operations and maintenance were compared to the current replacement value to determine a percent of replacement value being spent on these activities. This percent was then applied to the current replacement value with the addition of growth expenditures to determine if any additional expenditures would be required to accommodate growth. Based on this analysis, it is anticipated additional

support for operations and maintenance will be required for the increasing asset portfolio, as shown in Figure 6-6. This analysis assumes that the amount currently spent on O&M is adequate to meet the City’s needs, the identified additional cost required is strictly to address growth. Optimizing maintenance and leveraging new technologies can enhance operational efficiency and extend the lifespan of assets, ensuring that assets being provided and maintained at the lowest possible cost.

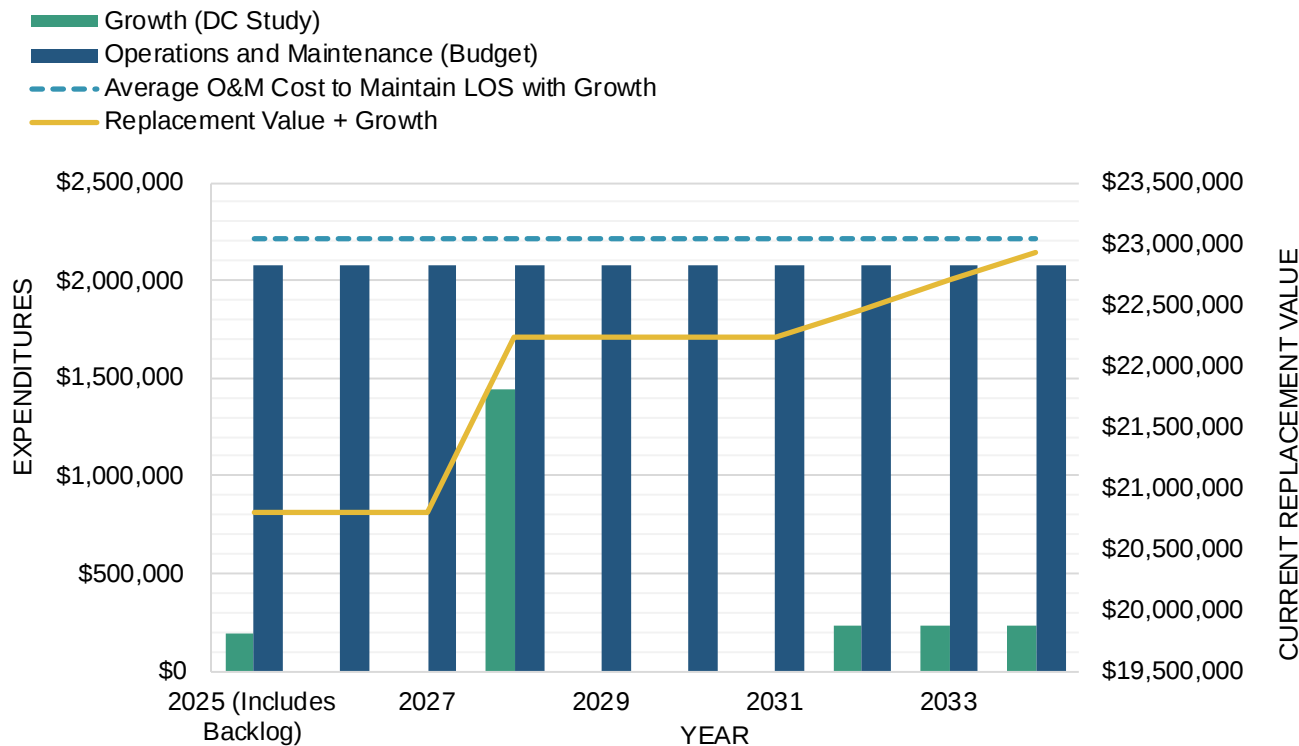


Figure 6-6. Growth – Operations & Maintenance Considerations – Central Fleet

The infrastructure gap is summarized below in Table 6-6. Current funding for capital budgets and operating budgets is based on the approved 2024 budget and presented as the annual average 2023-2033 fiscal years. With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Central Fleet infrastructure network for current and future generations.

Table 6-6 illustrates that total renewal, rehabilitation, and replacement expenditures of \$1.0M and \$2.0M are needed to sustain the current LOS and achieve the PLOS, respectively, compared to the average annual budget of \$1.5M. There is no annual capital funding gap to maintain the current LOS. There is an average annual capital funding gap of \$485.6k to achieve PLOS.

In addition to capital infrastructure gap, additional \$135.3K annual O&M expenditures will be required to accommodate growth based on the 10-year growth forecast and

established O&M service levels and is assumed to be sufficient in meeting both current and proposed service levels.

Table 6-6. Lifecycle Activity Investments & Annual Average Infrastructure Gap – Central Fleet

Lifecycle Activity	Average Budget	Average Annual Cost to Maintain Current LOS	Average Annual Cost for Proposed LOS
Disposal	\$0	\$0	\$0
Growth (DC Study)	\$233,118	\$233,118	\$233,118
Non-Infrastructure	\$0	\$0	\$0
Renewal, Rehabilitation & Replacement	\$1,532,804	\$1,032,959	\$2,018,411
Service Improvement	\$0	\$0	\$0
Total	\$1,765,922	\$1,266,077	\$2,251,529
Capital Funding Gap		No Gap	\$485,607
Operations & Maintenance	\$2,080,831	\$2,216,132	\$2,216,132
Operation & Maintenance Required to Accommodate Growth		\$135,301	\$135,301
Total Expenditures	\$3,846,753	\$3,482,209	\$4,467,661
Total Funding Gap		No Gap	\$620,908
Gap as Percentage of CRV		No Gap	3.0%

With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Central Fleet assets for current and future generations.

The activities and strategies listed within this chapter also provide the City's best chance to avoid the risks associated with asset ownership. The risks associated with not following the lifecycle strategies and activities can be significant and wide-ranging, which are further explained in Section 12.2.2 Risk Associated with Lifecycle Strategies. Addressing these risks requires a proactive approach to infrastructure planning, investment, and management. By prioritizing operations and maintenance, asset renewal and strategic investments, the City can enhance resilience and sustainability.

6.5 Data Confidence and Improvement Plan

The main data sources and overall data confidence for Central Fleet assets is in Table 6-7.

Table 6-7. Data Confidence – Central Fleet

Asset Type	Data Source	Data Confidence
All	Spreadsheet	A

6.5.1 Recommendations for Improvements

Opportunities for improvement for Central Fleet Data:

- Identify source of truth for asset register for fleet.
- Continue to maintain asset register for additions, disposals, and information on year, make, model, replacement values and estimated service life.
- Track maintenance and their cost for fleet assets to assist in future asset management planning.
- Fill minor gaps in data.

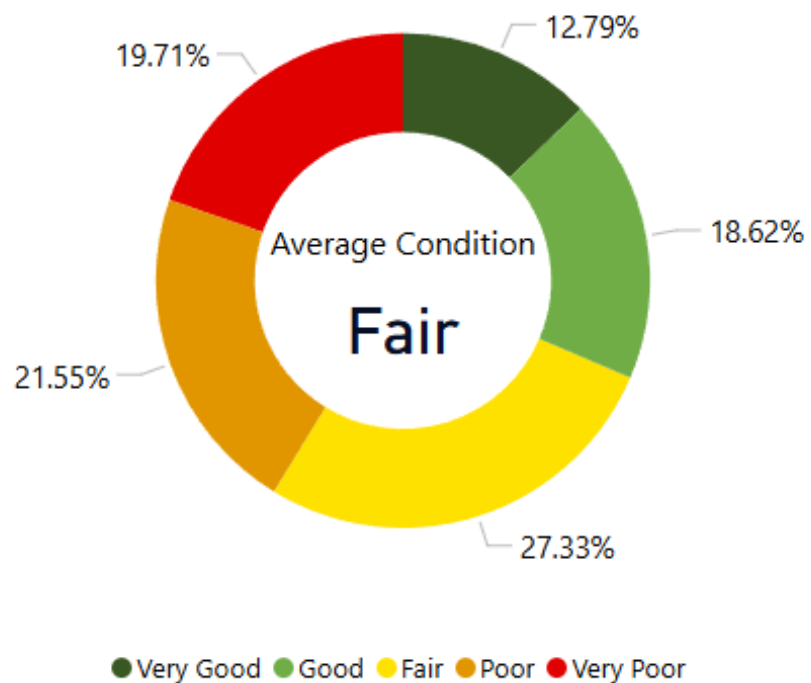


Facilities

Replacement Value

\$349,641,240

Overall Average Asset Condition



Quick Facts

Facilities asset category maintains:

- 55 different Facilities support various service delivery groups in the City

7 Facilities

7.1 State of the Infrastructure

Welland's facilities are made up of 55 buildings supporting Community Services, Corporate Services and Infrastructure Services. Table 7-1 below shows the full inventory and estimated replacement cost for this service area.

Table 7-1. Inventory and Current Replacement Value – Facilities

Service Group	Facility	FCI	2024 Estimated Replacement Value
Community Services	Burgar Park: Change house & Canteen	43.4%	\$1,380,964
	Burgar Park: Gatehouse	32.9%	\$46,800
	Canal Terrace	4.6%	\$786,240
	Chippawa Park: Community Centre	3.9%	\$2,164,500
	Chippawa Park: Equipment Storage & Lunch Room	11.6%	\$1,164,800
	Chippawa Park: Lawn Bowling Clubhouse	17.9%	\$595,140
	Chippawa Park: Lawn Bowling Storage	16.2%	\$24,700
	Chippawa Park: Pavilion 1	3.1%	\$215,280
	Chippawa Park: Pavilion 2	6.5%	\$215,280
	Community Sports Complex – Welland Baseball Stadium	21.0%	\$10,865,400
	Cook Mills Park: Community Hall	57.9%	\$964,080
	Cook Mills Park: Storage and Change Rooms	75.0%	\$499,200
	Doans Ridge Cemetery: Garage/Storage	19.9%	\$59,280
	Electrical Building 1	52.2%	\$499,200
	Electrical Building 2	53.5%	\$499,200
	Glenwood Park: Storage Building	1.8%	\$678,600
	Glenwood Park: Washroom and Maintenance/Storage Building	4.0%	\$260,000
	Hooker Tennis Club and Community Hall Building	19.5%	\$2,695,680

Service Group	Facility	FCI	2024 Estimated Replacement Value
Community Services	Jack Ballantyne Memorial Arena	29.0%	\$14,643,200
	Main City Arena	9.3%	\$30,156,412
	Maple Park: Change house and Pool Building	28.7%	\$2,779,920
	Memorial Park: Fountain Pump house	42.3%	\$143,520
	Memorial Park: Mechanical and Filtration Building	6.0%	\$403,260
	Memorial Park: Pavilion 1	67.8%	\$502,320
	Memorial Park: Pavilion 2	22.2%	\$252,720
	Memorial Park: Pavilion 3	0%	\$101,400
	Memorial Park: Pavilion 4	0%	\$101,400
	Memorial Park: Pavilion 5	1.0%	\$101,400
	Plymouth Park: Change house	30.0%	\$2,984,800
	Plymouth Park: Gatehouse	46.1%	\$393,120
	Rosie Smith: Change house and Pool	16.3%	\$2,558,920
	South Course Timing Tower	8.9%	\$915,200
	St George Park: Pavilion 1	86.6%	\$196,560
	St George Park: Pavilion 2	95.2%	\$179,400
	WCWC Pavilion 1	4.6%	\$89,700
	WCWC Pavilion 2	6.3%	\$89,700
	WCWC Pavilion 3	5.2%	\$89,700
	Welland Boat Rentals – Container Facilities (2)	13.5%	\$1,414,400
	Welland Community Boathouse	7.0%	\$1,872,000
	Welland Community Wellness Complex	8.4%	\$22,776,000
	WIFC Main Building	2.1%	\$7,531,680
	WIFC Timing Tower	1.4%	\$6,656,000
	Woodlawn Cemetery: Garage/Storage/Washroom	14.4%	\$248,040
	Youngs Sportsplex	5.4%	\$47,960,640

Service Group	Facility	FCI	2024 Estimated Replacement Value
Corporate Services	Civic Square, City Hall	3.4%	\$40,755,000
	Courthouse	5.5%	\$86,190,000
	Market Building (New)	21.0%	\$2,545,400
	Market Building (Original/Heritage)	14.1%	\$4,115,540
	Welland Museum	15.5%	\$10,225,800
Infrastructure Services	330 Prince Charles Drive Pumping Station	0.8%	\$234,000
	Commercial St Pump Station	11.1%	\$213,200
	Cover All Storage	19.4%	\$499,200
	Fitch St Pump Station	1.3%	\$332,800
	Municipal Service Centre – PW Building	10.2%	\$35,670,024
	Doans Ridge Cemetery: Fill Station Building	18.5%	\$104,000
Total			\$349,641,240

Table 7-1 above summarizes the condition and replacement value of the City's facilities based on the 2022 building condition assessments Facility Condition Index (FCI) and Cost to Build (Yardsticks). It should be noted that the conditions provided in the valuation table are evaluated based on the FCI of the facility which is calculated based on aggregating the total cost of any outstanding needs in relation to the total replacement value of the facility, and FCI ranges fall into the categories below in Table 7-2.

Table 7-2. FCI Rating – Facilities

Condition	FCI Range
Good	0-5%
Fair	5-10%
Poor	10-20%
Very Poor	>20%

This information has been provided to have a complete view of the overall facility, and the following sections analyze the facilities components.

7.1.1 Asset Condition

Overall, Welland's facilities are in **Fair Condition**.

The building condition assessment provided the City with the overall facility information and replacement values, but also assessed the individual components of each facility, which the following information is based upon. Conditions were assigned to Facilities in the City of Welland based on age and an assessed estimated remaining service life. The condition rating scale is shown in Table 7-3.

Table 7-3. Condition Rating – Facilities

Condition	Age/ESL
Very Good	>80% life remaining
Good	60-80% life remaining
Fair	40-60% life remaining
Poor	20-40% life remaining
Very Poor	0-20% life remaining
Unknown	

A breakdown of the condition distribution based on asset value is shown in Figure 7-1 and Figure 7-2 below. As these figures demonstrate, the majority of the asset value falls at or below Fair condition.

The City has continued to update asset information and condition data through expert studies and documents, which provides the basis for the analysis of the needs for this plan. Condition for facilities assets was collected through building condition assessments. This information provided a full inventory of components and will allow the City to plan for the needs of the facilities more comprehensively. It is recommended that this inventory continue to be maintained and updated as work and projects are carried out based on the recommendations.

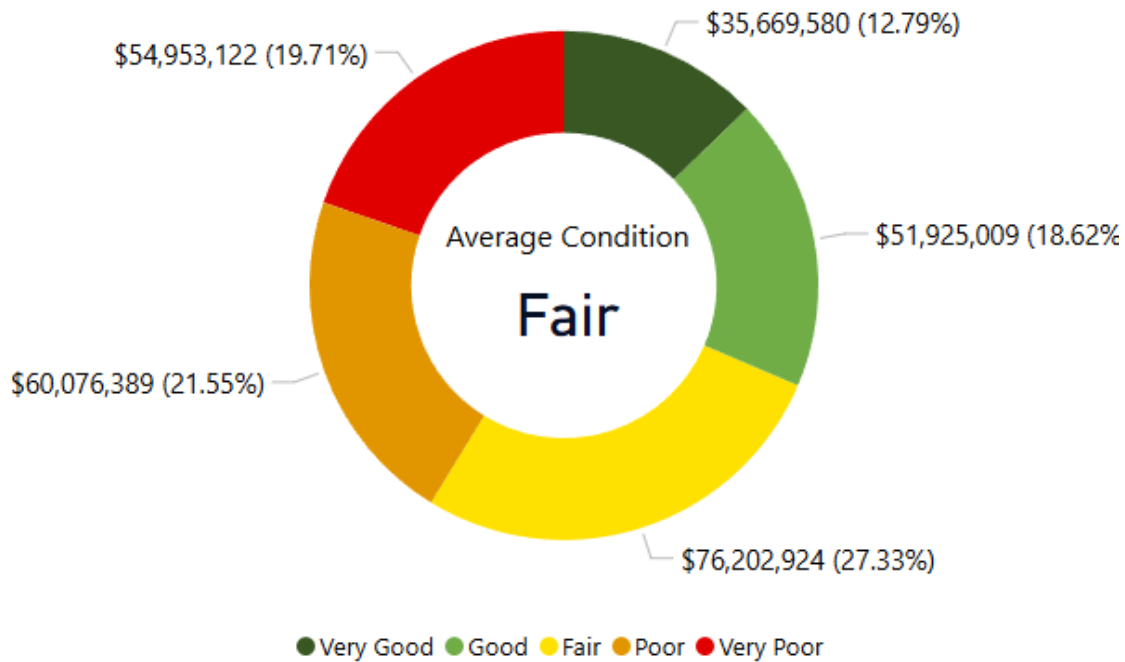


Figure 7-1. Facility Condition Distribution (By Replacement Value) – Overall

Approximately 69% of the City's facility components are in fair to very poor condition. Facilities deliver a wide range of services to the public, as well as corporate facilities to support corporate functions and provide essential workspaces for City staff to carry out their duties efficiently and effectively.

If the City facilities continue to deteriorate without investments to bring them to good condition, the City could increase their risks of:

- Service Disruptions because of infrastructure failures.
- Endangering public safety.
- Decreased Quality of Life for those that have come to rely on the services provided by the City's facility assets.
- Financial Strain as emergency/reactive repairs are more costly and unplanned.

Figure 7-2 shows a further breakdown of the condition the facility assets based on replacement value. The City must prioritize infrastructure maintenance and renewals to ensure public safety, quality of life, and sustainable growth. The consequences of neglecting facilities can be far-reaching and detrimental to the community.

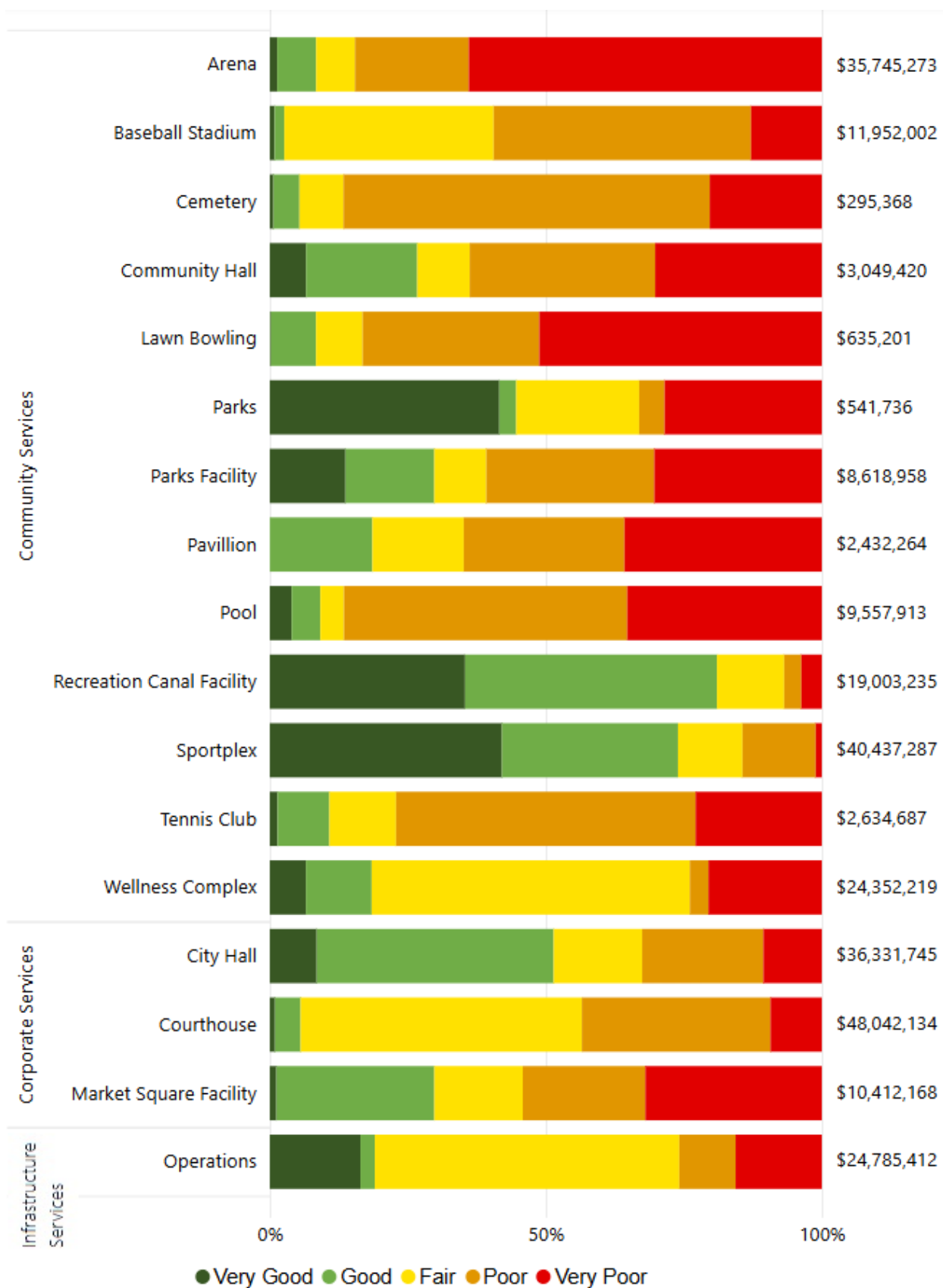


Figure 7-2. Facility Condition Distribution (By Replacement Value) – Asset Category Breakdown

7.1.2 Average Age

A breakdown of the average age and estimated service life (ESL) per asset category is provided in Figure 7-3. As this figure demonstrates, on average, the facilities have not yet reached their ESL.

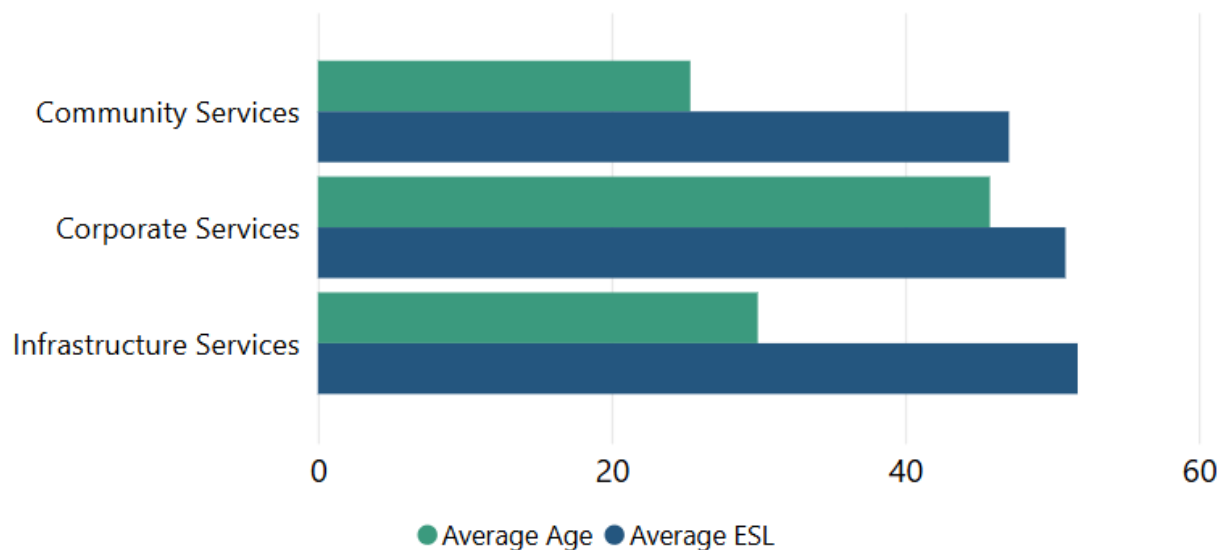


Figure 7-3. Facility Average Age vs. ESL – Asset Category Breakdown

Although the community services and infrastructure services facilities are only around half of their life expectancy, or just beyond, the condition of the facilities seems much worse than expected. The corporate services facilities on average are reaching the end of their service life.

7.2 Levels of Service

Levels of service refer to specific parameters that describe the extent and quality of services that a municipality provides to its residents. These parameters largely dictate the need for infrastructure, resources, and ultimately the costs associated with providing a service. In the context of this AMP, LOS are outlined based on legislated metrics, and City defined metrics. These levels of service are described from a community experiential perspective and may include both qualitative and technical metrics.

The LOS metrics and the current and proposed performance are detailed in Table 7-4. KPIs are listed in Table 7-5, which are metrics that do not have a target set but will allow the City to monitor the progress in implementing this AMP on an annual basis.

Proposed, or target LOS, are required to be defined within this AMP, along with a financial strategy to achieve the targets. The proposed change between the current level of service and proposed level of service has been documented in the table below. For Facilities, an increase to the LOS has been proposed, to decrease the current backlog and improve asset condition.

Table 7-4. Level of Service – Facilities

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Technical LOS				
I have quality services	Total Backlog (Backlog as a Percent of Total Replacement Value)	\$10.6M (3.03%)	\$0 (Decrease)	↘
I have quality services	Percentage of total replacement cost of assets in good to very good condition	34.51%	36% (10-year average)	↗

Table 7-5. Key Performance Indicator – Facilities

Key Service Attribute	Performance Measure	Current Performance (2024)
Community LOS		
My City maintains what it owns	Current reinvestment rate	0.99%
My City maintains what it owns	Cost per household	\$487.74
Technical LOS		
My City maintains what it owns	Percent of facilities in conformance with defined lifecycle strategies	90.41%
My City maintains what it owns	Buildings below "good" FCI condition	56%
My City is considerate of the environment	Annual electric energy consumption per square foot	\$1.22
My City is considerate of the environment	Annual natural gas consumption per square foot	\$0.41
My City is considerate of the environment	Annual water consumption per square foot	\$0.48

7.3 Lifecycle Management Strategy

The objective of the Lifecycle Management Strategy is to outline and establish a set of planned actions, based on best practice that will enable our assets to provide a sustainable level of service, while managing risk at the lowest lifecycle cost.

The City continues to improve its approach to the management of its assets and will continue to put in place processes, procedures, and tools to enable a more consistent approach across the City's Service Areas. Detailed below is a brief overview of some of the current asset management practices in place across the City.

7.3.1 Lifecycle Activities

Specific lifecycle activities, or planned actions, for the Facilities are outlined in Table 7-6. These activities have been broken down into the Lifecycle Categories detailed in Section 1.4 and detail the activities that take place during the asset's lifecycle. Lifecycle activities ultimately help provide efficiencies and ensure assets can continue providing services at the level required, and at the lowest possible cost. Completing these activities will ensure the expected service function and reliability of the assets.

Renewal, Rehabilitation and Replacement activities have been incorporated into the infrastructure needs forecast scenarios that are included in Section 7.4. Non-Infrastructure Solutions, Operations and Maintenance, Service Improvement and Growth Activities have been incorporated in the full-lifecycle cost of these assets but have not been analyzed for their adequacy to meet the City's needs.

By implementing these lifecycle activities, the City can effectively manage their Facility assets, optimize operational efficiency, minimize costs, ensure regulatory compliance, and maximize the value and lifespan of their assets. These activities are also critical for maintaining safe and efficient infrastructure. Following the lifecycle activities and strategies will ensure the City can avoid risks associated with asset ownership. These risks are further outlined in Section 12.2.2. Implementing the lifecycle activities and strategies in this plan will enhance the resilience and sustainability of infrastructure while mitigating potential risks.

Table 7-6. Lifecycle Management Activities – Facilities

Asset Management Practices / Planned Actions		Frequency
Non-Infrastructure		
• Building Condition Assessment		• 5 years
Operations & Maintenance Activities		
• Reactive maintenance		• As required
Renewal/Replacement Activities		
• Replacement of major components		• As needed based on condition
• Renewal/rehabilitation of facilities		• As per BCA
Disposal Activities		
• Selling, auctioning, salvaging, repurposing, destroying or other actions		• As per scheduled renewals
Service Improvement & Growth Activities Planned		
• Expansion / new facilities to accommodate growth		• As identified (through DC studies, feasibility studies or staff identified requirements) and as funding allows
• New technology		• As identified (through internal reviews)
• AODA Compliance		• As identified

7.4 Funding the Lifecycle Activities

The City uses the lifecycle management strategies described above in Section 7.3 to plan work and determine future expenditure needs for Facilities assets. These activities, along with the scenarios outlined below provide a comprehensive forecast of expenditures required for managing infrastructure assets and ensuring the City can meet the demands of current services and existing infrastructure.

The scenarios below forecast renewal, rehabilitation and replacement lifecycle activity cost and needs. These lifecycle activities ensure infrastructure remains in a state of good repair and can continue to provide services to residents. Further details of the funding required for the remaining lifecycle activities (non-infrastructure, service improvements, operations and maintenance, and growth) can be found below in Figure 7-4, which are informed based on the City's capital and operating budgets, and the latest DC Background Study. For the purposes of this AMP, these activities, and their costs, are

assumed to be enough to meet the community's expectations. This AMP does not provide an analysis on optimizing these activities and costs, with the exception of required expenditures for operations and maintenance to accommodate growth.

The City has implemented Predictor, which is a Decision Support System to continue its efforts to make informed decisions on asset investments. This tool has been used for the analysis of the scenarios outlined below. The condition profiles provide an outlook to the performance of assets for 25 years. For the purposes of this AMP, the scenario comparison and infrastructure gap has only been evaluated for the next 10 years, as required by O.Reg. 588/17.

An overview of the scenarios that were evaluated for the purposes of this AMP include:

- **Scenario 1: Maintain Current Level of Service** – This scenario aims to maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.
- **Scenario 2: Current Funding** – This scenario forecasts the condition of the assets under the current funding level that the City anticipates allocating towards each asset category. The current budgets were obtained from the City's 2023 budget and is used as the average spending for the 10-year forecast. This is used to illustrate the change in performance (condition) under anticipated funding levels. Only renewal, rehabilitation and replacement activities are completed that fit within the current funding allotted to the asset category are completed as part of this forecast.
- **Scenario 3: Proposed Levels of Service** – This scenario determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

The impacts to the condition of the City's assets based on the described scenarios and the associated costs and comparison of these scenarios can be found in Figure 7-4.

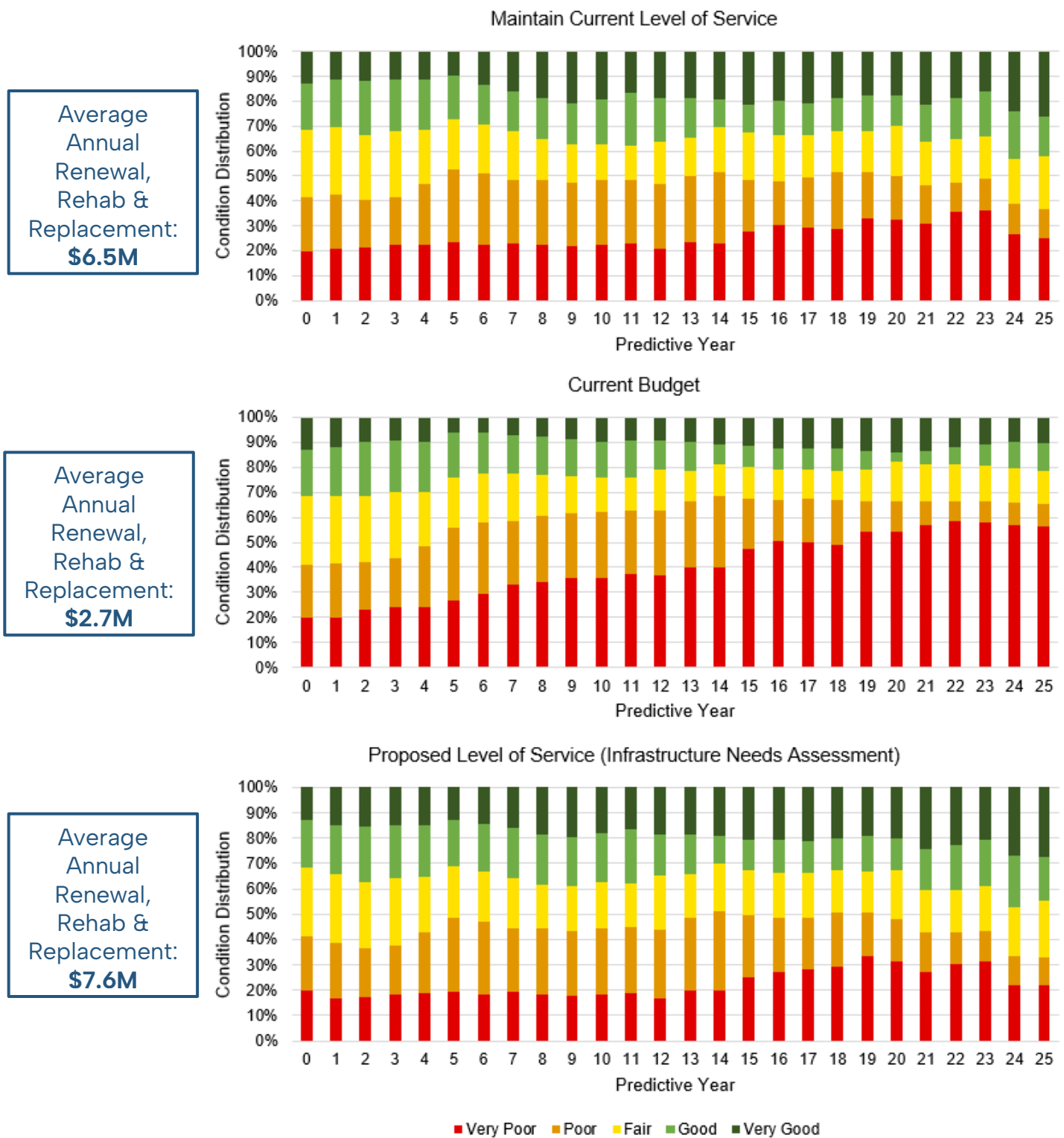


Figure 7-4. Condition Profile for Service Level Scenarios – Facilities

Figure 7-4 shows the impact to the condition of the assets based on the Maintain Current LOS, Current Budget, and Proposed LOS forecast scenarios.

In Scenario 1, the average annual expenditure required for Renewals, Rehabilitations and Replacements for the Facilities was determined to be approximately \$6.5M. Overall asset condition is maintained over the 25-year forecast period. The percentage of assets in very poor condition ranges from 20% to 36%.

In Scenario 2, the anticipated annual funding for facilities is approximately \$2.7M. The condition distribution shows that the overall condition of facilities is expected to decrease over the 25-year forecast with the current anticipated budget allocations. The percentage of assets in very poor condition increases significantly from 20% to 56% by the end of the forecast period.

For the assets within this service area, PLOS was established to address infrastructure needs and follow the identified strategies to maintain these assets. The anticipated annual budget needed to achieve PLOS was determined to be \$7.6M. The condition distribution shows that the percentage of assets in very poor condition will be maintained between 17% and 34%.

By comparing the scenarios above, City staff can better understand how each one affects asset conditions over the long-term. Combined with Figure 7-5 which highlights the lifecycle expenditures required, and any identified funding gaps, this analysis is intended to support informed decision-making. The lifecycle activities required for proposed LOS have been colour coded below, and show the average annual budget, and the average annual expenditures required for both the current and proposed LOS.



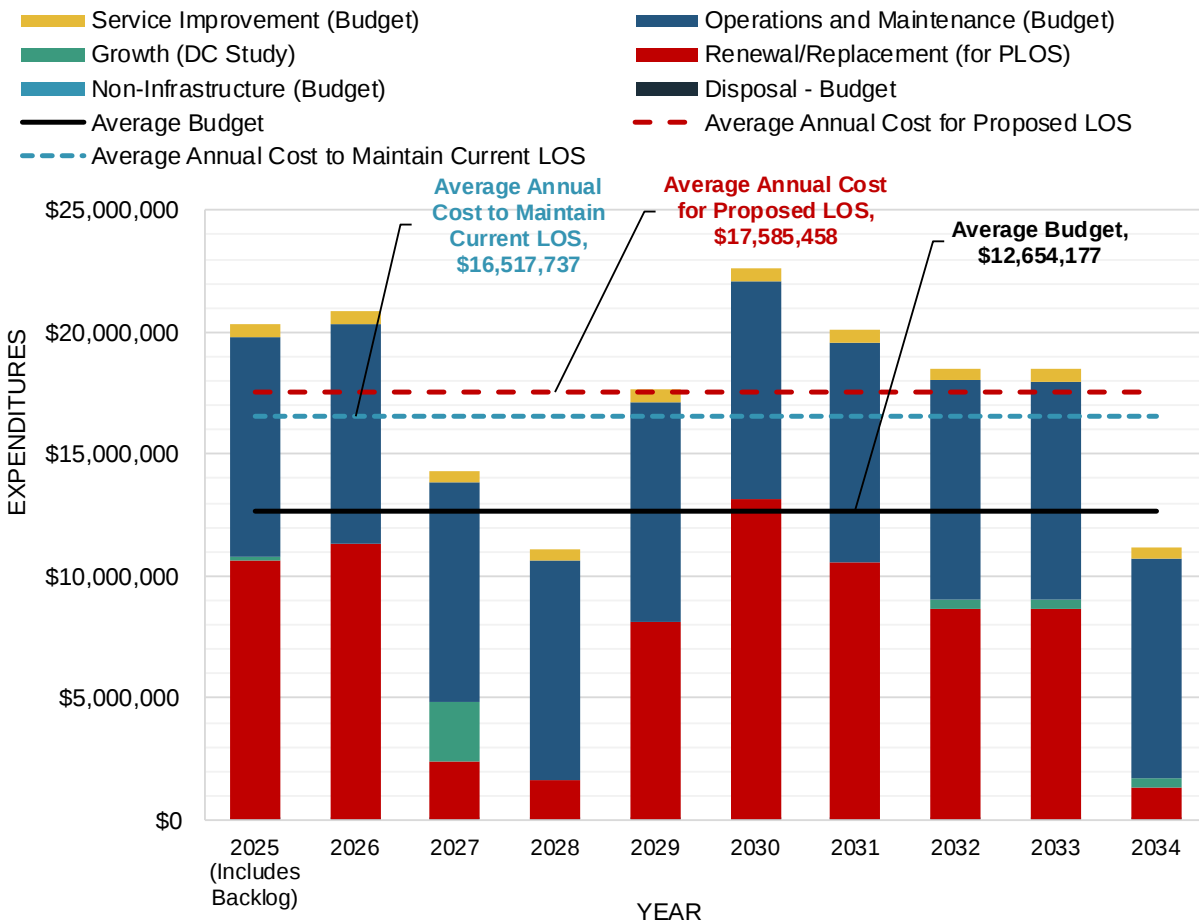


Figure 7-5. Facilities Scenario Comparison

The scenario comparison indicates that Facilities has a gap of \$4.9M to achieve the proposed LOS. This funding gap underscores the challenge the City faces in adequately funding the necessary renewal, rehabilitation, and replacement activities for Facilities assets.

The growth and operations and maintenance expenditures shown in Figure 7-5 are shown in greater detail in Figure 7-6, which estimates the annual funding required for operations and maintenance to accommodate growth. The growth expenditures were informed by the City's most recent DC Background Study, which were added to the City's current replacement value to forecast the future expenditures required. The expenditures currently being spent on operations and maintenance were compared to the current replacement value to determine a percent of replacement value being spent on these activities. This percent was then applied to the current replacement value with the addition of growth expenditures to determine if any additional expenditures would be required to accommodate growth. Based on this analysis, it is anticipated additional support for operations and maintenance will be required for the increasing asset portfolio, as shown in Figure 7-6. This analysis assumes that the amount currently spent on O&M is adequate to meet the City's needs, the identified additional cost required is strictly to address growth. Optimizing maintenance and leveraging new technologies can enhance

operational efficiency and extend the lifespan of assets, ensuring that assets being provided and maintained at the lowest possible cost.

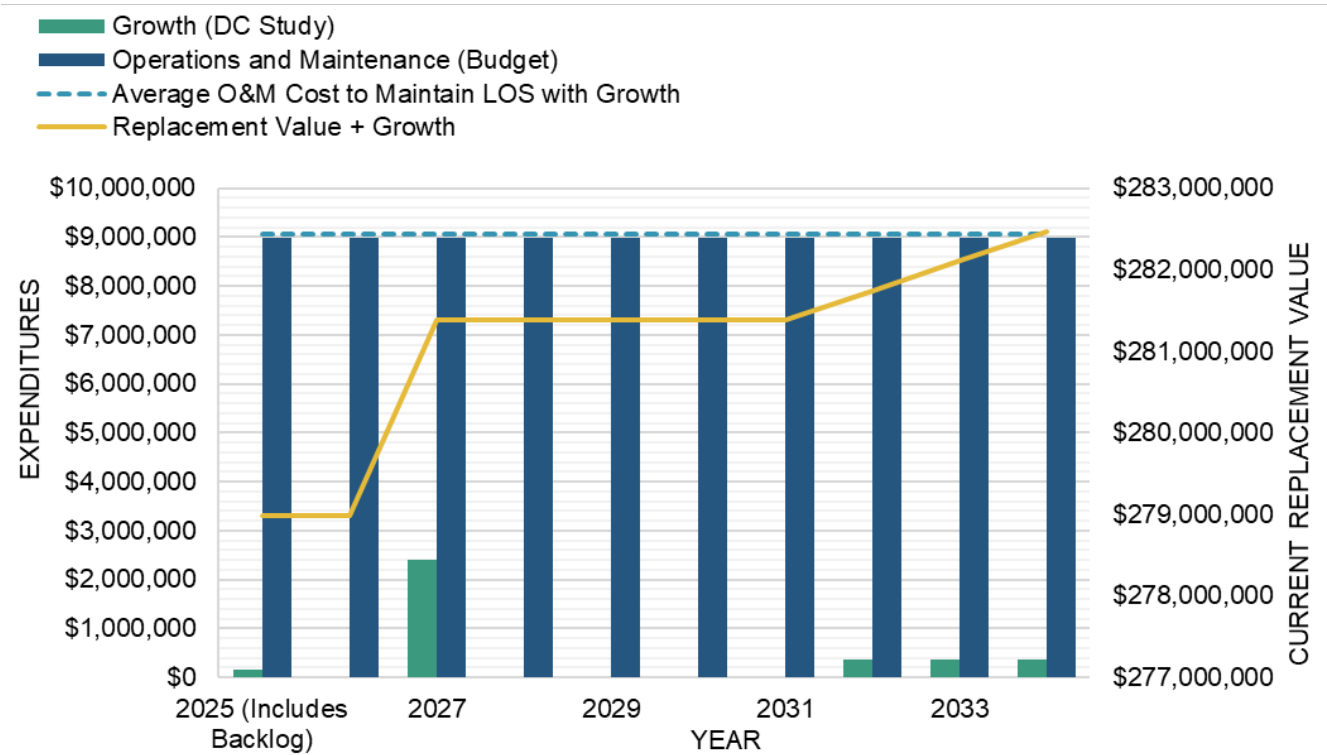


Figure 7-6. Growth – Operations & Maintenance Considerations – Facilities

The infrastructure gap is summarized below in Table 7-7. Current funding for capital budgets and operating budgets is based on the approved 2023 budget and presented as the annual average 2023–2033 fiscal years. With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Facilities infrastructure network for current and future generations.

Table 7-7 illustrates that total renewal, rehabilitation, and replacement expenditures of \$6.5M and \$7.6M are needed to sustain the current LOS and achieve the PLOS, respectively, compared to the average annual budget of \$2.7M. There are average annual capital funding gaps of \$3.8M and \$4.9M to maintain current LOS and achieve proposed LOS.

In addition to capital infrastructure gap, additional \$74K annual O&M expenditures will be required to accommodate growth based on the 10-year growth forecast and established O&M service levels and is assumed to be sufficient in meeting both current and proposed service levels.

Table 7-7. Lifecycle Activity Investments & Annual Average Infrastructure Gap – Facilities

Lifecycle Activity	Average Budget	Average Annual Cost to Maintain Current LOS	Average Annual Cost for Proposed LOS
Disposal	\$0	\$0	\$0
Growth (DC Study)	\$364,775	\$364,775	\$364,775
Non-Infrastructure	\$52,000	\$52,000	\$52,000
Renewal, Rehabilitation & Replacement	\$2,746,612	\$6,536,228	\$7,603,948
Service Improvement	\$496,392	\$496,392	\$496,392
Total	\$3,659,779	\$7,449,395	\$8,517,116
Capital Funding Gap		\$3,789,616	\$4,857,337
Operations & Maintenance	\$8,994,397	\$9,068,342	\$9,068,342
Operation & Maintenance Required to Accommodate Growth		\$73,945	\$73,945
Total Expenditures	\$12,654,177	\$16,517,737	\$17,585,458
Total Funding Gap		\$3,863,561	\$4,931,281
Gap as Percentage of CRV		1.39%	1.77%

With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Facilities infrastructure for current and future generations.

The activities and strategies listed within this chapter also provide the City's best chance to avoid the risks associated with asset ownership. The risks associated with not following the lifecycle strategies and activities can be significant and wide-ranging, which are further explained in Section 12.2.2 Risk Associated with Lifecycle Strategies. Addressing these risks requires a proactive approach to infrastructure planning, investment, and management. By prioritizing operations and maintenance, asset renewal and strategic investments, the City can enhance resilience and sustainability.

7.5 Data Confidence and Improvement Plan

The main data source and overall data confidence for Facilities assets is in Table 7-8.

Table 7-8. Data Confidence – Facilities

Asset Type	Data Source	Data Confidence
All	Building Condition Assessment (Spreadsheets)	A

7.5.1 Recommendations for Improvements

Opportunities for improvement for the Facilities include:

- Inventory/Asset Register – add into a repository for asset registers to track work against this inventory, keep up to date.
- Document processes, regular intervals for condition assessments.
- Develop and implement an inspection and preventative maintenance program across all assets and evaluate the effectiveness and suitability of interventions.
- As work is completed, review cost estimates for their accuracy, continue to update information as new/improved information becomes available.



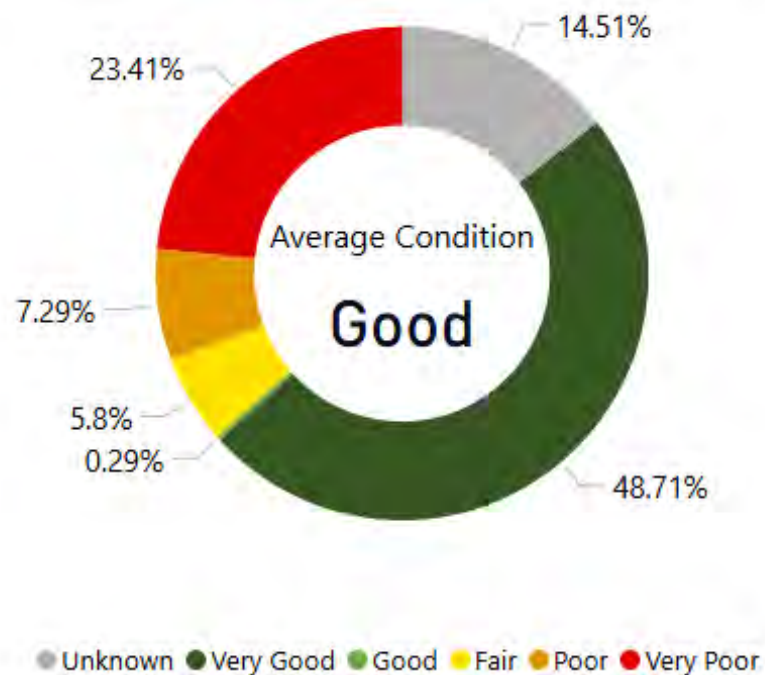
Fire



Replacement Value

\$47,613,930

Overall Average Asset Condition



Quick Facts

Fire has:

- Over 2,000 pieces of equipment and 23 fleet that is maintained for safe use
- 3 Fire Facilities providing service throughout the City of Welland

8 Fire

8.1 State of the Infrastructure

Welland's Fire service area is made up of the facilities, fleet and equipment used to support the City's fire fighting services. Table 8-1 below shows the full inventory and estimated replacement cost for this service area.

Table 8-1. Inventory and Current Replacement Value – Fire

Asset Type	Count	Quantity Unit	2024 Estimated Replacement Value
Equipment	2,334	Each	\$6,983,314
Facilities	3	Each	\$26,728,000
Fleet	23	Each	\$13,902,616
Total			\$47,613,930

City staff worked together to compile data on Fire assets from Fire's reporting system, as well as to fill any gaps in the information provided.

8.1.1 Asset Condition

Overall, Fire assets are in **Good Condition**.

Fire assets were assigned conditions based on age and estimated service life. The condition ratings scale is in Table 8-2.

Table 8-2. Condition Rating – Fire

Condition	Age/ESL
Very Good	>80% life remaining
Good	60–80% life remaining
Fair	40–60% life remaining
Poor	20–40% life remaining
Very Poor	0–20% life remaining
Unknown	

A breakdown of the condition distribution based on asset value is shown in Figure 8-1 and Figure 8-2 below. As these figures demonstrate, almost half of the asset value is in Very Good condition.

Condition information is not available for most fire equipment assets, as a result of missing install dates for the assets provided. It is recommended that this information continue to be collected on an on-going basis. Although there are no gaps in Facilities and Fleet for Fire, it is recommended that the facilities be broken down further by component similar to other City facilities.

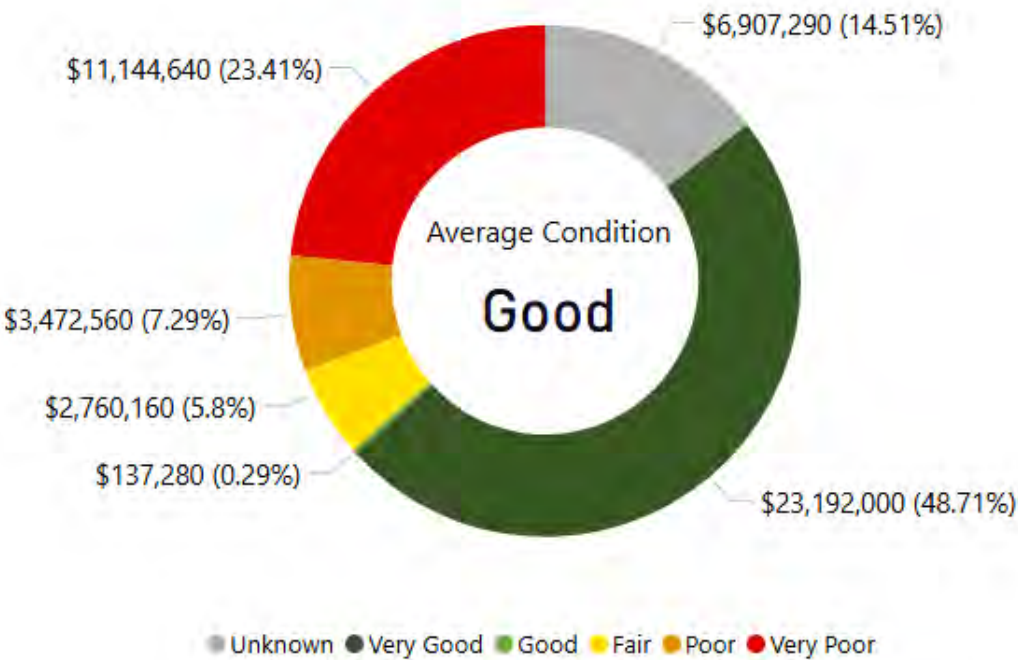


Figure 8-1. Fire Condition Distribution (By Replacement Value) – Overall

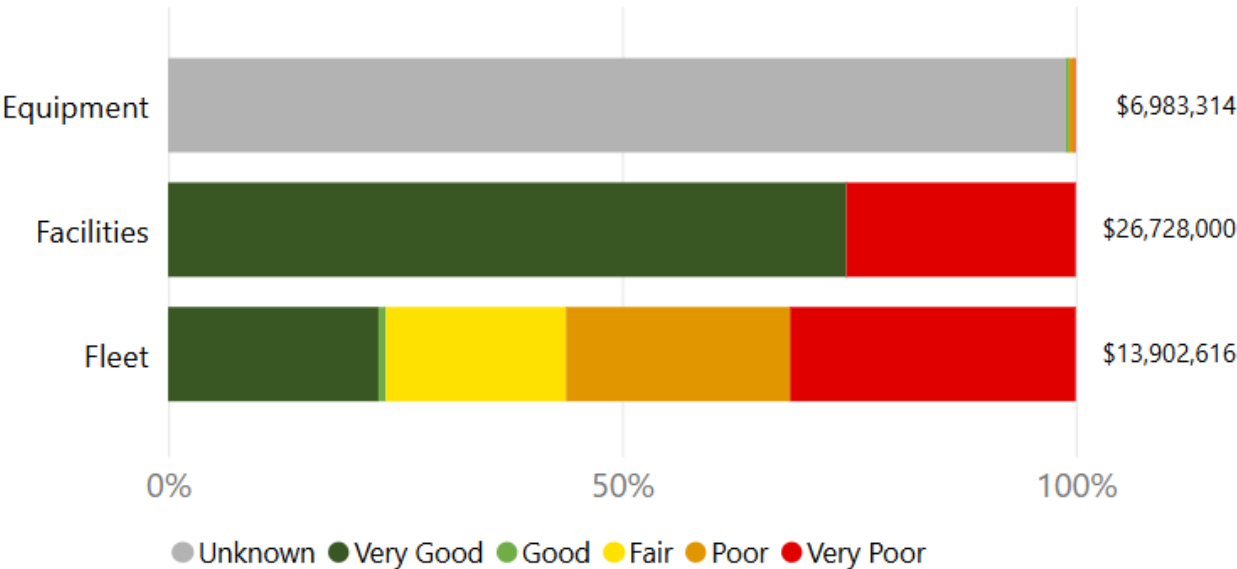


Figure 8-2. Fire Condition Distribution (By Replacement Value) – Asset Category Breakdown

Two of three facilities were recently installed in 2022, which is reflected in the asset category's very good condition. The facilities have been assessed as one asset. It is recommended that these assets be broken down by component while they are in very

good condition, and that the information be maintained on an ongoing basis. If the City wishes to maintain these assets in a state of good repair and prolong the life of these assets it is essential that planning start at the beginning of their life to ensure appropriate maintenance procedures are being completed and tracked against these assets.

8.1.2 Average Age

A breakdown of the average age and estimated service life (ESL) per asset category is provided in Figure 8–3. As this figure demonstrates, on average, Fire assets have not yet reached their ESL. Fleet assets are close to half life remaining, which is also reflected in the condition of these assets. It should be noted the average age of assets for equipment only includes known values. The City should continue their efforts to fill in gaps in this asset category.

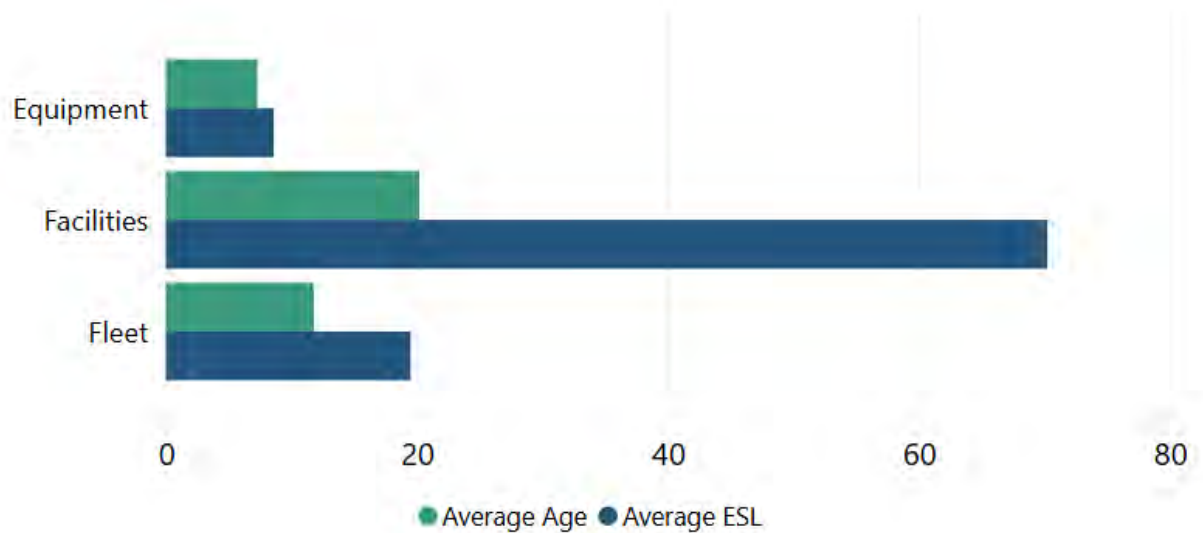


Figure 8–3. Fire Average Age vs. ESL – Asset Category Breakdown

8.2 Levels of Service

Fire plays a crucial role in safeguarding communities during crises and disasters, as well as provide public education. Services that Fire provides the community include coordination and response to emergencies, infrastructure protection, public safety and security, disaster preparedness and planning, as well as public education and fire prevention.

Levels of service refer to specific parameters that describe the extent and quality of services that a municipality provides to its residents. These parameters largely dictate the need for infrastructure, resources, and ultimately the costs associated with providing a service. In the context of this AMP, LOS are outlined based on legislated metrics, and City defined metrics. These levels of service are described from a community experiential perspective and may include both qualitative and technical metrics.

The LOS metrics and the current and proposed performance are detailed in Table 8-3. KPIs are listed in Table 8-4, which are metrics that do not have a target set but will allow the City to monitor the progress in implementing this AMP on an annual basis.

Proposed, or target LOS, are required to be defined within this AMP, along with a financial strategy to achieve the targets. The proposed change between the current level of service and proposed level of service has been documented in the table below. For Fire, maintain current LOS was set as the proposed target for LOS, which would ensure that backlog does not increase, and which sees a marginal increase in condition.

Table 8-3. Level of Service – Fire

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Technical LOS				
I have quality services	Total Backlog (Backlog as a Percent of Total Replacement Value)	\$15.4M (32.4%)	\$15.4M (32.4%)	↔
I have quality services	Percentage of total replacement cost of assets in good to very good condition	49.39%	51% (10-year average)	↗

Table 8-4. Key Performance Indicator – Fire

Key Service Attribute	Performance Measure	Current Performance (2024)
Community LOS		
My City maintains what it owns	Current reinvestment rate	3.58%
My City maintains what it owns	Cost per household	\$775.78
Technical LOS		
My City maintains what it owns	Percent of fire assets in conformance with lifecycle strategy	99.78%
I have access to services when I need them	Demand on service delivery	2,613
I have access to services when I need them	Overall incident response time average, percentage of responses that fell below 5-minute arrival of 4 firefighters.	34%

8.3 Lifecycle Management Strategy

The objective of the Lifecycle Management Strategy is to outline and establish a set of planned actions, based on best practice that will enable our assets to provide a sustainable level of service, while managing risk at the lowest lifecycle cost.

The City continues to improve its approach to the management of its assets and will continue to put in place processes, procedures, and tools to enable a more consistent approach across the City's Service Areas. Detailed below is a brief overview of some of the current asset management practices in place across the City.

8.3.1 Lifecycle Activities

Specific lifecycle activities, or planned actions, for Fire are outlined in Table 8-5. These activities have been broken down into the Lifecycle Categories detailed in Section 1.4 and detail the activities that take place during the asset's lifecycle. Lifecycle activities ultimately help provide efficiencies and ensure assets can continue providing services at the level required, and at the lowest possible cost. Completing these activities will ensure the expected service function and reliability of the assets.

Renewal, Rehabilitation and Replacement activities have been incorporated into the infrastructure needs forecast scenarios that are included in Section 8.4. Non-Infrastructure Solutions, Operations and Maintenance, Service Improvement and Growth Activities have been incorporated in the full-lifecycle cost of these assets but have not been analyzed for their adequacy to meet the City's needs.

By implementing these lifecycle activities, the City can effectively manage their Fire assets, optimize operational efficiency, minimize costs, ensure regulatory compliance, and maximize the value and lifespan of their assets. These activities are also critical for maintaining safe and efficient infrastructure. Following the lifecycle activities and strategies will ensure the City can avoid risks associated with asset ownership. These risks are further outlined in Section 12.2.2. Implementing the lifecycle activities and strategies in this plan will enhance the resilience and sustainability of infrastructure while mitigating potential risks.

Table 8-5. Lifecycle Management Activities – Fire

Asset Management Practices / Planned Actions	Frequency
Non-Infrastructure	
Condition assessments (buildings and fleet)	As scheduled
Operations & Maintenance Activities	
Planned maintenance	As required
Reactive maintenance	As required
Equipment inspections	As scheduled
Purchase of personal protective and rescue equipment, small equipment, and materials	As required
Renewal/Replacement Activities	
Replacement	As scheduled
Spare fire fleet replacement	As required
Disposal Activities	
Sell-off vehicles, fleet and equipment	As required
Service Improvement & Growth Activities Planned	
New assets to accommodate growth	As required
New assets as a part of increased service requirements	As identified

8.4 Funding the Lifecycle Activities

The City uses the lifecycle management strategies described above in Section 8.3 to plan work and determine future expenditure needs for Fire assets. These activities, along with the scenarios outlined below provide a comprehensive forecast of expenditures required for managing infrastructure assets and ensuring the City can meet the demands of current services and existing infrastructure.

The scenarios below forecast renewal, rehabilitation and replacement lifecycle activity cost and needs. These lifecycle activities ensure infrastructure remains in a state of good repair and can continue to provide services to residents. Further details of the funding required for the remaining lifecycle activities (non-infrastructure, service improvements, operations and maintenance, and growth) can be found below, found in Figure 8-5, which are informed based on the City's capital and operating budgets, and the latest DC Background Study. For the purposes of this AMP, these activities, and their costs, are assumed to be enough to meet the community's expectations. This AMP does not provide an analysis on optimizing these activities and costs, with the exception of required expenditures for operations and maintenance to accommodate growth.

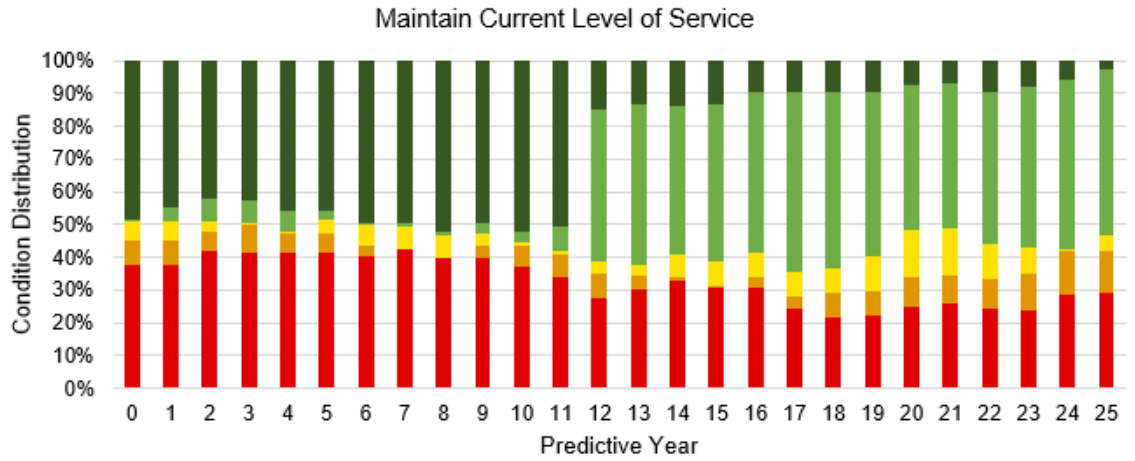
The City has implemented Predictor, which is a Decision Support System to continue its efforts to make informed decisions on asset investments. This tool has been used for the analysis of the scenarios outlined below. The condition profiles provide an outlook to the performance of assets for 25 years. For the purposes of this AMP, the scenario comparison and infrastructure gap has only been evaluated for the next 10 years, as required by O.Reg. 588/17.

An overview of the scenarios that were evaluated for the purposes of this AMP include:

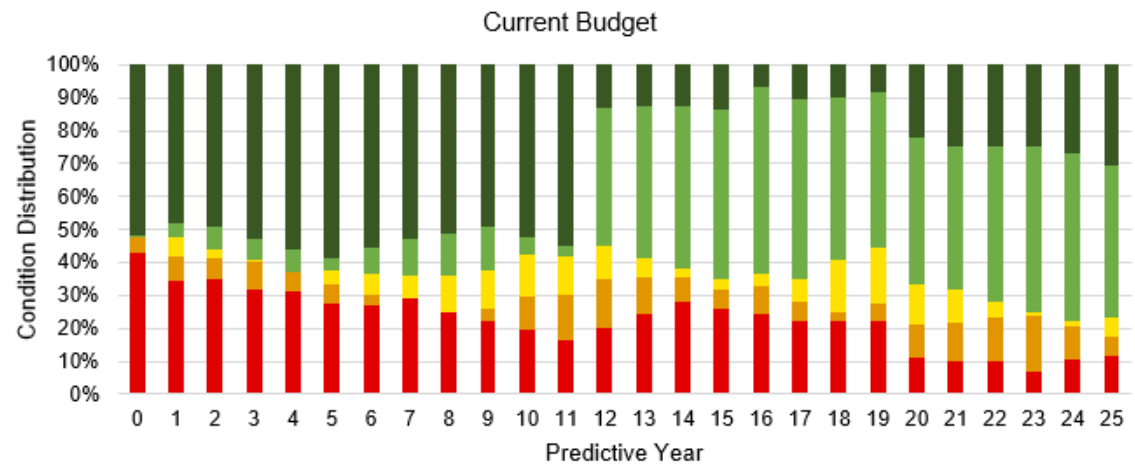
- **Scenario 1: Maintain Current Level of Service** – This scenario aims to maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.
- **Scenario 2: Current Funding** – This scenario forecasts the condition of the assets under the current funding level that the City anticipates allocating towards each asset category. The current budgets were obtained from the City's 2023 budget and is used as the average spending for the 10-year forecast. This is used to illustrate the change in performance (condition) under anticipated funding levels. Only renewal, rehabilitation and replacement activities are completed that fit within the current funding allotted to the asset category are completed as part of this forecast.
- **Scenario 3: Proposed Levels of Service** – This scenario determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

The impacts to the condition of the City's assets based on the described scenarios and the associated costs and comparison of these scenarios can be found in Figure 8-4.

Average
Annual
Renewal,
Rehab &
Replacement:
\$822K



Average
Annual
Renewal,
Rehab &
Replacement:
\$1.7M



Average
Annual
Renewal,
Rehab &
Replacement:
\$822K

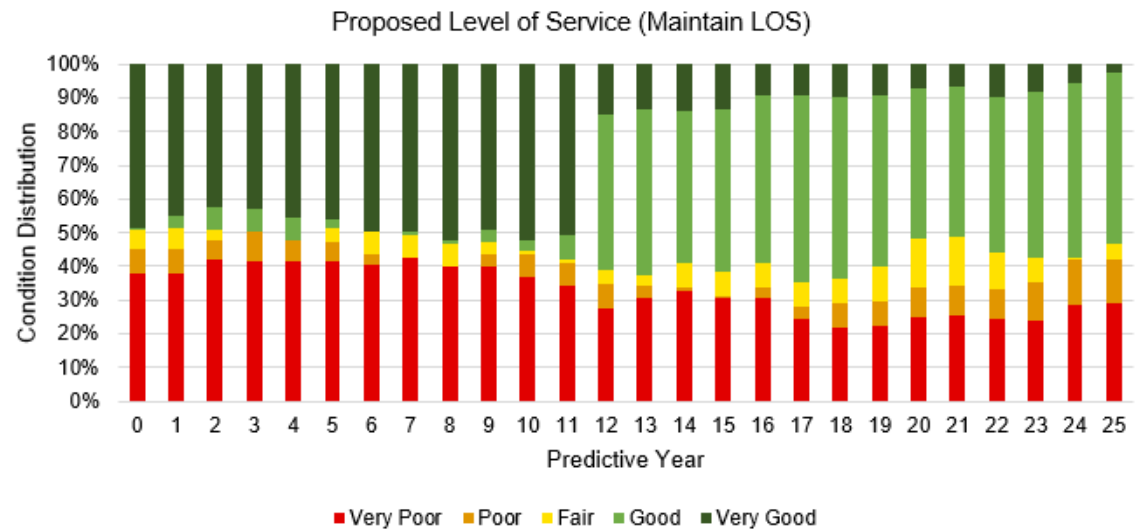


Figure 8-4. Condition Profile for Service Level Scenarios – Fire

For the assets within this service area, PLOS was established to maintain current LOS. Therefore, the performance forecast for this scenario is the same as the forecast for Scenario 1 (Maintain Current LOS). This scenario sees an improvement in the overall condition of the assets, while also ensures the backlog does not increase. The anticipated annual budget needed for this scenario (to achieve PLOS) was determined to be \$822K for renewal, rehabilitation and replacements.

In Scenario 2, the anticipated annual funding for Fire is approximately \$1.7M for renewals, rehabilitations and replacements. The condition distribution shows that the overall condition is expected to improve over the 25-year forecast with the current anticipated budget allocations, and there is no capital gap for fire assets to reach PLOS.

By comparing the above scenarios, City staff are able to determine if there are any gaps in funding to address infrastructure needs. This information is intended to support decision-making on how to address any gaps. The compiled expenditure needs under each of the three forecast scenarios are presented in Figure 8-5 which illustrates a bar graph of forecasted renewal, rehabilitation and replacement expenditures which is represented as the infrastructure needs based on Scenario 3. The remaining lifecycle expenditures, which have been informed on the City's 2023 operating and capital budget, have been colour coded by lifecycle activities. The solid and dashed lines represent the equivalent annual average investment needs of the three scenarios described above.

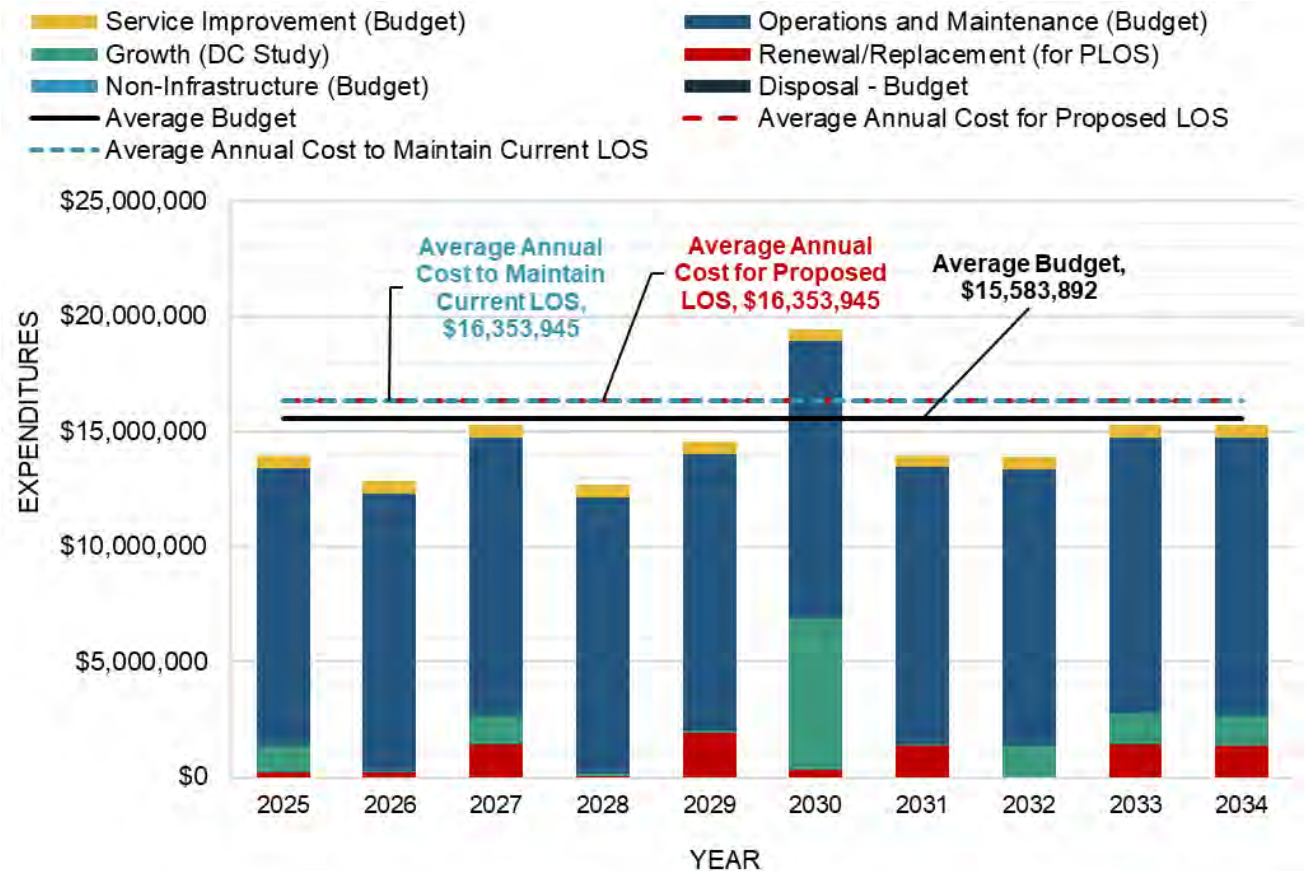


Figure 8-5. Fire Scenario Comparison

The scenario comparison indicates that there is an average annual funding gap of \$770K to achieve the proposed LOS for Fire assets, which is a result of the operating expenses required to accommodate growth.

The growth and operations and maintenance expenditures shown in Figure 8-5 are shown in greater detail in Figure 8-6, which estimates the annual funding required for operations and maintenance to accommodate growth. The growth expenditures were informed by the City’s most recent DC Background Study, which were added to the City’s current replacement value to forecast the future expenditures required. The expenditures currently being spent on operations and maintenance were compared to the current replacement value to determine a percent of replacement value being spent on these activities. This percent was then applied to the current replacement value with the addition of growth expenditures to determine if any additional expenditures would be required to accommodate growth. Based on this analysis, it is anticipated additional support for operations and maintenance will be required for the increasing asset portfolio, as shown in Figure 8-6. This analysis assumes that the amount currently spent on O&M is adequate to meet the City’s needs, the identified additional cost required is strictly to address growth. Optimizing maintenance and leveraging new technologies can enhance operational efficiency and extend the lifespan of assets, ensuring that assets being provided and maintained at the lowest possible cost.

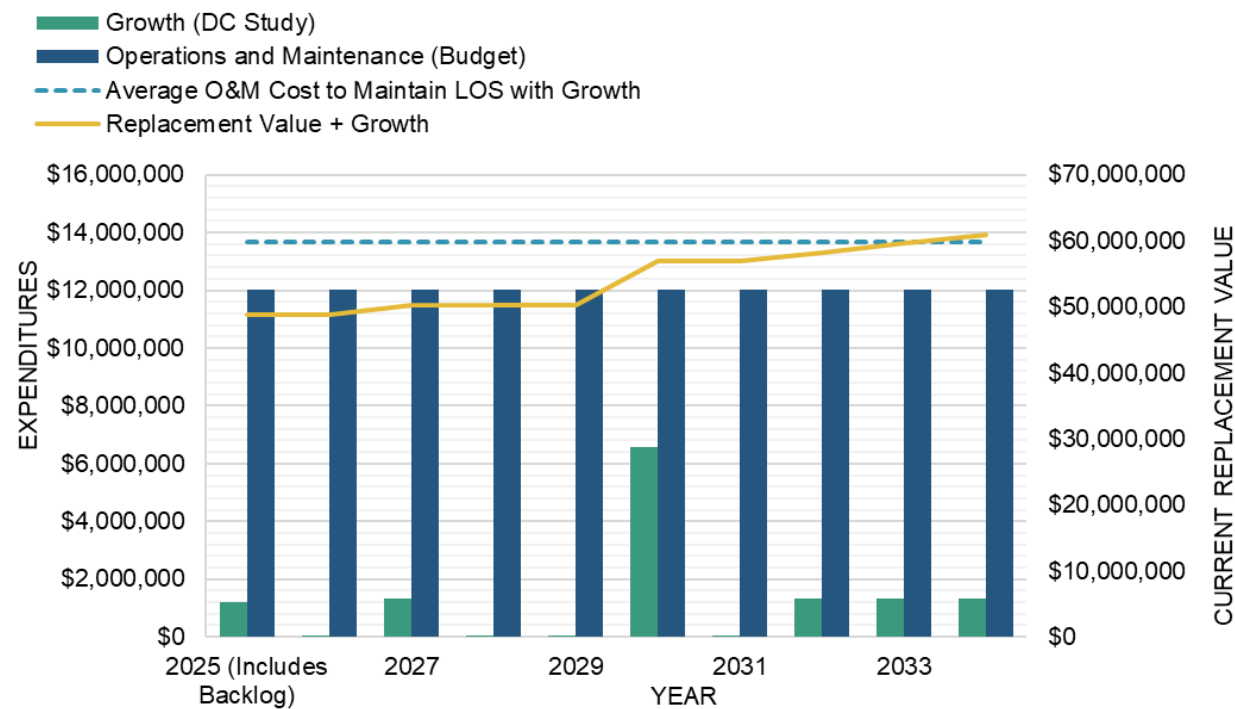


Figure 8-6. Growth – Operations & Maintenance Considerations – Fire

An additional \$770K annual O&M expenditures will be required to accommodate growth based on the 10-year growth forecast and established O&M service levels and is assumed to be sufficient in meeting both current and proposed service levels.

Table 8-6 illustrates that total renewal, rehabilitation, and replacement expenditures of \$822K are needed to sustain the current LOS and achieve the PLOS, compared to the average annual budget of \$1.7M. There are no annual capital funding gaps to maintain current LOS and achieve proposed LOS.

Table 8-6. Lifecycle Activity Investments & Annual Average Infrastructure Gap – Fire

Lifecycle Activity	Average Budget	Average Annual Cost to Maintain Current LOS	Average Annual Cost for Proposed LOS
Disposal	\$0	\$0	\$0
Growth (DC Study)	\$1,329,994	\$1,329,994	\$1,329,994
Non-Infrastructure	\$0	\$0	\$0
Renewal, Rehabilitation & Replacement	\$1,689,795	\$822,962	\$822,962
Service Improvement	\$531,476	\$531,476	\$531,476
Total	\$3,551,266	\$2,684,433	\$2,684,433
Capital Funding Gap		No Gap	No Gap
Operations & Maintenance	\$12,032,626	\$13,669,511	\$13,669,511
Operation & Maintenance Required to Accommodate Growth		\$1,636,885	\$1,636,885
Total Expenditures	\$15,583,892	\$16,353,945	\$16,353,945
Total Funding Gap		\$770,053	\$770,053
Gap as Percentage of CRV		1.6%	1.6%

With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Fire assets for current and future generations.

The activities and strategies listed within this chapter also provide the City's best chance to avoid the risks associated with asset ownership. The risks associated with not following the lifecycle strategies and activities can be significant and wide-ranging, which are further explained in Section 12.2.2 Risk Associated with Lifecycle Strategies. Addressing these risks requires a proactive approach to infrastructure planning, investment, and management. By prioritizing operations and maintenance, asset renewal and strategic investments, the City can enhance resilience and sustainability.

8.5 Data Confidence and Improvement Plan

The main data sources and overall data confidence for Fire assets is in Table 8-7.

Table 8-7. Data Confidence – Fire

Asset Type	Data Source	Data Confidence
Equipment	Spreadsheet Emergency Reporting Staff	B
Facilities	Spreadsheet	C
Fleet	Spreadsheet	B

8.5.1 Recommendations for Improvements

Opportunities for improvement for the Fire assets include:

- Inventory/Asset Register
 - o Document sources of information used to inform this AMP.
 - o Continue to maintain and enhance asset register.
 - o Facilities – complete condition assessment and break down facilities by major components as per Unifomat, and in line with other City facility assets to provide a more accurate reflection of the assets, as well as for more accurate forecasting.

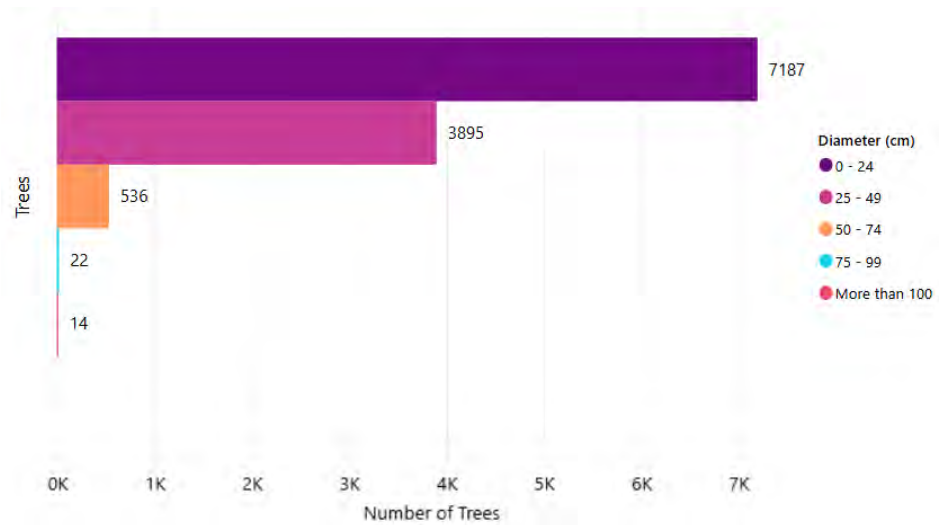


Forestry

Replacement Value

\$9,090,120

Tree Distribution by Diameter



Quick Facts

Forestry has

- Over 11,000 trees including street and memorial trees planted within our inventory
- Various native and non-native species planted throughout the City

9 Forestry

9.1 State of the Infrastructure

Welland's Forestry service area is made up of the trees planted and maintained by the City. The inventory currently includes street trees and memorial trees. Many trees are not included in the current inventory as there has not been any data collected for them. Examples of additional trees that have not been included in the inventory are trees in parks, cemeteries, woodlots, and trails. The City expects that the total inventory will at least double once information is collected for these additional trees. Table 9-1 below shows the current inventory and estimated replacement cost for this service area.

Table 9-1. Inventory and Current Replacement Value – Forestry

Asset Type	Count	Quantity Unit	2024 Estimated Replacement Value
Trees	11,654	Each	\$9,090,120
Tree Canopy	291.8	Ha.	\$50,728,263 ⁶
Total			\$59,818,383

The City currently has over 11,000 trees in their inventory. As stated above, the City expects that this number will at least double once trees are inventoried throughout other areas of the City. The replacement value has been identified as \$780 per tree. It is recommended the City continues to expand on the information available regarding their trees and evaluate options to assess this asset category. As one strategic priority is Environmental Stewardship, and to expand the canopy, this asset category will continue to be improved upon and expanded as the City works toward their goals.

The 2025 AMP was updated to include tree canopy. It is recommended that the City further assess forestry assets to include further details in future iterations of this plan. As there was limited information available on the tree canopy, this was not included in the forecasted needs for Forestry assets.

Tree canopy is important to the City for a range of environmental, social and economic reasons. Including trees in asset management allows the City to make informed, sustainable decisions about planting, maintenance, and replacement.

⁶ Based on \$173,846/ha for reforestation planting ([NAI-NAM-guidance-document-v105.pdf](#))

9.1.1 Asset Condition

Condition values for the trees are unknown at this time. The City will continue to look for opportunities on how to accurately assess this increasingly important asset category.

9.1.2 Average Age

Trees differ from all other assets in this asset management plan, as they do not decrease in value as they age. Trees increase in value as they age, as they provide more benefits to the community as they grow larger. Age is not currently collected for trees. It is recommended that the City start collecting age information for newly planted trees. Figure 9-1 below shows the count of trees by diameter at breast height measurement to show a distribution of the maturity of urban threes throughout the City of Welland.

Based on this data, the majority of the trees in the City are younger (smaller diameter), as tree diameter can be used to estimate the age of trees, and trees will roughly increase in diameter by 2.5 cm a year.

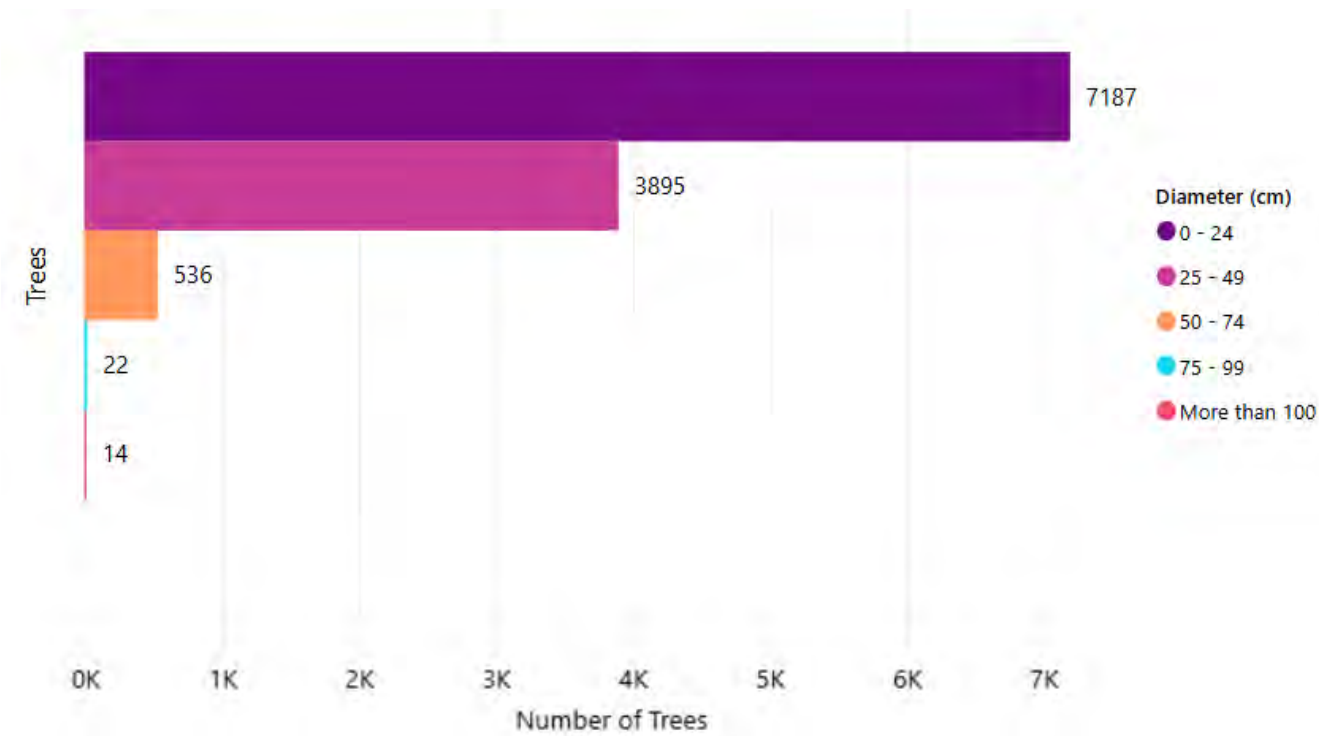


Figure 9-1. Count of Trees by Diameter at Breast Height (cm)

9.2 Levels of Service

Trees within the City provide many benefits to the community such as cost savings by integrating natural assets into City planning to reduce the need for expensive engineered infrastructure for flood control, erosion control and flood mitigation, climate resilience, and healthy and well-being.

Levels of service refer to specific parameters that describe the extent and quality of services that a municipality provides to its residents. These parameters largely dictate the need for infrastructure, resources, and ultimately the costs associated with providing a service. In the context of this AMP, LOS are outlined based on legislated metrics, and City defined metrics. These levels of service are described from a community experiential perspective and may include both qualitative and technical metrics.

The LOS metrics and the current and proposed performance are detailed in Table 9-2. KPIs are listed in Table 9-3, which are metrics that do not have a target set but will allow the City to monitor the progress in implementing this AMP on an annual basis.

Proposed, or target LOS, are required to be defined within this AMP, along with a financial strategy to achieve the targets. As there is limited information on Forestry assets, the city-defined LOS metrics are unable to be reported on but have been included here for future reference.

Table 9-2. Level of Service – Forestry

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Technical LOS				
I have quality services	Total Backlog (Backlog as a Percent of Total Replacement Value)	Unknown	Unknown	N/A
I have quality services	Percentage of total replacement cost of assets in good to very good condition	Unknown	Unknown	N/A

Table 9-3. Key Performance Indicators – Forestry

Key Service Attribute	Performance Measure	Current Performance (2024)
Community LOS		
My City maintains what it owns	Current reinvestment rate	2.4%
My City maintains what it owns	Cost per household	\$34.37
Technical LOS		
My City is considerate of the environment	Percent of canopy coverage	22.1% As per the most recent report by the Niagara Region
My City maintains what it owns	Number of tree inspections per year	332 Inspections were completed in 2023
My City is considerate of the environment	Trees planted per year	357 trees planted by city staff in 2023 (this does not include capital projects or trees planted by outside organizations on city lands)

9.3 Lifecycle Management Strategy

The objective of the Lifecycle Management Strategy is to outline and establish a set of planned actions, based on best practice that will enable our assets to provide a sustainable level of service, while managing risk at the lowest lifecycle cost.

The City continues to improve its approach to the management of its assets and will continue to put in place processes, procedures, and tools to enable a more consistent approach across the City's Service Areas. Detailed below is a brief overview of some of the current asset management practices in place across the City.

9.3.1 Lifecycle Activities

Specific lifecycle activities, or planned actions, for Forestry are outlined in Table 9-4. These activities have been broken down into the Lifecycle Categories detailed in Section 1.4 and detail the activities that take place during the asset's lifecycle. Lifecycle activities ultimately help provide efficiencies and ensure assets can continue providing services at the level required, and at the lowest possible cost. Completing these activities will ensure the expected service function and reliability of the assets.

Renewal, Rehabilitation and Replacement activities have been incorporated into the infrastructure needs forecast scenarios that are included in Section 9.4. Non-Infrastructure Solutions, Operations and Maintenance, Service Improvement and Growth Activities have been incorporated in the full-lifecycle cost of these assets but have not been analyzed for their adequacy to meet the City's needs.

By implementing these lifecycle activities, the City can effectively manage their Forestry assets, optimize operational efficiency, minimize costs, ensure regulatory compliance, and maximize the value and lifespan of their assets. These activities are also critical for maintaining safe and efficient infrastructure. Following the lifecycle activities and strategies will ensure the City can avoid risks associated with asset ownership. These risks are further outlined in Section 12.2.2. Implementing the lifecycle activities and strategies in this plan will enhance the resilience and sustainability of infrastructure while mitigating potential risks.

Table 9-4. Lifecycle Management Activities – Forestry

Asset Management Practices / Planned Actions	Frequency
Non-Infrastructure	
Canopy Coverage Study	5 Years
Operations & Maintenance Activities	
Tree inspections	As required
Planned Tree Maintenance (trimming, pruning, stumping, and road clearance)	As required
Emergency maintenance (pruning and removal)	As required
Renewal/Replacement Activities	
Deep root fertigation, propping, cabling	As identified
Landscape renewal	As required
End of life replacement of trees (Street Trees)	As required
Disposal Activities	
Recycling of removed material	As required
Service Improvement & Growth Activities Planned	
Street Tree Planting Program (New Development)	As required
Memorial Tree Planting Program	As required
Tree Planting initiatives through partnerships and grants	As identified
Earth Day Give Away Program	Annual

9.4 Funding the Lifecycle Activities

The City uses the lifecycle management strategies described above in Section 9.3 to plan work and determine future expenditure needs for Forestry assets. These activities, along with the scenarios outlined below provide a comprehensive forecast of expenditures required for managing infrastructure assets and ensuring the City can meet the demands of current services and existing infrastructure.

The scenarios for Forestry were not able to be modeled, because there was no condition data for trees. For trees, the lifecycle strategy includes renewing a percentage of the trees every year, which is approximately \$182k required annually. If the City wants to grow the urban canopy to be in line with other municipal leaders, expanding environmental benefits, this number will be required to be increased.

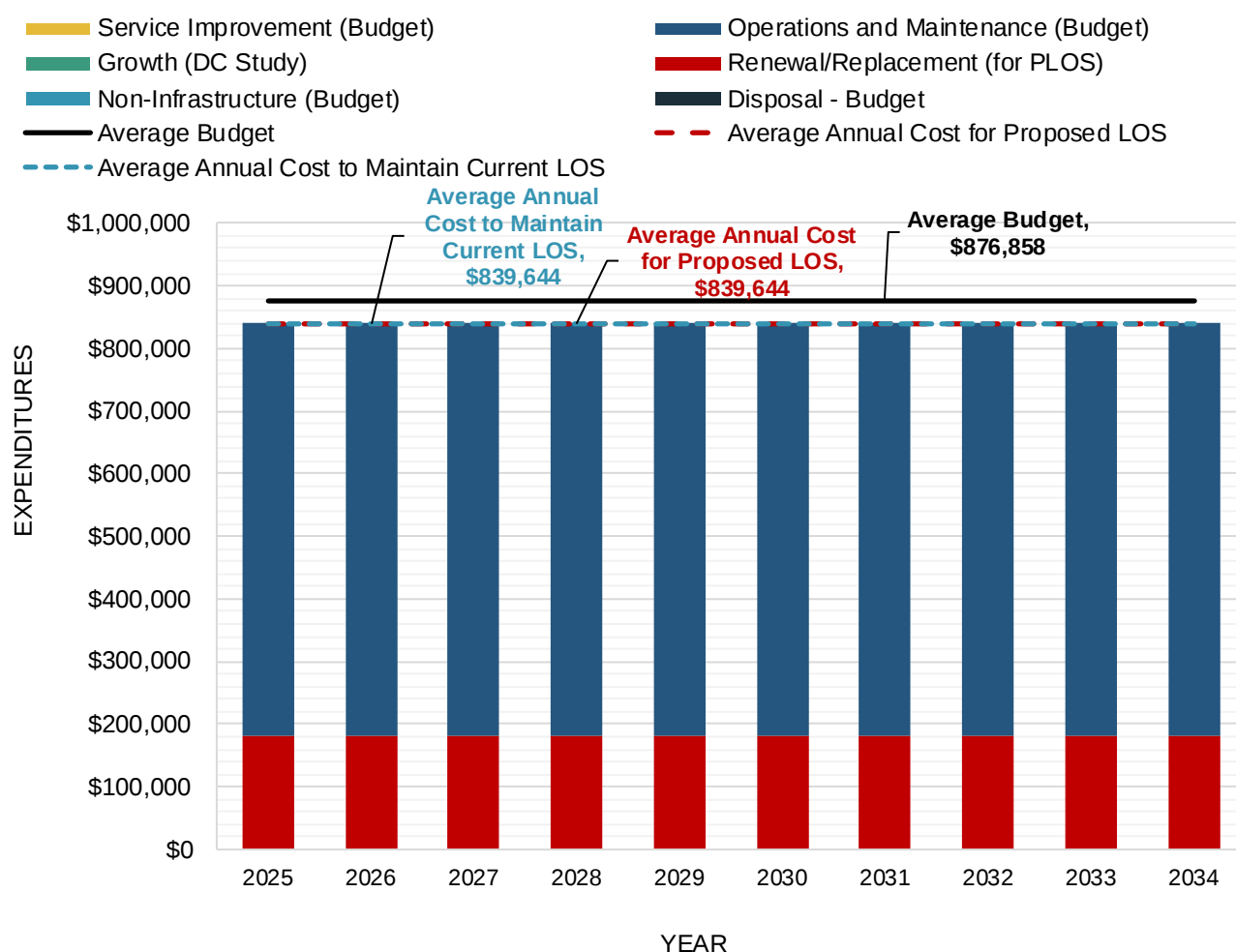


Figure 9-2. Forestry Scenario Comparison

Figure 9-2 highlights the lifecycle expenditures required and any identified funding gaps, to support informed decision-making. At this time, there no additional operational and maintenance needs have been identified as no growth has been forecasted for forestry assets.

The infrastructure gap is summarized below in Table 9–5. At this time, the gap for forestry assets is considered unknown as there is not enough information to provide an accurate forecast of the needs.

Table 9–5. Lifecycle Activity Investments & Annual Average Infrastructure Gap – Forestry

Lifecycle Activity	Average Budget	Average Annual Cost to Maintain Current LOS	Average Annual Cost for Proposed LOS
Disposal	\$0	\$0	\$0
Growth (DC Study)	\$0	\$0	\$0
Non-Infrastructure	\$0	\$0	\$0
Renewal, Rehabilitation & Replacement	\$219,214	\$182,000	\$182,000
Service Improvement	\$0	\$0	\$0
Total	\$219,214	\$182,000	\$182,000
Capital Funding Gap		Unknown⁷	Unknown
Operations & Maintenance	\$657,644	\$657,644	\$657,644
Operation & Maintenance Required to Accommodate Growth		\$0	\$0
Total Expenditures	\$876,858	\$839,644	\$839,644
Total Funding Gap		Unknown⁷	Unknown⁷
Gap as Percentage of CRV		Unknown⁷	Unknown⁷

With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Forestry assets for current and future generations.

The activities and strategies listed within this chapter also provide the City’s best chance to avoid the risks associated with asset ownership. The risks associated with not following the lifecycle strategies and activities can be significant and wide-ranging, which are further explained in Section 12.2.2 Risk Associated with Lifecycle Strategies. Addressing these risks requires a proactive approach to infrastructure planning, investment, and management. By prioritizing operations and maintenance, asset renewal and strategic investments, the City can enhance resilience and sustainability.

⁷ The funding gap for forestry is unknown, as there is not enough information to provide an accurate forecast of the needs of this asset group.

9.5 Data Confidence and Improvement Plan

The main data source and overall data confidence for Forestry assets is in Table 9-6.

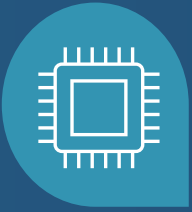
Table 9-6. Data Confidence – Forestry

Asset Type	Data Source	Data Confidence
Trees	GIS	C

9.5.1 Recommendations for Improvements

Opportunities for improvement include:

- Improving the completeness of the tree inventory by collecting data on additional City owned trees in locations such as parks, trails, cemeteries and woodlots.
- Improve the quality of data – collect condition information by completing tree assessments, collect data on diameter to determine approximate age, etc.
- Complete initial assessment on each tree, additional assessments once every 5 years following initial assessment.
- Begin tracking age data for new trees planted.
- Report on the number of trees removed each year.
- Adopt an industry accepted valuation practice for trees such as CTLA or iTree.
- Collect more information on additional types of green infrastructure.
- Develop an Urban Forestry Master Plan.
- Public education and outreach.
- Develop processes to preserve and replace trees for Welland Hydro, Public Works and others as these projects often impacts the tree canopy.
- Evaluating City wide spray programs for pest and disease.
- Develop and implement a park tree inspection program.
- Develop and implement a proactive tree maintenance program.

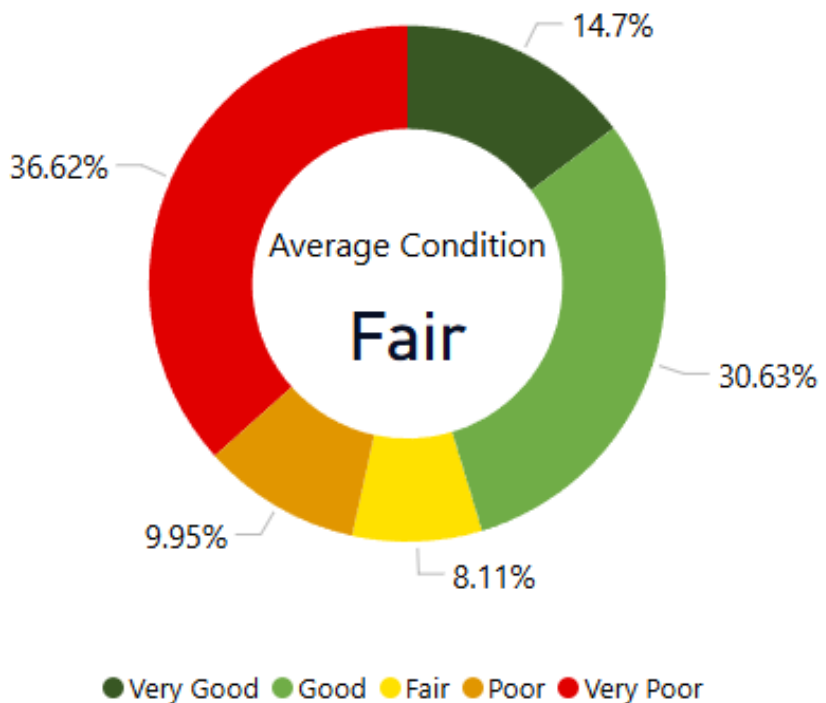


Information Systems

Replacement Value

\$2,649,669

Overall Average Asset Condition



Quick Facts

Information Systems:

- Supports all areas of service delivery throughout the City
- Maintains hardware including printers, servers, smartphones, tablets, workstations and fiber network

10 Information Systems

10.1 State of the Infrastructure

Welland's Information Systems is made up of the electronic devices used to support City services. Information Systems is a unique asset class within the AMP, as the assets have a much shorter lifespan than the majority of the assets within the municipality. They also impact every department in the City and are necessary to support the operation of all other City services. Table 10-1 below shows the full inventory and estimated replacement cost for this service area.

Table 10-1. Inventory and Current Replacement Value – Information Systems

Asset Type	Count	Quantity Unit	2024 Estimated Replacement Value
Printers	54	Each	\$56,160
Server	24	Each	\$499,200
Smartphone	176	Each	\$146,432
Tablet	41	Each	\$42,640
Workstation	290	Each	\$717,600
Wired Fiber Network	10	Pool	\$1,187,637
Total			\$2,649,669

At the time of development of this AMP, a list of software for Information Systems was not available. It is recommended the City develop a list of software applications and their values, and expenditure needs, as this is a large operating expenditure for the City. Software is continually evolving and is critical for the effective and efficient deliver of services to residents.

10.1.1 Asset Condition

Overall, Information Systems assets are in **Fair Condition**.

Condition was assigned to Information Systems assets using age and estimated remaining life. A description of the condition rating scale can be seen in Table 10-2.

Table 10-2. Condition Rating – Information Systems

Condition	Age/ESL
Very Good	>80% life remaining
Good	60–80% life remaining
Fair	40–60% life remaining
Poor	20–40% life remaining
Very Poor	0–20% life remaining
Unknown	

A breakdown of the condition distribution based on asset value is shown in Figure 10-1 and Figure 10-2 below. As these figures demonstrate, the majority of the asset value falls at or above Fair condition. This large percentage in Very Poor condition are due to the age of the City’s servers and smartphones (see the following section).

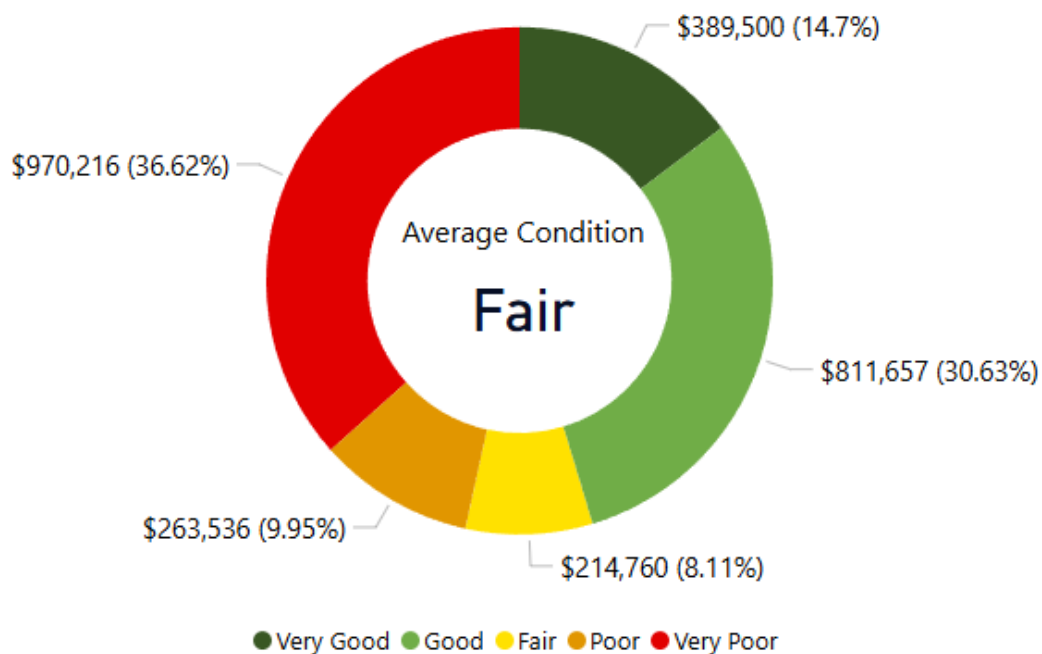


Figure 10-1. Information Systems Condition Distribution (By Replacement Value) – Overall

Information systems typically see a range of condition values, as a result of the short estimate of service life. These assets are continually being replaced as needed by the City and it is not unexpected to have a large portion in very poor.

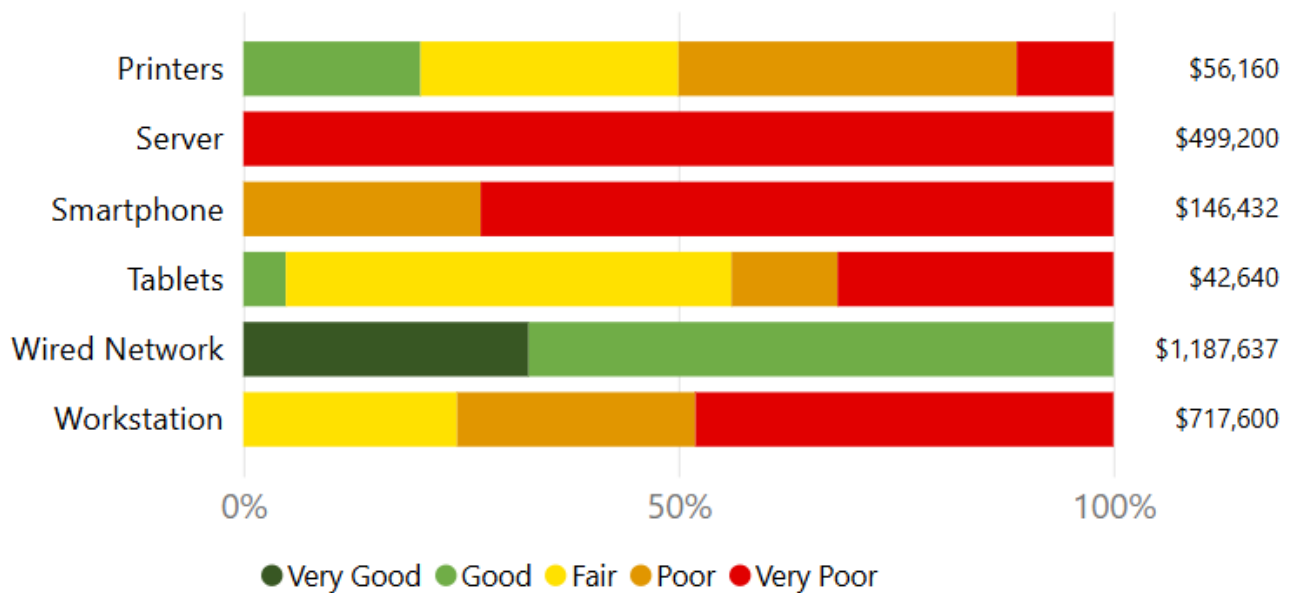


Figure 10-2. Information Systems Condition Distribution (By Replacement Value) – Asset Category Breakdown

As can be seen in Figure 10-3 below, servers are well past their estimated service life, and smart phones are at the end of their service life.

It should be noted that IT faces extreme pressures from a fast-paced environment that is continually evolving with new technology for both hardware and software, and increasingly more sophisticated threats to security. Assets past their service life could potentially increase risks to the City, if these assets are not supported for security updates.



10.1.2 Average Age

A breakdown of the average age and estimated service life (ESL) per asset category is provided in Figure 10-3. As this figure demonstrates, on average, the City's servers have surpassed their ESL and the City's smartphones are nearing the end of their ESL. The remaining Information System assets are well within their expected lifespan.

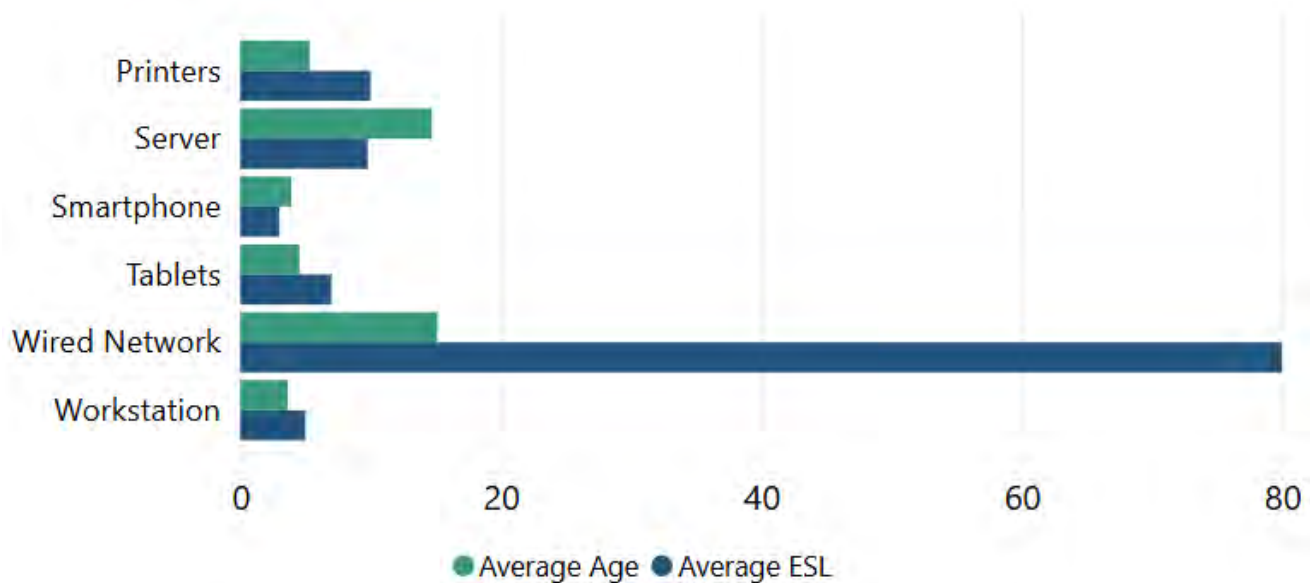


Figure 10-3. Information Systems Average Age vs. ESL – Asset Category Breakdown

10.2 Levels of Service

Levels of service refer to specific parameters that describe the extent and quality of services that a municipality provides to its residents. These parameters largely dictate the need for infrastructure, resources, and ultimately the costs associated with providing a service. In the context of this AMP, LOS are outlined based on legislated metrics, and City defined metrics. These levels of service are described from a community experiential perspective and may include both qualitative and technical metrics.

The LOS metrics and the current and proposed performance are detailed in Table 10-3. KPIs are listed in Table 10-4, which are metrics that do not have a target set but will allow the City to monitor the progress in implementing this AMP on an annual basis.

Proposed, or target LOS, are required to be defined within this AMP, along with a financial strategy to achieve the targets. The proposed change between the current level of service and proposed level of service has been documented in the table below. For Information Services, an increase to the LOS has been proposed, to decrease the current backlog and improve asset condition.

Table 10-3. Level of Service – Information Systems

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Technical LOS				
I have quality services	Total Backlog (Backlog as a Percent of Total Replacement Value)	\$1.4M (51.8%)	\$0 (Decrease)	↘
I have quality services	Percentage of total replacement cost of hardware assets in good to very good condition	54.4%	89% (10-year average)	↗

Table 10-4. Key Performance Indicators – Information Systems

Key Service Attribute	Performance Measure	Current Performance (2024)
Community LOS		
My City maintains what it owns	Current reinvestment rate	4.71%
My City maintains what it owns	Cost per household	\$89.12
Technical LOS		
My City maintains what it owns	Percent of assets maintained in conformance with defined lifecycle strategies	85.71%

10.3 Lifecycle Management Strategy

The objective of the Lifecycle Management Strategy is to outline and establish a set of planned actions, based on best practice that will enable our assets to provide a sustainable level of service, while managing risk at the lowest lifecycle cost.

The City continues to improve its approach to the management of its assets and will continue to put in place processes, procedures, and tools to enable a more consistent approach across the City's Service Areas. Detailed below is a brief overview of some of the current asset management practices in place across the City.

10.3.1 Lifecycle Activities

Specific lifecycle activities, or planned actions, for Information Systems are outlined in Table 10-5. These activities have been broken down into the Lifecycle Categories detailed in Section 1.4 and detail the activities that take place during the asset's lifecycle. Lifecycle activities ultimately help provide efficiencies and ensure assets can continue providing services at the level required, and at the lowest possible cost. Completing these activities will ensure the expected service function and reliability of the assets.

Renewal, Rehabilitation and Replacement activities have been incorporated into the infrastructure needs forecast scenarios that are included in Section 10.4.

Non-Infrastructure Solutions, Operations and Maintenance, Service Improvement and Growth Activities have been incorporated in the full-lifecycle cost of these assets but have not been analyzed for their adequacy to meet the City's needs.

By implementing these lifecycle activities, the City can effectively manage their Information Systems assets, optimize operational efficiency, minimize costs, ensure regulatory compliance, and maximize the value and lifespan of their assets. These activities are also critical for maintaining safe and efficient infrastructure. Following the lifecycle activities and strategies will ensure the City can avoid risks associated with asset ownership. These risks are further outlined in Section 12.2.2. Implementing the lifecycle activities and strategies in this plan will enhance the resilience and sustainability of infrastructure while mitigating potential risks.

Table 10–5. Lifecycle Management Activities – Information Systems

Asset Management Practices / Planned Actions	Frequency
Non-Infrastructure	
• Strategic Plan	• 5 years
• Disaster Recovery Planning	• As required
Operations & Maintenance Activities	
• Planned maintenance (PM) – updates on firmware and software	• As required
• Alerts for software updates and defective equipment	• Continuous
• Software licensing	• Annually
Renewal/Replacement Activities	
• Replacement of assets	• As scheduled
Disposal Activities	
• Disposals of assets	• As scheduled
Service Improvement & Growth Activities Planned	
• New assets to accommodate growth	• Driven by growth and to improve level of service
• New assets as a part of increased service requirements	• As identified
• New technology	• As identified by IS or other departments

10.4 Funding the Lifecycle Activities

The City uses the lifecycle management strategies described above in Section 10.3 to plan work and determine future expenditure needs for Information Systems assets. These activities, along with the scenarios outlined below provide a comprehensive forecast of expenditures required for managing infrastructure assets and ensuring the City can meet the demands of current services and existing infrastructure.

The scenarios below forecast renewal, rehabilitation and replacement lifecycle activity cost and needs. These lifecycle activities ensure infrastructure remains in a state of good repair and can continue to provide services to residents. Further details of the funding required for the remaining lifecycle activities (non-infrastructure, service improvements, operations and maintenance, and growth) can be found below, found in Figure 10–4, which are informed based on the City’s capital and operating budgets, and the latest DC

Background Study. For the purposes of this AMP, these activities, and their costs, are assumed to be enough to meet the community's expectations. This AMP does not provide an analysis on optimizing these activities and costs, with the exception of required expenditures for operations and maintenance to accommodate growth.

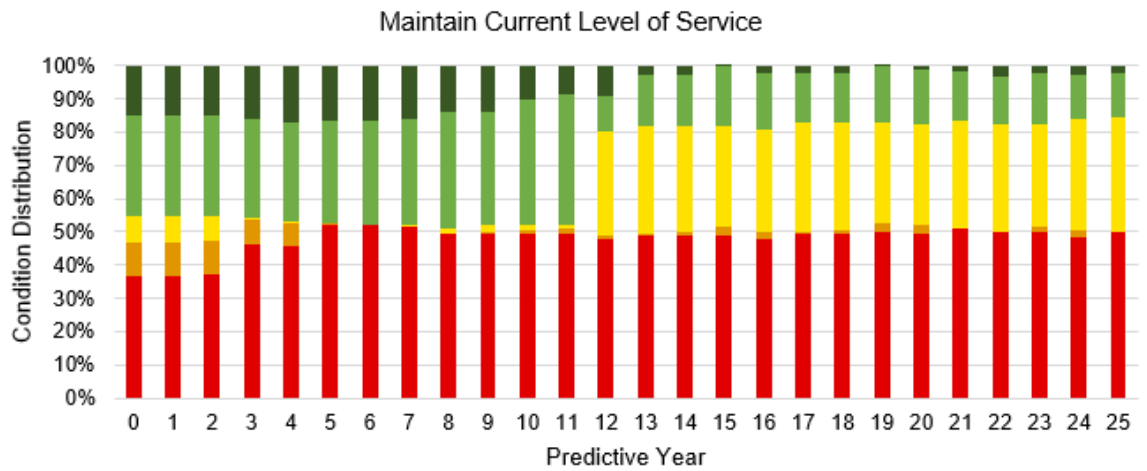
The City has implemented Predictor, which is a Decision Support System to continue its efforts to make informed decisions on asset investments. This tool has been used for the analysis of the scenarios outlined below. The condition profiles provide an outlook to the performance of assets for 25 years. For the purposes of this AMP, the scenario comparison and infrastructure gap has only been evaluated for the next 10 years, as required by O.Reg. 588/17.

An overview of the scenarios that were evaluated for the purposes of this AMP include:

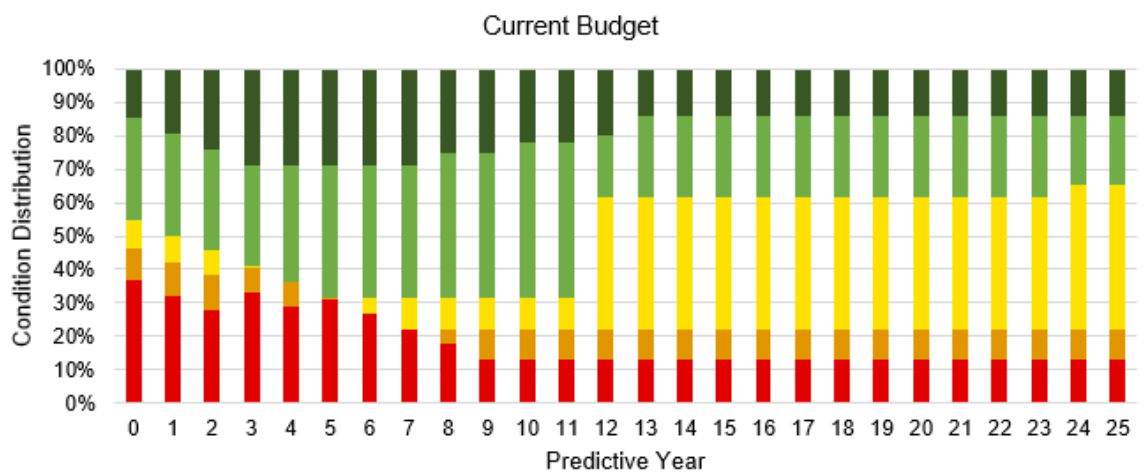
- **Scenario 1: Maintain Current Level of Service** – This scenario aims to maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.
- **Scenario 2: Current Funding** – This scenario forecasts the condition of the assets under the current funding level that the City anticipates allocating towards each asset category. The current budgets were obtained from the City's 2023 budget and is used as the average spending for the 10-year forecast. This is used to illustrate the change in performance (condition) under anticipated funding levels. Only renewal, rehabilitation and replacement activities are completed that fit within the current funding allotted to the asset category are completed as part of this forecast.
- **Scenario 3: Proposed Levels of Service** – This scenario determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

The impacts to the condition of the City's assets based on the described scenarios and the associated costs and comparison of these scenarios can be found in Figure 10-4.

Average Annual
Renewal,
Rehab &
Replacement:
\$15.1K



Average Annual
Renewal,
Rehab &
Replacement:
\$124.8K



Average Annual
Renewal,
Rehab &
Replacement:
\$252.1K

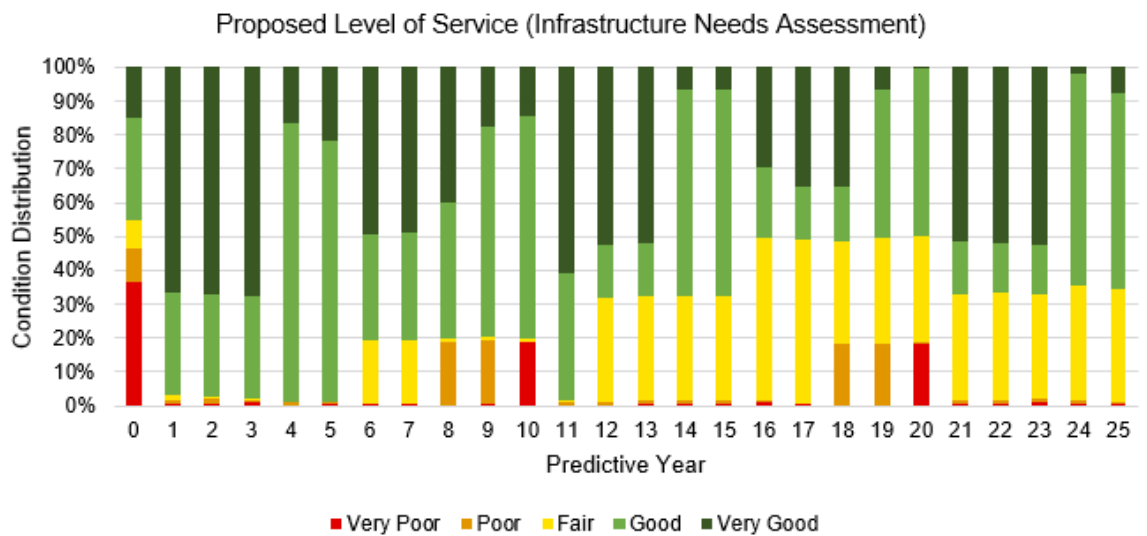


Figure 10-4. Condition Profile for Service Level Scenarios – Information Systems

Figure 10-4 shows the impact to the condition of the assets based on the Maintain Current LOS, Current Budget, and Proposed LOS forecast scenarios.

In Scenario 1, the average annual expenditure required for Renewals, Rehabilitations and Replacements for the IS assets was determined to be approximately \$15.2k. Overall asset condition is maintained over the 25-year forecast period. The percentage of assets in very poor condition ranges from 37% to 52%. As it is the intent to improve the condition of information system assets, as technology is required by every City department, while also providing services to the community, this scenario would not be ideal. The cost of this scenario is low as a result of to maintain the current amount of backlog and not make improvements to the condition of the assets is inexpensive in comparison the other scenarios.

In Scenario 2, the anticipated annual funding for information system assets is approximately \$124.8k. The condition distribution shows that the overall condition of IS assets is expected to improve over the 25-year forecast with current anticipated budget allocations. The percentage of assets in very poor condition decreases significantly from 37% to 13% by the end of the forecast period. The current funding shows the City's commitment in improving the state of the City's information system assets.

For the assets within this service area, PLOS was established to address infrastructure needs and follow the identified strategies to maintain these assets. The anticipated annual budget needed to achieve PLOS was determined to be \$2.8M. The condition distribution shows that the percentage of assets in very poor condition will be maintained between 17% and 34%. Information Systems assets will continue to be important to the municipality because they are the backbone for almost everything the City does today, including service delivery, data management, cybersecurity, and assists in other departments ability to be efficient.

By comparing the scenarios above, City staff can better understand how each one affects asset conditions over the long-term. Combined with Figure 10-5 which highlights the lifecycle expenditures required, and any identified funding gaps, this analysis is intended to support informed decision-making. The lifecycle activities required for proposed LOS have been colour coded below, and show the average annual budget, and the average annual expenditures required for both the current and proposed LOS.

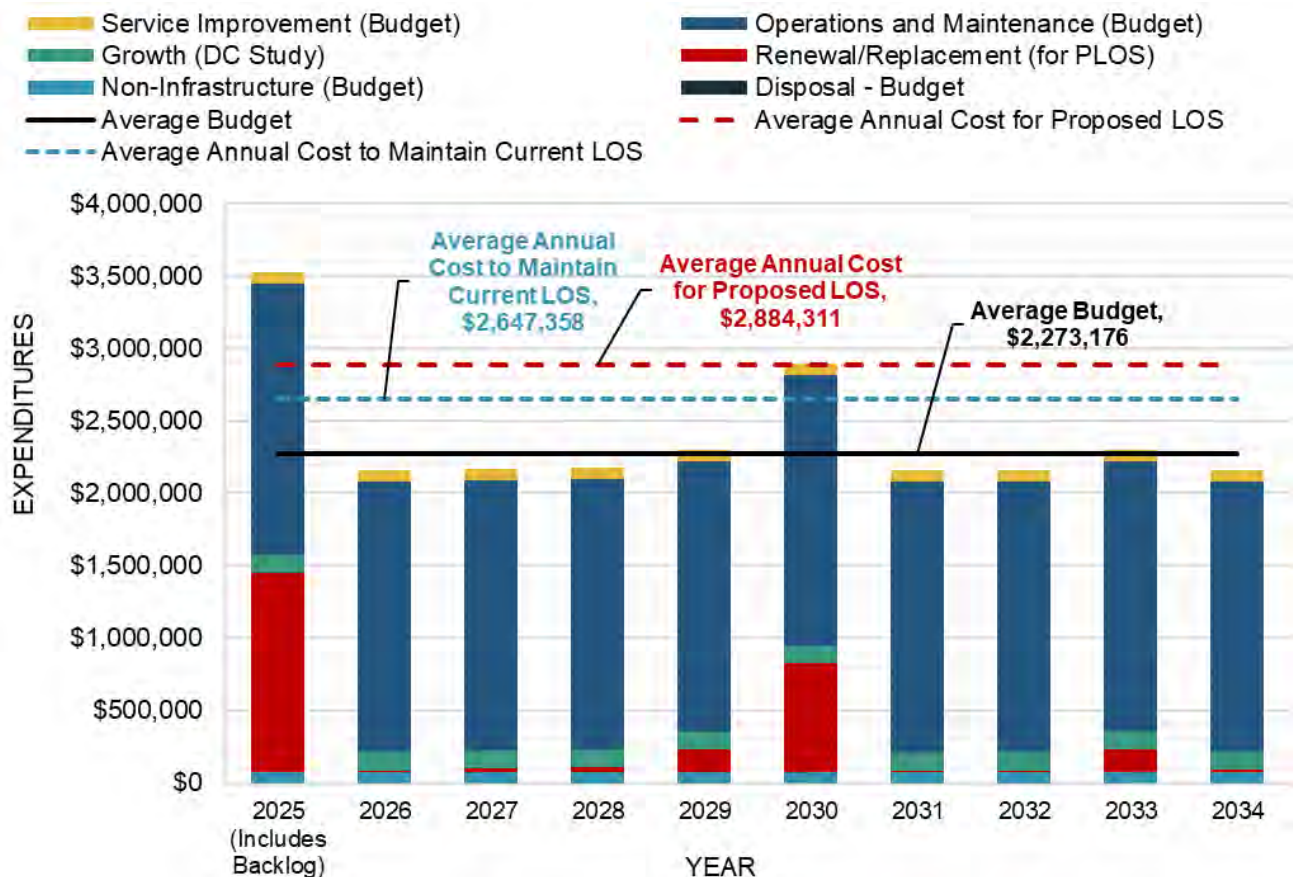


Figure 10-5. Information Systems Scenario Comparison

The scenario comparison indicates that the Information Systems has an average annual funding gap of \$611.1k to achieve the proposed LOS. This funding gap underscores the challenge the City faces in adequately funding the necessary renewal, rehabilitation, and replacement activities.

The growth and operations and maintenance expenditures shown in Figure 10-5 are shown in greater detail in Figure 10-6, which estimates the annual funding required for operations and maintenance to accommodate growth. The growth expenditures were informed by the City's most recent DC Background Study, which were added to the City's current replacement value to forecast the future expenditures required. The expenditures currently being spent on operations and maintenance were compared to the current replacement value to determine a percent of replacement value being spent on these activities. This percent was then applied to the current replacement value with the addition of growth expenditures to determine if any additional expenditures would be required to accommodate growth. Based on this analysis, it is anticipated additional support for operations and maintenance will be required for the increasing asset portfolio, as shown in Figure 10-6. This analysis assumes that the amount currently spent on O&M is adequate to meet the City's needs, the identified additional cost required is strictly to address growth.

In addition to capital infrastructure gap, additional \$611K annual O&M expenditures will be required to accommodate growth based on the 10-year growth forecast and established O&M service levels and is assumed to be sufficient in meeting both current and proposed service levels.

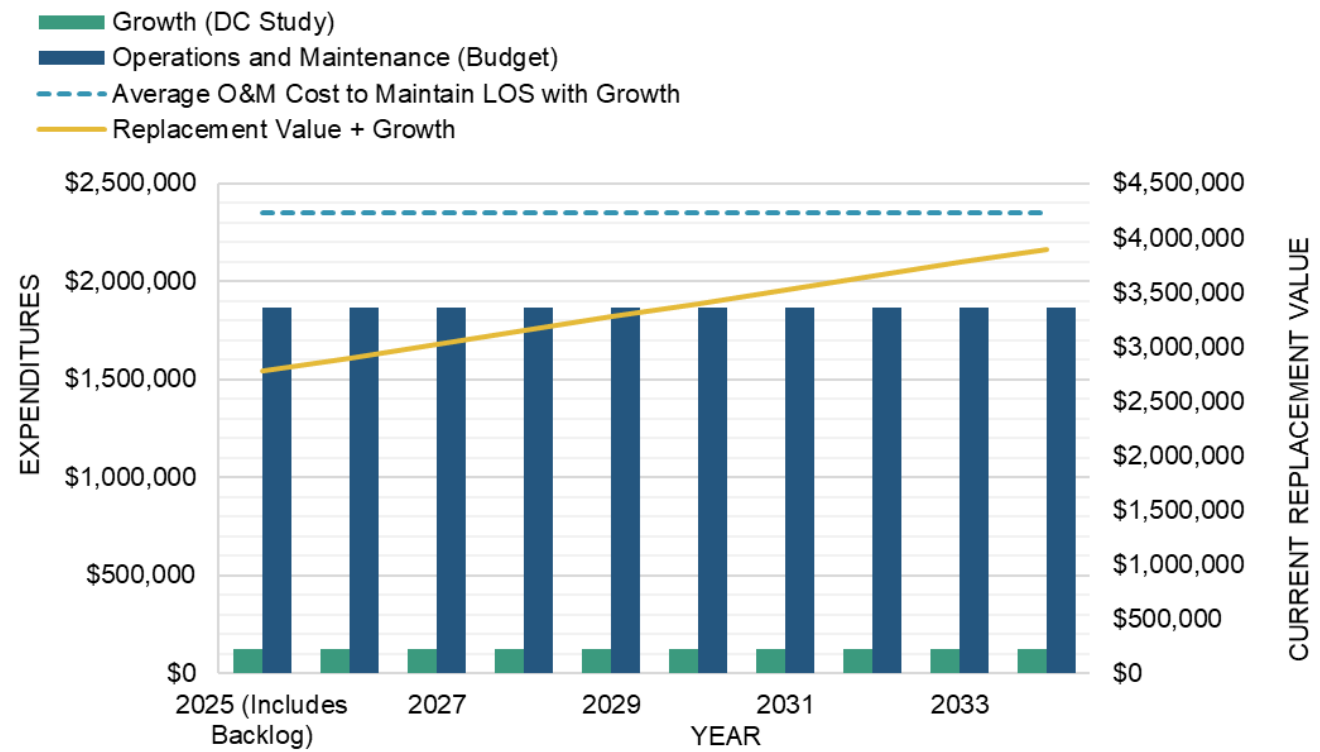


Figure 10-6. Growth – Operations & Maintenance Considerations – Information Systems

The infrastructure gap is summarized below in Table 10-6. Current funding for capital budgets and operating budgets is based on the approved 2023 budget and presented as the annual average 2023-2033 fiscal years. With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Information Systems infrastructure network for current and future generations.

Table 10-6 illustrates that total renewal, rehabilitation, and replacement expenditures of \$15.2k and \$252.1k are needed to sustain the current LOS and achieve the PLOS, respectively, compared to the average annual budget of \$124.8k. There is no annual capital funding gap to maintain current LOS. There is an annual capital funding gap of \$611.1k to achieve target LOS.

Without strong IT assets, the City can't run effectively, safely, or meet modern expectations. As software systems increase in their importance, and as software moves to cloud-based options, operations and maintenance expenses for this service area is anticipated to increase.

Table 10-6. Lifecycle Activity Investments & Annual Average Infrastructure Gap – Information Systems

Lifecycle Activity	Average Budget	Average Annual Cost to Maintain Current LOS	Average Annual Cost for Proposed LOS
Disposal	\$0	\$0	\$0
Growth (DC Study)	\$124,800	\$124,800	\$124,800
Non-Infrastructure	\$78,000	\$78,000	\$78,000
Renewal, Rehabilitation & Replacement	\$124,800	\$15,184	\$252,138
Service Improvement	\$78,000	\$78,000	\$78,000
Total	\$405,600	\$295,984	\$532,938
Capital Funding Gap		No Gap	\$127,338
Operations & Maintenance	\$1,867,576	\$2,351,374	\$2,351,374
Operation & Maintenance Required to Accommodate Growth		\$483,798	\$483,798
Total Expenditures	\$2,273,176	\$2,647,358	\$2,884,311
Total Funding Gap		\$374,182	\$611,135
Gap as Percentage of CRV		14.12%	23.06%

With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Information System infrastructure for current and future generations.

The activities and strategies listed within this chapter also provide the City's best chance to avoid the risks associated with asset ownership. The risks associated with not following the lifecycle strategies and activities can be significant and wide-ranging, which are further explained in Section 12.2.2 Risk Associated with Lifecycle Strategies. Addressing these risks requires a proactive approach to infrastructure planning, investment, and management. By prioritizing operations and maintenance, asset renewal and strategic investments, the City can enhance resilience and sustainability.

10.5 Data Confidence and Improvement Plan

The main data sources and overall data confidence for Information Systems assets is in Table 10-7.

Table 10-7. Data Confidence – Information Systems

Asset Segment	Data Source	Data Confidence
Printers, Servers, Smartphone, Tablets, Workstations	Spreadsheet	A
Wired Network	GIS, spreadsheets	B

10.5.1 Recommendations for Improvements

Opportunities for improvement for Information Systems assets include:

- Continue to review and update asset inventory, expand on any assets that may not have been captured within this plan.
- Develop asset register and strategies for software, as this is a large operational, and sometimes capital, expense for the City.



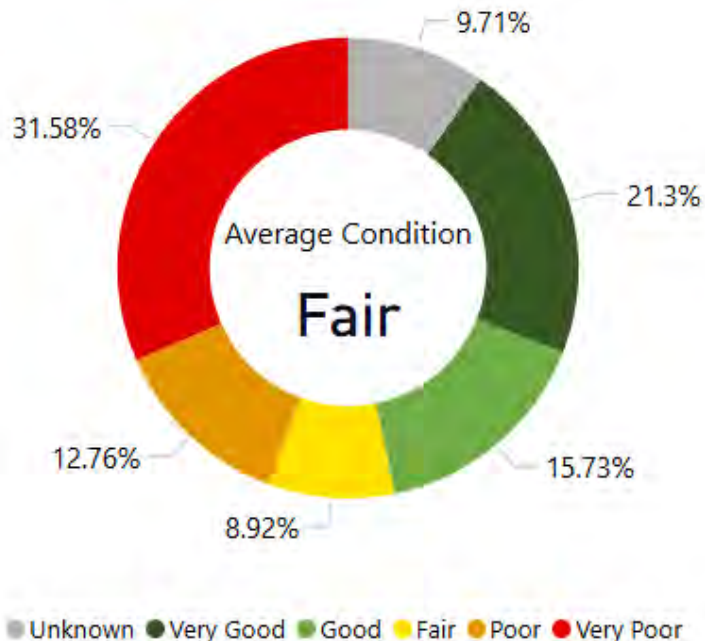
Parks, Recreation, Culture & Cemeteries



Replacement Value

\$47,879,157

Overall Average Asset Condition



Quick Facts

Parks, Recreation, Culture & Cemeteries operates and maintains:

- Amenities, parking lots, sidewalks and sports fields and courts throughout 72 parks, parkettes and open spaces and three cemeteries (2 currently active) located within the City of Welland

11 Parks, Recreation, Culture and Cemeteries

11.1 State of the Infrastructure

Welland's Parks, Recreation, Culture, and Cemeteries service area is made up of sports fields, courts and amenities used by residents and includes the supporting parking lots and sidewalks, as well as plot marker foundations in City owned Cemeteries. Table 11-1 below shows the full inventory and estimated replacement cost for this system.

Table 11-1. Inventory and Current Replacement Value – Parks, Recreation, Culture & Cemeteries

Asset Type		Count	Quantity Unit	2024 Estimated Replacement Value
Amenities	Dog Park Fenced	2	Units	\$208,000
	Dog Water Fountain	1	Unit	\$5,200
	Playground	42	Units	\$16,692,000
	Pond	2	Units	\$520,000
	Splash Pad	5	Units	\$2,340,000
	Water Fountain	1	Units	\$312,000
Amenities Total				\$20,077,200
Parking Lots		24	Units	\$5,752,240
Sidewalks & Trails		36,850	Sq. m	\$6,264,638
Public Art		N/A	N/A	\$1,035,982
Special Events Equipment		1,696	Units	\$1,044,297
Sport Fields & Courts	Baseball Diamonds	20	Units	\$4,888,000
	Basketball Courts	13	Units	\$1,060,800
	Batting Cage	1	Unit	\$41,600
	Beach Volleyball	6	Units	\$364,000
	Cricket Field	1	Unit	\$62,400
	Floor Hockey Rink	2	Units	\$312,000
	Lawn Bowling	1	Unit	\$208,000
	Pickleball Court	6	Units	\$624,000
	Skateboard Park	1	Unit	\$728,000
	Skating	13	Units	\$468,000
	Soccer	3	Units	\$624,000
	Tennis	7	Units	\$1,664,000
Sport Fields & Courts Total				\$11,044,800
Cemeteries	Plot Marker Foundations	3325	Units	\$2,660,000
Grand Total				\$47,879,157

City staff collected information on all parks for the purposes of this AMP and used recent contracts and staff expertise to fill in required information on install years, service life, and replacement values. For plot marker foundations, although there is a total replacement cost, these assets have not been incorporated into the forecasted needs, as these assets are typically handled through operating expenses and not the capital replacement program. In 2023 City Council approved funding for monument assessment and repairs for safety reasons. The City has updated in an effort to build a complete inventory for monuments and address any safety concerns through on-going funding requests for this purpose. It is recommended that this information is kept as an asset register and kept up to date.

During the development of this AMP, it was found that information was missing for Parks event equipment. An inventory was developed and included in this iteration of this plan, including any further improvements and updates to the Parks asset inventories identified.

11.1.1 Asset Condition

Overall, Parks, Recreation, Culture, and Cemeteries assets are in **Fair Condition**.

Conditions were assigned to parks assets using age and estimated service life. The condition rating scale is below in Table 11-2.

Table 11-2. Condition Rating – Parks, Recreation, Culture & Cemeteries

Condition	Age/ESL
Very Good	>80% life remaining
Good	60–80% life remaining
Fair	40–60% life remaining
Poor	20–40% life remaining
Very Poor	0–20% life remaining
Unknown	

A breakdown of the condition distribution based on asset value is shown in Figure 11-1 and Figure 11-2 below. As these figures demonstrate, most of the asset value falls at or below Fair condition. Based on the service life and age of the assets, approximately 32% of the assets in this category are in very poor condition.

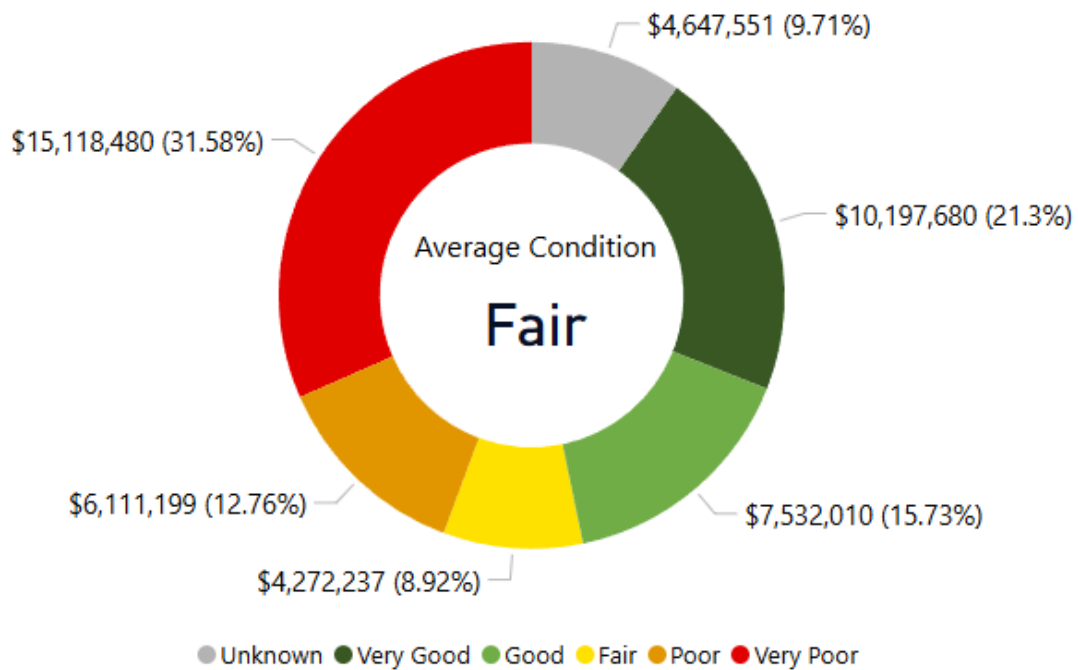


Figure 11-1. Parks, Recreation, Culture & Cemeteries Condition Distribution (By Replacement Value) – Overall

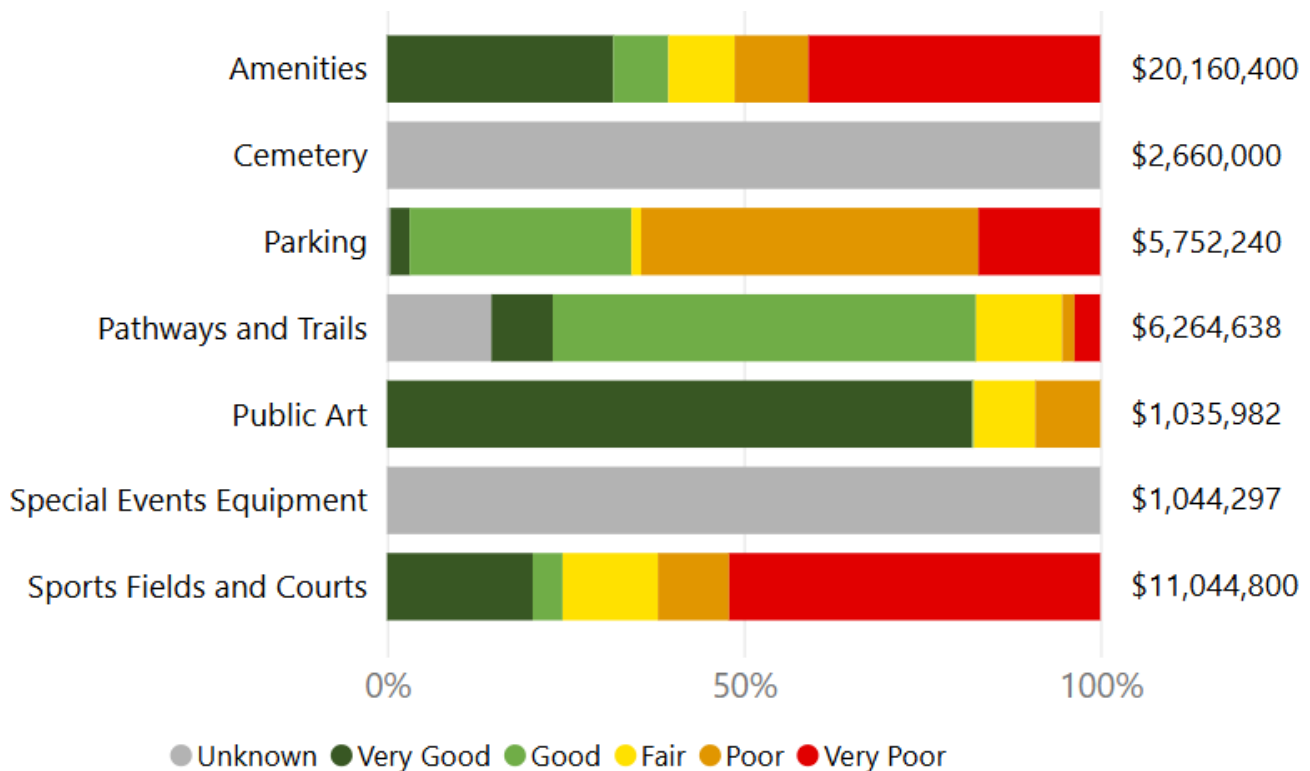


Figure 11-2. Parks, Recreation, Culture & Cemeteries Condition Distribution (By Replacement Value) – Asset Category Breakdown

11.1.2 Average Age

A breakdown of the average age and estimated service life (ESL) per asset category is provided in Figure 11-3. As this figure demonstrates, on average, Parks, Recreation, Culture, and Cemeteries assets have not yet reached their ESL. However, sports fields and courts are nearing the end of their ESL.

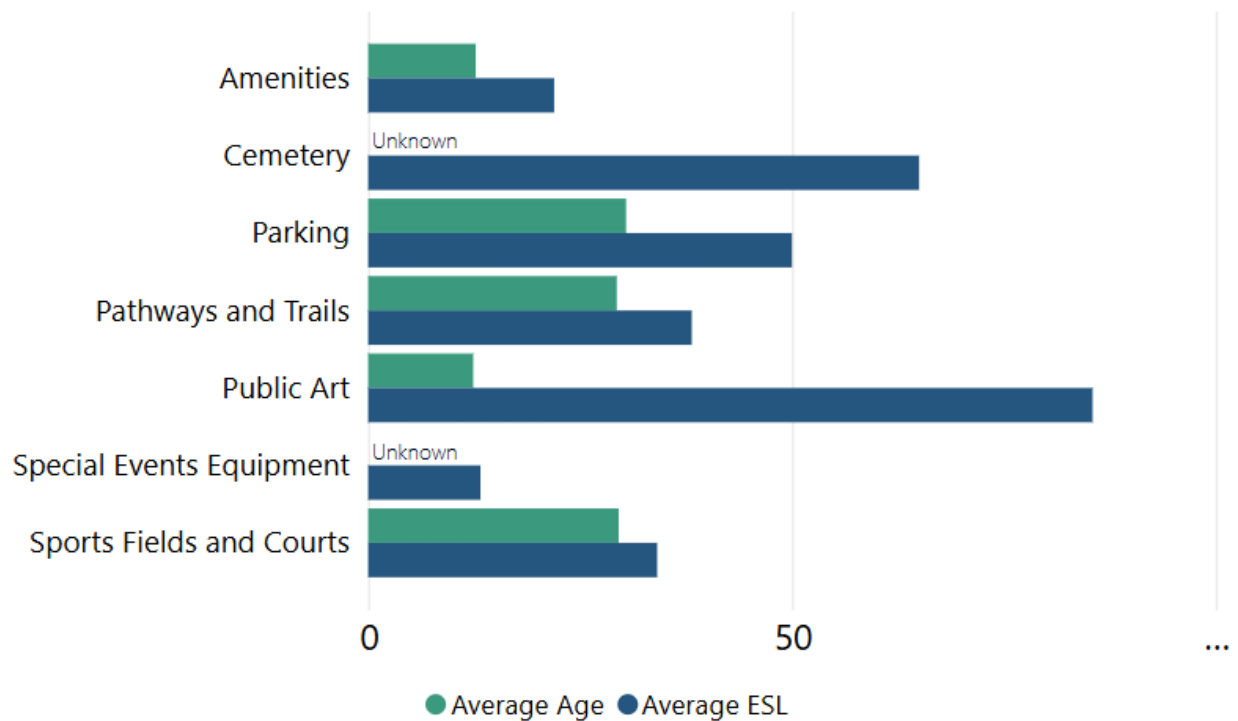


Figure 11-3. Parks, Recreation, Culture & Cemeteries Average Age vs. ESL – Asset Category Breakdown



11.2 Levels of Service

Parks, Recreation, Culture, and Cemeteries assets provide many services to the community, including recreation and leisure activities, sports and fitness facilities, community events and social gathering, environmental conservation and aesthetic, culture and economic benefits.

Levels of service refer to specific parameters that describe the extent and quality of services that a municipality provides to its residents. These parameters largely dictate the need for infrastructure, resources, and ultimately the costs associated with providing a service. In the context of this AMP, LOS are outlined based on legislated metrics, and City defined metrics. These levels of service are described from a community experiential perspective and may include both qualitative and technical metrics.

The LOS metrics and the current and proposed performance are detailed in Table 11-3. KPIs are listed in Table 11-4, which are metrics that do not have a target set but will allow the City to monitor the progress in implementing this AMP on an annual basis.

Proposed, or target LOS, are required to be defined within this AMP, along with a financial strategy to achieve the targets. The proposed change between the current level of service and proposed level of service has been documented in the table below. For Parks, Recreation, Culture, and Cemeteries, an increase to the LOS has been proposed, to decrease the current backlog and improve asset condition.

Table 11-3. Level of Service – Parks, Recreation, Culture & Cemeteries

Key Service Attribute	Performance Measure	Current Performance (2024)	Target Performance	Proposed Change
Technical LOS				
I have quality services	Total Backlog (Backlog as a Percent of Total Replacement Value)	\$9.9M (20.7%)	\$0 (Decrease)	↘
I have quality services	Percentage of total replacement cost of park assets in good to very good condition	39.14%	59% (10-year average)	↗

Table 11-4. Key Performance Indicators – Parks, Recreation, Culture & Cemeteries

Key Service Attribute	Performance Measure	Current Performance (2024)
Community LOS		
My City maintains what it owns	Current Reinvestment rate	3.94%
My City maintains what it owns	Cost per household	\$229.99
Technical LOS		
I have access to services when I need them	Hectares of parks per thousand residents	5.45
I have access to services when I need them	Number of parks provided to citizens	72
I have quality services	Number of cemetery plots and cremation plots available	1237 traditional full plots available (Woodlawn Cemetery 669 and Doan's Ridge 568), 789 cremation plots available.
I have access to services when I need them	All Parkland in Municipality as a percent of Total Area of Municipality	2.48%
My City maintains what it owns	Percent of park assets in conformance with lifecycle strategy	83.89%

11.3 Lifecycle Management Strategy

The objective of the Lifecycle Management Strategy is to outline and establish a set of planned actions, based on best practice that will enable our assets to provide a sustainable level of service, while managing risk at the lowest lifecycle cost.

The City continues to improve its approach to the management of its assets and will continue to put in place processes, procedures, and tools to enable a more consistent approach across the City's Service Areas. Detailed below is a brief overview of some of the current asset management practices in place across the City.

11.3.1 Lifecycle Activities

Specific lifecycle activities, or planned actions, for Parks, Recreation, Culture, and Cemeteries are outlined in Table 11-5. These activities have been broken down into the Lifecycle Categories detailed in Section 1.4 and detail the activities that take place during the asset's lifecycle. Lifecycle activities ultimately help provide efficiencies and ensure assets can continue providing services at the level required, and at the lowest possible cost. Completing these activities will ensure the expected service function and reliability of the assets.

Renewal, Rehabilitation and Replacement activities have been incorporated into the infrastructure needs forecast scenarios that are included in Section 11.4.

Non-Infrastructure Solutions, Operations and Maintenance, Service Improvement and Growth Activities have been incorporated in the full-lifecycle cost of these assets but have not been analyzed for their adequacy to meet the City's needs.

By implementing these lifecycle activities, the City can effectively manage their Parks, Recreation, Culture, and Cemeteries assets, optimize operational efficiency, minimize costs, ensure regulatory compliance, and maximize the value and lifespan of their assets. These activities are also critical for maintaining safe and efficient infrastructure. These risks are further outlined in Section 12.2.2. Implementing the lifecycle activities and strategies in this plan will enhance the resilience and sustainability of infrastructure while mitigating potential risks.

Table 11-5. Lifecycle Management Activities – Parks, Recreation, Culture & and Cemeteries

Asset Management Practices / Planned Actions	Frequency
Non-Infrastructure	
• Park Recreation & Culture Masterplan	• 5 years
• Condition assessments (includes accessibility)	• As needed
• Community Trail Strategy	• As needed
Operations & Maintenance Activities	
• Planned maintenance (Grooming, grass cutting, line and general field/court maintenance, surface renewal & repair)	• As identified, based on condition report
• Condition Inspections	• As needed
• Reactive maintenance	• As needed
• Special Event Preparation	• As needed
• Burial Activities	• As needed
• Monument foundation installation	• As needed
Renewal/Replacement Activities	
• Replacement of assets	• End of useful life
• Renewal activities for sports fields and courts including turf replacement, painting, sealing, pavement repair, resurfacing, etc.	• As required
Disposal Activities	
• Dispose of assets in line with replacements	• As required
• Where possible, re-purpose materials to limit disposals (use granular from disposals on trails)	• As materials are available
Service Improvement & Growth Activities Planned	
• New assets to accommodate growth	• As required or identified in Council approved Master Plans.
• New assets as a part of increased service requirements, accessibility improvements	• As identified or required

11.4 Funding the Lifecycle Activities

The City uses the lifecycle management strategies described above in Section 11.3 to plan work and determine future expenditure needs for Parks, Recreation, Culture and Cemeteries assets. These activities, along with the scenarios outlined below provide a comprehensive forecast of expenditures required for managing infrastructure assets and ensuring the City can meet the demands of current services and existing infrastructure.

The scenarios below forecast renewal, rehabilitation and replacement lifecycle activity cost and needs. These lifecycle activities ensure infrastructure remains in a state of good repair and can continue to provide services to residents. Further details of the funding required for the remaining lifecycle activities (non-infrastructure, service improvements, operations and maintenance, and growth) can be found below in Figure 11-4, which are informed based on the City's capital and operating budgets, and the latest DC Background Study. For the purposes of this AMP, these activities, and their costs, are assumed to be enough to meet the community's expectations. This AMP does not provide an analysis on optimizing these activities and costs, with the exception of required expenditures for operations and maintenance to accommodate growth.

The City has implemented Predictor, which is a Decision Support System to continue its efforts to make informed decisions on asset investments. This tool has been used for the analysis of the scenarios outlined below. The condition profiles provide an outlook to the performance of assets for 25 years. For the purposes of this AMP, the scenario comparison and infrastructure gap has only been evaluated for the next 10 years, as required by O.Reg. 588/17.

An overview of the scenarios that were evaluated for the purposes of this AMP include:

- **Scenario 1: Maintain Current Level of Service** – This scenario aims to maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.
- **Scenario 2: Current Funding** – This scenario forecasts the condition of the assets under the current funding level that the City anticipates allocating towards each asset category. The current budgets were obtained from the City's 2023 budget and is used as the average spending for the 10-year forecast. This is used to illustrate the change in performance (condition) under anticipated funding levels. Only renewal, rehabilitation and replacement activities are completed that fit within the current funding allotted to the asset category are completed as part of this forecast.
- **Scenario 3: Proposed Levels of Service** – This scenario determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

The impacts to the condition of the City's assets based on the described scenarios and the associated costs and comparison of these scenarios can be found in Figure 11-4.

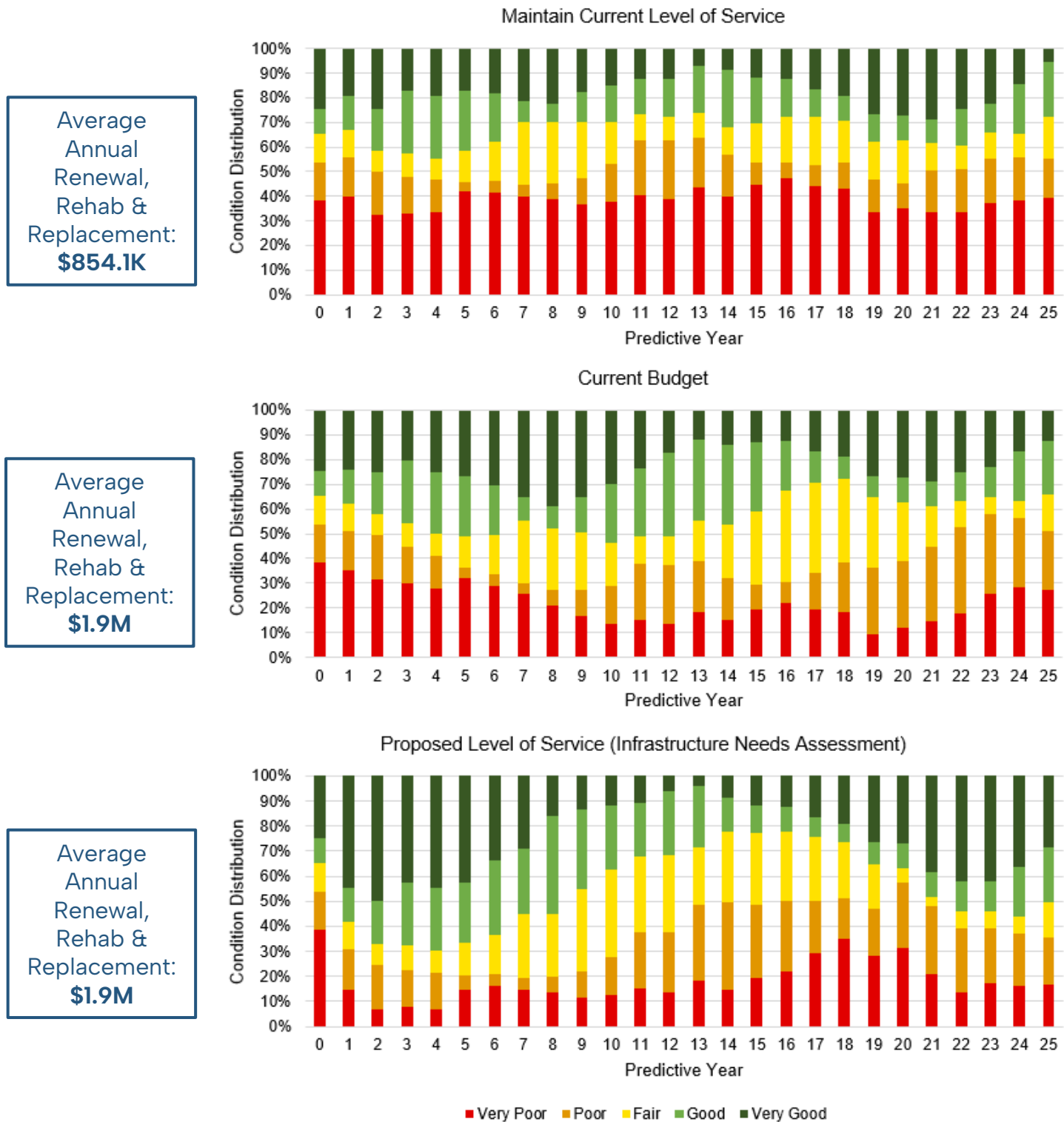


Figure 11-4. Condition Profile for Service Level Scenarios – Parks, Recreation, Culture and Cemeteries

Figure 11-4 shows the impact to the condition of the assets based on the Maintain Current LOS, Current Budget, and Proposed LOS forecast scenarios.

In Scenario 1, the average annual expenditure required for Renewals, Rehabilitations and Replacements for the Facilities was determined to be approximately \$854.6k. Overall asset condition is maintained over the 25-year forecast period. Although this scenario the backlog for park assets is maintained, the percentage of assets in very poor condition ranges from 32% to 47% and does not provide an improvement to the condition of the Parks, Recreation and Culture assets.

In Scenario 2, the anticipated annual funding for facilities is approximately \$1.8M. The condition distribution shows that the overall condition of facilities is expected to fluctuate over the 25-year forecast with the current anticipated budget allocations. The percentage of assets in very poor condition decreases from 39% to 28% by the end of the forecast period. As seen in the condition profile, the cycle of replacements can be seen, as these assets typically have a shorter estimated service life.

For the assets within this service area, PLOS was established to address infrastructure needs and follow the identified strategies to maintain these assets. The anticipated annual budget needed to achieve PLOS was determined to be \$1.9M, which is very closely aligned to the current budget, with a minimal gap. The condition distribution shows that the percentage of assets in very poor condition decreases from 39% to 17% by the end of the forecast period.

By comparing the scenarios above, City staff can better understand how each one affects asset conditions over the long-term. Combined with Figure 11-5 which highlights the lifecycle expenditures required, and any identified funding gaps, this analysis is intended to support informed decision-making. The lifecycle activities required for proposed LOS have been colour coded below, and show the average annual budget, and the average annual expenditures required for both the current and proposed LOS.

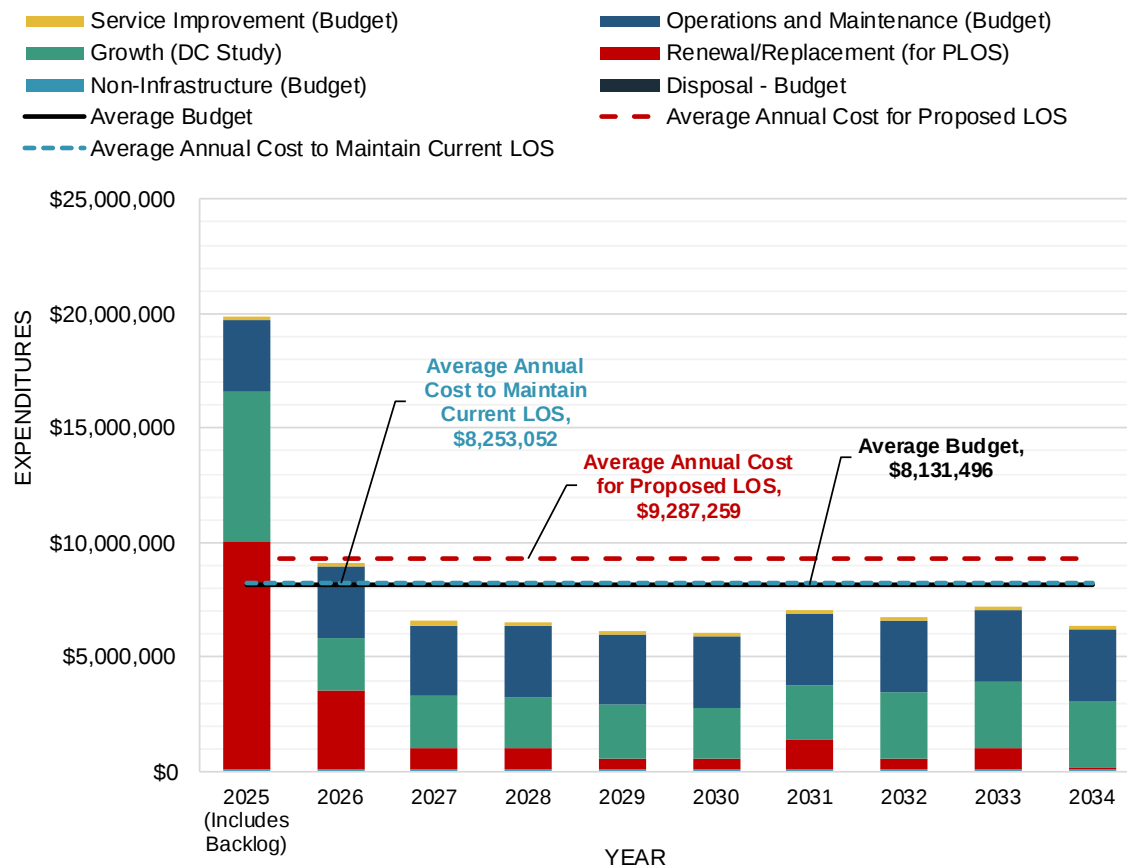


Figure 11-5. Parks, Recreation, Culture and Cemeteries Scenario Comparison

The scenario comparison indicates that the Parks, Recreation, Culture and Cemeteries has a gap of \$1.2M to achieve the proposed LOS, with the addition of the operating and capital gap. This funding gap underscores the challenge the City faces in adequately funding the necessary renewal, rehabilitation, and replacement activities for Parks, Recreation, Culture and Cemeteries assets.

The growth and operations and maintenance expenditures shown in Figure 11-5 are shown in greater detail in Figure 11-6, which estimates the annual funding required for operations and maintenance to accommodate growth. The growth expenditures were informed by the City's most recent DC Background Study, which were added to the City's current replacement value to forecast the future expenditures required. The expenditures currently being spent on operations and maintenance were compared to the current replacement value to determine a percent of replacement value being spent on these activities. This percent was then applied to the current replacement value with the addition of growth expenditures to determine if any additional expenditures would be required to accommodate growth. Based on this analysis, it is anticipated additional support for operations and maintenance will be required for the increasing asset portfolio, as shown in Figure 11-6. This analysis assumes that the amount currently spent on O&M is adequate to meet the City's needs, the identified additional cost required is strictly to address growth. Optimizing maintenance and leveraging new technologies can enhance

operational efficiency and extend the lifespan of assets, ensuring that assets being provided and maintained at the lowest possible cost.

In addition to capital infrastructure gap, additional \$1.1M annual O&M expenditures will be required to accommodate growth based on the 10-year growth forecast and established O&M service levels and is assumed to be sufficient in meeting both current and proposed service levels.

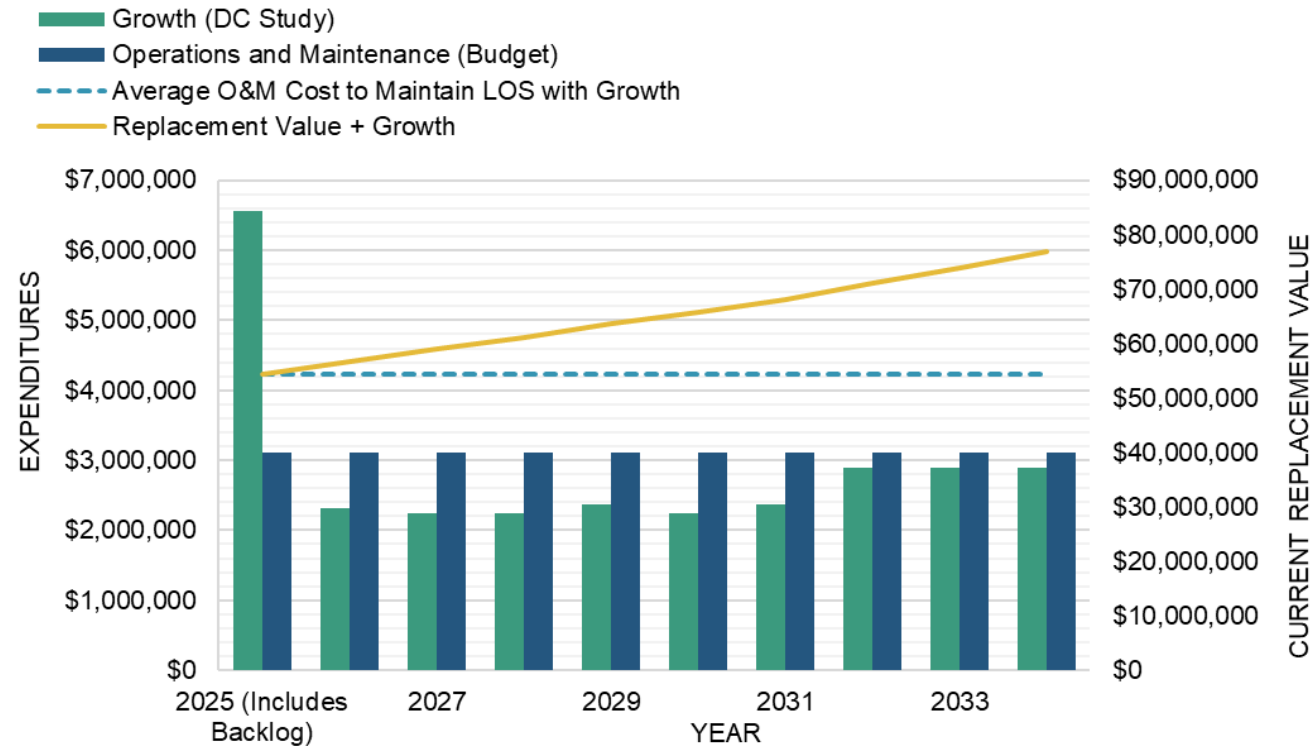


Figure 11-6. Growth – Operations & Maintenance Considerations – Parks, Recreation, Culture and Cemeteries

Table 11-6 illustrates that total renewal, rehabilitation, and replacement expenditures of \$854k and \$1.9M are needed to sustain the current LOS and achieve the PLOS, respectively, compared to the average annual budget of \$1.9M. There is currently no annual capital funding gap to maintain current LOS, but there is an average annual capital funding gap of \$37.6k to achieve proposed LOS.

Table 11-6. Lifecycle Activity Investments & Annual Average Infrastructure Gap –
Parks, Recreation, Culture and Cemeteries

Lifecycle Activity	Average Budget	Average Annual Cost to Maintain Current LOS	Average Annual Cost for Proposed LOS
Disposal	\$0	\$0	\$0
Growth (DC Study)	\$2,899,044	\$2,899,044	\$2,899,044
Non-Infrastructure	\$104,000	\$104,000	\$104,000
Renewal, Rehabilitation & Replacement	\$1,850,618	\$854,056	\$1,888,263
Service Improvement	\$166,400	\$166,400	\$166,400
Total	\$5,020,062	\$4,023,500	\$5,057,707
Capital Funding Gap		No Gap	\$37,645
Operations & Maintenance	\$3,111,435	\$4,229,552	\$4,229,552
Operation & Maintenance Required to Accommodate Growth		\$1,118,118	\$1,118,118
Total Expenditures	\$8,131,496	\$8,253,052	\$9,287,259
Total Funding Gap		\$121,556	\$1,155,763
Gap as Percentage of CRV		0.25%	2.41%

With this information, the City can make informed decisions about current and future budget allocations, prioritize maintenance and replacement projects, and develop strategies to ensure the long-term sustainability and reliability of the Parks, Recreation, Culture and Cemeteries infrastructure for current and future generations.

The activities and strategies listed within this chapter also provide the City's best chance to avoid the risks associated with asset ownership. The risks associated with not following the lifecycle strategies and activities can be significant and wide-ranging, which are further explained in Section 12.2.2 Risk Associated with Lifecycle Strategies. Addressing these risks requires a proactive approach to infrastructure planning, investment, and management. By prioritizing operations and maintenance, asset renewal and strategic investments, the City can enhance resilience and sustainability.

11.5 Data Confidence and Improvement Plan

The main data sources and data confidence for Parks, Recreation, Culture, and Cemeteries assets is in Table 11-7.

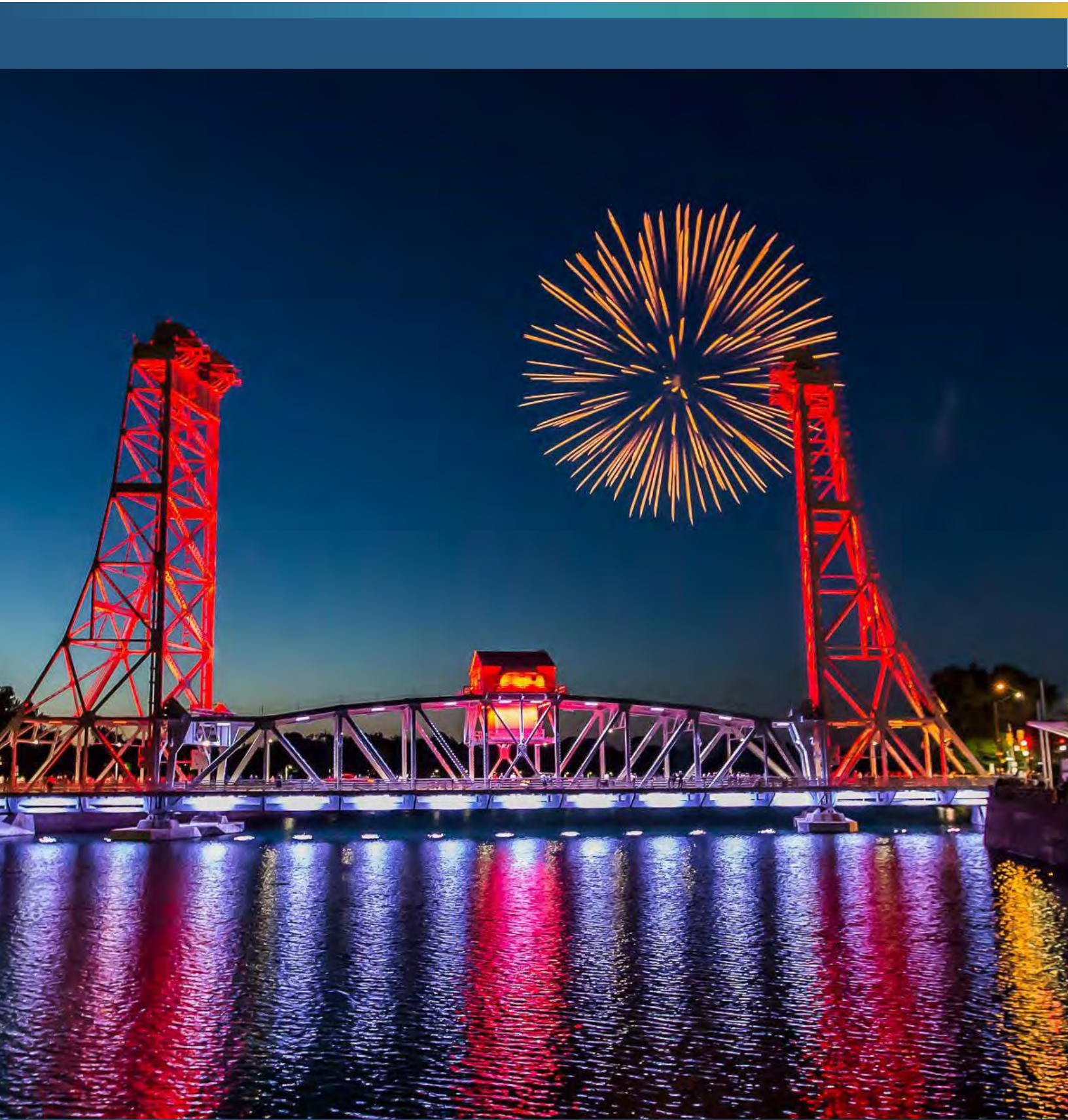
Table 11-7. Data Confidence – Parks, Recreation, Culture & Cemeteries

Asset Segment	Data Source	Data Confidence
Amenities, Sports Fields and Courts	Spreadsheet, Staff Expertise, Recent Contracts	B
Parking	Spreadsheet	B
Sidewalk	GIS	C
Cemeteries	Spreadsheet	C

11.5.1 Recommendations for Improvements

Opportunities for improvement for Parks, Recreation, Culture, and Cemeteries include:

- Inventory/Asset Register: Keep asset inventory as an asset register; continue to improve, keep up to date, add any necessary assets to the list (including signage and gateways), continue to review replacement values. Review any identified discrepancies in asset data compiled for the purposes of this plan.
- Develop and implement an inspections and preventative maintenance program for monuments, splash pads, playgrounds, skateparks, courts, etc.
- Prepare park satisfaction survey to expand on LOS metrics for parks.
- Include LOS metrics for park accessibility and percent of properties within 400m of a park.
- Acquire condition data where currently unknown.



12.0 Financing Strategy

12 Financing Strategy

This financial strategy outlines critical inputs and considerations to guide the development of future City budgets, ensuring alignment between funding allocations and the long-term sustainability of municipal service delivery.

The financial strategy in this AMP is based on the City of Welland's 2023 budget to determine the funding available to support infrastructure, updated to 2024 dollars. All forecasted dollars are presented in 2024 dollars, and no inflationary measure has been included in the future needs. This financial strategy provides an analysis of the average annual funding available, the expenditures required to maintain current LOS, as well as the ideal expenditures to meet proposed LOS identified throughout this plan.

For the purposes of this AMP only renewal, rehabilitation and replacement lifecycle activity costs and needs are analyzed. These lifecycle activities ensure infrastructure remains in a state of good repair and can continue to provide services to residents. Further details of the expenditures and funding required for the remaining lifecycle activities (non-infrastructure, service improvements, operations and maintenance, and growth) have been reported on to consider the whole lifecycle cost of the City's assets and services, which are based on the operating and capital budgets for the City. This AMP does not provide an analysis on optimizing these activities and costs. Growth needs are captured based the 2022 Development Charge Background Study, which forecasted the growth requirements for the various assets. It is assumed that as the Development Charge Background Study is updated, the Growth expenditure requirements will continue to be updated as required through the budget process. Additional expenditure requirements for Operations and Maintenance have been estimated based on the current spending, current replacement value, and growth.

12.1 Budget Overview

12.1.1 Planned Expenditures

A summary of the forecasted expenditures for the 10-year period is provided in Table 12-1. Based on the review of this forecast, the average annual expenditures planned for all lifecycle activities listed for rate and tax supported assets is \$48.6M, and \$69.3M respectively. The 2023 budget was used as the baseline budget and used as the average for the 10-year period of the analysis, adding an inflation of 4% to bring the values to 2024. The only exception was for fire, the expenditures for the new fire hall were removed as these costs were not indicative of the average spending for fire assets.

Table 12-1. Infrastructure Expenditure Summary – Average Annual 2025–2033

Service Category	Disposal	Growth	Non-Infrastructure	Operations & Maintenance	Renewal/Rehabilitation	Service Improvement	Grand Total*
Rate Supported							
Sanitary System	\$156,000	\$4,574,559	\$98,800	\$19,300,478	\$3,403,167	\$0	\$27,533,004
Water System	\$0	\$1,212,467	\$41,600	\$14,264,528	\$5,594,732	\$0	\$21,113,327
Total	\$156,000	\$5,787,026	\$140,400	\$33,565,006	\$8,997,899	\$0	\$48,646,331
Tax Supported							
Facilities	\$0	\$364,775	\$52,000	\$8,994,397	\$2,746,612	\$496,392	\$12,654,177
Fire	\$0	\$1,329,994	\$0	\$12,032,626	\$1,689,795	\$531,476	\$15,583,892
Fleet	\$0	\$233,118	\$0	\$2,080,831	\$1,532,804	\$0	\$3,846,753
Forestry	\$0	\$0	\$0	\$657,644	\$219,214	\$0	\$876,858
Information Systems	\$0	\$124,800	\$78,000	\$1,867,576	\$124,800	\$78,000	\$2,273,176
Parks	\$0	\$2,899,044	\$104,000	\$3,111,435	\$1,850,618	\$166,400	\$8,131,496
Storm System	\$0	\$2,984,076	\$48,100	\$273,049	\$2,501,460	\$0	\$5,806,685
Transportation	\$0	\$2,466,577	\$340,080	\$5,475,183	\$11,876,734	\$3,120	\$20,161,695
Total	\$0	\$10,402,385	\$622,180	\$34,492,741	\$22,542,037	\$1,275,388	\$69,334,732

*Expenditures that were not specific to any asset group but benefited the overall tax/rate supported assets (Ex. Official Plan, Corporate Services, etc.) have not been included in this AMP. Growth Numbers have been informed from 2022 Development Charge Background Study

12.2 Infrastructure Expenditure Need

The AMP aims to define the financial resources required to support lifecycle expenditures required to maintain current LOS and meeting proposed LOS across all categories. The financial strategy incorporates projected lifecycle costs including, disposals, growth, non-infrastructure, operations and maintenance, renewal and rehabilitations, replacement, and service improvements.

The City reviewed the following scenarios to determine the appropriate proposed level of service for each asset category.

Scenario 1: Maintain Current Level of Service maintain the current backlog of renewals, rehabilitations, and replacements at the same level. The backlog is calculated by determining the lifecycle activities that should have been completed as per lifecycle strategies. This scenario does not necessarily address improving the performance (condition) as the focus is to ensure that the backlog of work is maintained.

Scenario 2: Current Budget reviews the current budget available to fund lifecycle activities, including renewals, rehabilitations, and replacements.

Based on analysis of the 2024 AMP scenarios that also include an ideal scenario to follow lifecycle strategies, the updated scenarios for the 2025 AMP, risk, current condition, community expectations, data reliability, affordability, achievability, compliance, and subject matter recommendations, a scenario was developed to determine the lifecycle activity expenditures required for the rehabilitation and replacement activities to meet the proposed LOS.

Scenario 3: Proposed Level of Service determines the cost of the lifecycle activities to achieve the asset category's proposed level of service that was developed in consideration of various factors through consultation with subject matter experts and the City's Corporate Leadership Team.

The results have been broken out to rate supported and tax supported assets to reflect the different sources of revenue of these asset categories, as well as compiled for information purposes. Figure 12-1 and Figure 12-2 compare the Average Budget, Current LOS and Proposed LOS scenarios, which includes the expenditures for all lifecycle activities.

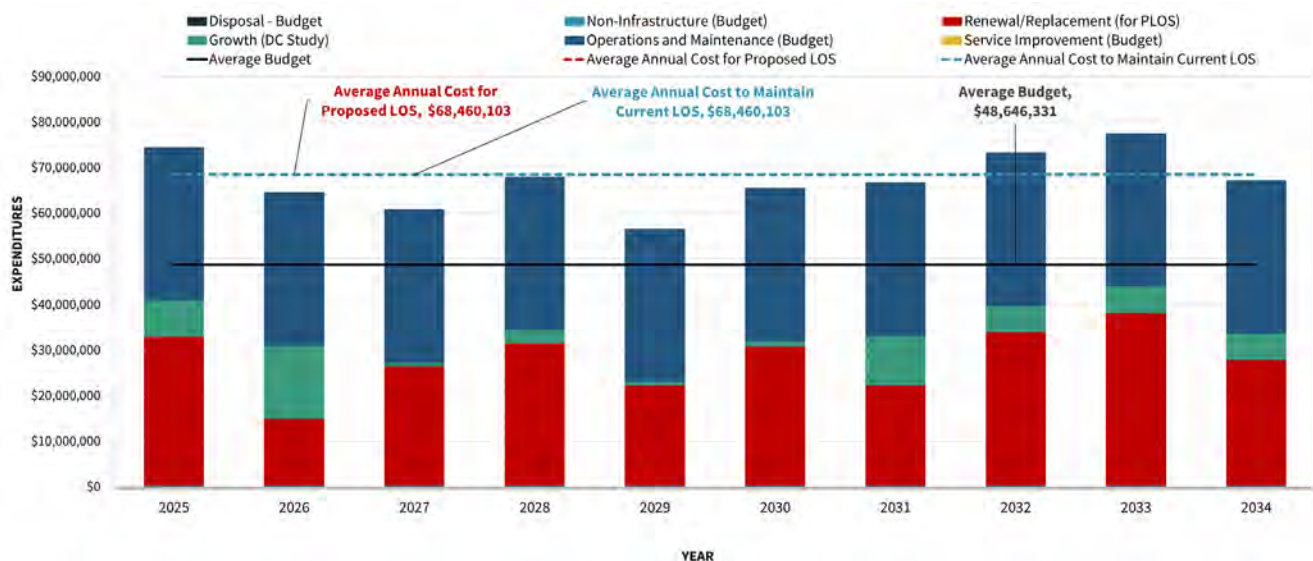


Figure 12-1. Rate Supported Lifecycle Activity Expenditures

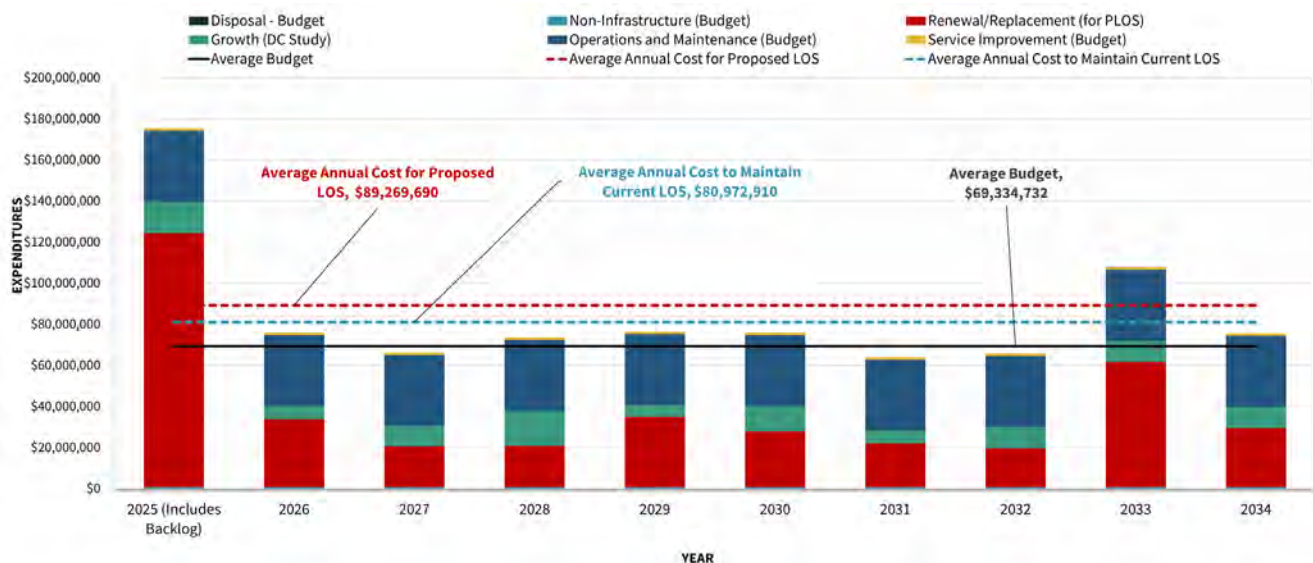


Figure 12-2. Tax Supported Lifecycle Expenditures

For rate supported assets, it was determined that the current LOS would be the proposed LOS based on consultations with subject matter experts. The current LOS ensures that no further assets move into backlog (work that has already been identified as needing replacement) by the end of the scenario. This was determined in consideration of risk, current condition, affordability and achievability. It was felt that the current LOS will already be a challenge to achieve, and that the City will continue to develop methodologies and strategies to bring the infrastructure gap down through non-financial strategies.

Tax supported assets show a significant backlog (represented in 2025) in the figure above. This backlog represents work that should have been completed as per the lifecycle strategies defined throughout this AMP. Tax supported assets set a higher LOS

than the current LOS, with similar considerations as rate supported assets. These assets include Transportation, Central Fleet, Facilities, Fire, Forestry, Information Systems, and Parks, Recreation, Culture, and Cemeteries. Storm is also included in the tax supported assets, and chose to maintain LOS as the proposed, as there is additional analysis required to identify alternative lifecycle strategies that will bring the expenditures down.

While acknowledging that funding constraints are a reality, the amount of backlog for rate supported, and tax supported assets, emphasizes the importance of strategic planning and investment to optimize the performance and longevity of critical infrastructure to continue to provide services to the community.

12.2.1 Infrastructure Funding Shortfall

12.2.1.1 Rate and Tax Supported Infrastructure Gap

The City of Welland, like many municipalities, are facing challenges in consistently carrying out rehabilitation and replacement activities for its assets due to funding and resource constraints, as well as competing priorities. This can result in the accumulation of an infrastructure backlog, where necessary work outlined in lifecycle management plans is not completed in a timely manner.

The infrastructure funding shortfall, as described, represents the annual difference between the capital need based on maintaining current LOS and proposed LOS, and the capital budget forecast. To calculate the infrastructure funding gap, the forecasted replacement and rehabilitation costs for a 10-year period were subtracted from the expenditure needs to maintain current LOS (maintain backlog), and for proposed LOS.

Addressing infrastructure backlog and closing the funding gap will require strategic planning, prioritization, and potentially exploring alternative funding sources or financing mechanisms. It's essential for the City to develop comprehensive strategies that balance immediate needs with long-term sustainability to ensure the continued provision of essential services to its residents.

Table 12-2 shows the average lifecycle expenditures for rate supported assets and the infrastructure gap. These assets include Water and Sanitary assets. Currently the City is facing an average annual infrastructure gap of \$19.8M to support the proposed LOS for rate supported assets. Of this gap, \$18.8M is for rehabilitation and replacement activities, with an additional \$979K for operations and maintenance to support growth. Figure 12-3 shows the gap by asset category, with Sanitary making up the largest portion of the gap. While this is a significant gap, the City continues to get updated condition data and explore alternatives to bring down this gap through cheaper alternatives to open and cut replacement of pipes, like increasing maintenance activities to complete spot repairs, and rehabilitation activities such as pipe relining. Further analysis is required to determine the impact of these activities that have recently been undertaken on condition of the assets, and to determine which other assets are candidates for these interventions.

Table 12-3 shows the average lifecycle expenditures for tax supported assets and the infrastructure gap. These assets include Transportation, Storm, Central Fleet, Facilities,

Fire, Forestry, Information Systems, and Parks, Recreation, Culture, and Cemeteries. Currently there is an average annual infrastructure gap of \$20.6M to support the proposed LOS for tax supported assets. Of this gap, \$16.3M is for rehabilitation and replacement activities, with an additional \$3.6M for operations and maintenance to support growth. Figure 12-4 shows the total gap by asset category, with Storm and Facilities making up the largest portion of the gap. This is in line with the greatest need for the highest current replacement value assets for tax supported assets.



Table 12-2. Rate Supported Annual Average Lifecycle Expenditures and Infrastructure Gap

Lifecycle Activity	Annual Average Budget	Average Annual Expenditure to Maintain Current LOS (Scenario 1)	Average Annual Expenditure for Proposed LOS (Scenario 4)
Disposal	\$156,000	\$156,000	\$156,000
Growth	\$5,787,026	\$5,787,026	\$5,787,026
Non-Infrastructure	\$140,400	\$140,400	\$140,400
Renewal, Rehab & Replacement	\$8,997,899	\$27,832,425	\$27,832,425
Service Improvement	\$0	\$0	\$0
Total Expenditures	\$15,081,325	\$33,915,852	\$33,915,852
Capital Funding Gap		\$18,834,526	\$18,834,526
Operations and Maintenance	\$33,565,006	\$34,544,252	\$34,544,252
Operation & Maintenance Required to Accommodate Growth		\$979,246	\$979,246
Total Expenditures	\$48,646,331	\$68,460,103	\$68,460,103
Total Average Annual Funding Gap		\$19,813,772	\$19,813,772
Gap as a Percent of CRV		1.7%	1.7%

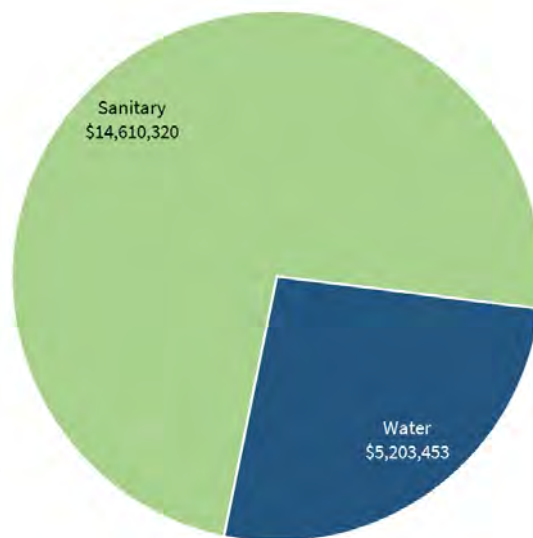


Figure 12-3. Rate Supported Infrastructure Gap by Asset Category

Table 12–3. Tax Supported Annual Average Lifecycle Expenditures and Infrastructure Gap

Lifecycle Activity	Annual Average Budget	Average Annual Expenditure to Maintain Current LOS (Scenario 1)	Average Annual Expenditure for Proposed LOS (Scenario 4)
Disposal	\$0	\$0	\$0
Growth	\$10,402,385	\$10,402,385	\$10,402,385
Non-Infrastructure	\$622,180	\$622,180	\$622,180
Renewal, Rehab & Replacement	\$22,542,037	\$30,586,840	\$38,883,620
Service Improvement	\$1,275,388	\$1,275,388	\$1,275,388
Total Expenditures	\$34,841,991	\$42,886,794	\$51,183,574
Capital Funding Gap		\$8,044,803	\$16,341,583
Operations and Maintenance	\$34,492,741	\$38,086,116	\$38,086,116
Operation & Maintenance Required to Accommodate Growth		\$3,593,375	\$3,593,375
Total Expenditures	\$69,334,732	\$80,972,910	\$89,269,690
Total Average Annual Funding Gap		\$11,638,178	\$20,627,664
Gap as a Percent of CRV		0.8%	1.3%

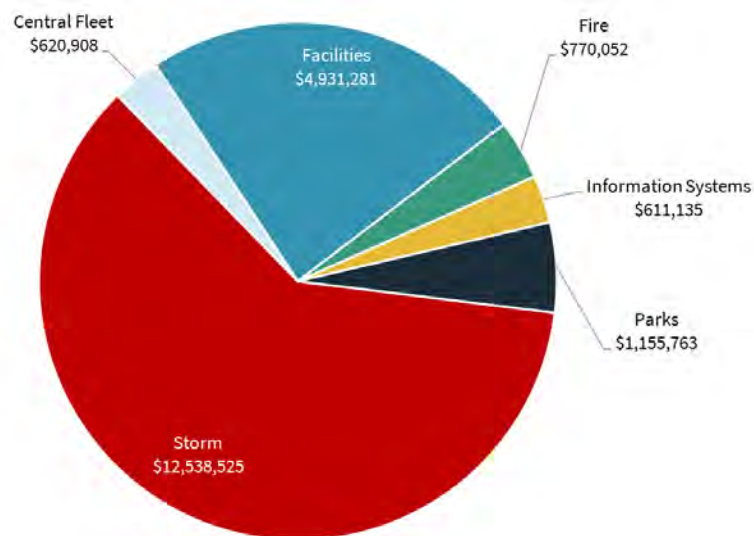


Figure 12–4. Tax-Supported Infrastructure Gap by Asset Category

12.2.1.2 Overall Asset Infrastructure Gap

The following summarizes the compiled expenditures and infrastructure gaps across all asset categories. The City of Welland is currently experiencing an annual infrastructure gap of approximately \$31.4M to maintain assets at their current LOS, and \$40M for proposed LOS. This represents a substantial challenge that requires strategic action. By adopting a proactive and integrated approach, the City can work toward maintaining the functionality, safety, and resilience of its critical infrastructure for the benefit of residents and businesses.

Table 12-4 provides a detailed overview of the City's assets and the associated proposed LOS gap. Although the identified gaps are considerable, they account for just 1.5% of the total replacement value of the City's infrastructure. This context highlights both the scale of the challenge, and the opportunity to address it effectively.

Figure 12-5 shows the current replacement value of the City's assets and Figure 12-6 shows the current average annual infrastructure gap. As anticipated, there is a direct correlation between the infrastructure gaps and their cost.

The risks associated with not closing the infrastructure gap and not following asset lifecycle strategies are outlined in Section 12.2.2. The City is actively working to mitigate these risks, as well as those related to the infrastructure gap, which are further detailed in Section 12.2.3.

Significant infrastructure gaps are a widespread challenge for municipalities, driven by pressures such as inflation, rising construction costs, competing priorities, and constrained funding. To ensure the City can continue delivering safe and reliable services to residents, a range of strategies will need to be implemented. Section 12.2.4 outlines the strategies the City will consider addressing the infrastructure gap, including both financial, and non-financial approaches.

Table 12-4. Asset Overview & Infrastructure Gap by Asset Category

Asset Category	Total Replacement Value	Average Annual Budget	Average Annual Need for PLOS	Average Annual Gap for PLOS	Gap as Percentage of Replacement Value
Water	\$468,616,946	\$21,113,327	\$26,316,780	\$5,203,453	1.1%
Sanitary	\$679,889,438	\$27,533,004	\$42,143,324	\$14,610,320	2.1%
Rate-Supported Total	\$1,148,506,383	\$48,646,331	\$68,460,104	\$19,813,773	1.73%
Storm	\$569,840,373	\$5,806,685	\$18,345,210	\$12,538,525	2.2%
Transportation	\$572,507,204	\$20,161,695	\$19,506,202	No Gap	No Gap
Central Fleet	\$20,603,648	\$3,846,753	\$4,467,661	\$620,908	3.0%
Facilities	\$278,827,023	\$12,654,177	\$17,585,458	\$4,931,281	1.8%
Fire	\$47,613,930	\$15,583,892	\$16,353,945	\$770,052	1.6%
Forestry	\$9,090,120	\$876,858	\$839,644	Unknown ⁸	Unknown
Information Systems	\$2,649,669	\$2,273,176	\$2,884,311	\$611,135	23.1%
Parks	\$47,879,157	\$8,131,496	\$9,287,259	\$1,155,763	2.4%
Tax-Supported Total	\$1,549,011,124	\$69,334,732	\$89,269,690	\$20,627,664	1.33%
Total	\$2,697,517,507	\$117,981,063	\$157,729,794	\$40,441,437	1.50%

⁸ There is currently insufficient information on forestry assets to determine whether additional lifecycle activities and, their associated cost, are required.

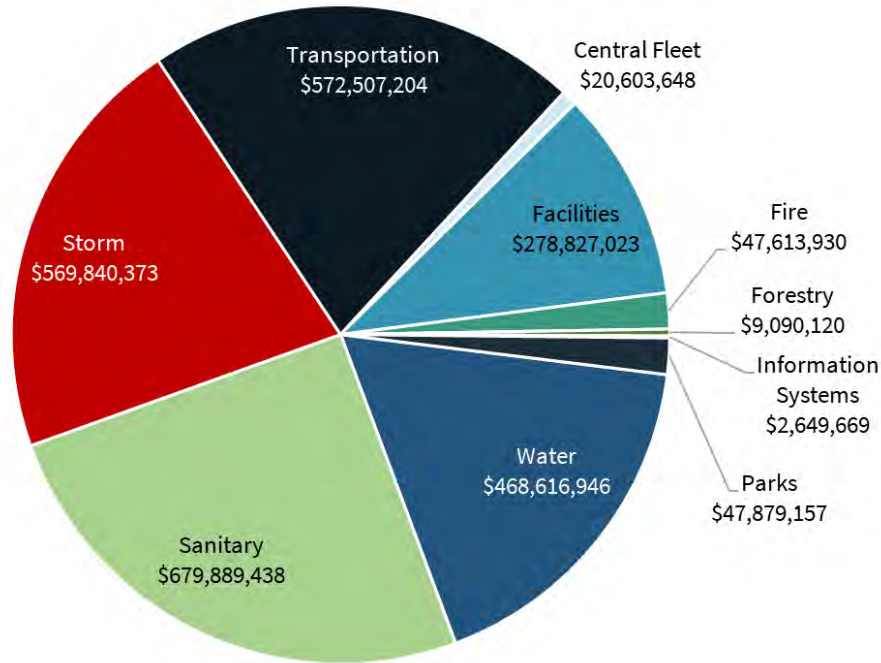


Figure 12-5. Current Replacement Value by Asset Category

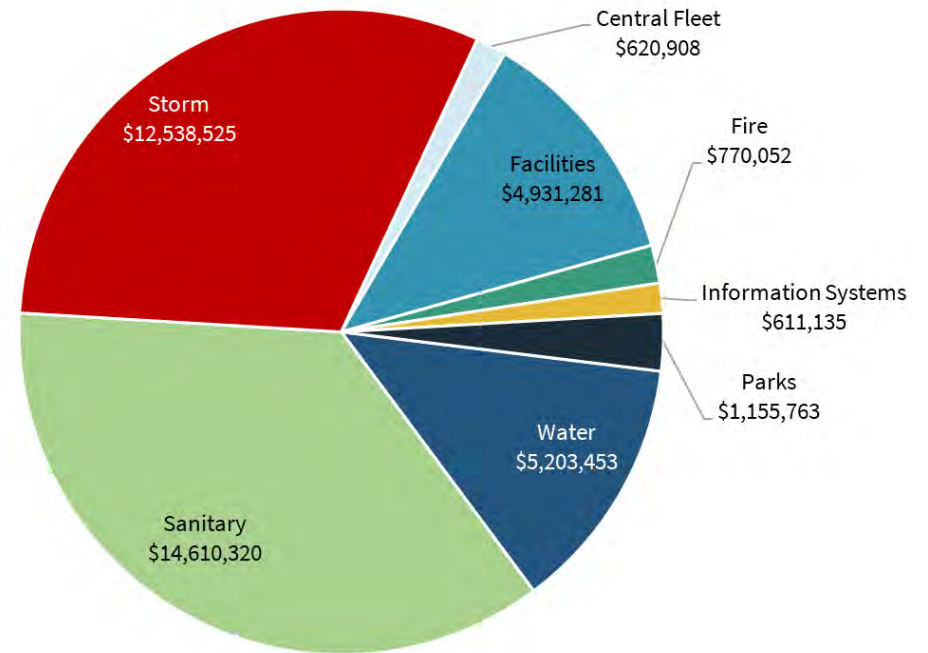


Figure 12-6. Proposed LOS Average Annual Gap by Asset Category

12.2.2 Risk Associated with Lifecycle Strategies

Following lifecycle strategies and activities outlined in this AMP are the City's best way to avoid risk. Ignoring the infrastructure gap and not completing lifecycle activities and strategies as outlined in this AMP can lead to a range of negative consequences, both immediate and long-term. These risks and their consequences at a high level include:

Deterioration of Infrastructure and Asset Failure: Without proper investments for renewal, rehabilitation and replacement activities, infrastructure assets will deteriorate over time, leading to increased breakdowns, service disruptions, and potentially safety hazards.

Decreased Operational Efficiency: Without proper lifecycle management strategies, infrastructure may become inefficient, leading to increased downtime, delays, and reduced productivity.

Increased Costs: Delaying infrastructure investments leads to higher costs in the long run. Deferred maintenance and rehabilitations can result in more extensive reactive maintenance, or the need for premature asset replacements, which are significantly more expensive than timely maintenance and upgrades. Ultimately by not adequately keeping assets in a good state of repair leads to higher lifecycle cost.

Improper Forecasts: Many non-infrastructure activities such as master plans, asset management planning, provide valuable insights into the infrastructure needs, if these activities are not completed, it can lead to inaccurate estimations for funding requirements and capacity requirements.

Service Disruptions: The deterioration of assets often leads to unplanned and unexpected disruptions to the services the community currently enjoys and relies on through asset failures.

Negative Impact to Quality of Life: Poor infrastructure affects the quality of life for residents, including issues like traffic congestion, inadequate public transportation, sewer backups, basement flooding, or lack of access to services. Assets in poor working order also increase the risk of potential health and safety impacts.

Environmental Impacts: Inefficient infrastructure can have adverse environmental impacts such as increased emissions from old facility or fleet assets, or sewage reaching the environment through leaks in pipes. This also increases the potential risk of not meeting regulatory requirements.

Regulatory Non-Compliance: Many of the assets, in particular Water and Transportation, are highly regulated assets that require assets to be properly maintained and reported on their compliance. Failure to meet regulatory requirements for infrastructure maintenance and safety can result in fines, penalties, legal actions, and possible loss of licenses or permits.

Loss of Public Trust and Confidence: Persistent neglect of infrastructure needs can erode public trust and undermine confidence in the ability of leaders to address pressing challenges.

Negative Economic Impact: Inadequate infrastructure can hinder economic growth because of inefficient and unreliable services to residents and businesses.

Safety Risks: Aging or poorly maintained infrastructure can pose safety hazards to users, workers, and the surrounding community, potentially leading to accidents, injuries, or even fatalities.

Addressing infrastructure needs requires proactive planning, investment, and ongoing maintenance to ensure the resilience and vitality of the community while mitigating the various risks outlined above.

12.2.3 Risk Mitigation Strategies to Address the Infrastructure Gap

O.Reg.588/17 requires that the City identify how the risks of not undertaking the lifecycle strategies to meet the proposed LOS will be managed. The City actively manages risks associated with the funding levels, in the following ways:

Maintenance and Rehabilitation Activities: The City continually maintains assets to the best of their ability based on the funding available to prolong asset life where possible. Many assets are beyond suggested services lives, and where possible, maintained to keep them in working order until such time that funding is available for replacements.

For sanitary and storm assets, a spot repair capital program has been put in place to address defects to ensure asset risks are minimized and are able to continue to be used. The City also continues to complete inflow and infiltration remediation activities. For water assets, the City investigates and implements alternative rehabilitation strategies instead of completing full replacement at end of life. For all assets, regular maintenance and preventative maintenance programs are put in place to ensure assets are maintained to reach their expected service life, and where possible are still in a state of good repair beyond expected service lives. The City has also implemented CityWorks, the maintenance management system to better track and prioritize maintenance and rehabilitation activities of at-risk assets.

Prioritizing Assets Based on Risk: Resources available are strategically assigned to higher risk and priority assets, based on staff expertise, ensuring limited budgets are used effectively to mitigate the most risk. This is completed through the capital planning process during the development of the annual budgets. Assets are replaced based on priorities to find efficiencies to reduce impacts and implement strategic purchase cycles.

Updating Condition Assessments: The City actively updates condition assessments on assets, particularly high-risk assets, to ensure assets are prioritized based on accurate condition data. Purchases are prioritized based upon up-to-date needs assessments.

Technology & Data: The City s continue to implement CityWorks to better understand the current costs of maintenance, as well as to prioritize asset maintenance and replacement activities based on the data derived from the maintenance management system.

Regulatory and Compliance Standards: The City ensures compliance with all regulatory and safety standards to avoid risk.

Grant Opportunities: The City reviews opportunities for grants and partnerships where possible to increase funding available for asset replacements.

The City is committed to providing the level of service expected by the community, while managing risk, and in consideration of fiscal responsibility. While the City considers options to address the funding gap, these strategies will continue to be implemented and enhanced to mitigate the risks associated with not meeting the proposed LOS.

12.2.4 Strategies to Address the Infrastructure Gap

Addressing such a substantial gap will require careful consideration and a combination of strategies, including non-financial and financial. Many of the non-financial strategies are best practices in asset management. Incremental change is recommended to ensure the strategies put in place are achievable and affordable. Although incremental increases and adjustments to the financial strategies are recommended and will provide a significant impact on reducing the City's infrastructure gap, it is recommended to invest in the non-financial strategies to assist in reducing the gap.

With no action, Figure 12-7 shows the cumulative capital gap for both current LOS and proposed LOS. This represents a worst-case scenario, based on the information available in the development of this AMP, and does not account for any non-financial strategies that may offer lower cost alternatives. By the end of the 10-year period, the infrastructure gap grows to \$268M for current LOS and \$351M for proposed LOS.

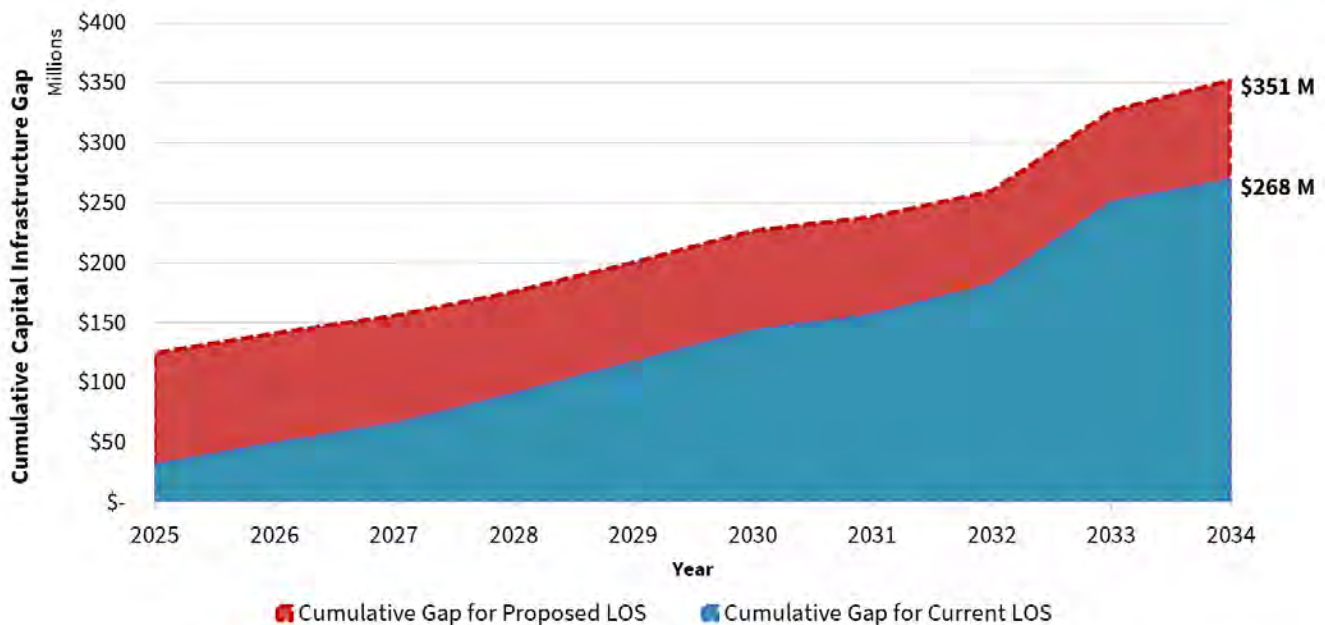


Figure 12-7. Cumulative Capital Infrastructure Gap for Current and Proposed LOS

12.2.4.1 Non-Financial Strategies

Levels of Service Targets: The City has set proposed LOS targets that consider risk, affordability, and achievability, in consideration of the unique needs of the various asset categories. It is recommended these metrics are updated and reviewed on an annual

basis to assess the City's progress in achieving these targets. Adjustments can be made as needed to ensure that targets remain both achievable and financially sustainable while also helping to reduce the infrastructure gap.

Asset Prioritization and Asset Management Practices: As the City continues to mature their asset management program, asset prioritization and asset management practices play a crucial role in addressing infrastructure gaps by ensuring that limited financial resources are allocated effectively. This can be done through optimizing investment decisions based on condition, criticality and risk to prevent resources from being spent on low-priority assets while high-risk assets deteriorate. Proactive asset management, including preventative maintenance and rehabilitation will assist in extending life cycles and reducing the need for costly emergency repairs. Implementing measures to optimize asset management processes and reduce operational costs where possible.

As noted, storm and sanitary assets represent a significant portion of the gap the City faces. These assets are continually reviewed to determine if they are candidates for cheaper alternative lifecycle strategies such as maintenance activities such as flushing and spot repairs, and rehabilitation activities such as pipe relining, to improve the condition of assets. Although these alternatives are actively employed by the City, there is work to be done to determine how these can be included in the forecasts to determine the future needs.

As the City continues to advance, a better understanding of asset failure and costs will assist the City to prioritize assets and develop more accurate forecasts.

Asset Management Systems & Technology: The City continues to invest in technologies to assist in the understanding of costs associated with asset ownership, as well as to better prioritize and plan for the long term. The City has implemented CityWorks for maintenance management, and Prediction as a decision support tool. These systems will assist the City to run analysis and scenarios to develop long-term plans that allocate resources strategically.

Community Engagement: The City continues to engage with the community to communicate the importance of infrastructure investment and potentially garner support for additional funding measures. This would also be beneficial when evaluation target performance for levels of service.

Advocacy: Advocating for increased funding support from higher levels of government and seeking partnerships with neighbouring municipalities to share resources and costs.

12.2.4.2 Financial Strategies

There are several financial strategies and tools available that can be employed to increase funding for assets, as shown Figure 12-8. These tools, along with non-financial strategies, can be leveraged to help address the infrastructure gap. It is recommended that the City make incremental improvements to ensure the long-term sustainability of the community, while balancing achievability and affordability.



Figure 12–8. Financial Management Tools

Reserves & Reserve Funds: These are financial management tools that allow the City to set aside a portion of revenues over multiple years to pay for future infrastructure projects and to plan for contingencies. Acting like a savings account, reserves play a crucial role in asset management planning by providing financial stability and flexibility for infrastructure renewal, major repairs, and unexpected costs.

The most common misconception is that reserves are a “slush fund”. Reserves are used to ensure there are funds available in emergencies, but their main purpose is to financially plan for infrastructure projects and providing affordable services in the future. Reserve funds are leveraged to fund capital projects, that are approved by Council. Lowering property tax increases by cutting contributions to reserves creates a long-term problem that causes greater increases in the future to replenish these reserves and maintain service levels.

Leveraging reserves and reserve funds offers several key benefits:

Supports Long-Term Capital Planning: Enables the City to spread infrastructure investments over time, reducing reliance on sudden tax increases and debt.

Manages Risk and Uncertainty: Acts as a financial buffer for unexpected failures or emergency repairs.

Funds Lifecycle Asset Management: Provides dedicated resources for timely maintenance, rehabilitation, and replacement, helping avoid costlier deferred work.

Improves Debt Management and Affordability: Reduces dependence on borrowing, lowering long-term financial pressures.

The City currently leverages reserves to support asset management, using reserves to fund projects within the capital plan. It is recommended that the City consider

establishing additional dedicated capital reserves, where appropriate, to ensure the continued upkeep, renewal, and maintenance of its assets within each service portfolio. These reserves would serve as a financial mechanism to support long-term asset sustainability and reduce reliance on reactive funding strategies. Ideally, the City would determine optimal reserve contributions based on asset lifecycle needs, risk exposure, and projected funding shortfalls. Establishing these contributions would support more predictable budgeting and provide a strategic approach to addressing the infrastructure funding gap over time, while also enhancing the City's ability to deliver consistent service levels and mitigate the risk of asset failure.

Table 12-5 provides an overview of the City's current reserve position and compares the uncommitted balances, 2024 budgeted reserve contribution to the average annual gap to achieve proposed LOS. By establishing appropriate reserve contributions, the City would then leverage the reserves as a funding source for capital expenses and contribute to decreasing the infrastructure gap. Ideally reserve contributions are increased to support asset management and ensure the continued renewal, rehabilitation and replacement of assets to achieve the proposed LOS.

Table 12-5. City of Welland Reserve Overview

Asset Category	Uncommitted Balance (as of December 31, 2024)	2024 Budgeted Reserve Contribution	Average Annual Proposed LOS Gap
Water and Sanitary Sewer	\$3,166,672	\$130,000	\$19,813,773
Fleet ⁹	\$799,885	\$50,000	\$620,908 ¹⁰
Facilities ¹¹	\$163,732	\$50,000	\$4,931,281
Infrastructure Renewal Reserve	\$11,504,760		\$15,075,476 ¹²
Capital Surplus	\$3,577,197		
Total	\$19,212,246	\$230,000	\$40,441,437

Debt Financing: Debt is a tool that is leveraged by the City and can be a valuable tool when used responsibly to finance critical infrastructure. A well-planned debt strategy ensures financial sustainability, aligns with long-term asset management goals and balances affordability for taxpayers.

Debt can be used strategically to support long-term financial sustainability while maintaining service levels. Situations where the use of debt may be appropriate include addressing urgent infrastructure needs, leveraging grant funding where the City must use debt to secure matching funds to qualify or maximize funding opportunities, managing

⁹ Fleet contributions consist of Sale of Equipment through auctions

¹⁰ Does not include Fire Fleet

¹¹ Facilities include Arena Reserve, Ice Resurface Reserve and Pool Maintenance Reserve

¹² Gap for remaining assets, excluding water, sanitary, fleet, and facilities.

cash flow for large-scale projects, and when debt servicing is affordable. The Province of Ontario sets an Annual Repayment Limit (ARL) for debt limits of 25% of own source revenues. The City's most recent ARL limit factoring in the most recent debt issuance in Spring 2025 is 11.76%.

Grants & Contributions: The City will continue to leverage and seek further available grants and contributions. Although these grants are challenging to estimate and forecast and should not be relied upon as a consistent future funding source, the City can still leverage them to help address expenditures and alleviate financial pressures. The analysis within this AMP includes the funding currently available and forecast to be leveraged for infrastructure, including Ontario Community Infrastructure Fund and Canada Community Benefit Fund.

Taxation (Incremental Revenue Increases & Infrastructure Levy): Incremental revenue increases can help close the infrastructure gap by gradually providing additional revenue to fund the long-term maintenance, renewal and improvement of the City's infrastructure. An infrastructure levy for instance can play a role in providing this additional revenue through an incremental increase and provide consistent funding for infrastructure projects, support long-term asset management, spreading the financial impact over multiple years making it more manageable, and enhancing fiscal sustainability.

An incremental increase in the form of an infrastructure levy can provide a reliable and sustainable source of funding, enabling the City to prioritize and address infrastructure needs over time without overburdening tax and rate payers or relying heavily on uncertain grants and external sources.

Figure 12-9 shows the impact of an infrastructure levy on the proposed LOS cumulative capital infrastructure gap. There are options of a 1.5%, 2%, and 3% infrastructure levy for the City's consideration. This analysis assumes a levy would not begin until 2026, with no other inflationary increase. Based on the analysis completed, rather than a \$351M gap by the end of the 10-year period, a 3% levy would bring down the gap by more than \$50M by 2034. By implementing an infrastructure levy, along with other financial and non-financial strategies discussed in this strategy, will allow for incremental changes to help the City bring down the infrastructure gap.

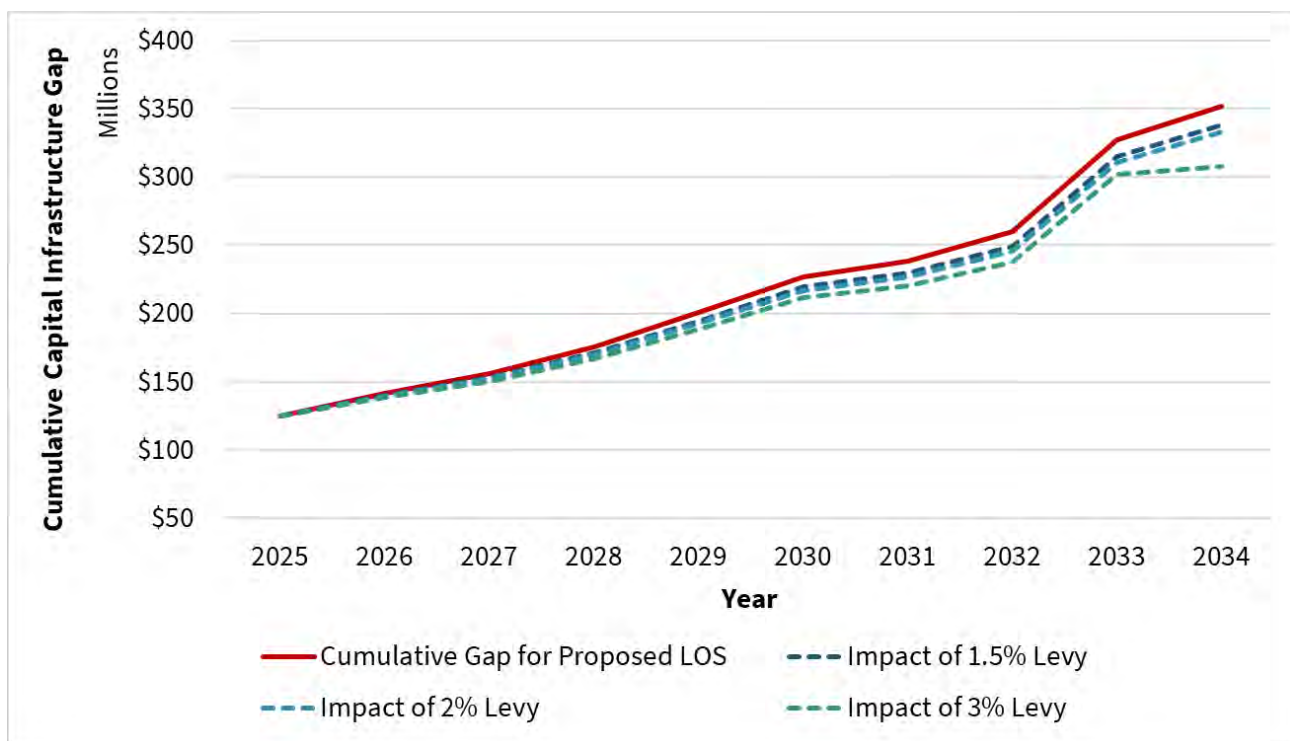


Figure 12-9. Impact of an Infrastructure Levy on the Cumulative Capital Infrastructure Gap

User Fees/Service Charges: The City can implement or adjust user fees and charges as a financial strategy to help close the infrastructure gap, particularly for asset renewals and replacements. By aligning fees with the true cost of service delivery, including long-term asset lifecycle costs, the City can ensure that the users of a service contribute proportionally to its sustainability. This approach promotes financial responsibility and helps reduce reliance on property taxes or external funding sources. Fee structures should be regularly reviewed and updated to reflect inflation, increased service demand, and the projected costs of maintaining assets in a state of good repair.

Staff review and update Fees and Charges annually to ensure the services provided are aligned with the cost of providing the service and inflationary pressures. In 2026, staff are looking to review specific areas of the City's fees and charges.

Growth & Development: Promoting development in strategically located, cost-efficient areas helps maximize tax and rate revenue while minimizing the financial burden of infrastructure and service expansion. By focusing growth in areas with existing utilities, transportation networks, and public services, the City can enhance fiscal sustainability, reduce long-term maintenance costs, and improve overall efficiency. This approach supports responsible urban planning, encourages higher land productivity, and increases revenue. Eligible growth capital projects are identified in the annual budget process and leverage development charges as a funding source.

It is recommended upon completion of updated master plans that another Development Charge Background Study (updated previously in 2022) be complete to ensure that development charges are keeping in line with the needs of growing infrastructure.

Divestitures: Selling non-essential assets to generate revenue and reduce maintenance costs where feasible. However, this is not an option for all asset types, such as linear infrastructure like watermain. Careful consideration of assets for possible divestitures should be undertaken prior to implementing this strategy. The asset's relevance to core services and community value should be evaluated, along with consideration of the asset's condition, financial implications, legal and regulatory review, engagement with stakeholders. The City may consider alternative uses or partnerships for the asset rather than divestitures to ensure future community needs are met.

By adopting a comprehensive and balanced combination of financial, operational, and policy-based strategies, the City can more effectively address the growing infrastructure gap. This multifaceted approach enables the City to prioritize critical investments, extend the useful life of existing assets through improved lifecycle management, and ensure that limited resources are allocated where they will have the greatest impact.

Through proactive planning and strategic investment, the City can maintain and enhance service delivery standards, ensuring that infrastructure continues to meet the needs of current residents while accommodating future growth. Importantly, this strategy supports fiscal sustainability by balancing affordability for residents with the need for ongoing infrastructure renewal and replacement. It encourages responsible stewardship of public assets by integrating financial planning, risk management, and performance monitoring into daily operations and long-term planning processes.

Ultimately, this approach positions the City to remain resilient in the face of economic, environment, and demographic challenges, ensuring its infrastructure systems continue to support a safe, livable, and thriving community for generations to come. This financial strategy offers key insights to inform future City budgets, helping to establish appropriate funding levels that support the delivery of municipal services.



13.0 Improvement and Monitoring Plan

13 Improvement and Monitoring Plan

The City of Welland is taking a proactive approach to asset management, recognizing the importance of continually improving their forecasting and planning processes. By striving for a full cost recovery approach, the City aims to ensure that infrastructure needs are adequately met within the constraints of available revenues.

This AMP satisfies the requirements of O.Reg.588/17, as outlined below. The opportunities for improvement will guide strategic decisions for the City to continually improve levels of service, asset reporting (valuation and condition), and future iterations of the AMP for their assets.

13.1 2025 O.Reg. 588/17 Requirements

Following the adoption of this plan by Council, this plan will be further updated to meet the 2025 regulatory requirements, which are outlined below.

2025 O.Reg. 588/17 Compliance Checklist

Asset Management Plan

For core and all other municipal infrastructure assets included in the 2024 plan:

- The levels of service the municipality **proposes** to provide for each of the 10 years following the year in which all information required is included.
- An explanation of why the proposed levels of service are appropriate for the municipality based on the following:
 - The options for the proposed levels of service and the risks associated with those options to the long-term sustainability of the municipality.
 - How the proposed levels of service differ from the current levels of service.
 - Whether the proposed levels of service are achievable.
 - The municipality's ability to afford the proposed levels of service.
- The proposed performance of each asset category for each of the 10-year period
- A lifecycle management and financial strategy that sets out that includes an assessment of the full lifecycle activities required for 10 years and options, risks, and options to achieve the proposed LOS at the lowest cost.
- An estimate of the annual costs for each of the 10-year period.
- Identification of the annual funding projected to be available.
- Identification and explanation of any funding shortfalls and risks associated with not meeting proposed level of service by performing the required lifecycle activities.

Post 2025 O.Reg. 588/17 Compliance Checklist

- The City will be required to review and update its asset management plan at least every 5 years following the 2025 AMP.
- The City shall conduct an annual review of its asset management progress to Council on or before July 1 in each year and address:
 - The municipality's progress in implementing its asset management plan
 - Any factors impeding the municipality's ability to implement its asset management plan
 - A strategy to address the factors impeding their ability to implement the AMP

It is recommended that this update include an update to the state of the infrastructure and the levels of service and KPIs developed for this plan to establish the progress being made by the City in implementing this plan.

13.2 Opportunities for Improvement

Asset Management is a journey that is continually evolving based on updated information, technology, etc. Throughout the development of this AMP, opportunities for improvement are documented below. Specific opportunities to the service areas provided in this AMP have been included in Table 13-1. At a high level, these opportunities include improvements such as:

- **Asset Data**
 - Document "source of truth" for all asset registers and ensure registers developed for this AMP are kept up to date.
 - Develop asset data governance strategy to ensure appropriate roles and responsibilities are documented and assigned for data maintenance.
 - Continue to fill any remaining gaps.
 - Continue to review and update current replacement values and service lives.
- **Asset Failure**
 - All decisions about the refurbishment and replacement of an asset and the timing of these activities should be based on a sound determination of the asset's critical failure mode. Identification of critical failure modes will ensure that the City focuses on the assets and failures that can have the most impact on its ability to deliver services. For example, watermain may fail before or after their estimated service life and require replacement after a specific threshold of watermain breaks has been reached. Although not required by O.Reg. 588/17, it would be a logical next step in the progression of asset management planning, especially as more improved information becomes available with the City's new work management system.

- **Lifecycle Strategies**

- Continue to expand and improve on lifecycle management strategies which can further assess the full lifecycle cost of assets, as well as help to enhance lifecycle forecasts.

- **Align Budgets to Lifecycle Activities**

- To assist in determining the whole lifecycle cost of assets, and to assess these costs, aligning the budget process with asset management defined lifecycle activities will provide more clarity and tie expenditures to asset management.

Improving asset management practices and implementing these recommendations brings a range of benefits including:

- **Better Decision-Making** by providing reliable data for planning, budgeting and prioritizing investments and supporting transparent, evidence-based decisions on when to maintain, renew, or replace assets.
- **Cost Efficiency** by extending asset life through proactive maintenance, reducing emergency repairs and unplanned capital expenditures.
- **Improve Service Delivery** by ensuring that assets deliver expected levels of service to the public and reducing service disruptions.
- **Risk Management by identifying critical assets and assessing the consequence of failure and helps to mitigate financial, legal and reputational risks.**
- **Regulatory Compliance** with O.Reg.588/17.
- **Strategic Planning & Alignment** with capital planning, organizational goals, community priorities and informing long-term financial planning.
- **Transparency & Communication** between Council, staff, and the public by clearly showing asset needs and performance.

Table 13-1. Service Area Opportunities for Improvement

Service	Opportunity	Priority
Sanitary	- Continue to improve condition data on assets to ensure assets in very poor condition are prioritized appropriately. - Determine failure mechanisms, to determine factors that are considered to replace assets. - Continue to review opportunities for cost effective alternatives to replacement (spot repairs, relining). - Update master plan to understand where further expenditures for growth are required. - Implement a criticality and risk assessment framework - Leverage CCTV prioritization tool to determine lower cost alternatives for pipes for asset management planning. - Maintenance Management Master Plan to outline the strategic approach to managing maintenance activities within an organization. It serves as a roadmap to guide maintenance, operations, and asset management to ensure maintenance activities align with the organization's overall goals and objectives. The plan considers factors such as equipment reliability, risk management, cost optimization, regulatory compliance, and the overall lifecycle of assets. - Work management system audit and assessment to develop a roadmap with initial recommendations to improve work management, data and information management, and bridge gaps between maintenance and asset management.	High

Service	Opportunity	Priority
Water	• Determine failure mechanisms, to determine factors that are considered to replace assets. • Evaluate alternatives to replacement such as pipe relining. • Update master plan to understand where further expenditures for growth are required. • Watermains: Design and inspection protocol, criticality & risk prioritization tool • Maintenance Management Master Plan to outline the strategic approach to managing maintenance activities within an organization. It serves as a roadmap to guide maintenance, operations, and asset management to ensure maintenance activities align with the organization's overall goals and objectives. The plan considers factors such as equipment reliability, risk management, cost optimization, regulatory compliance, and the overall lifecycle of assets. • Work management system audit and assessment to develop a roadmap with initial recommendations to improve work management, data and information management, and bridge gaps between maintenance and asset management.	High

Service	Opportunity	Priority
Storm	• Continue to improve condition data on assets to ensure assets in very poor condition are prioritized appropriately. • Determine failure mechanisms, to determine factors that are considered to replace assets. • Continue to review opportunities for cost effective alternatives to replacement (spot repairs, relining). • Update master plan to understand where further expenditures for growth are required. • Implement a criticality and risk assessment framework • Leverage CCTV prioritization tool to determine lower cost alternatives for pipes for asset management planning • Maintenance Management Master Plan to outline the strategic approach to managing maintenance activities within an organization. It serves as a roadmap to guide maintenance, operations, and asset management to ensure maintenance activities align with the organization's overall goals and objectives. The plan considers factors such as equipment reliability, risk management, cost optimization, regulatory compliance, and the overall lifecycle of assets. • Work management system audit and assessment to develop a roadmap with initial recommendations to improve work management, data and information management, and bridge gaps between maintenance and asset management.	Medium

Service	Opportunity	Priority
Transportation	- Define functional asset hierarchy structure standard and data governance framework - Update master plan to understand where further expenditures for growth are required. - Implement a criticality and risk assessment framework - Continue to expand and update asset registers for transportation assets - Work management system audit and assessment to develop a roadmap with initial recommendations to improve work management, data and information management, and bridge gaps between maintenance and asset management.	High
Central Fleet	- Define functional asset hierarchy structure standard and data governance framework - Implement a criticality and risk assessment framework - Work management system audit and assessment to develop a roadmap with initial recommendations to improve work management, data and information management, and bridge gaps between maintenance and asset management.	Medium
Facilities	- Define functional asset hierarchy structure standard and data governance framework - Continue to review and update Building Condition Assessment to determine appropriate capital plans from the recommendations. Track actionable work in work management system and key outcomes from the work completed (cost, etc.). - Implement a criticality and risk assessment framework - Maintenance resource analysis - Work management system audit and assessment to develop a roadmap with initial recommendations to improve work management, data and information management, and bridge gaps between maintenance and asset management.	Medium

Service	Opportunity	Priority
Fire	- Define functional asset hierarchy structure standard and data governance framework - Operations and maintenance assessment - Implement a criticality and risk assessment framework - Work management system audit and assessment to develop a roadmap with initial recommendations to improve work management, data and information management, and bridge gaps between maintenance and asset management.	High
Forestry	- Improve information and tracking of Forestry assets, including condition and replacement values. - Analyze lifecycle costs required for Forestry assets.	Low
Information Systems	- Define functional asset hierarchy structure standard and data governance framework - Implement a criticality and risk assessment framework	Low
Parks, Recreation, Culture and Cemeteries	- Define functional asset hierarchy structure standard and data governance framework - Implement a criticality and risk assessment framework - Work management system audit and assessment to develop a roadmap with initial recommendations to improve work management, data and information management, and bridge gaps between maintenance and asset management.	Medium



Appendices

Appendix A: Glossary of Terms



Term	Definition
Asset	An item, thing or entity that has potential or actual value or benefit to an organization.
Asset Management	Coordinated activity of an organization to realize value from assets.
Asset Management Plan (AMP)	Long-term plans (usually 10–20 years or more for infrastructure assets) that outline the asset activities and programs for each service area and resources applied to provide a defined level of service in the most cost-effective way.
Asset Management Policy	A high-level statement of an organization's principles and approach to asset management (IIMM, 2015).
Bridge Condition Index (BCI)	A numerical index generally utilized for the assessment of the condition & structural reliability of bridges and culverts.
Connection Days	The number of properties connected to a municipal system that are affected by a service issue, multiplied by the number of days on which those properties are affected by the service issue.
Estimated Service Life (ESL)	An estimate of the duration of time that an asset is forecasted to be in service.
Infrastructure	The system of fundamental facilities and structures necessary for a public works of a country, state, or region to function. Examples include roads, railway, bridges, tunnels, water supply, sewers, electrical, telecommunications, signs, equipment, fleet, etc.
Level of Service (LOS)	Parameter or combination of parameters, which reflect social, political, environmental, and economic outcomes that the organization delivers. Levels of service statements describe the outputs or objectives an organization or activity intends to deliver to customers.
Lifecycle Activity	An activity undertaken to sustain asset integrity and service levels over the life of an asset, such as demand management or rehabilitation.

Term	Definition
Lifecycle Cost	The total cost of an asset throughout its life including planning, design, construction, acquisition, operation, maintenance, rehabilitation, and disposal costs.
Lifecycle Management Strategy	The set of planned actions that will enable the assets to provide the desired levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.
LOS Framework	A set of tables which outlines the Levels of Service developed for each service category.
Ontario Regulation O.Reg. 588/17	Ontario Regulation 588/17 under the Infrastructure for Jobs and Prosperity Act 2015, as amended. Principles are set out in this regulation by the provincial government to regulate asset management planning for municipalities.
Performance Measure	Parameters / metrics that can be measured and monitored to assess the delivery of a service that is being provided.
Pipeline Assessment and Certification Program (PACP)	A standardized protocol for coding pipeline condition information from CCTV inspection footage.
Replacement Cost/Value	The cost of acquiring an asset to replace an existing asset with a new modern equivalent asset.
Reserves	A reserve is an allocation of accumulated net revenue. The Town's current strategy is to contribute fixed amounts to capital reserves which supports capital spending together with grants, development charges, debt, etc.

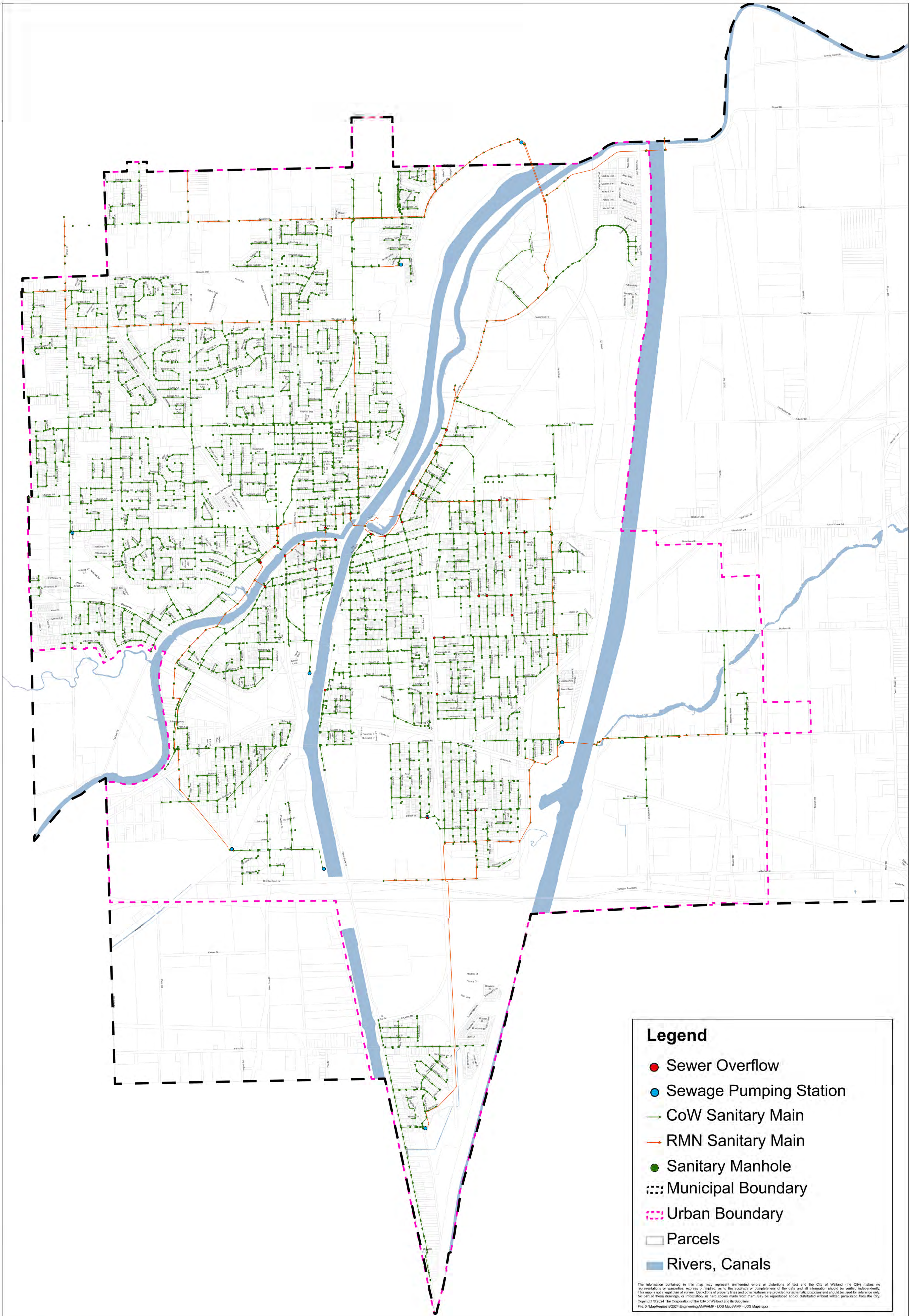
Acronym	Definition
AM	Asset Management
AMP	Asset Management Plan
AODA	Accessibility for Ontarians with Disabilities Act
ARL	Annual Repayment Limit
ASAP	As Soon As Possible

Acronym	Definition
BCA	Building Condition Assessment
BCI	Bridge Condition Index
CCAP	Climate Change Action Plan
CCTV	Closed Circuit Television
CRV	Current Replacement Value
CTLA	Canadian Tree Leaf Association
DC	Development Charges
DWQMS	Drinking Water Quality Management Standard
ESL	Estimated Service Life
FCI	Facility Condition Index
GHG	Greenhouse Gas
GIS	Geographic Information System
IIMM	International Infrastructure Management Manual
IS	Information Systems
IT	Information Technology
KPI	Key Performance Indicator
LOS	Levels of Service
ML	Mega-litre
MMS	Minimum Maintenance Standards
NASSCO	National Association of Sewer Service Companies
OGS	Oil and Grit Separator
OSIM	Ontario Structure Inspection Manual
PACP	Pipeline Assessment and Certification Program

Acronym	Definition
PCI	Pavement Condition Index
PCP	Partners for Climate Protection
PLOS	Performance Level of Service
PM	Preventive Maintenance
PPCP	Pollution Prevention and Control Plan
PVC	Polyvinyl Chloride
PW	Public Works
ROW	Right of Way
SWAP	Sewage Water Alleviation Program
WCWC	Welland Community Wellness Complex
WIFC	Welland International Flatwater Centre

Appendix B: Sanitary & Combined Sewer Network Map





Legend

Sewer Overflow

Sewage Pumping Station

CoW Sanitary Main

RMN Sanitary Main

Sanitary Manhole

Municipal Boundary

Urban Boundary

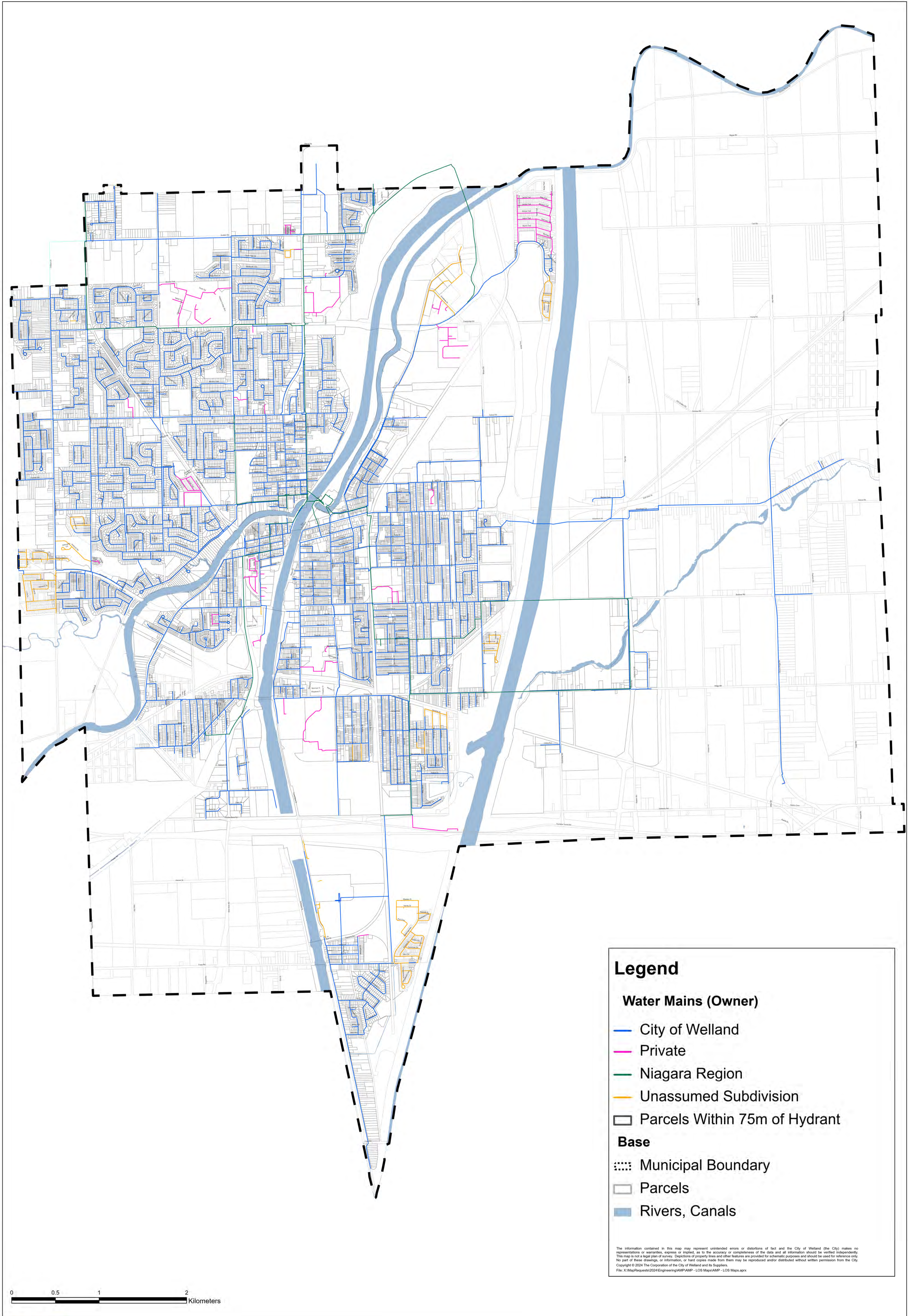
Parcels

Rivers, Canals

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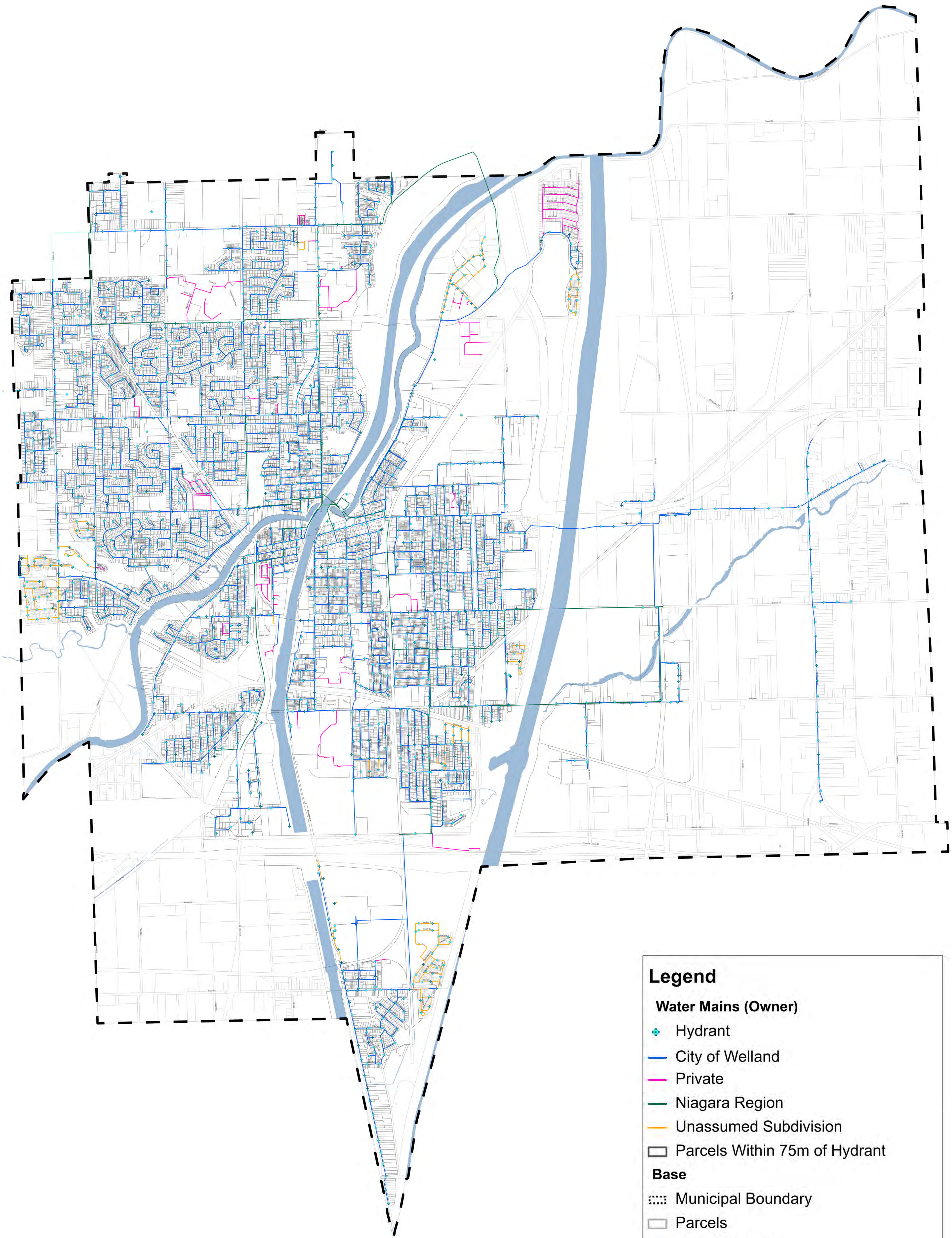
Appendix C: Water Network Map





Appendix D: Water Hydrant Network Map





Legend

Water Mains (Owner)

 Hydrant

 City of Welland

 Private

 Niagara Region

 Unassumed Subdivision

 Parcels Within 75m of Hydrant

Base

 Municipal Boundary

 Parcels

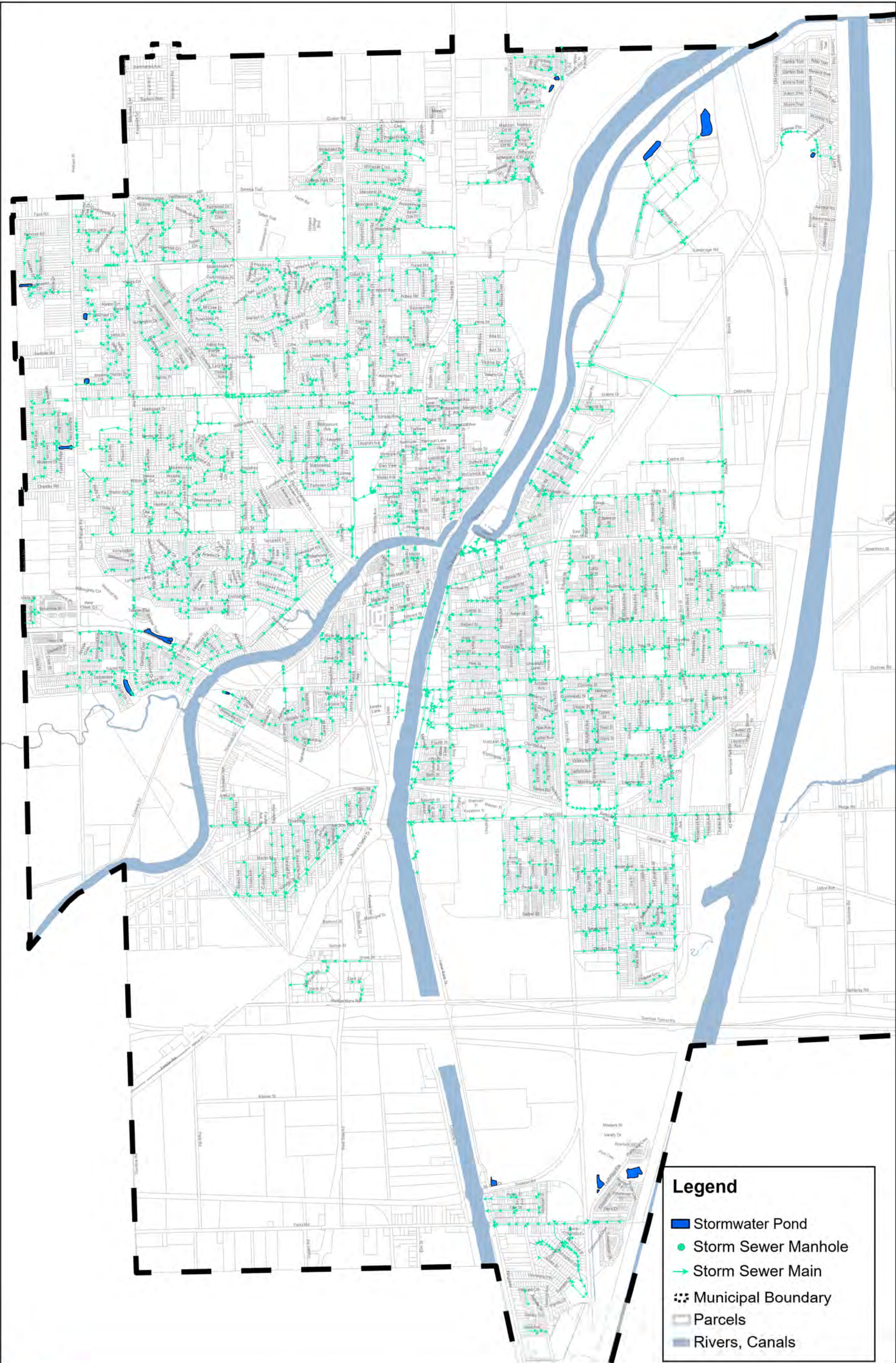
 Rivers, Canals

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Appendix E: Storm Sewer Network Map





Legend

- Stormwater Pond
- Storm Sewer Manhole
- Storm Sewer Main
- Municipal Boundary
- Parcels
- Rivers, Canals

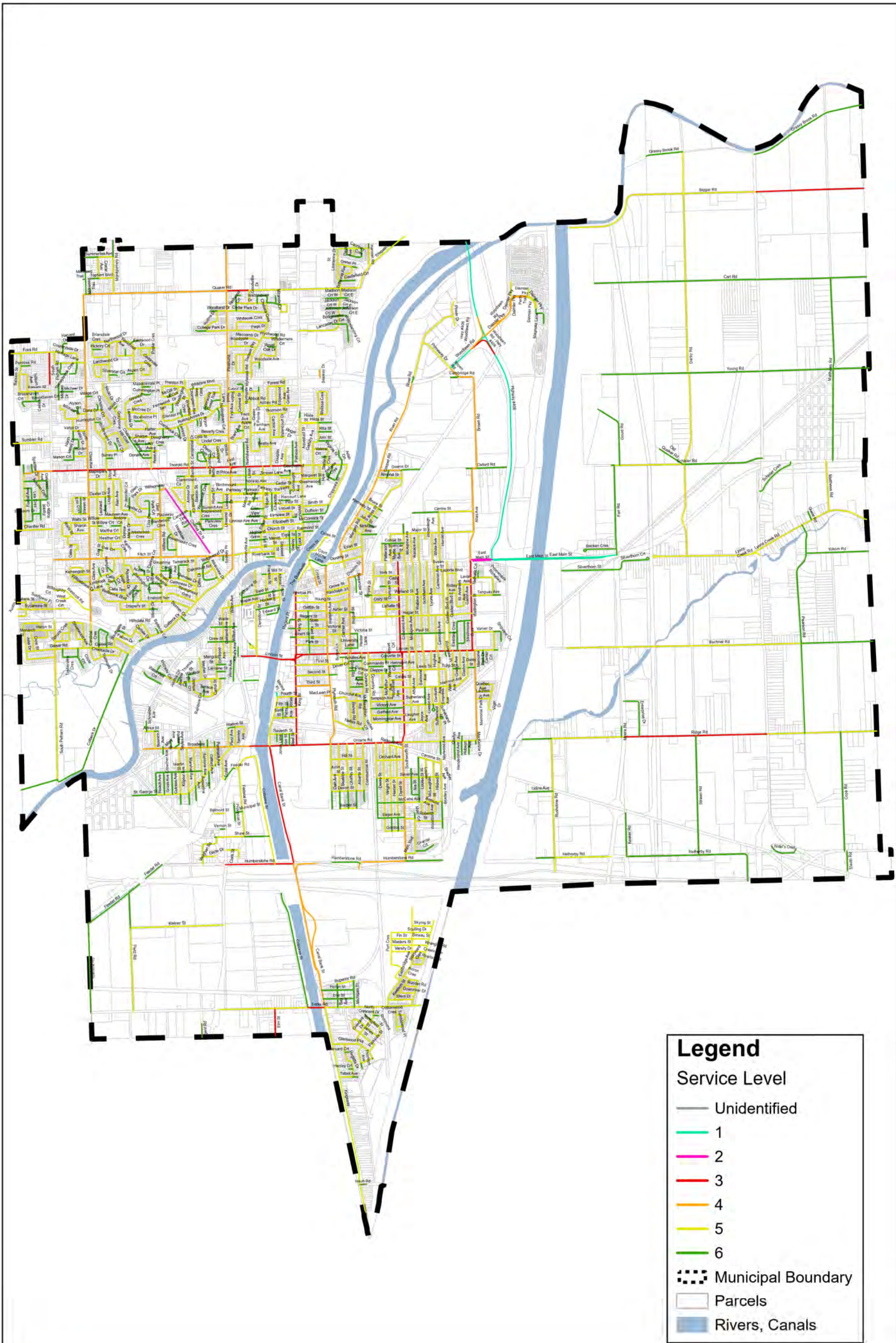


Storm Sewer Network



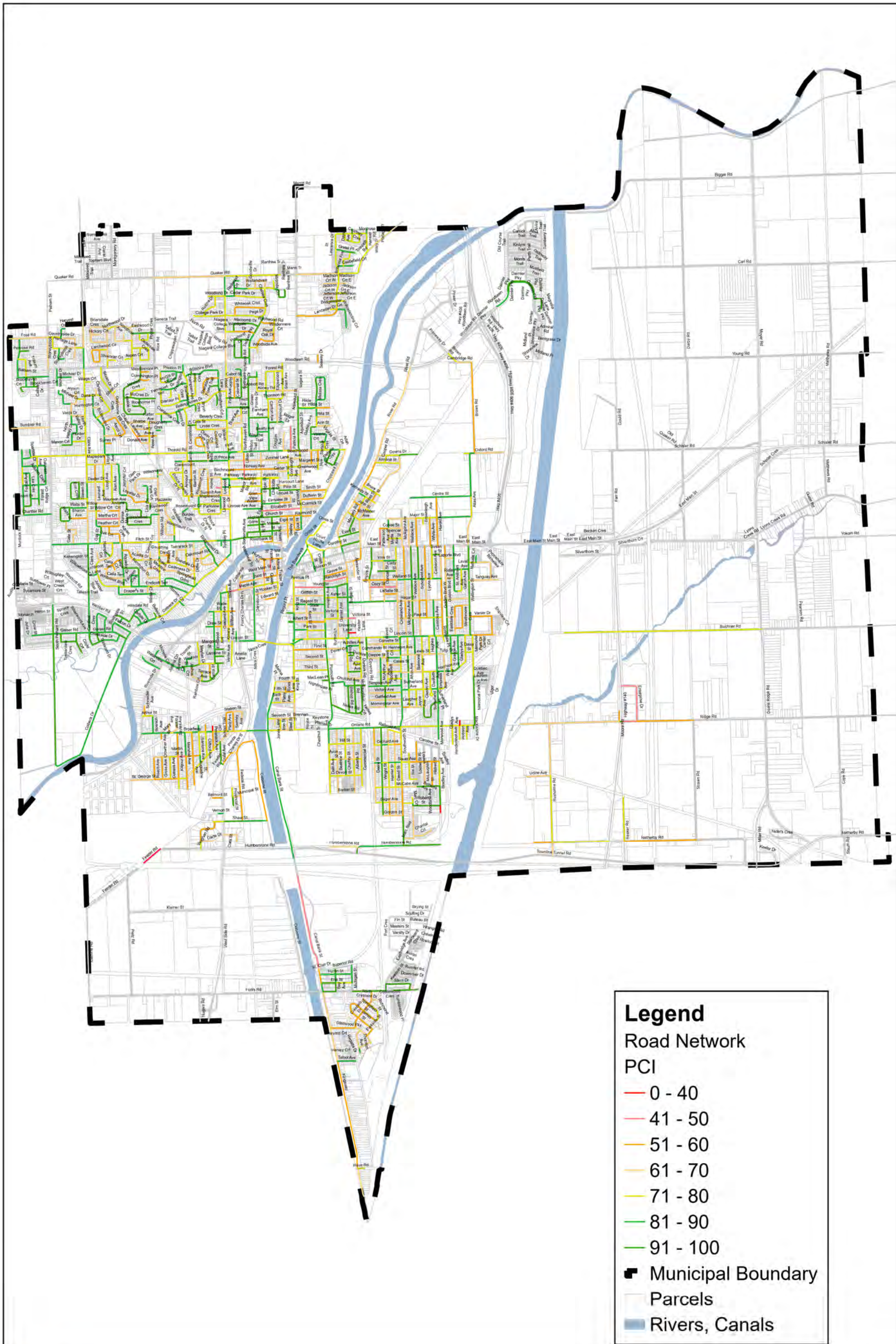
Appendix F: Road Network Service Level Map





Appendix G: Road Network PCI Map



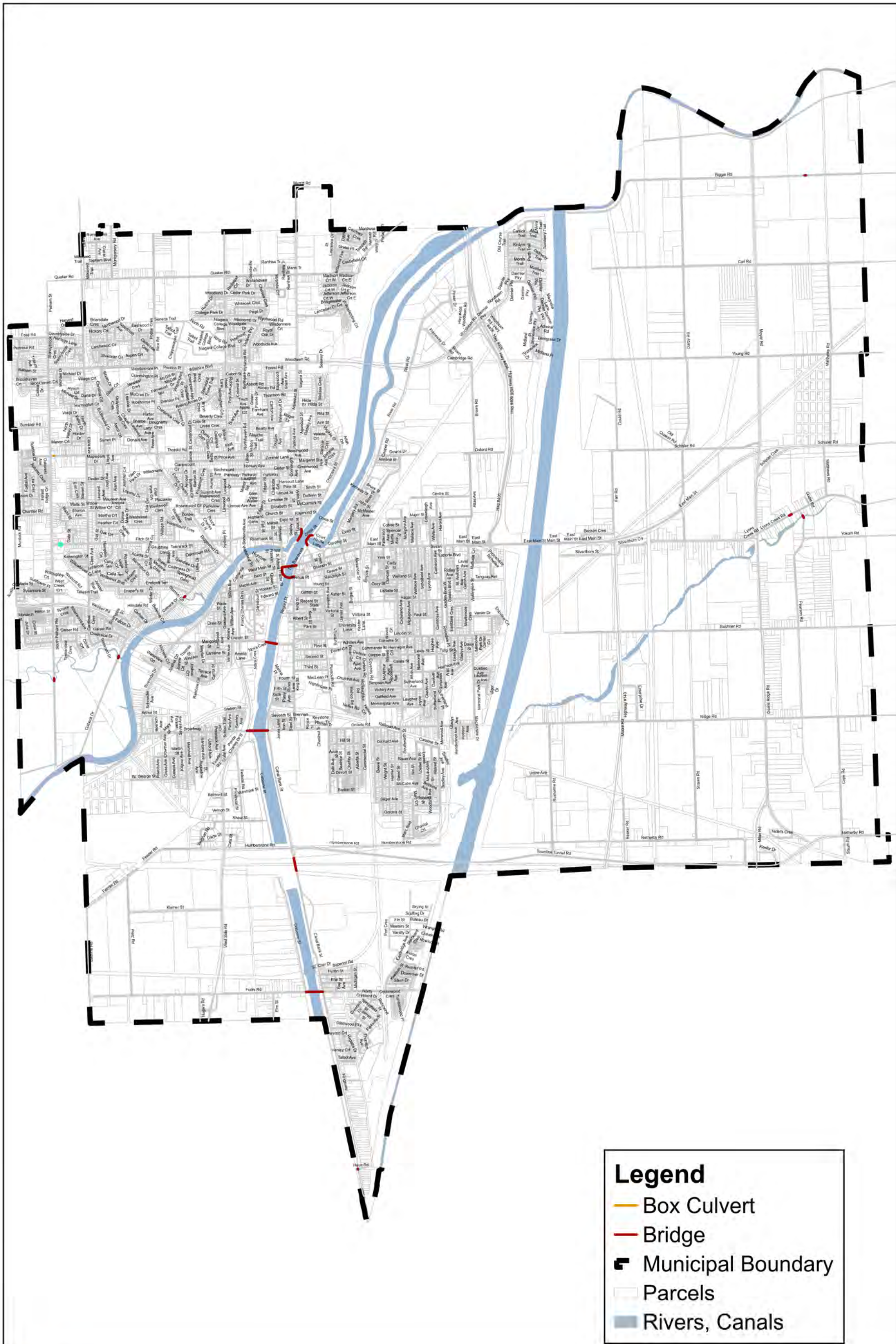


Road Network - PCI Scoring



Appendix H: Bridge Network Map





City of Welland Bridges



