



City of St. Catharines

2023 Asset Management Plan

Remaining Assets



Foreword

We want our community to be one where our citizens' way of life can continue long into the future and one that can withstand unexpected events and adapt to change.

Our success will be measured by our ability to embrace innovation, ensure sustainability, and improve the livability of the city for citizens of all ages, abilities, and backgrounds.

Well maintained infrastructure is a prerequisite to achieving this vision and ensuring a high quality of life in St. Catharines and communities everywhere. Municipal assets support a variety of services for residents and visitors such as providing safe drinking water, powering economies through efficient movement of people and goods; provide venues for cultural expressions and community interaction; and promote healthy lifestyles.

Asset Management is the coordinated effort of the organization to realize value from infrastructure assets. This includes a systematic approach to managing the asset lifecycles while balancing costs, opportunities, and risks against the desired performance of the assets. This Asset Management Plan documents the current state of City assets, the desired levels of service, the lifecycle activities to support them, and the financing strategy to fund the full asset lifecycle. Asset Management supports

the City in making the best possible decisions regarding building, operating, maintaining, renewing, replacing, and disposing of infrastructure assets. It also helps achieve the following objectives:

- Ensuring that all City-owned infrastructure assets are sustainable into the future;
- Providing guidance on decisions related to infrastructure asset investment and divestment;
- Providing guidance in the development of standard maintenance and rehabilitation policies;
- Providing a framework for lifecycle and cost / benefit analyses; and
- Promoting better integration of infrastructure decisions within larger strategic, community and land-use goals.

With the development of this Asset Management Plan, the City continues our journey towards embedding Asset Management processes into the management of our extensive asset portfolios. This is a key component in achieving the City's vision of St. Catharines being the most dynamic, innovative, sustainable, and livable city in North America.

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Abbreviations

The table below provides a summary of the abbreviations referenced in this document.

Acronym	Definition
AM	Asset Management
AMP	Asset Management Plan
AODA	Accessibility for Ontarians with Disabilities Act.
BSC	Budget Standing Committee
CAO	Chief Administrative Officer
City	Corporation of The City of St. Catharines (City of St. Catharines)
ESL	Estimated Service Life
FCM	Federation of Canadian Municipalities
KPI	Key Performance Indicators
LCA	Lifecycle Activities
LOS	Levels of Service
ROW	Right-of-Way
SME	Subject Matter Expert



Glossary of Terms

The table below provides a summary of the definitions referenced in this document. Terminology within this document has been developed to align with the ISO55000 series of standards where possible.

Term	Definition
Asset	Items, object or entity that has potential or actual value to an organization. These can be physical (tangible) or non-physical (intangible).
Asset Life	Period from asset creation to asset end-of-life.
Asset Management	Coordinated activity of an organization to realize value from assets.
Asset Portfolio	Assets that are within the scope of Asset Management.
Asset Type	Grouping of assets having common characteristics that distinguish those as a group or class.
Continual Improvement	Recurring activity to enhance performance.
Level of Service	Parameter or combination of parameters, which reflect social, political, environmental and economic outcomes that the organization delivers.
Lifecycle	Stages involved in the management of an asset throughout its life.

Term	Definition
Objective	Results to be achieved. These can be strategic, tactical or operational. Objectives can be related to different disciplines.
Organization	Person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives.
Organizational Objective	Overarching objective that sets the context and direction for an organization.
Policy	Intentions and direction of an organization as formally expressed by its top management.
Preventive Action	Action to eliminate the cause of a potential nonconformity or other undesirable potential situation.
Risk	Effect of uncertainty on objectives. An effect is a deviation from the expected positive and/or negative.
Stakeholder	Person or organization that can affect, be affected by, or perceive themselves to be affected by a decision or activity.

Executive Summary

The City of St. Catharines is responsible for delivering services that support its community while enhancing the quality of life experienced by residents. The previous 2021 Asset Management Plan encompassed the core assets of transportation, water, wastewater and storm assets. This Asset Management Plan includes all remaining assets and comprises of the following asset classes; buildings and facilities, corporate fleet, culture, fire services, information technology, natural assets, parking services and parks.

The City's engagement in improving and enhancing Asset Management practices dates back over 30 years during which time asset information has been recorded for internal practices such as tracking water mains breaks and pavement management. By 1999, efforts were underway towards formalizing the collection and retention of assets in a structured spatial repository. The 2013 Corporate Asset Management Plan established an internal governance structure and started the process to incorporate Asset Management Planning into asset owning divisions. Furthermore, the City also undertook the development of a Strategic Plan to define the City's vision to ensure economic prosperity, social well-being, environmental stewardship, and a cultural renaissance for the community. The Strategic Plan and its vision serve as a baseline for defining the Asset Management roadmap. The 2019 Strategic Asset Management Policy

further enhanced Asset Management practices to comply with the requirements of O.Reg.588/17.

The City's Asset Management Plan for Core Infrastructure was developed in 2021 and approved by City Council on October 4, 2021. The Asset Management Plan was structured into core services defined by the Ministry of Infrastructure, which included water, wastewater, stormwater, transportation, and structures.

This Asset Management Plan: Remaining Assets, builds on the previous AMP, and follows the same strategy developed for the 2021 AMP, with a focus on the remaining services. These are:



Buildings and
Facilities



Information
Technology



Corporate Fleet



Natural Assets



Culture



Parking Services



Fire Services



Parks

This document includes a section for each of these service areas to provide consistency and ease of understanding for readers. It then concludes with the financial strategy and improvement plan recommendations. Each section related to the services included in this plan is subdivided into the following:

- State of Local Infrastructure
- Levels of Service
- Lifecycle Management Strategy
- Data Confidence

This planning document is a strategic guide to support continuous improvement of asset related activities and provide the following:

- Alignment with provincial regulatory landscape;
- Understanding of the current state of City infrastructure necessary to support the remaining services
- Defining and measuring key performance indicators that support the provision of core services from a customer and technical perspective
- Providing an integrated forecast for Asset Management Planning with financial budgeting; and
- Recommending data improvements for enhancement of future iterations of the plan.

Each of the services assessed are dependent on a wide variety of asset categories that have unique functions and components with an estimated value of \$1.1 billion (2023 dollars). This is in addition to the value of Core Assets determined in the previous plan (\$5 billion in 2021 dollars). The value of remaining assets does not include land value, and is based on the best available information at the time of data collection. The reported replacement value of assets may fluctuate based on several factors, including inflation, changing technologies, environmental conditions, and increased data accuracy. **Table ES 1**

provides an overview of the replacement value of assets within each asset category.

The condition distribution of service functions as a percentage of their replacement value is shown in **Figure ES 1**. Where performance or condition, or an appropriate estimate, was unavailable, the condition was reported as Unknown.



Figure ES 1. Condition Distribution by Category

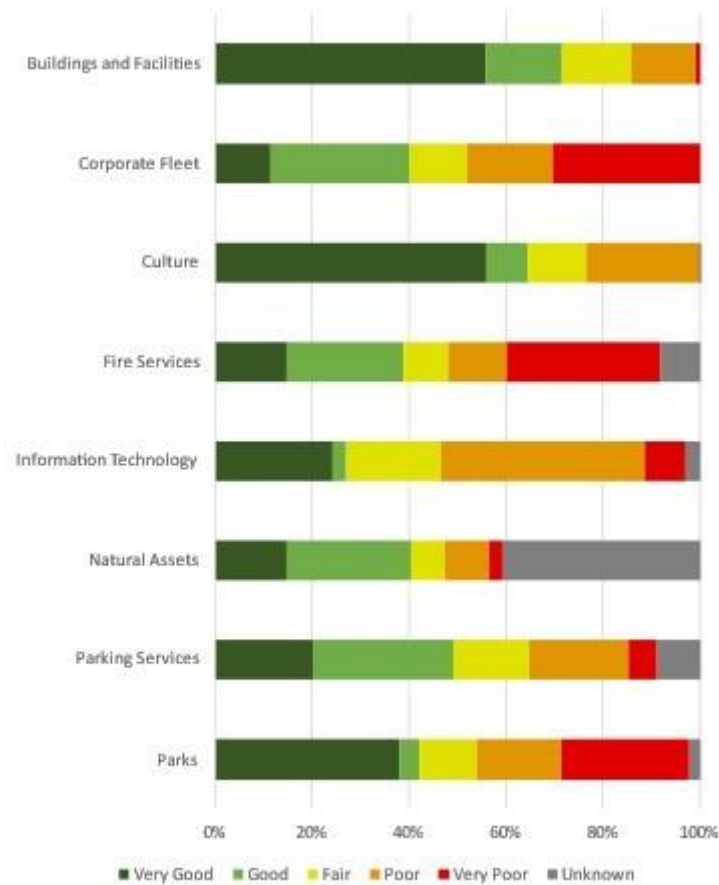


Table ES 1. City’s Infrastructure Valuation

Service	Replacement Value (2023 Dollars)
Buildings and Facilities	\$535,656,000
Corporate Fleet	\$23,344,000
Culture	\$8,606,000
Fire Services	\$41,066,000
Information Technology	\$21,308,000
Natural Assets	\$242,430,000
Parking Services	\$95,090,000
Parks	\$177,112,000
Total	\$1,144,612,000*

*Land Value not included

It is recommended that future iterations of the AMP will include both the core assets and these remaining asset classes in a single document.

Level of service metrics are key drivers for decision-making within the City and aim to document service outcomes from a customer perspective. As part of

managing levels of service, the City has documented current and past performance for the indicators as well as metrics to be considered in the future once data becomes available for analysis. The defined frameworks for each core service are to be updated annually to reflect improvement on the City's indicators.

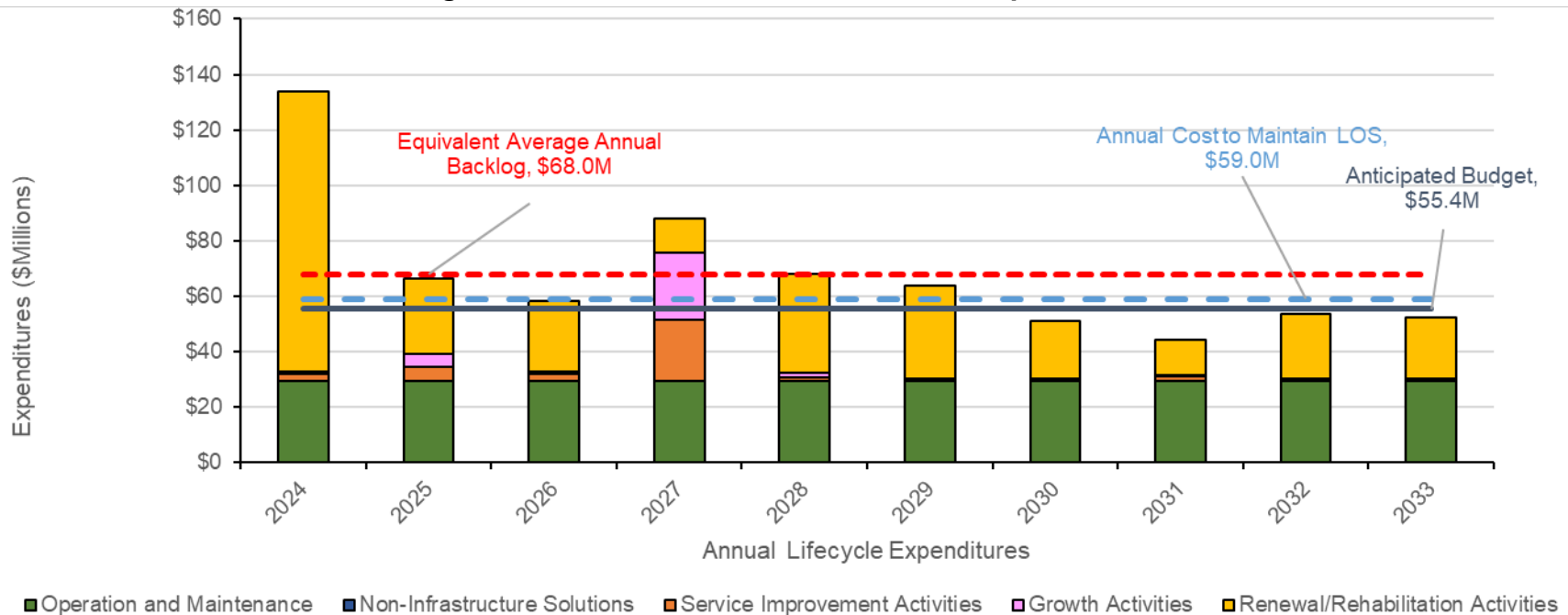
Asset lifecycle activities include the maintenance, rehabilitation, replacement, disposal, improvement, and expansion of assets. These activities have been prioritized based on risk and are funded through the operating and capital budgets at the City. **Figure ES 2** provides a summary of the forecasted lifecycle

investment requirements for all services; these are based on current activities performed within anticipated budgets and available information. It is understood that as the City improves the AM practices, needs will be revised to match future activities.

An overall data confidence assessment has been conducted as part of this plan. Recommendations for improvements include confirmation of asset inventories and condition, as well as validation of assumptions made throughout the development of the plan.



Figure ES 2. Forecasted Asset Portfolio Expenditures



The average annual anticipated funding for this asset portfolio is \$55.4M over the 10-year period. The average annual cost to maintain levels of service was determined to be \$59.0M. This suggests an annual investment shortfall of around \$3.6M. The backlog and future upcoming needs spread over the next 10 year would require \$68.0M annually resulting in a gap of \$12.5M annually. Future iterations of this plan (for O.Reg. 588/17 2025 deadline) will further analyze the asset needs based on targeted (proposed) levels of service. This plan reviews the current level of service being provided. The City can either reduce service offerings to their residents and/or increase funding to be able to maintain services at the current level. If no action is taken, and the funding does not address the future needs and current backlog, the backlog will continue to increase.

This AMP focused on identifying the renewal need for infrastructure investments. The City is also experiencing an operational and maintenance investment gap and should work towards quantifying the true cost to maintain LOS from the operations side. This can then be included in future iterations of the AMP to capture the full lifecycle investment need.

1.0 Introduction

The Corporation of the City of St. Catharines (City of St. Catharines or City), located within the Niagara Region, has a population of 136,803 as per the 2021 census within a geographic area of 96.1 square kilometres. This Asset Management Plan expands on the 2021 AMP for Core Assets as defined by the Ontario Regulation 588/17– Asset Management Planning for Municipal Infrastructure (see **Section 1.4 Provincial Asset**

Management Planning Requirements), to cover the City’s remaining asset infrastructure. The 2021 AMP reported the City’s core assets (including roads, water, wastewater, storm and bridges and structures) which are worth approximately \$5 billion (in 2021 dollars). This AMP addresses the needs associated with sustaining the remaining asset classes, as outlined below. The remaining assets identified in this plan are worth an estimated value of approximately \$1.1 billion distributed between the following asset classes:



150 Buildings and Facilities and Associated Components



490 Corporate Fleet Assets (Including Vehicles, Tools, and Equipment)



194 Cultural Assets



6 Firehalls, 33 Fire Vehicles (Including Associated Components and Equipment)



2,446 Hardware IT assets



50,089 Natural Assets (Including City-Owned Street Trees and Coastal Shoreline)



77 Parking Lots & 2 Parking Garages



109 Parks (Including Park Amenities, Sidewalks & Pathways and Site Works)

1.1 City of St. Catharines' Asset Management Journey

The City recognized it needed to improve and enhance its Asset Management practices in 2011 when the *Sustainability Strategy "Tending the Garden City"* was developed with considerations on defining the infrastructure inventory and identifying operating and maintenance requirements. In 2013, the City developed its first Asset Management Plan (AMP), establishing an internal governance structure and starting the process to incorporate Asset Management Planning into all asset owning divisions.

The 2013 AMP identified the following goals:

- Ensure all City-owned infrastructure assets are sustainable into the future
- Provide guidance in the development of standard maintenance and rehabilitation policies
- Guide decisions related to infrastructure asset investment and divestment
- Provide a framework for lifecycle and cost/benefit analyses
- Promote better integration of infrastructure decisions within larger strategic, community, and land-use goals.

The City of St. Catharines Strategic Plan (2019 – 2028) sets out the City's vision to ensure economic prosperity, social well-being, environmental stewardship, and a cultural renaissance for the community. To achieve the

economic prosperity objective, the City has committed to develop a 10-year capital infrastructure plan that includes all major investments to address City needs, priorities, and growth.

The City approved a Strategic Asset Management Policy in 2019 (required to be reviewed and updated every 5 years) to further enhance the Asset Management practices and comply with the requirements of O.Reg.588/17. The policy applies to all operational areas and defines principles and objectives that will define the City's practices, as well as the roles and responsibilities of staff required to successfully implement Asset Management. The next update for the Asset Management Policy which is scheduled to occur in 2024 should be expanded to include the assets contained within this Asset Management Plan that aren't currently identified. These are:



Information
Technology



Natural
Assets



Culture



Parking Services



Fire Services



Parks

Like many other municipalities in the area, the City is developing long-term forecasts and implementing the necessary tools to support decision making regarding building, operating, maintaining, renewing, replacing, and

disposing of infrastructure assets. A significant component of the plan is a long-term financial projection to aid with complex decision-making associated with these activities.

This document, presented alongside the 2021 AMP for core assets, will enable the City to manage assets and connect day-to-day infrastructure investment decisions with the services provided to residents. The strategies developed for the 2021 AMP were applied to this plan, and builds on the work completed for core infrastructure.



1.2 The City's Guiding Principles for Asset Management

The City's 2019 Strategic Asset Management Policy (the Policy) applies to all operational areas under the direct authority of City Council which contribute to service delivery using City owned infrastructure or assets that require deliberate management. The Policy highlights the strategic alignment of Asset Management practices with the City's Corporate Strategic Plan.

The following guiding principles from the City's Asset Management Policy were adopted as fundamental for the management of the City's assets:

Customer focused: The City will apply Corporate Asset Management practices including defined levels of service to promote confidence of customers in how the City assets are managed and services are provided, and community wellbeing is fostered for all.

Forward looking: The City will consider current and long-term needs when making decisions and plans to better enable its assets to meet future demands, including changing demographics and populations, customer expectations, legislative requirements, technology, and environmental factors such as climate change.

- **Service based:** The City will take a holistic approach to Corporate Asset Management practices both in assessing levels of service, prioritizing capital spending, and maintaining assets. When assessing levels of service provided by its assets, the City will consider all related assets rather than each asset in isolation.
- **Evidence based:** The City's Corporate Asset Management practices will be based on relevant and reliable information that will form the basis of transparent decision making aimed at reducing asset life cycle costs.

- **Risk based:** The City will take a risk-based approach to prioritizing projects for the acquisition and renewal of assets. Risk will be considered in relation to the likelihood of the asset failing and the impact of asset failure. Asset failures that may impact health and safety shall be ranked as the highest priority for investment.
- **Value based and affordable:** The City will deliver the greatest value from its investment in assets respecting available funding and its customers' ability to pay.
- **Continually evolving:** Corporate Asset Management practices and Asset Management systems will continue to evolve and improve through ongoing evaluation of best practices, innovation, and consideration of future directions, regulations, and requirements.
- **Cooperation and coordination with other governmental plans and strategies:** The City will consider strategies, policies, and plans of other governmental entities established under an act or otherwise to promote integration while providing efficient and effective service delivery for all of our customers and stakeholders.



Figure 1. City Vision and Mission Statement

1.3 City's Mission, Vision and Strategic Goals

To make a positive impact and drive change, in 2015 Council approved the following City mission and vision statements:

A key component of achieving the City's mission, vision and strategic goals is to ensure that the best possible decisions are made regarding the City's assets. The following identifies how they are supported by the Asset Management Plan. The Asset Management Plan:

- Provides the necessary data to implement long-term financial plans to manage the City's assets by tracking accountability through performance indicators
- Improves transparency of the decisions related to services delivered and all the associated risks and costs

Allows the City to benchmark practices to identify areas for improvement; and

- Provides business continuity by documenting the management practices applied to the City's infrastructure.

Furthermore, the City's 2019 – 2028 Strategic Plan has set out a clear path to embracing its mission and vision by defining the following strategic goals. Future iterations of the AMP will be updated to align with the most recent strategic goals of the city, as an update to the Strategic Plan is expected in 2023.

Figure 2. City of St. Catharines Strategic Goals



Economic Prosperity

Support the City's commitment to building and growing a diverse and resilient economy through fiscal responsibility, urban regeneration and collaborative partnerships.



Social Well-Being

Build and support strong, inclusive neighborhoods that provide high quality of life for residents of all ages.



Environmental Stewardship

Adopt innovative approaches and continue responsible community planning and decision-making that balances growth, enhances quality of life, manages emergencies and minimizes the environmental impacts of climate change.



Cultural Renaissance

Celebrate the City's rich history, diversity, arts and cultural assets through leadership, promotion and investments that support measurable, sustainable creative growth.

1.4 Provincial Asset Management Planning Requirements

In 2012, the Province published 'Building Together: Guide for Municipal Asset Management Plans' (Building Together) to encourage and support municipalities in Ontario to develop Asset Management Plans (AMPs) in a consistent manner. The guide describes a general approach to structuring AMPs and provides insight into the content that should be included in sections related to the State of Local Infrastructure, Levels of Service, Asset Lifecycle Management Strategies, and Financing Strategies.

Building Together outlines the information and analysis that municipal Asset Management Plans are to include and was designed to provide consistency across the province for Asset Management. To encourage the development of AMPs, the Provincial and Federal

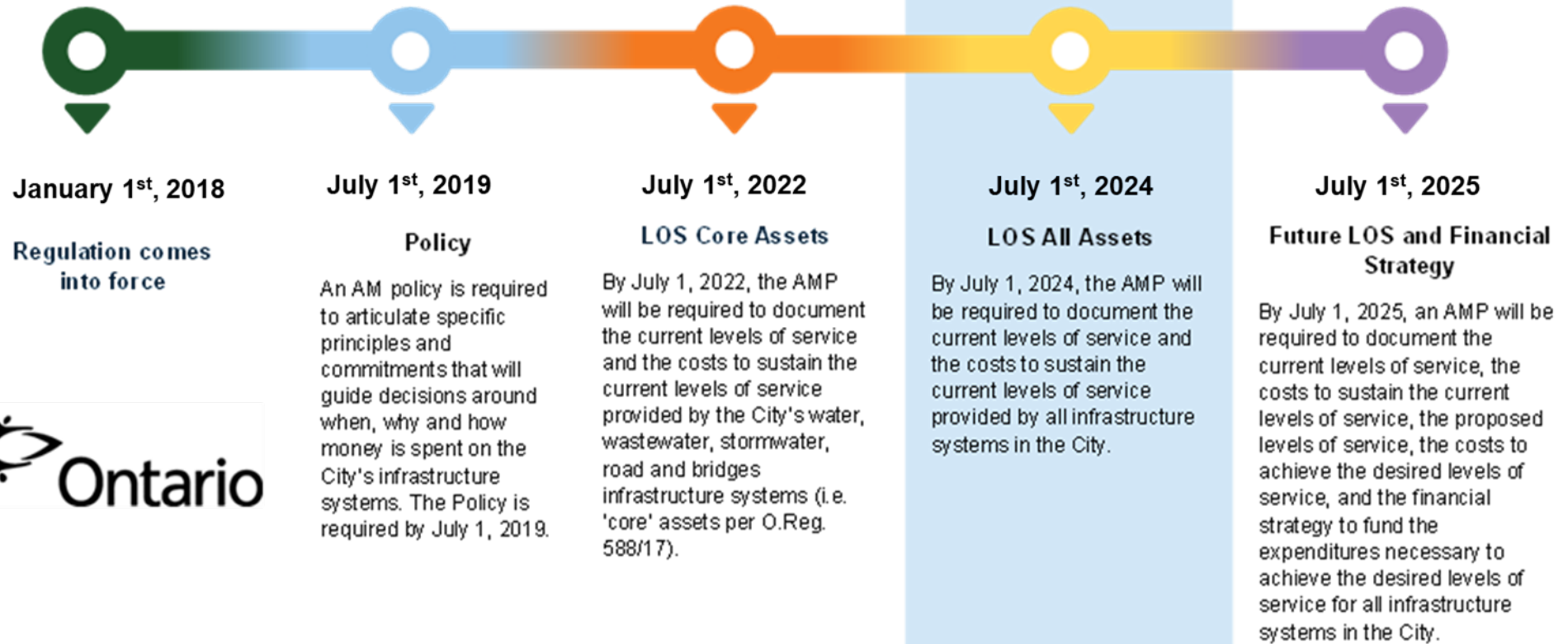
governments also made an AMP a prerequisite to accessing capital funding grants.

In 2015, Ontario passed the Infrastructure for Jobs and Prosperity Act which affirmed the role that municipal infrastructure systems play in supporting the vitality of local economies. After a year-long industry review process, the Province created Ontario Regulation 588/17– Asset Management Planning for Municipal Infrastructure as the first regulation made under the Infrastructure for Jobs and Prosperity Act. O.Reg. 588/17 further expands on the Building Together guide, mandating specific requirements for municipal Asset Management Policies and Asset Management Plans, phased in over a five-year period.

Table 1 summarizes the general requirements and timelines of O.Reg. 588/17, as well as the status of these requirements for the City of St. Catharines.



Table 1. Regulatory Requirements and Timeline for Asset Management Planning based on O.Reg. 588/17



1.5 Asset Management Plan: Definition and Purpose

The Federation of Canadian Municipalities (FCM) has defined an Asset Management Plan as, “a plan for the management of one or more infrastructure assets that combines multi-disciplinary management techniques (including technical and financial) over the life cycle of the asset in the most cost-effective manner to provide a specified level of service.”

The goals of this Asset Management Plan are to:

- Develop asset inventory documentation, with any identified gaps filled based on a strategy based on best practices and in consultation with City stakeholders.
- Define current levels of service, targets and key performance indicators (KPIs) that enable the City to quantify and measure efficiency and effectiveness in support of service-centric decision making, as well as communicate the services provided to its residents.
- Provide asset lifecycle strategies to enable the prediction of asset interventions based on condition and strategic business factors such as costs, levels of service, and risks.
- Provide a framework for funding requirements to support levels of service and the lifecycle management strategy.

- Develop a risk management strategy to enable the prioritization of capital investments that will provide the City with a standardized definition of asset criticality and will particularly consider risks related to climate change.
- Recommend improvement actions for data management, resources, and technology.

Part of the complexity with Asset Management is that it is not about doing one thing – it is about building a robust understanding of asset needs and implementing good practices to manage community infrastructure assets. For these reasons, this plan will help support the City’s development of skills and practices in the following competency areas:

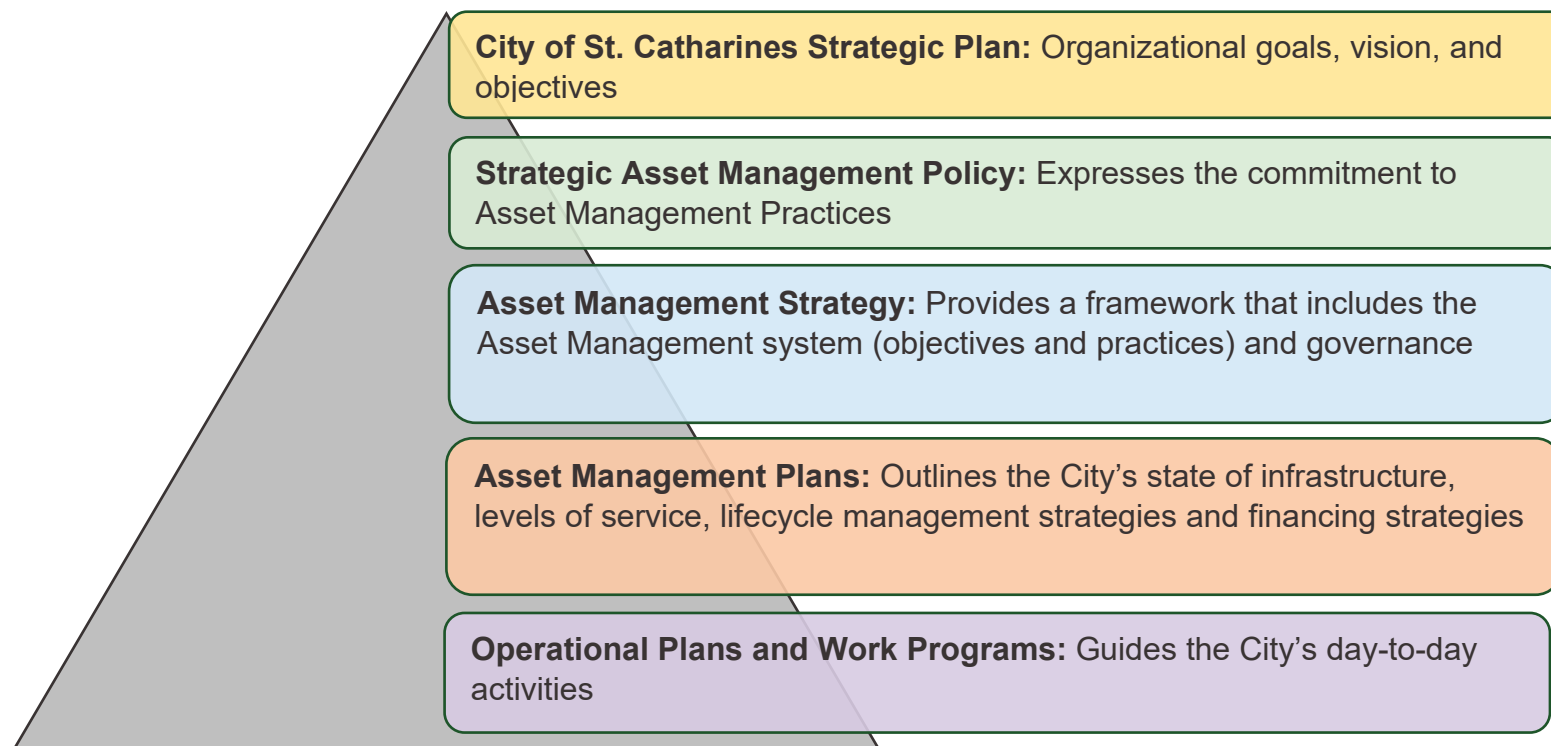
- Policy and governance to lead organizational alignment and commitment.
- People and leadership to create and sustain connections across teams.
- Data and information about assets when needed.
- Planning and decision making to ensure policies, objectives, and information consistently guide the organization.
- Contributions to Asset Management practices to support continuous improvement and ensure internal stakeholders are well-informed, especially when communicating and participating in external knowledge sharing.

1.6 City's Asset Management Governance

The City's Asset Management practices are mandated by the Asset Management Plan and directed by the City's Asset Management Policy.

Furthermore, the City's Asset Management practices are intended to support the City's mission and vision statements. This is achieved through ongoing and continuous improvement of the Asset Management Plan. These relationships are illustrated below in **Figure 3**.

Figure 3. City of St. Catharines Governance Framework



1.7 Asset Classes Included in the scope of this Asset Management Plan

This Asset Management Plan includes the City's remaining assets illustrated below in a parent-child

relationship called the asset hierarchy. Using an asset hierarchy provides the City with the ability to organize and manage its asset information and support decision making. The subsequent chapters in this plan will provide information with the same structure that is detailed below.

Table 2. Hierarchy of Assets Included in the City's 2021 Asset Management Plan

Service Function	Asset Category	Assets and Components Included
Buildings and Facilities (Fire Buildings & Facilities included in Fire Services)	Administration & General Government	Municipal offices and operation facilities, storage barns, and leasable spaces (including community centres, sheds, store fronts for parking facilities, schools, park offices, and park greenhouses).
	Cemeteries	Cemetery buildings (including columbariums, mausoleums, administration offices, operational facilities, storage buildings).
	Coastal	Lighthouse
	Culture	Cultural facilities such as carousel buildings, museums, market squares, performing arts centre, and storage buildings.
	Libraries	Stand-alone libraries
	Recreation	Recreational facilities such as arenas, bandshells, bandstands, controls facilities, offices and operational facilities at recreational areas, community centres, pavilions and sun shelters, storage facilities, washrooms, changerooms, bleachers or stands at recreational areas, animal shelters, concession stands, press booths, golf course clubhouses, libraries, and pools

Service Function	Asset Category	Assets and Components Included
Corporate Fleet	Parking	Vehicles, equipment, and tools associated to parking
	Water and Wastewater	Flushing trucks, utility vans and other vehicles
	All Other Corporate Fleet (Except Fire Vehicles which are included under Fire Services)	Winter operations, forestry and other vehicles
Culture	Carousel	Characters, Crest, Mechanical Parts, Painting
	Lock Walls	2 nd & 3 rd Welland Canal Locks Canal Locks 2 and 3 (Canal 1 was not assessed as all remaining lock walls are buried)
	Public Art	Outdoor art (including memorials, monuments, plaques, and sculptures)
Fire Services	Fire Equipment	Emergency response, technical rescue, medical response, communications, and other equipment
	Fire Facilities	Firehalls, office, shed, training tower, and parking lots
	Fire Vehicles	Emergency response, support, and other vehicle equipment
Information Technology	Hardware	Personal computers (including monitors, laptops, workstations, iPads, and cellular phones), server equipment (including blade enclosers, server blades, physical servers, storage SAN, and racks), core and regular switches, firewalls, desk phones, fire and corporate phone systems, backup and security appliances, wireless infrastructure including access points and controllers, door control and cameras for security systems, printers, scanners, fax machines, meeting room hardware (including projectors, speakers, TVs, audio/video systems, and interactive white boards), large screen or mini PCs for digital signage, and software.
	Software	Various department software

Service Function	Asset Category	Assets and Components Included
Natural Assets	Coastal	Protected and unprotected shorelines
	Forestry	Forested areas, city and park trees
	Horticulture	Beds, planters, beehives
	Natural Waterbodies	Water courses, ponds, lakes, and wetlands
Parking Services	Paid Parking	Parking garages, parking meters, parking lot
	Unpaid Parking	Parking lots
Parks	Open Spaces	Grading, landscaping, green space, irrigation system, and land
	Park Amenities	Hardball and softball diamonds, beaches, boat ramps, outdoor basketball and tennis courts, golf courses, leash free dog park, piers, playgrounds, outdoor pools, skateboard parks, splash pads, artificial turf, soccer, and other sports fields, track and field assets, and garden structures.
	Sidewalks and Pathways	Park sidewalks, patios, decks, recreational trails, stairs and walkways.
	Site Works	Outdoor and sports lighting including poles, park furniture (including benches, picnic tables, and bike racks), fences, flag poles, fountains, machinery and equipment, electrical control and hydro boxes, service roads, signs, parking lots, and closed landfill equipment.

1.8 Asset Management Plan Stakeholders

The development of this AMP was led by the Engineering, Facilities and Environmental Services and Financial Management Services departments with the support of the City's Asset Management Working Group.

Representatives from all departments were consulted through different stages via workshops and contributed to the development of the data necessary to support this Plan. **Table 3** identifies the key roles and responsibilities of the corporate stakeholders for developing, implementing, and approving the City's Corporate Asset Management Plan.

Table 3. City's Asset Management Stakeholders, Roles and Responsibilities

Key Stakeholder	Roles and Responsibilities
Council	<ul style="list-style-type: none"> • Final Decision maker of all Asset Management decisions including approval of the Asset Management Policy and Corporate Asset Management Plan • Serve as representatives of citizens to set the level of services delivered, considered in conjunction with the cost-of-service provision and associated risks • Approve funding levels for both capital and operating budgets associated with Asset Management through the annual budget
Chief Administrative Officer (CAO)	<ul style="list-style-type: none"> • Maintains compliance with related Asset Management policy, regulations. • Provides direction that demonstrates commitment to the success of the continued improvement of Asset Management practices and documentation
Asset Management Working Group	<ul style="list-style-type: none"> • Support the CAO in fulfilling their role • Provide corporate collaboration to guide Asset Management Systems • Champion continuous improvement within their respective service areas and the City
Manager of Infrastructure Assets with support from the Capital Planning Supervisor	<ul style="list-style-type: none"> • Support Asset Management Working Group in their roles and responsibilities • Support development of City Asset Management System • Coordinate with departments to establish corporate work plans and priorities to meet legislated requirements
Departmental Directors	<ul style="list-style-type: none"> • Oversee Asset Management activities that fall within their service area • Contribute in a manner that supports a multi-disciplinary approach to Corporate Asset Management and promotes its ongoing success • Liaise with members of the Asset Management Working Group to ensure they are supporting CAM and that departmental planning is aligned to AMPs

Key Stakeholder	Roles and Responsibilities
Service Delivery Areas or Asset Operators	<ul style="list-style-type: none"> • Team of staff who engage with internal and external stakeholders daily to deliver services • Oversee Asset Management Planning activities within their respective area • Help set service objectives and monitoring progress • Offer expertise in the development of city plans, strategies, assessments, and workflows • Collect and track asset information and other data related to assets within their functional area • Apply operation, maintenance, rehabilitation, replacement, and disposal practices to achieve levels of service, mitigate risk, and comply with regulatory requirements
Other City Staff	<ul style="list-style-type: none"> • Support the development, implementation, and improvement of the Asset Management system in their daily roles and responsibilities • Capture quality data as part of the daily operations

1.9 Developing the Corporate Asset Management Plan

The Asset Management Plan's initial steps of development included data collection, compiling data, and meeting with various asset system working groups to discuss, review and provide feedback on each component of the Plan.

The AMP was developed for the remaining service groups, which are presented as main sections in this report as follows:



Buildings and Facilities



Information Technology



Corporate Fleet



Natural Assets



Culture



Parking Services



Fire Services



Parks

In addition to the sections on each asset group, the final section of the AMP is a financial strategy. This is one of the Plan's key components, as it puts the document into action. The financial plan provides a way for the City to

integrate Asset Management Planning with financial forecasting.

As suggested by Building Together – Guide for Municipal Asset Management Plans (Ministry of Infrastructure, 2012), the financial management strategy outlines annual expenditure projections in alignment with the long-term investment forecast developed for the lifecycle activities.

The City acknowledges that COVID-19 has impacted both funding and levels of service which need to be assessed in more detail. Longer term changes precipitated by COVID-19 that impact City assets will be reflected in updates to the AMP once these changes can be identified and measured.

The following provides more details on the key sub-sections that were covered as part of the plan tasks and will be presented for each of the remaining groups.

1.9.1 State of Local Infrastructure

The State of 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 on the overall age, condition,

replacement costs, and key metrics of the assets owned by the City based on provided datasets and documents that were assessed for data maturity (completeness) and confidence (accuracy) and discussed with Subject Matter Experts (SMEs). This section provides the City with:

- A repeatable and consistent methodology to track and report comparative analysis of asset data
- Transparency in terms of the confidence of the asset data available
- A consolidated overview of inventory, condition, cost, and performance indicators for each asset class; and
- The ability to track improvements to the background data over time.

This chapter of the AMP summarizes the inventory of assets and their replacement values and provides the age and condition profiles for each asset category in the City's portfolio. Condition ratings were assigned to all assets across each service area using the condition rating scale shown on **Table 4**. The rating scale is consistent with the Canadian Infrastructure Report Card (2016 & 2019) to facilitate benchmarking between other Canadian municipalities.

Table 4. Condition Rating Scales Descriptions and Estimated Service Life (ESL) Distribution

Category	Remaining Life	Description
Very Good	100% - 76%	Asset is typically new or recently rehabilitated.
Good	75%- 51%	Condition is acceptable, generally in mid stage of service life. Asset may show signs of deterioration requiring attention or minor maintenance.
Fair	50% - 26%	Assets show general signs of deterioration that require attention and may require immediate maintenance.
Poor	25%- End of Life	Asset is below standard condition and approaching the end of its service life. Ongoing monitoring and significant maintenance may be required.
Very Poor	Beyond Service Life	Asset is at or beyond service life and shows signs of advanced deterioration. Asset may exhibit signs of imminent failure that can affect service or increase risk. Condition may be critical. Extensive monitoring, rehabilitation and/or replacement may be required.

1.9.2 Levels of Service

The Levels of Service (LOS) section provides key performance indicators that support the provision of the respective service for each City asset group. O.Reg. 588/17 has prescribed LOS for core assets, only. Remaining assets LOS were developed by City staff. In general, LOS were documented as tables that provided the following information:

- Level of Service Statement: A brief description presented in plain language for public understanding of the service provided to residents based upon the City's core values and mission.
- Key Service Attribute: Provides customer values categorized in terms of safety, reliability, quality, cost efficiency, and environmental stewardship.
- Levels of Service Indicator: 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.

LOS were defined as current or future metrics based on the City's existing available data. Target or proposed performance will be addressed in the 2025 AMP.

1.9.3 Lifecycle Management Strategy

The Lifecycle Management Strategy defines the set of planned actions that will 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 asset category.

Understanding the optimal budget at which lifecycle activities (LCA) sustain the desired LOS at the lowest lifecycle cost is the main objective of this section.

The actions are usually grouped as rehabilitation or replacements, and these are supported by the City's operating and capital budgets. In addition to maintenance and operations activities, the LCA section is also intended to capture non-infrastructure solutions that extend the asset life such as policies and procedures related to preventative maintenance, condition assessment and lifecycle planning to name a few; as well as activities that extend beyond the day-to-day operation of the assets such as expansion planning and disposal once end of life is reached. **Table 5** provides a summary of the lifecycle activity types that will be considered for all assets within scope, as defined by the Building Together Guide for Municipal Asset Management Plans. It is recommended that the City develop a process to include lifecycle management tracking in their capital and operating budget to have a better understanding of the costs of these activities, as well as to report on these costs more efficiently in the future. This will be particularly helpful to understand the costs associated with Expansion (Growth) and Service Improvements.

Table 5. Lifecycle Activity Type Summary

Lifecycle Activity	Definition
Non-Infrastructure Solutions	Actions or policies that can lower costs or extend useful lives.
Operations and Maintenance Activities	Including regularly scheduled inspection and maintenance or more significant repair and activities associated with unexpected events.
Renewal (Rehabilitation and Replacement) Activities	Significant repairs designated to extend the life of the asset. 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.
Disposal Activities	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 City.
Growth Activities	Planned activities required to extend services to previously unserved areas or expand services to meet growth demands to maintain LOS
Service Improvement Activities	Planned activities to improve LOS. Example, an asset's capacity, quality, or system reliability. Not driven by growth needs

1.9.4 Risk Management Strategy

Asset Risk

A risk management framework was developed for each of the asset categories in the portfolio to assist with prioritization of investments within the forecasts. Where possible, geospatial analysis was used to establish a consequence of failure score using a triple bottom line analysis approach to evaluate:

- **Economic** impacts of failure including the cost to remediate the situation
- **Social** impacts of asset failure, including impacts to customers, and businesses
- **Environmental** impacts of asset failure.

In the context of Asset Management, risk is the product of the consequence of an asset failing and the likelihood that the event will occur. The risk framework was developed in collaboration with the City's subject matter experts and based on best-in-class practices for risk assessment.

The likelihood of failure is expressed as a percentage and calculated for each asset based on available condition data and deterioration modelling. As previously mentioned, the consequence of failure framework is based on the parameters specific for each asset category based on their financial, social, and environmental impact. **Table 6 to Table 8** provides an overview of the

criteria used for the risk analysis and the asset classes within which each criterion was included. The final risk score for each asset has been calculated by multiplying the consequence of failure score by the likelihood of failure score.

Table 6. Risk Framework Financial Criteria

Criteria	Definition
Replacement Cost	The financial expenditure required for the replacement of the asset or remediation of the asset failure.
Indirect Financial Impact	The revenue loss due to service closure or other direct cost not related to asset repair

Table 7. Risk Framework Social Criteria

Criteria	Definition
Health and Safety	The potential for injuries or death
Legal Liability	The exposure to third party liability or potential for lawsuits
Service Disruption	The duration of impact to customers or the criticality of customers
Impacted Customers	The number of critical customers that would be impacted if the asset fails.

Table 8. Risk Framework Environmental Criteria

Criteria	Definition
Environmental Compliance	Environmental impacts as a result of failure including remediation and potential charges.

Criteria	Definition
Environmental Impact	The adverse impact to the natural environment

It should be noted that there are also some risks associated with a changing business environment including Regulatory changes that could impact the way that the City renews and replaces its infrastructure.

These risks are generally considered to be low, since the City endeavours to keep current with regulation changes, and incorporate them into its planning, which ensures that assets are up to date with the current regulatory environment. This means that the City will be adequately equipped to adapt to any future regulatory changes.

Service Risk

This section summarizes the risks associated with the lifecycle strategies and funding analyses/ recommendations. Risks are described below, and potential mitigation strategies are also discussed.

Data Confidence

The asset management analyses completed as part of this AMP are reliant on the City's asset and financial data. The confidence of that data affects the confidence of the results of each analysis. Overall, most of the data was complete with moderately reliable sources. The asset classes that could improve were culture, IT, natural assets and parks. Where data registries were built using multiple sources of data, it is recommended to merge

these sources into a single registry and “source of truth”. The City is currently investing in IT systems that will increase data confidence and to more efficiently report on City assets costs and needs. These IT systems allow for easier data collection, as well as the ability to track work and maintenance on their assets.

This risk is considered to be moderate and can be further mitigated by investing in higher confident data. The implementation of ARMS (Asset Resource Management System), coupled with improved data standards, and regular condition assessment programs will contribute towards ensuring that better data is available for future versions of the Asset Management Plan.

Funding and Costs

Within the scope of this AMP, the City has conducted comprehensive analyses to identify the asset classes which require additional funding to maintain current services to City residents. The funding gap exposes the City to the risk of operating at a lower LOS. This could include:

- **Increase to Service Disruptions and Deterioration:** Inadequate funding for asset lifecycle activities could lead to increased instances of asset breakdowns, service interruptions, and accelerated deterioration. This could result in reduced service quality, disruptions to public services, and potential safety hazards.

- **Higher Maintenance Costs:** Neglecting proper lifecycle activities may lead to deferred maintenance, which can escalate future maintenance and repair costs. The longer maintenance is deferred, the more extensive and expensive the repairs become. Analyses is used on historical operations and maintenance costs, which may not be an accurate reflection of the needs of the assets.
- **Unplanned Expenditures:** Insufficient funding for lifecycle activities can result in unexpected and unplanned capital expenditures when assets fail prematurely or require emergency repairs.
- **Reduced Longevity:** Assets that do not receive appropriate lifecycle activities are likely to have shorter lifespans, leading to more frequent replacements and associated costs.
- **Increased Liability and Legal Risks:** Assets not maintained according to their lifecycle requirements could pose safety risks to the public, potentially resulting in accidents, injuries, or legal claims against the municipality.
- **Decreased Public Satisfaction:** Service disruptions, deteriorating infrastructure, and reduced service quality can negatively impact public perception and satisfaction with municipal services.
- **Impact on Economic Development:** Infrastructure that does not meet the required lifecycle activities could deter potential investors and businesses, hindering economic growth and development in the municipality.

- **Non-Compliance with Regulations:** Failure to meet lifecycle activities could lead to non-compliance with regulatory standards and requirements, resulting in potential fines, penalties, or loss of funding.
- **Decreased Property Values:** Deteriorating infrastructure and reduced services could lead to decreased property values, affecting homeowners and the overall tax base of the municipality.

It should be emphasized that improvement to data confidence will have an impact on these identified risks because the funding analysis is directly linked to the data assumptions. The funding gap could increase or decrease depending on better costing and performance information.

It is recommended the City leverage their new IT systems to better track time and costs of lifecycle activities, as well as tie these activities to the operating and capital budgets to have a better understanding of the true costs associated with owning and maintaining their assets.

Climate Change

Climate change poses a significant risk to the City. In recent years Southern Ontario has seen an increase in extreme weather events such as flooding, ice storms, and power outages. Shifting weather patterns, increased storm intensity, and fluctuating lake levels are expected to persist, and will need to be reflected in future Asset Management Plans (AMPs).

Following a climate change adaptation assessment, the City developed a framework to address climate risks for water and wastewater assets which can be applied to other assets within the portfolio. Each asset group will experience different impacts from climate change related events and will require tailored strategies to build climate resilience. The City's response will involve mitigation (reducing emissions) and adaptation (policy, procedural, and design adjustments) to ensure long-term sustainability of the City's assets and associated services. This is discussed further in **Section 1.10**.

Regulatory Environment

There are also some risks associated with a changing business environment. Regulatory changes could impact the way that the City renews and replaces its infrastructure.

Federal and Provincial regulations can significantly impact municipalities. In some cases, regulatory changes may increase the cost of construction above what is projected (e.g. excess soil regulations). In other cases, new regulations may require significant staff resources to prepare and implement, which may draw resources away from asset lifecycle activities. There is a level of uncertainty towards future regulatory changes during the AMP timelines and predicting future regulatory changes is inherently uncertain.

The City endeavours to remain current with regulation changes by incorporating the changes through planning to help mitigate the impact of these changes. However,

there is a distinct possibility that future resources may need to be re-allocated from related asset activities to address regulatory changes.

1.9.5 Financial Strategy Analysis

The costs associated with each lifecycle activity are considered as part of the strategy. A long-term investment forecast has been developed for each asset in scope to illustrate the capital and operational needs to support current levels of service. **Table 9** provides a summary of the assumptions made to model the costs associated with each lifecycle activity type for all services. It is understood that as the City improves the AM practices, needs will be revised to match future activities.

The lifecycle models developed within the City's Lifecycle Strategy have been combined with the City's LOS and Risk Management strategies in a decision support system (DSS) model, which allowed the project team to run various forecasting scenarios that were reported within this section. It should be noted that these scenarios are a snapshot in time, based on best available data. As the City continues to invest in maintenance management and decision support software, these scenarios would be available on an on-going basis to better inform decisions as new data becomes available. The following scenarios focused on renewal spending and were analyzed for each asset class:

- **Scenario 1: Anticipated Budget** – Evaluates asset performance under the current budget that the City

anticipates allocating towards that asset class for a 10-year forecast period.

- **Scenario 2: Cost to Maintain LOS** – Determines the cost to maintain LOS at current levels over a 10-year forecast period. This is a requirement of the July 1, 2024 milestone of O.Reg. 588/17.
- **Scenario 3: Backlog Analysis** – This scenario evaluates the cost to address all investment needs, given unconstrained (i.e. unlimited) funding. A result of this analysis is that the City's current backlog of investment needs will be revealed in the first year of the forecast period. This scenario is insightful, as it not only provides information on current backlogs and outstanding investment needs, but also provides details of forthcoming investment needs over the forecast period.



1.9.6 Data Confidence

A summary of the data sources used in the analyses of this AMP are included for reference under each asset category section. For the development of this AMP, the available data was assessed for each asset category and a data quality rating was assigned based on availability and quality of relevant data.

Table 9. Data Quality Rating Scale for all Assets Within Scope

Value	Category	Definition
A	Very Good	No assumptions, with available condition data from a reliable data source, and age and 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).
C	Fair	Minor assumptions are made for condition, age, or replacement values from moderately reliable sources.
D	Poor	Data comes from significantly out of date documents or two of either condition, age, or replacement values come from a moderately reliable source and the third item is unknown or unreliable.

1.10 Integrating Climate Change into Asset Management

Climate change is one of the most complex challenges facing municipalities today. In recent years, Southern Ontario has experienced a significant number of extreme weather events and its adverse impacts such as flooding, ice storms, power outages, and infrastructure damage.

Rising average temperatures, shifting historical precipitation patterns with increased intensity, duration and frequency of storm events and periods of drought, increasing windstorms, and fluctuations in lake levels are anticipated to continue and Asset Management Plans must reflect this reality.

The effects of climate change can have a significant impact on the assets that the City is responsible for, and the services delivered. Within the context of the asset management planning process, climate change assumes a dual role as both a prospective demand and a risk factor.

The City has recently completed a climate change adaptation assessment for the water and wastewater asset portfolios and the results of this assignment have allowed the City to develop a framework to address climate risks for these two asset classes. This framework can be applied to the other assets, thereby enhancing the City's overall capacity to withstand climate-related risk.

The extent to which climate change will influence a specific asset or assets can vary significantly due to various factors including location and the type of services they provide. The following examples relate to the Parks assets and services included within this AMP:

Extreme Precipitation – can lead to the flooding of parks, playgrounds and sports fields making them unusable. Flooding could also result in structural damage to facilities and equipment; and degradation of playing surfaces resulting increased maintenance costs and down-time to allow for repairs.

Extreme Heat – a result of extreme heat, for example, can be that residents are uncomfortable and potentially unsafe in City recreation facilities, resulting in the City having to implement heat mitigation strategies such as shading, hydration stations and rescheduling event to cooler times in the day resulting in additional lighting and increased staff coverage at facilities.

How the City will address climate change can be categorized into two domains:

Mitigation – refers to strategies aimed at reducing or preventing the emissions of greenhouse gas (GHG). The primary goal is to limit global warming and its impact on the environment and ecosystems; and

Adaptation – refers to the process of identifying and preparing for the potential impacts of climate change through adjustments to policy, procedures, designs, and

asset management approaches to reduce the impacts from climate change.

The City’s response to these challenges will require a variety of strategies depending on the asset to manage these impacts. In addition, the City not only needs to consider the impacts on the existing infrastructure but also needs to address the need to build climate change resilience into new assets. The adoption of resilience-building measures brings several advantages including:

1. Improved ability for assets to withstand future climate change impacts.
2. Sustainability of the services provided.
3. Potential reduction in lifecycle costs and associated carbon footprints for assets capable of enduring climate change effects.

It is clear that climate change has the potential to disrupt our assets and services we provide, therefore, future updates to the AMP will include considerations for the impacts of climate change on the ongoing management of our infrastructure assets.

1.11 Continuous Improvement of the City’s Asset Management Program

The City’s Asset Management program is founded on the principles of continuous improvement, transparency, and accountability. Moving forward, the AMP is intended to be a living document that reflects and supports

implementation of the Asset Management Policy and Strategic Plan. As a living document, continuous improvement will be driven by:

- Implementing, revising, refining, and reporting Asset Management based on the City's strategic priorities.
- Continual cross-functional collaboration towards identifying AM improvements in processes, systems, data, AMPs, and AMP implementation strategies.
- Monitoring progress on the AMP implementation while quantifying and reporting benefits from AM Program activities.
- Improve with ongoing evaluation of best practices, innovations, and regulatory requirements. Best practices to achieve continuous improvement include the development of an improvement plan and delivering the improvement plan with defined annual targets, appropriate benchmarks, and responsibilities for internal resources with their associated funding levels, as approved by the City's annual budgeting process.

The continuous improvement of the City's AMP is supported by a broader Asset Management strategy that is developed in various forms for guiding the management of the assets to provide governance to City practices.

1.12 Growth Considerations

As noted within Niagara Region's Official Plan (November 2022) the population within St. Catharines is predicted to grow to 171,890 by 2051. This will place additional pressures on the existing infrastructure covered by the asset management plans as assets are added to address the needs of the new residents. In the context of the assets covered by this plan this will require the expansion of existing facilities or the addition of new assets such as parks, arenas, recreation centres and libraries to name a few. It should be noted that as these asset portfolios grow there will be a requirement to fund additional operations & maintenance costs as well as future rehabilitation and renewal investments which will need to be reflected in later AMPs.

The City's Development Charge Study was evaluated for planned programs for growth and incorporated in this plan. The future iteration of this AMP (O.Reg 588/17 2025 deadline) will continue to develop and consider growth to meet future demands.

1.13 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 following sections.

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

Background information and reports related to this AMP are available to the public upon request through the City of St. Catharines.



Buildings & Facilities

Provide safe, affordable, accessible, inclusive and sustainable recreational buildings and facilities that reflect 'A City where everyone can play.' The recreational buildings and facilities will support a variety of activities and functions including recreation, business, arts and culture, historical, maintenance and operations.

Building and Facility assets include:

- 5 Arenas
- 2 Bandshell/Bandstands
- 1 Carousel Building
- 7 Columbarium and Mausoleums
- 6 Community Centers & Senior Centers
- 3 Libraries
- 1 Pool
- 1 Market Square
- 11 Municipal Office and Operation Facilities
- 2 Museums
- 1 Performing Arts Centre
- 44 Storage Facilities
- 18 Washrooms and/or Changerooms
- 39 Other Facilities (Controls, Dugouts, Stands, Leasable, Pavilions, Other)



Estimated Replacement Value

The City's Buildings and Facilities assets are valued at approximately **\$535 million**.



Condition Rating

(% based on Replacement Value)

71% of assets are in **Good to Very Good** condition.

15% of assets are in **Poor to Very Poor** condition.

2.0 Buildings and Facilities

2.1 Buildings & Facilities State of Local Infrastructure

Buildings and Facilities are important to providing staff with a safe and efficient space to carry out day-to-day operations necessary for effective service delivery, while also providing a central location for residents to seek services in-person. The buildings and facilities currently owned and operated by the City include:

- Arena
- Bandshell/Bandstand
- Carousel building
- Columbarium
- Community Centres & Seniors Centres
- Controls
- Dugout Bleacher or Stands
- Leasable
- Libraries
- Indoor Pool
- Market Square
- Mausoleum
- Municipal Office & Operation Facilities
- Museum

- Pavilions and Sun Shelters
- Performing Arts Centre
- Storage
- Washrooms and/or Changerooms

2.1.1 Buildings & Facilities Valuation

The City has completed building condition assessments for all facilities, reported based on ASTM Uniformat Level III. This included the valuation of the overall facility and the cost to renew each of its components.



Table 10. Buildings & Facilities Inventory Valuation

Service Function	Asset Category	Count	Unit	Facility Replacement Value (2023 Dollars)
Buildings & Facilities	Administration & General Government	19	Each	\$128,069,000
	Cemeteries	18	Each	\$22,295,000
	Coastal	1	Each	\$325,000
	Culture	12	Each	\$105,788,000
	Libraries*	2	Each	\$35,427,000
	Recreation*	98	Each	\$243,752,000
Overall Buildings & Facilities Replacement Value				\$535,656,000

[*Kiwanis Centre combined library and pool in Recreation](#)

The overall distribution of replacement values for the buildings and facilities services is as shown in **Figure 4**. The recreational buildings and facilities have the highest asset component replacement value in the portfolio, totaling 45% of the entire portfolio, followed by administration and general government buildings and facilities at 24% of the total replacement value of the system.

Figure 4. Facilities Replacement Values for All Buildings & Facilities Asset Categories

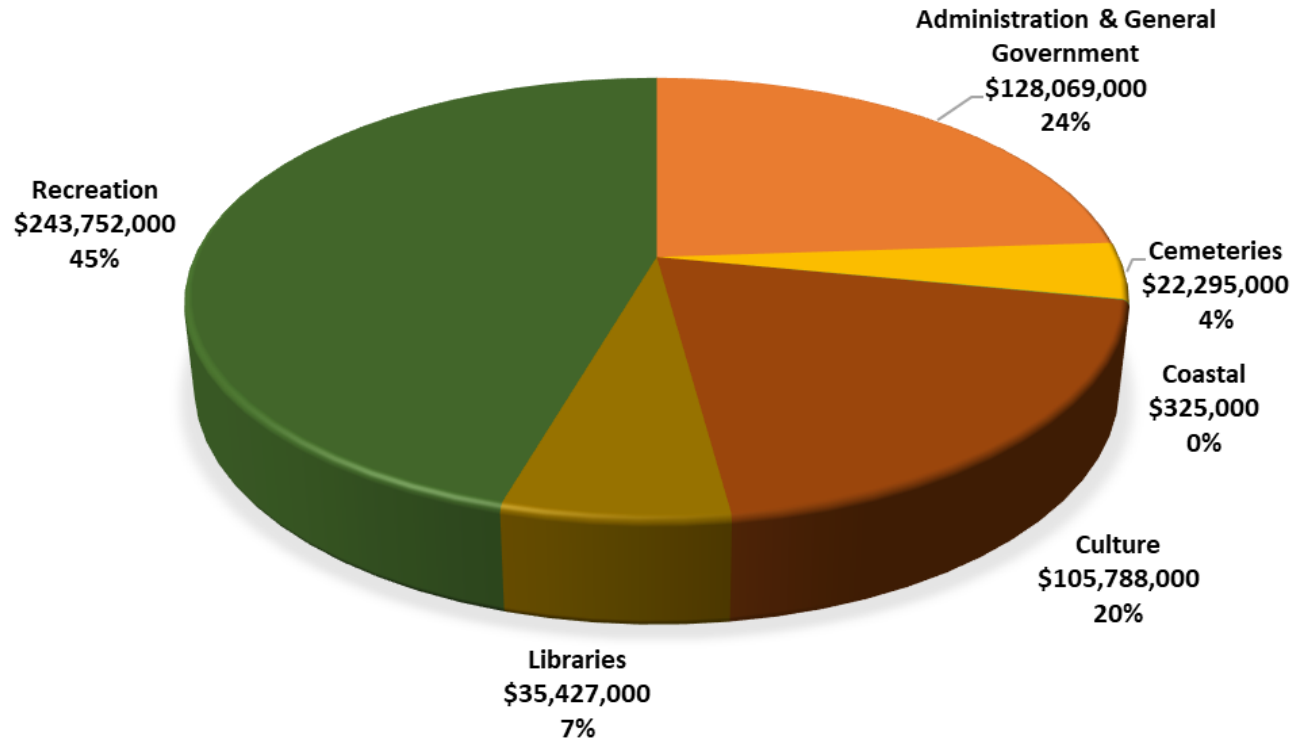
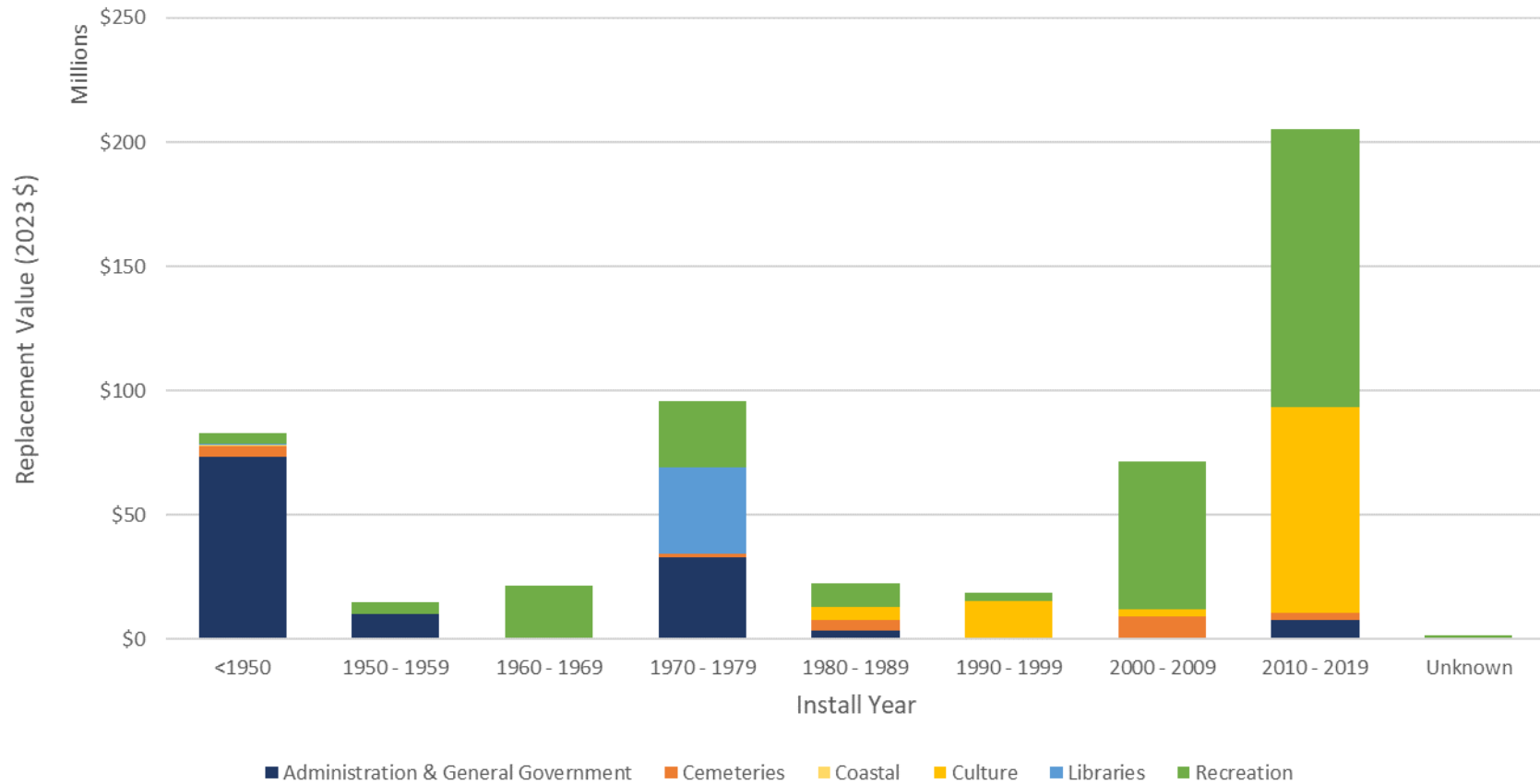
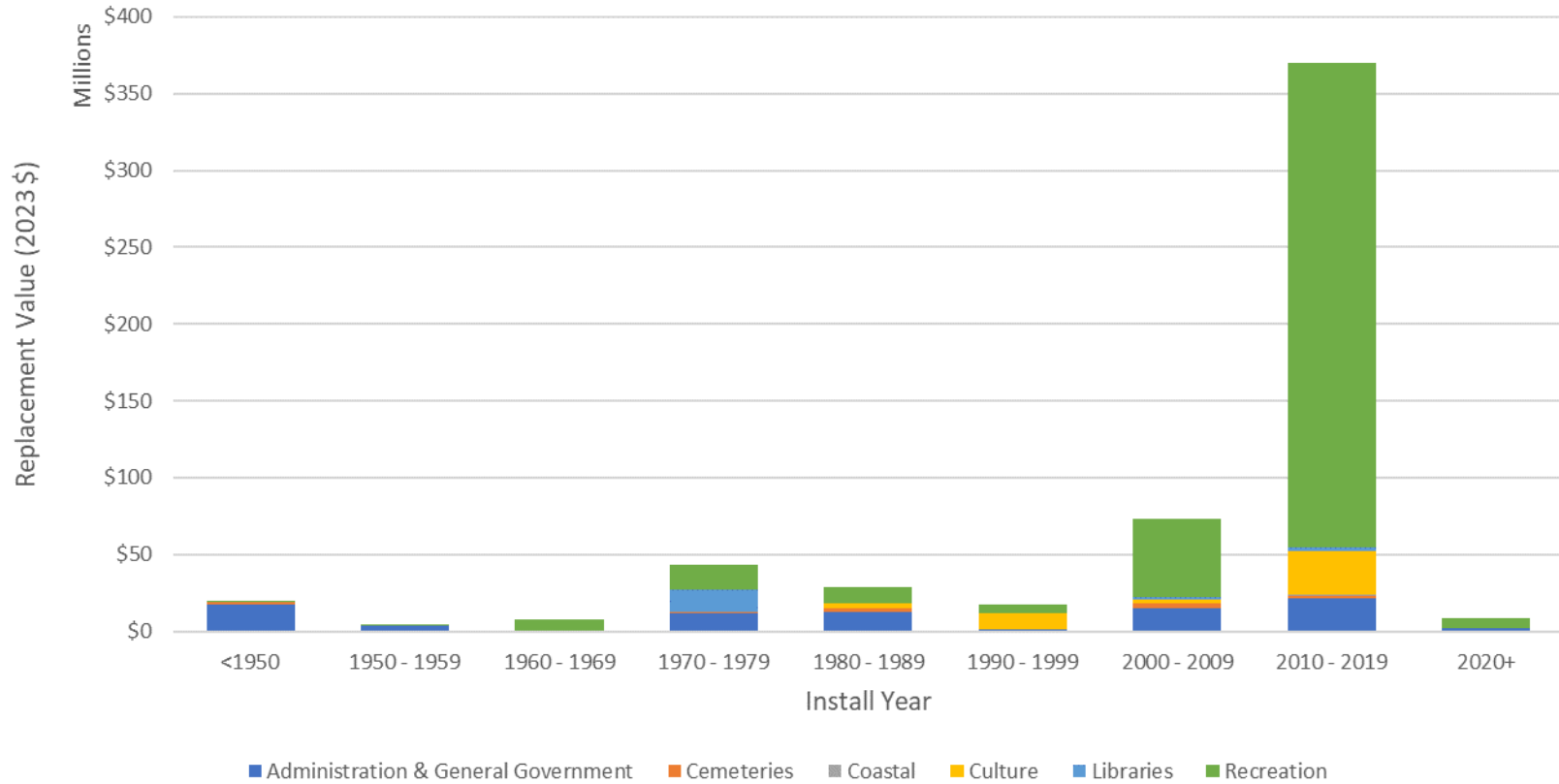


Figure 5. Distribution by Replacement Value for Buildings & Facilities Structures by Installation Decade



Seen in **Figure 5**, a large portion of the buildings and facilities structures were installed since 2010. There were also significant investments prior to 1950, and in the 1970s for City Buildings and Facilities. The assets constructed prior to 1950 will need to be reviewed more frequently, as these are expected to reach the end of their useful life in the coming years.

Figure 6. Distribution by Replacement Value for all Building & Facilities Components by Installation Decade



As shown in **Figure 6**, a large portion of the buildings and facilities components were installed since 2010. What is important to note, is that the replacement value of newer facilities and their components is much higher than the older facilities. This is a result of many factors, as facility replacements are typically not “like for like” and include enhancements and expansions based on the present-day technologies, regulations, trends, as well as inflation and increased costs for construction. If the City wishes to replace older facilities, they will see similar increases in costs. This will affect the assets that were installed over 50 years ago, with the majority of these assets expected to reach the end of their useful life. The capital costs, and ongoing maintenance, for these eventual replacements, need to be appropriately planned.

2.1.2 Building & Facilities Condition

The City completed building condition assessments for all facilities. This included the assessment for all facilities components and associated recommended year of investment for each. The recommended year of investment was used to determine the effective age. The condition was then determined using effective age versus estimated service life, as per **Table 11**.

Table 11. Building & Facilities Condition Scale

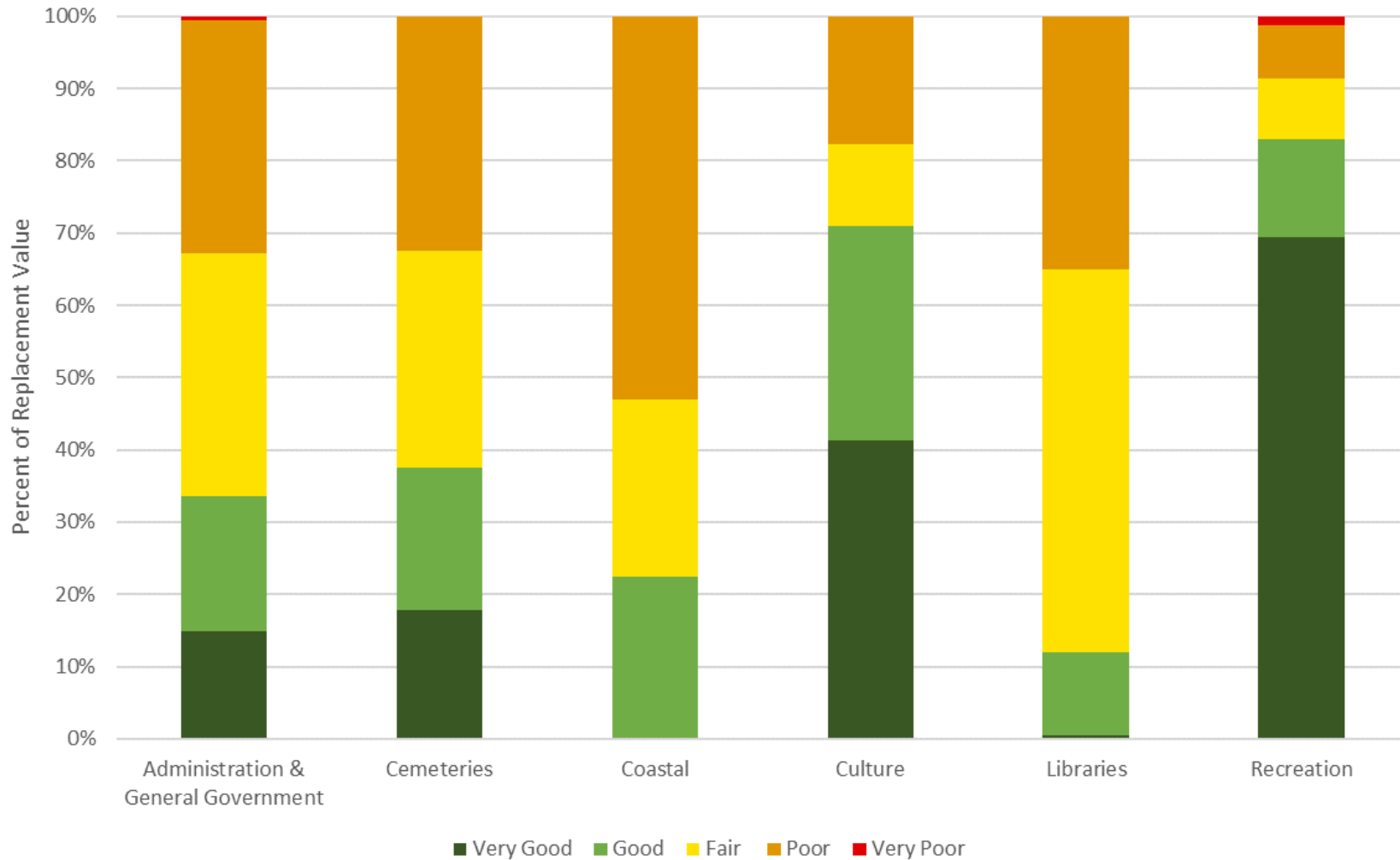
Category	Remaining Life
Very Good	100% - 76%
Good	75%- 51%
Fair	50% - 26%
Poor	25%- End of Life
Very Poor	Past Service Life

The current conditions of buildings and facilities assets have been summarized and weighted by replacement value in **Figure 7**.

Overall, 86% of the buildings and facilities assets are in the very good to fair rating category (based on replacement value) with less than 1% in the very poor category.



Figure 7. Condition Distribution by Replacement Value for all Building & Facilities Asset Categories



2.1.3 Building & Facilities Age Summary

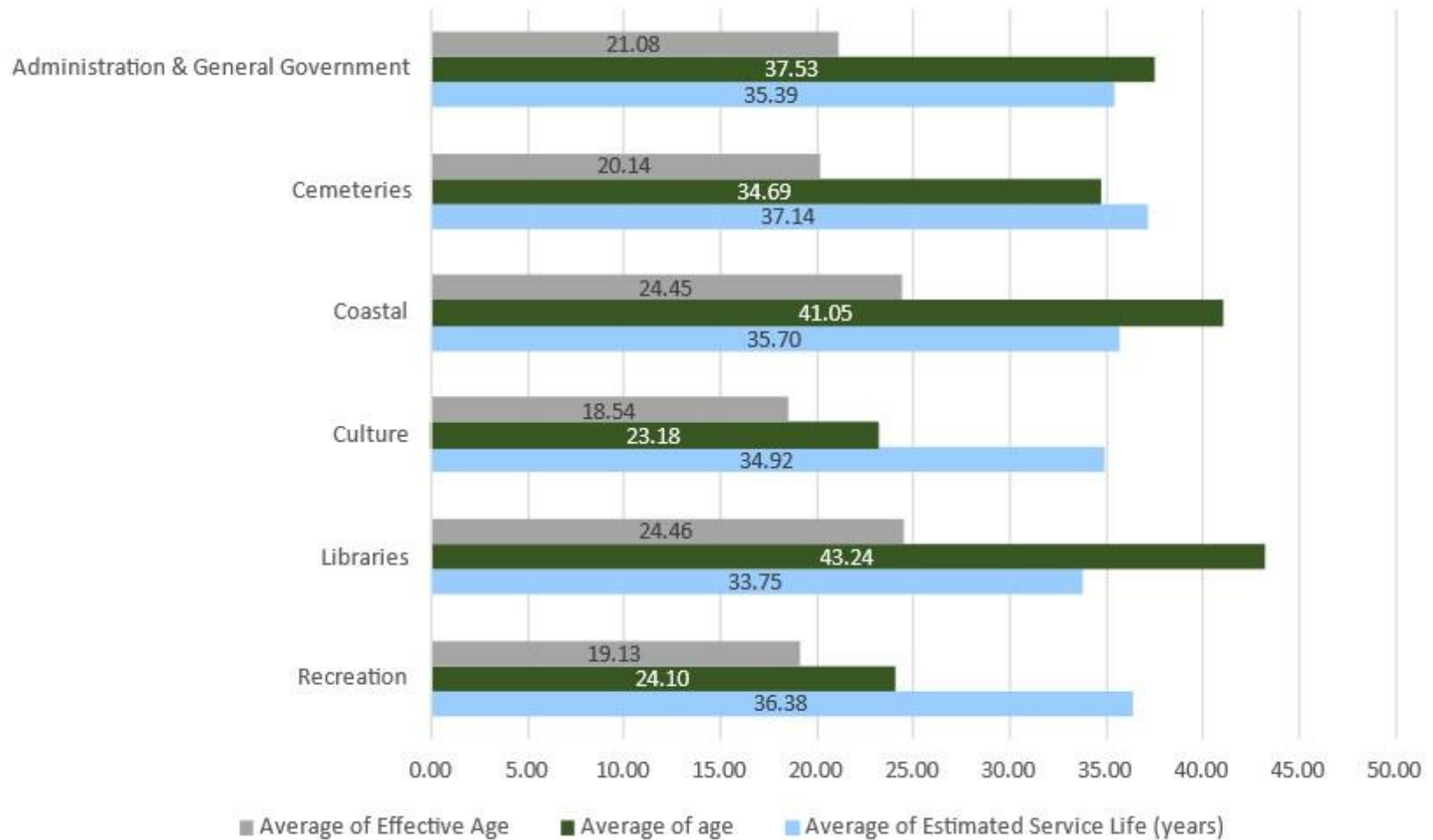
Comparing the average age of the assets with the average estimated service life (ESL) provides a representation of the average overall portfolio remaining life.

Based on the data presented in **Figure 8** it is apparent that the libraries, coastal, and a few of the administration and operations buildings and facilities should be considered for replacement based on age. However,

based on condition ratings, many of these buildings and facilities are performing better than their age suggests. Based on the condition assessments of the facilities, the recommended year of investment was used to determine the effective age. The condition was then determined using effective age versus estimated service life. Any assets that did not have an installation date were not included in **Figure 8**.



Figure 8. Average Age as a Proportion of Expected Service Life by Asset Type All Building & Facilities



2.2 Building & Facilities Levels of Service

The City of St. Catharines is committed to providing safe, reliable, affordable, accessible, inclusive, and sustainable buildings and facilities that reflect ‘a City where everyone can play’. The buildings and facilities support a variety of activities and functions for recreation, business, arts and culture, historical, maintenance and operations purposes.

The City of St. Catharines has developed levels of service for its buildings and facilities based on Quality &

Reliability, Function, and Financial Sustainability which provide a basis from which the City can determine whether the service area is performing as expected.

The City’s Levels of Service document the asset performance from a service provider’s and service user’s perspective. These metrics outline the LOS that are currently driving decision-making/spending on assets and can be linked to financing consequences/demand. The following provides a summary of these LOS associated with the buildings and structures in the City.

Table 12. Building & Facilities LOS Indicator

Key Service Attribute	LOS Statement	LOS Indicator	Current Performance	Target (Proposed)
Quality and Reliability	Provide building and facility services that are reliable and in adequate condition	% of Building and Facility assets in fair or better condition	86%	TBD in 2025 AMP
Function	Provide building and facility services that are safe in a sustainable manner	Annual electric energy consumption per square foot	601.1 kWh	
		Annual natural gas consumption per square foot	61.5 cubic m	
		Annual cost to provide service (\$/household)	\$154.93	
		Annual operating budget for Buildings and Facilities	\$1,684,180	

2.3 Building & Facilities Lifecycle Management Strategy

2.3.1 Lifecycle Management Activities

The levels of service presented in the previous section are supported by the achievement of a variety of lifecycle activities for these assets in accordance with the activity types presented in **Table 5**. These activities extend the asset life and reduce overall lifecycle cost.

The buildings and facilities service staff implement a variety of lifecycle activities on its entire portfolio. **Table 13 to Table 18** below provide a summary of these activities and the frequency at which assessments should be completed to reduce risk.

Table 13. Building & Facilities Lifecycle Activities and Assessment Frequency – Non-Infrastructure Solutions

Lifecycle Activity Type	Asset Management Practices	Frequency
Non-Infrastructure Solutions	St. Catharines Climate Adaptation Plan	Every 5 years
	Energy Conservation and Demand Management	Every 5 years
	Accessibility Plan	As required
	Arena Strategy Report	As required
	Building Condition Assessments	As Required (Recommend defining process & frequency)
	Annual Inspection programs (for example): Asbestos Condition Assessment, Crane/Hoist/Lifting device, HVAC Systems, Elevator Maintenance, Chemical Treatment Systems, TSSA - Boilers/Pressure Vessels, TSSA - Elevators, TSSA - Refrigeration Systems, Gas Detection Systems, UPS Systems, Security System Monitoring, Fire Alarm System Monitoring, Electrical Inspections, BAS, Security Cameras/Doors Software Systems, Overhead Door Inspection,	Annually
	Roofing System Inspections	Every 3-5 year
	Arena Roof Structure Inspection	Every 5 years
	OSPG - Post Tensioned Strand Monitoring	Every 2-years
	Space Planning	As required
	Contingency Planning	As required
Other technical studies and assessments	As required	

Table 14. Building & Facilities Lifecycle Activities and Assessment Frequency – Renewal

Lifecycle Activity Type	Asset Management Practices	Frequency
Renewal (Rehabilitation and Replacement)	Rehabilitation	For Facility assets, varies depending on asset type and potential risk - based on feedback from maintenance services and detailed condition assessments. May involve mid-life or near end-of-life intervention to extend service life and includes Accessibility upgrades.
	Replacement	As required - when assets reach end of service life or are no longer fit for purpose.

Table 15. Building & Facilities Lifecycle Activities and Assessment Frequency – Operations and Maintenance

Lifecycle Activity Type	Asset Management Practices	Frequency
Operation and Maintenance Activities	Planned Maintenance (PM)	Annually; As required
	Service Requested Maintenance	As required
	Reactive Maintenance	As required
	Lighting maintenance	As required
	Purchase of small equipment and materials	As required

Table 16. Building & Facilities Lifecycle Activities and Assessment Frequency – Disposal

Lifecycle Activity Type	Asset Management Practices	Frequency
Disposal	Disposals	Building components typically coordinated with asset replacement. Some buildings are decommissioned and are not renewed.

Table 17. Building & Facilities Lifecycle Activities and Assessment Frequency – Growth Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Growth Activities	New Assets	Driven by growth to maintain LOS. As identified through planning and studies
	Expansion or major renovation of existing Facilities	Driven by growth to maintain LOS. As identified through planning and studies

Table 18. Building & Facilities Lifecycle Activities and Assessment Frequency – Service Improvement Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Service Improvement Activities	New Assets	To improve LOS and not supported by growth. As identified through planning and studies
	Expansion or major renovation of existing Facilities	To improve LOS and not supported by growth. As identified through planning and studies
	Interior Facility Renovations	As required
	Accessibility improvements	As required

2.3.2 Funding the Lifecycle Activities

The City uses the lifecycle strategies described in **Section 2.3.1** to plan work and determine future expenditure needs. The LOS used in the AM analysis for Buildings and Facilities assets was defined as the percentage of assets that are in poor or better condition.

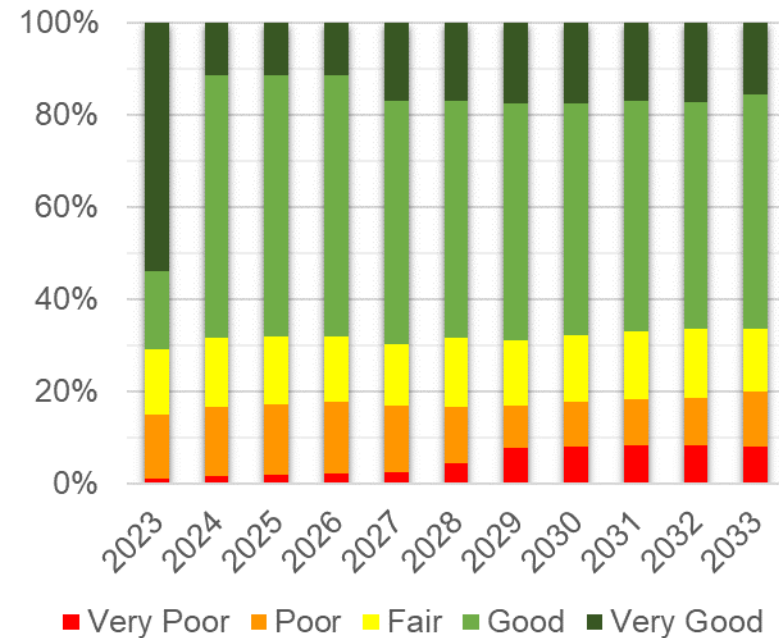
Each of the scenarios considers only the asset renewal needs, further details of the funding required for the remaining lifecycle activities are shown in the Scenario Comparison at the end of this section.



Scenario 1: Anticipated Budget

The current average anticipated renewal investments of \$6M annually, resulted in the performance forecast illustrated in **Figure 9**. Under this scenario, the percentage of assets that are in poor or better condition decrease from 99% to 92% by the end of the 10-year forecast period.

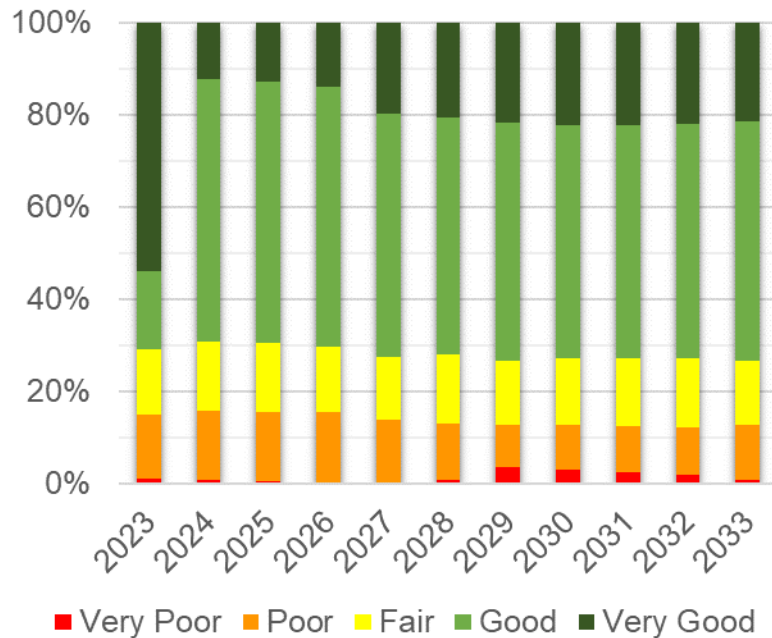
Figure 9. Buildings & Facilities Performance Forecast with Anticipated Budget



Scenario 2: Cost to Maintain LOS

The cost required to maintain existing service levels was determined to be \$10.7M annually over a 10-year period and resulted in the performance forecast illustrated in **Figure 10**. Under this scenario, the percentage of assets that are in poor or better condition holds around 99% over forecast period.

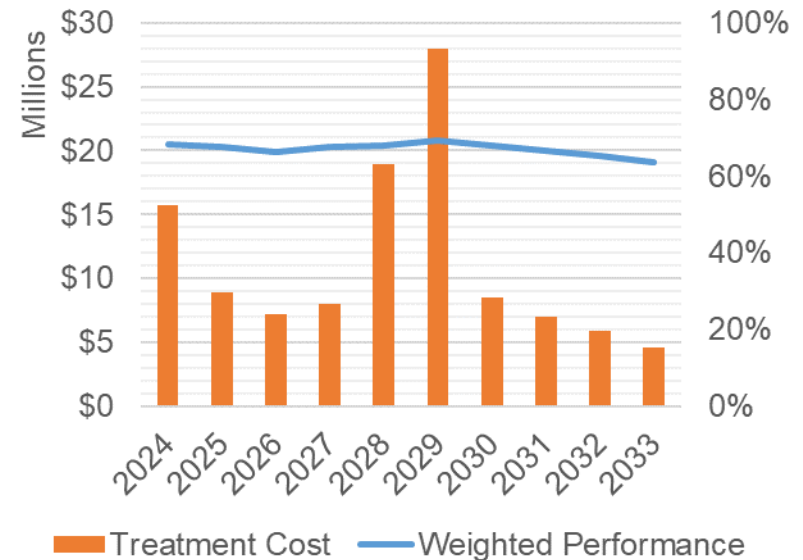
Figure 10. Buildings & Facilities Performance Forecast with Cost to Maintain LOS



Scenario 3: Backlog Analysis

The results of the backlog analysis revealed a current backlog (i.e. outstanding and current investment needs) of \$15.7M in 2024. In addition to the current backlog, this analysis details required additional investment needs in the upcoming years. Notably, two years in the forecast period have investment needs that exceed the current backlog, including: \$19M in 2028 and \$28M in 2029. The unconstrained investment needs in this analysis average to an amount of \$11.3M annually, over the 10-year analysis period. The associated expenditure distribution and average performance for this scenario is illustrated in **Figure 11**.

Figure 11. Buildings & Facilities Backlog Analysis



Scenario Comparison

The compiled investment needs under each of the three analysis scenarios are presented in **Table 19** and **Figure 12**. **Figure 12** illustrates a bar graph of forecasted expenditures for the backlog analysis (i.e. Scenario 3). The bars in this figure are colour coded by type of investment need. In addition to the bar graph, solid and dashed lines on the figure illustrate the equivalent annual investment needs of each of the three scenarios. The figure clearly illustrates that additional investment is needed by the City to continue to maintain current levels of service and/or to eliminate backlog and prepare for upcoming investment needs over the next 10 years. The expenditures spike in reflect planned projects for a new aquatics facility, new washroom at Berkley Park, and twinning of the existing arena.

This AMP focused on identifying the renewal need for infrastructure investments. The City is also experiencing an operational and maintenance investment gap and should work towards quantifying the true cost to maintain LOS from the operations side. This can then be included in future iterations of the AMP to capture the full lifecycle investment need.

¹ Average annual value calculated using the historic capital budget (2019-2023), future capital budget (2024-2026), historic operating budget (2018-2023).

² Average annual planned DC forecast.

³ Average annual benefit to existing portion of the planned DC forecast projects.

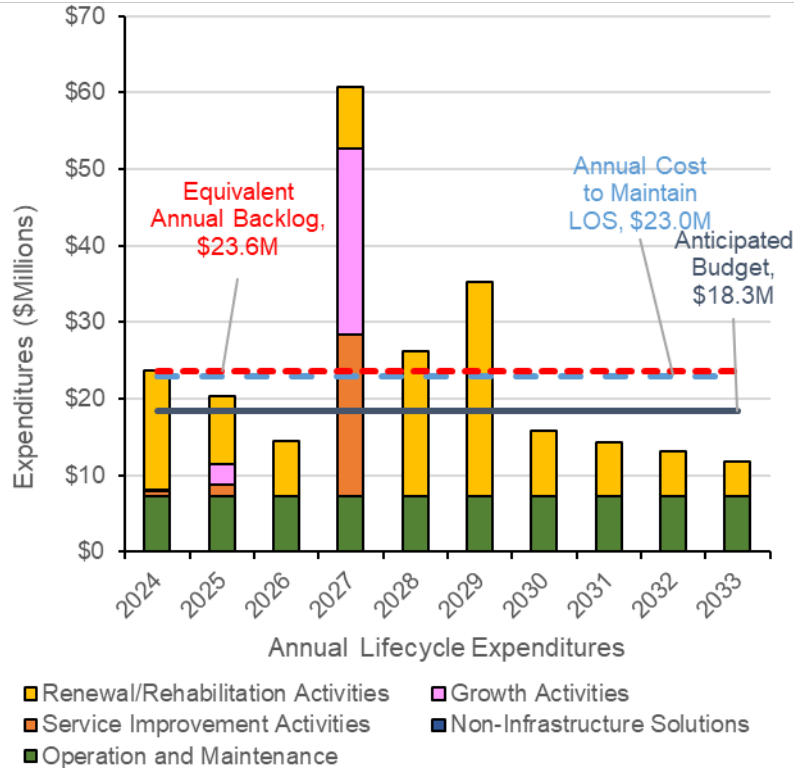
Table 19. Buildings & Facilities Lifecycle Activity Investments (annual average)

Lifecycle Activity	Anticipated Budget	Maintain LOS	Backlog Analysis
Non-Infrastructure ¹	\$83,125	\$83,125	\$83,125
Operation and Maintenance ¹	\$7,220,512	\$7,220,512	\$7,220,512
Growth ²	\$2,689,677	\$2,689,677	\$2,689,677
Service Improvement ³	\$2,339,252	\$2,339,252	\$2,339,252
Renewal ⁴	\$6,000,000	\$10,650,000	\$11,267,551
Total	\$18,332,565	\$22,982,565	\$23,600,117
Funding Gap		\$4,650,000	\$5,267,551



⁴ Annual cost for anticipated budget were provided by City staff after reviewing the historic and planned capital budget (2019-2026). Cost to maintain LOS and backlog analysis were calculated using the performance and investment forecasting model.

Figure 12. Buildings & Facilities Scenario Comparison



2.4 Building & Facilities Data Confidence

The City completed building condition assessments for all facilities. This included the valuation of the overall facility and the cost to renew each of its components. All facility components also got assigned a performance score and recommended year of investment for each. The overall data confidence grade is **A** for buildings and facilities. Note three facilities did not receive a condition assessment (Lakeside Park Sunshelter, Municipal Beach Washrooms, and Merritton Community Centre Shed). The City should work to include the details of these assets in the inventory.

Although the asset register information for facilities is strong, and did not require any assumptions on facility age, and condition, information regarding operating and maintenance needs of the facilities could be improved to have a better understanding of the true cost to maintain LOS from an operational perspective. Moving towards a preventative maintenance model, rather than reactive maintenance, will ensure City assets meet their expected life expectancy, lower lifecycle costs, and provide more predictable operating budgets.

Corporate Fleet

The City of St. Catharines is committed to providing vehicles and equipment to all city departments, so that required duties can be performed on a daily basis. The corporate fleet services will support a variety of activities and functions for recreation, business, arts and culture, historical, maintenance and operations purposes.

Corporate Fleet assets include:

- 244 Equipment
- 88 Tools
- 158 Vehicles



Estimated Replacement Value

The City's fleet assets are valued at approximately **\$23 million**.



Condition Rating

(% based on Replacement Value)

40% of assets are in **Good to Very Good** condition.

48% of assets are in **Poor to Very Poor** condition.

3.0 Corporate Fleet

3.1 Corporate Fleet State of Local Infrastructure

Corporate Fleet provides city departments with vehicles and equipment so staff can perform required duties daily in a safe, reliable, and efficient manner. Some of the corporate fleet assets currently owned and operated by the City include:

- Water and Wastewater Flushing Trucks
- Water and Wastewater Utility Vans
- Winter Operations Vehicles
- Forestry Vehicles
- Other Vehicles
- Water and Wastewater Equipment and Tools

- Parking Equipment and Tools
- Other Equipment
- Other Tools

Fire fleet have been included under **Section 5.0 Fire Services**. Tools are handheld or portable devices that are designed to perform specific tasks or activities. Equipment refers to larger, more complex machinery or devices that are used to perform specific functions, often on a larger scale or with more automation.

3.1.1 Corporate Fleet Valuation

For the valuation of the corporate fleet services, the replacement values considered are intended for the replacement of a similar asset (like-for-like) on a complete and standalone basis. These were calculated based on historical values that the City has incurred as result of previous replacements of similar assets.

Table 20. Corporate Fleet Inventory Valuation

Service Function	Asset Category	Asset Type	Count	Unit	Estimated Total Replacement Value (2023 Dollars)
Corporate Fleet	Corporate Fleet (not including Fire, or Service Areas below)	Equipment	230	Each	\$7,760,000
		Tools	64	Each	\$297,000
		Vehicle	119	Each	\$11,268,000
	Parking	Equipment	1	Each	\$3,000
		Vehicle	6	Each	\$212,000
	Water and Wastewater	Equipment	13	Each	\$677,000
		Tools	24	Each	\$155,000
		Vehicle	33	Each	\$2,972,000
	Overall Corporate Fleet Replacement Value				

The overall distribution of replacement values by asset type for the corporate fleet services is as shown in **Figure 13**. The parking, water, and wastewater components have only 16% of the replacement values of the entire fleet.

Figure 13. Asset Replacement Value for All Corporate Fleet Assets

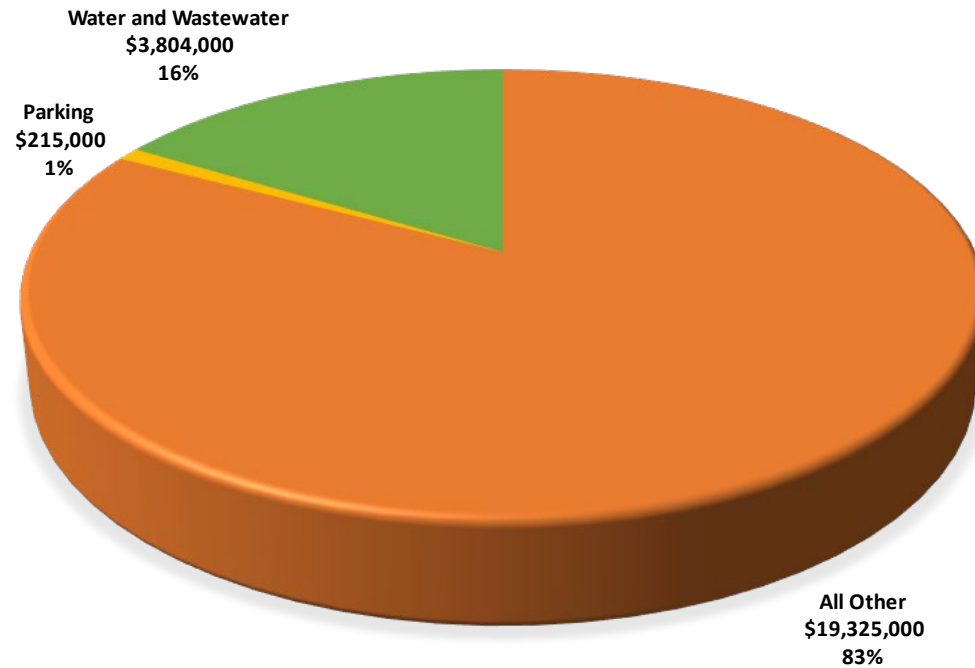
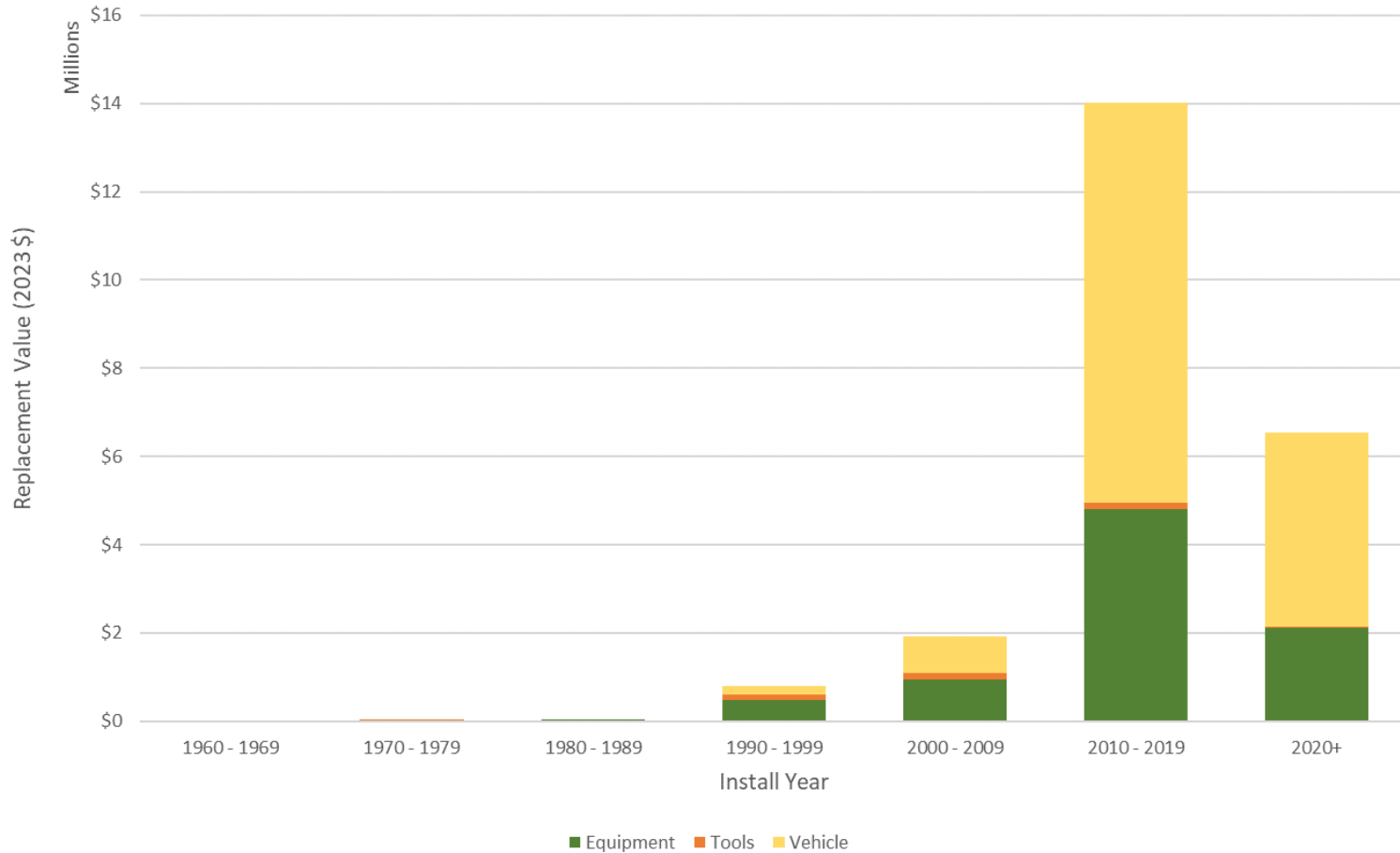


Figure 14. Distribution by Replacement Value for all Corporate Fleet by Installation Decade



As shown in **Figure 14**, the majority of the corporate fleet assets have been replaced since 2010 which is indicative of the City having a proactive asset replacement program. Therefore, maintaining this strategy will ensure that the fleet assets continue to provide the level of service required by the client departments.

3.1.2 Corporate Fleet Condition

Condition was assigned to fleet assets primarily based on the asset age versus expected service life where the data was available, as per **Table 21**. It is recommended to review and develop a process to determine the condition of Corporate Fleet to provide a more accurate analysis of fleet assets.

Table 21. Corporate Fleet Condition Scale

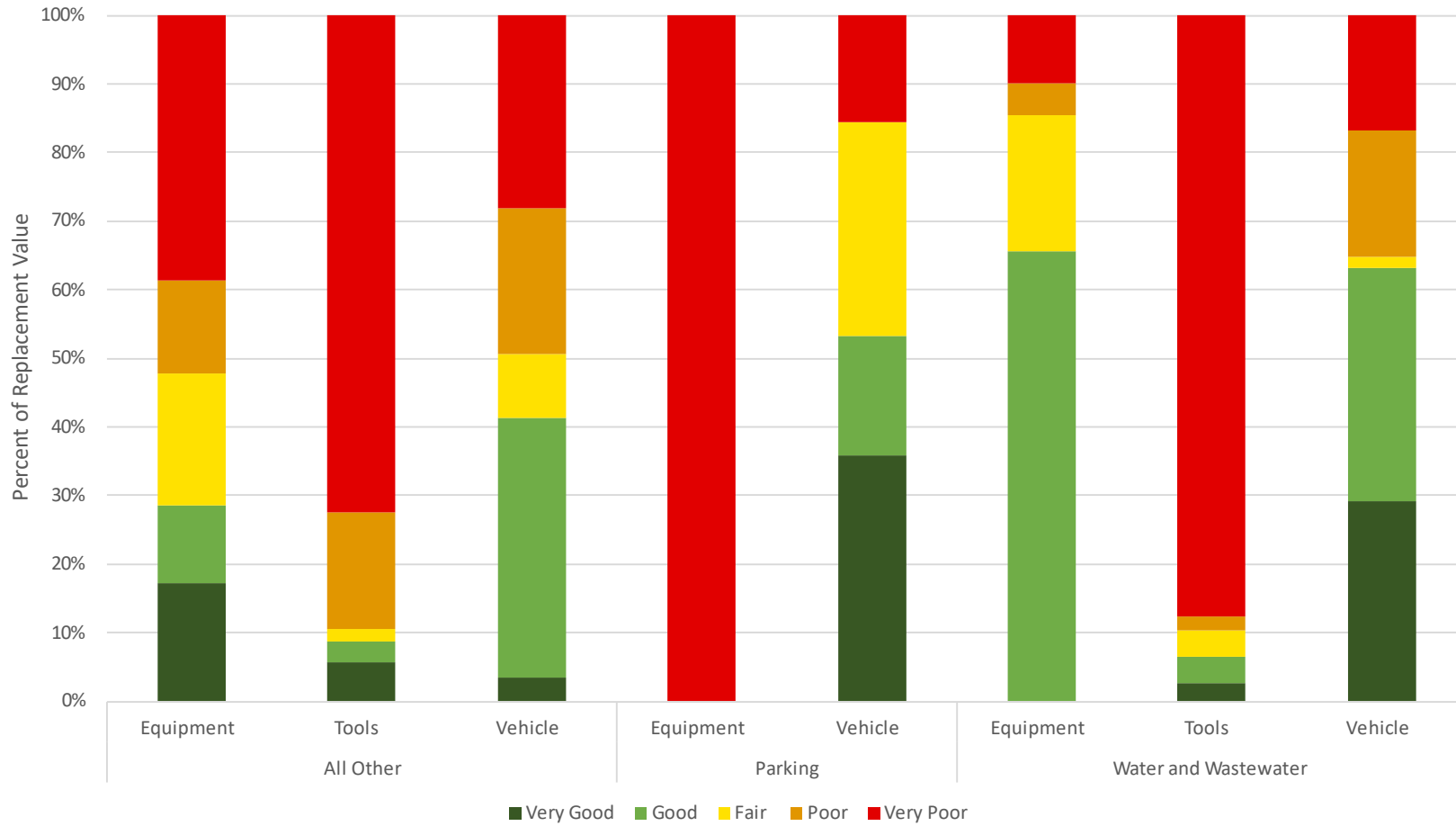
Category	Remaining Life
Very Good	100% - 76%
Good	75%- 51%
Fair	50% - 26%
Poor	25%- End of Life
Very Poor	Past Service Life

The current condition rating of corporate fleet assets have been summarized and weighted by replacement value in **Figure 15**.

Overall, 52% of the corporate fleet assets are in the very good to fair rating category (based on replacement value) with 31% in the very poor category.



Figure 15. Condition Distribution by Replacement Value for all Corporate Fleet Asset Types



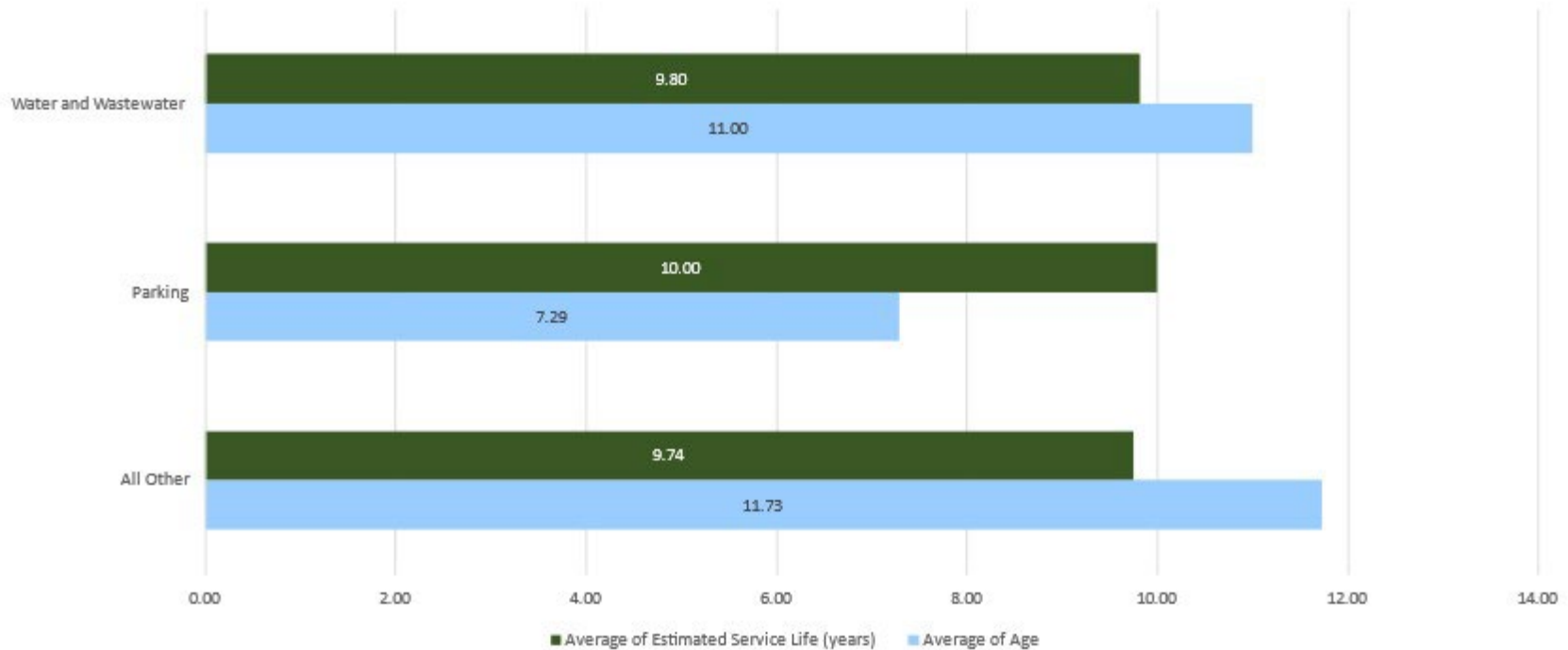
3.1.3 Corporate Fleet Age Summary

By comparing the average age of the assets against the average estimated useful life, the overall average remaining life of the assets can be derived.

Figure 16 below summarizes the average ages of each asset type in the corporate fleet. On average, Water and Wastewater and Corporate Fleet Assets (All Other), have

surpassed their service life. Similarly noted above, it is recommended the City review a process for assessing condition of fleet assets, instead of an age-based approach, and review the estimated services lives of these assets. It should be noted that any assets that did not have an installation date were not included in the graphic below.

Figure 16. Average Age as a Proportion of Expected Service Life by Asset Type All Corporate Fleet Assets



3.2 Corporate Fleet Levels of Service

The City of St. Catharines is committed to providing vehicles and equipment to all city departments, so that required duties can be performed on a daily basis. Corporate fleet services support a variety of activities and functions for recreation, business, arts and culture, historical, maintenance and operations purposes.

The City of St. Catharines has developed levels of service for its corporate fleet based on Capacity & Use,

Quality & Reliability, Function, and Financial Sustainability which provide a basis from which the City can determine whether the service area is performing as expected. The City’s LOS document the asset performance from a service provider’s perspective and service user’s perspective. These metrics shown in **Table 22** outlines the LOS that are currently driving decision-making/spending on assets and can be linked to financing consequences/demand.

Table 22. Corporate Fleet LOS Indicator

Key Service Attribute	LOS Statement	LOS Indicator	Current Performance	Target (Proposed)
Capacity & Use	Providing Fleet services across the municipality	% of vehicles with downtime longer than two weeks	Future Indicator	TBD in 2025 AMP
Quality & Reliability	Provide Fleet assets at the appropriate quality	% of Fleet assets in fair or better condition	52%	
Function	Providing secure Fleet services	Annual fuel consumption	665,216 L	
		% of legislated MTO inspections met per year	100%	
		% of light vehicles that are electric	10.6%	
Financial Sustainability	Providing Fleet services in a cost-efficient manner	Annual operating budget for Fleet services	\$1,358,609	
		Cost to provide service (\$/household)	\$59.32	

3.3 Corporate Fleet Lifecycle Management Strategy

3.3.1 Lifecycle Management Activities

The levels of service presented in the previous section are supported by the achievement of a variety of lifecycle activities in accordance with the activity types presented in **Table 5**. These activities are targeted to extend the asset life, ensure levels of service are being met, and reduce overall lifecycle costs.

The corporate fleet service staff implement a variety of lifecycle activities on its entire portfolio. **Table 23** to **Table 28** below provides a summary of these activities and the frequency at which assessments should be completed to reduce risk.

Table 23. Corporate Fleet Lifecycle Activities and Assessment Frequency – Non-Infrastructure Solutions

Lifecycle Activity Type	Asset Management Practices	Frequency
Non-Infrastructure Solutions	St. Catharines Climate Adaptation Plan	Every 5 years
	Energy Conservation and Demand Management	Every 5 years
	Condition Assessments	As required
	Other technical studies and assessments	As required
	Contingency Planning	As required

Table 24. Corporate Fleet Lifecycle Activities and Assessment Frequency – Renewal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Renewal (Rehabilitation and Replacement) Activities	Replacement	As required - when assets reach end of service life or are no longer fit for purpose

Table 25. Corporate Fleet Lifecycle Activities and Assessment Frequency – Operation and Maintenance

Lifecycle Activity Type	Asset Management Practices	Frequency
Operation and Maintenance Activities	Planned Maintenance (PM)	As required
	Service Requested Maintenance	As required
	Reactive Maintenance	As required
	Equipment inspections	Monthly and annually
	Purchase of small equipment and materials	As required

Table 26. Corporate Fleet Lifecycle Activities and Assessment Frequency – Disposal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Disposal Activities	Sell-off of vehicles, fleet & equipment	Opportunistically
	Disposals	Coordinated with asset replacement or opportunistically if assets are deemed to be surplus

Table 27. Corporate Fleet Lifecycle Activities and Assessment Frequency – Growth Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Growth Activities	New Assets	Driven by growth to maintain LOS. As identified through planning and studies

Table 28. Corporate Fleet Lifecycle Activities and Assessment Frequency –Service Improvement Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Service Improvement Activities	New Assets	To improve LOS and not supported by growth. As identified through planning and studies

3.3.2 Funding the Lifecycle Activities

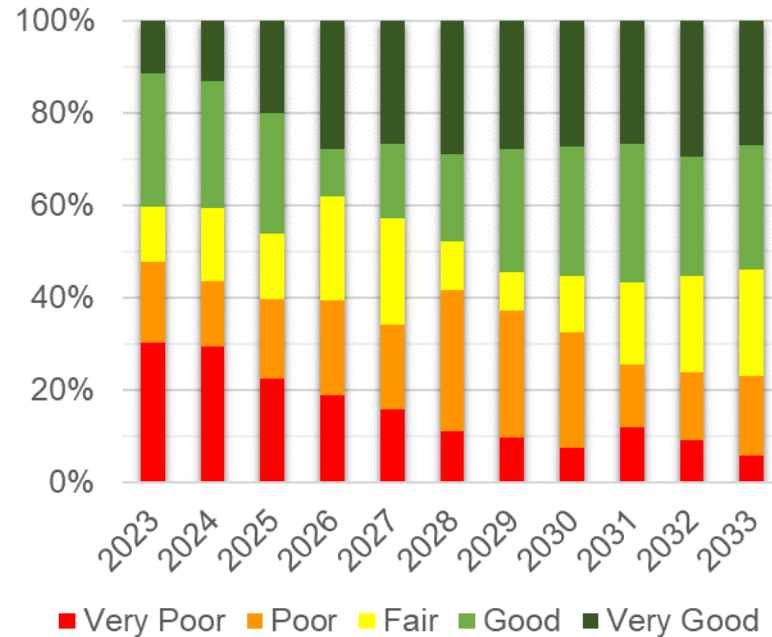
The City uses the lifecycle strategies described in **Section 3.3.1** to plan work and determine future expenditure needs. The LOS used in the AM analysis for Corporate Fleet assets was defined as the percentage of assets that are in poor or better condition. Each of the scenarios, and its purpose in the overall analysis, is discussed in **Section 1.9.3** Currently there are no costs

Scenario 1: Anticipated Budget

The current average anticipated renewal investments of \$2.3M annually, resulted in the performance forecast illustrated in **Figure 17**. Under this scenario, the percentage of assets that are in poor or better condition increases from 70% to 94% by the end of the 10-year forecast period.

associated with Non-Infrastructure or Expansion activities. It is recommended that the City determine an appropriate way to budget and allocate appropriate fleet assets to the expansion of other asset classes. As other asset classes grow and expand, additional fleet assets will be required to maintain the other assets.

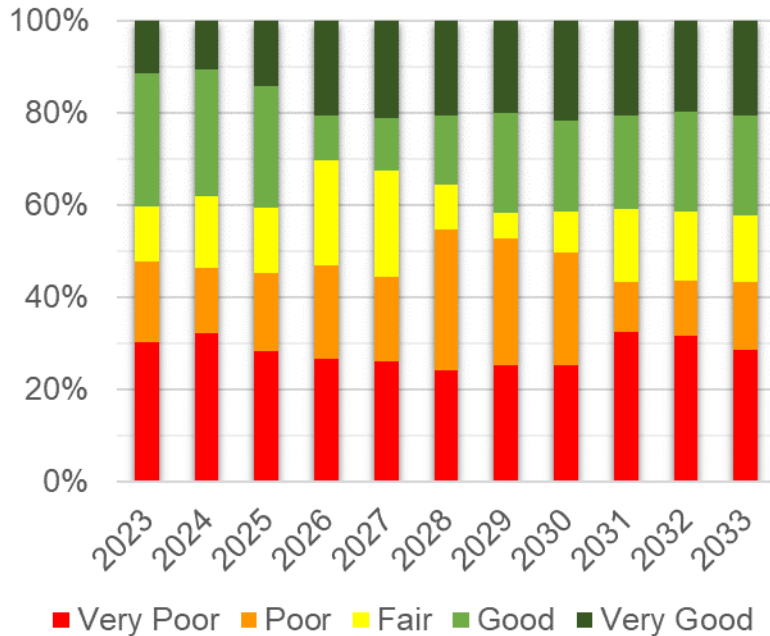
Figure 17. Corporate Fleet Performance Forecast with Anticipated Budget



Scenario 2: Cost to Maintain LOS

The renewal cost required to maintain existing service levels was determined to be \$1.7M annually over a 10-year period and resulted in the performance forecast illustrated in **Figure 18**. Under this scenario, the percentage of assets that are in poor or better condition holds around 70% over forecast period.

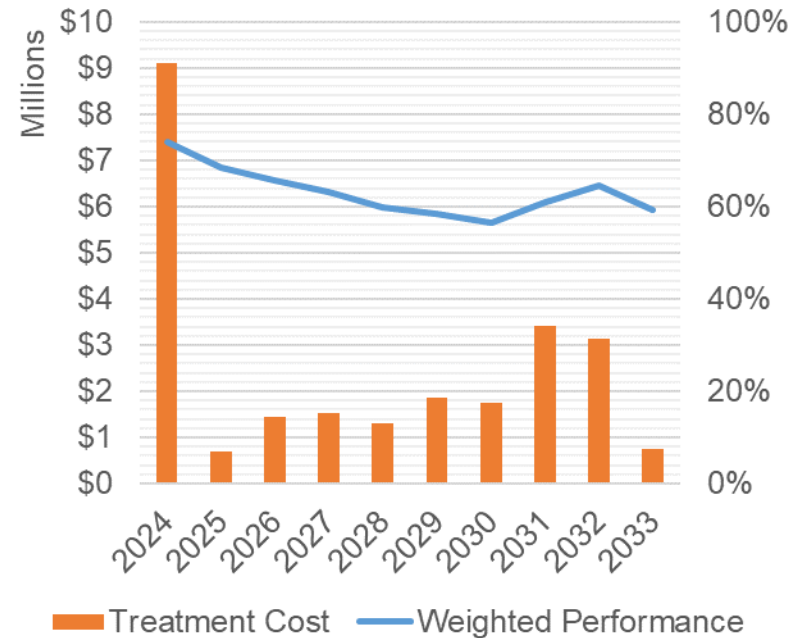
Figure 18. Corporate Fleet Performance Forecast with Cost to Maintain LOS



Scenario 3: Backlog Analysis

The results of the backlog analysis revealed a current backlog (i.e. outstanding and current investment needs) of \$9M in 2024. In addition to the current backlog, this analysis details required additional investment needs in the upcoming years. The unconstrained investment needs in this analysis average to an amount of \$2.5M annually, over the 10-year analysis period. The associated expenditure distribution and average performance for this scenario is illustrated in **Figure 19**.

Figure 19. Corporate Fleet Backlog Analysis



Scenario Comparison

The compiled investment needs under each of the three analysis scenarios are presented in **Table 29** and **Figure 20**. **Figure 20** illustrates a bar graph of forecasted expenditures for the backlog analysis (i.e. Scenario 3). The bars in this figure are colour coded by type of investment need. In addition to the bar graph, solid and dashed lines on the figure illustrate the equivalent annual investment needs of each of the three scenarios. The figure clearly illustrates that additional investment is needed by the City to continue to maintain current levels of service and/or to eliminate backlog and prepare for upcoming investment needs over the next 10 years.

This AMP focused on identifying the renewal need for infrastructure investments. The City is also experiencing an operational and maintenance investment gap and should work towards quantifying the true cost to maintain LOS from the operations side. This can then be included in future iterations of the AMP to capture the full lifecycle investment need.

Table 29. Corporate Fleet Lifecycle Activity Investments

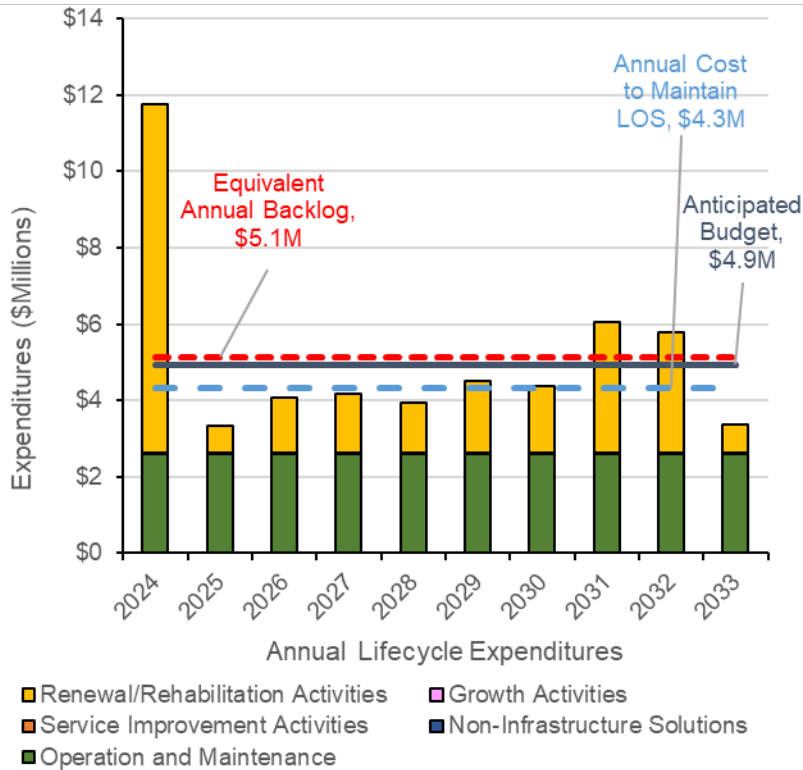
Lifecycle Activity	Anticipated Budget	Maintain LOS	Backlog Analysis
Non-Infrastructure ⁵	\$0	\$0	\$0
Operation and Maintenance ⁵	\$2,596,018	\$2,596,018	\$2,596,018
Growth ⁶	\$0	\$0	\$0
Service Improvements ⁵	\$37,500	\$37,500	\$37,500
Renewal ⁷	\$2,300,000	\$1,700,000	\$2,502,560
Total	\$4,933,518	\$4,333,518	\$5,136,078
Funding Gap		\$0	\$202,560

⁵ Average annual value calculated using the historic capital budget (2019-2023), future capital budget (2024-2026), historic operating budget (2018-2023).

⁶ Average annual planned DC forecast.

⁷ Annual cost for anticipated budget were provided by City staff after reviewing the historic and planned capital budget (2019-2026). Cost to maintain LOS and backlog analysis were calculated using the performance and investment forecasting model.

Figure 20. Corporate Fleet Scenario Comparison



3.4 Corporate Fleet Data Confidence

The Fleet Services work management system, Work Manager, inventory was used for the AMP analysis. The data was mostly complete with some gaps in estimated service lives and replacement costs. The overall data confidence grade is **B** for corporate fleet. A review of replacement costing can improve the confidence rating as the price of vehicles has significantly increased over the past several years. Costs in the inventory should be updated to reflect current purchase prices.

Where data wasn't available, the following assumptions were made during the assessment of the data:

- The average cost of similar asset types was used
- The small equipment missing ESLs were assigned 10 years

It is recommended for future iterations of the AMP, that the City determine a process for linking fleet services to growth and service improvements. As new assets come online, or levels of service are increased, there is typically a need for an increase in fleet and equipment assets. For example, adding active transportation assets, will require more fleet and equipment to maintain these new assets (snow plowing, etc). Currently the City does not have a way to distinguish what fleet and equipment assets are being added as a result of growth and service improvements. It is important in the budgeting process to understand the operational and capital implications of new assets and service changes.

Culture

The City of St. Catharines is committed to enhancing the well-being of residents through the provision of thoughtful, safe, reliable, accessible, inclusive, and sustainable art, culture and heritage assets in public spaces (sculpture, monuments, built elements, integrated architectural or landscape architectural work). The City will provide safe, reliable, affordable, accessible, inclusive and sustainable culture that reflect 'A City where everyone can play.' The parks and recreation services will enhance the well-being of residents, places and spaces.. Cultural assets include:

- 3 Canals (18 Exposed Lockwalls)
- 54 Public Art Installations and Memorials
- 1 Carousel



Estimated Replacement Value

The City's culture assets are valued at approximately **\$8.6 million**.

Condition Rating

(% based on Replacement Value)

59% of assets are in **Good to Very Good** condition.

29% of assets are in **Poor to Very Poor** condition.

1914- WORLD WAR I- 1918
UNITED NATIONS PLACEKEEPERS CANALS

4.0 Culture

4.1 Culture State of Local Infrastructure

Culture is important to enhancing the well-being of residents through the provision of thoughtful, safe, reliable, accessible, inclusive, and sustainable art, culture and heritage assets in public spaces. Some of the culture assets currently owned and operated by the City of St. Catharines include:

- Canals/Lockwalls
- Public indoor art
- Public outdoor memorials
- Public outdoor monuments
- Public outdoor plaques
- Public outdoor sculptures
- Carousel

This valuation primarily centres on outdoor public art, with intentions to incorporate indoor art, which is part of the broader Civic Art Collection, at a later date. Importantly, the assessment does not encompass the museum's distinct collection, which is a separate entity.

4.1.1 Culture Valuation

The City of St. Catharines is focused on celebrating the City's rich history, diversity, arts and cultural assets through leadership, promotion and investments that support measurable, sustainable creative growth. For the valuation of the culture services, the replacement values considered are intended for the replacement of a similar

asset or major refurbishment that brings the asset to like-new condition (for the Carousel assets). These were calculated based on historical values that the City has incurred as part of previous replacements of similar assets.

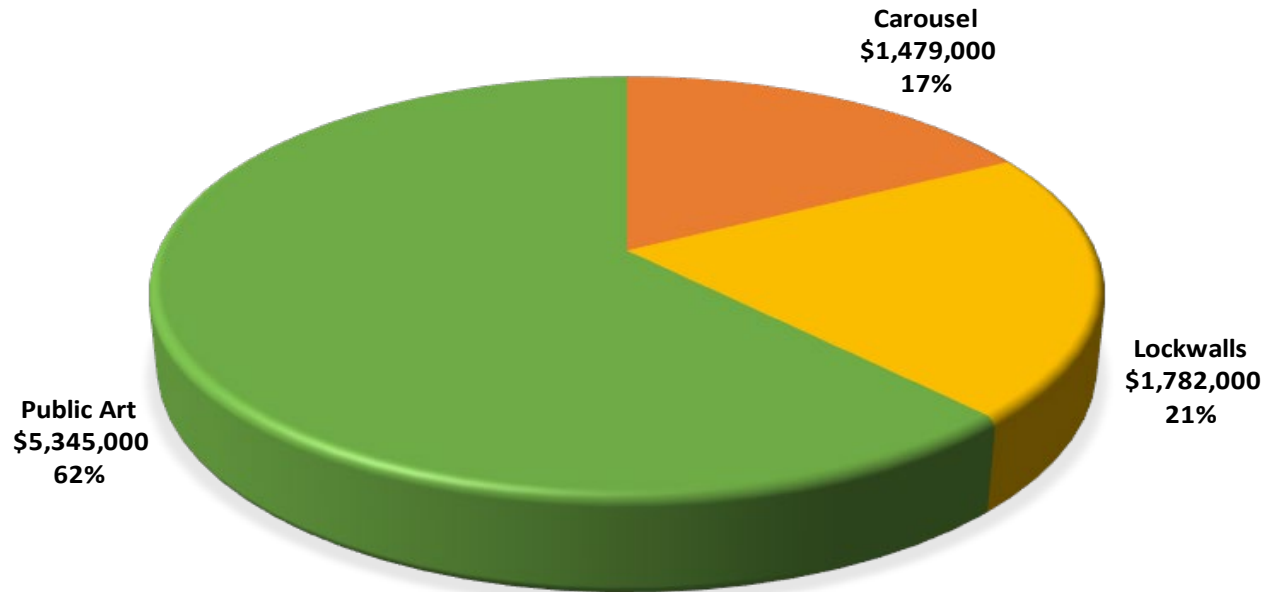
Unlike other assets that tend to age and be replaced over time, the City undertakes preservation and restoration on the cultural assets in an effort to ensure that they continue to reflect the period in which they were built and continue to reflect the cultural heritage of the City now and for future generations.

The City intends to complete an appraisal of these assets, at which time will provide more accurate replacement values for future iterations of the AMP.

Table 30. Culture System Inventory Valuation

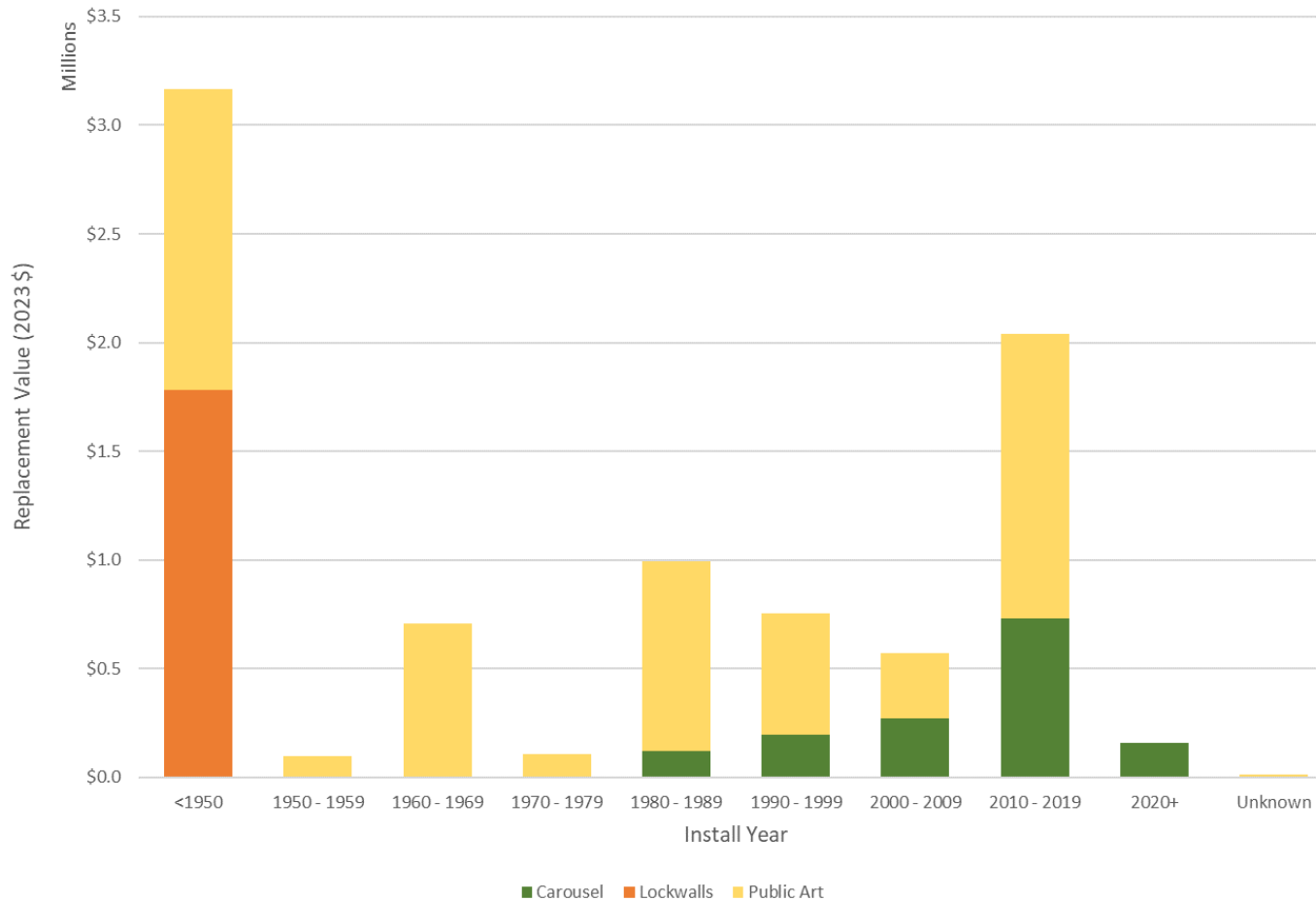
Service Function	Asset Category	Count	Unit	Estimated Total Replacement Value (2023 Dollars)
Culture	Carousel	1 (122 components)	Each	\$1,479,000
	Canals/Lockwalls	3 Canals (18 exposed lockwalls)	Each	\$1,782,000
	Public Art	54	Each	\$5,345,000
Overall Culture Replacement Value				\$8,606,000

Figure 21. Asset Replacement Value for All Culture Assets



As shown in **Figure 22**, a large portion of the culture service portfolio was installed prior to 1950, which is made up of the lockwalls and public art assets. Similar to the valuations of cultural assets, these assets are difficult to determine an estimated useful life, and the intent is to not replace these assets.

Figure 22. Distribution by Replacement Value for all Culture by Installation Decade



4.1.2 Culture Condition

The Public Art assets were visually assessed by staff and given condition rating. A third-party condition assessment was completed for Lock Walls and the recommended year of investment for each. The recommended year of investment was used to determine the effective age. The condition was then determined using effective age versus estimated service life. Current practice is to rehabilitate the structures to maintain watercourse function. The City may wish to revisit the desire to maintain these assets as cultural items. The carousel assets were assigned condition scores primarily on the basis of the asset age versus expected service life of the previous restoration, where the data was available. The condition conversion is provided in **Table 31**.

The current conditions of culture assets have been summarized and weighted by replacement value in **Figure 23**.

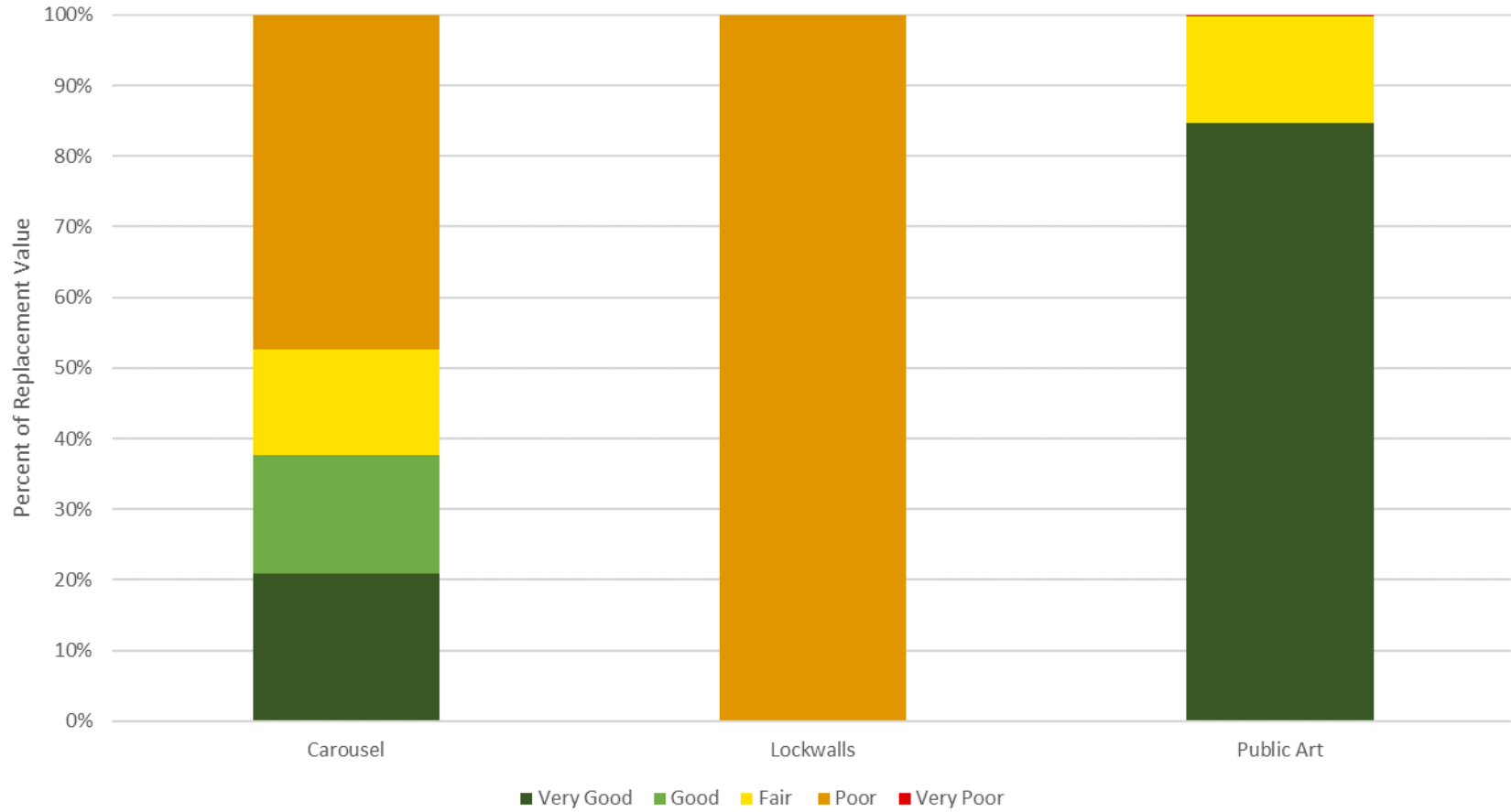
Overall, 59% of the replacement costs for culture assets are in the fair to very good rating category (based on replacement value) with 29% of assets in the poor to very poor categories.

Table 31. Culture Condition Scale

Category	Public Art	Remaining Life
Very Good	Good	100% - 76%
Good		75%- 51%
Fair	Fair	50% - 26%
Poor		25%- End of Life
Very Poor	Poor	Past Service Life



Figure 23. Condition Distribution by Replacement Value for all Culture Asset Types

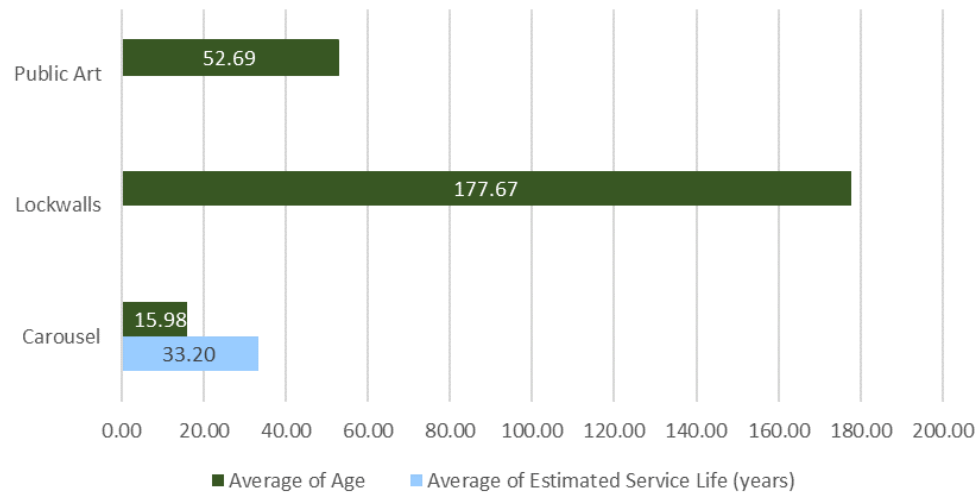


4.1.3 Culture Assets Age Summary

By comparing the average age of the assets against the average estimated useful life, the overall average remaining life of the assets can be derived. **Figure 24** below summarizes the average age of each asset type in Culture services. As can be seen in the figure, the lockwall assets are beyond the end of their service life by age. However, as these assets have significant heritage value to the City and the region this is not considered to be a significant concern as long as their overall condition does not impact public safety. Any assets that did not have an installation date were not included in the graphic below. Carousel assets are originally from 1898 to 1905,

making the age of these assets significantly older than stated below. For the purpose of this report, the age is based on the previous restoration. The chart is reflective of only the average of the time between restoration of these assets. Average Estimated Service life is not being reported for lockwalls and public art, as these assets are managed differently than a typical asset, and these assets are not expected to be replaced at a specific point in time. These assets are maintained and restored as needed to ensure the community is able to appreciate them for years to come.

Figure 24. Average Age as a Proportion of Expected Service Life by Asset Type All Culture Assets



4.2 Culture Levels of Service

The City of St. Catharines is committed to enhancing the well-being of residents through the provision of thoughtful, safe, reliable, accessible, inclusive, and sustainable art, culture and heritage assets in public spaces (sculpture, monuments, built elements, integrated architectural or landscape architectural work). The City will provide safe, reliable, affordable, accessible, inclusive and sustainable cultural services that reflect the objective of celebrating the City’s rich history, diversity, arts and cultural assets through leadership, promotion and investments that support measurable, sustainable creative growth.

The City has developed levels of service for its culture assets based on Capacity & Use, Quality & Reliability, and Financial Sustainability which provide a basis from which the City can determine whether the service area is performing as expected.

The City’s LOS document the asset performance from a service provider’s perspective and service user’s perspective. These metrics outline the LOS that are currently driving decision-making/spending on assets and can be linked to financing consequences/demand. The following provides a summary of these LOS associated with the culture assets in the City

Table 32. Culture LOS Indicator

Key Service Attribute	LOS Statement	LOS Indicator	Current Performance	Target (Proposed)
Capacity & Use	Providing culture services across the municipality	Annual # of riders at the Carousel	151,432	TBD in 2025 AMP
Quality and Reliability	Provide culture services in an acceptable condition	% of Culture assets in fair or better condition	71%	
Financial Sustainability	Providing culture services in a cost-efficient manner	Annual operating budget for Culture	\$1,802,762	
		Cost to provide service (\$/household)	\$30.70	

4.3 Culture Lifecycle Management Strategy

4.3.1 Lifecycle Management Activities

The levels of service presented in the previous section are supported by the achievement of a variety of lifecycle activities in accordance with the activity types presented in **Table 5**. These activities are targeted to extend the asset life, ensure levels of service are being met, and reduce overall lifecycle costs.

The Culture service staff implement a variety of lifecycle activities on its entire portfolio. **Table 33 to Table 38** below provide a summary of these activities and the frequency at which assessments should be completed to reduce risk.

Table 33. Culture Lifecycle Activities and Assessment Frequency – Non-Infrastructure Solutions

Lifecycle Activity Type	Asset Management Practices	Frequency
Non-Infrastructure Solutions	Culture Plan	As required
	Condition Assessments	As required
	Other technical studies and assessments	As required

Table 34. Culture Lifecycle Activities and Assessment Frequency – Renewal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Renewal (Rehabilitation and Replacement) Activities	Rehabilitation	As required
	Replacement	Rehabilitation is preferred but replace occurs when required

Table 35. Culture Lifecycle Activities and Assessment Frequency – Operation and Maintenance Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Operation and Maintenance Activities	Planned Maintenance (PM)	As required
	Service Requested Maintenance	As required

Lifecycle Activity Type	Asset Management Practices	Frequency
Operation and Maintenance Activities	Reactive Maintenance	As required
	Equipment inspections	Daily, monthly, and annually
	Purchase of small equipment and materials	As required
	Restoration of the Characters	As required by volunteers
	Restoration of the Blood Sport Paintings	As required by contracted professionals

Table 36. Culture Lifecycle Activities and Assessment Frequency – Disposal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Disposal Activities	Sales	Opportunistically - Not currently done but looking to explore in the future
	Disposals	Coordinated with asset replacement
	Deaccessions	As determined by Public Art Policy

Table 37. Culture Lifecycle Activities and Assessment Frequency – Growth Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Growth Activities	New Assets	Driven by growth to maintain LOS. As identified through planning and studies (ie. Public Art Policy)

Table 38. Culture Lifecycle Activities and Assessment Frequency –Service Improvement Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Service Improvement Activities	New Assets	To improve LOS and not supported by growth. As identified through planning and studies (ie. Public Art Policy)

4.3.2 Funding the Lifecycle Activities

The City uses the lifecycle strategies described in **Section 4.3.1** to plan work and determine future expenditure needs. The LOS used in the AM analysis for Culture assets was defined as the percentage of assets that are in poor or better condition.

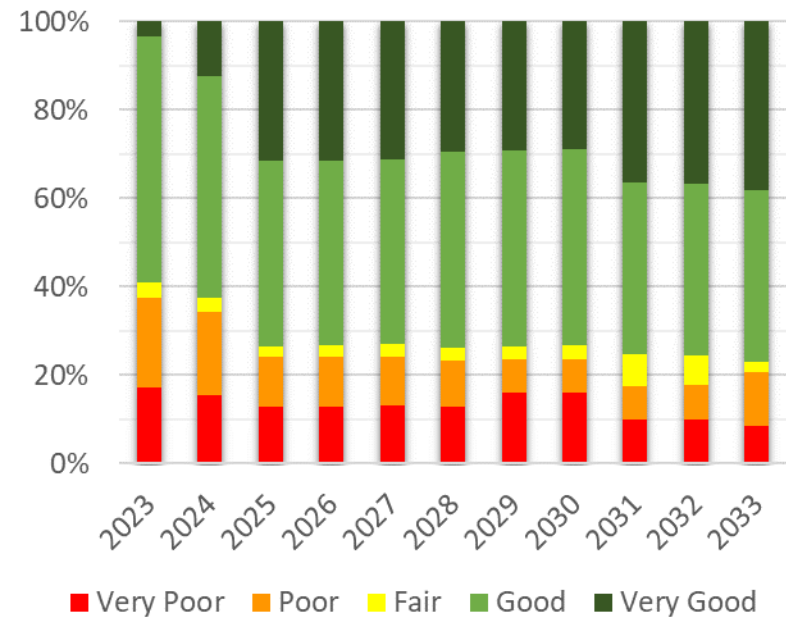
Each of the scenarios, and its purpose in the overall analysis, is discussed in **Section 1.9.3**.



Scenario 1: Anticipated Budget

The current average anticipated renewal investments of \$100K annually, resulted in the performance forecast illustrated in **Figure 25**. Under this scenario, percentage of assets that are in poor or better condition increases from 83% to 91% by the end of the 10-year forecast period.

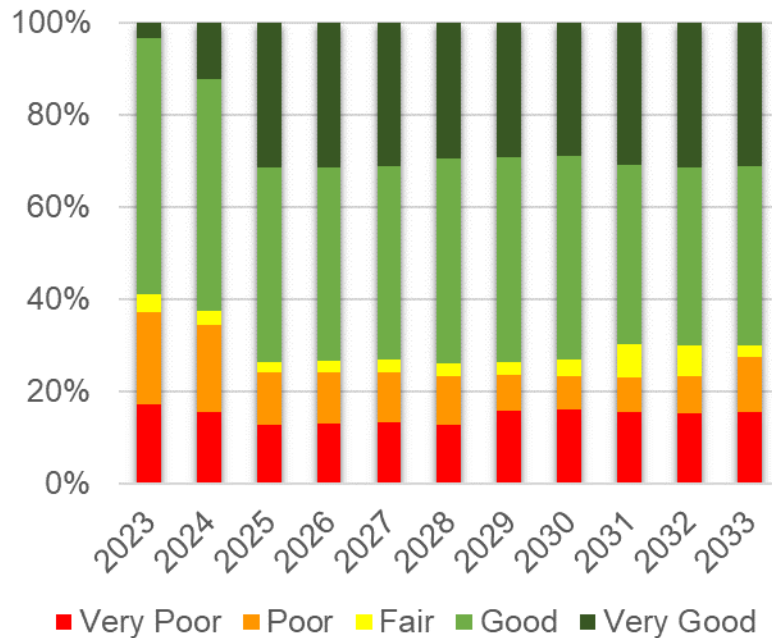
Figure 25. Culture Performance Forecast with Anticipated Budget



Scenario 2: Cost to Maintain LOS

The renewal cost required to maintain existing service levels was determined to be \$60K annually over a 10-year period and resulted in the performance forecast illustrated in **Figure 26**. Under this scenario, the percentage of assets that are in poor or better condition holds around 83% over forecast period.

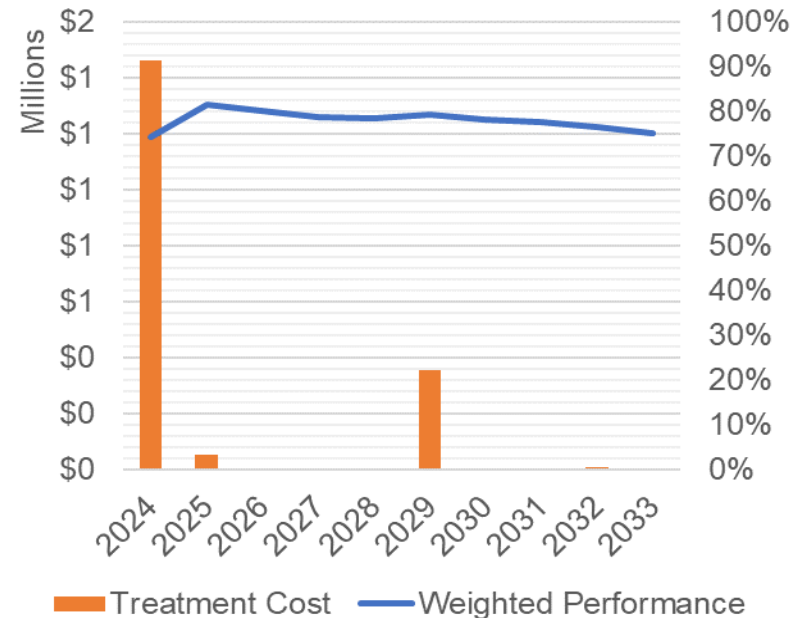
Figure 26. Culture Performance Forecast with Cost to Maintain LOS



Scenario 3: Backlog Analysis

The results of the backlog analysis revealed a current backlog (i.e. outstanding and current investment needs) of \$1.5M in 2024. In addition to the current backlog, this analysis details required additional investment needs in the upcoming years. Notably, two years in the forecast period have investment needs that exceed the current backlog, including: \$355K in 2029. The unconstrained investment needs in this analysis average to an amount of \$191K annually, over the 10-year analysis period. The associated expenditure distribution and average performance for this scenario is illustrated in **Figure 27**.

Figure 27. Culture Backlog Analysis



Scenario Comparison

The compiled investment needs under each of the three analysis scenarios are presented in **Table 39** and **Figure 28**. **Figure 28** illustrates a bar graph of forecasted expenditures for the backlog analysis (i.e. Scenario 3). The bars in this figure are colour coded by type of investment need. In addition to the bar graph, solid and dashed lines on the figure illustrate the equivalent annual investment needs of each of the three scenarios. Over the 10 year period, the anticipated budget is closely tied to the annual cost to maintain these assets. It is recommended that the City assess the cultural assets condition and costs required to continue to rehabilitate these assets into the future to further understand if the needs of these assets are being met. The lockwalls and carousel are historical assets, that will require increasingly more regular maintenance and restoration to keep them in their current condition.

This AMP focused on identifying the renewal need for infrastructure investments. The City is also experiencing an operational and maintenance investment gap and should work towards quantifying the true cost to maintain LOS from the operations side. This can then be included

in future iterations of the AMP to capture the full lifecycle investment need.

Table 39. Culture Lifecycle Activity Investments

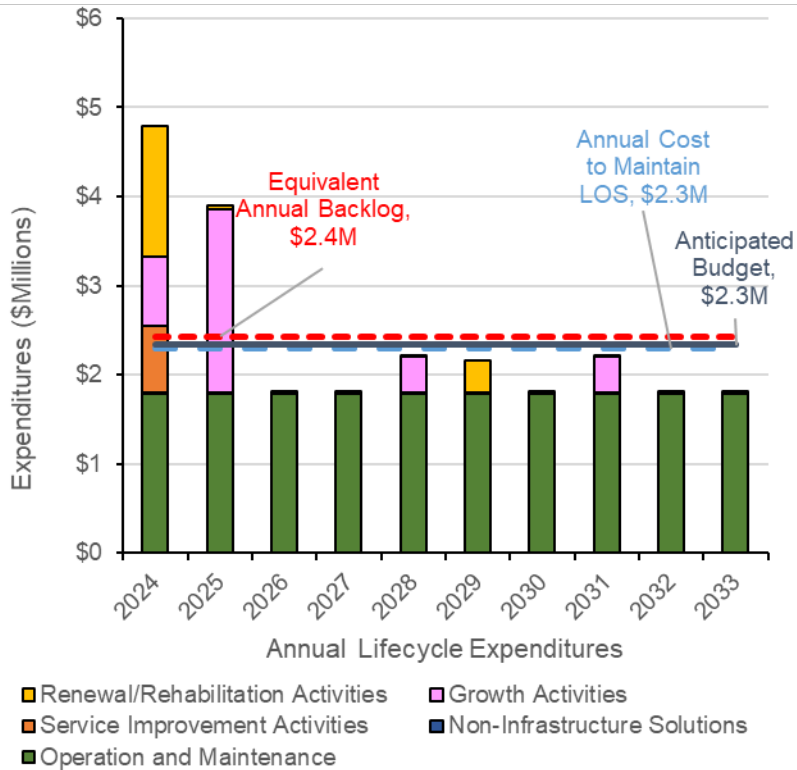
Lifecycle Activity	Anticipated Budget	Maintain LOS	Backlog Analysis
Non-Infrastructure ⁸	\$6,250	\$6,250	\$6,250
Operation and Maintenance ⁵	\$1,794,428	\$1,794,428	\$1,794,428
Growth ⁹	\$362,500	\$362,500	\$362,500
Service Improvements ⁵	\$75,000	\$75,000	\$75,000
Renewal ¹⁰	\$100,000	\$60,000	\$190,568
Total	\$2,338,178	\$2,298,178	\$2,428,747
Funding Gap		\$0	\$90,568

⁸ Average annual value calculated using the historic capital budget (2019-2023), future capital budget (2024-2026), historic operating budget (2018-2023).

⁹ Average annual planned DC forecast.

¹⁰ Annual cost for anticipated budget were provided by City staff after reviewing the historic and planned capital budget (2019-2026). Cost to maintain LOS and backlog analysis were calculated using the performance and investment forecasting model.

Figure 28. Culture Scenario Comparison



4.4 Culture Data Confidence

The inventory of outdoor art was mostly complete with gaps in installation year and replacement costs. The overall data confidence grade is **C** for public art. A review of replacement costing can improve the confidence rating as the purchase prices are likely not representative of the investments required to replace or fully refurbish these assets. Costs in the inventory should reflect current purchase prices.

The inventory of the carousel was developed through staff knowledge as part of this AMP. Assumptions around replacement costs, estimated service life and condition performance were applied. The overall data confidence grade is **D** for the carousel assets. The City should look continue to update the inventory with higher confidence performance score, replacement values and ESLs.

The lock wall inventory was developed from a condition assessment in 2018. The condition rating and replacement value were provided at the time and 3 of the locks were reinspected in 2022. The overall data confidence grade is **B** for the lock walls. The City may consider reassessing the remaining locks to ensure they are still meeting performance objectives. The City may also review the inclusion of this asset in another service area in the future, as these assets are currently budgeted along with watercourse, and may be more appropriate to report along with these assets in the future.

Where data was not available the following assumptions were made during the assessment of the data:

- The average cost of outdoor art was used
- An ESL of 75 years was applied to outdoor art
- The carousel characters were assumed to be renewed at the rate of 2-3 crests per year at a 20% of their replacement value for major restoration
- An ESL of 20 years was applied to carousel crests and paintings
- The cost to restore the carousel crests and paintings was \$2,000





Fire Services

The City of St. Catharines is Committed to building a safe community through continuous improvement. Fire Service protection the citizens of St. Catharines through education, prevention, and emergency response. We are committed to serve with perseverance, responsibility, and respect. Fire services provide firefighting and specialty recue services, fire prevention and public education services, fire investigation services, communications, and dispatching services.

Assets maintained by the City for Fire Services include:

- 6 Fire Halls
- 4 Storage Facilities
- 11 Equipment
- 33 Fire Vehicles
- 1 Office for Fire Prevention



Estimated Replacement Value

The City's fire services assets are valued at approximately **\$41 million**.



Condition Rating

(% based on Replacement Value)

42% of assets are in **Good to Very Good** condition.

48% of assets are in **Poor to Very Poor** condition.

5.0 Fire Services

5.1 Fire Services State of Local Infrastructure

Fire Services is important for protecting the well-being of residents through the provision of preventative, safe, reliable, and accessible services. Some of the fire services assets currently owned and operated by the City of St. Catharines include:

- Fire facilities
- Emergency response vehicles
- Support vehicles
- Technical rescue equipment
- Medical response equipment
- Communications equipment
- Other fire vehicles and equipment

5.1.1 Fire Services Valuation

The City has completed building condition assessments for fire facilities. This included the valuation of the overall facilities and the cost to renew each of its components.

For the valuation of the fire fleet, the replacement values considered are intended for the replacement of a similar asset (like-for-like). These were calculated based on historical values that the City has incurred as part of previous replacements of similar assets.

Table 40. Fire Services System Inventory Valuation

Service Function	Asset Category	Asset Type	Count	Unit	Estimated Total Replacement Value (2023 Dollars)
Fire Services	Fire Facilities	Firehall	6	Each	\$19,159,000
		Offices	1	Each	\$3,086,000
		Training Tower*	1	Each	\$3,000,000
		Storage	4	Each	\$25,000
	Fire Vehicles	Equipment (Trackers, Trailers)	11	Each	\$882,000
		Vehicle	33	Each	\$14,914,000
Overall Fire Services Replacement Value					\$41,066,000

*Note: Training Tower was not included in further analysis as the building is to be decommissioned.

The overall distribution of replacement values by asset type for Fire Services is as shown in **Figure 29**. The facilities have the highest replacement value in the portfolio, totaling 59% of the portfolio. As the facilities represent the majority of the asset replacement values, **Figure 29** provides a summary of the distribution of replacement values based on asset category.

Figure 29. Asset Replacement Value for All Fire Services Assets

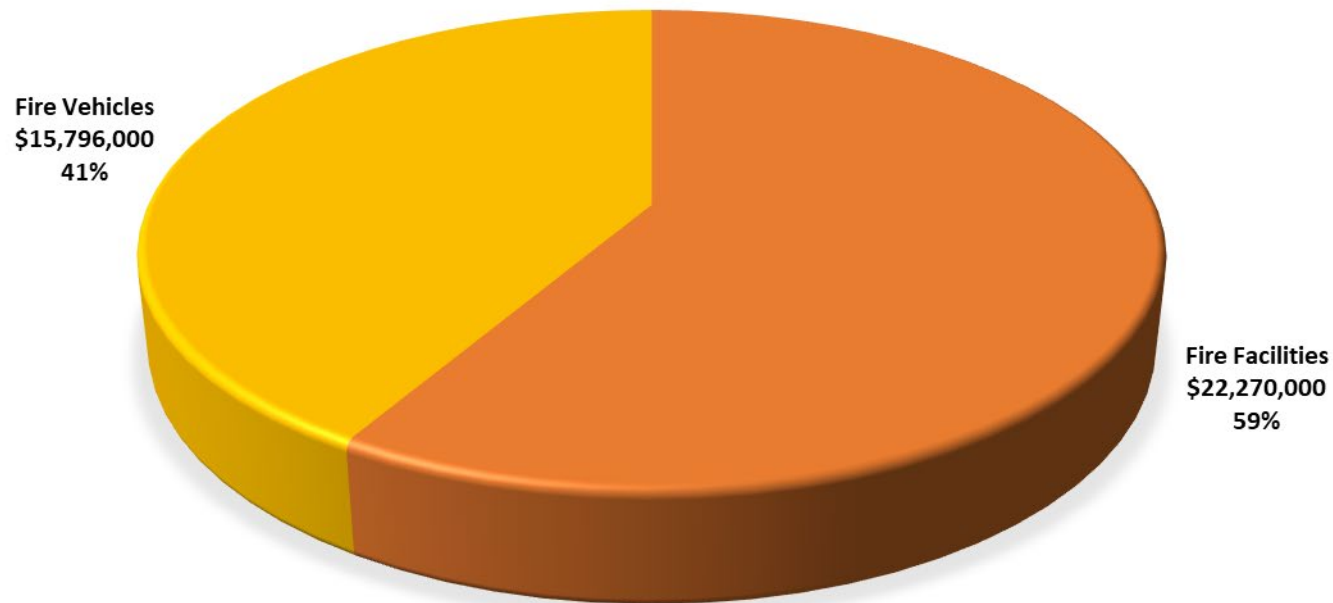
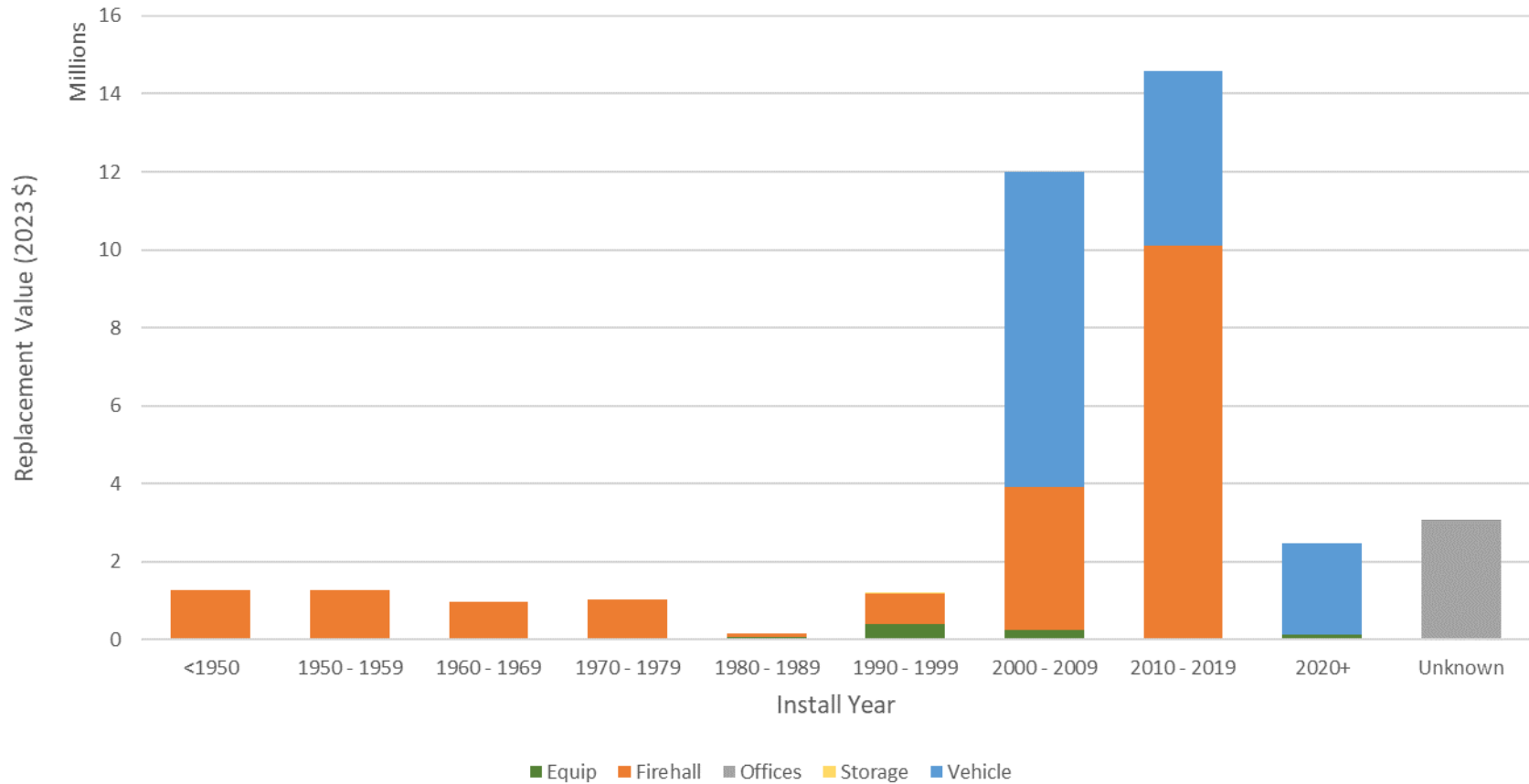


Figure 30. Distribution by Replacement Value for all Fire Services by Installation Decade



To further assess the assets **Figure 30** above summarizes the decade of the year of installation by replacement value for all fire services assets. A large portion of the fire services portfolio was constructed over 70 years ago which indicates that these assets will be reaching the end of their useful life in the coming years resulting in increasing capital requirements. These assets are all fire facility assets, of which some have been replaced within the last decade.

5.1.2 Fire Services Asset Condition

The City completed building condition assessments for most facilities. This included the assessment for fire facilities components and associated recommended year of investment for each. The recommended year of investment was used to determine the effective age. The condition was then determined using effective age versus estimated service life. Fire vehicles were assigned to fleet assets primarily based on the asset age versus expected service life where the data was available, as per **Table 41**.

Table 41. Fire Services Condition Scale

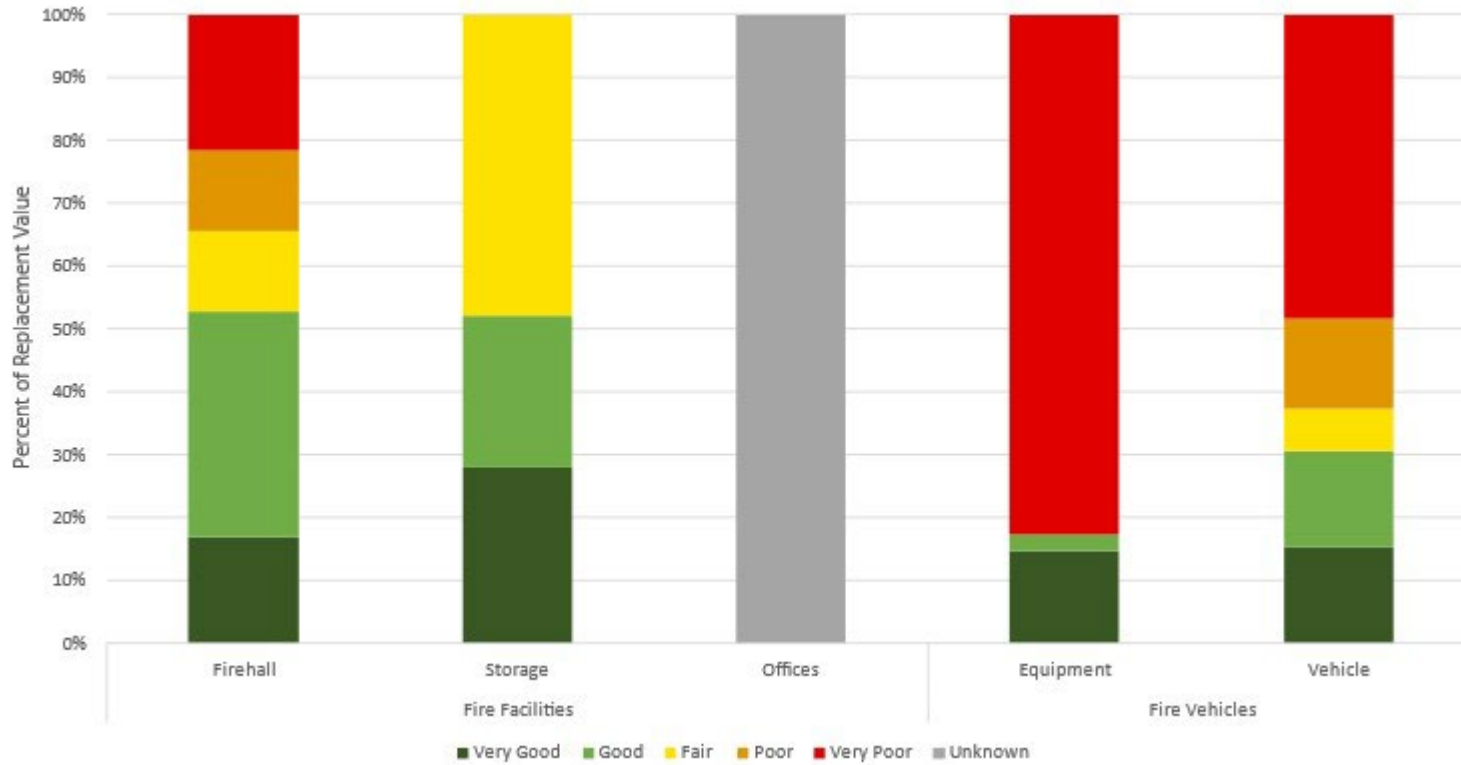
Category	Remaining Life
Very Good	100% - 76%
Good	75%- 51%
Fair	50% - 26%
Poor	25%- End of Life
Very Poor	Past Service Life

The current condition of fire service assets have been summarized and weighted by replacement value in **Figure 31**. The overall condition of fire services assets is based on the average condition of its components.

Overall, 52% of the fire services assets are in the very good to fair rating category (based on replacement value) with 35% in the very poor category.



Figure 31. Condition Distribution by Replacement Value for all Fire Services Asset Types

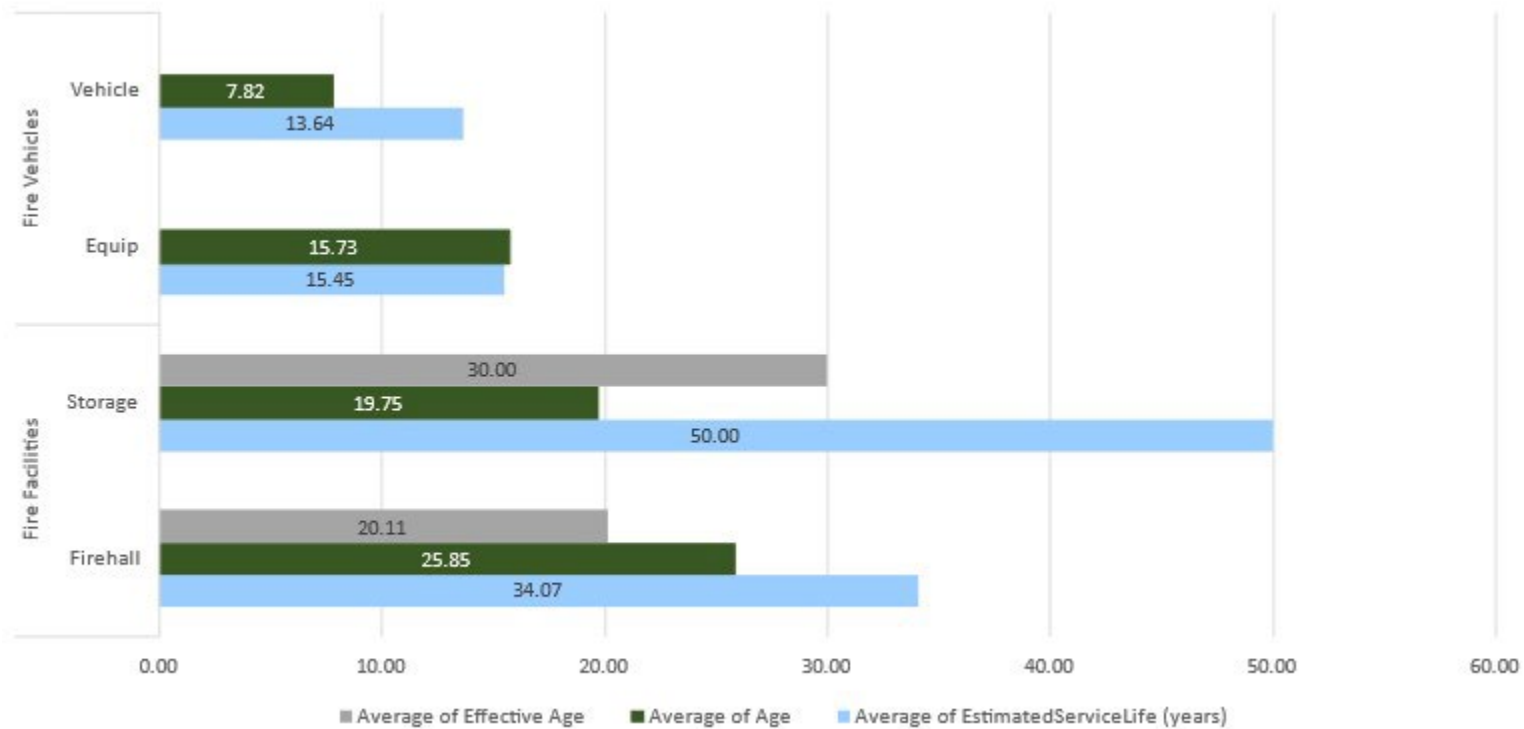


5.1.3 Fire Services Age Summary

Comparing the average age of the assets with the average estimated service life (ESL) provides a representation of the average overall portfolio remaining life.

Figure 32 below summarizes the average age of each asset type in Fire Services. Any assets that did not have an installation date were not included in **Figure 32**.

Figure 32. Average Age as a Proportion of Expected Service Life by Asset Type for Fire Service Assets



5.2 Fire Services Levels of Service

The City of St. Catharines is Committed to building a safe community through continuous improvement. Fire Service protection the citizens of St. Catharines through education, prevention, and emergency response. We are committed to serve with perseverance, responsibility, and respect.

The City has developed levels or service for its Fire Service assets based on Capacity & Use, Quality & Reliability, and Financial Sustainability which provide a

basis from which the City can determine whether the service area is performing as expected.

The City’s LOS document the asset performance from both a service provider’s and service user’s perspective. These metrics outline the LOS that are currently driving decision-making/spending on assets and can be linked to financing consequences/demand. **Table 42** provides a summary of these LOS associated with the Fire Services in the City of St. Catharines.

Table 42. Fire Services LOS Indicator

Key Service Attribute	LOS Statement	LOS Indicator	Current Performance	Target (Proposed)
Capacity & Use	Providing Fire services across the municipality	Annual # of public education engagements	85	TBD in 2025 AMP
		% of 9-1-1 Call Answered within 15 Seconds (NFPA 1710 Standard) per year	90%	
		% of 9-1-1 Call answered within 20 Seconds (NFPA 1710 Standard) per year	95%	
		% of times Emergency incidents answered within 64 seconds	90%	
Quality and Reliability	Provide Fire assets that are reliable at the appropriate quality	% of Fire Services assets in fair or better condition	52%	
Financial Sustainability	Providing Fire services in a cost-efficient manner	Cost to provide service (\$/household)	\$68.41	
		\$ value saved of properties - actual buildings/brick & mortar	Future Indicator	
		Annual operating budget for Fire Services	\$631,681	
		Reinvestment rate for Fire Services	\$3,000,000	

5.3 Fire Services Lifecycle Management Strategy

5.3.1 Lifecycle Management Activities

The levels of service presented in the previous section are supported by the achievement of a variety of lifecycle activities in accordance with the activity types presented in **Table 5**. These activities are targeted to extend the asset life, ensure levels of service are being met, and reduce overall lifecycle costs.

The fire service staff implement a variety of lifecycle activities on its entire portfolio.

Table 43 to **Table 48** below provide a summary of these and the frequency at which assessments should be completed to reduce risk.

Table 43. Fire Services Lifecycle Activities and Assessment Frequency – Non-Infrastructure Solutions

Lifecycle Activity Type	Asset Management Practices	Frequency
Non-Infrastructure Solutions	Fire Master Plan	As required
	St. Catharines Climate Adaptation Plan	Every 5 years
	Energy Conservation and Demand Management	Every 5 years
	Condition Assessments	As required
	Space Planning	As required
	Contingency Planning	As required
	Other technical studies and assessments	As required

Table 44. Fire Services Lifecycle Activities and Assessment Frequency – Renewal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Renewal (Rehabilitation and Replacement) Activities	Rehabilitation	For Facility assets. Varies depending on asset type and potential risk - based on feedback from maintenance services and detailed condition assessments. May involve mid-life or near end-of-life intervention to extend service life.
	Replacement	As required - when assets reach end of service life or are no longer fit for purpose
	Spare Fire Fleet	Fleet is front run for first 15 years of services, then rotated to a spare for 5 years and decommissioned at 20 years.

Table 45. Fire Services Lifecycle Activities and Assessment Frequency – Operation and Maintenance

Lifecycle Activity Type	Asset Management Practices	Frequency
Operation and Maintenance Activities	Planned Maintenance (PM)	As required
	Service Requested Maintenance	As required
	Reactive Maintenance	As required
	Equipment inspections	Monthly and annually
	Purchase of personal protective and rescue equipment, small equipment, and materials;	As legislated or as required

Table 46. Fire Services Lifecycle Activities and Assessment Frequency – Disposal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Disposal Activities	Sell-off of vehicles, fleet & equipment	Opportunistically
	Disposals	Coordinated with asset replacement. See above table.

Table 47. Fire Services Lifecycle Activities and Assessment Frequency – Growth Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Growth Activities	New Assets	Driven by growth to maintain LOS. As identified through planning and studies
	Expansion or major renovation of existing Facilities	Driven by growth to maintain LOS. As identified through planning and studies

Table 48. Fire Services Lifecycle Activities and Assessment Frequency – Service Improvement Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Service Improvement Activities	New Assets	To improve LOS and not supported by growth. As identified through planning and studies
	Expansion or major renovation of existing Facilities	To improve LOS and not supported by growth. As identified through planning and studies
	Interior facility renovations; Accessibility needs	As required

5.3.2 Funding the Lifecycle Activities

The City uses the lifecycle strategies described in **Section 5.3.1** to plan work and determine future expenditure needs. The LOS used in the AM analysis for Fire Services assets was defined as the percentage of assets that are in poor or better condition.

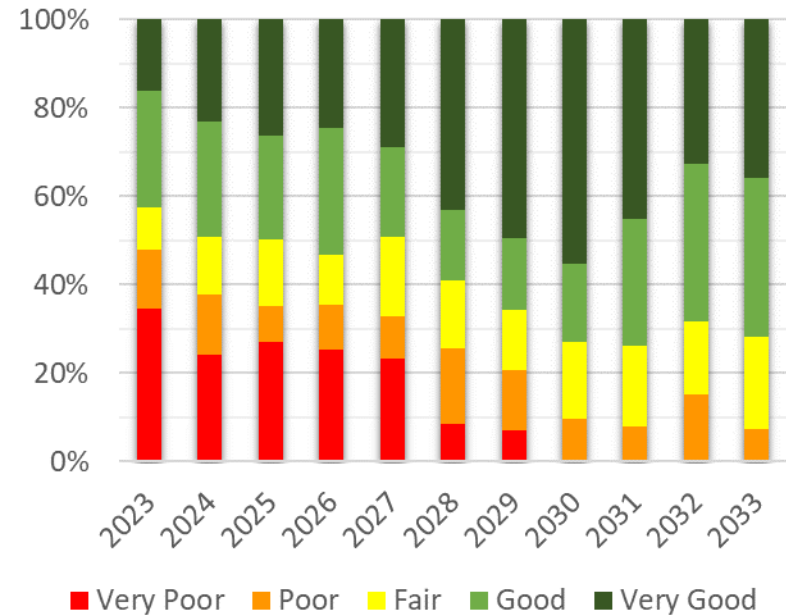
Each of the scenarios, and its purpose in the overall analysis, is discussed in **Section 1.9.3**.



Scenario 1: Anticipated Budget

The current average anticipated renewal investments of \$2.9M annually, resulted in the performance forecast illustrated in **Figure 33**. Under this scenario, the percentage of assets that are in poor or better condition increase from 65% to 100% by the end of the 10-year forecast period.

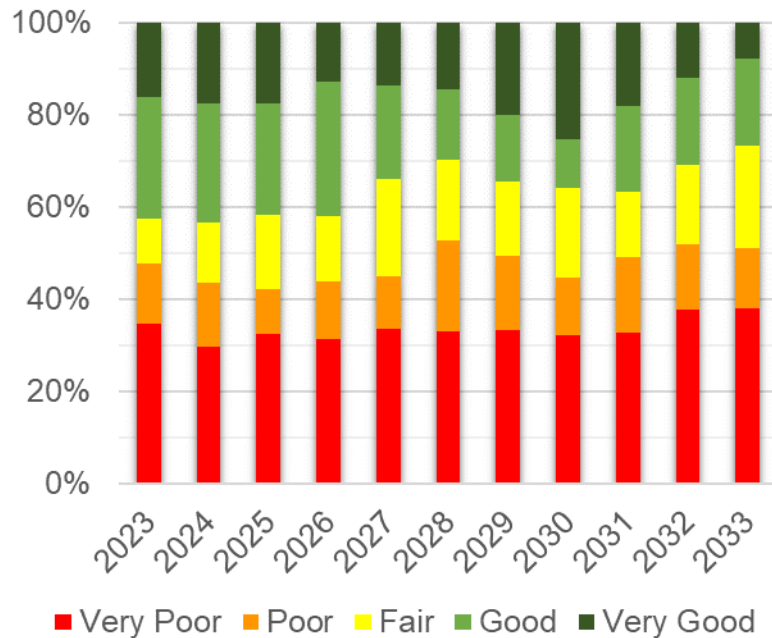
Figure 33. Fire Services Performance Forecast with Anticipated Budget



Scenario 2: Cost to Maintain LOS

The renewal cost required to maintain existing service levels was determined to be \$630K annually over a 10-year period and resulted in the performance forecast illustrated in **Figure 34**. Under this scenario, the percentage of assets that are in poor or better condition holds around 65% over forecast period.

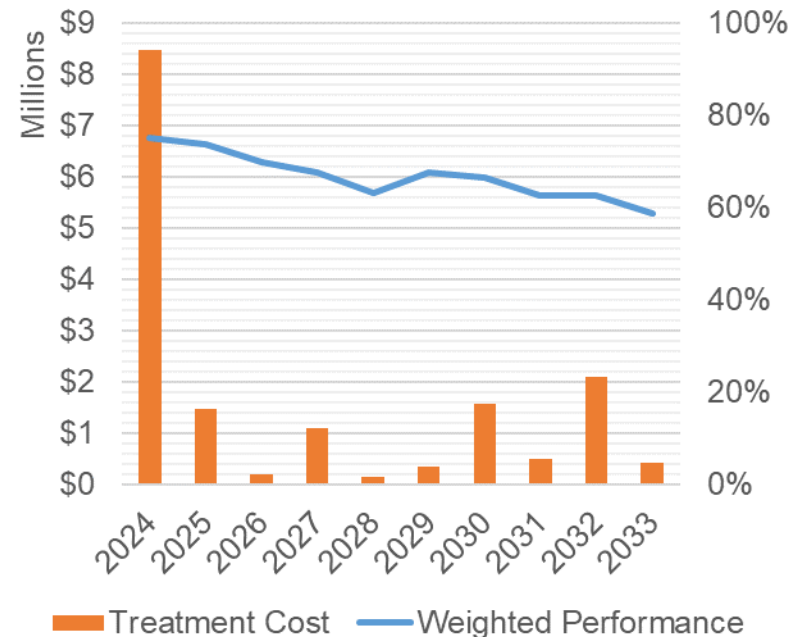
Figure 34. Fire Services Performance Forecast with Cost to Maintain LOS



Scenario 3: Backlog Analysis

The results of the backlog analysis revealed a current backlog (i.e. outstanding and current investment needs) of \$8.5M in 2024. In addition to the current backlog, this analysis details required additional investment needs in the upcoming years. The unconstrained investment needs in this analysis average to an amount of \$1.6M annually, over the 10-year analysis period. The associated expenditure distribution and average performance for this scenario is illustrated in **Figure 35**.

Figure 35. Fire Services Backlog Analysis



Scenario Comparison

The compiled investment needs under each of the three analysis scenarios are presented in **Table 49** and **Figure 36**. **Figure 36** illustrates a bar graph of forecasted expenditures for the backlog analysis (i.e. Scenario 3). The bars in this figure are colour coded by type of investment need. In addition to the bar graph, solid and dashed lines on the figure illustrate the equivalent annual investment needs of each of the three scenarios. Currently there is no investment gap for fire services.

This AMP focused on identifying the renewal need for infrastructure investments. The City is also experiencing an operational and maintenance investment gap and should work towards quantifying the true cost to maintain LOS from the operations side. This can then be included in future iterations of the AMP to capture the full lifecycle investment need.

Table 49. Fire Services Lifecycle Activity Investments

Lifecycle Activity	Anticipated Budget	Maintain LOS	Backlog Analysis
Non-Infrastructure ¹¹	\$31,250	\$31,250	\$31,250
Operation and Maintenance ¹²	\$1,525,117	\$1,525,117	\$1,525,117
Growth ¹²	\$85,000	\$85,000	\$85,000
Service Improvement ¹³	\$165,000	\$165,000	\$165,000
Renewal ¹⁴	\$2,882,000	\$630,000	\$1,634,326
Total	\$4,688,367	\$2,436,367	\$3,440,693
Funding Gap		\$0	\$0

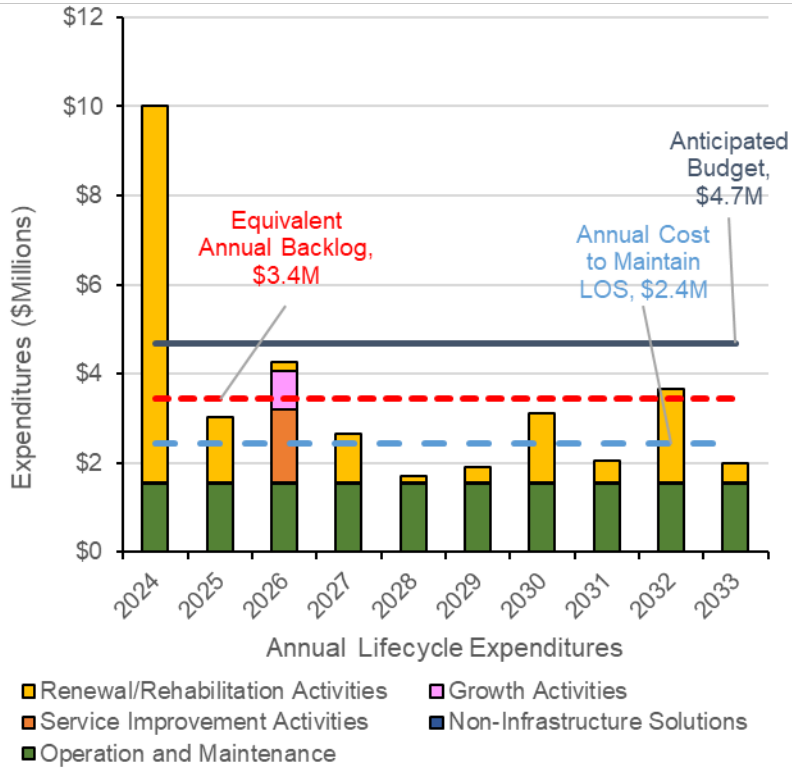
¹¹ Average annual value calculated using the historic capital budget (2019-2023), future capital budget (2024-2026), historic operating budget (2018-2023).

¹² Average annual planned DC forecast.

¹³ Average annual benefit to existing portion of the planned DC forecast projects.

¹⁴ Annual cost for anticipated budget were provided by City staff after reviewing the historic and planned capital budget (2019-2026). Cost to maintain LOS and backlog analysis were calculated using the performance and investment forecasting model.

Figure 36. Fire Services Scenario Comparison



5.4 Fire Services Data Confidence

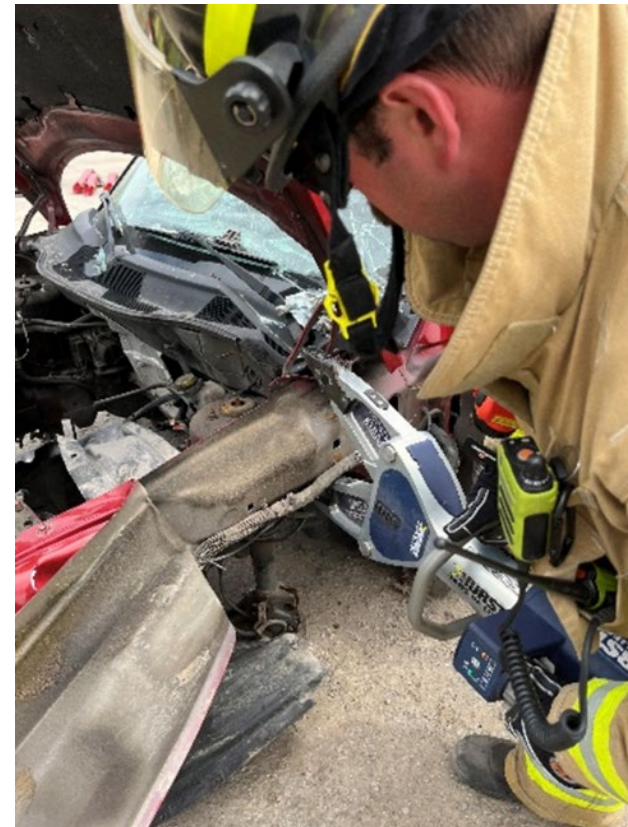
The City completed building condition assessments for fire facilities. This included the valuation of the overall facility and the cost to renew each of its components. All facility components also got assigned a performance score and recommended year of investment for each. The overall data confidence grade is **A** for fire facilities.

Fire Services' work management system Work Manager inventory was used for the fire vehicle AMP analysis. The data was complete with some gaps in estimated service lives and replacement costs being filled by subject matter experts. The overall data confidence grade is **A** for fire vehicles. A review of replacement costing can further improve the confidence rating as the price of vehicles has significantly increased over the past several years. Costs in the inventory should reflect current day purchase prices.

Fire Equipment, including emergency response, technical rescue, medical response, communications, and other equipment was excluded from this AMP. The City is working toward developing a new inventory with up-to-date quantities, replacement values, installation years and ESLs.

The following assumptions were made during the assessment of the data:

- The average cost of similar asset types was used
- The ESLs of similar asset types were used
- Cost to maintain fire equipment is the same as anticipated funding and is funded through the operating budget



IT Services

The City of St. Catharines is responsible for providing IT services to staff to assist and support them in their daily tasks and duties and also providing wireless internet to citizens or user groups in some public buildings. IT assets include the following:

- 156 Cellular Devices
- 80 Meeting Room Hardware
- 2,082 Personal Computers
- 197 Printing and Scanning Appliances
- 87 Switches
- 29 Software Applications



Estimated Replacement Value

The City's IT services assets are valued at approximately **\$21 million**.



Condition Rating

(% based on Replacement Value)

27% of assets are in **Good to Very Good** condition.

51% of assets are in **Poor to Very Poor** condition.

6.0 Information Technology

6.1 IT State of the Local Infrastructure

Information Technology (IT) are integral to every other asset category included in this plan. Without well-functioning and properly managed assets, efficient service delivery would not be possible to the residents and businesses operating within the City.

Some of the IT assets currently owned and operated by the City of St. Catharines include:

- Cellular Devices
- Meeting Room Appliances
- Personal Computers

- Printing and Scanning Hardware
- Network Switches
- Software

6.1.1 IT Services Valuation

For the valuation of the IT services, the replacement values considered are intended for the replacement of a similar asset (like-for-like). Replacement values for each Asset Sub-type were provided and applied to the assets. Many IT assets there is no inventory, so the value of the service's assets will increase as more data is made available for inclusion in future AMPs.

Table 50. IT Asset Valuation

Service Function	Asset Category	Asset Type	Count	Unit	Estimated Total Replacement Value (2023 Dollars)
IT Services	Hardware	Cellular Devices	156	Each	\$156,000
		Meeting Rooms	80	Each	\$165,000
		Personal Computers	2,082	Each	\$3,601,000
		Printing and Scanning	197	Each	\$197,000
		Network Switches	87	Each	\$174,000
	Software	All Software	29	Each	\$17,015,000
Overall IT Services Replacement Value					\$21,308,000

The overall distribution of replacement values by asset type for IT services is as shown in **Figure 37**. Software has the highest replacement value in the portfolio, totaling 80% of the entire system.

Figure 37. Asset Replacement Value for All IT Assets

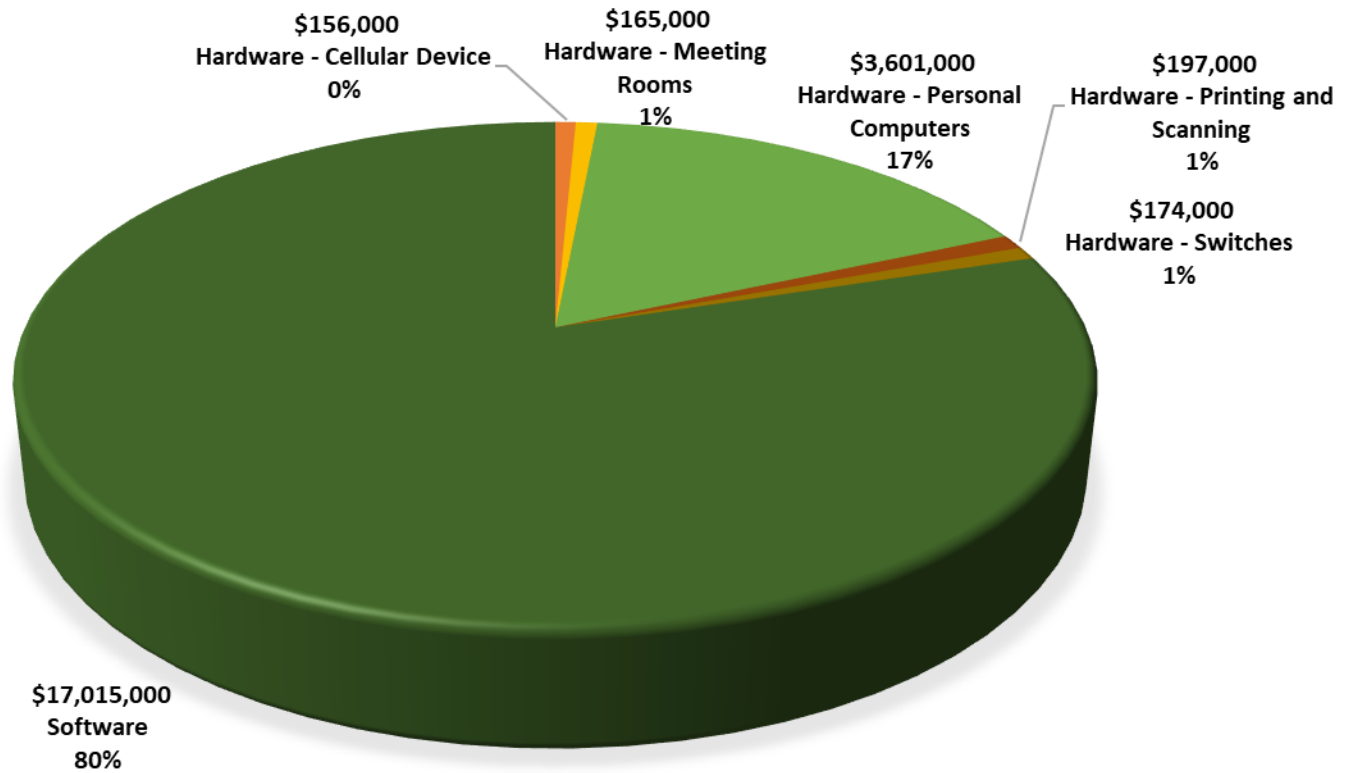
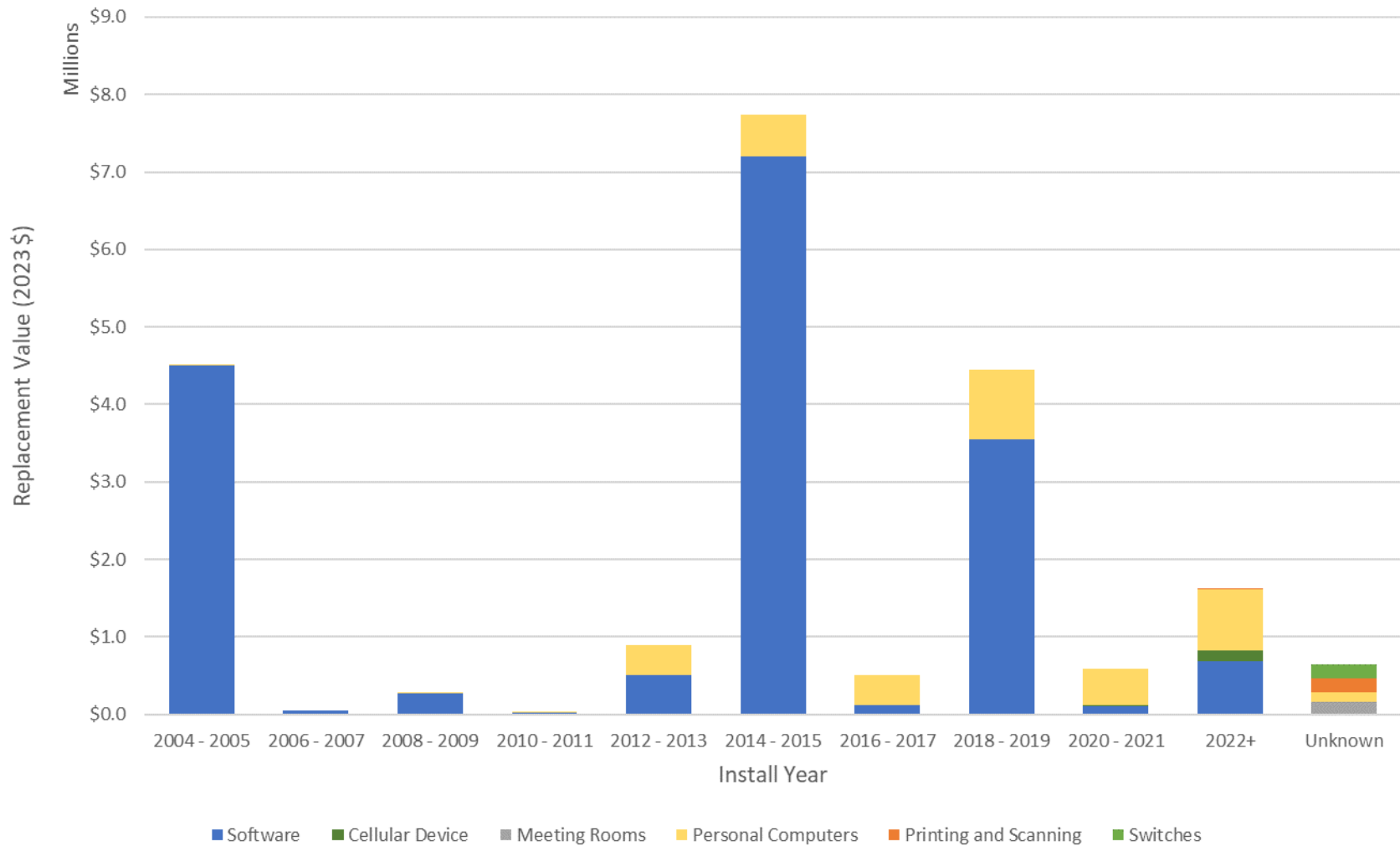


Figure 38. Distribution by Replacement Value for all IT Services by Installation Decade



As observed in **Figure 38**, within the IT services portfolio, the City has been proactive in replacing cellular devices within their ESL. However, personal computer assets have progressively been replaced with some of these assets beyond their ESL. Some software is noted to be installed 19 years ago and represents about 26% of all software replacement costs, however, this does not account for software upgrades. Few printing and scanning, switches, and meeting room assets have captured installation years and do not provide much context towards understanding of a suggested replacement year.

6.1.2 IT Services Asset Condition

Condition was assigned to IT assets primarily on the basis of the asset age versus expected service life where the data was available, as per **Table 51**.

Table 51. IT Services Condition Scale

Category	Remaining Life
Very Good	100% - 76%
Good	75%- 51%
Fair	50% - 26%
Poor	25%- End of Life
Very Poor	Past Service Life

The current conditions of IT services assets have been summarized and weighted by replacement value in **Table 51**.

Overall, 27% of the IT assets with known are in the very good to good rating category (based on replacement value) with 9% in the very poor category and 3% noting unknown condition ratings.

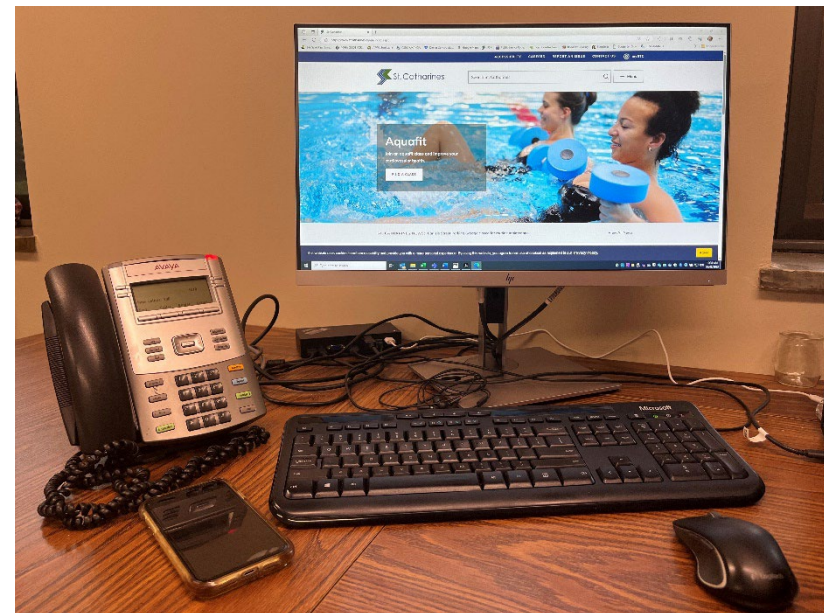
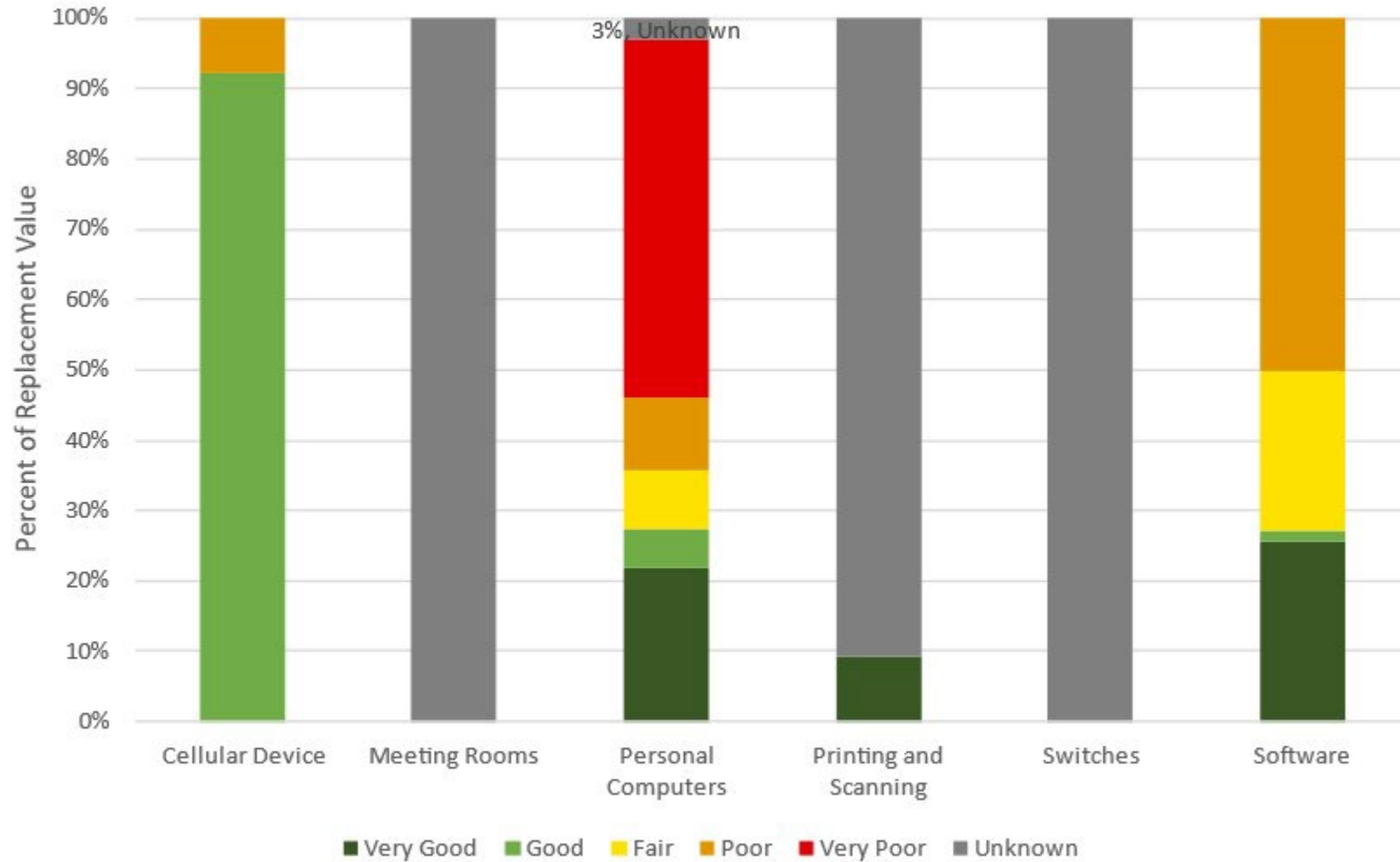


Figure 39. Condition Distribution by Replacement Value for all IT Services Asset Types

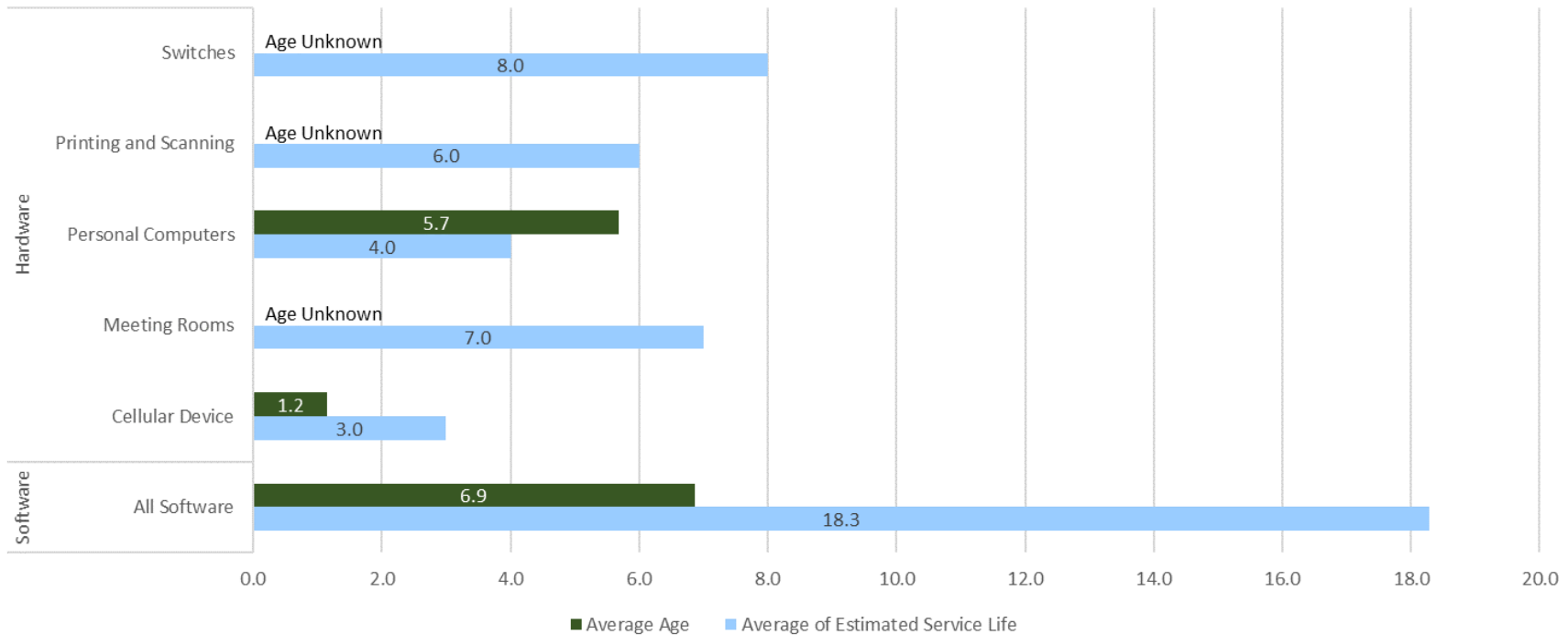


6.1.3 IT Services Asset Age Summary

Comparing the average age of the assets with the average estimated service life (ESL) provides a representation of the average overall portfolio remaining life.

Figure 40 below summarizes the average ages of hardware assets IT services. From the above sections, it is apparent that most hardware has been replaced within the last decade and is consistent with the data below illustrating that the average hardware asset is beyond its ESL. Any assets that did not have an installation date were not included in the graphic below.

Figure 40. Average Age as a Proportion of Expected Service Life by Asset Type All IT Services Assets



6.2 IT Services Levels of Service

The City of St. Catharines is committed to providing IT services to staff to assist and support them in their daily tasks and duties and also providing wireless internet to citizens or user groups in some public buildings.

The City has developed levels of service for its IT assets based on Capacity & Use, Quality & Reliability, and Financial Sustainability which provide a basis from which the City can determine whether the service area is performing as expected.

The City’s LOS document the asset performance from a service provider’s perspective and service user’s perspective. These metrics outline the LOS that are currently driving decision-making/spending on assets and can be linked to financing consequences/demand. The following provides a summary of these LOS associated with the IT services in the City of St. Catharines.

Table 52. IT Services LOS Indicator

Key Service Attribute	LOS Statement	LOS Indicator	Current Performance
Quality & Reliability	Provide IT assets at the appropriate quality	% IT equipment in fair or better condition	47%
		Average # of monthly help desk tickets	475
Function	Providing a secure IT network (firewalls, monitoring, software, etc.)	Annual number of server interruptions longer than a half day	0
Financial Sustainability	Providing IT services in a cost-efficient manner	Cost to provide service (\$/household)	\$53.57
		Annual operating budget for IT Services	\$321,857

6.3 IT Services Lifecycle Management Strategy

6.3.1 Lifecycle Management Activities

The levels of service presented in the previous section are supported by the achievement of a variety of lifecycle activities in accordance with the activity types presented in **Table 5**. These activities are targeted to extend the asset life, ensure levels of service are being met, and reduce overall lifecycle costs.

The IT service staff implement a variety of lifecycle activities on its entire portfolio. **Table 53** to **Table 58** below provides a summary of these activities and the risk associated with not doing them.

Table 53. IT Services Lifecycle Activities and Assessment Frequency – Non-Infrastructure Solutions

Lifecycle Activity Type	Asset Management Practices	Frequency
Non-Infrastructure Solutions	Other technical studies and assessments	As required
	Monitor recalls on assets to ensure proper functionality	Auto updates monthly
	Contingency and Redundancy Planning	As required

Table 54. IT Services Lifecycle Activities and Assessment Frequency – Renewal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Renewal (Rehabilitation and Replacement) Activities	Replacement	As required - when assets reach end of service life or are no longer fit for purpose

Table 55. IT Services Lifecycle Activities and Assessment Frequency – Operation and Maintenance Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Operation and Maintenance Activities	Planned Maintenance (PM) - updates on firmware and software	As required
	Service Requested Maintenance	As required
	Alerts for software updates and defective equipment	Monthly
	Purchase of small equipment and materials	As required
	Software licensing	Annually

Table 56. IT Services Lifecycle Activities and Assessment Frequency – Disposal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Disposal Activities	Salvage	Opportunistically
	Disposals	Coordinated with asset replacement

Table 57. IT Services Lifecycle Activities and Assessment Frequency – Growth Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Growth Activities	New Assets	Driven by growth to maintain LOS. As identified through planning and studies

Table 58. IT Services Lifecycle Activities and Assessment Frequency – Service Improvement Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Service Improvement Activities	New Assets	To improve LOS and not supported by growth. As identified through planning and studies

6.3.2 Funding the Lifecycle Activities

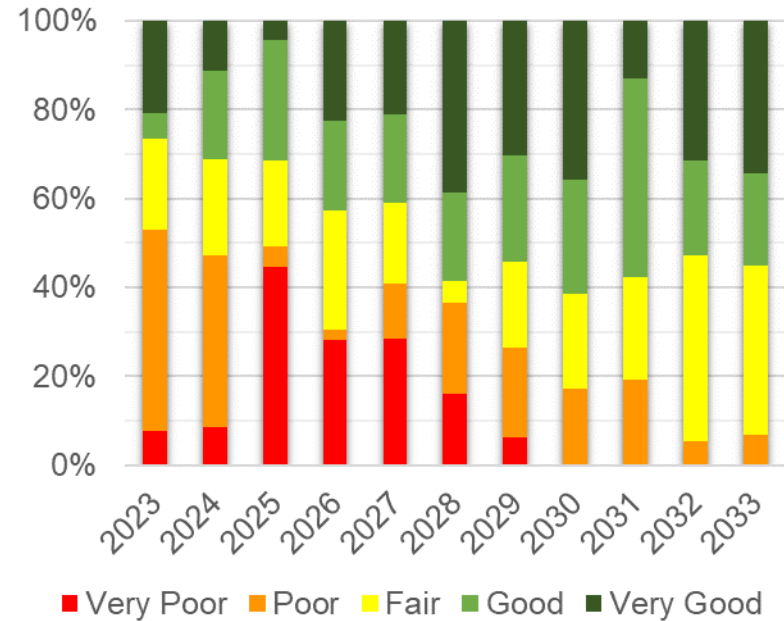
The City uses the lifecycle strategies described in **Section 6.3.1** to plan work and determine future expenditure needs. The LOS used in the AM analysis for IT assets was defined as the percentage of assets that are in poor or better condition.

Scenario 1: Anticipated Budget

The current average anticipated renewal investments of \$2M annually, resulted in the performance forecast illustrated in **Figure 41**. Under this scenario, the percentage of assets that are in poor or better condition go from 92% to 100% by the end of the 10-year forecast period.

Each of the scenarios, and its purpose in the overall analysis, is discussed in **Subsection 1.9.3**.

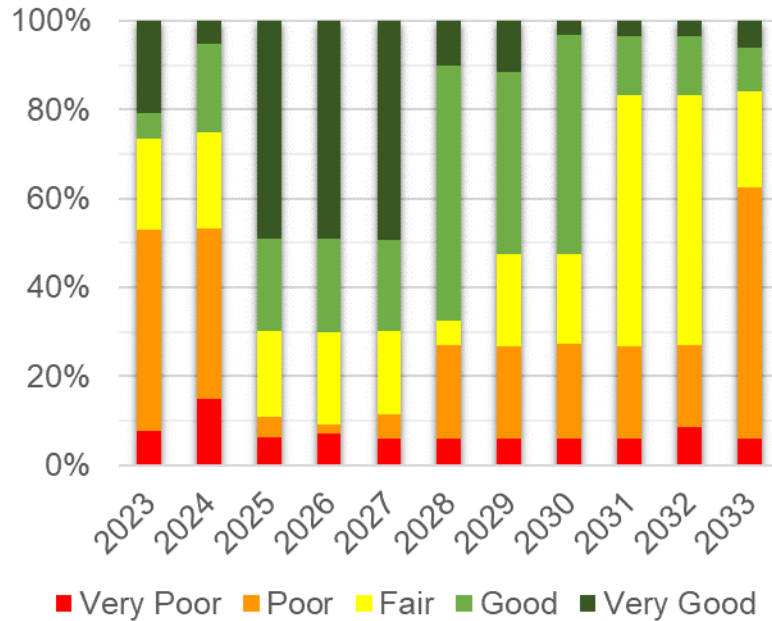
Figure 41. IT Performance Forecast with Anticipated Budget



Scenario 2: Cost to Maintain LOS

The renewal cost required to maintain existing service levels was determined to be \$1.25M annually over a 10-year period and resulted in the performance forecast illustrated in **Figure 42**. Under this scenario, the percentage of assets that are in poor or better condition holds around 92% over forecast period.

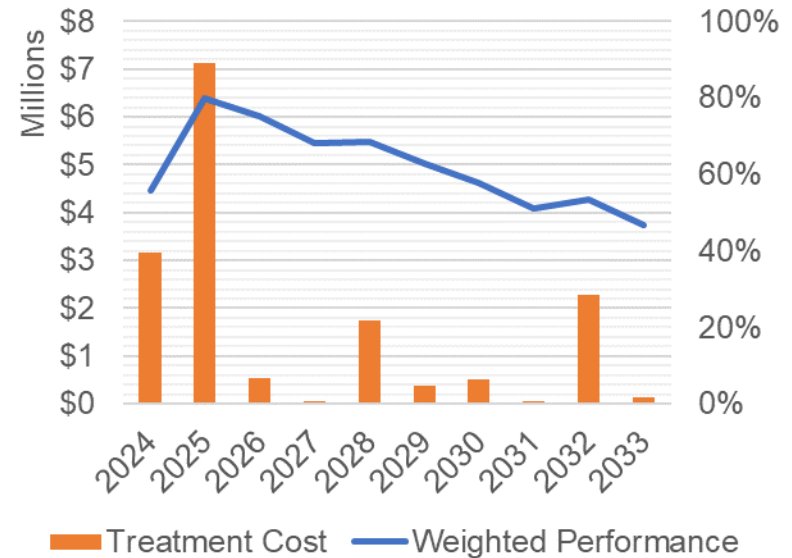
Figure 42. IT Performance Forecast with Cost to Maintain LOS



Scenario 3: Backlog Analysis

The results of the backlog analysis revealed a current backlog (i.e. outstanding and current investment needs) of \$3.2M in 2024. In addition to the current backlog, this analysis details required additional investment needs in the upcoming years. Notably, 1 years in the forecast period have investment needs that exceed the current backlog, including: \$7M in 2025. The unconstrained investment needs in this analysis average to an amount of \$1.6M annually, over the 10-year analysis period. The associated expenditure distribution and average performance for this scenario is illustrated in **Figure 43**.

Figure 43. IT Backlog Analysis



Scenario Comparison

The compiled investment needs under each of the three analysis scenarios are presented in **Table 59** and **Figure 44**. **Figure 44** illustrates a bar graph of forecasted expenditures for the backlog analysis (i.e. Scenario 3). The bars in this figure are colour coded by type of investment need. In addition to the bar graph, solid and dashed lines on the figure illustrate the equivalent annual investment needs of each of the three scenarios. The figure clearly illustrates that additional investment is needed by the City to continue to maintain current levels of service and/or to eliminate backlog and prepare for upcoming investment needs over the next 10 years.

This AMP focused on identifying the renewal need for infrastructure investments. The City is also experiencing an operational and maintenance investment gap and should work towards quantifying the true cost to maintain LOS from the operations side. This can then be included in future iterations of the AMP to capture the full lifecycle investment need.

Table 59. IT Lifecycle Activity Investments

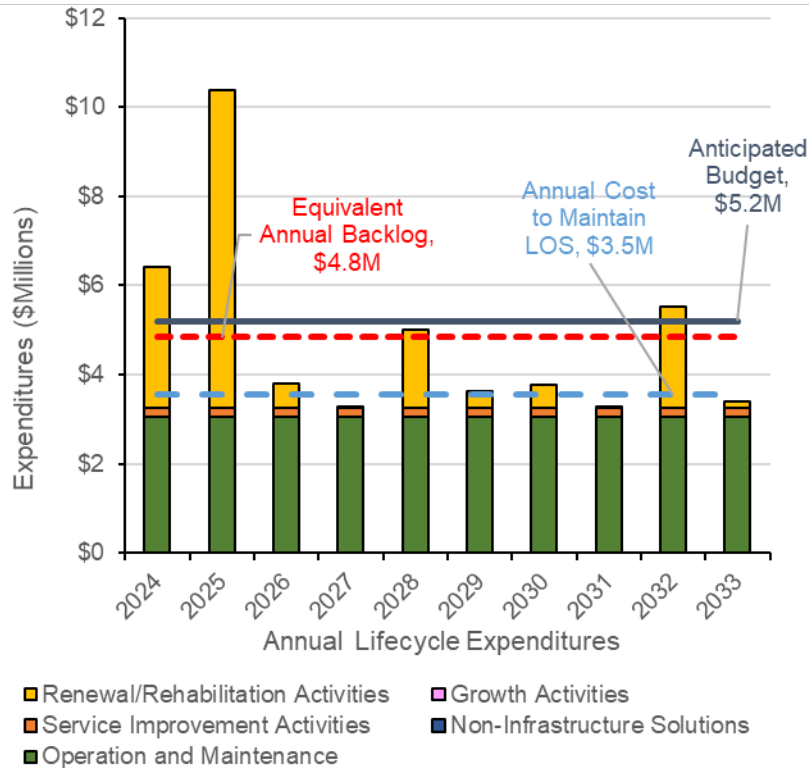
Lifecycle Activity	Anticipated Budget	Maintain LOS	Backlog Analysis
Non-Infrastructure ¹⁵	\$0	\$0	\$0
Operation and Maintenance ¹⁶	\$3,037,450	\$3,037,450	\$3,037,450
Growth ¹⁶	\$0	\$0	\$0
Service Improvements ¹⁶	\$204,125	\$204,125	\$204,125
Renewal ¹⁷	\$1,950,000	\$300,000	\$1,599,145
Total	\$5,191,575	\$3,541,575	\$4,840,720
Funding Gap		\$0	\$0

¹⁵ Average annual value calculated using the historic capital budget (2019-2023), future capital budget (2024-2026), historic operating budget (2018-2023).

¹⁶ Average annual planned DC forecast.

¹⁷ Annual cost for anticipated budget were provided by City staff after reviewing the historic and planned capital budget (2019-2026). Cost to maintain LOS and backlog analysis were calculated using the performance and investment forecasting model.

Figure 44. IT Scenario Comparison



6.4 IT Services Data Confidence

The IT Support inventory was used for the AMP analysis. The data was mostly complete with some gaps in purchase date (413/2602 missing). However, there are several other assets that do not have an inventory. The asset types that are included and excluded from this AMP are provided in **Table 60** and **Table 61** respectively. The overall data confidence grade is **C** for IT assets. The City should consider developing an inventory for the assets not currently captured. Additionally, the City should look to develop an inventory for major software. The implementation costs should be considered in the renewal forecasts for the IT assets.

Replacement costs were assumed based on current replacement values of similar assets.

Table 60. IT Assets Included in this AMP

Asset Type	Asset Sub-Type
Cellular Device	iPhone
Meeting Rooms	Interactive White Board/Acces.
Meeting Rooms	Projector
Meeting Rooms	Speaker
Meeting Rooms	TV
Personal Computers	Apple iPad
Personal Computers	Desktop
Personal Computers	Laptop
Personal Computers	Monitor
Personal Computers	Workstation
Printing and Scanning	Fax Machine
Printing and Scanning	Printer
Printing and Scanning	Scanner
Switches	Regular

Table 61. IT Assets Without an Inventory

Asset Type	Asset Sub-Type
Appliance	Backup
Appliance	Security
CS1000 Phone System	Corporate
CS1000 Phone System	Fire
Desk Phones	
Digital Signage	Large Screen
Digital Signage	Mini PC
Firewalls	
Meeting Rooms	Audio/Video System
Personal Computers	Cellular Phone
Security Systems	Cameras
Security Systems	Door Control
Server Equipment	Blade Encloser
Server Equipment	Physical Servers
Server Equipment	Rack
Server Equipment	Server Blades
Server Equipment	Storage SAN
Switches	Core
Wireless Infrastructure	Access Point
Wireless Infrastructure	Controller

Natural Assets

The City of St. Catharines natural assets are recognized both as an asset and a vital component of their green infrastructure. The City is committed to protecting and enhancing the natural environment to provide a healthy, environmentally sustainable, and aesthetically pleasing City that enhances the quality of life and well-being of the community and is resilient to the impacts of climate change. The City's natural assets include:

- Over 50,000 City Street and Park Trees
- Forested Areas
- 1 km of Unprotected Coastal
- 3.6 km of Protected Coastal
- 36.5 km of Natural Watercourse
- 2 Flood Control Structures



Estimated Replacement Value

The City's Natural assets are valued at approximately **\$242 million**.



Condition Rating

(% based on Replacement Value)

40% of assets are in **Good to Very Good** condition.

12% of assets are in **Poor to Very Poor** condition.

7.0 Natural Assets

7.1 Natural Assets State of the Local Infrastructure

Natural assets are ecosystem features that provide services just like other engineered assets, but historically have not been included in asset management plans. Natural Assets are important in the provision of a healthy, environmentally sustainable, and aesthetically pleasing City that enhances the quality of life and well-being of the community and is resilient to the impacts of climate change. The natural assets currently owned and operated by the City of St. Catharines and included in this plan are:

- City-owned trees
- Protected coastal shorelines
- Unprotected coastal shorelines

As data becomes available, other natural assets will be included in future iterations of this plan, such as:

- Forested areas
- Beds and planters
- Beehives
- Other horticulture assets
- Water courses
- Ponds
- Lakes
- Wetlands

Unlike traditional engineered assets, which can easily be divided along jurisdictional lines, natural assets can often extend beyond municipal boundaries and may require collaboration with private property owners, adjacent municipalities, and other orders of government. For example, a watercourse may span many property owners, both public and private, along its length. Unfortunately, if the management of the creek is disjointed the whole system may be impacted for significant distances up and downstream. Similarly, trees on private property contribute to the overall tree canopy, and parts of the Lake Ontario shoreline are also privately owned.

It is understood the City can only directly maintain and manage natural assets on City-owned lands. However, it is also understood that natural assets on all lands within the municipality provide services to the broader community. Ultimately, the effective management of our natural assets may require a shared responsibility and the City to look beyond the boundaries of City-owned lands.

As additional studies are carried out on other natural assets, the City should endeavor to build a digital inventory on these assets and link them to the various services they provide. Since using asset management principles to manage natural assets is an emerging field there is no standard definition for "municipal natural assets." Until the field matures it will be challenging to benchmark against municipal comparators.

Although watercourses have not been included in this plan, The City of St. Catharines is committed to maintaining sustainable natural watercourses to prevent the erosion of City owned property and reduce impacts to private property. The City has undertaken several Flooding and Erosion control studies over the years and allocates funding to support 36.5 kilometres of natural watercourse and two flood control structures along with lock walls of the former Welland Canals that continue to provide bank stabilization.

The 2015 study (Watercourse Flooding and Erosion Control Priority Study Report) identified 87 watercourse sites within the urban boundary that are eroded and need rehabilitation. Of those sites not yet addressed, 16 were identified as highest priority based on erosion levels with an estimated \$8.9 million cost for remediation. Based on high level estimates, the total citywide watercourse rehabilitation costs within the urban boundary, excluding Twelve Mile Creek, will be approximately \$46.1 million in 2020 dollars (~\$62.3 million 2023 dollars).

In 2018, a Dam Safety Review was completed for the Martindale Pond Weir and Heywood Generating Station on Twelve Mile Creek. These two structures control the water level in Martindale Pond.

7.1.1 Natural Assets System Valuation

Valuations were determined for natural assets including city trees, shoreline protection for protected and unprotected areas. Other types of City owned and operated natural assets, as listed above, will be included in future iterations of this plan.

Natural assets have several unique characteristics compared to engineered assets. First, it is understood that natural assets such as trees have an intrinsic value. However, to apply asset management principles assigning a financial value to these assets is required. Treating natural assets in this manner is an emerging field and currently there are no established consistent standards for assigning replacement values. The values selected in this plan were based on current best practices.

The second unique characteristic of natural assets, when compared to most engineered assets, is that natural assets often contribute to multiple municipal services. For example, watercourses and forests help with storm water management, flood mitigation, help fight climate change and provide recreational spaces. Conversely, many engineered assets have a single, primary purpose (e.g. watermains, storm sewers etc.).

Lastly, if effectively managed, natural assets do not depreciate in the same manner as other constructed assets. This in turn makes it difficult to assign

replacement values. For example, a tree needs to be evaluated differently than constructed assets.

The replacement values for City trees were determined based on the number of equivalent trees a tree is worth. For example, as the diameter of the tree increases several smaller trees will need to be planted to compensate for the loss of a single large canopy tree, as shown in Table 62. The tree removal costs are also included in the replacement value. The City’s current tree inventory covers street trees and some trees in City parks. It does not include trees in forested areas and wooded portions of parks.

A condition and performance assessment report has been completed for the City’s shoreline protection assets. As part of the report, a forecast of the costs was provided and used for this AMP. The replacement cost for

shoreline is based on the cost of shoreline protection, and not the shoreline itself.

Some natural assets are included in different asset classes. For example, while the City’s beaches are a natural asset, they are included in the Parks category as the service provided, maintenance activities etc. align with those at other parks.

Table 62. Equivalent Tree Replacement

Diameter of Tree (cm)	Number of Replacement Trees
10 - 19	1
20 - 29	2
30 - 39	3
40 - 49	4
50 and greater	5

Table 63. Natural Assets Valuation

Service Function	Asset	Asset Category	Count	Unit	Estimated Total Replacement Value (2023 Dollars)
Natural Assets	Forestry	City Tree	50,097	Each	\$161,956,000
	Coastal	Protected*	3,612	m	\$76,778,000
		Unprotected*	1,110	m	\$3,696,000
Overall Natural Assets Replacement Value					\$242,430,000

*Shoreline replacement cost is based on cost for shoreline protection, not the shoreline itself.

The overall distribution of replacement values by asset type for the natural assets is as shown in **Figure 45**. The City’s trees represent the highest replacement value in the portfolio, totaling 67% of the entire portfolio.

Figure 45. Asset Replacement Value for All Natural Assets

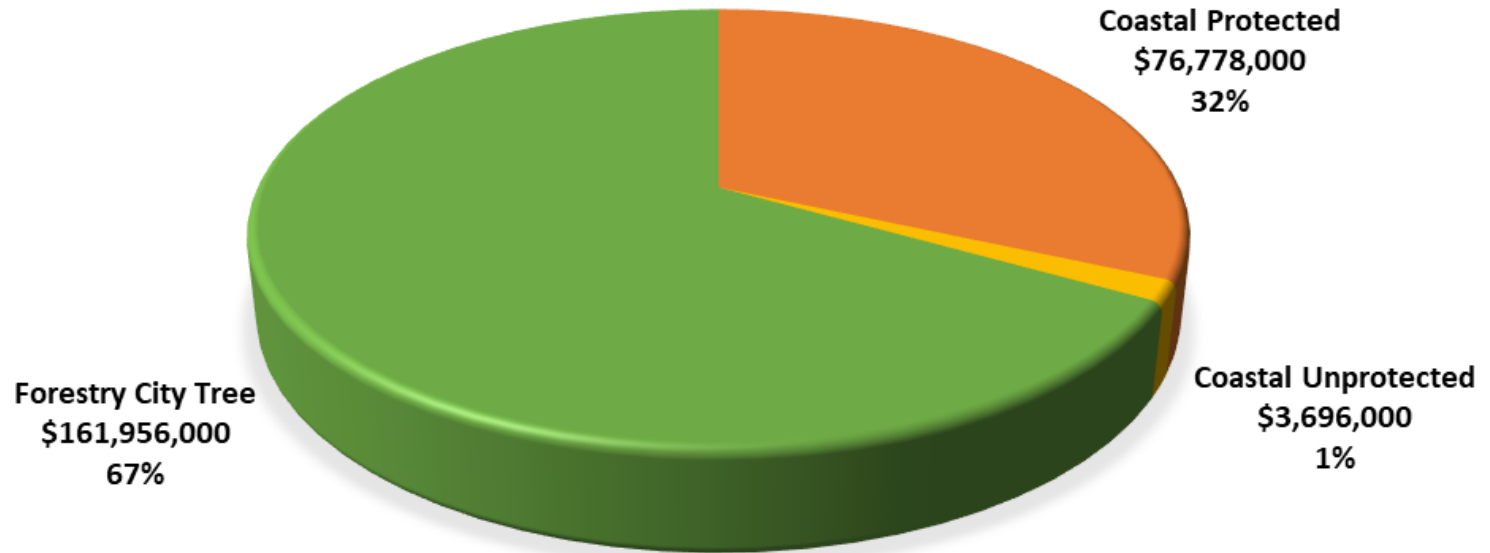
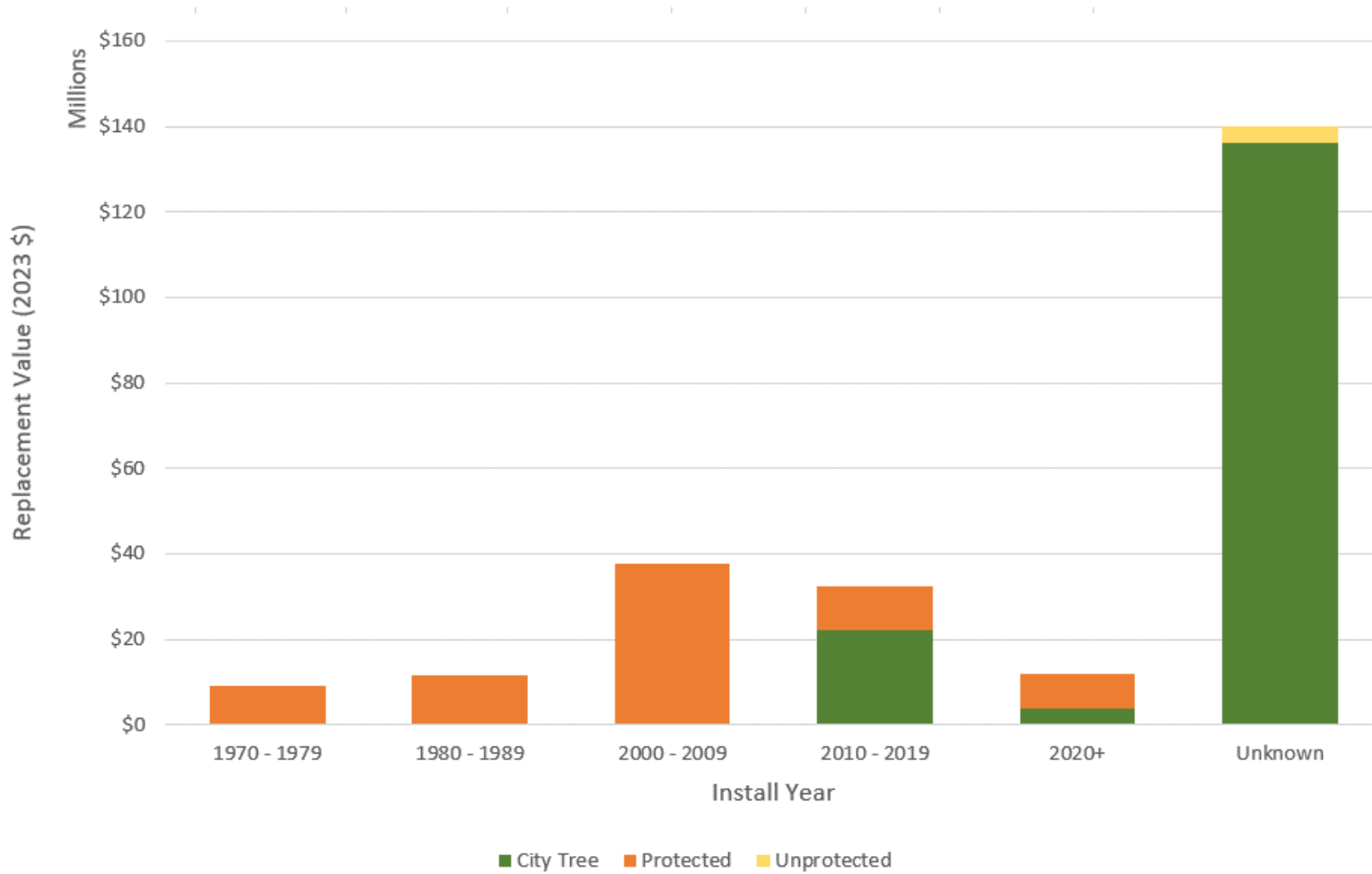


Figure 46. Distribution by Replacement Value for all Natural Assets by Installation Decade



To further assess the natural assets, **Figure 46** summarizes the decade of the year of installation by replacement value for all natural assets. The majority of the unprotected shoreline and city tree assets, do not have known installation years which does not provide much historical context towards the distribution of the City’s natural assets.

7.1.2 Natural Assets Condition

For natural occurring assets such as unprotected shoreline there are no installation dates and therefore these assets do not appear in **Figure 47** and **Figure 48**. The age of protected shoreline is the date engineered protection was installed. Similarly, the data does not lend to traditional age assessment profiles. In absence of age/condition profile predictions for shoreline were used. As noted above, A condition and performance assessment report has been completed for the City’s shoreline protection assets. As part of the report, a forecast of the costs was provided and used for this AMP. The replacement cost for shoreline is based on the cost of shoreline protection, and not the shoreline itself.

The city trees were visually assessed and given condition rating between 0 and 5. An external assessment was completed for shoreline assets which provided a recommended year of investment.

Table 64. Natural Assets Condition Scale

Category	City Trees	Remaining Life
Very Good	5 and 4.5	100% - 76%
Good	4 and 3.5	75%- 51%
Fair	3 and 2.5	50% - 26%
Poor	2 and 1.5	25%- End of Life
Very Poor	1 to 0	Past Service Life

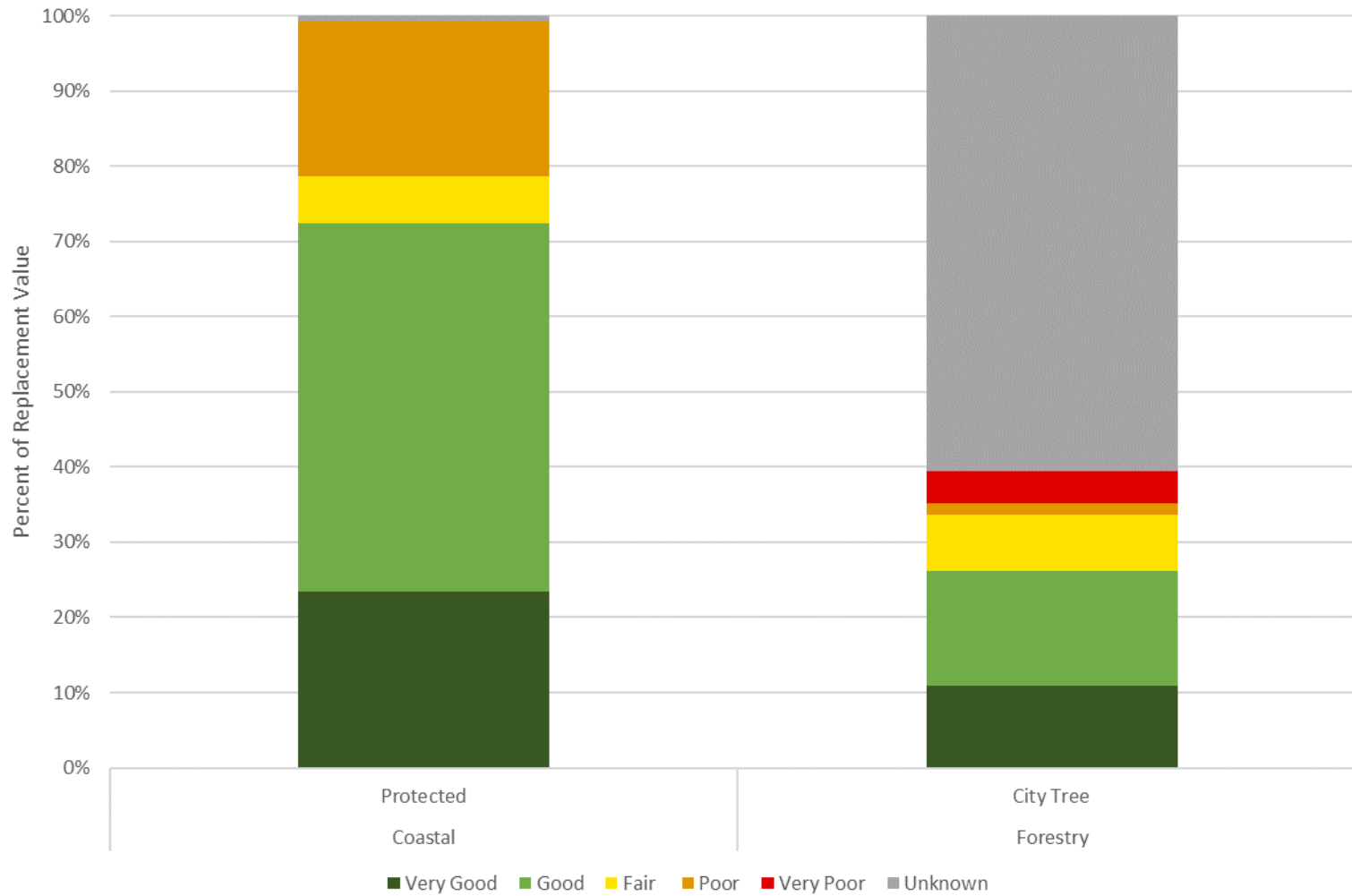
The recommended year of investment was used to determine the effective age. The condition was then determined using effective age versus estimated service life. The condition conversion is provided in **Table 64**.

The current condition of natural assets have been summarized and weighted by replacement value in **Figure 47**. The overall condition of natural assets is based on the average condition of its components.

The City trees without installation years, condition rating, or replacement values were estimated to be the same cross section of trees that have been assessed. (i.e. the same proportion of assets in each condition category was applied) for the financial forecasting. Based on these assumptions provided above, and the analysis completed, overall, 47% of the natural assets are in the very good to fair rating category (based on replacement value) with less than 3% in the very poor category. Although, as stated above, the City will review opportunities to increase the accuracy of the condition data on natural assets.



Figure 47. Condition Distribution by Replacement Value for all Natural Assets Asset Types



7.1.3 Natural Assets Age Summary

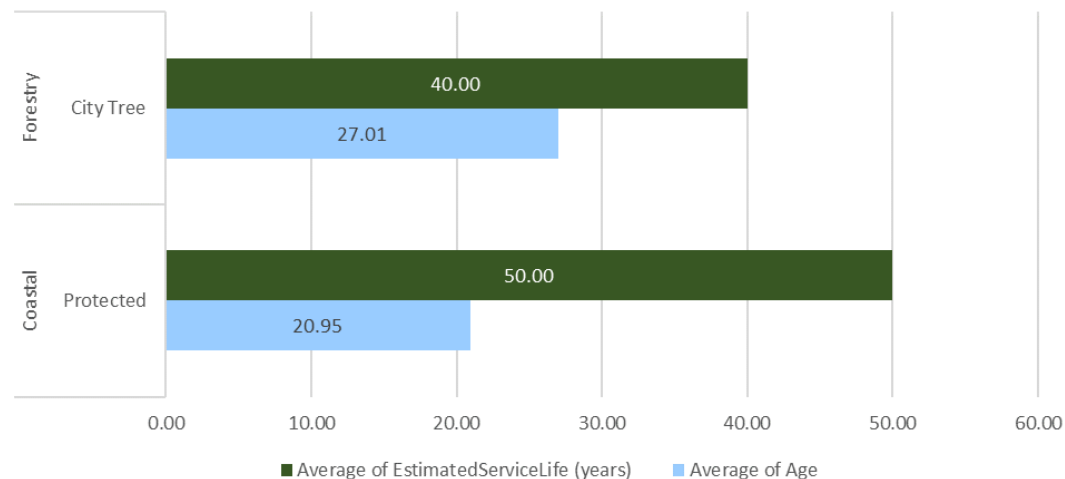
Determining the estimated life for trees is complicated as it is dependent on multiple factors including tree species as well as the planting method and location. For example, a tree planted in downtown in a tree pit may only be expected to last 15-20 years whereas those planted in a larger boulevard would typically last longer and a well planted tree in a park could reach over 100 years. In recent years the City has strategically planted trees to extend their life as much as possible. Examples of strategic plantings include planting in trenches and the use of “Silva cells” in select locations such as downtown. Unfortunately, this information on planting methods is not well documented or available for all trees. For this AMP

an estimated average life of 40 years was used. In the future, this figure can be revised as more lifecycle information becomes available.

Comparing the average age of the assets with the average estimated service life (ESL) provides a representation of the average overall portfolio remaining life.

Figure 48 below summarizes the average age of each asset type in natural assets. Any assets that did not have an installation date were not included in the graphic below.

Figure 48. Average Age as a Proportion of Expected Service Life by Asset Type All Natural Assets



7.2 Natural Assets Levels of Service

The City of St. Catharines is committed to protecting and enhancing the natural environment to provide a healthy, environmentally sustainable, and aesthetically pleasing City that enhances the quality of life and well-being of the community and is resilient to the impacts of climate change.

The City has developed levels of service for its natural assets based on Capacity & Use, Quality & Reliability, and Financial Sustainability which provide a basis from

which the City can determine whether the service area is performing as expected.

The City’s LOS document the asset performance from a service provider’s perspective and service user’s perspective. These metrics outline the LOS that are currently driving decision-making/spending on assets and can be linked to financing consequences/demand. The following provides a summary of these LOS associated with the natural assets in the City of St. Catharines.

Table 65. Natural Assets LOS Indicators

Key Service Attribute	LOS Statement	LOS Indicator	Current Performance	Target (Proposed)
Quality & Reliability	Provide Natural Assets at the appropriate quality and quantity	# of street trees planted per year	1000	TBD in 2025 AMP
		% of Natural Assets in fair or better condition	47%	
Function	Providing secure Natural Asset services	% of the city covered by tree canopy	22.5%	
Financial Sustainability	Providing Natural Asset services in a cost-efficient manner	Annual capital budget for shoreline protection	\$1,414,206	
		Cost to provide service (\$/household)	\$188.8	
		Annual operating budget for Natural Assets	\$3,682,109	

7.3 Natural Assets Lifecycle Management Strategy

7.3.1 Lifecycle Management Activities

The levels of service presented in the previous section are supported by the achievement of a variety of lifecycle activities in accordance with the activity types presented in **Table 5**. These activities are targeted to extend the asset life, ensure levels of service are being met, and reduce overall lifecycle costs.

The natural assets staff implement a variety of lifecycle activities on its entire portfolio. **Table 66** to **Table 71** provides a summary of these activities and the risk associated with not doing them.

Table 66. Natural Assets Lifecycle Activities and Assessment Frequency – Non-Infrastructure Solutions

Lifecycle Activity Type	Asset Management Practices	Frequency
Non-Infrastructure Solutions	Shoreline Plan	Every 4-5 years, or after periods of high water levels
	Urban Forestry Management Plan	As required
	Watercourse Studies	As required
	Condition Assessments	As required
	Other technical studies and assessments	As required

Table 67. Natural Assets Lifecycle Activities and Assessment Frequency – Renewal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Renewal (Rehabilitation and Replacement) Activities	Rehabilitation	As required
	Replacement (tree removal, tree stumping, and replanting new trees, shoreline protection)	As required based on condition

Table 68. Natural Assets Lifecycle Activities and Assessment Frequency – Operation and Maintenance

Lifecycle Activity Type	Asset Management Practices	Frequency
Operation and Maintenance Activities	Planned Maintenance (PM)	As required
	Service Requested Maintenance	As required
	Reactive Maintenance	As required
	Equipment inspections	Monthly and annually
	Purchase of small equipment and materials	As required
	Watercourse Inspection	Annually
	General Maintenance of Trees (tree inspections, pruning, and road clearance)	As required

Table 69. Natural Assets Lifecycle Activities and Assessment Frequency – Disposal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Disposal Activities	Disposals	Trees removed due to condition and/or risk

Table 70. Natural Assets Lifecycle Activities and Assessment Frequency – Growth Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Growth Activities	New Assets	Driven by growth to maintain LOS. As identified through planning and studies
	Assumed Trees	In new subdivisions. Driven by growth to maintain LOS.

Table 71. Natural Assets Lifecycle Activities and Assessment Frequency Service Improvement Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Service Improvement Activities	New Assets	To improve LOS and not supported by growth. As identified through planning and studies
	Tree Giveaways	To improve LOS and not supported by growth. Annually - City purchases and homeowner plants

7.3.2 Funding the Lifecycle Activities

The City uses the lifecycle strategies described in **Section 7.3.1** to plan work and determine future expenditure needs. The LOS used in the AM analysis for Natural Assets was defined as the percentage of assets that are in poor or better condition.

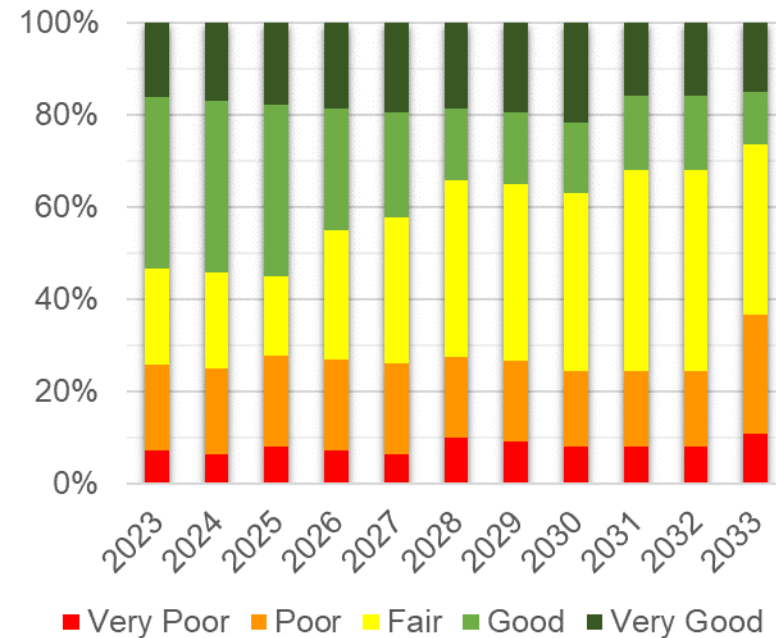
Each of the scenarios, and its purpose in the overall analysis, is discussed in **Section 1.9.3**.



Scenario 1: Anticipated Budget

The current average anticipated renewal investments of \$1.2M annually, resulted in the performance forecast illustrated in **Figure 49**. Under this scenario, the percentage of assets that are in poor or better condition decrease from 93% to 89% by the end of the 10-year forecast period.

Figure 49. Natural Assets Performance Forecast with Anticipated Budget

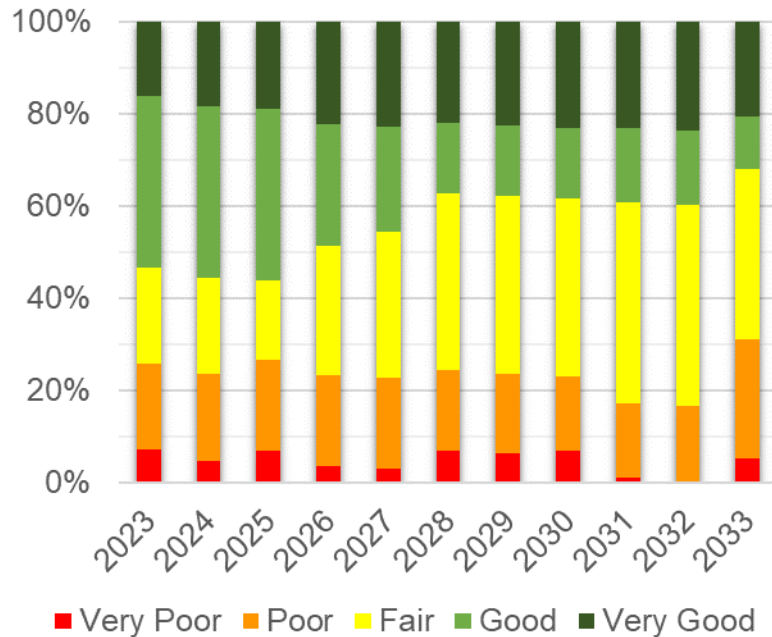


Scenario 2: Cost to Maintain LOS

The renewal cost required to maintain existing service levels was determined to be \$2M annually over a 10-year

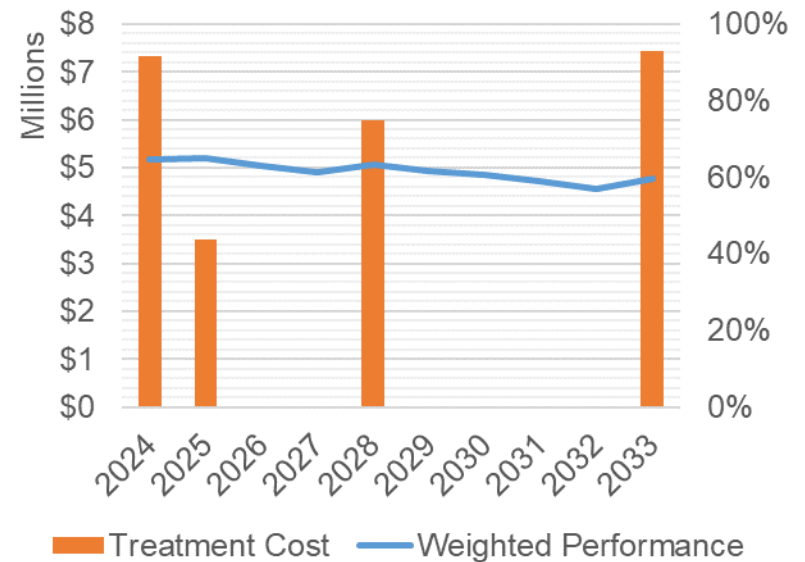
period and resulted in the performance forecast illustrated in **Figure 50**. Under this scenario, the percentage of assets that are in poor or better condition holds around 93% over forecast period.

Figure 50. Natural Assets Performance Forecast with Cost to Maintain LOS



period have investment needs that exceed the current backlog, including: \$6M in 2028 and \$7.4M in 2033. The unconstrained investment needs in this analysis average to an amount of \$2.4M annually, over the 10-year analysis period. The associated expenditure distribution and average performance for this scenario is illustrated in **Figure 51**.

Figure 51. Natural Assets Backlog Analysis



Scenario 3: Backlog Analysis

The results of the backlog analysis revealed a current backlog (i.e. outstanding and current investment needs) of \$7.3M in 2024. In addition to the current backlog, this analysis details required additional investment needs in the upcoming years. Notably, two years in the forecast

Scenario Comparison

The compiled investment needs under each of the three analysis scenarios are presented in **Table 72** and **Figure 52**.

Figure 52 illustrates a bar graph of forecasted expenditures for the backlog analysis (i.e. Scenario 3). The bars in this figure are colour coded by type of investment need. In addition to the bar graph, solid and dashed lines on the figure illustrate the equivalent annual investment needs of each of the three scenarios. The figure clearly illustrates that additional investment is needed by the City to continue to maintain current levels of service and/or to eliminate backlog and prepare for upcoming investment needs over the next 10 years.

This AMP focused on identifying the renewal need for infrastructure investments. The City is also experiencing an operational and maintenance investment gap and should work towards quantifying the true cost to maintain LOS from the operations side. This can then be included in future iterations of the AMP to capture the full lifecycle investment need.

Table 72. Natural Assets Lifecycle Activity Investments

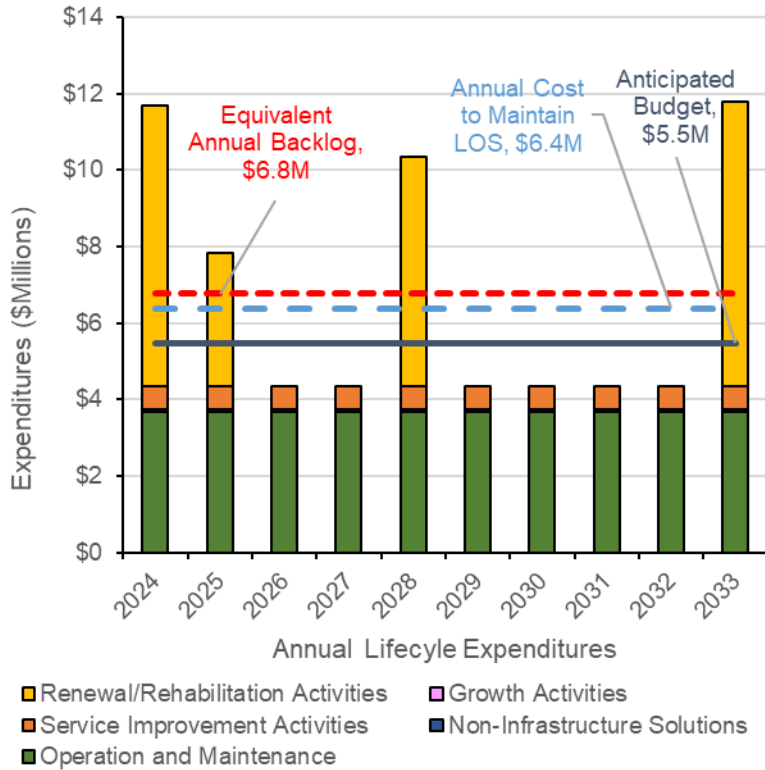
Lifecycle Activity	Anticipated Budget	Maintain LOS	Backlog Analysis
Non-Infrastructure ¹⁸	\$60,000	\$60,000	\$60,000
Operation and Maintenance ¹⁹	\$3,682,109	\$3,682,109	\$3,682,109
Growth ¹⁹	\$0	\$0	\$0
Service Improvements ¹⁹	\$606,566	\$606,566	\$606,566
Renewal ²⁰	\$1,122,640	\$2,030,000	\$2,424,698
Total	\$5,471,315	\$6,378,675	\$6,773,373
Funding Gap		\$907,360	\$1,302,058

¹⁸ Average annual value calculated using the historic capital budget (2019-2023), future capital budget (2024-2026), historic operating budget (2018-2023).

¹⁹ Average annual planned DC forecast.

²⁰ Annual cost for anticipated budget were provided by City staff after reviewing the historic and planned capital budget (2019-2026). Cost to maintain LOS and backlog analysis were calculated using the performance and investment forecasting model.

Figure 52. Natural Assets Scenario Comparison



7.4 Natural Assets Data Confidence

The forestry inventory was stored in various legacy systems making validation and accessibility difficult. The largest gap was the installation years and conditions rating (22,737/50,068 missing both). The existing tree inventory is primarily street trees and some trees in City parks. Additional work should be done to enhance the inventory to include forested areas and wooded portions of parks. The inventory is continuously being updated as work orders are being completed on the trees. The diameter of the tree can also be captured in the assessment and will enable the replacement costs to be updated. The overall data confidence grade is **B** for Forestry. The City should continue to gather condition ratings for trees that have not been assessed yet. It is recommended to develop an invasive species plan to help evaluate and manage risks to the urban forest.

The Shoreline inventory was developed from an engineering assessment report. The data was mostly complete with some gaps in installation year. The overall data confidence grade is **A** for coastal. The City should continue to monitor the performance of the protected shoreline to ensure the AMP is aligning with the forecasted needs.

Horticulture and natural waterbodies were excluded from this AMP, as there was limited digital data on these assets. The City should look to develop an inventory with up-to-date quantities, replacement values, installation years and ESLs.

The following assumptions were made during the assessment of the data:

- The City trees without installation years or replacement values were estimated to be the same cross section of trees that have been assessed. (i.e. the same proportion of assets in each condition category was applied).



Parking Services

The City of St. Catharines is committed to providing safe, reliable, affordable, accessible, inclusive, and sustainable parking services that reflect 'A sustainable and livable City.' The City's parking services are divided into paid and unpaid parking, which include:

- 2 Parking Garages
- 12 Paid Parking Lots
- 86 Unpaid Parking Lots



Estimated Replacement Value

The City's Parking Services assets are valued at approximately **\$95 million**.



Condition Rating

(% based on Replacement Value)

49% of assets are in **Good to Very Good** condition.

26% of assets are in **Poor to Very Poor** condition.

8.0 Parking Services

8.1 Parking Services State of Local Infrastructure

Parking Services are important to providing safe, efficient, accessible and sustainable parking system in accordance with regulatory requirements and expectations of the community. The City is committed to providing safe, efficient, accessible, and sustainable parking system that meet the needs of the community while promoting alternative modes of transportation. Some of the parking services currently owned and operated by the City of St. Catharines include:

- Parking Garages
- Paid Parking Lots
- Unpaid Parking Lots

8.1.1 Parking Services Valuation

The City has completed building condition assessments for parking garages. This included the valuation of the overall facility and the cost to renew each of its components.

For the valuation of the parking lots, the replacement values considered are intended for the replacement of a similar asset (like-for-like). These were calculated based on historical values that the City has incurred as part of previous replacements of similar assets.

Table 73. Parking Services Inventory Valuation

Service Function	Asset Category	Asset Type	Count	Unit	Estimated Total Replacement Value (2023 Dollars)
Parking Services	Paid Parking	Parking Garages	2	Each	\$52,588,000
		Parking Lot	12	Sites	\$4,559,000
	Unpaid Parking	Parking Lot	65	Sites	\$37,943,000
Overall Parking Services Replacement Value					\$95,090,000

The overall distribution of replacement values by asset type for parking services is as shown in **Figure 53**. The paid parking assets have the higher replacement value in the portfolio, totaling 60% of the entire system compared to unpaid parking.

Figure 53. Asset Replacement Value for All Parking Services Asset Types

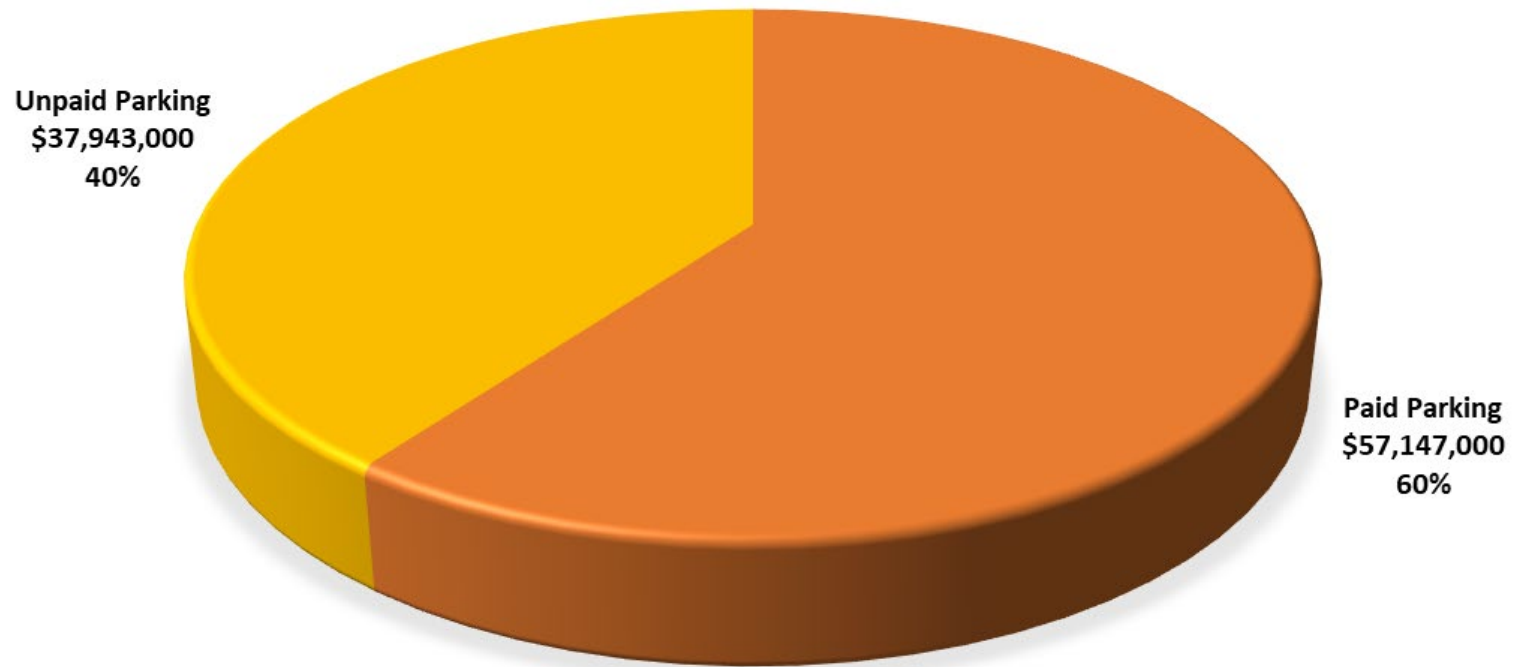
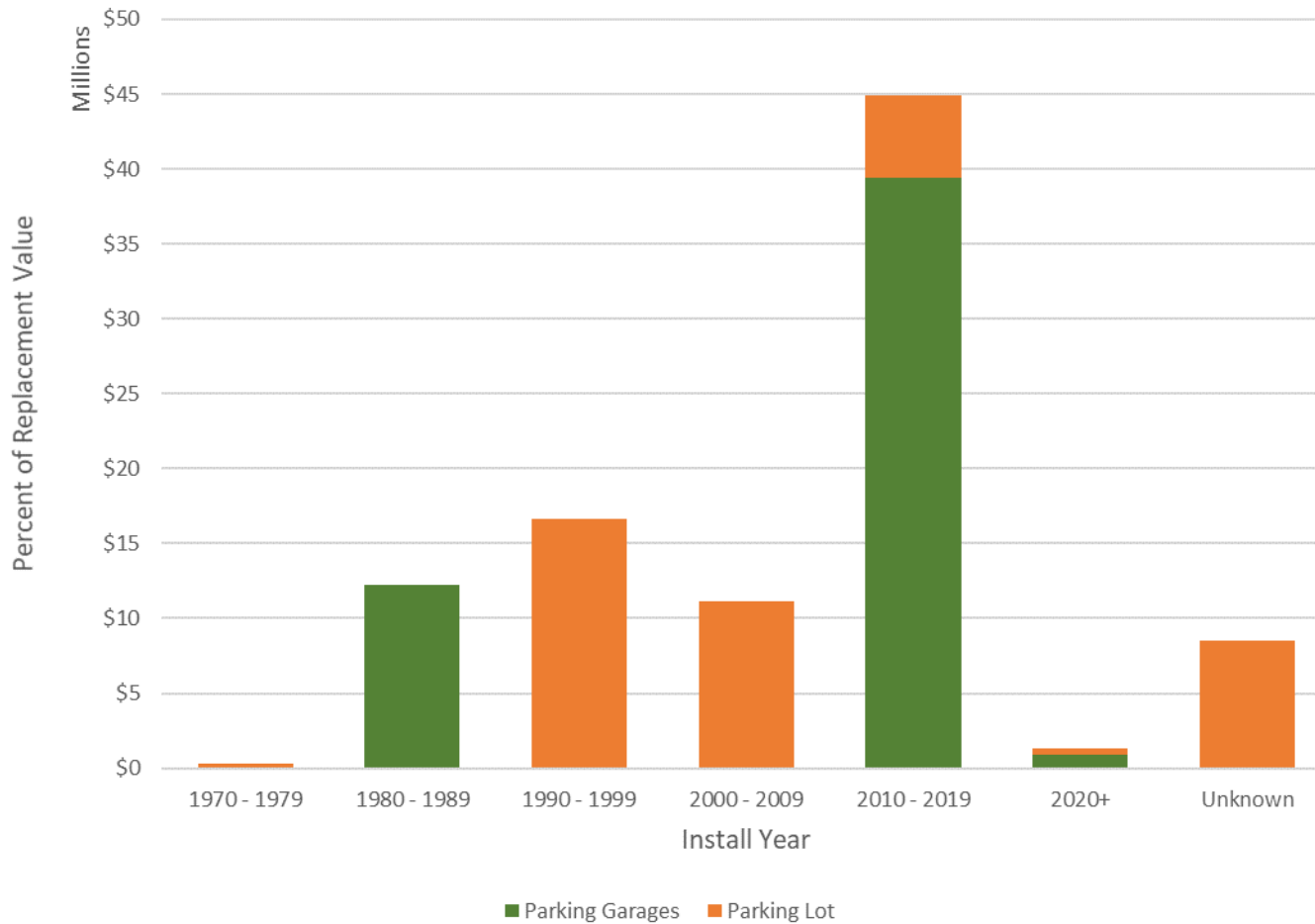


Figure 54. Distribution by Replacement Value for all Parking Services by Installation Decade



As shown in **Figure 54**, a large portion of the parking service portfolio was installed between 2010 and 2019, as a result of the addition of the parking garage.

8.1.2 Parking Services Condition

The City completed building condition assessments for parking garages. This included the assessment for all facilities components and associated recommended year of investment for each. The recommended year of investment was used to determine the effective age. The condition was then determined using effective age versus estimated service life.

The parking lots were visually assessed internally and given condition ratings from 1-5. These scores were converted into condition performance as per **Table 74**.

Table 74. Parking Services Condition Scale

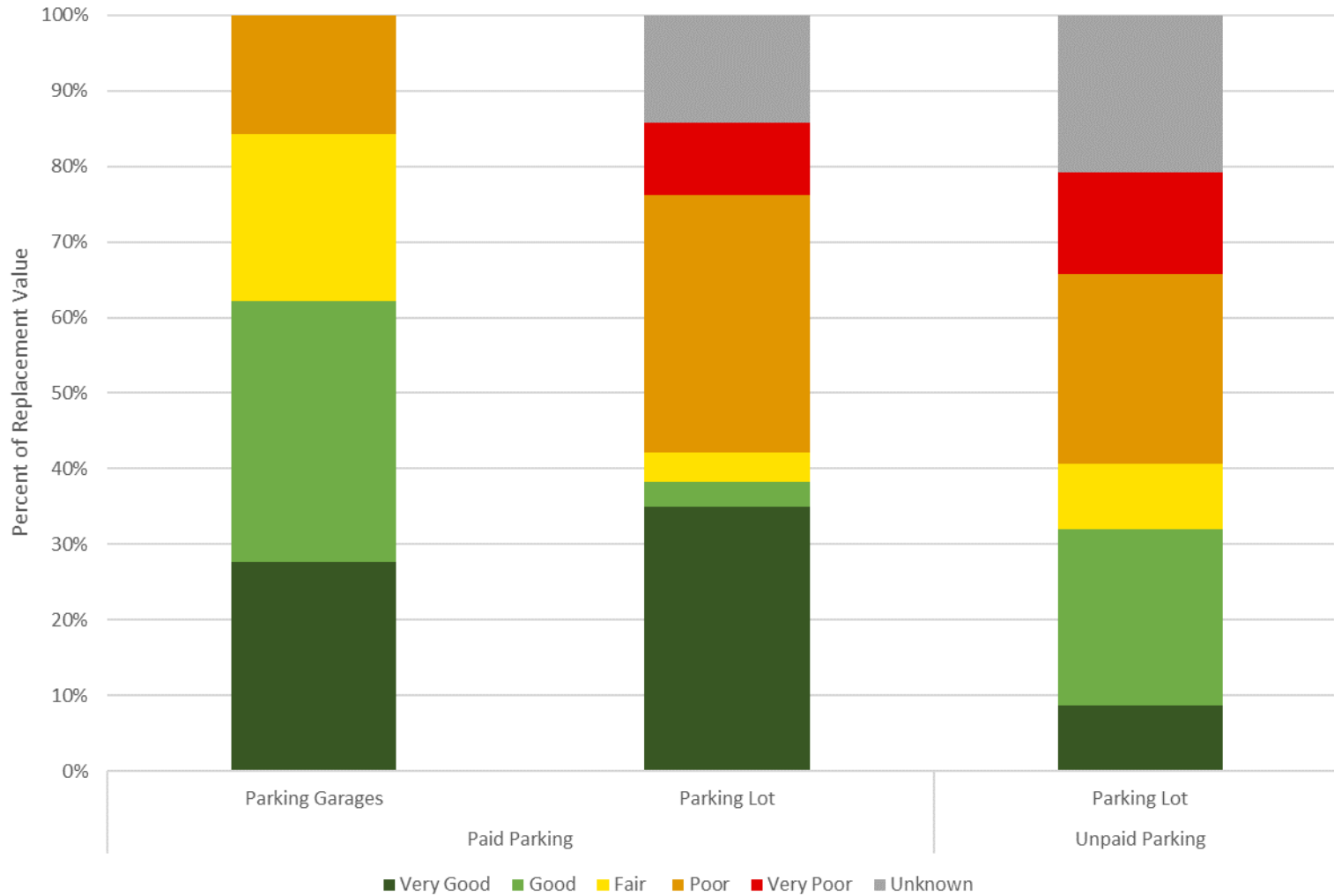
Category	Parking Lots	Remaining Life
Very Good	1 and 1.5	100% - 76%
Good	2 and 2.5	75%- 51%
Fair	3 and 3.5	50% - 26%
Poor	4 and 4.5	25%- End of Life
Very Poor	5	Past Service Life

The current conditions of Parking Services assets have been summarized and weighted by replacement value in **Figure 55**.

Overall, 65% of the parking services assets are in the very good to fair rating category (based on replacement value) with less than 6% in the very poor category.



Figure 55. Condition Distribution by Replacement Value for all Parking Services Asset Types



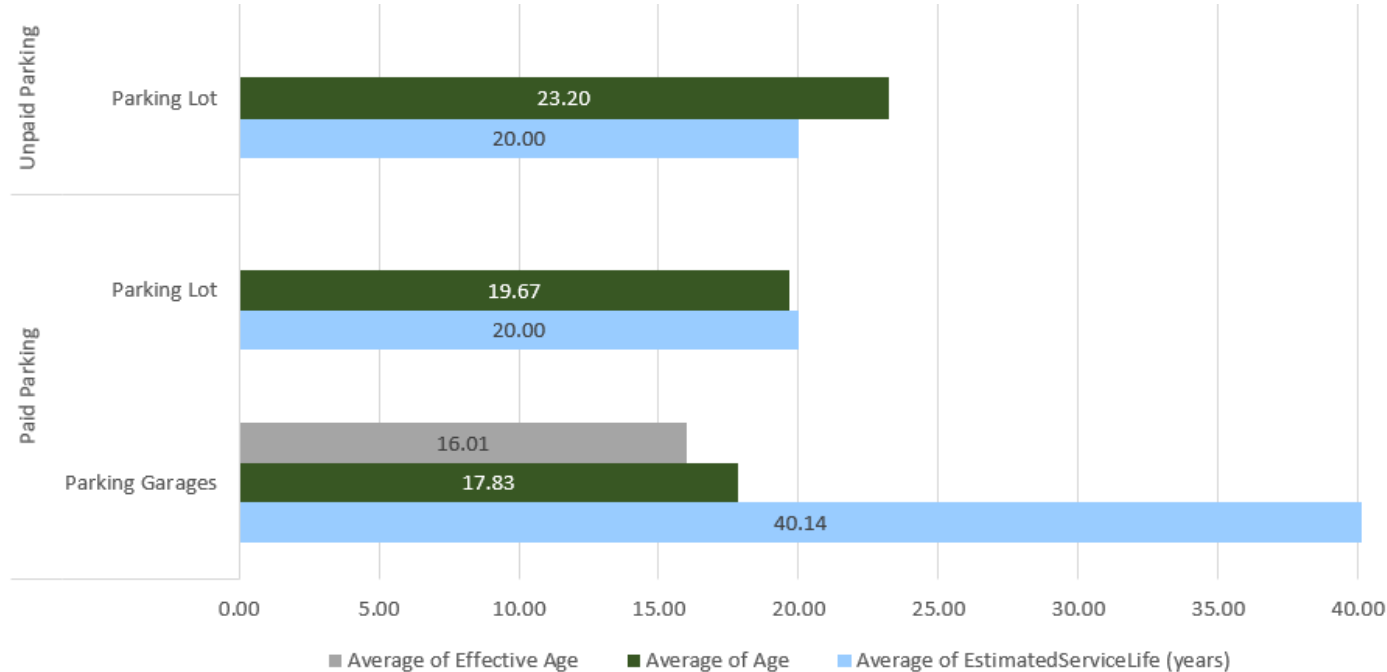
8.1.3 Parking Services Age Summary

By comparing the average age of age of the assets against the average estimated service life (ESL), the average overall remaining life of the assets can be derived.

parking assets have succeeded beyond their recommended service life and are likely in need of replacement. On average, paid parking assets are also nearing the end of their service life. Any assets that did not have an installation date were not included in the graphic below.

Figure 56 below summarizes the average ages of each asset type in parking services. As seen below, the unpaid

Figure 56. Average Age as a Proportion of Expected Service Life by Asset Type All Parking Services



8.2 Parking Services Levels of Service

The City of St. Catharines is committed to providing safe, efficient, accessible, and sustainable parking system that meet the needs of the community while promoting alternative modes of transportation.

The City has developed levels or service for its parking services assets based on Quality & Reliability and Financial Sustainability which provide a basis from which the City can determine whether the service area is performing as expected.

The City’s LOS document the asset performance from a service provider’s perspective and service user’s perspective. These metrics outline the LOS that are currently driving decision-making/spending on assets and can be linked to financing consequences/demand. The following provides a summary of these LOS associated with the buildings and structures in the City of St. Catharines.

Table 75. Parking Services Community and Technical LOS Indicator

Key Service Attribute	LOS Statement	LOS Indicator	Current Performance	Target (Proposed)
Quality and Reliability	Provide building and facility services that are reliable and in adequate condition	% of Parking Services assets in fair or better condition	65%	TBD in 2025 AMP
Financial Sustainability	Providing park services in an efficient manner	Cost to provide service (\$/household)	\$44.38	
		Annual revenue from parking facilities	\$2,889,583	
		Annual operating budget for Parking Services	\$2,216,922	

8.3 Parking Services Lifecycle Management Strategy

8.3.1 Lifecycle Management Activities

The levels of service presented in the previous section are supported by the achievement of a variety of lifecycle activities in accordance with the activity types presented in **Table 5**. These activities are targeted to extend the asset life, ensure levels of service are being met, and reduce overall lifecycle costs.

City staff implement a variety of lifecycle activities on its entire portfolio. **Table 76** to **Table 81** provides a summary of these activities and the risk associated with not doing them.

Table 76. Parking Services Lifecycle Activities and Assessment Frequency – Non-Infrastructure Solutions

Lifecycle Activity Type	Asset Management Practices	Frequency
Non-Infrastructure Solutions	St. Catharines Climate Adaptation Plan	Every 5 years
	Energy Conservation and Demand Management	Every 5 years
	Accessibility Plan	As required
	Annual Inspection programs	Annually
	OSPG - Post Tensioned Strand Monitoring	Every 2-years
	Space Planning	As required
	Contingency Planning	As required
	Parking Studies	As required
	Other technical studies and assessments	As required

Table 77. Parking Services Lifecycle Activities and Assessment Frequency – Renewal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Renewal (Rehabilitation and Replacement) Activities	Rehabilitation	Resurfacing of parking lots as needed
	Replacements – (ie. upgrade lighting at parking lots to LED when replaced)	As required - when assets reach end of service life or are no longer fit for purpose.

Table 78. Parking Services Lifecycle Activities and Assessment Frequency – Operations and Maintenance

Lifecycle Activity Type	Asset Management Practices	Frequency
Operation and Maintenance Activities	Planned Maintenance (PM)	As required
	Service Requested Maintenance	As required
	Reactive Maintenance	As required
	Line painting	As required
	Lighting maintenance	As required
	Purchase of small equipment and materials	As required

Table 79. Parking Services Lifecycle Activities and Assessment Frequency – Disposal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Disposal Activities	Disposals	Coordinated with asset replacement

Table 80. Parking Services Lifecycle Activities and Assessment Frequency – Growth Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Growth Activities	New Assets	Driven by growth to maintain LOS. As identified through planning and studies

Table 81. Parking Services Lifecycle Activities and Assessment Frequency –Service Improvement Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Service Improvement Activities	New Assets	To improve LOS and not supported by growth. As identified through planning and studies

8.3.2 Funding the Lifecycle Activities

The City uses the lifecycle strategies described in **Section 8.3.1** to plan work and determine future expenditure needs. The LOS used in the AM analysis for Parking Services assets was defined as the percentage of assets that are in poor or better condition.

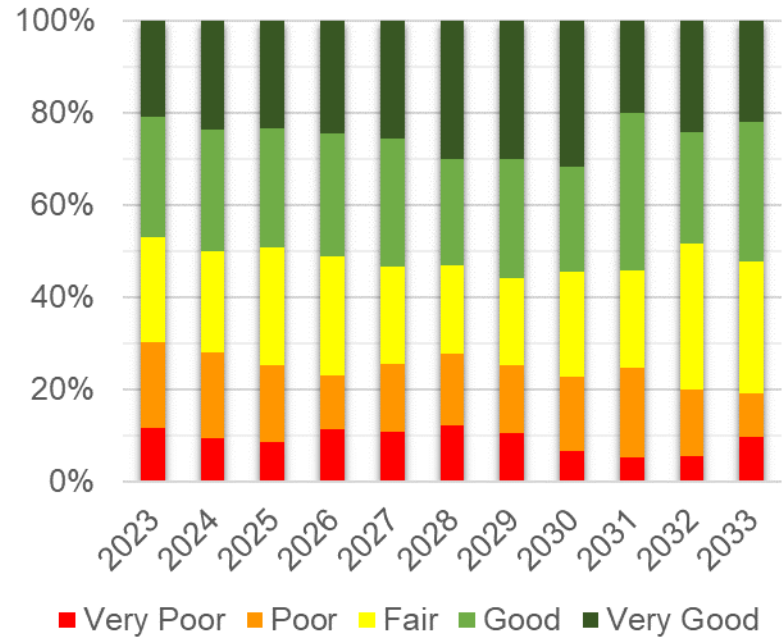
Each of the scenarios, and its purpose in the overall analysis, is discussed in **Subsection 1.9.3**.



Scenario 1: Anticipated Budget

The current average anticipated renewal investments of \$500K annually, resulted in the performance forecast illustrated in **Figure 57**. Under this scenario, the percentage of assets that are in poor or better condition go from 88% to 90% by the end of the 10-year forecast period.

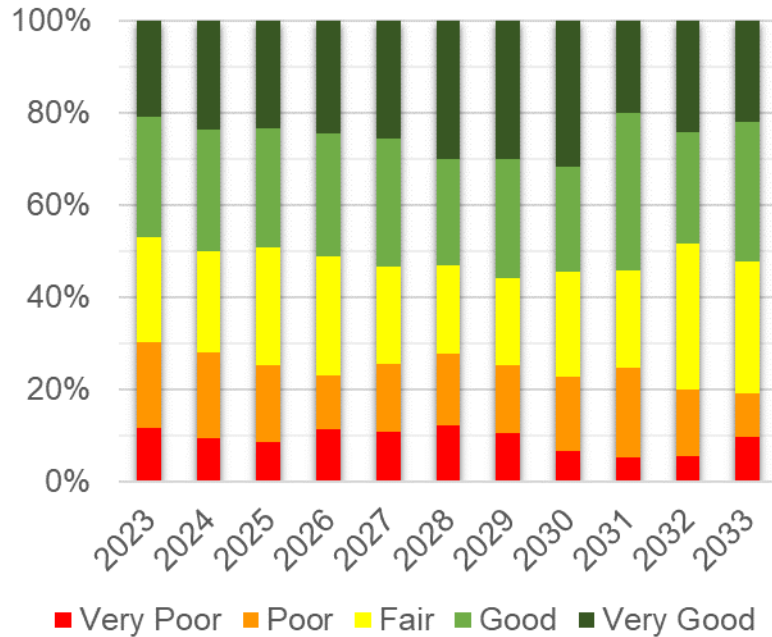
Figure 57. Parking Services Performance Forecast with Anticipated Budget



Scenario 2: Cost to Maintain LOS

The renewal cost required to maintain existing service levels was determined to be \$3.3M annually over a 10-year period and resulted in the performance forecast illustrated in **Figure 58**. Under this scenario, the percentage of assets that are in poor or better condition holds around 88% over forecast period.

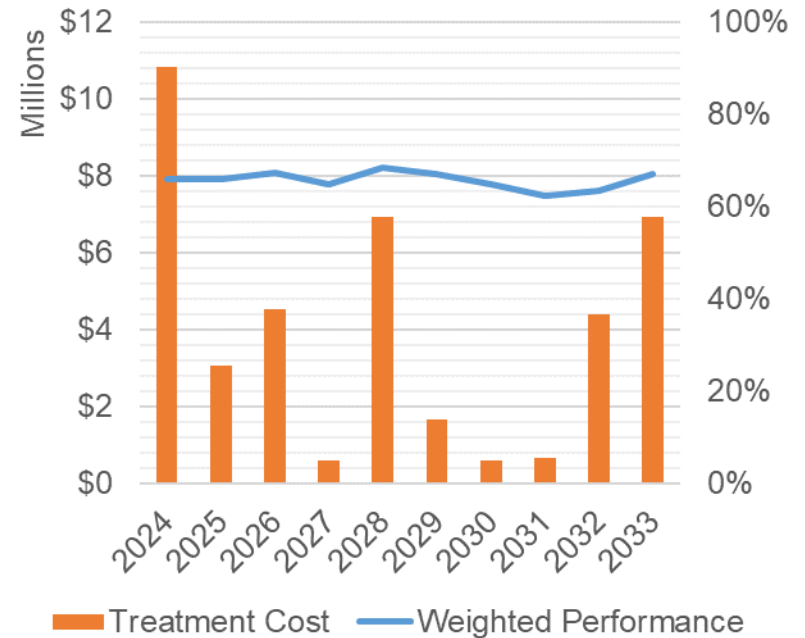
Figure 58. Parking Services Performance Forecast with Cost to Maintain LOS



Scenario 3: Backlog Analysis

The results of the backlog analysis revealed a current backlog (i.e. outstanding and current investment needs) of \$10.8M in 2024. In addition to the current backlog, this analysis details required additional investment needs in the upcoming years. The unconstrained investment needs in this analysis average to an amount of \$4M annually, over the 10-year analysis period. The associated expenditure distribution and average performance for this scenario is illustrated in **Figure 59**.

Figure 59. Parking Services Backlog Analysis



Scenario Comparison

The compiled investment needs under each of the three analysis scenarios are presented in **Table 82** and **Figure 60**. **Figure 60** illustrates a bar graph of forecasted expenditures for the backlog analysis (i.e. Scenario 3). The bars in this figure are colour coded by type of investment need. In addition to the bar graph, solid and dashed lines on the figure illustrate the equivalent annual investment needs of each of the three scenarios. The figure clearly illustrates that additional investment is needed by the City to continue to maintain current levels of service and/or to eliminate backlog and prepare for upcoming investment needs over the next 10 years.

This AMP focused on identifying the renewal need for infrastructure investments. The City is also experiencing an operational and maintenance investment gap and should work towards quantifying the true cost to maintain LOS from the operations side. This can then be included in future iterations of the AMP to capture the full lifecycle investment need.

Table 82. Parking Services Lifecycle Activity Investments

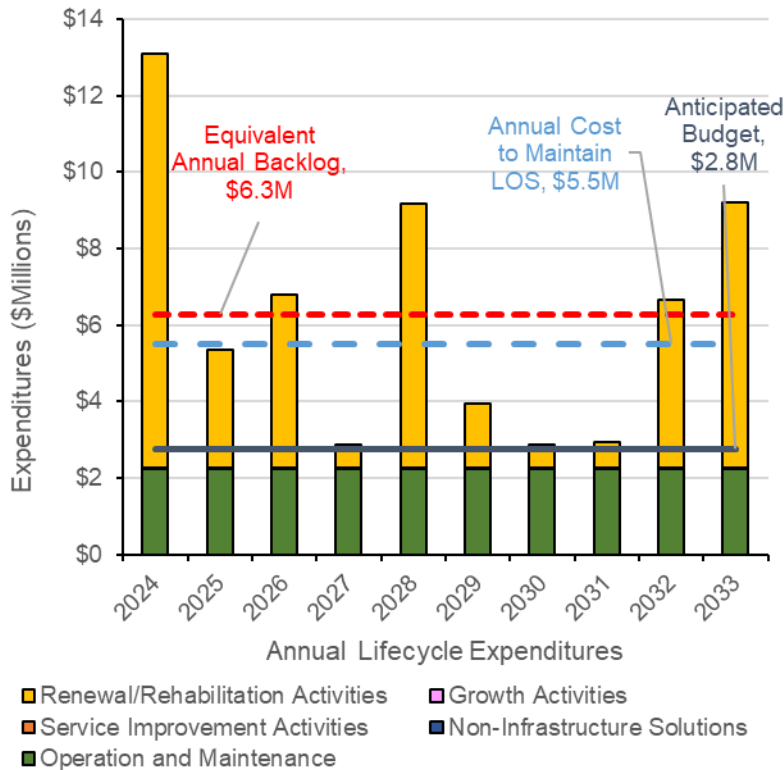
Lifecycle Activity	Anticipated Budget	Maintain LOS	Backlog Analysis
Non-Infrastructure ²¹	\$13,750	\$13,750	\$13,750
Operation and Maintenance ²²	\$2,216,922	\$2,216,922	\$2,216,922
Growth ²²	\$0	\$0	\$0
Service Improvements ²²	\$34,375	\$34,375	\$34,375
Renewal ²³	\$500,000	\$3,250,000	\$4,022,058
Total	\$2,765,047	\$5,515,047	\$6,287,105
Funding Gap		\$2,750,000	\$3,522,058

²¹ Average annual value calculated using the historic capital budget (2019-2023), future capital budget (2024-2026), historic operating budget (2018-2023).

²² Average annual planned DC forecast.

²³ Annual cost for anticipated budget were provided by City staff after reviewing the historic and planned capital budget (2019-2026). Cost to maintain LOS and backlog analysis were calculated using the performance and investment forecasting model.

Figure 60. Parking Services Scenario Comparison



8.4 Parking Services Data Confidence

The City completed building condition assessments for parking garages. This included the valuation of the overall facility and the cost to renew each of its components. All facility components also got assigned a performance score and recommended year of investment for each. The overall data confidence grade is **A** for parking garages.

An inventory of paid and unpaid parking lots was used for this AMP. The data was mostly complete with some gaps in installation year (30/98 missing) and condition rating (2/98 missing). The overall data confidence grade is **B** for parking lots. The City should continue to update this inventory with latest condition inspection results and current replacement values.

No data assumptions were necessary for the AMP analysis.



Parks

The City of St. Catharines is committed to providing safe, reliable, affordable, accessible, inclusive and sustainable parks and recreational spaces that reflect 'The City where everybody can play.' The parks and recreation services will enhance the well-being of residents, visitors, places and spaces. The parks services will support a variety of activities and functions for recreation, business, arts and culture, historical, maintenance and operations purposes. The City is responsible for the following park assets:

- 109 Parking which include:
 - 201 Park Amenities (Ball Diamonds, Playgrounds, Pools, etc.)
 - 90 Sidewalks and Pathways (includes Recreational Trails, Stairs & Patios)
 - 822 Site Works



Estimated Replacement Value

The City's Park assets are valued at approximately **\$177 million**.



Condition Rating

(% based on Replacement Value)

40% of the park assets are in **Good to Very Good** condition.

43% of the park assets are in **Poor to Very Poor** condition.



9.0 Parks

9.1 Parks State of the Local Infrastructure

Parks are important to enhancing the well-being of residents, visitors, places, and spaces through provisions of safe, reliable, affordable, accessible, inclusive and sustainable environments. The City of St. Catharines own and operate 109 parks, which include the following assets:

- Park Amenities
- Site Works
- Sidewalks and Pathways

Table 83 provides a further breakdown of these assets into the various asset types (ie. Ball diamonds, playgrounds, etc).

9.1.1 Parks Valuation

For the valuation of assets for the parks services, the replacement values considered are intended for the replacement of a similar asset (like-for-like) on a complete and standalone basis. These were calculated based on historical values that the City has incurred as part of previous replacements of similar assets.



Table 83. Parks Valuation

Service Function	Asset Category	Asset Type	Quantity	Unit	Estimated Total Replacement Value (2023 Dollars)
Parks	Park Amenities	Ball Diamonds	24	Each	\$13,448,000
		Garden Structures	17	Each	\$375,000
		Golf Courses	1	Each	\$234,000
		Leash - Free Dog Parks	2	Each	\$761,000
		Other	1	Each	\$5,266,000
		Outdoor Court	38	Each	\$7,280,000
		Piers	1	Each	\$50,000,000
		Playgrounds	73	Each	\$20,520,000
		Pools	5	Each	\$8,021,000
		Skateboard Parks	1	Each	\$750,000
		Splash Pads	4	Each	\$2,339,000
		Sports Fields	32	Each	\$23,208,000
		Track and Field	1	Each	\$1,286,000
	Sidewalks and Pathways*	Park Sidewalks	74	Km	\$20,554,000
		Patios/decks	3087	m	\$677,000
		Recreational Trails	21	Km	\$1,764,000
		Stairs	11	Each	\$374,000
Site Works	Fences, Flag Poles, Fountains, Lighting, Machinery & Equipment, Park Furniture, Retaining Wall, Service Road, Signs and Site Electrical	Various		\$20,225,000	
Overall Parks Replacement Value					\$177,112,000

*This plan only includes sidewalks within parks. All others (including park access) were reported in 2021 AMP.

The overall distribution of replacement values by asset category for the park services is as shown in **Table 83**. The park amenities have the higher replacement value in the portfolio, totaling 75% of the entire system.

Figure 61. Asset Replacement Value for All Parks Assets

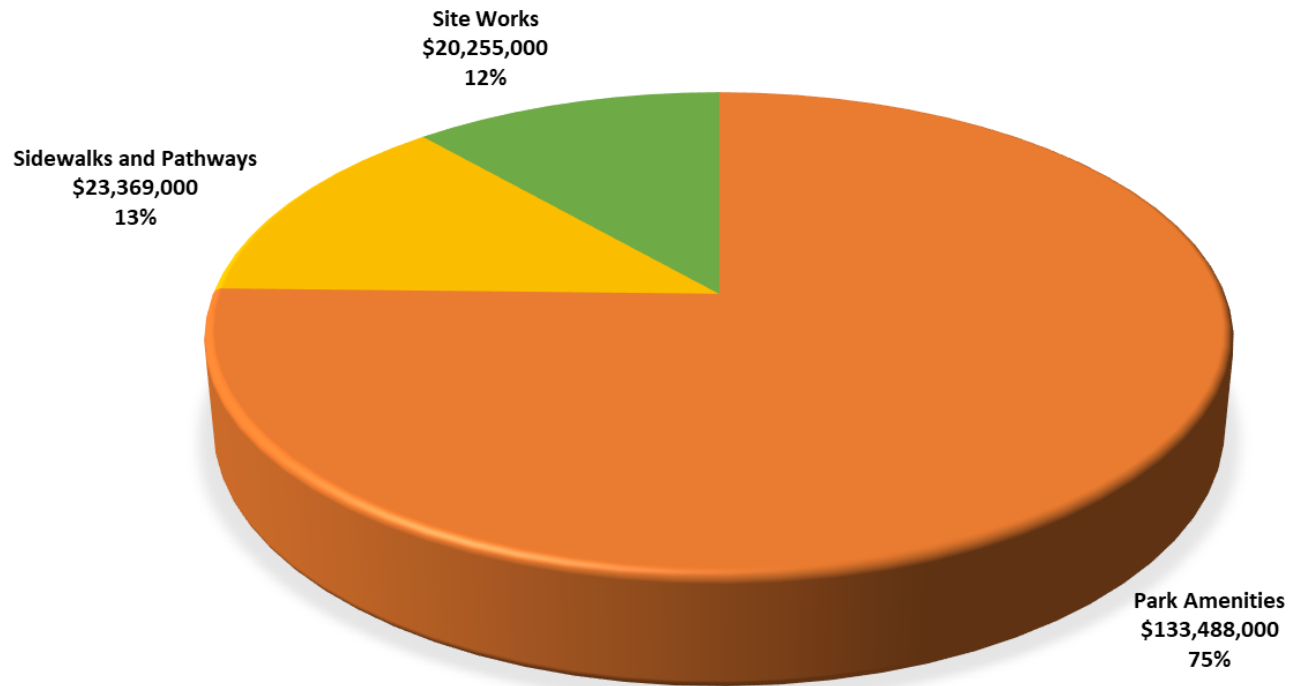
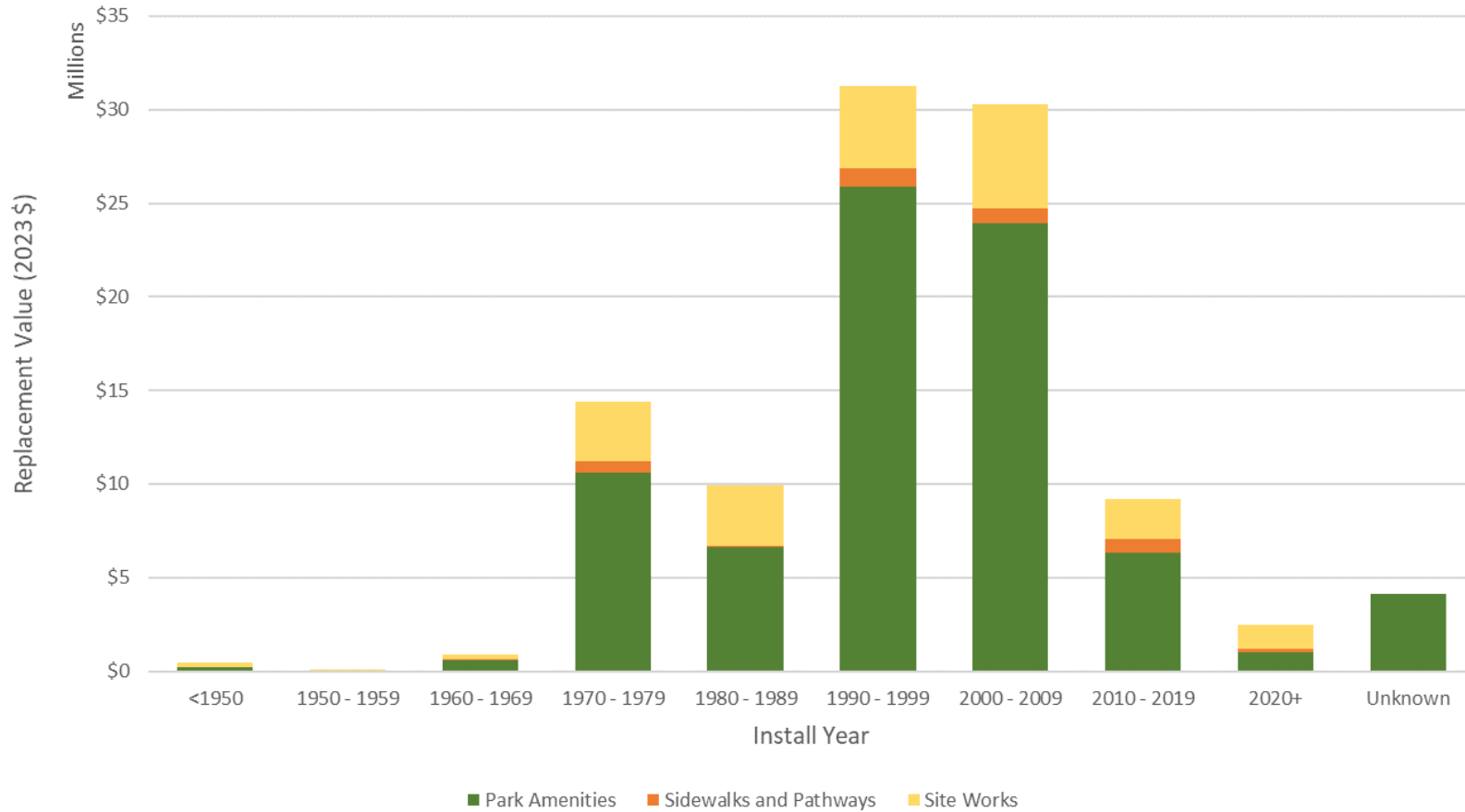


Figure 62. Distribution by Replacement Value for all Park Assets by Installation Decade



To further assess the park assets, **Figure 62** summarizes the decade of the year of installation by replacement value for all park assets. A large portion of the park asset portfolio was constructed between 1990 and 2009.

9.1.2 Parks Condition

Condition was assigned to park assets primarily on the basis of the asset age versus expected service life where the data was available, as per **Table 84**.

Table 84. Parks Condition Scale

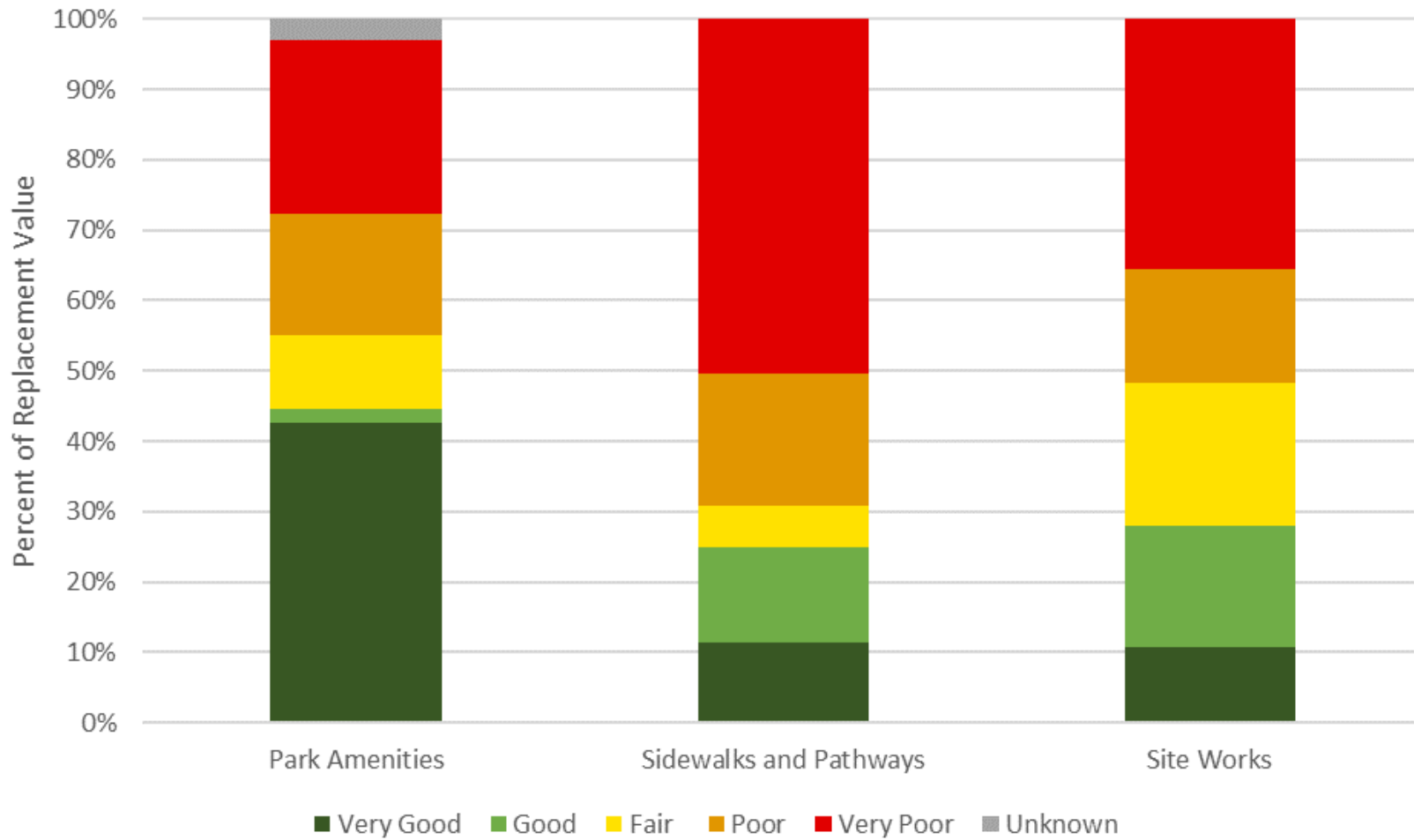
Category	Remaining Life
Very Good	100% - 76%
Good	75%- 51%
Fair	50% - 26%
Poor	25%- End of Life
Very Poor	Past Service Life

The current conditions of park assets have been summarized and weighted by replacement value in **Table 84**.

Overall, 52% of the park assets are in the very good to fair rating category (based on replacement value) with 43% in the poor and very poor categories.



Figure 63. Condition Distribution by Replacement Value for all Parks Asset Types

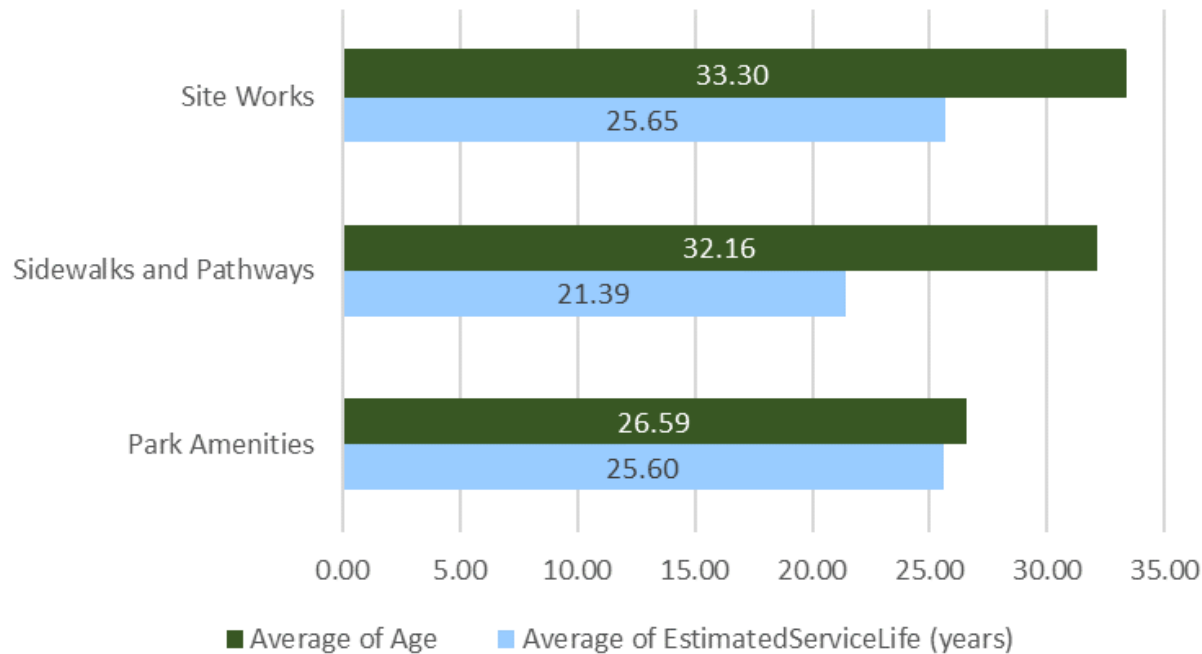


9.1.3 Parks Age Summary

Comparing the average age of the assets with the average estimated service life (ESL) provides a representation of the average overall portfolio remaining life.

Figure 64 below summarizes the average ages of each asset type in park assets. On average, park amenities are nearing the end of their estimated service life. Any assets that did not have an installation date were not included in the graphic below.

Figure 64. Average Age as a Proportion of Expected Service Life by Asset Type All Parks Assets



9.2 Parks Levels of Service

The City of St. Catharines is committed to providing safe, reliable, affordable, accessible, inclusive and sustainable parks and recreational spaces that reflect 'The City where everybody can play.'

The City has developed levels of service for its park assets based on Quality & Reliability and Financial Sustainability which provide a basis from which the City can determine whether the service area is performing as expected.

The City's LOS document the asset performance from a service provider's perspective and service user's perspective. These metrics outline the LOS that are currently driving decision-making/spending on assets and can be linked to financing consequences/demand. The following provides a summary of these LOS associated with the parks in the City of St. Catharines

Table 85. Parks LOS Indicator

Key Service Attribute	LOS Statement	LOS Indicator	Current Performance	Target (Proposed)
Quality & Reliability	Provide equitable, inclusive, and accessible parks, open spaces and trails	% of Park assets in fair or better condition	52%	TBD in 2025 AMP
		% of residential properties within 400 metres radius (5 minute walking distance) for Neighbourhood Parks and Playgrounds	86.35%	
		% of residential properties within 800 metres radius (10 minute walking distance) for Neighbourhood Parks and Playgrounds	100.00%	
		% of residential properties within 1.6km radius (20 minutes walking distance) for District Parks and Playfields	99.82%	
Financial Sustainability	Provide park services in a cost-efficient manner	Annual Operating budget for Parks Services	\$7,219,471	
		Annual Capital budget for Parks Services	\$4,806,812	
		Cost to provide service (\$/household)	\$193.03	
		Annual Revenue from fees and programs usage	\$2,889,583	

9.3 Parks Lifecycle Management Strategy

9.3.1 Lifecycle Management Activities

The levels of service presented in the previous section are supported by the achievement of a variety of lifecycle activities in accordance with the activity types presented in **Table 5**. These activities are targeted to extend the asset life, ensure levels of service are being met, and reduce overall lifecycle costs.

The parks service staff implement a variety of lifecycle activities on its entire portfolio. **Table 86** to **Table 91** below provides a summary of these activities and the risk associated with not doing them.

Table 86. Parks Lifecycle Activities and Assessment Frequency – Non-Infrastructure Solutions

Lifecycle Activity Type	Asset Management Practices	Frequency
Non-Infrastructure Solutions	Aquatics Facility Strategy	As required
	St. Catharines Climate Adaptation Plan	Every 5 years
	Energy Conservation and Demand Management	Every 5 years
	Condition Assessments	As required
	Other technical studies and assessments	As required

Table 87. Parks Lifecycle Activities and Assessment Frequency – Renewal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Renewal (Rehabilitation and Replacement) Activities	Rehabilitation	As required - replacement of woodchips at playgrounds
	Replacement	As required - when assets reach end of service life or are no longer fit for purpose. Renewal of outdoor sport assets are completed in the off season to mitigate the impact of disruption to service.

Table 88. Parks Lifecycle Activities and Assessment Frequency – Operation and Maintenance Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Operation and Maintenance Activities	Planned Maintenance (PM) (includes lining fields)	As required
	Service Requested Maintenance	As required
	Reactive Maintenance	As required
	Purchase of small equipment and materials	As required
	Routine Inspections	As required per legislation

Table 89. Parks Lifecycle Activities and Assessment Frequency – Disposal Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Disposal Activities	Disposals	Coordinated with asset replacement

Table 90. Parks Lifecycle Activities and Assessment Frequency – Growth Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Growth and Service Improvement Activities	New Assets	Driven by growth to maintain LOS. As identified through planning and studies

Table 91. Parks Lifecycle Activities and Assessment Frequency – Service Improvement Activities

Lifecycle Activity Type	Asset Management Practices	Frequency
Growth and Service Improvement Activities	New Assets	To improve LOS and not supported by growth. As identified through planning and studies

9.3.2 Funding the Lifecycle Activities

The City uses the lifecycle strategies described in **Section 9.3.1** to plan work and determine future expenditure needs. The LOS used in the AM analysis for Parks assets was defined as the percentage of assets that are in poor or better condition.

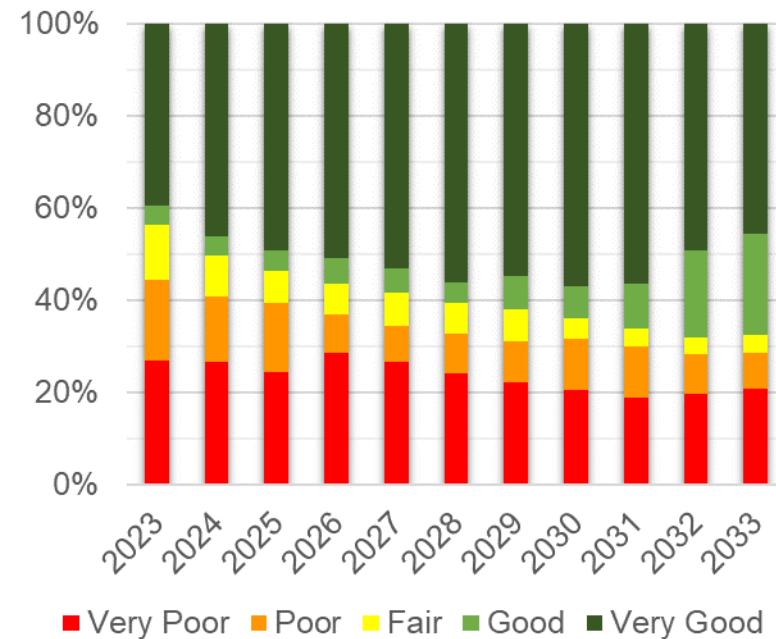
Each of the scenarios, and its purpose in the overall analysis, is discussed in **Subsection 1.9.3**.

Scenario 1: Anticipated Budget

The current average anticipated renewal investments of \$4M annually, resulted in the performance forecast illustrated in **Figure 65**. Under this scenario, the percentage of assets that are in poor or better condition go from 73% to 79% by the end of the 10-year forecast period.



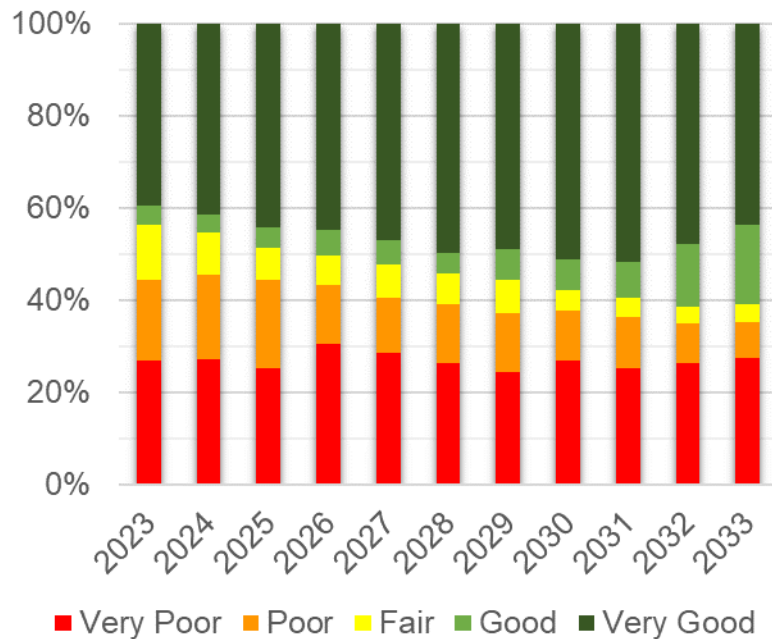
Figure 65. Parks Performance Forecast with Anticipated Budget



Scenario 2: Cost to Maintain LOS

The renewal cost required to maintain existing service levels was determined to be \$3.8M annually over a 10-year period and resulted in the performance forecast illustrated in **Figure 66**. Under this scenario, the percentage of assets that are in poor or better condition holds around 73% over forecast period.

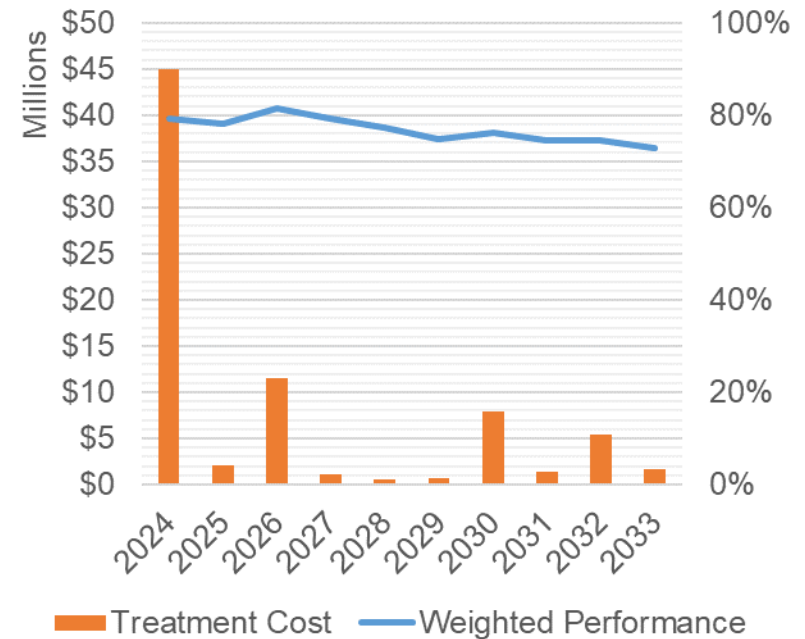
Figure 66. Parks Performance Forecast with Cost to Maintain LOS



Scenario 3: Backlog Analysis

The results of the backlog analysis revealed a current backlog (i.e. outstanding and current investment needs) of \$45M in 2024. In addition to the current backlog, this analysis details required additional investment needs in the upcoming years. The unconstrained investment needs in this analysis average to an amount of \$7.8M annually, over the 10-year analysis period. The associated expenditure distribution and average performance for this scenario is illustrated in **Figure 67**.

Figure 67. Parks Backlog Analysis



Scenario Comparison

The compiled investment needs under each of the three analysis scenarios are presented in **Table 92** and **Figure 68**. **Figure 68** illustrates a bar graph of forecasted expenditures for the backlog analysis (i.e. Scenario 3). The bars in this figure are colour coded by type of investment need. In addition to the bar graph, solid and dashed lines on the figure illustrate the equivalent annual investment needs of each of the three scenarios. The figure illustrates that additional investment is needed by the City to continue to eliminate backlog and prepare for upcoming investment needs over the next 10 years.

This AMP focused on identifying the renewal need for infrastructure investments. The City is also experiencing an operational and maintenance investment gap and should work towards quantifying the true cost to maintain LOS from the operations side. This can then be included in future iterations of the AMP to capture the full lifecycle investment need.

Table 92. Parks Lifecycle Activity Investments

Lifecycle Activity	Anticipated Budget	Maintain LOS	Backlog Analysis
Non-Infrastructure ²⁴	\$33,250	\$33,250	\$33,250
Operation and Maintenance ²⁵	\$7,219,471	\$7,219,471	\$7,219,471
Growth ²⁵	\$149,298	\$149,298	\$149,298
Service Improvements ²⁶	\$327,325	\$327,325	\$327,325
Renewal ²⁷	\$4,000,000	\$3,800,000	\$7,762,958
Total	\$11,729,344	\$11,529,344	\$15,492,302
Funding Gap		\$0	\$3,762,958

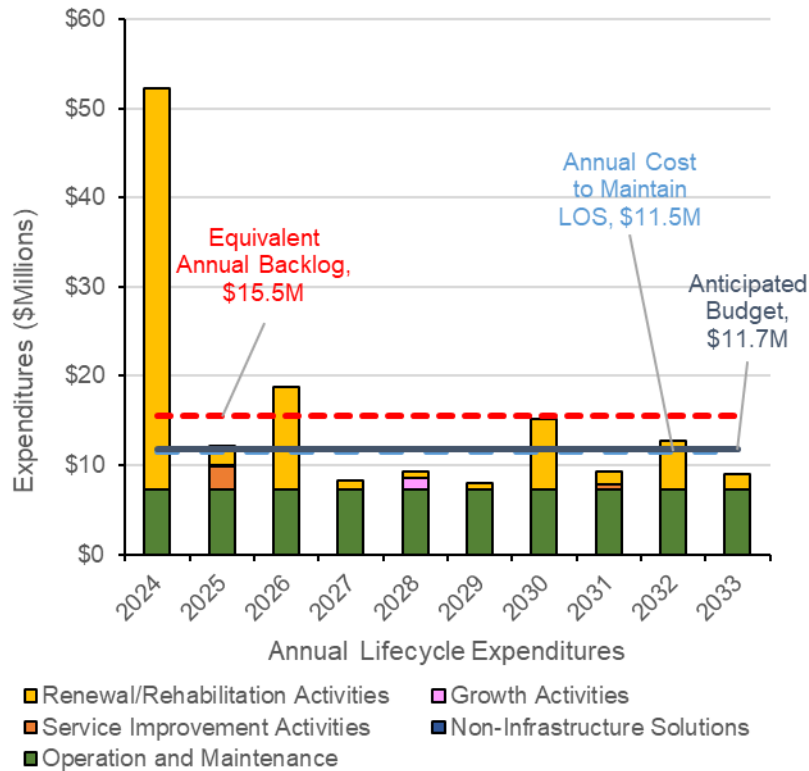
²⁴ Average annual value calculated using the historic capital budget (2019-2023), future capital budget (2024-2026), historic operating budget (2018-2023).

²⁵ Average annual planned DC forecast.

²⁶ Average annual benefit to existing portion of the planned DC forecast projects.

²⁷ Annual cost for anticipated budget were provided by City staff after reviewing the historic and planned capital budget (2019-2026). Cost to maintain LOS and backlog analysis were calculated using the performance and investment forecasting model.

Figure 68. Parks Scenario Comparison



9.3.3 Parks Data Confidence

The GIS inventory was used for AMP analysis of park amenity assets. The data was mostly complete with few gaps for installation year (13/200 missing) and replacement costs (4/200 missing). The overall data confidence grade is **B** for Park Amenities. A condition

assessment can improve the confidence rating by moving beyond the traditional age-based approach. Costs should be regularly reviewed to reflect current day purchase prices.

The GIS inventory was also used for sidewalks and pathways. However, there was limited information of install year or condition performance. The overall data confidence grade is **C** for sidewalks and pathways. A condition assessment program should be considered to determine the performance of these assets to better plan for investment needs into the future.

The TCA inventory was used for the site works. The data in the inventory is mostly complete but it is not the most reliable source for quantities and replacement costs. The overall data confidence grade is **D** for site works. The City would benefit from developing an updated inventory to ensure all assets are captured with condition performance and current replacement costing. The Active Transportation Master Plan could be leveraged for the sidewalks and pathway once it is completed.

The following assumptions were made during the assessment of the data:

- The average cost of similar asset types was used
- The ESLs of similar asset types were used

10.0 Financial Strategy

The financial strategy of this AMP aims to identify the appropriate funding levels required to provide the intended levels of service. It takes into consideration revenues, operating and capital expenditures, debt, and any future commitment for all the asset classes in the plan.

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

In terms of expenditures, the City categorizes their budget into the following:

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

As part of the annual budget development process, the City ensures continued financial sustainability through effective financial planning and risk management.

The following sections describe the interrelations between the City's infrastructure investment needs and the financing strategies.

10.1 Operating Revenues and Expenditures

The City's operating revenues for remaining assets by funding sources are as outlined **Table 93** (Revenues are shown as credit/negative; expenses are shown as debit/positive). Revenues for 2024 and 2025 will be determined in the 2024-2026 multi-year budget.

Table 93. Operating Revenues by Funding Source (\$'000)

Funding Source	2023
General Levy	(\$115,516)
Urban Service Area Levy	(\$1,266)
Investment in CIP	\$1,504
Tax Appeals and Write offs	\$920
Commercial /Industrial Vacancy Rebate	\$0
Supplemental Taxes	(\$1,000)
Municipal Utilities	(\$573)
Universities and Hospitals	(\$710)
Other Revenues	(\$11,768)

The other operating budget revenues include contributions from other governments, rents, concessions, franchises, fines, penalties, and interest, income from investments, surplus from previous year, transfer from reserve, reserves support, and miscellaneous revenues.

The net historical and projected operating budget for the assets included in this plan are shown in **Table 94**.

Table 94. Net Operating Budget by Service (\$'000)

Service	2021	2022	2023
Buildings and Facilities	\$1,894	\$1,887	\$2,079
Corporate Fleet	\$4,153	\$3,645	\$2,993
Culture	\$1,630	\$2,129	\$2,222
Fire Services	\$1,331	\$957	\$1,665
Information Technology	\$385	\$689	\$406
Natural Assets	\$3,791	\$3,833	\$4,740
Parking Services	\$2,113	\$2,013	\$2,905
Parks	\$7,175	\$7,323	\$8,587

10.2 Capital Financing and Expenditure

The capital budget is used for major investments like construction of infrastructure, supporting non-infrastructure solutions like technical studies and master plans. The capital budget for each service is shown in **Table 95**.

Table 95. Capital Budget by Service (\$'000)

Service	2023	2024	2025	2026
Buildings and Facilities	\$13,909	\$10,630	\$10,235	\$7,840
Corporate Fleet	\$1,580	\$3,285	\$4,514	\$3,530
Culture	\$33	\$1,300	\$26	\$27
Fire Services	\$2,897	\$6,334	\$7,642	\$5,196
Information Technology	\$4,680	\$2,990	\$4,834	\$960
Natural Assets	\$5,683	\$1,141	\$5,501	\$3,051
Parking Services	\$700	\$635	\$0	\$1,265
Parks	\$4,977	\$10,483	\$6,616	\$12,345

10.3 Reserves & Reserves Funds

The City has a number of reserve funds that are each used to support the capital program requirements. The source of these includes tax, grants, and Development Charges.

10.4 Debenture Financing

The City debenture funding can be utilized as a source for annual capital investments and is utilized after all other applicable funding has been applied. Debenture financing allows the City to spread the costs of capital over the term of debt rather than requiring funding in the year of construction. Debt management is necessary to ensure that the City maintains an appropriate debt level.

The City has a Council approved debt management strategy that is part of their capital budget; for more detail refer to *Capital Financing Report FMS-203-2022*. For additional details please refer to Section 4 of the City's capital budget book.

10.5 Projected Financing Strategies

For the purpose of the analysis, the investment needs have been assessed against the projected tax funds for the next ten (10) years. The assumed annual expenditures are based on the lifecycle costing analysis outlined for each asset group.

The expenditure summary provided under each service section and in the following pages is based on the investment required to maintain levels of service, specifically the proportion of assets in poor or better performance.

The compiled investment needs under each of the three analysis scenarios are presented in **Table 96** and **Figure 69**. **Figure 69** illustrates a bar graph of forecasted

expenditures for the backlog analysis (i.e. Scenario 3). The bars in this figure are colour coded by type of investment need. In addition to the bar graph, solid and dashed lines on the figure illustrate the equivalent annual investment needs of each of the three scenarios. The figure illustrates that additional investment is needed by the City to continue to eliminate backlog and prepare for upcoming investment needs over the next 10 years.

Table 96. Combined Lifecycle Activity Investments

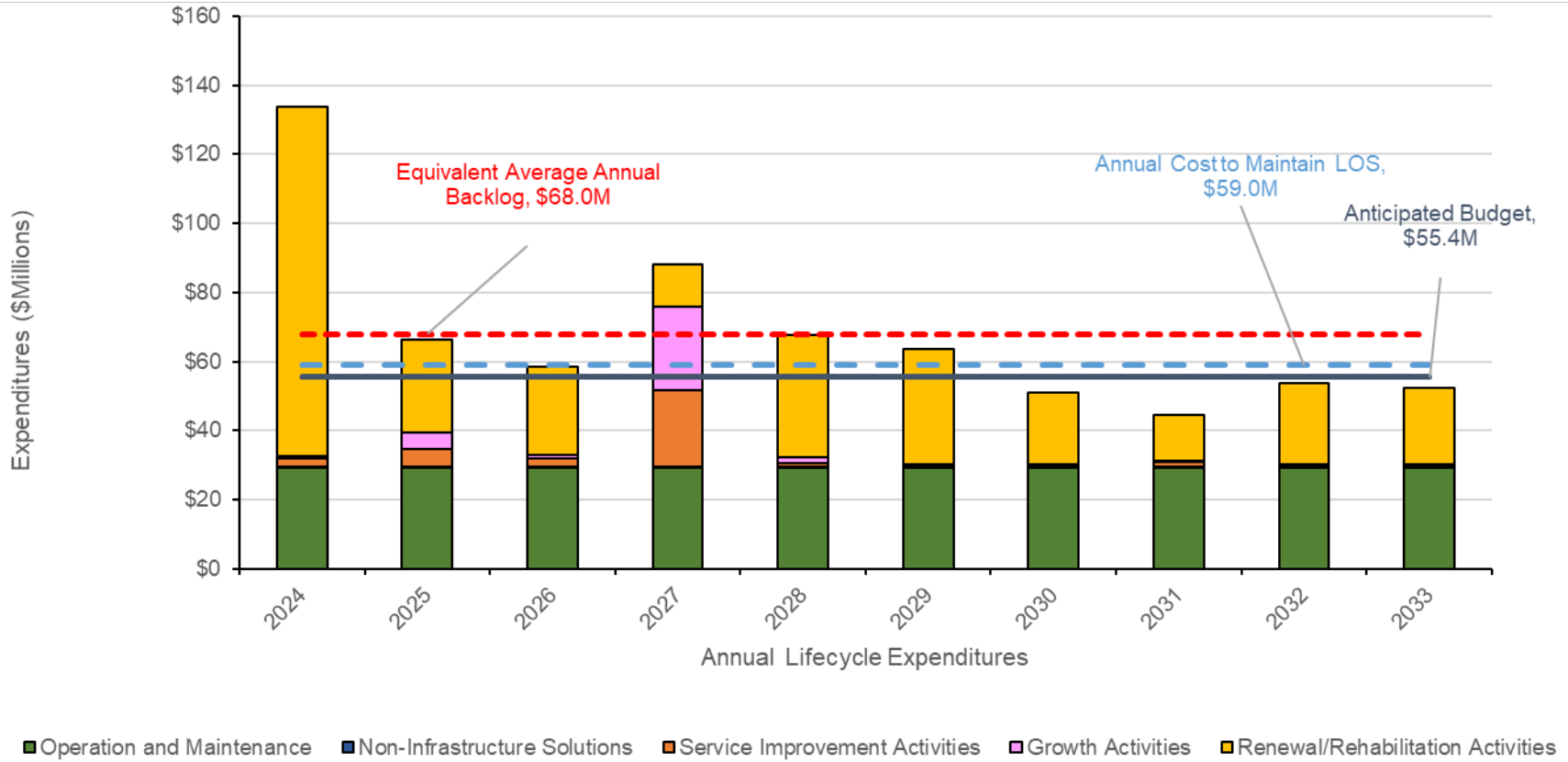
Lifecycle Activity	Anticipated Budget	Maintain LOS	Backlog Analysis
Non-Infrastructure	\$227,625	\$227,625	\$227,625
Operation and Maintenance	\$29,292,026	\$29,292,026	\$29,292,026
Growth	\$3,286,475	\$3,286,475	\$3,286,475
Service Improvements	\$3,789,142	\$3,789,142	\$3,789,142
Renewal	\$18,854,640	\$22,420,000	\$31,403,865
Total	\$55,449,909	\$59,015,269	\$67,999,134
Funding Gap		\$3,565,360	\$12,549,225

This AMP focused on identifying the renewal need for infrastructure investments. The City is also experiencing an operational and maintenance investment gap and should work towards quantifying the true cost to maintain LOS from the operations side. This can then be included in future iterations of the AMP to capture the full lifecycle investment need.

The resulting graphs reflect the forecasted amounts for each of the activity types and summarize the equivalent annual costs over the 10-year period. **Figure 69** provides the summary of the expenditures which includes all asset portfolios in this AMP. This portfolio shows an annual investment of \$55.0M to maintain LOS. The backlog and future upcoming needs spread over the next 10 year would require \$68.0M annually. The City must either reduce service offerings to their residents or increase funding to be able to maintain services at the current level.



Figure 69. Forecasted Asset Portfolio Expenditures



11.0 Conclusions

The City is generally managing and planning for the future remaining asset needs in a successful manner.

Additionally, a few recommendations can be drawn:

Explore opportunities to understand the largest operating costs. Significant operating costs are a fundamental lifecycle cost that can be overlooked, and this may be an excellent time to consider updating the existing work management system'. Asset-centric management of work can help the City establish a baseline of costs related to levels of service and assets and may provide opportunity to optimize maintenance as a lifecycle activity. This will enable the City to move towards an optimized and preventative approach to maintenance. The City is currently in the procurement stage of purchasing a City-wide Computerized Maintenance Management System to capture operating costs.

Improve the accessibility of data. The City may consider continuing to integrate disparate data sets so that asset management analysis, and other business processes, can be more easily conducted.

Improve data quality, suitability, and confidence. This will continue to be a significant element in asset management. Collecting all data is not the objective – collecting relevant and repeatable data that informs asset managers and decision-makers is the key. The City

should continue to define the data that provides the most value for specific tasks, and then focus on enhancing the data suitability and confidence in a strategic sense. Relevant data that is up to date, accurate and fit for use is a fundamental enabler in successful asset management.

Build on the success of this AMP. The City can use the annual AM review to both look back and project forward, celebrate successes and learn from efforts made. Some levels of service and performance measures identified in this AMP can provide valuable performance feedback and an opportunity for the City to check in on progress. Performance management programs can also connect to these levels of service.

Continue to prepare for upcoming legislative requirements. In alignment with upcoming legislative asset management deadlines, continue preparations for new asset management prescribed requirements, including new regular asset management effectiveness review and reporting, maintaining public consultation and communication of data, and discussions/negotiations around proposed levels of service, costs and risk using the updating asset management information in the AMP. For the next AMP update, consider setting levels of service first based on corporate goals and objectives, since these define the City's priorities and guide future spending.

12.0 Improvement Plan

Asset Management at the City of St. Catharines relies on having practices and principles to ensure the City makes the best possible decisions regarding their varied assets portfolios.

As part of the development of this AMP, opportunities for improvement of asset management practices and principles and the asset management plan were identified. When establishing an improvement plan, it is useful to consider international standards and well-known asset management guidance for advancing Asset Management capabilities including:

- ISO 55000;
- International Infrastructure Management Manual (IIMM) 2015; and
- BSI PAS55:2008.

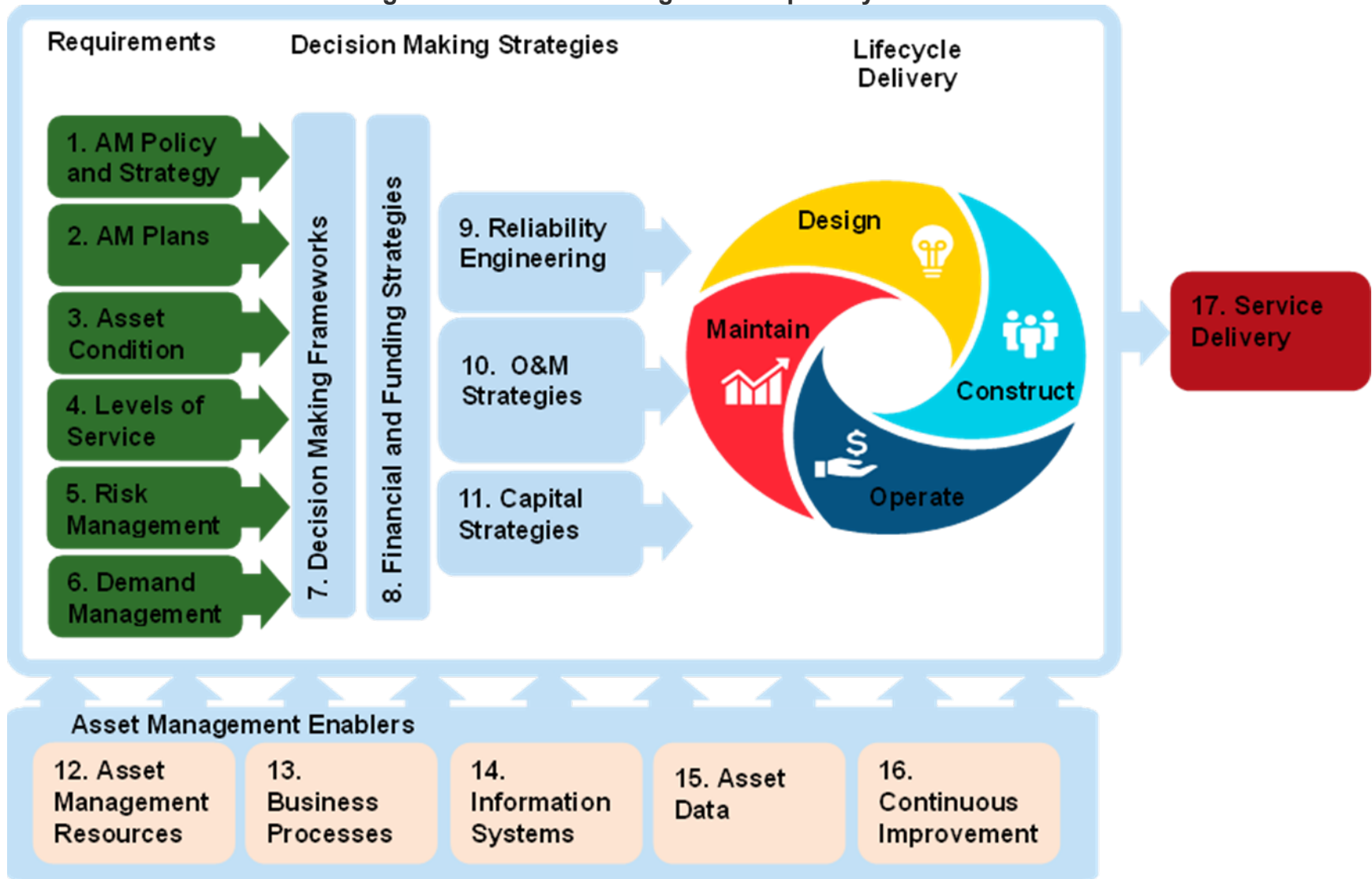
These standards were developed over several years with international collaboration and are widely regarded as best practices for the field of Asset Management. Key recommendations have been categorized according to

Figure 70 on the next page, which organizes efforts related to Asset Management into:

- **Asset Management Requirements:** key documentation that defines the governance, objective and direction of the AM practices;
- **Decision Making Strategies:** tools that support decision making with a full asset lifecycle perspective; and
- **Asset Management Enablers:** processes and resources available to ensure Asset Management remains a well-established component of successful service delivery.

Understanding that the City is committed to improving the Asset Management practices over the long-term, the following provides a summary of recommended improvements. These are provided to guide strategic decisions for the City to continually improve levels of service, asset reporting (valuation and condition), risk, and therefore improve future iterations of the AMP for both core and remaining assets.

Figure 70. Asset Management Capability Framework



Source: Adapted from IPWEA, 2015 and ISO/IEC 550001

12.1 Asset Management Requirements

As indicated in **Section 1.0**, the City has proactively been working on developing the necessary documentation to guide their AM practices. The following sub-sections provide an overview of continuous improvement opportunities for each framework element.

12.1.1 Asset Management Policy and Strategy

As discussed in **Section 1.0**, the City has an Asset Management Policy in place and an Asset Management Working Group has been established in which representatives from all departments are part of the decision making associated with AM and with the updates of objectives, policies, and procedures. The Asset Management Policy should be updated to incorporate the City's complete asset portfolio, specifically the assets included in this AMP related to Culture, Parking, Fire, Parks and Natural Assets.

A key factor to consider as part of this is the overall City staff buy-in beyond those that are directly involved in the AM working group and AM projects. It is recommended that the City establish communications strategies for the asset management policy and strategy, which may include staff on-boarding training that outlines the AM policy, and other practices to promote the role and advantages of Asset Management to all levels of staff.

Outcomes: Updated Asset Management Policy for all assets and improved corporate buy-in.

12.1.2 Asset Management Plan

This document and the previously completed core assets AMP will fulfill the requirements for Asset Management Plans as set out by O.Reg. 588/17. It is recommended that through a continuous improvement process work continues to improve background data and the processes that will streamline the development of future asset management plans.

Outcomes: Streamlined AMP development process to facilitate development of future asset management plans to meet Provincial legislative requirements for Asset Management Plans.

12.1.3 Asset Condition

To establish continuity between services, it is recommended to develop a standardized condition assessment protocol and templates to ensure condition and capacity information are collected and returned in a defined structure. The protocol, developed for each asset category would outline the restrictions, assumptions, and requirements of the work as well as how to complete the template. This template would be set up for ease of transfer to an internal or external user and would have the ability to be seamlessly uploaded to the respective system post completion. This of course needs to align with the business processes, City reporting needs, and roles and responsibilities in place; for example, incoming data should be verified prior to upload. The templates may include but not be limited to the following:

- Defining the level of detail required for condition, capacity, and risk;
- Defining the level at which assets will be identified (granularity) for condition assessments;
- Assigning grading standards for each process group for condition as well as performance; and
- Defining the costing methodology, including threshold, defining labour requirements, etc.

Outcomes: Higher data confidence can be used to inform decision-making processes related to capital planning and lifecycle activity planning.

12.1.4 Levels of Service

Level of Service indicators were established for remaining assets as part of this AMP. It is recommended to put in place a full LOS program that will allow an annual review, revisions based on data availability and the identification of additional metrics required. As the City defines additional levels of service metrics consideration should be given to the data required to support the reporting requirement including the ease and potential cost of the collection efforts.

In addition, to build a better understanding of customer expectations, it is recommended for the City to conduct a customer satisfaction survey to gauge the citizens' feedback and priorities based on funding constraints.

Outcomes: Sets targets for levels of service and provide an understanding of the costs to provide the levels of service.

12.1.5 Risk Management

An enterprise risk management framework and management system will streamline the process of establishing and identifying risks to which the City is exposed. It is recommended to consider a formal risk assessment protocol as part of the asset management program.

Outcomes: Well defined and repeatable processes to assess asset risk that will aid in decision-making activities at the City.

12.1.6 Climate Change

Climate Change is a growing concern for communities around the world and St. Catharines is not immune from its potential impacts. The City should build upon the work done previously to develop the Corporate Climate Adaptation Plan and the more detailed adaptation plan prepared for the City's water and wastewater infrastructure by extending the analysis to all other assets within your portfolio.

The resulting strategies and implementation costs identified within the adaptation plan should be integrated into the City's budget framework.

Outcomes: A robust Climate Adaptation Plan that addresses the specific vulnerabilities of all asset groups and the associated service areas across the City.

12.1.7 Demand Management & Growth

The existing Culture Plan and Recreation Facility and Programming Master Plan should be updated regularly to provide an understanding of the capital investments required to meet the future demands identified. For Parks this may mean the construction of new facilities such as splash pads which may in turn require the construction of washroom facilities.

Master planning documents across the various asset portfolios should also be integrated where appropriate to ensure consistency in the recommendations. For example, the need for multi-use trails could be presented in both the recreation and transportation master plans.

It is recommended that the City categorize operating and capital budget by lifecycle activities. This will enhance the City's understanding of the effect of growth and service improvements on the budget, as well as provide more accurate and efficient reporting for asset management purposes.

Outcomes: Improved understanding of needs for capital planning initiatives.

12.2 Decision Making Strategies

The City has multiple systems in place to manage the different services; however, limited integrations are in place and the decentralized information increases challenges in the AM review processes.

12.2.1 Decision Making Framework

By establishing formal processes for decision making and choosing and implementing a software system that will support the process, the City will be able to make evidence-based decisions and ensure their infrastructure is being managed in a financially sustainable way.

Outcomes: Well established processes and systems to support them so the City can make well informed, defensible and evidence-based decisions.

12.2.2 Financial and Funding Strategies

It is recommended that the City continues to integrate and create alignment between the current financial plans and the asset management plan. This includes developing long-term forecasts for all asset classes in alignment with the lifecycle strategies outlined in the asset management plan. This includes ongoing continuous improvement of asset state of good repair needs (through condition assessments) and capacity needs (through master planning and growth studies).

As the asset portfolios increase as a result of growth the City should continue to review the operations & maintenance budget to ensure that it is sufficient to meet the increased demands resulting from the new assets. The results of this review should be reflected in City's budget and future AMPs.

Outcomes: Aligned funding strategy and asset management plan.

12.2.3 Reliability Engineering

Reliability engineering involves designing, analyzing, and maintaining systems or processes to ensure they function as intended over their lifespan. It uses techniques to predict potential failures, understand the causes behind them, and develop strategies to prevent or mitigate such failures.

The City is working towards recording of asset failure in the new Computerised Maintenance Management System (CMMS). Therefore, it is recommended that the City establish a plan to acquire the necessary resources (staff and budget) to implement a more proactive approach based on reliability engineering and industry best practices. This would involve the development of a comprehensive plan that would outline resource needs, an implementation roadmap and a fully costed business plan showing the future benefits that can be achieved.

Outcomes: Improved reliability and optimized lifecycle costs.

12.2.4 Operations and Maintenance

An asset register was drafted to record key data and provide a centralized source of asset information as part of this AMP. To keep the register updated, it is critical to audit and develop comprehensive strategies around all work processes that capture assets and asset information, such as updating asset information and retiring assets while maintaining historical data. For that reason, the City should connect asset data within the

CMMS, tying information on the day-to-day maintenance activities to the asset they are performed on. In addition, the City should implement integrations to ease the flow of information between specialized systems and their Computerized Maintenance Management System to reduce the manual transfer of information.

Operations & Maintenance activities despite the critical role they play in ensuring the longevity and optimal performance of the assets are often faced with the challenge of underfunding. Therefore, it is recommended that the City undertake a thorough review of budget requirements for O & M activities. A potential source of underfunding is the increasing asset portfolio, for example, as the City's asset portfolios are increasing by 2%/annum additional resources will be required to maintain these new assets.

Outcomes: Confirmation of O & M funding needs and improved operations and maintenance processes.

12.2.5 Capital Works Strategy

Well established capital planning is a key component of effective service delivery as it provides the opportunity to look forward and identify what renewals and rehabilitation activities are required to maintain levels of service at the City. A formal prioritization document should be created to standardize the decision-making criteria between the different services.

Outcomes: A prioritized list of projects that will aid in establishing funding requirements.

12.3 Asset Management Enablers

These initiatives form the foundation the City needs to continually be successful in their AM practices.

12.3.1 Asset Management Resources

The City Asset Management Working Group should continue to have frequent meetings and review asset management resourcing requirements across the organization. The City should also evaluate establishing a dedicated asset management team with dedicated asset management staff.

Outcomes: Continuous improvement of asset management practices.

12.3.2 Business Processes

Documenting current and optimized target business processes for all AM capabilities with clear data flow will improve the successful completion of AM activities. Furthermore, establishing roles and responsibilities provides structure and ownership to the continued maintenance of asset information.

This will include a detailed review of processes currently in place at the City to identify ways they can be improved and ensure they reflect new technology systems.

Outcomes: Allows for visibility in business processes, status, and accountability.

12.3.3 Information Systems

The main system to consider is the asset register which provides a complete list of assets in the City, regardless of ownership or status. An accurate, up-to-date, and mineable asset data is key to making informed and defensible decisions with respect to the management of assets in the short and long term. Asset registers are typically structured in a hierarchy for ease of access to information, and to allow for the summary and analysis of data at multiple levels as needed. The main purpose of this approach is to reduce the need for managing duplicated datasets as this is resource and cost intensive.

Since the completion of the core assets AMP the City has embarked on the implementation of the Asset Resource Management System (ARMS) which is the next major step towards proactive asset management and customer-focused service provision.

Outcomes: Provides a Corporate “single source of truth”, for asset data, including condition, capacity, cost, and criticality; and will enable a full and complete “cradle to grave” description of a singular asset or system based on accurate data for improved decision making.

12.3.4 Asset Data

As outlined within the asset portfolio sections, assumptions have been made and documented for the development of this plan with the goal of reducing gaps identified in future iterations of the AMP. The City is embarking upon the implementation of the Asset Resource Management System (ARMS) which will ensure the asset registry can be centralised within ARMS to provide a single source of truth with respect to your asset portfolios. The current available data was consolidated from multiple data sources, and should be reconciled against the TCA, and cleaned into a single source of truth in the ARMS system. As part of this process, it is recommended to review all replacement costs, estimated services lives and condition values to ensure they are reflective of current day pressures.

Better data for each the asset portfolios will result in significant improvements in the AMP which will in turn lead to enhancement of the strategic planning and decision making related to sustaining your assets and associated services.

The following provides a summary of the recommended asset data improvements for each of the asset portfolios:

Table 97. Recommended Asset Data Improvements

Service	Recommendation
Buildings and Facilities	<ul style="list-style-type: none"> • Continue to perform condition assessments as per recommended frequency. • Develop a comprehensive asset inventory for newly acquired assets. • New assets should be added to the asset register and include standardized Unifomat coding.
Corporate Fleet	<ul style="list-style-type: none"> • Continue to review replacement values to reflect current purchase prices. • Review condition of older equipment and tools to assess replacement needs. • Update expected service lives to drive proactive asset replacement programs.

Service	Recommendation
Culture	<ul style="list-style-type: none"> Review the renewal costing for outdoor art. Continue to develop the carousel inventory by updating the performance scores, renewal costs and ESLs with higher confidence values. Define the performance level for lock walls and continue to reassess them to ensure they are still meeting the desired performance objectives. These assets will require more frequent and costly rehabilitation as they age. Review and consider moving Canals/lockwall assets to another service sector. These are budgeted through watercourses, which may be a more appropriate place to include these assets.
Fire Services	<ul style="list-style-type: none"> Continue to perform condition assessments to the facilities as per recommended frequency. Continue to review replacement values for fire vehicles to reflect current purchase prices. Develop and inventory for fire equipment with up-to-date quantities, replacement values, installation years and ESLs.

Service	Recommendation
IT Services	<ul style="list-style-type: none"> Develop an inventory of the hardware assets not included in this AMP. Develop an inventory of major software to include implementation costs.
Natural Assets	<ul style="list-style-type: none"> Work to combine different legacy systems of tree data into one source. Continue to assess City Trees to collect data for the assets missing information. Develop inventory for forested areas and wooded portions of parks. Develop an invasive species plan to help evaluate and manage risks to the urban forest Continue to monitor the performance of the protected shoreline Develop a formal inventory for inclusion within the asset register for horticulture and natural waterbodies with up-to-date quantities, replacement values, installation years and ESLs, where applicable. Consider linking natural assets to the services they provide.

Service	Recommendation
Parking Services	<ul style="list-style-type: none"> • Continue to perform condition assessments on parking garages as per recommended frequency. • Continue to update the parking lot inventory with latest condition inspection results and higher confidence current replacement values.
Parks	<ul style="list-style-type: none"> • A condition assessment of the park amenities can improve the confidence of the condition performance, moving away from an age-based approach and will provide an opportunity to update ESL assumptions to reflect reality. • Develop an updated inventory of site works, sidewalks, pathways, electrical components and lighting to ensure all assets are captured with condition performance and current replacement costing.

- Refining and reviewing progress of Asset Management roadmap initiatives; and
- Conducting a full AM maturity assessment as a baseline to set a target maturity and update it on a set frequency to gauge progress against targets.

It is recommended that the City establishes resources and an implementation plan to complete the assessed improvements and prioritize the order of work based on the available resources.

Outcomes: Up to date AM practices that support the needs of the City of St. Catharines.

12.3.5 Continuous Improvements

Asset Management is always evolving and to ensure the City’s Asset Management program is alignment with best principles and practices it is important to make a concerted effort to continually improve the City’s documentation, data, tools, and resource availability. This involves the following:



INNOVATION

SUSTAINABILITY

LIVABILITY

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