Prepared by SLBC Inc.

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Terms and Definitions

Term	Definition
Asset Management (AM)	The coordinated activity of an organization to realize value from assets. This includes balancing costs, risks, opportunities, and performance over the asset's lifecycle.
Asset Lifecycle	The stages through which an asset passes: planning, acquisition, operation, maintenance, renewal, and disposal.
Asset Hierarchy	A structured breakdown of assets into categories and subcategories to support inventory, condition, and performance tracking.
Asset Condition	An evaluation of an asset's physical state, often measured using a standardized grading system (e.g., Very Good to Very Poor) to inform renewal needs and timing.
Average Annual Renewal Amount (AARA)	The average annual investment needed to renew or rehabilitate assets over their useful lives to maintain desired service levels.
Condition Assessment	The process of evaluating the physical state of an asset to determine deterioration and inform maintenance or replacement needs.
Consequence of Failure (CoF)	A measure of the impact that asset failure would have on service delivery, safety, environment, reputation, and cost.
Customer Levels of Service	Measures how the customer experiences the service, focusing on service quality, accessibility, reliability, safety, and user satisfaction.
Infrastructure Funding Gap	The difference between the cost to maintain assets at the desired LOS and the available funding. Indicates a shortfall in investment.
Level of Service (LOS)	Defined service quality levels expected by customers and technical standards. Includes both Customer LOS (e.g., reliability, accessibility) and Technical LOS (e.g., condition grades, response times).
Lifecycle Cost	The total cost of ownership over the life of an asset, including capital, operation, maintenance, renewal, and disposal costs.
Maintenance	Activities to ensure an asset continues to perform as intended (e.g., inspections, minor repairs), usually operational expenses.

Monitoring and Improvement Plan	A systematic approach to updating and enhancing the asset management system and practices over time.
O.Reg. 588/17	Ontario Regulation 588/17 under the Infrastructure for Jobs and Prosperity Act, mandating municipalities to prepare and update AM Plans and report on Levels of Service.
Operations	Regular activities required to provide a service (e.g., running equipment, cleaning, monitoring).
Proposed Level of Service (PLOS)	The future targeted service standard that a municipality aims to achieve through planned lifecycle activities.
Renewal	Significant rehabilitation or replacement activities intended to restore the original service capability of an asset.
Replacement Cost	The estimated cost to replace an asset at current market rates, often used for planning and financial analysis. Inclusive of demolition and/or disposal, design, construction, and soft costs (as applicable)
Residual Risk	The remaining level of risk after risk mitigation measures have been implemented.
Risk Management	The systematic process of identifying, assessing, and mitigating risks to achieve organizational objectives. In AM, it often focuses on risk of asset failure impacting service delivery.
Risk Matrix	A tool that evaluates and visualizes risk based on the likelihood and consequence of asset failure.
Service Attributes	Aspects of service quality used to define LOS such as Capacity, Function, Reliability & Quality, and Affordability.
State of Infrastructure	A snapshot of asset inventory, age, condition, and value to understand the current asset base and forecast future needs.
Tangible Capital Asset (TCA)	Physical assets owned by the municipality that have a significant value and lifespan and are used in the delivery of services.
Technical Levels of Service	Quantitative measures that support Customer LOS by evaluating asset performance, such as condition ratings or failure rates.
Whole-of-Lifecycle Strategy	An approach that considers all stages and costs of an asset's life to determine the most cost-effective management plan.

1 INTRODUCTION

Background

The Corporation of the City of Belleville (City) was created in the 1990's through the amalgamation of the former City of Belleville, the former Township of Thurlow, and a portion of the former Township of Sidney. The City has a population of approximately 58,000 and regionally the population exceeds 220,000. The current and expected growth in population should result in a total population of approximately 63,500 by 2030. As a single-tier municipal government, the City of Belleville is responsible for managing and maintaining critical infrastructure assets. These include transportation networks, potable water treatment and distribution systems, wastewater collection and treatment facilities, stormwater drainage systems, parks and open spaces, harbours, and various public facilities such as arenas, community centres, and public works buildings.

This Asset Management Plan (AM Plan) outlines the framework for achieving proposed levels of service for Belleville residents. It provides a comprehensive analysis of service delivery requirements, lifecycle management activities, and regulatory compliance. Additionally, the plan evaluates the financial resources needed to meet these proposed service levels over a 10-year planning horizon, ensuring a balanced and proactive approach to managing the City's infrastructure and resources.

Alignment with Regulatory Requirements

This 2025 Asset Management Plan (AM Plan) focuses on proposed levels of service (LOS) and serves as an update to the City's 2024 AM Plan. It has been developed to align with the requirements of Ontario Regulation (O.Reg.) 588/17 "Asset Management Planning for Municipal Infrastructure" under the Infrastructure for Jobs and Prosperity Act, 2015. By July 2025, O.Reg. 588/17 mandates that municipalities adopt an AM Plan addressing proposed LOS for all asset categories and identifying the lifecycle activities required to achieve those levels of service.

In compliance with O.Reg. 588/17, this AM Plan is publicly available on the City's website alongside supplementary documents, including condition assessments and other relevant background information.

Relationship with Other Municipal Documents

Asset management planning is a medium to long-term planning activity that relies on input from strategic planning activities and informs shorter-term decision making. The AM Plan provides a framework to validate the City's budgeting processes and assist in prioritizing work activities, including capital projects, based on risk. It also discusses LOS that support goals in the City's Strategic Plan and lifecycle management strategies intended to reduce the overall cost of asset ownership.

The AM Plan is intended to be read with other City policies and planning documents, including the following:

- Policies
    - Strategic Asset Management Policy
    - Budget and Financial Controls Policy
    - Reserve and Reserve Fund Policy
    - Municipal Debt Financing Policy
    - Tangible Capital Asset Policy
- Strategic Plan (2012 – 2032)
- Official Plan
- Loyalist West Secondary Plan Update (2022)
- Multi-year Accessibility Plan (2023-2027)
- 5-Year Corporate Energy Conservation and Demand Management Plan (2019, to be updated)
- Operating and Capital Budgets
- Fire Master Plan (2024)
- Transportation Master Plan (2014, being updated in 2024)
- Transit Operational Review (2023)
- Water Financial Plan (2025)
- Wastewater Financial Plan (2025)
- Wet Weather and Wastewater Servicing Master Plan (2019)
- Parkland and Recreation Master Plan (2021).
- Corporate IT Master Plan (2024)
- Development Charge Background Study

Key Stakeholders

Key stakeholders in the preparation and implementation of this AM Plan are shown in Table 1-1 below.

Table 1-1 Key Stakeholders in the AM Plan

Key Stakeholder	Role in Asset Management Plan
City of Belleville Mayor and Council	Approves asset management policies and asset funding allocation through the annual corporate budget process. An overarching expectation of a standard of care is required by Council to ensure commitment to effective asset management practices.
Senior Leadership Team (SLT)	Provides corporate oversight to the program to ensure that the goal and directions of the Corporate Asset Management program are maintained, and the program remains consistent with the overall Strategic Plan.
Finance Committee	Reviews the Strategic Asset Management Policy, Asset Management Plan, and Annual Draft Capital Budgets. Makes recommendations to Council and provides oversight and direction on strategy, performance metrics, policy, and procedural development surrounding asset management. Works with SLT to coordinate the update of the Asset Management Plan.

AM Working Group	Provides leadership and strategic direction for supporting systems/processes specific to the delivery of asset/work management information for the City of Belleville. Further, in support of the city-wide asset management strategies, the group provides leadership and governance to the Asset Management Policy statement through the provision of information necessary for the long-range forecasts of asset investment needs, services levels, risks, costs and other performance measures.
Departments	Provide input data, forecasts and text for the AM Plan relative their service and program area or area of functional expertise.
Service Boards	Provide input data, forecasts and text for the AM Plan relative their service and program area or area of functional expertise. The Service Boards incorporated in this AM Plan include the Belleville Police Service Board and the Library Service Board.

Goals and Objectives of Asset Ownership

The City exists to provide services. Some of these services are provided by infrastructure assets or systems of assets. The City acquires infrastructure assets by purchase, by contract, construction by City staff, and by donation of assets constructed by developers and others to maintain existing levels of service as well as meet increased levels of service.

The goal in managing infrastructure assets is to meet the defined level of service (as amended from time to time) in the most cost effective manner for present and future consumers.

The key elements of infrastructure asset management are:

- Providing a defined level of service and monitoring performance
- Managing the impact of growth through demand management and infrastructure investment
- Taking a 'lifecycle approach' to developing cost-effective management strategies for the long-term that sustainably meet the defined level of service
- Identifying, assessing and appropriately controlling risks
- Linking to a long-term financial plan which identifies required, affordable expenditure and how it will be financed.

Key elements of the planning framework are:

- **Levels of service:** organizational goals for assets, asset systems, and service areas, specifying the services and expected quality or performance to be provided. This includes both current and proposed levels of service as mandated by O.Reg. 588/17, ensuring that service expectations align with community needs and regulatory requirements.
- **Future demand**: expected impacts to future service delivery and strategies to meet the increased demand while considering how proposed levels of service will be achieved.
- **Lifecycle management**: strategies for managing existing and future City assets to provide both current and proposed levels of service effectively and sustainably.
- **Financial management**: what funds are required to provide the defined services over the planning period, including those necessary to meet proposed levels of service.
- **Asset management practices**: how the provision of services is managed to ensure compliance with proposed levels of service and continuous improvement.
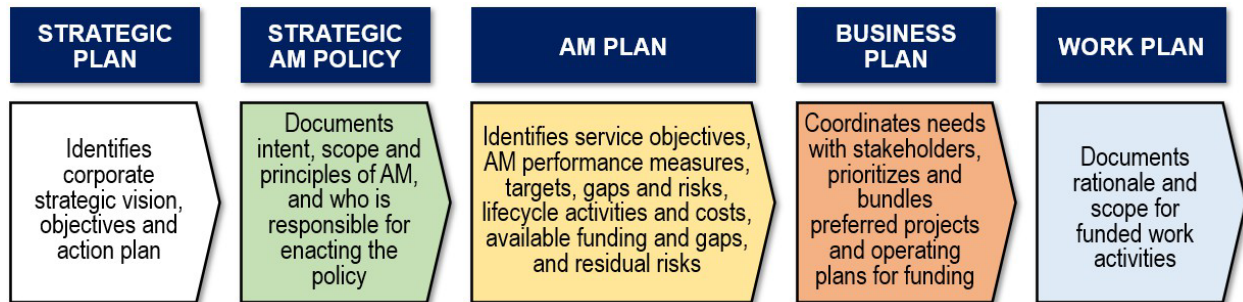
- **Monitoring and improvement plan**: how the plan will be updated and improved to ensure objectives are met, including meeting proposed levels of service and increasing asset management practice maturity throughout the organization.

Corporate Asset Management System

An Asset Management System aims to achieve a line of sight between and strategic alignment with the overall goals of an organization. These include corporate strategic goals outlined in the strategic plan and master plans, as well as operational plans, policies and procedures, as illustrated in Figure 1-1. The Strategic AM Policy, initially completed in 2019 and formally reviewed and updated in 2024, establishes the framework for asset management at the City of Belleville. It defines the policy's intent, scope, and guiding principles while clearly outlining the responsibilities for its implementation. The objectives of the Strategic AM Policy are to:

- Provide a consistent framework for implementing asset management throughout the organization.
- Provide transparency and accountability and to demonstrate to stakeholders the legitimacy of decision-making processes which combine strategic plans, budgets, service levels and risks.

Figure 1-1 Strategic Plan Line-of-Sight to Work Plan

STRATEGIC PLAN	STRATEGIC AM POLICY	AM PLAN	BUSINESS PLAN	WORK PLAN
Identifies corporate strategic vision, objectives and action plan	Documents intent, scope and principles of AM, and who is responsible for enacting the policy	Identifies service objectives, AM performance measures, targets, gaps and risks, lifecycle activities and costs, available funding and gaps, and residual risks	Coordinates needs with stakeholders, prioritizes and bundles preferred projects and operating plans for funding	Documents rationale and scope for funded work activities

Organization of Document

The contents of this AM Plan follow the recommended elements of a detailed AM Plan:

- **Introduction:** Outlines scope, background information, relationship to other Municipal documents and plans, and applicable legislation
- **State of Infrastructure:** Summarizes the inventory, valuation, condition and remaining life of the assets in the inventory by service and asset type
- **Levels of Service:** Defines levels of service through performance indicators and targets, and outlines current and proposed performance
- **Lifecycle Management Strategy:** Defines the framework for identifying critical assets and quantifying risk to enable prioritization of lifecycle activities, and summarizes the asset management strategies (i.e., planned actions) that will enable the assets to provide the required levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost
- **Financing:** Estimates the predicted funding available to asset management activities as well as the funding required to maintain levels of service. Summarizes the infrastructure gap based on these determined infrastructure needs and associated budgets. Identifies

strategy for closing the infrastructure gap while considering capital investment levels as outlined in the City's 10-Year Capital Plan.

- **AM Plan Improvement and Monitoring:** Summarizes the next steps including improving future iterations of the AM Plan and monitoring of AM Plan implementation progress.

2 STATE OF INFRASTRUCTURE

The State of Infrastructure section of the AM Plan describes the City's asset inventory, and provides a snapshot in time of the valuation, age and condition of its assets. Recommendations for the sustainment of data collection and reporting are provided in the AM Plan Improvement and Monitoring section.

Asset Hierarchy and Inventory

Understanding the assets owned by the City that are used to support each major service area is important to enable their effective and efficient management. In this AM Plan, the City's asset inventory has been organized around the major service groups and program areas shown in Table 2-1 in the following sub-section.

Most infrastructure assets owned by the City are included and organize into linear networks, facilities, fleet, equipment, and information technology. Leasehold improvements in facilities not owned by the City are not included. Land is generally not included in the current replacement costs of the asset inventory. Data and information are considered important assets to an organization and were utilized in the development of this AM Plan; however, due to the subjectivity of importance and value, are not currently included as assets in this Plan.

Asset Valuation

Financial accounting valuation uses historical costs and depreciation assumptions to determine the book value of capital assets in accordance with the Public Sector Accounting Board (PSAB). Policies and procedures relating to the development of net book values for accounting purposes have been developed by the City to comply with PSAB 3150 Tangible Capital Assets (TCA) reporting.

While financial accounting valuations are based on historical costs, managerial accounting valuations are based on replacement costs. For some asset types, the replacement values were calculated using historical costs indexed to December 31, 2024 using the Non-Residential Building Construction Price Indices (NRBCPI) or Consumer Price Index (CPI), as appropriate for the asset type. For the most part, replacement values are benchmark values calculated from current and previous construction year contracts. The replacement cost valuation represents the estimated cost to replace assets today and is presented in current (2024) dollars and does not account for future technology improvements but does account for increased regulatory requirements and technology improvements to date.

The estimated current replacement value of City assets is **$3.67** billion presented in current (2024) dollars, as outlined in the following table. For a detailed summary of the assets covered in this AM Plan refer to Section 7 Service and Program Area Details.

Table 2-1 Assets covered by this AM Plan

Service Area	Program Area	Assets	Replacement Value (2024$M)	RV (%)
General Government	Shared Facilities	City Hall, City Professional Building (Storam), Log Cabin - Chamber Of Commerce	$36.65	1.0%
	Shared IT	IT Equipment, SAN, Servers, Switches & WIFI, UPS, Software	$2.43	0.1%
	Parking	Parking Equipment (Lighting, Signs), Parking IT (Meters, Pay Machines), Parking Fleet	$2.96	0.1%
Fire and Emergency Services	Fire	Aerials, Pumper (Urban, Rural), Rescue Vehicle (Urban, Rural), Tankers, Light Vehicles, Equipment, Boats and Trailers, Fire Facilities, Fire IT (Corporate)	$48.86	1.3%
Belleville Police Service	Police	Police Fleet, Police Equipment, Police Bikes, Police IT, Police Facility	$49.01	1.3%
Transportation & Operations Services	Roads	Paved Urban: Arterial (HCB), Collector (HCB), Local (HCB), Paved Semi-Urban & Rural: Arterial (HCB), Collector (HCB), Collector (LCB), Local (HCB), Local (LCB), Paved Other	$416.51	11.3%
	Bridges and Culverts	Bridges, Structural Culverts, Non-Structural Culverts	$281.89	7.7%
	Traffic & Operations	Sidewalks & Active Transportation, Roadside - Other, Signage, Traffic & Pedestrian Signals, Streetlights, Traffic IT, Fleet & Equipment, Traffic and Operations Facilities	$463.97	12.6%
	Transit	Conventional Transit Facilities, Fleet, Equipment, Non- Conventional Transit Fleet, Transit IT (Program Area), Transit Facilities	$38.92	1.1%
	Parks	Park Amenities, Park Infrastructure, Parks Transportation, Parks Equipment, Parks Fleet, Horticulture, Parkland, Parks Facilities	$90.57	2.5%
	Waste Management	WM Facilities (Program Area), WM Fleet, WM Equipment, WM Other, WM Facilities (Corporate)	$3.31	0.1%
Environment Services	Water	Water Valves, Water Hydrants, Water Services, Watermains, Water Fleet and Equipment, SCADA, Water Treatment Plants, Water Meters	$721.16	19.6%
	Wastewater	Force/Pressure Mains, Sanitary Mains, Laterals & Appurtenances, SCADA, WW Fleet & Equipment, Sewage Pumping Stations, Wastewater Treatment Plant	$606.47	16.5%
	Stormwater Management	Storm Mains, Appurtenances, Stormwater Management Ponds, Stormwater Pumping Station	$616.99	16.8%
Community Services	Recreation	Recreation Facilities, Recreation Fleet & Equipment	$222.73	6.1%
	Harbours	Harbour Facilities, Docks, Boat Launches, Boats and Trailers, Fuel Tanks, Security Gates, Meyers Pier	$29.74	0.8%
	Cultural	Culture Facilities	$14.87	0.4%
Belleville Library	Library	Belleville Public Library	$28.84	0.8%
Total			$3,673.68	100%

Asset Age and Remaining Life

Understanding the estimated life of an asset and the proportion of life that remains provides an insight into potential risk of asset failure and potential renewal need. The following graph shows, for each program area, the average age of the assets against the average estimated useful life, in years. Averages are "weighted" by replacement cost to give more importance to asset types with more value. Although some of the City's assets are relatively new due to recent growth driven by population and economic demands, many others are reaching the middle to late stages of their useful lives. However, asset age does not always directly correlate with condition, as some may have undergone repairs or upgrades in recent years without full replacement. As a result, a combination of condition assessments and lifecycle analysis is essential to determine which assets will require rehabilitation or replacement in the coming years. The assets shown as red are beyond their expected service life, including historic buildings and some harbour assets.

Figure 2-1 Asset Life Consumed Profile, By Program Area
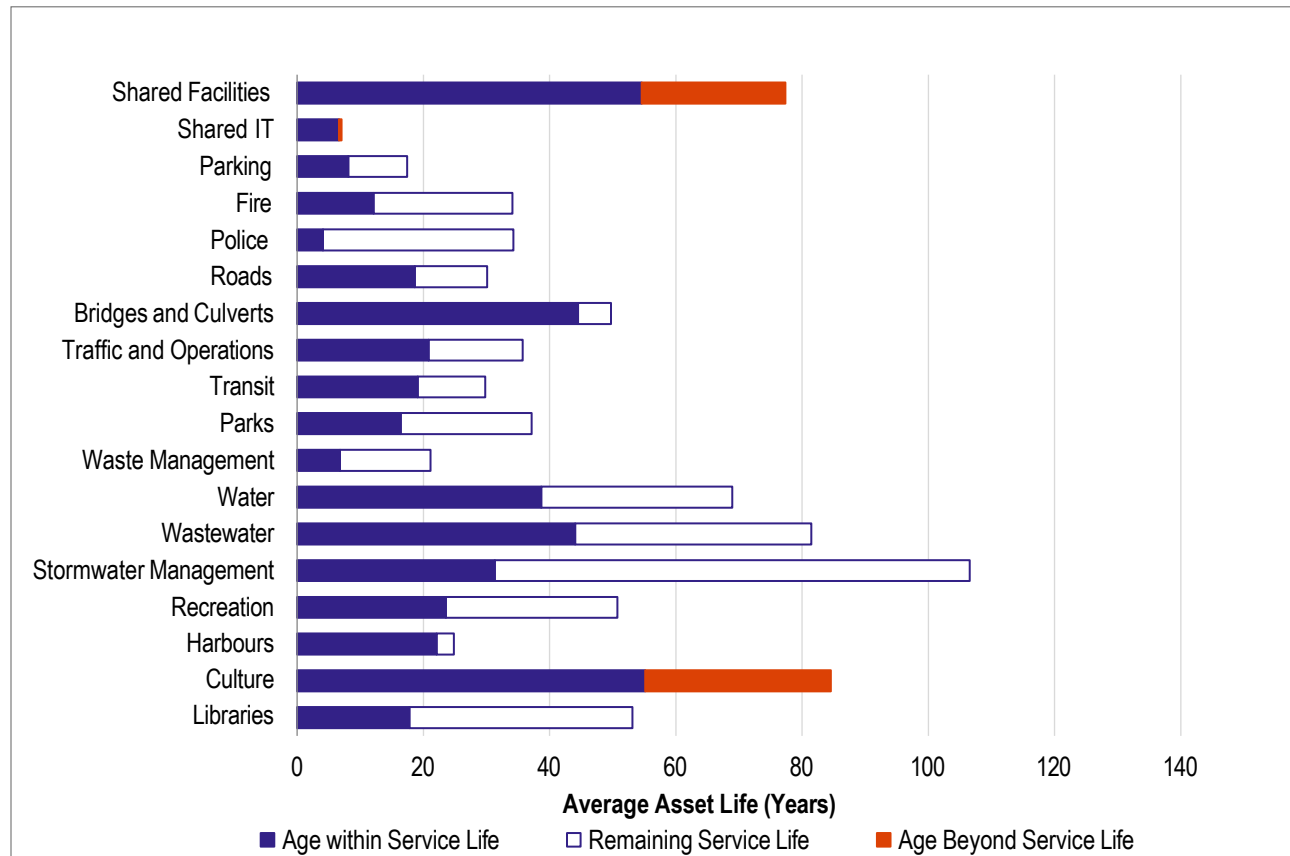
Asset Condition

In this AM Plan, the term "condition" refers to the degree of physical deterioration of an asset. "Performance" is a more general term that typically describes an asset's ability to achieve levels of service through measures such as capacity, function and operational quality.

Condition assessment programs evaluate current physical condition, determine rate of deterioration over time, enable forecasts of future condition, and inform the most beneficial type and timing of treatment. Condition assessment methods and rating systems have become relatively standard for some assets but vary depending on the type of asset. The City conducts inspections more frequently on more critical assets such as bridges and structural culverts, while condition assessments are undertaken for less critical assets such as parking lots and recreational trails at an appropriate frequency for the asset group. Some City assets have no reported physical condition. These include assets which the City is in the process of collecting the data, assets where the renewal decision is not based on condition (e.g. age or mileage), and assets that are run-to-failure.

For those assets with no condition data, age-based condition is estimated as the percentage of age to expected useful life. Using age data as a surrogate for condition data is common in municipal organizations, but it can be misleading as age does not always directly reflect condition or remaining life. The City is actively working to enhance the percentage of assets with industry-standard condition assessment data through recently completed initiatives, such as portfolio-wide Building Condition Assessments (BCAs), as well as ongoing initiatives, including CCTV assessments for the wastewater and stormwater networks and an updated Road Needs Study (RNS) for the road network.

To enable comparison of condition and condition trends over time between different asset types, a generic condition grading scale is often used to translate detailed engineering data about assets into information that can be compared across asset groups. For this purpose, the City uses a five-point condition grading system, summarized in the table below, which is consistent with the general condition grading system included in the International Infrastructure Management Manual (IIMM).

Table 2-2 Five-Point Condition Grading System

Grade	Description	Condition Criteria	Criteria Description
VG	Very Good	Fit for the future	Well maintained, good condition, new or recently rehabilitated
G	Good	Adequate for now	Acceptable, generally approaching mid-stage of expected service life
F	Fair	Requires attention	Signs of deterioration, some elements exhibit deficiencies
P	Poor	Increasing potential of affecting service	Approaching end of service life, below standard, significant deterioration
VP	Very Poor	Unfit for sustained service	Near or past service life, advanced deterioration, assets may be unusable

Details relating to the condition of each asset are currently maintained in various databases and spreadsheets. The City converts industry standard condition rating systems and age-based assets to the above condition grading system as provided in the table below.

Table 2-3 Conversion of Industry Condition to Five-Point Condition Grade

Condition Grade	Five Point Condition Scale	Pavement Condition Index (PCI)	Bridge Condition Index (BCI)	% Life Remaining for Age-Based "Condition"
Very Good (New)	1	85 to 100	> 80 to 100	75 to 100%
Good	2	70 to < 85	> 70 to 80	50 to 75%
Fair	3	55 to < 70	> 60 to 70	25 to 50%
Poor	4	40 to < 55	> 50 to 60	0 to 25%
Very Poor (End-Of-Life)	5	0 to < 40	0 to 50	<= 0%

The following graph depicts, by colour, the value of assets that fall within each of the condition grades (very good or new, good, fair, poor, very poor or end-of-life), organized by program area. The total replacement value of assets within each service area is shown to the right of the condition grade bar.

Figure 2-2 Asset Condition Grade Profile, By Program Area
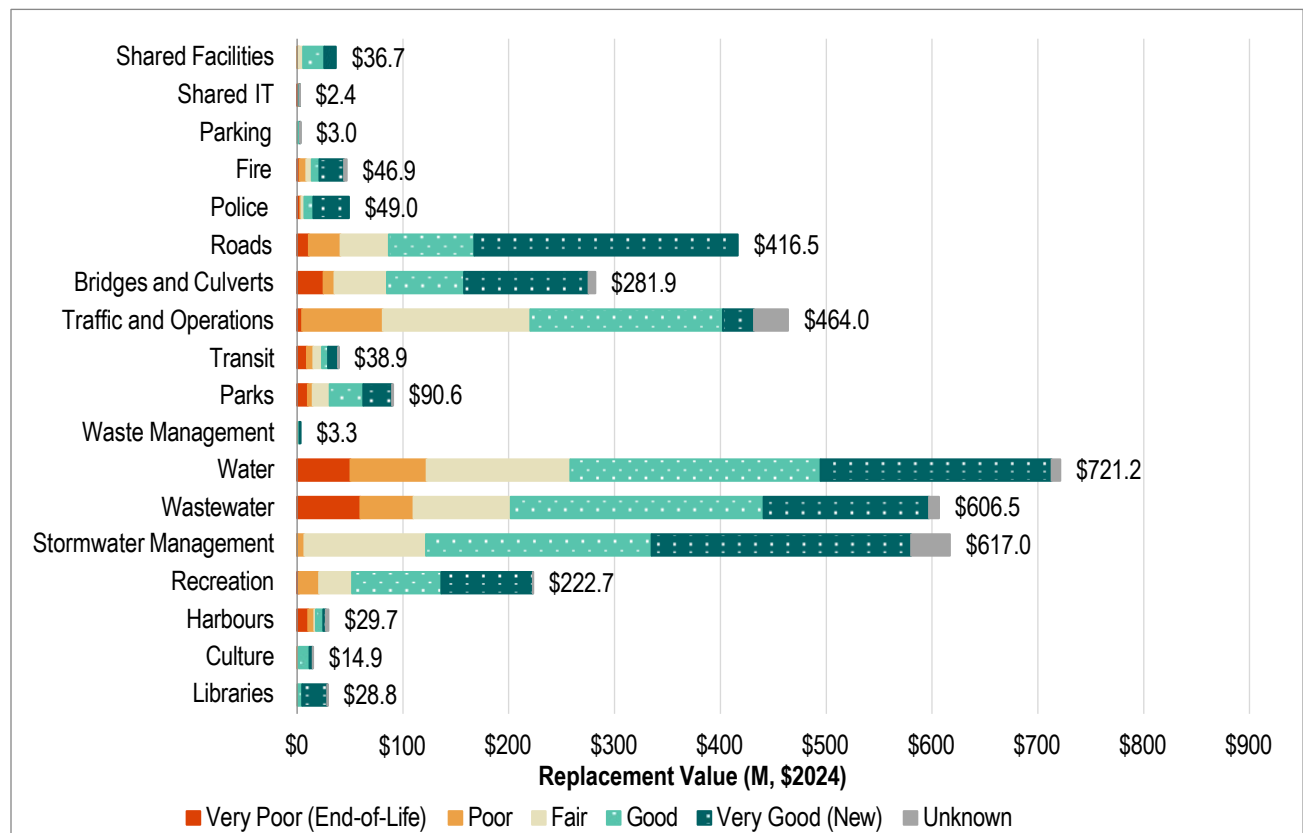
To adequately meet service levels and manage risk while minimizing lifecycle costs, most assets should generally be preserved in fair or better condition. The above figures show that the majority of the City's assets – in fact **84%** – are in fair or better condition based on weighted value. Assets in poor or very poor condition require increased attention and renewal investment (i.e., funding and staff resources) to avoid increased maintenance costs and/or unexpected failure. The assets that are currently in poor or very poor condition are typically those that are included in 10-year capital renewal programs and budget forecasts.

3 LEVELS OF SERVICE

Overview

One of the basic principles of sound asset management practice is to describe the levels of service the current and future community want and are prepared to pay for, and the associated lowest cost to deliver those levels of service. Performance management is the systematic and cyclical process of identifying objectives, collating information regarding the achievement of those objectives, reporting the information in a meaningful way, and using the information to improve delivery of services to the community.

Monitoring the City's performance against defined levels of service helps to improve the City's service delivery by focusing program activities and assets on priorities, and identifying under-performance so that it can be addressed. Performance measures or indicators are used for this purpose.

GOOD PERFORMANCE MANAGEMENT

Helps the City to
- improve service delivery
- demonstrate affordability
- provide accountability to the community

Current Services and Programs

The City provides the following scope of services to the community that are included in the AM Plan:

Service Area	Program Area
General Government	• **Parking:** Provides safe and accessible parking facilities and manages parking infrastructure. It also maintains parking lots, street parking spaces and associated assets in a state of good repair.
Information Services	• **Information Technology:** Supports the organization by developing, operating and maintaining the City's technology networks and software, and distributing and maintaining end-user devices. Maintains and oversees functions of network management, data management, cybersecurity, application support, communication systems, online service management, and GIS.

Fire and Emergency Services

- **Fire:** Provides fire and emergency response services to the City's nearly 60,000 citizens. Ensures the safety and well-being of residents by assessing and managing risks and providing community education on fire safety. Maintains the assets to provide services in a state of good repair.

Community Services

- **Facilities Management:** Supports the organization by developing, operating and maintaining corporate administration offices, leased office space, mixed-use facilities, and facilities for other service areas. Tracks the environmental impacts of City energy use and works to mitigate them, reduces net operating costs through energy management, and promotes sustainable practices.
- **Recreation and Harbour Services:** Provides spaces and programs that foster community engagement and social interaction through recreational and educational programs
- **Cultural Services**: supports and promotes artistic and cultural initiatives within the community, fostering creativity, heritage preservation, and community engagement. Maintains assets in a state of good repair.

Library Services

- **Library Services**: Supports and inspires lifelong learning, creativity, growth, and success by providing equitable access to information, print and digital resources, technology, and the arts in a welcoming environment. Maintains library assets in a state of good repair.

Belleville Police Service

- **Belleville Police Service:** Provides crime prevention and law enforcement to the City's nearly 60,000 citizens. There are some 170 dedicated sworn and civilian members who serve the City's diverse communities, ensuring that our neighbourhoods, roads and schools are safe for all residents, which includes 98 officers. Maintains the assets to provide services in a state of good repair.

Transportation and Operational Services

- **Roads, Bridges and Culverts:** Assists in the safe and efficient transport of people and goods through interconnecting roads between urban and rural areas. Maintains the road network, including bridges and culverts, in a state of good repair.
- **Roadside and Traffic Operations:** Develops, operates and maintains roadside infrastructure including sidewalks, bicycle lanes, intersections, signage and illumination. Also provides winter control.
- **Fleet and Equipment:** Acquires, maintains and disposes of the City's fleet and equipment for other program areas.
- **Transit:** Provides reliable, convenient and seamless travel across the City through both conventional and specialized mobility transit services. Maintains the transit assets in a state of good repair.
- **Parks:** Develops, operates and maintains parkland, open spaces, forests and outdoor park recreation facilities, amenities, infrastructure and transportation assets.
- **Waste Management:** Manages curbside collection of blue box, green bin, yard waste and residual waste, and delivers the materials to facilities for processing, energy recovery and/or disposal.

Environmental Services

- **Water:** Secures, treats and protects drinking water and distributes it to residents and businesses. Maintains water assets in a state of good repair.
- **Wastewater:** Collects wastewater from residents and businesses, conveys it through trunk sewers to wastewater treatment plants before releasing it to the environment. Maintains wastewater assets in a state of good repair.
- **Stormwater Management:** Provides safe and effective drainage and preserves water quality through natural and engineered linear networks and facilities. Maintains storm networks in a state of good repair.

Legislative Requirements

There are many legislative requirements relating to the management of assets. Legislative requirements that impact the delivery of City services are outlined in **Table 3-1**.

Table 3-1 Legislative Requirements

Legislation	Requirement
Municipal Act, 2001	The main statute governing the creation, administration and government of municipalities in Ontario, other than the City of Toronto.

Ontario Regulation 588/17 The Infrastructure for Jobs and Prosperity Act, 2015	Sets out the principles for the provincial government to regulate asset management planning for municipalities.
Accessibility for Ontarians with Disabilities Act (AODA)	Develops, implements, and enforces accessibility standards to achieve accessibility for Ontarians with disabilities with respect to goods, services, facilities, accommodation, employment, buildings, structures, and premises on or before January 1, 2025.
Public Sector Accounting Board Standard 3150	Standards on how to account for and report on tangible capital assets in government financial statements.
O.Reg. 104/97, Standards for Bridges	Requires municipalities to undertake an inspection, under the direction of a Professional Engineer, for every bridge and major culvert at least once every two years in accordance with the *Ontario Structure Inspection Manual*.
Minimum Maintenance Standards for Municipal Highways (MMS) Regulation 239/02 Routine Patrol	Sets out the standard for the frequency of patrolling of highways to check for conditions described such as snow, ice, potholes, cracks, etc.

Legislation	Requirement
Highway Traffic Act R.R.O. 1990 Reg. 615: Signs	Sets out the standard for the erection and maintenance of signs.
Highway Traffic Act R.R.O. 1990 Reg. 626: Traffic Control Signal Systems	Sets out the standard for the erection and maintenance of traffic control signal systems.
Highway Traffic Act R.R.O. 1990	Sets out fleet and equipment inspection requirements Reg. 174/22: Classes of Vehicles Requiring Annual and Semi-Annual Inspections Reg. 611: Safety Inspections Reg. 199/07: Commercial Motor Vehicle Inspections Reg. 587: Equipment
Ontario Traffic Manual Book 18: Cycling Facilities	Provides guidelines for developing municipal cycling facilities.
Ministry of Transportation: Transit-Supportive Guidelines	Provides processes for planning Complete Streets.
Technical Standards and Safety Act, 2000	Sets out the technical standards and safety regulations to enhance public safety by providing for the efficient and flexible administration of various industries or equipment.
Fire Protection and Prevention Act, 1997	Sets out the legislative and regulatory framework for the establishment of fire protection in Ontario, which is a mandated municipal responsibility.
Ontario Building Code Act, 1992	The legislative framework governing the construction, renovation and change-of-use of a building in Ontario. The Ontario Building Code, a regulation under the Act, establishes detailed technical and administrative requirements and minimum standards for building construction in public health and safety, fire protection, structural sufficiency, construction materials, plumbing and mechanical systems.
Safe Drinking Water Act, 2002, S.O. 2002, c. 32	Requires that all municipal drinking water systems obtain approval from the Director of MOE to operate, and operators must be trained and certified to provincial standards. Provides a framework for testing with legally-binding standards for contaminants in drinking water and the mandatory use of licensed and accredited laboratories for drinking water testing. The Drinking Water Quality Management System (DWQMS) Operational Plan sets out the required service levels related to water systems.

Environmental Protection Act	The primary pollution control legislation in Ontario. Prohibits discharge of any contaminants to the environment that cause or are likely to cause adverse effects. Amounts of approved contaminants must not exceed limits prescribed by the regulations. Requires that spills of pollutants are reported and cleaned up promptly. Has the authority to establish liability on the party at fault.
Ontario Water Resources Act	Focuses on both groundwater and surface water throughout the province. Regulates sewage disposal and "sewage works" and prohibits the discharge of polluting materials that may impair water quality.
Lakes and Rivers Improvement Act	Introduced in 1990 to protect the province's surface water resources. The Act regulates the public and private use of Ontario's lakes and rivers, including the construction, repair and use of dams.
Navigable Waters Act	Includes protections for navigation on all navigable waters in Canada.

Legislation	Requirement
Federal Fisheries Act	Updated in 2019 to provide better support the sustainability of Canada's marine resources for future generations. Regulations aim to reduce impacts of pollution from wastewater systems into receiving waters (e.g. rivers, lakes, oceans) by setting national minimum effluent quality standards achievable through secondary-level (physical and biological) wastewater treatment and removes up to 95% of pollutants typically found in wastewater. The standards include limits on key substances that are indicators of overall effluent quality and treatment effectiveness: carbonaceous biochemical oxygen demand; suspended solids; total residual chlorine and un-ionized ammonia. In addition, the standards require that wastewater effluent be not acutely lethal to fish based on standard testing methodologies.
Public Pools Ontario Regulation	Regulates public pools and all buildings, appurtenances and equipment used in the operation of public pools.
Standards for Community Museums in Ontario (Ontario Museum Standards)	Outlines the minimum requirements for the operation of a good community museum.

Legislated Community Levels of Service

Legislated requirements define the standards according to which the City is legally obligated to provide services to the community. The City delivers services in adherence to applicable legislative requirements, including required compliance monitoring and reporting. Many legislated levels of services relate to service and asset safety and reliability. Information on regulatory inspections is contained within various databases and maintained by City staff at the operational level to ensure legislative compliance. It is typical that details of compliance be held at the operational level, but the reporting that confirms that the City complies is reported at a higher level.

Corporate community performance, in the format required by Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure, is provided in the Appendix.

Strategic and Corporate Goals

The 2012 to 2032 Strategic Plan outlines the vision, mission and corporate operating principles, and strategic themes. The Strategic Plan's nine strategic themes and their strategic objectives are provided in Table 3-2.

Table 3-2 Corporate Strategic Themes

Theme	Definition	Objectives
Infrastructure	We need to protect our investment in existing infrastructure through proper maintenance and provide for growth of the community through extension and expansion of infrastructure as required.	• Develop asset management strategies and programs to resolve delivery shortfalls and protect our investment in existing infrastructure • Plan for and invest in new or expanded infrastructure to establish sufficient capacity to provide for growth of our community. • Invest in new infrastructure technologies to maximize efficiencies and better serve our citizens.
Industrial and Commercial Development	We need to establish a foundation for economic prosperity in the future and ensure jobs are created for our citizens.	• Ensure suitable serviced employment lands are available to meet the needs of all potential industrial and commercial investments • Market the City's unique strengths to attract leading-edge industries that provide high paying job opportunities • Encourage remediation and redevelopment of underutilized lands • Create initiatives that support an available skilled labour force, immigration and innovation, including programs to retain youth in the community
Growth and Housing	We need to ensure a full range of housing options is available to meet the housing needs of our residents and to provide for growth of the community.	• Plan for residential growth to meet our needs for 20 years and designate sufficient land in our planning documents to accommodate residential growth for 10 years • Provide for a variety of housing forms to reflect out changing demographics and need for affordability
Transportation and Mobility	We need to ensure our citizens and businesses have access to and benefit from a full range of transportation alternatives in context with the changing needs of the community.	• Plan and develop a safe and efficient road and transportation system that addresses the needs of our residents and businesses • Develop a viable, affordable and accessible public transit system that addresses the needs of our citizens • Plan and develop transportation networks for cyclists and pedestrians • Encourage and support development and upgrading of transportation systems and networks beyond City limits that address the needs of our citizens and businesses in an environmentally sustainable/progressive manner
City Centre Sustainability	We need to improve the image of the City, counter urban decay and create an environment that will stimulate investment, create job opportunities and strengthen the City's regional role.	• Encourage the creation of a vibrant downtown, accented with pedestrian-friendly services and unique residential and commercial opportunities • Promote the City's core as a place for government, financial, legal and related services • Ensure a strong partnership with the DBIA • Ensure the preservation of Heritage

Theme	Definition	Objectives
Arts, Culture and Recreation	We need to create opportunities for residents to participate in meaningful arts, cultural and recreational activities and enhance the City's quality of life and lifestyle including stimulation of community pride.	• Develop multi-purpose, marketable sports and recreation facilities • Plan and develop a parks system with facilities and services that promote health and wellness and address the needs of an aging population on our youth • Support a culturally diverse community • Support the arts and preservation of our heritage • Promote beautification of the community through excellence in urban design
Destination City	We need to stimulate new investment and job creation in the tourism sector and improve the image of our community through an enhanced waterfront.	• Promote and support the development of attractions, events, facilities and services that will draw visitors to the community. • Encourage the creation of a vibrant waterfront based on recreation and entertainment, accented with unique commercial and residential opportunities.
Community Health, Safety and Security	We need to ensure our residents are safe and secure and to foster a caring, responsive, and inclusive community that is compassionate to the needs of all of its citizens.	• Support the establishment of responsive emergency and protective services with strong emphasis on prevention and preparedness to respond to emergencies • Support the provision of programs and services to reduce incidence of crime • Support and advocate for the establishment of responsive public health services and accessible medical care • Encourage development of a viable social safety net
Environment	We need to protect and enhance the quality of our natural environment to ensure there is clean water and air and a livable environment, for the benefit of current residents and future generations.	• Provide facilities and support initiatives that reduce water and air pollution and limit noise and light pollution and ensure the availability and security of a safe drinking water supply • Promote energy conservation and use of alternative forms of energy • Provide and support effective solid waste management practices that include enhanced waste diversion initiatives • Preserve prime agricultural lands and support the development of viable agricultural activities • Provide facilities and support initiatives that reduce water, air, light, noise and greenhouse gas pollution

Customer and Technical Levels of Service

Customer LOS measure how the customer receives the service and whether value to the customer is provided. Figure 3-1 shows that Corporate LOS commitments and the legislated LOS referenced by them drive the definition of more specific Customer (also known as Community) LOS, which can be categorized as relating to one of the following service attributes:

• **Capacity:** Measures that reflect whether the service and supporting assets are of sufficient capacity to meet user demand both now and in the future.

  - Does the City need more or less of these services and assets?

• **Function:** Measures that reflect the suitability of the services, operations and assets for the user or other stakeholder.

  - Do they meet the needs of the community?

- Do they meet regulatory requirements including those for health and safety, environmental protection and barrier free access?
- Do they support the City's strategic priorities?

- **Reliability & Quality:** Measures that reflect whether services and supporting assets are reliable, available when needed, and responsive to customers.
  - Are assets maintained and renewed to ensure a state of good repair (i.e., condition)?
  - Are services continuous?
  - Is the community involved in planning, treated respectfully and responded to promptly?

- **Affordable:** Measures that reflect whether services and supporting assets are adequately funded in both the short and long term.
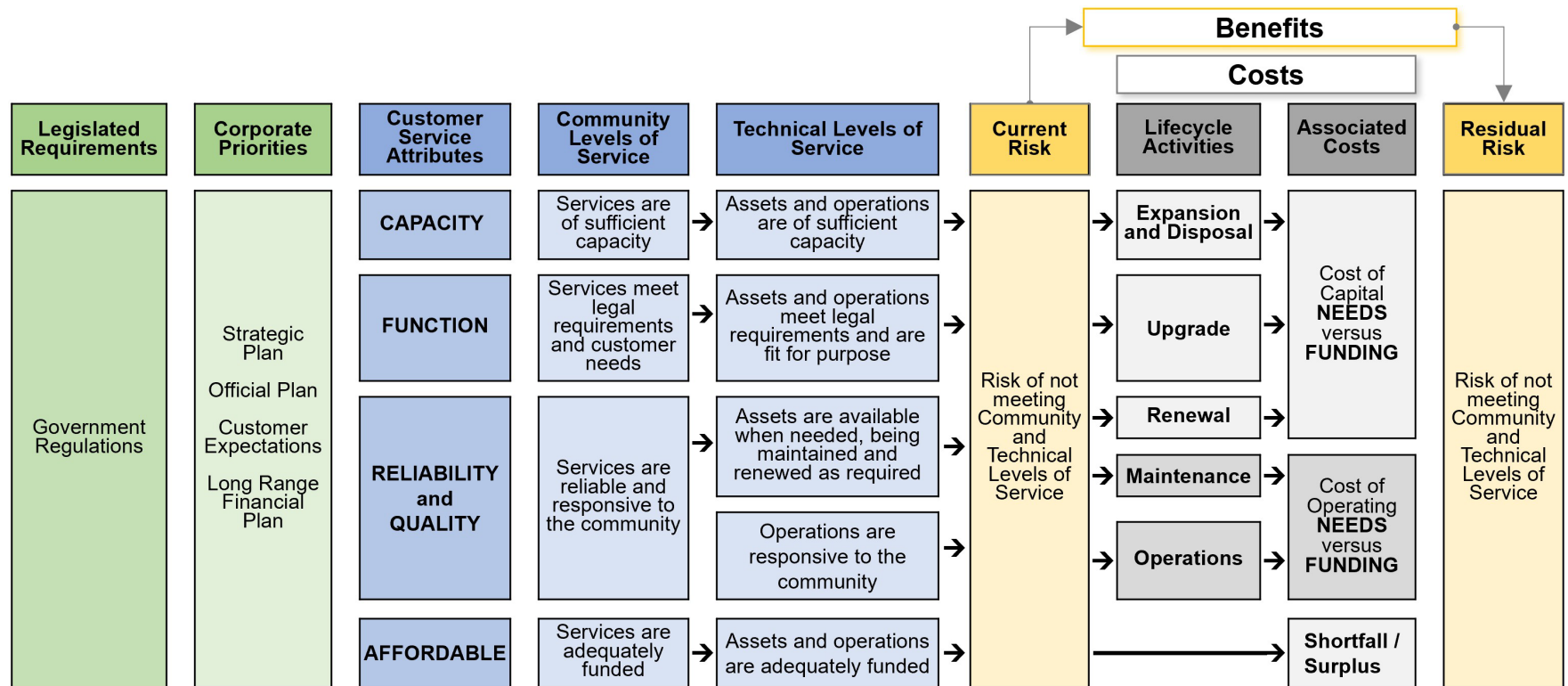
Technical LOS measures support the customer LOS. They relate to the allocation of resources to service activities to best achieve the desired customer outcomes and demonstrate effective performance.

Customer LOS are translated into Technical LOS, where:

- **Capacity LOS** drive assessment of expansion needs
- **Function LOS** drive assessment of upgrade needs
- **Reliability & Quality LOS** drive assessment of renewal, maintenance and operations (and programming) needs
- **Affordability LOS** drive assessment of financial sustainability of asset ownership relative to the asset needs and projected funding adequacy.

The risks of failing to achieve the defined Customer and Technical LOS are assessed, and lifecycle activities are prioritized to address those risks. Lifecycle activities may include expansion, upgrade, renewal, maintenance or operational activities, depending on the category of LOS to be addressed. In some cases, lifecycle activities address several Customer and Technical LOS. For example, a project at the water pollution control plant may simultaniously increase capacity, make upgrades to meet regulatory requirements, and renew existing equipment. The nature of the lifecycle activity determines whether it should be funded as capital or operating, as well as eligible funding sources. As shown in the figure below, even after the lifecycle intervention, some residual risk may remain.

Figure 3-1 Levels of Service Framework

Framework columns: Legislated Requirements | Corporate Priorities | Customer Service Attributes | Community Levels of Service | Technical Levels of Service | Current Risk | Lifecycle Activities | Associated Costs | Residual Risk

- **Legislated Requirements:** Government Regulations
- **Corporate Priorities:** Strategic Plan, Official Plan, Customer Expectations, Long Range Financial Plan
- **Customer Service Attributes:** CAPACITY, FUNCTION, RELIABILITY and QUALITY, AFFORDABLE

Customer Service Attributes	Community Levels of Service	Technical Levels of Service
CAPACITY	Services are of sufficient capacity	Assets and operations are of sufficient capacity
FUNCTION	Services meet legal requirements and customer needs	Assets and operations meet legal requirements and are fit for purpose
RELIABILITY and QUALITY	Services are reliable and responsive to the community	Assets are available when needed, being maintained and renewed as required
		Operations are responsive to the community
AFFORDABLE	Services are adequately funded	Assets and operations are adequately funded

Current Risk: Risk of not meeting Community and Technical Levels of Service

Lifecycle Activities: Expansion and Disposal, Upgrade, Renewal, Maintenance, Operations

Associated Costs: Cost of Capital NEEDS versus FUNDING; Cost of Operating NEEDS versus FUNDING; Shortfall / Surplus

Benefits / Costs

Residual Risk: Risk of not meeting Community and Technical Levels of Service

Customer Research and Expectations

Resident, business, and other stakeholder input is sought during the update of the City's Strategic Plan, Official Plan, Master Plans and annual budgets. This includes public opinion and stakeholder group surveys that collect information about user service patterns, behaviours and preferences today and potentially in the future. This customer research provides insight into citizens' and other stakeholders' needs and perceptions related to areas of improvement.

The City sought community feedback on the proposed levels of service through a community engagement survey in Q1 of 2025, from which the following trends were identified in the results:

Current Service Levels

Most respondents (75%) were generally satisfied or neutral with the City's service levels, though a quarter expressed dissatisfaction. Roads emerged as the top priority, followed by Fire & Emergency Services, Police, Water, Parks, and Traffic Operations.

Proposed Services Levels

Many respondents were unsure whether the PLOS and asset profiles were adequate. While most suggested that service level changes were not necessary, Roads was identified as the asset category requiring the most improvement.

Levy Increases and Spending Reductions

Opinions on tax increases were split, with half opposing to additional levies. When asked about potential areas for reduced investment, respondents most often identified City Facilities, Cultural/Museum Services, and Police.

Staff will continue to collect and consider feedback received from the community in asset management planning, while also maintaining alignment with the Strategic Asset Management Policy and industry best practices.

Current and Proposed Performance

In an asset management plan, community levels of service refer to the qualitative measures that reflect how well an asset supports the community's needs and expectations. These are often expressed in terms of accessibility, reliability, safety, and overall user satisfaction. For example, a community level of service for a road network might specify minimal traffic disruptions and well-maintained surfaces to ensure safe travel. In contrast, technical levels of service are quantitative, data-driven metrics that underpin the community goals. They outline performance criteria like pavement condition index, response times for maintenance, or water main breaks per kilometer. Together, these levels ensure that the proposed service requirements align with stakeholder priorities while being supported by measurable, actionable performance indicators.

This AM Plan summarizes performance on both the current and proposed measures for 2024, unless otherwise noted. For community and technical LOS specific to each Service Area, refer to each individual divisional summaries in Chapter 7.

Factors Impacting Levels of Service Performance

External trends and issues affecting expected levels of services or the City's ability to meet the defined levels of services include the following.

- Population and employment changes (e.g. growth, demographics), which will impact infrastructure use.
- Changes in expectations for programs or patterns of use from the public, which will impact infrastructure use and revenue for services.
- Potential changes in technology or methods, which may replace obsolete equipment, provide longer asset life, and/or achieve higher quality and greater efficiencies.
- Potential changes to the cost of input variables (e.g. cost of power, fuel), which will impact costs to deliver the services.
- Infrastructure failing prematurely due to environmental factors and/or construction practices requiring renewal much earlier than the expected life of the asset.
- Availability of external funding (e.g. federal and provincial infrastructure programs), which may affect the infrastructure improvement activities that can be undertaken.
- Unexpected downloading of services by more senior levels of government.
- Popularity of sustainability initiatives and "greening" trends (e.g. LEED, electrification and GHG reduction).
- Climate change, including changing storm events and patterns (e.g., higher frequency and intensity of storms), which will impact the infrastructure.
- Potential changes in Federal or Provincial legislation.

4 ASSET MANAGEMENT STRATEGY

The Asset Management Strategy section of the AM Plan describes the framework that the City uses to identify critical assets and quantify risk to enable prioritization of lifecycle activities, and summarizes the asset management strategies (i.e., planned actions) that will enable the assets to maintain the current levels of service in a sustainable way, while managing risk, at the lowest lifecycle cost.

Overview of AM Strategy Development

Monitoring the City's performance against defined levels of service helps to improve the City's service delivery by identifying under-performance so that it can be addressed. Assessing the risks associated with failing to achieve the defined Customer and Technical LOS helps to prioritize lifecycle activities and minimize residual risks.

To achieve its program objectives, the City builds new infrastructure assets to meet growth needs and manages existing assets to meet reliability needs – all with limited funds.

Asset lifecycle management strategies are typically organized into the following categories:

- **Non-asset solutions** – actions or policies that can lower costs or extend asset life (e.g., better integrated infrastructure planning and land use planning, demand management, insurance, process optimization, managed failures).

- **Growth or expansion** – activities to provide a new asset that did not exist previously (e.g. a new library) or an expansion to an existing (e.g., widening a road, replacing a pipe with a larger size).

- **Upgrade or enhancement** – activities to provide a higher level of service capability from an existing asset to achieve better fit for purpose (e.g., sealing an unsealed road) or to meet regulatory or corporate requirements.

- **Renewal** – activities that return the original service capability of an asset (e.g. the lining of iron watermains to defer the need for replacement or replacing an existing bus with a new bus).

- **Maintenance** – activities to retain asset condition to enable it to provide service for its planned life (e.g. road patching, unsealed road grading, building and structure repairs), including regularly scheduled inspection and maintenance, or more significant repair and activities associated with unexpected events.

- **Operations** – regular activities to provide services (e.g., using / running a piece of equipment, cleaning, provision of energy)

- **Disposal** – activities associated with disposing of an asset once it has reached the end of its useful life, or is otherwise no longer needed by the municipality.

The City assesses the costs of potential lifecycle activities to determine the lowest lifecycle cost strategy to manage each asset type. The sum of all asset lifecycle management strategies informs the minimum cost to sustain each asset type, for each service area (i.e. the whole of lifecycle cost). Failing to take care of assets can impact the total cost of ownership for that asset and can also have other impacts such as causing interruption to service delivery, damage to other infrastructure, health and safety, environmental and/or social impacts.

Risk Assessment

4.1.1 Management Framework

Risk management refers to the management of uncertainty on business objectives. For this AM Plan, risk management was guided by the ISO 31000 Standard for Risk Management, which provides globally accepted principles and guidelines for risk assessment.

The ISO 31000 Risk Management Standard outlines the steps involved in Risk Management as shown in Figure 4-1.

Figure 4-1 ISO 31000 Risk Management Process
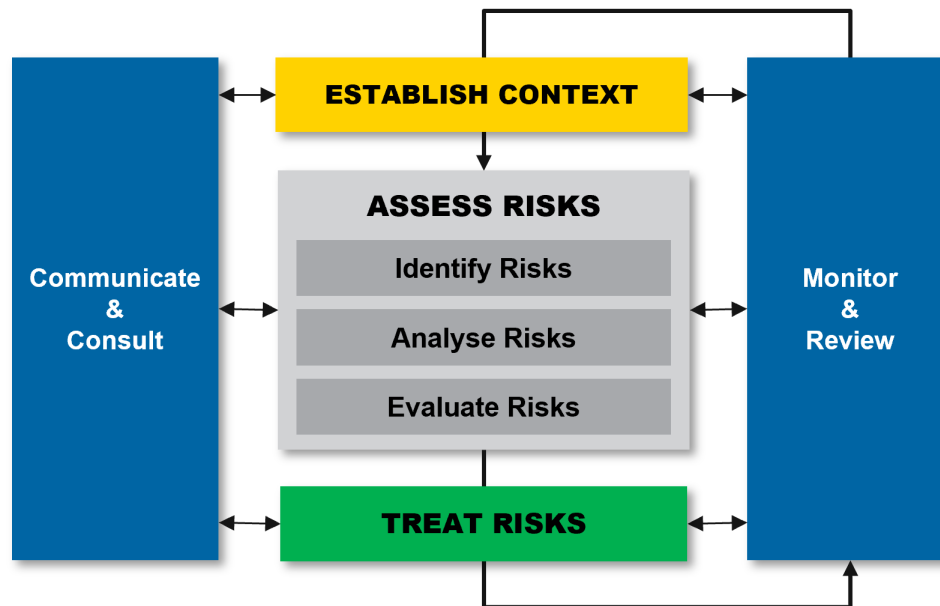
- **Establish Context** – the environment in which the City seeks to define and achieve its objectives
- **Identify Risks** – that could affect achievement of City's LOS
- **Analyze Risks** – estimate the level of a risk by approximating likelihood and consequence of occurrence
- **Evaluate Risks** – determine whether or not a specified level of risk is acceptable or tolerable
- **Treat Risks** – select and implement one or more treatment options
- **Monitor and Review** – determine the current status and whether or not required LOS are being achieved
- **Communicate and Consult** – an iterative two-way dialogue between the City and its stakeholders throughout the risk management process.

4.1.2 Risk Context

For this AM Plan, the City defines the risk as the failure to achieve the proposed levels of service.

4.1.3 Risk Assessment

Table 4-1, shown below, presents the **Consequence Rating Criteria** used to determine consequence ratings, which details the ratings for the severity of consequences of risks. For each risk, consequences for the following five consequence categories are considered: service delivery, economic, health and safety, environmental, and social. An overall consequence rating is calculated by taking the highest consequence rating from across the five consequence categories.

Table 4-2, on the following page, presents the **Probability (or Likelihood) Rating Criteria** used to determine the likelihood of occurrence (i.e., the chance of a significant single event or ongoing/cumulative occurrence). The likelihood of occurrence can be defined for each of the three service attributes: capacity, function, reliability.

Table 4-3, two pages ahead, presents the **Risk Evaluation Matrix Framework** that depicts the risk exposure, based on the likelihood of occurrence and overall consequence rating for each risk.

Table 4-1 Consequence Rating Criteria

CoF Score	Consequence (Impacts) of Failure				
	Service Delivery	**Economic**	**Health and Safety**	**Environmental**	**Social**
1	No impact to services or small number of customers experience disruption or impact to non-essential service.	Damages, losses, or fines of under $10,000	No obvious potential for injury or affects to health.	Asset degradation/failure has negligible impact on environment, emissions, and pollution. Impact fully reversible within 1 week.	Event only of interest to individuals. No community concern.
2	Localized service disruption or impact to non-essential services.	Damages, losses, or fines of $10,000-$200,000	Potential for minor injury or affects to health of an individual.	Asset degradation/failure has minor impact to the environment including potential for increased emissions or pollution. Prosecution possible. Impact fully reversible within 3 months.	Minor community interest. Local media report.
3	Significant localized disruption or impact to non-essential services and/or localized disruption to essential services.	Damages, losses, or fines of $200,000-$2,000,000	Potential for serious injury or affects to health of one or more individuals with a possibility of short term disability or hospitalization.	Asset degradation/failure has significant short-term impact to the environment including a likely increase of emissions or pollution. Prosecution probably. Impact fully reversible within 1 year.	There will likely be moderate local media exposure which may last several days. Public Community Discussion. Broad adverse media coverage.
4	Widespread short-term disruption or localized long-term disruption of essential services.	Damages, losses, or fines of $2,000,000-$10,000,000	Potential for serious injury or affects to health of one or more individuals with a possibility of loss of a life.	Asset degradation/failure poses risk of environmental contamination and/or has significant long-term impact. Likely a substantial increase to emissions or pollution. Prosecution expected. Impact fully reversible within 5 years.	There will likely be significant, negative, local or provincial media exposure which may last several days. Loss of confidence in Council. National publicity. Public agitation for action.

5	City-wide or long-term disruption of essential services.	Damages, losses, or fines of over $10,000,000	Potential for death or multiple deaths with probable permanent damage.	Asset degradation/failure poses significant risk to environment including a major long-term impact. Likely to result in contamination. May become of Provincial or Federal importance. Prosecution. Long term study. Impact not fully reversible.	There will likely be significant, negative, national or international media exposure lasting several days or weeks. Public investigation. International coverage. Management changes demanded.

Table 4-2 Probability (Likelihood) Rating Criteria

PoF				Probability (Likelihood) of Failure	
Score	Frequency	Probability	Capacity	Function	Reliability
1	Within 10 to 20 years	0% to 10%	Demand corresponds well with actual capacity and no operational problems experienced. Meets current and future capacity needs within planning horizon.	The infrastructure in the system or network meets all service delivery needs (i.e., health, safety, security, legislative, etc.) in a fully efficient and effective manner.	Asset is physically sound and is performing its function as originally intended. Asset is new or at the beginning of its service life. (< 20% Life Consumed)
2	Within 6 to 10 years	11% to 30%	Demand is within actual capacity and occasional operational problems experienced.	The infrastructure in the system or network meets service delivery needs (i.e., health, safety, security, legislative, etc.) in an acceptable manner.	Asset is physically sound and is performing its function as originally intended. Typically, asset has been used for some time but is within mid-stage of its expected life. (20% < Life Consumed <=40%)
3	Within 3 to 5 years	31% to 60%	Demand is approaching actual capacity and/or operational problems occur frequently. Meets current capacity needs but not future without modifications.	The infrastructure in the system or network meets service delivery needs (i.e., health, safety, security, legislative, etc.) with some inefficiencies and ineffectiveness present	Asset is showing signs of deterioration and is performing at a lower level than originally intended. (40% < Life Consumed <=60%)
4	Within 2 years	61% to 80%	Demand exceeds actual capacity and/or significant operational problems are evident.	The infrastructure in the system or network has a limited ability to meet service delivery needs (i.e., health, safety, security, legislative, etc.).	Asset is showing significant signs of deterioration and is performing to a much lower level than originally intended. (60% < Life Consumed <=80%)

5	Within 1 year	81% to 100%	Demand exceeds actual capacity and/or operational problems are serious and ongoing. Does not meet current capacity requirements.	The infrastructure in the system or network is seriously deficient and does not meet service delivery needs (i.e., health, safety, security, legislative, etc.) and is neither efficient nor effective.	Asset is physically unsound and/or not performing as originally intended. Asset has reached end of life and failure is imminent. (> 80% Life Consumed)

Table 4- summarizes the City's Risk Evaluation Matrix, based on the likelihood of occurrence and overall consequence rating for each risk, for all service and program area assets. Risk Evaluation Matrices, by service and program area, are provided in Section 7 Service and Program Area Details.

Table 4-3 Risk Evaluation Matrix ($M)

Note that the total value of assets captured within the risk matrix does not align with the total value of the City's asset portfolio, with a total difference of approximately 150 million dollars worth of assets. This is a result of instances where assets could not be assigned a probability of failure rating due to lack of available condition assessment information or data to support proxy methodology. Assets with unknown risk scores include roadside culverts, boat launches, stormwater appurtenances, guardrails, and streetlight poles. Assets with insufficient information available to assign a risk score are identified as an opportunity for improvement in their according subsection in Section 7 of this report.

A breakdown of the current replacement value of Very High risk exposure assets are listed in Table 4-4 below.

Table 4-4 Very High Risk Exposure Assets by Program Area

Program Area	CRV($2024M)	% of Assets in Program Area
Shared Facilities	$0.45	1.2%

Program Area	CRV($2024M)	% of Assets in Program Area

Shared IT	$1.77	72.1%
Parking	$0.00	0.0%
Fire	$5.51	12.4%
Police	$3.91	8.0%
Roads	$2.73	0.7%
Bridges and Culverts	$25.00	9.1%
Traffic and Operations	$71.32	16.5%
Transit	$14.06	36.1%
Parks	$1.69	1.9%
Waste Management	$0.00	0.0%
Water	$20.98	2.9%
Wastewater	$3.35	0.6%
Stormwater Management	$0.00	0.0%
Recreation	$2.07	0.9%
Harbours	$15.05	55.5%
Cultural - Museums & Historic	$0.00	0.0%
Library	$0.00	0.0%
TOTAL	**$167.89**	**4.7%**

Transit, Traffic and Operations, and Harbour asset categories have the highest risk exposure relative to their category. Assets driving the high rates of risk exposure include Buses, Signalized Intersections, and Meyers Pier, respectively. The City is currently implementing strategies for addressing these high risk areas including a bus replacement program, signalized intersection upgrades, and evaluating feasible options for Meyers Pier.

Asset Management Strategies

The City uses its understanding of current service delivery gaps and potential future gaps to inform the timing, location and amount of needed investments in infrastructure assets. The City aims to provide sufficient service capacity to meet demand and manages the condition and renewal of assets to sustain defined service levels, including meeting legislated and other corporate requirements.

4.1.4 Growth and Expansion Strategies

Roughly 58,000 people currently live in the City of Belleville, of which about 35,000 are employed. The population grew by 2.6% from 2011 to 2016 and by 8.6% from 2016 to 2021.

The expected distribution of population and employment growth for the City are as follows:

Table 4-5 2022 Population Employment Growth Forecasts, to 2051

	2021	2031	2041	2051
Population (1)	56,550	64,270	70,820	75,190
Employment (2)	31,700	36,400	39,300	41,000

(1) excluding Institutional Population
(2) including no fixed place of work
Reference: Belleville Population, Housing and Employment Growth Forecast Update, 2022

The following graph depicts population growth, incorporating Census data with the 2022 Population, Housing & Employment Growth Forecast Update for the City of Belleville. The population is forecast to increase by 13.6% over the 10 year AM Plan period of 2024 to 2034.

Figure 4-2 Population Growth Forecasts
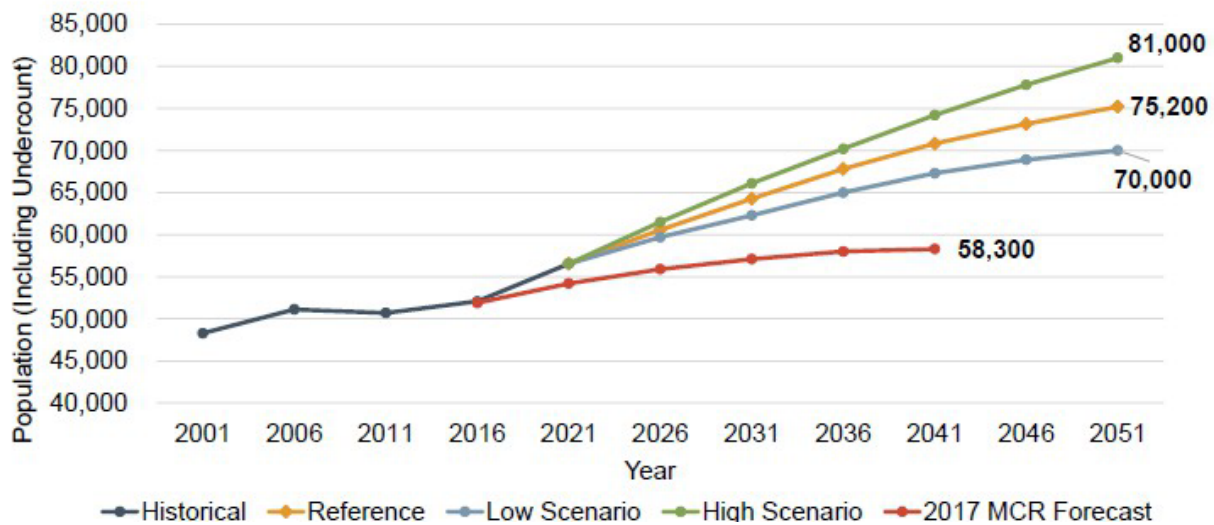
The graphic presents historical population data alongside growth forecast scenarios extending to the year 2051. This forecast includes the total population and is used to inform long-range infrastructure and service planning.

- **Low Scenario**: Projects a population of 70,000 by 2051. This scenario assumes slower economic and development activity.

- **Reference Scenario**: Represents the most likely trajectory based on current trends and planning assumptions, projecting a population of 75,200.

- **High Scenario**: Reflects a more optimistic outlook assuming accelerated development and migration, reaching 81,000 by 2051.

Population growth and its geography have major impacts on the scale of services delivered by the City and the assets that support that service delivery. The City invests in roads, transit, water and wastewater systems and other infrastructure to serve both existing and new housing, commercial and other development. Servicing growth requires significant infrastructure investments.

The City's approaches to accommodate growth needs are described in the Official Plan and include consultation with the public and other stakeholders. For many service areas, master plans propose new or expanded assets and non-asset solutions to address current and forecast future capacity performance gaps. Where no service area master plan growth forecast exists or it is deemed no longer current or has no associated costs, the 2021 Development Charge Background Study is used to provide a growth forecast. For some service areas, the asset portfolio is forecast to expand over the next 10 years at the same rate as the forecast growth in population.

4.1.5 Upgrade and Enhancement Strategies

Upgrade and enhancement activities provide a higher level of service capability from an existing asset to achieve a better fit for purpose (e.g., sealing an unsealed road) or to meet regulatory or corporate requirements such as for health, safety, and environmental protection.

In many cases, service area master plans include both upgrade and enhancement strategies. In addition, the City produces functional needs plans that apply across the corporation. Examples include the Multi-year Accessibility Plan (2023-2027) and the 5-Year Corporate Energy Conservation and Demand Management Plan (2019). These plans provide upgrade and enhancement needs forecasts. As it is common for growth and upgrade strategies to be undertaken simultaneously, these lifecycle strategies are often reported together. Summaries of the needs to accommodate growth and upgrade of assets, by program area, are provided in Section 7 Service and Program Area Details.

4.1.6 Renewal Strategies

All assets physically deteriorate at different rates to reach eventual failure and loss of ability to deliver the required levels of service. The City invests in condition assessments to gain the critical knowledge needed to understand where the assets are in their lifecycles and identify performance gaps.

For each identified renewal performance gap, technically feasible lifecycle options are assessed to determine the lowest cost solution to adequately address the gap. For each asset type, the City develops an asset renewal strategy that identifies the frequency and cost of activities that provide the defined level of service, at the lowest lifecycle cost. The renewal strategies are applied to the asset portfolio over time to determine the program of renewal activities and the amount that must be invested in the City's asset portfolio to sustain current service levels.

For some asset types, such as most fleet and information technology assets, the renewal strategy is very simple – replace the asset at the end of its useful life. For other asset types, such as a facility or roadway pavement, the renewal strategy is much more complicated. For a facility, there are hundreds if not thousands of individual components, some of which may be rehabilitated or replaced numerous times throughout the life of the facility. For roadway pavement, there are numerous treatment types and they may each only be applied a limited number of times throughout the life of the pavement, and only under certain conditions.

Summaries of the City's strategies to renew aging assets are described in Section 7 Service and Program Area Details. Over time, as the City refines the asset management strategies through optimization analyses, the tracking of condition against targets and the application of renewal activities to meet defined levels of service becomes more routine.

4.1.7 Operations and Maintenance Strategies

The distinction between renewals (which are capital works) and maintenance (which is an operational expense) is set by accounting policies and standard operating procedures. Maintenance ensures the asset continues to deliver defined levels of services, while renewals can extend the asset's useful life. Renewals and maintenance are strongly linked; maintenance strategies can hasten or delay the need for renewals, and, if renewals are deferred, maintenance needs will often increase.

Asset operations and maintenance requirements and required resources are assessed and prioritized based on:

- Carrying out legislated operations and maintenance activities to ensure safety and environmental sustainability in accordance with appropriate regulations.
- Conducting routine and preventative maintenance activities to ensure preservation of existing assets.
- Analysis of current operations and maintenance contracts and known historical costs of delivering defined levels of services to forecast future operations and maintenance costs. For example, in some cases operations and maintenance costs increase at the rate of inflation, and in other cases such as energy and oil for pavement, costs have increased significantly more over time than the overall rate of inflation.
- Assessing consequential operations and maintenance requirements of significant new or upgraded infrastructure planned for the asset portfolio.

The level of expected population and asset portfolio growth will place significant pressure on the capacity of existing operations and maintenance. Consequential operational expenditure is the operations and maintenance cost associated with new and upgraded assets. For example, for a new facility, the costs of electricity, natural gas and routine maintenance all contribute to the consequential operational expenditure associated with that new asset. These costs will be incurred by the City into the future for as long as the facility is in use. For most assets, a good estimate of the consequential operational expenditure required to operate and maintain the new assets is simply the existing operations and maintenance cost multiplied by the growth factor.

Summaries of the operations and maintenance strategies, by program area, are provided in Section 7 Service and Program Area Details.

5 FINANCING STRATEGY

Introduction

The purpose of a financial strategy is to provide a path to financial sustainability.

Financial sustainability involves managing service levels, infrastructure and financial assets in both the short and the long term. A municipality is considered financially sustainable if:

- Its tax effort and other revenues are commensurate with its level of service aspirations
- It can adjust its capital plan, operating programs and service levels in response to changes in economic conditions or transfer payments
- It can keep its infrastructure in a state of good repair and replace it at the right time
- It can achieve intergenerational equity (i.e., share financial responsibility fairly between current and future tax- and rate-payers)
- It can accommodate growth without unpalatable tax levy, user rate, or debt increases
- It can sustain service levels as the municipality continues to grow.

Potential risks to achieving municipal financial sustainability include:

- A mismatch between level of service aspirations and fiscal capacity
- Uncertainty in the future cost of needed infrastructure investments
- Unforeseen shocks to revenue, such as an economic downturn or a reduction in transfer payments
- Growth that does not materialize as expected.

Intergenerational equity has profound implications for municipal finance. As infrastructure is less expensive in the early part of its lifecycle compared to the latter parts when rehabilitation and replacement expenses occur, today's generation of tax- and rate-payers pay significantly less than the true cost of their use of infrastructure. The implication for municipal finance is that robust saving for future asset management needs is a matter of intergenerational fairness.

The elements of a sound municipal financial strategy are:

- **Manage the capital plan:** to balance delivery ability and short-and long-run financial capacity. Define future short and long term AM renewal needs and begin saving now in attempt to mitigate intergenerational inequity. Define the financial impact of the shortfall, including the impact to tax levy and user fees, and develop a plan to address it.
- **Manage reserves:** aggressively build reserves, particularly for future asset management needs and contingencies (and potentially for shortfalls in DC collections)
- **Manage debt:** manage debt levels for strategic investment in infrastructure while adhering to policy limits
- **Enhance revenue:** identify additional sources of revenue and advocate for financial assistance from applicable upper levels of government.

Needs Forecasts

5.1.1 Capital Needs Forecast

Note that the graphs shown in the following subsections are plotted using a constant vertical axis scale to show the relative scale of growth, renewal and operating needs forecasts. Growth activities only occur once in the lifecycle of each asset, while renewal and operating costs are required in perpetuity to support service delivery. Summaries of the capital needs forecasts, by program area, are provided in Section 7 Service and Program Area Details.

Capital Needs Forecast for Growth and Upgrade

To meet the increases in demand for services, the City constructs new and upgrades existing assets within the portfolio, in addition to implementing non-asset strategies. To meet demand for functional improvements to services, the City upgrades the suitability of assets within the asset portfolio.

The projected capital outlays needed to maintain the current capacity and function levels of services covered by this AM Plan for each of the next 10 years are shown as the dark-coloured solid bars in the following graph. These forecasts are for City constructed works and are generally based on the implementation plans outlined in the 10-Year Capital Plan, driven by data from Asset Management as well as various Master Plans and the 2021 Development Charges Study. Upgrades to existing infrastructure capacity are anticipated to be required to continue to meet demand includes upsizing the Avonlough Sewage Pumping Station and immediately associated linear infrastructure, sanitary sewer oversizing and extensions, and enhancements to the Wastewater Treatment Plant. In addition to the necessary improvements to existing infrastructure to accommodate growth, it will also be necessary to construct and procure new assets to support City expansion such as additional conventional buses, playgrounds and other park amenities, roads, bridges and culverts, and more.

For reference, the lighter coloured solid bars provide historic expenditures. The dashed black line is the average needs forecast over the 10 year period and the solid red line is the average available funding forecast.

Figure 5-1 Annual Capital Growth and Upgrade Needs Forecast (M$2024)

CITY-WIDE

Legend:
- Growth Needs Forecasts
- Growth Expenditure Actuals
- 10-Yr Avg Annual Growth NEEDS Forecast ($38.8M)
- 10-Yr Avg Annual Growth FUNDING Forecast ($10.9M)
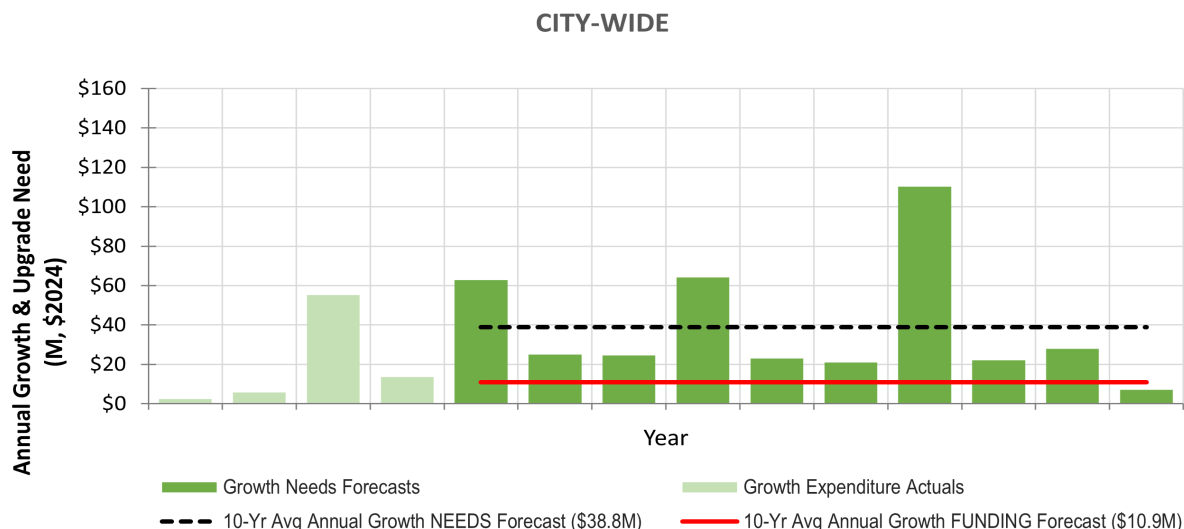
Capital Needs Forecast for Renewal

Renewal efforts focus on rehabilitation and replacement activities to enable the City to meet its quality and reliability service levels. The renewal activities forecasted in this AM Plan maintain asset condition over the next 10 years. Over time, as the City refines the asset management strategies through tracking of actual condition, costs, and benefits of the strategies, the City will improve its understanding of the deterioration rates and the lowest lifecycle cost for each asset type. Where appropriate, the City considers coordinating multiple activities across asset areas through project bundling to reduce total costs.

Rehabilitation activities extend the life of an asset and reduce its risk of failure. These activities and associated benefits are deemed more cost effective than allowing the asset to reach its end of life.

At a certain point in an asset's lifecycle, it is no longer cost-effective to rehabilitate the asset, and replacement is required. The City has identified estimated service lives for each of its assets. These replacement intervals are developed to minimize lifecycle costs while considering service levels and the associated risk. The renewal forecast considers the asset's current condition or age, the planned rehabilitation and replacement activities.

Figures 5-2 to 5-5 below present renewal and condition forecasts for two scenarios:

Scenario 1: Maintaining the Current LOS

This scenario shows renewal activities that would be required to prevent the current renewal backlog from growing (or maintaining the condition service level of assets not being in Very Poor condition).

According to Figure 5-2 below, the forecasts for the maintain current LOS scenario:

- The average annual renewal need to maintain the current LOS is **$24.8 million**

Figure 5-2: 10-Year Capital Renewal Needs Forecast – Maintain LOS ($M2024)
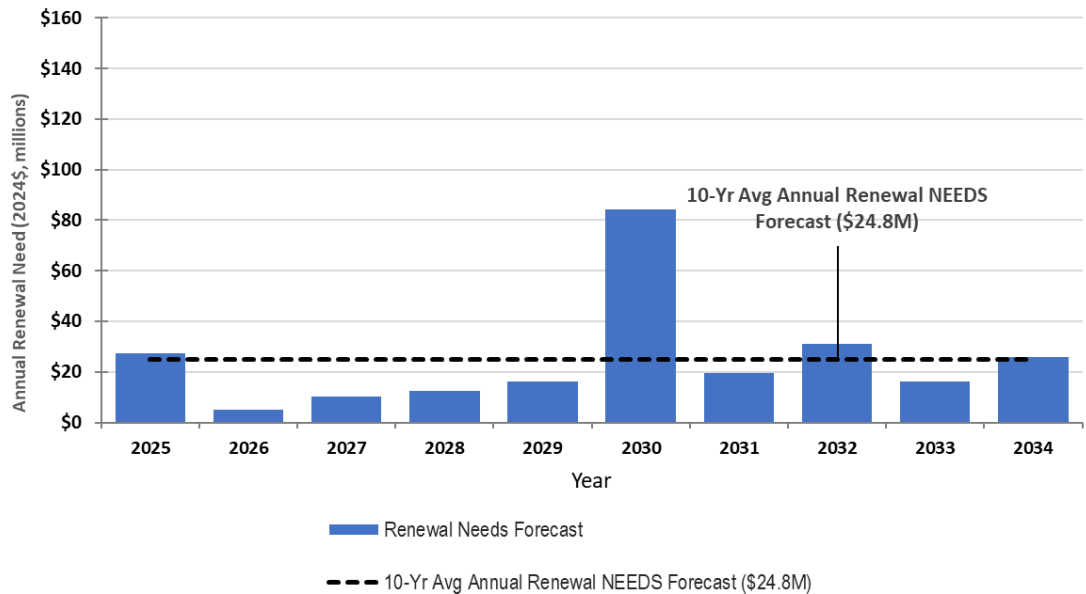
Figure 5-3 below shows the forecast condition distribution associated with spending level in Figure 5-2 (Maintaining Current LOS Scenario).

Figure 5-3: Condition Forecast – Maintain LOS ($M2024)
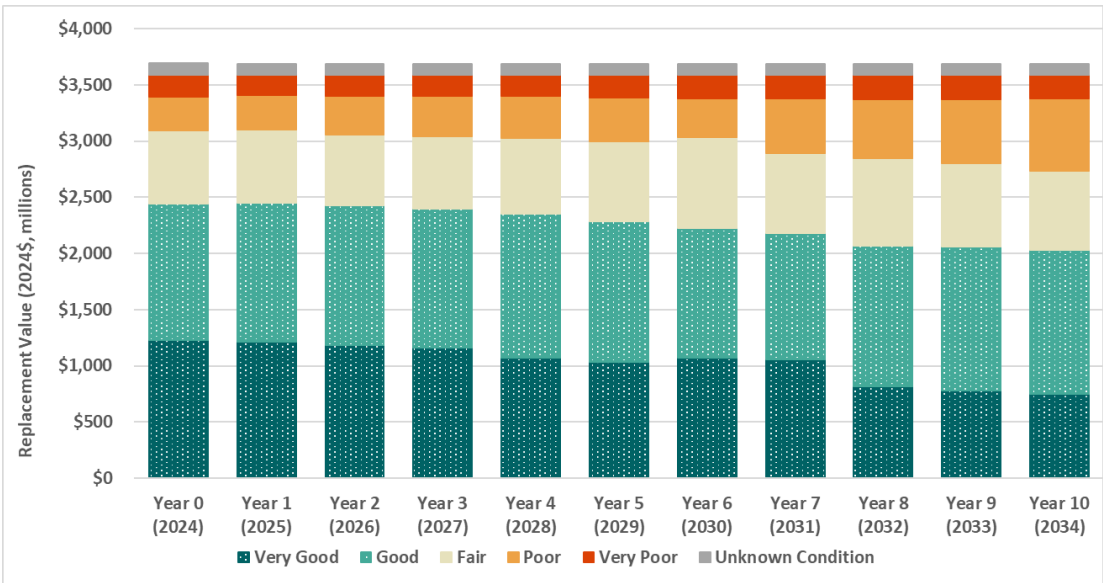
Scenario 2: Proposed LOS

This scenario shows the impact to the condition of the City's asset portfolio based on the set proposed service levels. Service levels were set considering many factors, one being the projected (i.e., expected) funding available from the 10-year Capital Plan.

According to Figure 5-4 below, the forecasts for the projected funding scenario are as follows:

The average annual need is based on the projected funding of $46 million dollars, which is in line with the projected budget amounts. Lower risk renewal activities are deferred into the future, outside the 10-year analysis period window, to achieve this level of funding.

Figure 5-4: 10-Year Capital Renewal Needs Forecast – Proposed LOS($M2024)
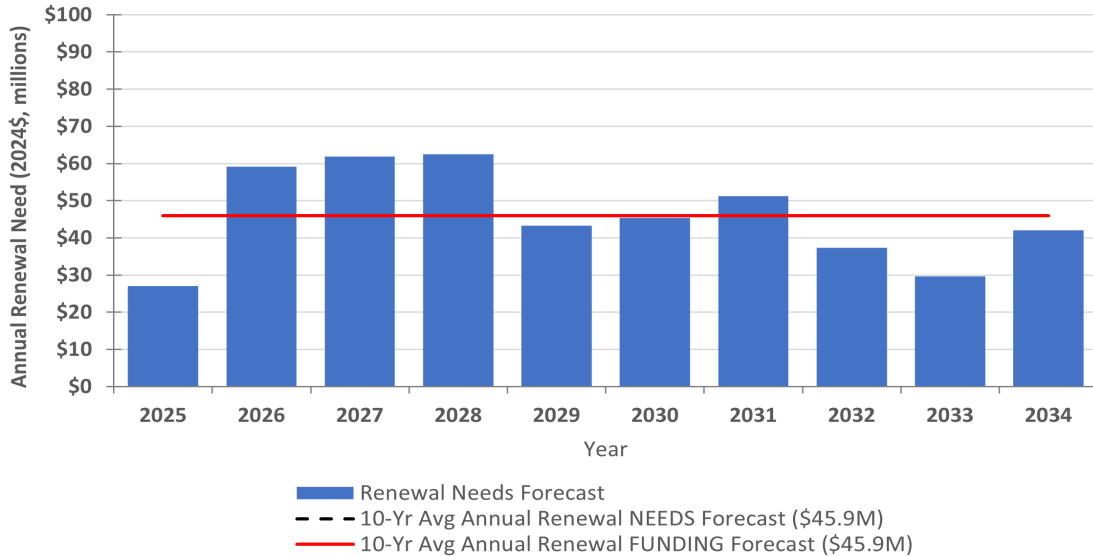
Figure 5-5 below shows the forecast condition distribution associated with spending level in Figure 5-4 (Proposed LOS Scenario). The graph shows that the projected funding is insufficient to address the current backlog which will increase the number of fair, poor and very poor assets over time. If assets are not renewed when required, the probability of their failure increases. Depending on the asset type and failure context, an asset failure may result in various negative impacts, such as service disruptions, injuries to employees and the public, or reputational harm to the organization.

Figure -5: Condition Forecast – Proposed LOS ($M2024)
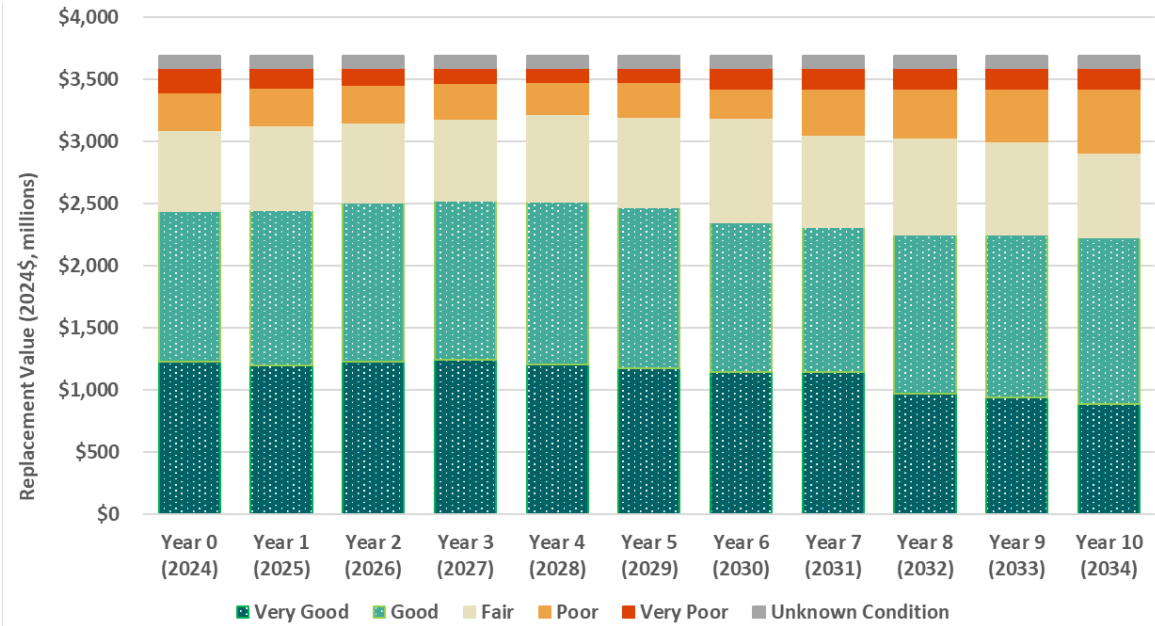
5.1.2 Operating Needs Forecast

To deliver the proposed levels of service, the City undertakes regularly programmed activities, including operating and maintaining the assets and providing programming. The forecast population and asset portfolio growth will place pressure on the capacity of existing operations and maintenance needs. The projected operating outlays needed to maintain the current reliability and quality levels of services covered by this AM Plan for each of the next 10 years are shown as the dark coloured solid bars in the following graph. For reference, the lighter coloured solid bars provide historic expenditures. The dashed black line is the average needs forecast over the 10 year period and the solid red line is the average available funding forecast. As the City continues to grow and acquire upgraded and additional assets within its portfolio, there will be additional costs associated with the operations and maintenance of those assets.

Figure 5-6 Annual Operating Needs Forecasts (M$2024)
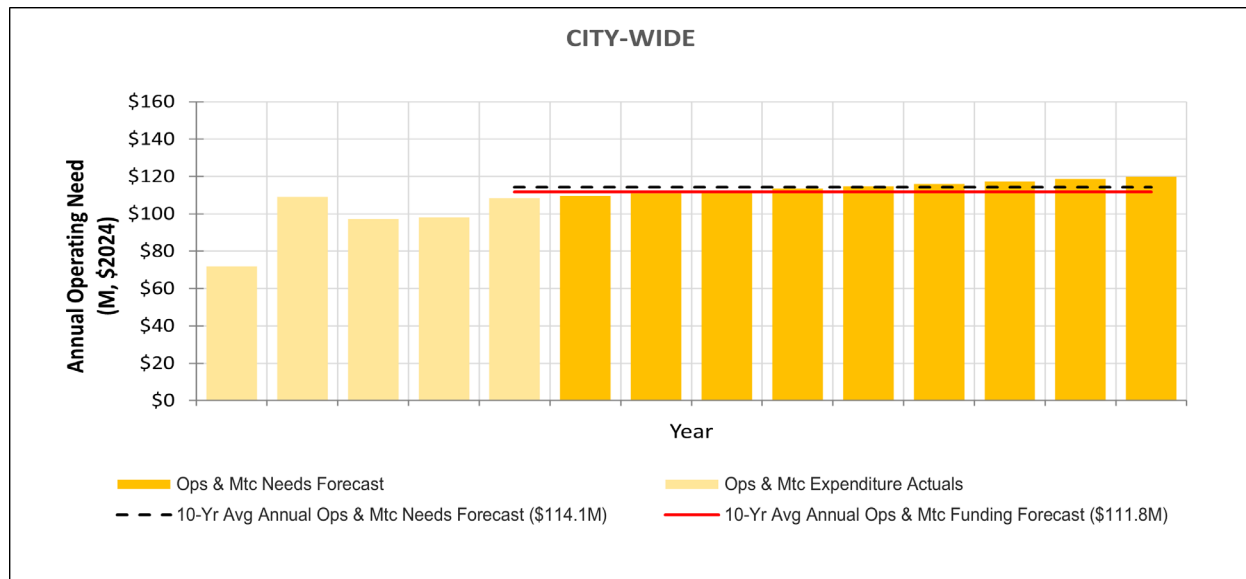
5.1.3 Summary of Needs Forecasts

Table 5-1 summarizes the City's needs forecasts for each of the service attributes based on the proposed level of service analysis from the preceding sections for all service and program area assets. Detailed needs forecasts, by service and program area, are provided in Section 7 Service and Program Area Details.

Table 5-1 Summary of 10-Year Average PLOS Annual Needs Forecasts ($M)

Service Area	Program Area	City Growth & Upgrade	Renewal	O&M	TOTAL
General Government	Shared Facilities	$0.50	$0.81	$1.07	$2.38
	Shared IT	$0.03	$0.23	$1.94	$2.20
	Parking	$0.04	$0.11	$0.81	$0.96
Fire & Emergency Services	Fire	$0.64	$1.55	$16.50	$18.69
Belleville Police Service	Police	$0.67	$1.62	$29.76	$32.05
Transportation & Operations Services	Roads	$8.44	$7.34	$1.86	$17.63
	Bridges and Culverts	$3.85	$3.95	$0.04	$7.84
	Traffic and Operations	$0.75	$5.34	$8.10	$14.19
	Transit	$0.24	$2.24	$8.24	$10.72
	Parks	$3.10	$2.68	$5.70	$11.47
	Waste Management	$0.05	$0.04	$5.24	$5.33
Environment Services	Water	$2.097	$7.19	$8.47	$17.73
	Wastewater	$14.68	$7.65	$9.04	$31.38
	Stormwater Management	$2.84	$0.34	$1.17	$4.35
Community Services	Facilities	$0.25	$2.35	$11.61	$14.22
	Harbours	$0.01	$1.53	$0.88	$2.42
	Cultural	$0.20	$0.54	$0.77	$1.51

Belleville Public Library	Library	$0.39	$0.44	$2.94	$3.78
TOTALS		$38.76	$45.95	$114.15	$198.86

Funding Sources for Asset Lifecycle Strategies

The above sections provide a summary of the forecasted financial needs to expand, upgrade, renew, operate and maintain City programs and assets. A municipality's ability to deliver on its AM Plan depends on the quality of its financial strategy. Financial sustainability requires long-term planning so that the necessary steps can be taken in the near-term to manage long-term financial risks.

A number of revenue sources are available to fund the capital needs of assets throughout their lifecycles:

- **Development Charges** to pay for growth through a development charge reserve fund.
- **Tax Levy, User Rates** (parking, water, wastewater)**, and User Fees** (recreation, harbours, transit) to pay for:
  - Minor rehabilitation and a portion of growth through a "flow through" pay-as-you-go renewal capital reserve fund
  - Major rehabilitation and replacement through a renewal reserve fund.
- **Grants and Gas Tax Revenue** to pay for major rehabilitation and replacement.
- **Debt** (on which interest is paid) to pay primarily for growth related funding gaps

The City is currently developing a strategy to determine how best to fund each of the asset lifecycle needs, across each of the service and program areas.

When determining funding sources, the City also considers how costs and benefits are spread between current and future users (i.e. intergenerational equity). The objective is to ensure all users pay their share of costs in manner that balances equality and equity, and to ensure that no users are unfairly burdened. In efforts to support this objective, services typically utilized and experienced by the general population such as roads are paid for through the tax base, while services utilized and experienced at the individual consumer level such as swimming programs are additionally paid for through user fees.

Available Funding, Shortfalls / Surpluses and Risks

Although the City does not currently budget for a ten year period, it has developed a 10-year capital plan that is accompanied by a financial strategy to maintain current levels of service. The methodology used for estimating funding included referencing historical budget trends in alignment with expected inflow of revenue to support capital investments, with allocations amongst individual service areas based on weighted distribution of their funding needs to meet the proposed levels of service.

Table 5-2 summarizes the estimated funding available to achieve proposed levels of service for each of the service attributes and compares it to the City's needs forecasts based on the proposed level of service analysis from the preceding sections for all service area assets. Additionally, the whole-of-life (WOL) strategy has been provided to illustrate the financial implications of annualizing the lifecycle activities over the full lifespan of the assets, rather than

the ten-year planning horizon. Note that the figures are not inflated. Available funding compared to needs forecasts, by service and program area, are provided in Section 7 Service and Program Area Details.

Table 5-2 Summary of Available Funding and Shortfalls / Surpluses ($M)

Service Attribute	Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Capacity	Growth & Upgrade – City	$38.76	$10.93		28%
	Renewal	$45.95	$45.93	($0.02)	100%
Reliability	Operations & Maintenance	$114.15	$111.77	($2.37)	98%
Totals – 10-Year		**$198.85**	**$168.63**	**($30.22)**	**85%**
Totals - WOL		**$233.88**	**$168.63**	**($65.25)**	**72%**

There are risks associated with providing the service and not being able to complete all identified activities. The major risks are identified as follows:

- Deferral of renewal activities which results in reduced whole of life of the infrastructure, higher annual cost over the life of the asset, assets in worse overall condition, less effective use of resources, and intergenerational inequity (i.e., consumption of benefits by one generation and payment for those benefits by another).

These risks will be managed within available funding by:

- Prioritizing needed activities by risk impact rating related to the following:
  - service delivery: the necessity of service, the breadth and duration of potential disruption
  - health and safety: the potential for death or enduring injury
  - economic: the value of potential damages, losses, or fines
  - environmental: the breadth, duration and reversability of potential damage
  - social: the significance of potential negative impacts.
- Prioritizing needed activities based on likelihood to fail to support capacity, function, reliability and quality of service
- Continuing to identify and request increased funding and staffing incrementally over time to achieve the proposed levels of service.

Financial Sustainability Options

One of the key drivers of the Ontario Regulation 588/17 is to help ensure that all municipalities are actively managing finances to achieve "financial sustainability". Based on current calculations it is evident that the City has an 'infrastructure gap'. Although this gap exists, it is very common across most municipalities.

It is the City's responsibility to ensure that the City's assets are managed sustainably and hence the City of Belleville shall actively manage this 'gap'. Typically, this is achieved through:

- Increase Funding

- Accepting Increased Risk

- Accepting Lower Level of Service

It should be noted that there is no singular method for addressing the 'infrastructure gap'. Often this is an iterative process to balance cost, risk, and LOS, through consultation with the community, particularly in relation to 'willingness to pay' for services.

5.1.4 Option 1: Increase Funding

Increasing the revenue or funding available to support assets is one method of reducing the infrastructure gap. This could be achieved by increasing the tax base or where assets are supported by "user pays" rates and fees (ie. water, wastewater, parking, recreation, transit), which might involve review of the current rates levels.

Based on the current tax levy and estimated infrastructure gap related to tax funded assets, the City would need to increase the tax levy by over 14% to close that gap immediately. Alternatively, the gap could be closed over the 10-year period with an average annual levy increase of about 1.39%. The funding gap for tax funded assets is outlined below:

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	Required Levy Increase to Close Gap (%)
Growth & Upgrade	$21.96	$6.16	($15.80)	11.43%
Renewal	$31.00	$28.04	($2.96)	2.14%
Operations & Maintenance	$95.82	$94.06	($1.76)	1.27%
Totals – 10-Year	**$148.78**	**$128.26**	**($20.52)**	**14.85%**

Given the significant tax-funded capital investment required over the ten-year planning horizon, the above-noted average annual tax levy increase would necessitate additional debt issuances to fund capital renewals. This level of borrowing is projected to exceed the City's debt capacity limit, as outlined in its Municipal Financing Debt Policy, by 2033. To address this challenge, a whole-of-life financial strategy was evaluated. This strategy considers long-term asset needs beyond the current ten-year planning period, reflecting the full lifecycle requirements of the City's infrastructure as outlined below:

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	Required Levy Increase to Close Gap (%)
Growth & Upgrade	$21.96	$6.16	($15.80)	11.43%
Renewal	$59.38	$28.04	($31.35)	22.68%
Operations & Maintenance	$95.82	$94.06	($1.76)	1.27%
Totals – Whole of Life	**$177.17**	**$128.26**	**($48.91)**	**35.39%**

Under this model, the average annual capital requirement is higher, and closing the resulting funding gap would require a 35% increase to the tax levy. Alternatively, a phased approach could be considered, involving average annual increases of 3.08% over ten years.

To remain within the City's debt capacity limit and contribute to reserve fund targets as outlined in the City's Reserve & Reserve Fund Policy, a more prudent strategy is recommended to implement an average annual tax levy increase ranging between 1.39% and 3.08% over the ten-year period.

On the user rate side, current calculations show that Water is sufficiently funded over the next 10 years, while Wastewater and Parking rates would need to increase 57% and 5%, respectively, in order to close the infrastructure gap associated with those assets. This could also be achieved by a roughly 4.58% and 0.5% average annual increase, respectively, over the next ten years. Based on projected spending in the City's 10-Year Capital Plan, these increases would not jeopardize the City's existing funding plans.

Water

Based on available water revenue, the City adequately funds the lifecycle activities to meet the PLOS under the 10-Year strategy, as outlined below.

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	Required Revenue Increase to Close Gap (%)
Growth & Upgrade	$2.07	$2.73	$0.66	Adequately Funded
Renewal	$7.19	$6.97	($0.22)	1.11%
Operations & Maintenance	$8.47	$8.61	$0.15	Adequately Funded
Totals – 10-Year	**$17.73**	**$18.32**	**$0.59**	**Adequately Funded**

While the above-noted strategy indicates that the Water service is adequately funded, it is important to note that adopting a whole-of-life approach would require a 28% increase in water revenues as outlined below. This equates to an average annual increase of 2.47% over ten years, reflecting higher anticipated renewal needs beyond the current planning period. However, given the Water service's projected financial position and anticipated spending, this approach is not currently recommended to ensure stable water rate increases.

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	Required Revenue Increase to Close Gap (%)
Growth & Upgrade	$2.07	$2.73	$0.66	Adequately Funded
Renewal	$13.23	$6.97	($6.26)	31.76%
Operations & Maintenance	$8.47	$8.61	$0.15	Adequately Funded
Totals – Whole of Life	**$23.77**	**$18.32**	**($5.45)**	**27.67%**

Wastewater

Based on available wastewater revenue and estimated infrastructure gap related to wastewater-funded assets, the City would need to increase revenue by over 56% to close that gap immediately under the 10-Year strategy. Alternatively, the gap could be closed over the 10-year period with an average annual revenue increase of about 4.58%. The funding gap for wastewater-funded assets is outlined below:

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	Required Revenue Increase to Close Gap (%)
Growth & Upgrade	$14.68	$2.03	($12.65)	69.83%
Renewal	$7.65	$10.78	$3.13	Adequately Funded
Operations & Maintenance	$9.04	$8.32	($0.72)	3.99%
Totals – 10-Year	**$31.38**	**$21.13**	**($10.24)**	**56.53%**

The average annual needs forecast for Wastewater over the 10-year planning period is comparable to that of the whole-of-life approach, requiring a 59% increase in wastewater revenues as outlined below, or an average annual increase of 4.79% over ten years. As such, the whole-of-life strategy is not currently recommended to ensure stable wastewater rate increases.

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	Required Revenue Increase to Close Gap (%)
Growth & Upgrade	$14.68	$2.03	($12.65)	69.83%
Renewal	$8.20	$10.78	$2.58	Adequately Funded
Operations & Maintenance	$9.04	$8.32	($0.72)	3.99%
Totals – Whole of Life	**$31.92**	**$21.13**	**($10.79)**	**59.55%**

Parking

Based on available parking revenue and estimated infrastructure gap related to parking-funded assets, the City would need to increase revenue by over 5% to close that gap immediately. Alternatively, the gap could be closed over the 10-year period with an average annual revenue increase of about 0.5%. The funding gap for parking-funded assets is outlined below:

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	Required Revenue Increase to Close Gap (%)
Growth & Upgrade	$0.04	$0.00	($0.04)	4.71%
Renewal	$0.11	$0.14	$0.03	Adequately Funded
Operations & Maintenance	$0.81	$0.78	($0.04)	4.07%
Totals – 10-Year	**$0.96**	**$0.91**	**($0.04)**	**5.12%**

The average annual needs forecast for Parking over the 10-year planning period is comparable to that of the whole-of-life approach, requiring a 12% increase in parking revenues as outlined below, or an average annual increase of 1.11% over ten years. As such, the whole-of-life strategy is not currently recommended to ensure stable parking rate increases.

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	Required Revenue Increase to Close Gap (%)
Growth & Upgrade	$0.04	$0.00	($0.04)	4.71%
Renewal	$0.16	$0.14	($0.03)	2.92%
Operations & Maintenance	$0.81	$0.78	($0.04)	4.07%
Totals – Whole of Life	**$1.02**	**$0.91**	**($0.04)**	**11.70%**

5.1.5 Option 2: Increase Risk

Although not always desirable, it may be possible to accept a higher degree of asset risk at the City to help lower ongoing asset costs. The City's leadership, in consultation with subject matter experts (SMEs), may select to adjust the risk threshold across the risk framework or for specific asset classes. An example of how this may be practically applied would be conduct less frequent inspections or maintenance of less critical assets (i.e. minor/small culverts which have less impact of city service).

5.1.6 Option 3: Accept Lower Level of Service

The City must balance public (community) expectations, the City's objectives, risk and affordability. If the City is not able to sustainably fund the current LOS it may be beneficial to seek opportunities for adjustment to service standards through public consultation. It is critical in this process to link consideration of the public expectations with understanding of constraints such as financing, resourcing, and affordability and the options for addressing these (higher taxes). Only after these constraints have been considered will it be possible to determine public expectations and willingness to pay for these services.

An example of this could be deferring projects that aim to increase road capacity through road widening. The deferment eliminates approximately $40.5M of total investment need (or an annual need of $4.05 M) of capital investment and the associated future infrastructure liability (O&M requirements). However, this option will likely increase risks from road usage exceeding the road capacity and may result in higher customer complaints.

6   PLAN IMPROVEMENT AND MONITORING

AM Plan Data Confidence

Data for asset management is created and collected through documented data specifications and protocols in phases that correspond to the general lifecycle of the assets:

- **Inventory Data** is collected during the asset acquisition / creation phase and provides identification, location and description data. Examples include asset ID, description, purchase year, installation year, in-service date, purchase cost, make, model, serial number, physical attributes (e.g. length, material, power rating), class, and parent asset.

- **AM Planning Data** is collected throughout the lifecycle of the assets and provides the base data for analysis of asset condition / maintenance, utilization / operations, and performance. Examples include updated demand / utilization / access restrictions data, updated condition data, updated criticality, risk and resilience data, physical works plans / achievements and related estimated / actual costs.

- **AM Analysis Data** is developed to report AM performance and make decisions to minimize impacts of failure to meet performance targets. For example to determine customer service performance, technical assets performance, and costs of asset ownership (lifecycle needs).

The quality of AM data can include its completeness and accuracy, and can be dictated by what it is based upon. The grades for evaluating data confidence are shown below.

Table 6-1 Data Confidence Grading

Grade	Quantity, Size, Install Year, Service Life	Condition	Replacement Value	Growth / Upgrade Needs Forecast	Renewal Needs Forecast
	% Complete & Accurate	Based Upon	Based Upon	Based Upon	Based Upon
Very High (VH)	90% to 100%	current industry standard condition assessment	current tender documents, quotes	historic budget actuals and current master plan / DC study forecast, with costs	current industry standard condition assessments & needs forecast, with costs
High (H)	80% to 90%	2+ year old industry standard condition assessment	2+ year old tender documents, quotes	historic budget actuals and 2+ year old master plan / DC study forecast, with costs	2+ year old industry standard condition assessments & needs forecast, with costs
Moderate (M)	70% to 80%	staff-reported condition	staff-reported costs	historic budget actuals and master plan forecast, with staff forecast costs	staff-reported condition assessment and needs forecast, with costs
Low (L)	50% to 70%	install date and useful life	inflated historical costs	population growth forecast	needs forecast from install date & useful life
Very Low (VL)	0% to 50%	unknown	unknown	unknown	unknown

In compiling this AM Plan, a review of the data from which the asset registries, levels of service, and other report details were created was performed. The review assessed the completeness and accuracy of the asset registries. The following table provides the assessment of the data used for meaningful asset management planning. Assumptions related to the development of the AM Plan are provided in Appendix A.

Table 6-2 AM Plan Data Confidence Grades

Service Area	Program Area	State of Infrastructure					Needs Forecast	
		Quantity & Size	Install Year	Service Life	Condition	Replacement Costs	Growth & Upgrade	Renewal
General Government	Shared Facilities	VH	VH	VH	VH	H	H	H
	Parking	VH	VH	VH	L	VH	M	M
Information Systems	Shared IT	H	H	VH	H	H	M	M
Fire and Emergency Services	Fire	VH	H	VH	L	H	M	M
Belleville Police Service	Police	L	H	M	VL	H	L	L
Transportation & Operations Services	Roads, Bridges and Culverts	H	M	VH	H	H	M	H
	Traffic & Operations	M	M	VH	L	M	M	M
	Transit	VH	H	VH	VL	VH	M	M
	Parks	M	L	H	L	M	H	M
	Waste Management	H	H	H	VL	M	M	M
Environment Services	Water	H	H	M	L	L	H	M
	Wastewater	H	H	H	M	L	H	M
	Stormwater Management	H	M	H	M	M	M	M
Community Services	Recreation	M	M	H	L	L	H	M
	Harbours	L	L	H	M	L	M	M
	Cultural	VH	VH	H	M	M	M	H
Belleville Public Library	Library	H	VH	H	M	H	M	M

AM Plan Improvement and Monitoring

The next steps resulting from this AM Plan to improve asset management practices are:

- Continue to monitor and incorporate changes to demand drivers including pace of population growth, community and other impacts such as climate change
- Continue to update asset values based on recent tenders and securities estimates
- Continue to implement levels of service measures listed in the AM Plan as "future"
- Continue to communicate the need to fully fund the whole of lifecycle needs through reserve funds and the risks associated with underfunding (i.e., reduced life of the asset, higher annual cost over the life of the asset, assets in worse overall condition, less effective use of resources, intergenerational inequity).

Progress implementing this AM Plan will be reported annually including:

- Update of valuation of infrastructure
- Update of condition and performance scores
- Update on status of recommended improvement actions.

Targeted improvement areas and global actions for the City to advance the maturity of future iterations of the AM Plan are provided below. Detailed, Service Area specific improvement recommendations are captured within Section 7 of this report.

Table 6-3: Targeted Improvement Areas

Improvement Area	Action	Outcome	Priority	Timeline
Asset Data Quality and Consistency	Standardize unique Asset IDs across all assets in the organization that fall within the scope of AM Planning Evaluate opportunities to improve data management processes and procedures Update asset lifecycle replacement values based on recent tenders and complete industry standard condition assessments and renewal forecasting to improve overall data quality and confidence	Reduced likelihood of incidental asset data overwriting on the wrong asset Improved reliability of information maintained in AM database Improved confidence in input data and recommended solutions	HIGH	In Progress
Asset Information Systems	Standardize systems across the City. Review the functionality of the current WorkTech solution against other enterprise systems.	Improved confidence in input data and recommended solutions	MED	In Progress

Asset Management Processes	Continue to update service standards based on changing demand drivers Continue to refine selection of the lowest lifecycle cost lifecycle activities based on risk Continue to communicate the need to fully fund the whole of lifecycle needs through reserve funds and the risks associated with underfunding (i.e., reduced life of the asset, higher annual cost over the life of the asset, assets in worse overall condition, less effective use of resources, intergenerational inequity)			MED	In Progress
Organization and People	Evaluate staffing needs to support data and process improvements: consider needs related to roles, capabilities, and numbers.	Appropriate support for AM decision-making		MED	Ongoing

7 SERVICE AND PROGRAM AREA DETAILS

This section provides details, for each service and program area listed below, the following:

- State of Infrastructure
- Levels of Service
- Risk Management
- Asset Management Strategy, based on maintaining current levels of service
- Financing Strategy, based on allocations of capital funding similar to the past five years
- Identified Opportunities for Plan Improvement and Monitoring.

Service and Program Areas

General Government
Shared Facilities
Parking

Information Systems
Shared Information Technology (IT)

Fire & Emergency Services

Belleville Police Service

Transportation & Operational Services
Roads
Bridges and Culverts
Traffic & Operations
Transit
Parks
Waste Management

Environmental Services
Water
Wastewater
Stormwater

Community Services Department
Recreation
Harbours
Cultural

Belleville Public Library

Library

State of Infrastructure ($36.7 million)

This service area supports the organization by developing, operating and maintaining corporate administration offices, leased office space, mixed-use facilities, and facilities for other service areas. It tracks the environmental impacts of City energy use and works to mitigate them, reduces net operating costs through energy management, and promotes sustainable practices.

Shared Facilities include:
- City Hall
- Professional Building (STORAM)
- Log Cabin (Chamber of Commerce)
- Property Section Operations Building

All shared municipal facilities - including City Hall, the Log Cabin, the City Professional Building, and the Property Section Operations facility - have reached the end of their originally defined service lives. However, as shown in the condition chart below, City Hall and the Log Cabin, both valued historic buildings which have been maintained in generally good condition, allowing them to remain functional well beyond their expected lifespans. Similarly, the STORAM and Property Section Operations buildings continue to support city operations due to consistent and proactive maintenance efforts.
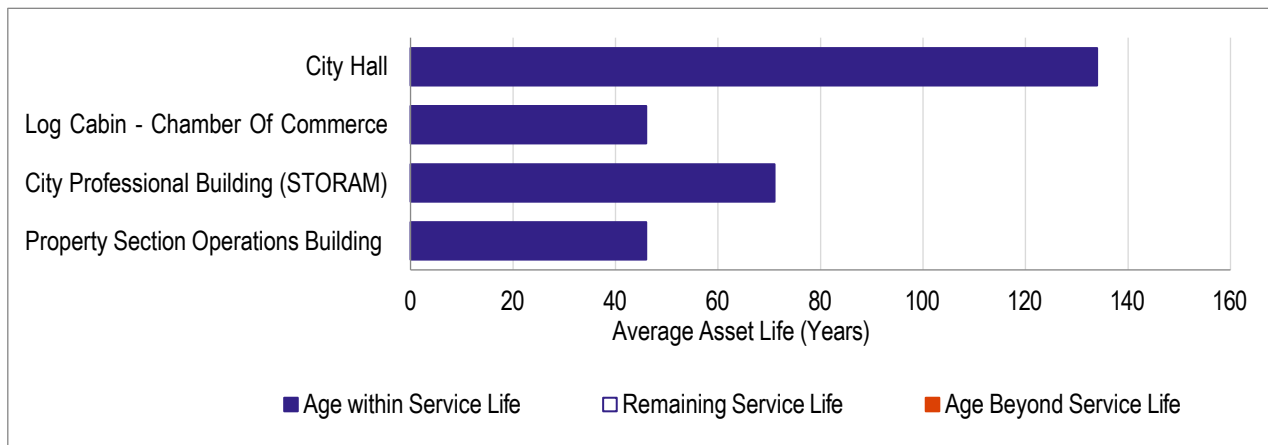
Consultant assessments conducted through recent Building Condition Assessments (BCAs) indicate that the City's Shared Facility assets are generally in good to very good condition.

Levels of Service

Community Levels of Service	Technical Levels of Service		
		Performance	
Statements	Performance Indicators	Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
Provide adequate shared facilities space	Percentage of facilities with accessible washrooms meeting their respective AODA requirements	33%	100%
Quality and Reliability			
Keep assets in a state of good repair	Percentage of Shared Facilities assets with high and very high-risk exposure rating	13%	< 15%
Affordability			
City services are adequately funded	Ratio of 10-year renewal budget to needs	Future	Future
City services are sustainable in the long term	Percentage Average annual renewal rate (reinvested or put into reserve) for shared facilities	Future	Future

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group in conjunction with the facility elements. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
City Hall	5
Professional Building, Log Cabin, Property Section Operations Building	3

Risk Evaluation Matrix

Assets in the Very High or High risk exposure categories include exterior wall and window enclosures, roofing enclosures, and HVAC systems.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on forecast population growth and are minimal.

Annual Growth & Upgrade Need (M, $2024) vs. Year

Legend: City Growth Needs Forecast — Avg Annual City Growth Needs Forecast ($0.5M)

Renewal Needs Forecast

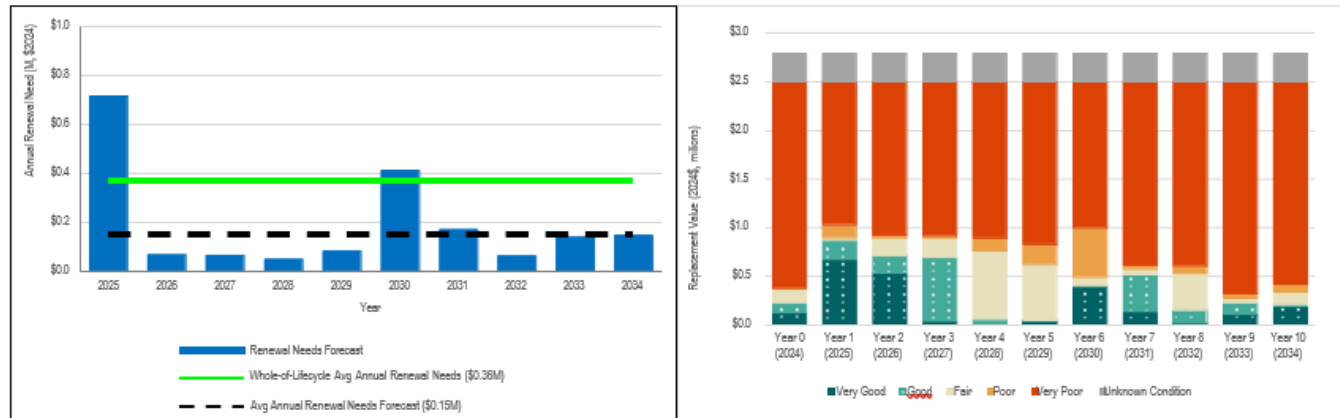Renewal needs are based on maintaining current service reliability by prioritizing assets with higher risk ratings, while deferring lower-risk renewals as needed.

Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

*Note: associated condition forecast graphs have been developed for all facilities and can be found in the Appendices under Facilities – ALL

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding over the next ten years. Funding for operating and capital needs is sourced from tax levies.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.50	$0.00	-$0.50	0%
Renewal	$0.81	$0.53	-$0.28	66%
Operations & Maintenance	$1.07	$0.99	-$0.08	92%
Totals	**$2.38**	**$1.52**	**-$0.86**	**64%**

Based on calculations to achieve the proposed levels of service, Shared Facilities would require a 0.62% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Please refer to the 'All Facilities' section for facility related Plan Improvement and Monitoring details.

State of Infrastructure ($2.4 million)

This program area supports the City's organization by developing, operating, and maintaining the City's technology networks, and distributing and maintaining end-user devices.

Key business drivers at this time are continuous management of the scheduled renewal of technology assets, while keeping up-to-date with technology advances and procurement opportunities.

Information Technology assets include:
- End user devices
- Voice and data infrastructure
- Management Systems
- Software Applications

Assets that are approaching the later stages of life or beyond, will need to be replaced or require further maintenance.
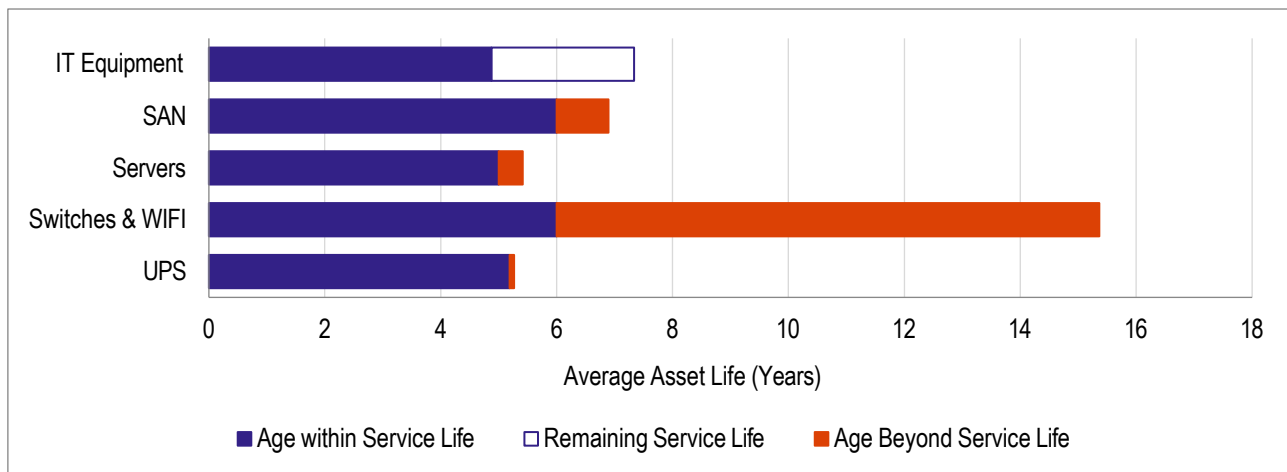
The City's IT assets are generally in very poor condition, based on age. The assets shown in poor and very poor "condition" are in the latter stages of, or have surpassed, their useful life – typically related to obsolescence.

Levels of Service

Community Levels of Service	Technical Levels of Service		
Statements	**Performance Indicators**	**Performance**	
		Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
Provide prompt emergency IT response within the City	Average response time to IT requests and incidents	20 minutes	20 minutes
	Average resolution time for IT incidents	2.5 hours	2.5 hours
	IT service availability (network uptime)	98% uptime	99% uptime
Functional			
Meet customer needs while limiting health, safety, and data security impacts	Number of cyber security incidents	0	0
Quality and Reliability			
Keep assets in a state of good repair	Percentage of IT assets with very high-risk exposure rating	74%	< 50%

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
San, Servers, Software	5
IT Equipment	4
Switches & WIFI, UPS	3

Risk Evaluation Matrix

PoF						Risk Exposure	CRV($)	CRV(%)
5	$0.00	$0.00	$0.34	$1.45	$0.32	Very High	$1.77	72.1%
4	$0.00	$0.00	$0.01	$0.00	$0.00	High	$0.48	19.4%
3	$0.00	$0.00	$0.01	$0.01	$0.12	Moderate	$0.10	3.9%
2	$0.00	$0.00	$0.00	$0.08	$0.00	Low	$0.11	4.6%
1	$0.00	$0.00	$0.09	$0.02	$0.00	Very Low	$0.00	0.0%
	1	2	3	4	5		$2.46	100.0%

CoF

Assets in the Very High or High risk exposure categories include Servers, SAN and various IT Equipment.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on forecast population growth and are minimal.

Renewal Needs Forecast

Renewal needs are based on maintaining current service reliability by prioritizing assets with higher risk ratings, while deferring lower-risk renewals as needed.

Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from the tax levy.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.03	$0.00	-$0.03	0%
Renewal	$0.23	$0.15	-$0.08	66%
Operations & Maintenance	$1.94	$1.87	-$0.07	96%
Totals	**$2.20**	**$2.02**	**-$0.18**	**92%**

Based on calculations to achieve the proposed levels of service, Shared Information Technology would require a 0.13% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

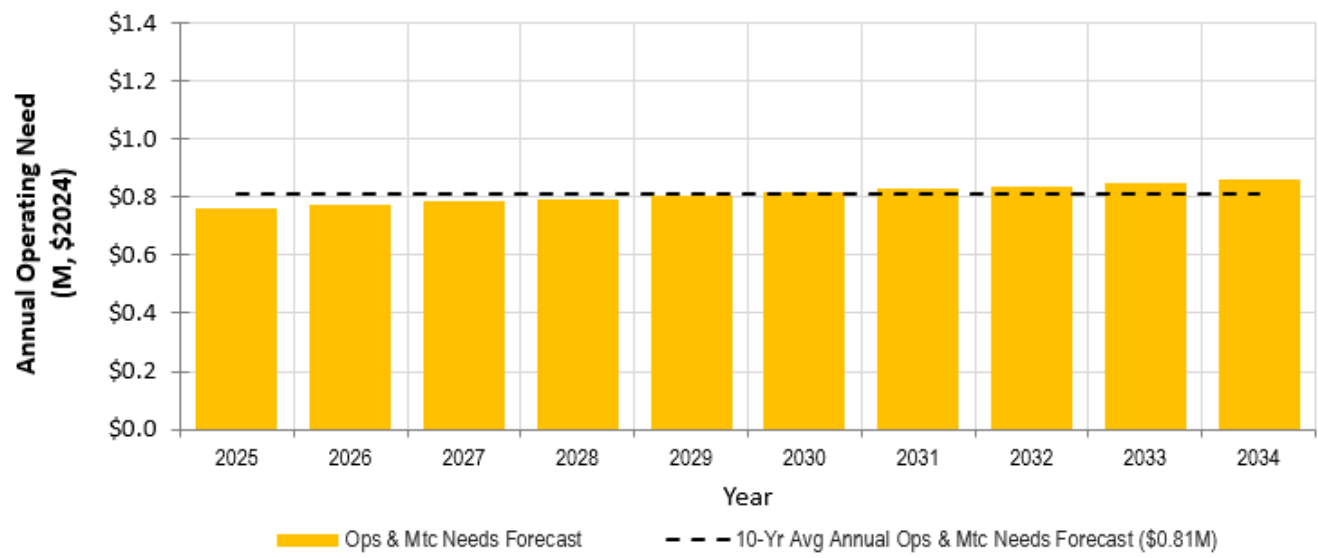| Improvement Area	Action	Outcome	Priority	Timeline
Asset Data Quality and Consistency	Implement standardized methodologies for condition rating, replacement value, and risk assessment for Software	Improved reliability of information maintained in AM database. Improved confidence in input data and recommended solutions	HIGH	In Progress
Asset Information Systems	Include labour costs within IT tickets to understand IT operating needs.	Improved confidence in input data and recommended solutions	MED	Medium Term
Asset Management Processes	Establish formal Service Level Agreements (SLAs) with City customer groups for setting service level expectations.	Improved asset management decision-making	MED	Medium Term
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress
Asset Management Processes	Utilize outcomes from the City's Digital Master Plan to support future AM growth and upgrade needs.	Improved asset management decision-making	MED	In Progress

State of Infrastructure ($3.0 million)

This service area assists to provide safe and accessible parking facilities and manage parking infrastructure. It also maintains parking lots, street parking spaces and associated assets in a state of good repair.

Most of the assets are relatively new due to recent growth in the City.

Parking assets include:
- 16 Parking Lots with 35,482 Spaces
- 65 Lighting and Signs
- 403 Pay machines and Meters
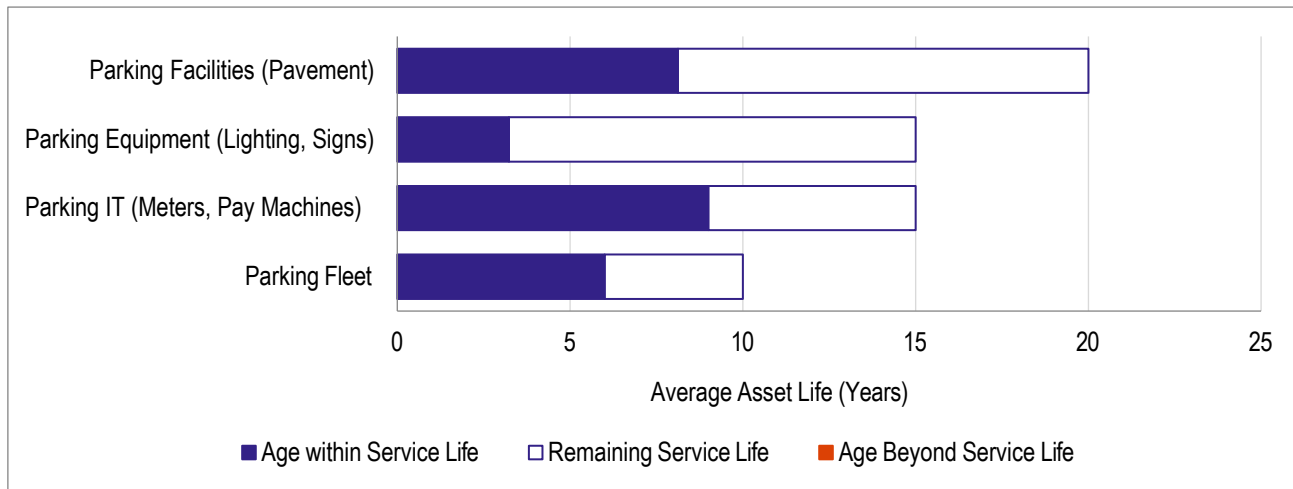
The City's Parking assets are generally in fair to good condition, as determined by staff assigned condition grades for parking lot pavement, equipment, and IT.

Levels of Service

Community Levels of Service	Technical Levels of Service		
Statements	**Performance Indicators**	**Performance**	
		Current (2023 / 2024 Where Available)	**Proposed (2034)**
Capacity and Use			
Provide sufficient parking capacity where needed	Parking Violation Rate (Number of tickets issued per year)	20,207	Maintain LOS
	Parking Lot Occupancy Rate	38.7%	≤ 85%
Functional			
Meet customer needs while limiting health, safety, and data security impacts	Percentage of municipal lots compliant with AODA requirements	Future	Future
Quality and Reliability			
Keep assets in a state of good repair	Percentage of Parking Lot area in Very Poor condition	0%	< 10%

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Parking Facilities (Pavement)	2
Parking Equipment	2
Parking IT	1

Risk Evaluation Matrix

PoF	CoF 1	CoF 2	CoF 3	CoF 4	CoF 5
5	$0.00	$0.00	$0.00	$0.00	$0.00
4	$0.00	$0.00	$0.00	$0.00	$0.00
3	$0.42	$0.06	$0.00	$0.00	$0.00
2	$0.75	$1.47	$0.00	$0.00	$0.00
1	$0.00	$0.18	$0.00	$0.00	$0.00

Risk Exposure	CRV($)	CRV(%)
Very High	$0.00	0.0%
High	$0.00	0.0%
Moderate	$0.06	2.0%
Low	$1.89	65.7%
Very Low	$0.93	32.3%
	$2.87	100.0%

There are no Parking assets in the Very High or High risk exposure categories due to recent growth in the City.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on forecast population growth and are minimal.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.

Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from user fees.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.04	$0.00	-$0.04	0%
Renewal	$0.11	$0.14	$0.03	129%
Operations & Maintenance	$0.81	$0.78	-$0.04	96%
Totals	**$0.96**	**$0.91**	**-$0.04**	**95%**

Based on calculations to achieve the proposed levels of service, Parking Services would require a 5.12% user rate increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress
Asset Management Processes	Develop condition and performance assessment protocols for assets within the portfolio.	Improved asset management decision-making	MED	In Progress

State of Infrastructure ($46.9 million)

Belleville Fire provides emergency response and fire protection services to the City's nearly 60 thousand citizens. Ensure the safety and well-being of residents by providing community education on fire safety.

Most of the assets are more than halfway through their service life, with rural rescue vehicles and IT assets beyond service life.

Belleville Fire assets include:

- Five facilities
- Information technology assets
- 29 Fleet assets
- Specialized equipment
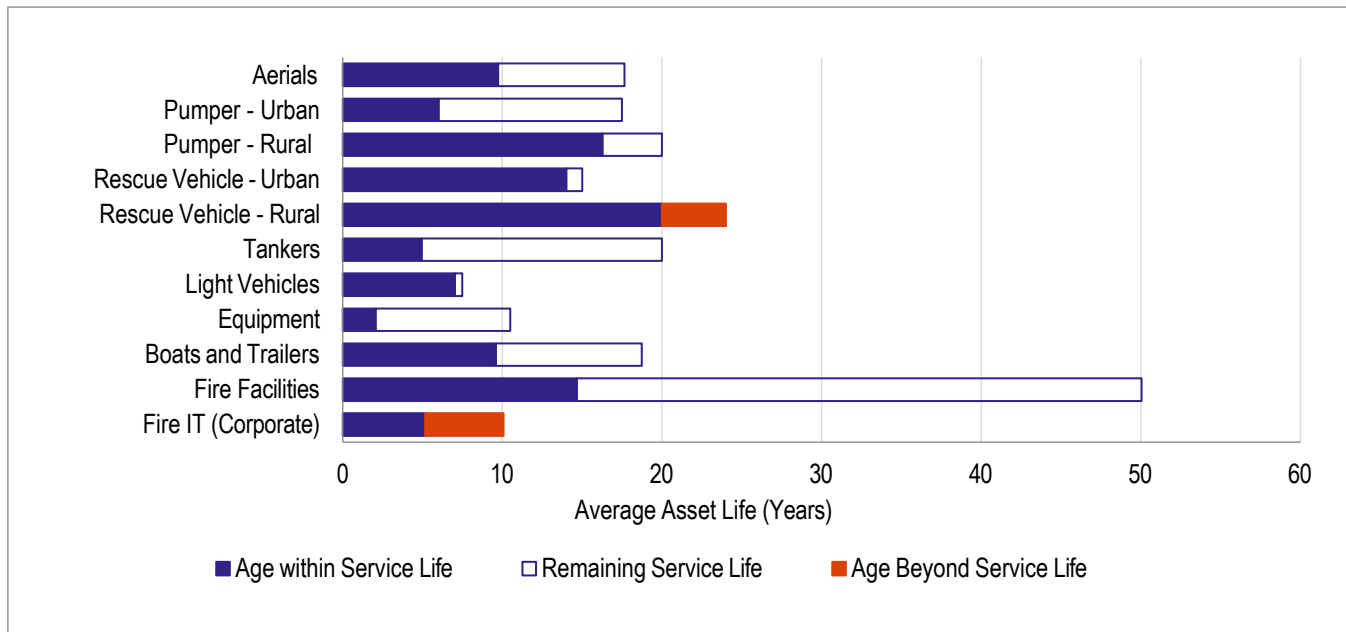
The City's Fire assets are generally in very good to fair condition, with facility condition dictated by the recently completed building condition assessments and the remainder of Fire asset condition being dictated by age.

	Replacement Value ($2024, M)	
Aerials		$4.7
Pumper - Urban		$3.9
Pumper - Rural		$4.7
Rescue Vehicle - Urban		$1.5
Rescue Vehicle - Rural		$0.6
Tankers		$1.7
Light Vehicles		$1.1
Equipment		$3.8
Boats and Trailers		$0.2
Fire Facilities		$24.7
Fire IT (Corporate)		$0.1

Legend: ■ Very Poor (End-of-Life) ■ Poor ■ Fair ■ Good ■ Very Good (New) ■ Unknown

Levels of Service

Community Levels of Service	Technical Levels of Service		
Statements	**Performance Indicators**	**Performance**	
		Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
Provide prompt emergency response within the City	Percentage of Urban responses within 80 Seconds for time out the door response time	30%	80%
	Percentage of Urban responses within 240 Seconds for first-due pumper on scene response time (NFPA 1710)	66%	90%
	Percentage of Urban responses within 480 Seconds for initial full alarm response time (NFPA 1710)	95%	≥ 90%
	Percentage of Rural responses within 840 Seconds time for arrival on scene with effective response force (NFPA 1720)	41%	80%
Functional			
Staff are equipped to provide effective response	Percentage of Career Firefighters with equipment available to meet NFPA standard for technical hazmat response	0%	20%
Quality and Reliability			
Keep assets in a state of good repair	Percentage of Fire apparatus that has surpassed the expected useful life	9.3%	< 10%
	Percentage of Firefighter Equipment that has surpassed the expected useful life	4.5%	< 5%
	Percentage of Light Duty Vehicles that have surpassed the expected useful life	45.4%	< 45%
Provide responsive maintenance	Average Number of annual reactive repairs to urban Front Line Fire Vehicles	Future	Future
	Average Number of annual reactive repairs to rural Front Line Fire Vehicles	Future	Future
Affordability			
City Services are affordable	Ratio of 10-year renewal budget to needs	Future	Future
City Services are sustainable	Percentage Average annual renewal rate (reinvested or put into reserve)	Future	Future

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Fire Halls, Aerials, Pumpers, Tankers, Heavy Equipment	5
Rescue Vehicles, Boats, Other Equipment	4
Trailers, Light Vehicles	3

Risk Evaluation Matrix

PoF \ CoF	1	2	3	4	5
5	$0.00	$0.00	$0.50	$0.69	$1.05
4	$0.02	$0.35	$0.56	$1.77	$3.78
3	$0.00	$0.20	$0.00	$0.43	$4.38
2	$0.02	$1.93	$0.22	$1.31	$3.98
1	$0.15	$4.97	$4.52	$3.81	$9.80

Risk Exposure	CRV($)	CRV(%)
Very High	$5.51	12.4%
High	$7.65	17.2%
Moderate	$15.85	35.7%
Low	$10.28	23.1%
Very Low	$5.14	11.6%
	$44.43	100.0%

Assets in the Very High or High risk exposure categories include pumpers, rescue vehicles, boats, trailers, light vehicles and heavy equipment

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on forecast population growth and are minimal.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.

Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Annual Operating Need (M, $2024) vs Year bar chart, 2025–2034. Legend: Ops & Mtc Needs Forecast; 10-Yr Avg Annual Ops & Mtc Needs Forecast ($16.5M).

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.64	$0.00	-$0.64	0%
Renewal	$1.55	$1.01	-$0.53	66%
Operations & Maintenance	$16.50	$16.30	-$0.20	99%
Totals	**$18.69**	**$17.32**	**-$1.37**	**93%**

Based on calculations to achieve the proposed levels of service, Fire would require a 0.99% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress
Asset Management Processes	Develop condition and performance assessment protocols for assets within the portfolio.	Improved asset management decision-making	MED	In Progress
Asset Management Processes	Utilize outcomes from the City's Fire Master Plan to support future AM growth and upgrade needs.	Improved asset management decision-making	MED	In Progress

State of Infrastructure ($49.0 million)

Belleville Police provides crime prevention and law enforcement to the City's nearly 60 thousand citizens. These are dedicated sworn and civilian members who serve the City's diverse communities, ensuring that the City's neighbourhoods, roads and schools are safe for all residents.

Belleville Police assets include:
- Police Headquarters
- Fleet
- Information technology assets
- Specialized equipment

The asset types are at a variety of life stages, as shown below.
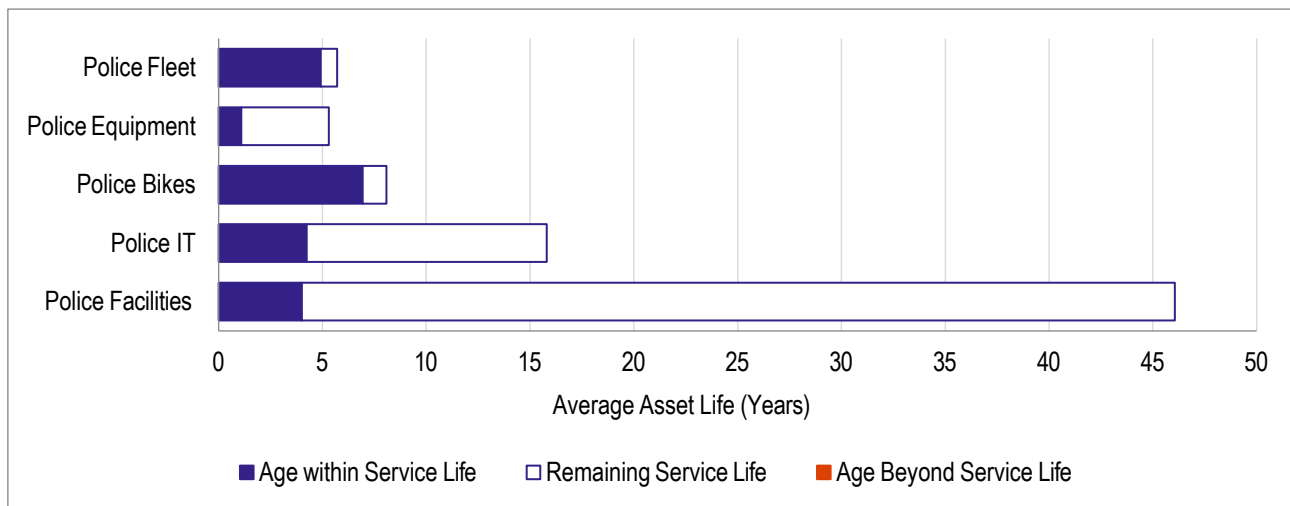
The City's Police assets are generally in good to very good condition. While the Police Headquarters facility was originally constructed in 1966, it was fully renovated in 2020.

Levels of Service

Community Levels of Service	Technical Levels of Service		
		Performance	
Statements	Performance Indicators	Current (2023 / 2024 Where Available)	Proposed (2034)
Quality and Reliability			
Keep assets in a state of good repair	Percentage of Police assets with high or very high-risk exposure rating	36.5%	< 20%

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Headquarters Building, Vehicles, IT Assets, Officer Equipment & Gear	5
Bikes, Mowers, Snow Throwers	2
ATV, Motorcycles	3
Drones	4

Risk Evaluation Matrix

PoF	1	2	3	4	5
5	$0.00	$0.03	$0.18	$0.00	$2.77
4	$0.00	$0.00	$0.03	$0.00	$1.14
3	$0.01	$0.00	$0.61	$0.05	$2.01
2	$0.00	$0.40	$0.16	$0.02	$8.07
1	$0.02	$4.11	$12.40	$5.11	$11.90

CoF

Risk Exposure	CRV($)	CRV(%)
Very High	$3.91	8.0%
High	$2.26	4.6%
Moderate	$20.79	42.4%
Low	$17.92	36.6%
Very Low	$4.13	8.4%
	$49.01	100.0%

Assets in the Very High or High risk exposure categories include vehicle and IT assets. The police fleet is nearly end-of-life and is in need of replacement in the near future.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on forecast population growth and are minimal.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.

Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies.

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.67	$0.00	-$0.67	0%
Renewal	$1.62	$0.72	-$0.90	44%
Operations & Maintenance	$29.76	$29.08	-$0.68	98%
Totals	**$32.05**	**$29.80**	**-$2.25**	**93%**

Based on calculations to achieve the proposed levels of service, Police would require a 1.63% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Data Quality and Consistency	Complete detailed inventory of Police IT and Police Equipment assets, collecting pertinent AM Planning data (replacement value, useful life, condition, etc.)	Increased data quality and confidence in state of local infrastructure and lifecycle management activity forecast	HIGH	Short Term
Asset Management Processes	Implement further Levels of Service measures	Improved monitoring of service levels against targets (proposed levels of service), increased accuracy of costs to maintain current and meet proposed levels of service	HIGH	Short Term

State of Infrastructure ($416.5 million)

This service area assists in the safe and efficient transport of people and goods through interconnecting roads between urban and rural areas. It also provides safe and effective drainage and preserves water quality. It maintains the road and storm networks in a state of good repair.

Key business drivers at this time are future population and associated asset growth and aging infrastructure.

Road assets include:

- 156 lane-kilometers of Arterial roads
- 242 lane-kilometers of Collector roads
- 557 lane-kilometers of Local roads

Many of the assets are reaching the middle to later stages of their useful lives and will require renewal and or maintenance in the upcoming years.
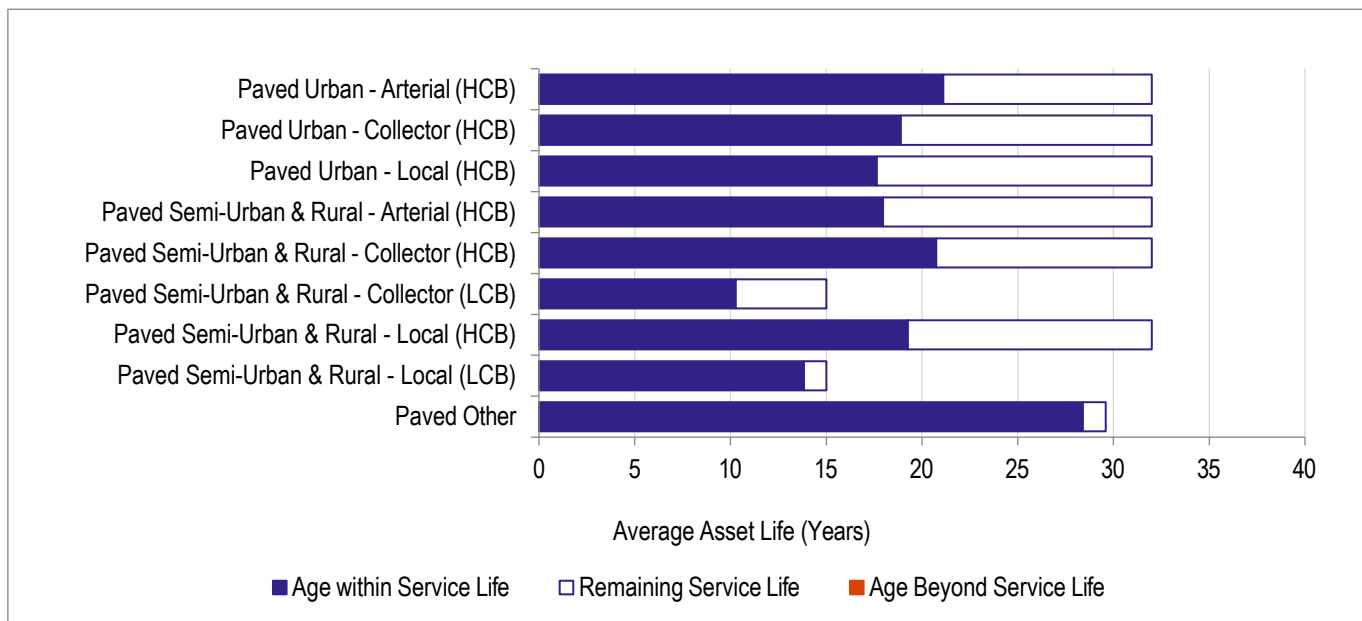
The City's road assets are generally in fair to very good condition, as assessed in alignment with industry standard inspection protocols through regularly updated Roads Need Studies using Pavement Condition Index ratings (PCI).

Replacement Value ($2024, M)

Legend: ■ Very Poor (End-of-Life) ■ Poor ■ Fair ■ Good ■ Very Good (New) ■ Unknown

Chart categories and values:
- Paved Urban - Arterial (HCB): $53.7
- Paved Urban - Collector (HCB): $38.2
- Paved Urban - Local (HCB): $84.8
- Paved Semi-Urban & Rural - Arterial (HCB): $27.9
- Paved Semi-Urban & Rural - Collector (HCB): $52.2
- Paved Semi-Urban & Rural - Collector (LCB): $11.4
- Paved Semi-Urban & Rural - Local (HCB): $108.3
- Paved Semi-Urban & Rural - Local (LCB): $34.6
- Paved Other: $5.3

Levels of Service

Community Levels of Service	Technical Levels of Service		
		Performance	
Statements	Performance Indicators	Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
Provide convenient access to properties	Percentage of lane-km of Arterial roads as a proportion of city land area in square kilometers (O.Reg. 588/17)	0.63	Not Applicable – this is an O.Reg 588/17 required measure. As development continues this ratio will increase.
	Number of lane-km of Collector roads as a proportion of City land area in square kilometers (O.Reg. 588/17)	0.98	Not Applicable – this is an O.Reg 588/17 required measure. As development continues this ratio will increase.
	Number of lane-km of Local roads as a proportion of City land area in square kilometers (O.Reg. 588/17)	2.25	Not Applicable – this is an O.Reg 588/17 required measure. As development continues this ratio will increase.
Quality and Reliability			
Keep assets in a state of good repair	For paved roads, the average Pavement Condition Index (PCI) value (O.Reg. 588/17)	78	> 78
	Percentage of roads with high or very high-risk exposure rating	14%	< 15%
Road maintenance is completed when required	Percentage of assets maintained in accordance with Minimum Maintenance Standards (MMS)	100%	100%

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Class 2 and 3 roads	5
Class 4, 5, and 6 roads	4

Risk Evaluation Matrix

PoF	1	2	3	4	5		Risk Exposure	CRV($)	CRV(%)
5	$0.00	$1.54	$8.27	$0.49	$0.93		Very High	$2.73	0.7%
4	$0.00	$1.47	$23.31	$3.62	$1.31		High	$55.28	13.3%
3	$0.00	$2.93	$22.89	$10.09	$9.98		Moderate	$169.80	40.8%
2	$0.00	$3.57	$31.41	$16.17	$29.44		Low	$166.85	40.1%
1	$0.00	$21.19	$115.51	$47.77	$63.94		Very Low	$21.19	5.1%
	1	2	3	4	5			$415.84	100.0%

CoF

Roads with Very High or High risk exposure are those assessed as being in poor or very poor condition based on their Pavement Condition Index (PCI) rating, as determined through the Roads Needs Study.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on planned City growth.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.

Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$8.44	$5.12	-$3.32	61%
Renewal	$7.34	$8.84	$1.50	120%
Operations & Maintenance	$1.86	$1.65	-$0.20	89%
Totals	**$17.63**	**$15.61**	**-$2.03**	**89%**

Based on calculations to achieve the proposed levels of service, Roads would require a 1.47% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress
Asset Management Processes	Develop condition and performance assessment protocols for assets within the portfolio.	Improved asset management decision-making	MED	In Progress
Data Quality and Reliability	Continue to update PCI ratings and lifecycle activities based on recent Road Need Study	Improved quality of SOLI reporting and needs projections	HIGH	Ongoing

State of Infrastructure ($281.9 million)

This service area assists in the safe and efficient transport of people and goods through grade separations. It also provides safe and effective drainage and preserves water quality. It maintains the road and storm networks in a state of good repair.

Key business drivers at this time are future population and associated asset growth and aging infrastructure.

> Bridges and Culverts assets include:
> - 51 bridges
> - 29 structural culverts
> - 1748 non-structural culverts

Many assets are approaching the mid-to-late stages of their useful lives and will require renewal or maintenance in the coming years. Additionally, steel culverts have exceeded their expected service life, while the ages of non-structural culverts are not well-documented, highlighting an area for improvement in asset data management.
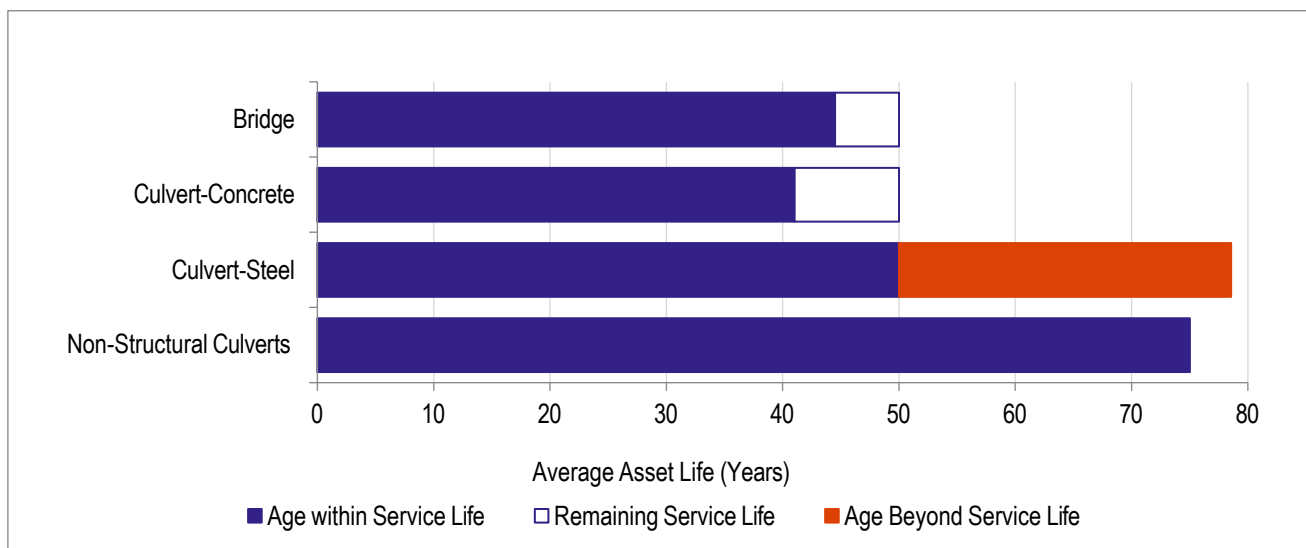
The City's bridges and structural culverts are generally in fair to good condition, as assessed using industry standard inspection protocols. The condition of non-structural culverts is not known as install date is not known and no condition assessments have been performed.

Replacement Value ($2024, M)

Legend: ■ Very Poor (End-of-Life) ■ Poor ■ Fair ■ Good ■ Very Good (New) ■ Unknown

Category	Value
Bridge	$258.55
Culvert-Concrete	$10.20
Culvert-Steel	$7.90
Non-Structural Culverts	$5.24

Levels of Service

Community Levels of Service	Technical Levels of Service		
		Performance	
Statements	Performance Indicators	Current (2023 / 2024 Where Available)	Proposed (2034)
Functional			
Meet customer needs while limiting health, safety, and data security impacts	Percentage of bridges in the City with loading or dimensional restrictions (O.Reg. 588/17)	0%	0%
Quality and Reliability			
Keep assets in a state of good repair	For bridges, the average Bridge Condition Index (BCI) value (O.Reg. 588/17)	72.7	≥ 70
	For structural culverts, the average Bridge Condition Index (BCI) value (O.Reg. 588/17)	70.5	≥ 70

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
OSIM structures over a railway or high volume roadway	5
OSIM structures over the Moira River or on Urban Arterial Roadways	4
All other OSIM structures	3
Non-OSIM Culverts (Entry and Stormwater)	2

Risk Evaluation Matrix

PoF	CoF 1	2	3	4	5		Risk Exposure	CRV($)	CRV(%)
5	$0.00	$0.00	$0.00	$0.00	$25.00		Very High	$25.00	9.1%
4	$0.00	$0.00	$7.40	$2.80	$0.00		High	$50.30	18.3%
3	$0.00	$0.00	$9.50	$12.60	$27.50		Moderate	$151.50	55.0%
2	$0.00	$0.00	$11.60	$33.40	$27.90		Low	$48.75	17.7%
1	$0.00	$0.00	$5.90	$42.85	$69.10		Very Low	$0.00	0.0%
	1	2	3	4	5			$275.55	100.0%

CoF

Assets in the Very High or High risk exposure categories include bridges and structural (OSIM) culverts.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on forecast population growth.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.

Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$3.85	$0.00	-$3.85	0%
Renewal	$3.95	$4.87	$0.92	123%
Operations & Maintenance	$0.04	$0.04	-$0.00	94%
Totals	**$7.84**	**$4.91**	**-$2.94**	**63%**

Based on calculations to achieve the proposed levels of service, Bridges & Culverts would require a 2.13% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Data Completeness	Fill asset attribute data gaps for non-structural culverts	Increased data quality and confidence in state of local infrastructure and lifecycle management activity forecast	HIGH	Short Term
Asset Information Systems	Develop central asset registry to house asset data and attribute information in a single location. Digitize asset information which currently is only available in paper format.	Improved confidence in input data and recommended solutions	MED	Medium Term
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress
Asset Management Processes	Develop condition and performance assessment protocols for assets within the portfolio.	Improved asset management decision-making	MED	In Progress

State of Infrastructure ($464.0 million)

This service area develops, operates, and maintains roadside infrastructure including sidewalks, bicycle lanes, intersections, signage, and illumination. It also provides winter control.

Key business drivers at this time are future population and associated asset growth and aging infrastructure.

Traffic and Operations assets include:
- Sidewalks & Active Transportation
- Streetlight assets
- Traffic and Pedestrian Signals
- TOS Fleet & Equipment

On average, the assets are halfway through their service life.
Those assets that may be approaching the later stages of age and may need to be replaced or require further maintenance. Currently, the age and condition of guardrails and traffic IT assets are unknown.
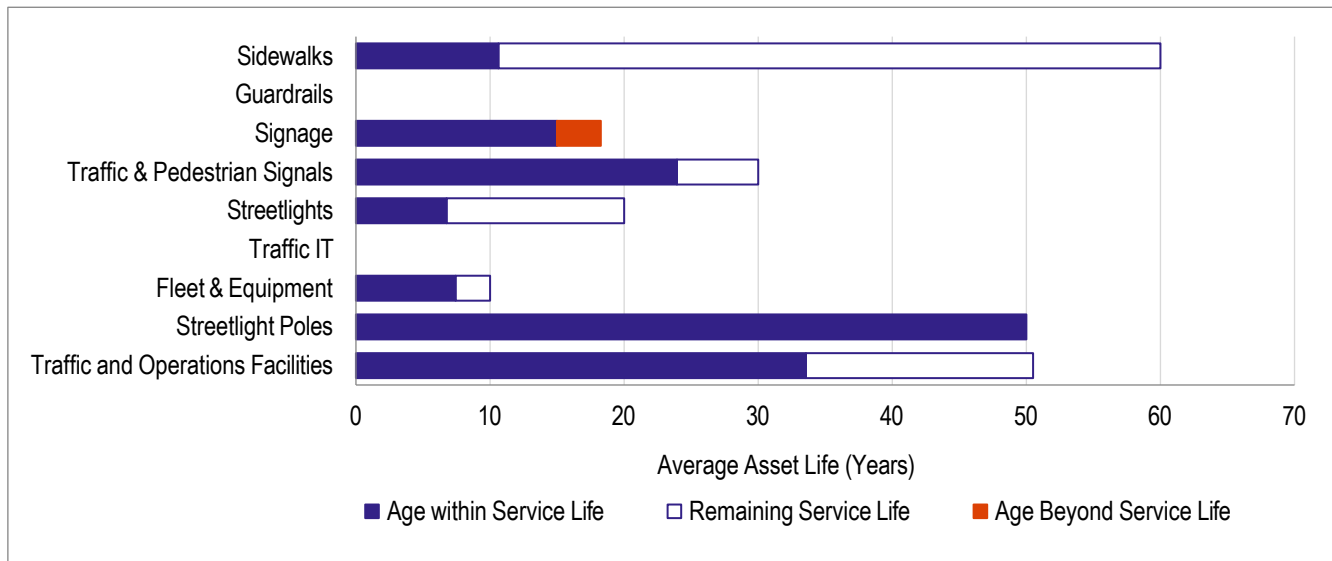
The City's assets are generally in fair to good condition. A number of assets are assessed to be poor to very poor and are nearing end of life and will require rehabilitation or replacement in the upcoming years.

Levels of Service

Community Levels of Service	Technical Levels of Service		
		Performance	
Statements	Performance Indicators	Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
Provide sufficient roadside and traffic ops capacity where and when needed	Number of fleet units (plated, non-plated, and trailers) per repair bay (for vehicle maintenance and storage)	32.33	> 32.33
Provide sufficient capacity and access fleet and equipment to City staff	Number of plated vehicles per Operations staff	0.85	≥ 0.85
Functional			
Meet customer needs while limiting health, safety, and data security impacts	Percentage of streetlights with LED fixtures	93%	100%
	Percentage of signalized intersections equipped with Accessible Pedestrian Signals	45%	65%
	Percentage of streetlights equipped with functional digital monitoring node	87%	100%
Quality and Reliability			
Keep assets in a state of good repair	Percentage of applicable assets maintained in accordance with Minimum Maintenance Standards	100%	100%
Operations and maintenance work is completed in a timely manner	Average number of lane kilometers per road snow-plow route	33.8	30.0
	Average number of kilometers per sidewalk snowplow route	34.6	30.0

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Trailers	2
Sidewalks, vehicles	3
Guardrails, warning signs, various equipment, streetlighting	4
Signalized Intersections, signs, regulatory signs, Traffic IT	5

Risk Evaluation Matrix

PoF	CoF 1	CoF 2	CoF 3	CoF 4	CoF 5
5	$0.00	$0.06	$0.60	$4.10	$0.09
4	$0.01	$0.82	$3.33	$4.84	$67.13
3	$0.00	$0.68	$5.97	$3.13	$129.54
2	$0.06	$2.32	$57.55	$9.94	$112.19
1	$0.03	$4.62	$6.38	$5.30	$13.14

Risk Exposure	CRV($)	CRV(%)
Very High	$71.32	16.5%
High	$141.44	32.8%
Moderate	$200.35	46.4%
Low	$13.99	3.2%
Very Low	$4.71	1.1%
	$431.81	100.0%

Assets in the Very High or High risk exposure categories include assets in the high CoF group that are in very poor or poor condition, in particular regulatory and warning signs, signalized intersections, streetlights, equipment and vehicles.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on planned City growth.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.

Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.75	$0.00	-$0.75	0%
Renewal	$5.34	$3.50	-$1.84	66%
Operations & Maintenance	$8.10	$8.99	$0.88	111%
Totals	**$14.19**	**$12.49**	**-$1.71**	**88%**

Based on calculations to achieve the proposed levels of service, Traffic & Operations would require a 1.23% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Information Systems	Develop central asset registry to house asset data and attribute information in a single location. Digitize asset information which currently is only available in paper format.	Improved confidence in input data and recommended solutions	MED	Medium Term
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress
Asset Management Processes	Develop condition and performance assessment protocols for assets within the portfolio that do not currently have any, such as guiderails.	Improved state of local infrastructure quality and reliability, confidence in renewal needs	MED	Short Term
Asset Data Quality	Complete more refined replacement cost estimates and risk evaluations for signalized intersections	Increased accuracy of renewal cost projections and subsequent financing strategy	HIGH	Short Term

State of Infrastructure ($38.9 million)

This service area provides reliable, convenient, and seamless travel across the City through both conventional and specialized mobility transit services. It maintains the transit assets in a state of good repair.

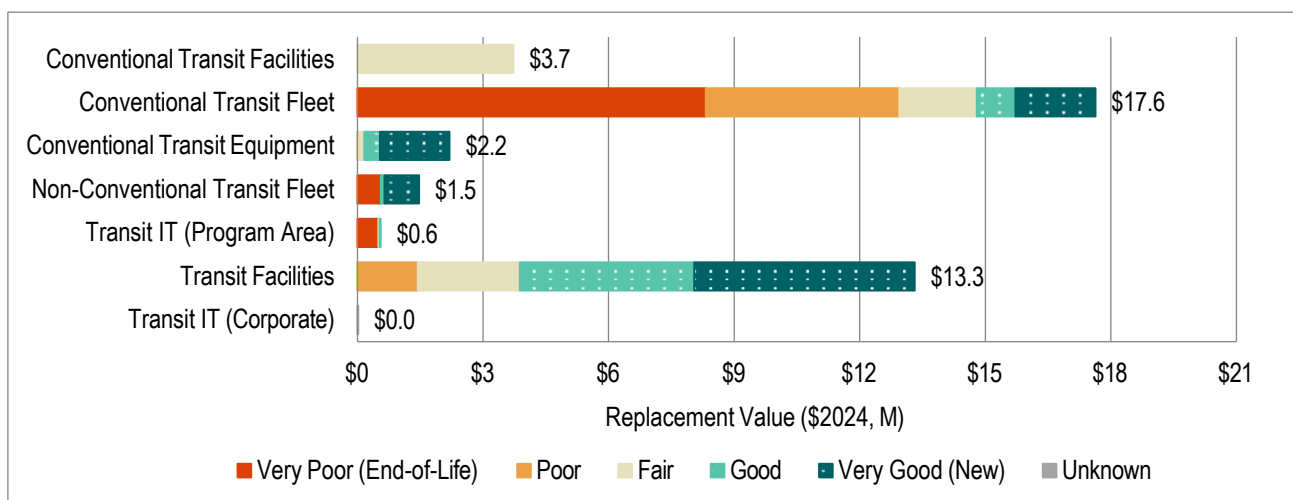Key business drivers at this time are future population and associated asset growth and aging infrastructure.

The age of assets compared to the service life is shown below. Much of the conventional transit fleet is nearing it's expected useful life and will require replacement in the upcoming years.

Transit assets include:

- 19 Conventional and 10 Non-Conventional Transit fleet
- One Terminal
- Transit stops including platforms & shelters.
- 217 Transit equipment
- Information Technology
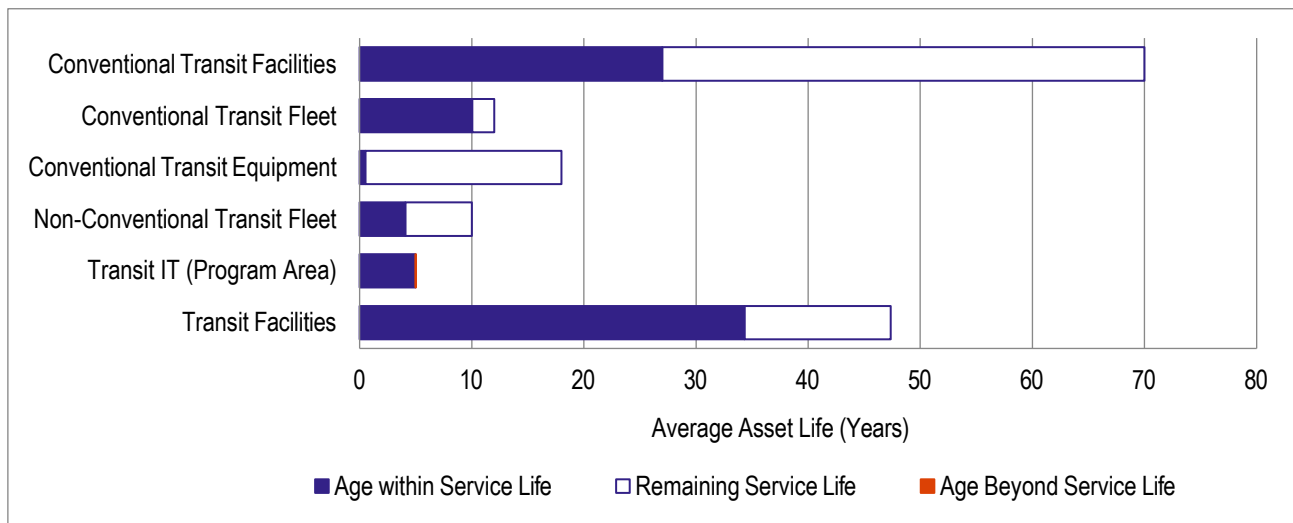
The City's transit assets include a significant portion that was assessed to be "Very Poor" and are nearing end of life, and will require replacement in the upcoming years.

Levels of Service

Community Levels of Service	Technical Levels of Service		
		Performance	
Statements	Performance Indicators	Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
The public transit network is available to and accessible for all City residents	Annual operating hours	69,129	> 69,250
	Hours of operation per capita	1.26	1.25
	Trips per capita	22	25
	Percentage of urban area residents within 500m of a bus stop	90%	90%
	Number of buses available for simultaneous operation	13	15
Functional			
Meet customer needs while limiting health, safety, and data security impacts	Percentage of bus stops in compliance with AODA standards	67%	100%
	Percentage of residents with access to specialized mobility services, if required	100%	100%
Quality and Reliability			
Keep assets in a state of good repair	Percentage of Transit assets with very high and high-risk exposure rating	55%	< 10%
	Percentage of buses past their expected useful life	46%	0%

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Fleet and IT	5
Facilities & Equipment	4
Transit Terminal	3

Risk Evaluation Matrix

PoF

PoF	1	2	3	4	5
5	$0.00	$0.00	$0.00	$0.00	$9.38
4	$0.00	$0.19	$0.99	$0.23	$4.68
3	$0.01	$0.93	$0.91	$4.38	$1.96
2	$0.05	$1.36	$1.46	$0.67	$2.03
1	$0.01	$1.42	$0.62	$1.86	$5.76

CoF

Risk Exposure	CRV($)	CRV(%)
Very High	$14.06	36.1%
High	$7.56	19.4%
Moderate	$11.95	30.7%
Low	$3.85	9.9%
Very Low	$1.48	3.8%
	$38.90	100.0%

Assets in the Very High or High risk exposure categories include assets in the high CoF group that are in very poor or poor condition, in particular conventional transit fleet.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on planned City growth.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.

Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from user fees, tax levies, and Provincial Gas Tax.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.24	$0.00	-$0.24	0%
Renewal	$2.24	$2.86	$0.63	128%
Operations & Maintenance	$8.24	$8.18	-$0.06	99%
Totals	**$10.72**	**$11.04**	**$0.32**	**Adequately Funded**

Based on calculations to achieve the proposed levels of service, Transit is adequately funded to cover the 10 year forecast.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Management Processes	Utilize outcomes from the Transit Master Plan to support future AM growth and upgrade needs.	Improved asset management decision-making	MED	In Progress
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress
Asset Information Systems	Integrate and adopt an Enterprise Asset Management software solution within the department to support work order management.	Improved confidence in input data and recommended solutions	MED	In Progress

State of Infrastructure ($90.6 million)

This service area develops, operates, and maintains parkland, open spaces, forests and outdoor park recreation facilities, amenities, infrastructure, and transportation assets.

Key business drivers at this time are future population and associated asset growth and aging infrastructure.
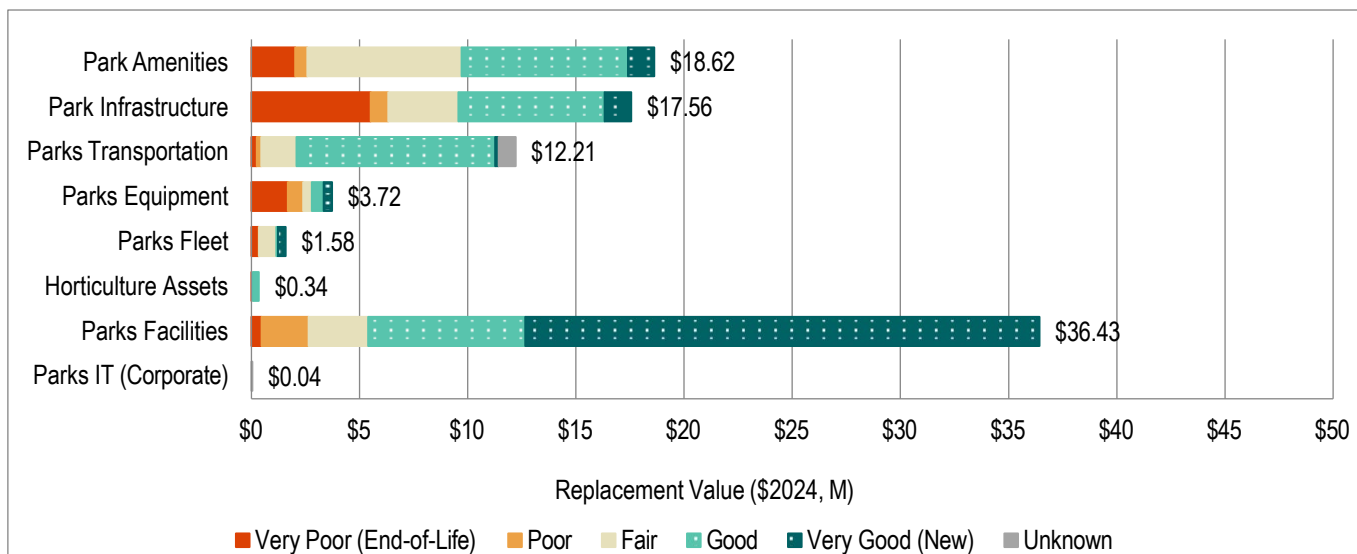
Most of the assets are in the mid to later stages of age and may need to be replaced or require further maintenance.

Parks assets include:
- 33 Parks Facilities
- 353 Parks Amenities
- 115 Parks Infrastructure Assets
- 25 Parks Fleet
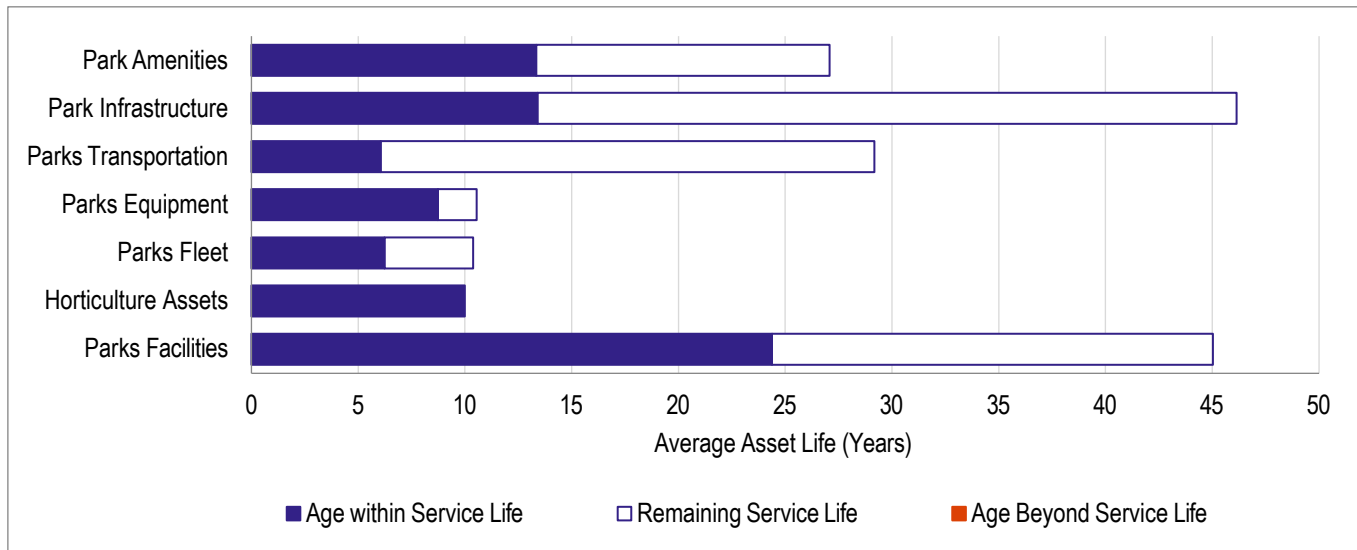
The City's Park assets are generally in fair to good condition. A number of amenities, equipment and infrastructure are assessed to be "Very Poor" and are nearing end of life and will require rehabilitation or replacement in the upcoming years.

Levels of Service

Community Levels of Service	Technical Levels of Service		
Statements	**Performance Indicators**	**Performance**	
		Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
Provide access to Parklands for the whole community	Number of hectares of Parkland per 1,000 residents	4.19	≥ 4
Provide access to Park amenities and programs for the whole community	Number of registered participants per ball diamond	176	130
	Number of registered participants per rectangular field	148	120
	Number of tennis courts per every 5,000 residents	0.1	1.00
	Number of pickleball courts per every 5,000 residents	0.8	1.00
	Number of basketball courts per every 800 youth (ages 10-19)	0.78	1.00
	Number of Skate Parks per 5,000 youth (aged 10-19)	1.1	1.00
	Number of City owned and managed outdoor rinks	2	3
	Ratio of off leash dog park area (square meters) to the number of dwelling units	1.3	≥ 1
Functional			
Provide an Active Transportation Network that enables sustainable transportation	Number of kilometers of Recreational trails	38.85	> 40
	Number of kilometers of Multiuse trails	13.2	> 15
Meet customer needs while limiting health, safety, and data security impacts	Percentage of Parkland parking lots that are AODA compliant	Future	Future
Quality and Reliability			
Keep assets in a state of good repair	Percentage of Parks assets with very high or high-risk exposure rating	27%	≤ 30%

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Fleet	3
Amenities, Transportation, Infrastructure, Equipment, Field House Park Services Bldg	3
Greenhouses, Pump House	2
Horticulture Assets	1

Risk Evaluation Matrix

PoF	1	2	3	4	5
5	$0.02	$0.73	$7.87	$1.69	$0.00
4	$0.12	$1.08	$2.33	$0.95	$0.00
3	$0.11	$1.17	$9.78	$4.34	$0.58
2	$0.47	$4.43	$22.14	$4.65	$0.16
1	$0.04	$5.58	$6.31	$8.40	$6.77

CoF

Risk Exposure	CRV($)	CRV(%)
Very High	$1.69	1.9%
High	$16.08	17.9%
Moderate	$46.51	51.8%
Low	$19.37	21.6%
Very Low	$6.10	6.8%
	$89.75	100.0%

Assets in the Very High or High risk exposure categories include assets in the high CoF group that are in very poor or poor condition, in particular park amenities, infrastructure, equipment and fleet.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on planned City growth.
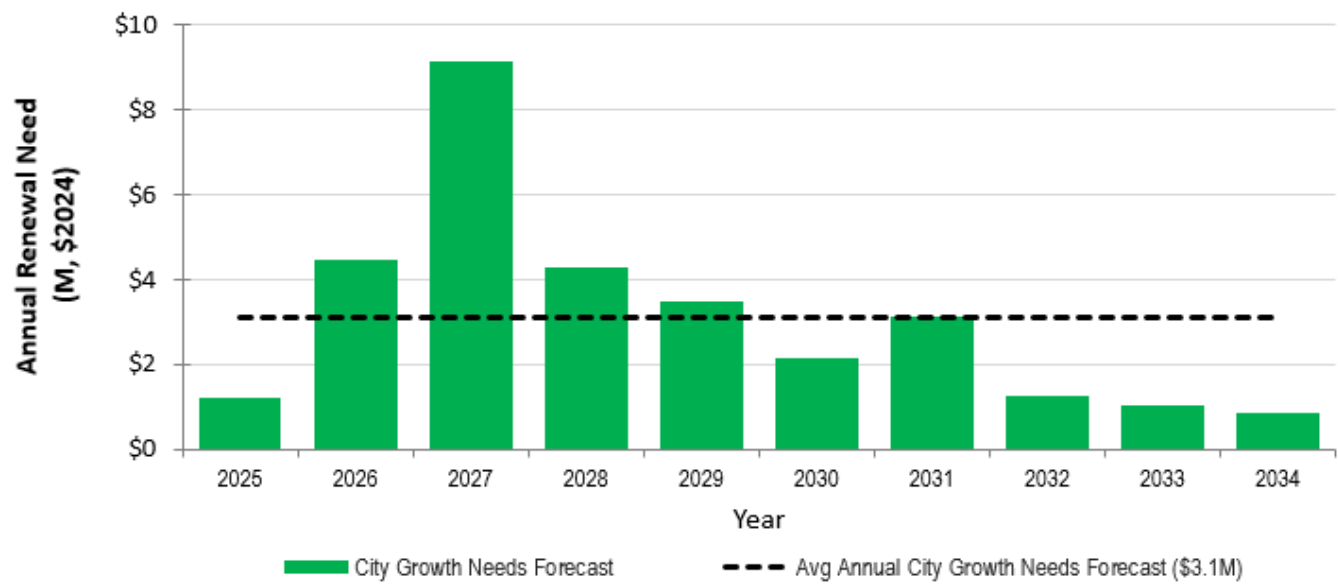
Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of higher risk assets and deferring the renewal of lower risk assets.
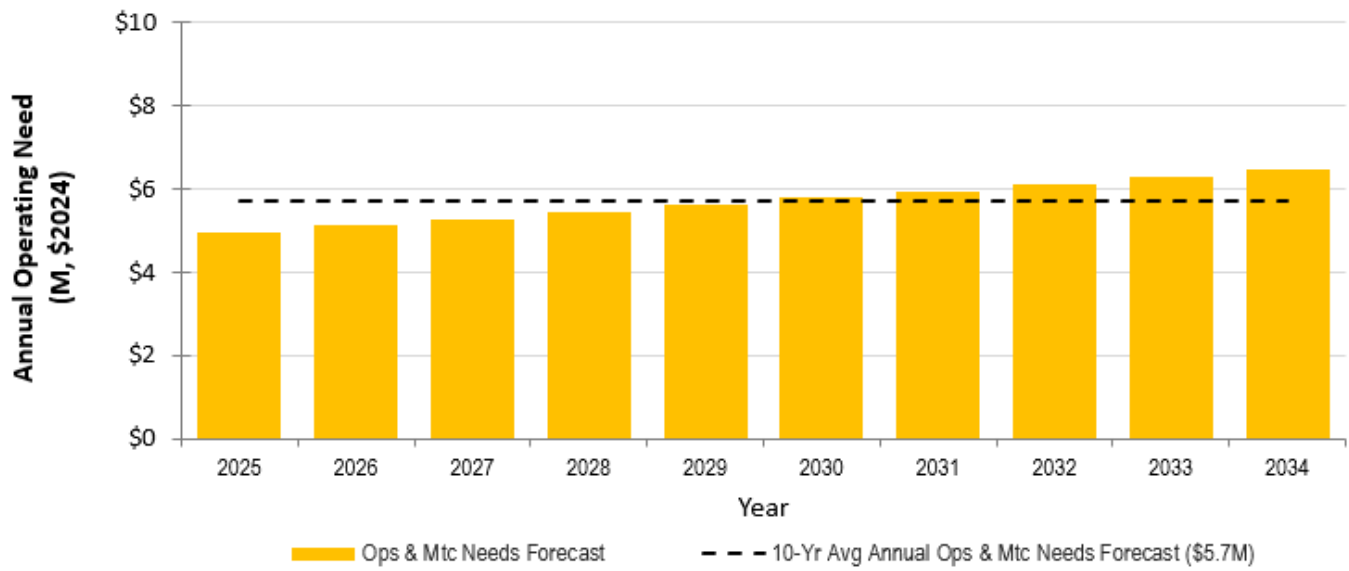
Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies and user fees.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$3.10	$1.05	-$2.05	34%
Renewal	$2.68	$1.92	-$0.75	72%
Operations & Maintenance	$5.70	$5.01	-$0.68	88%
Totals	**$11.47**	**$7.99**	**-$3.48**	**70%**

Based on calculations to achieve the proposed levels of service, Parks would require a 2.52% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress
Asset Management Processes	Develop condition and performance assessment protocols for assets within the portfolio.	Improved asset management decision-making	MED	In Progress

State of Infrastructure ($3.3 million)

This program area manages curbside collection of blue boxes, green bin, yard waste and residual waste, and delivers the materials to facilities for processing, energy recovery and/or disposal.
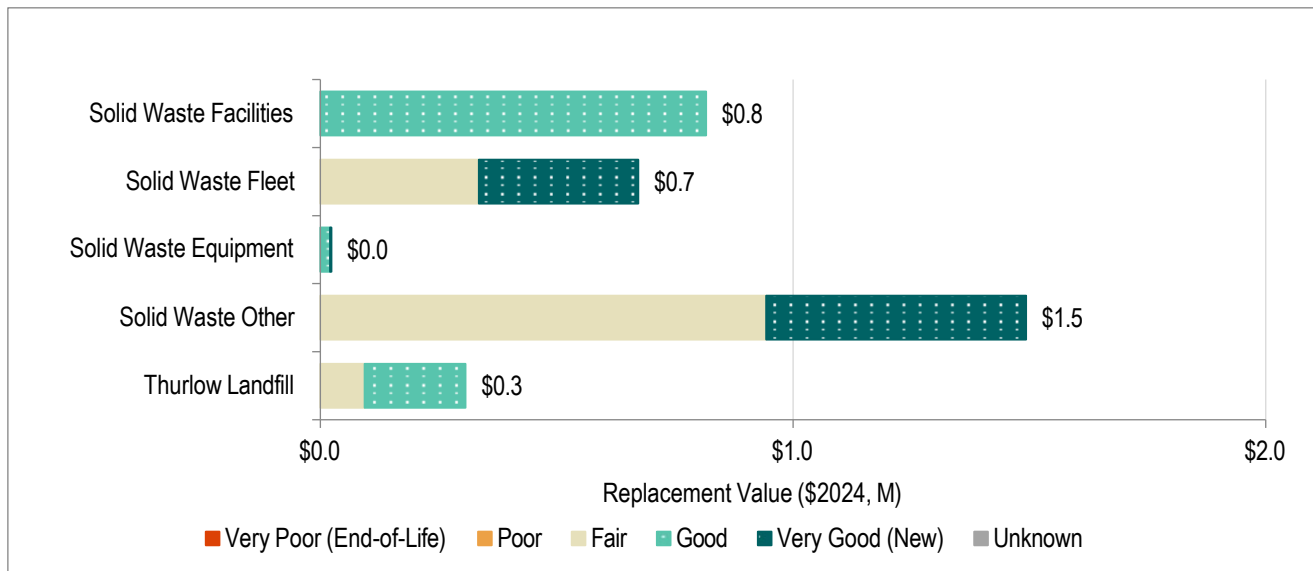
The City's waste management assets are in the first half of useful life.

Waste Management assets include:
- Thurlow Landfill
- Landfill Facilities
- WM equipment
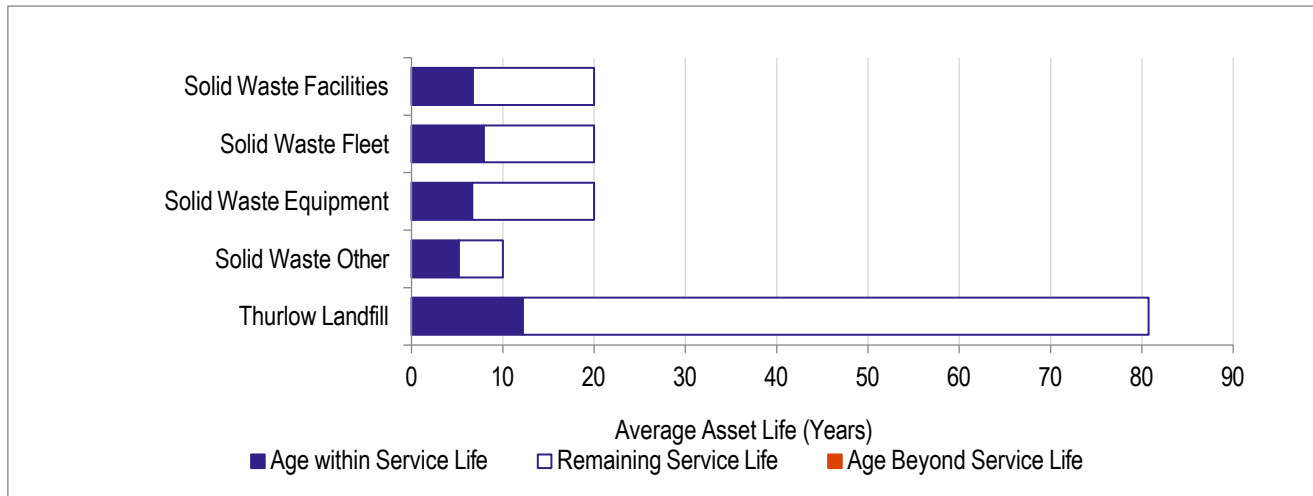
The City's waste management assets are in fair to very good condition.

Levels of Service

Community Levels of Service	Technical Levels of Service		
		Performance	
Statements	Performance Indicators	Current (2023 / 2024 Where Available)	Proposed (2034)
Quality and Reliability			
Keep assets in a state of good repair	Percentage of solid waste management assets with very-high risk exposure	0%	< 50%
Affordability			
City services are affordable	Ratio of 10-year renewal budget to needs	Future	Future

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Thurlow Landfill Facilities	4
Solid Waste Equipment	4
Solid Waste Fleet	4
Solid Waste IT	4

Risk Evaluation Matrix

PoF	1	2	3	4	5
5	$0.00	$0.00	$0.00	$0.00	$0.00
4	$0.00	$0.00	$0.00	$0.00	$0.00
3	$0.00	$0.01	$0.08	$1.28	$0.00
2	$0.00	$0.08	$0.13	$0.84	$0.00
1	$0.00	$0.00	$0.00	$0.89	$0.00

CoF

Risk Exposure	CRV($)	CRV(%)
Very High	$0.00	0.0%
High	$1.28	38.6%
Moderate	$1.06	32.1%
Low	$0.97	29.3%
Very Low	$0.00	0.0%
	$3.31	100.0%

No Waste Management assets are in the Very High or High risk exposure categories.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on forecast population growth and are minimal.
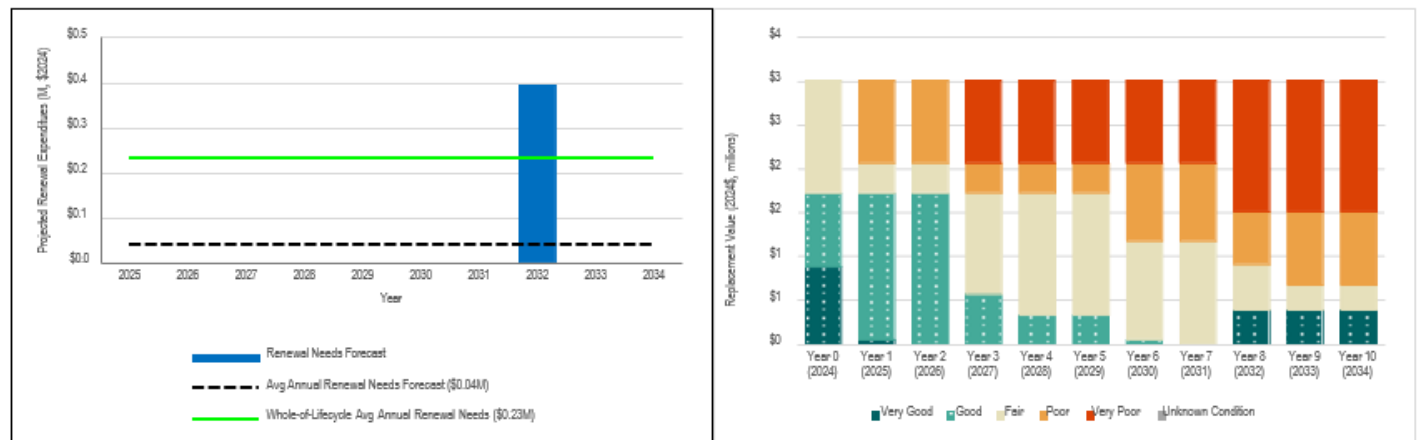
Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.
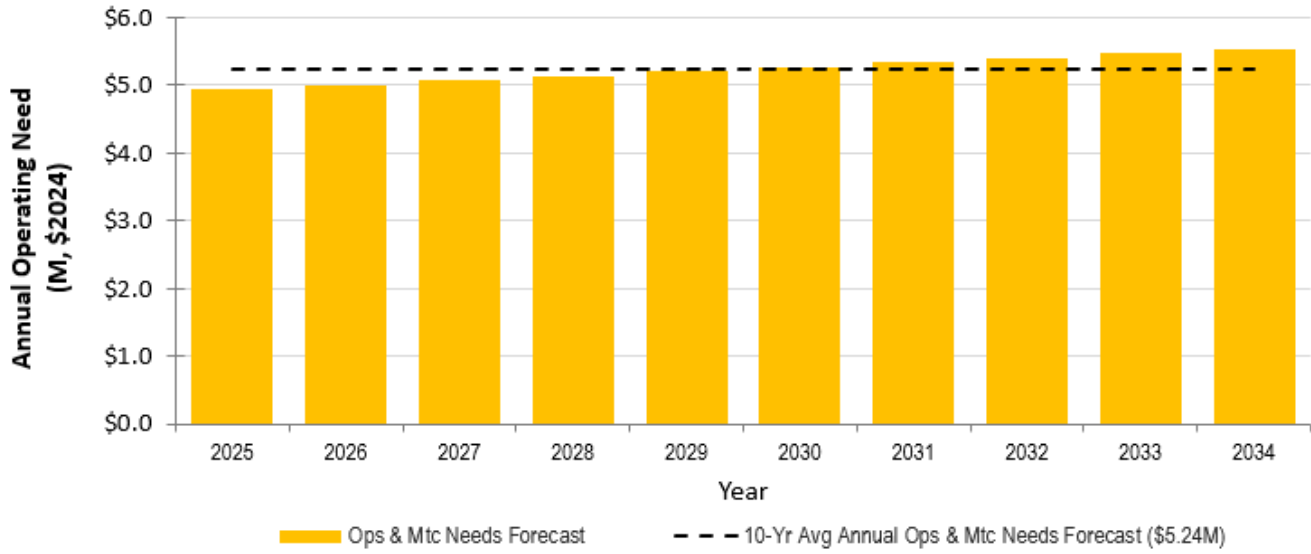

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies and user fees.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.05	$0.00	-$0.05	0%
Renewal	$0.04	$0.03	-$0.01	65%
Operations & Maintenance	$5.24	$4.99	-$0.25	95%
Totals	**$5.33**	**$5.02**	**-$0.31**	**94%**

Based on calculations to achieve the proposed levels of service, Waste Management would require a 0.22% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Organization and People	Formalize service area / department responsible for Asset Management activities such as data collection and maintenance	Clearly identified roles and responsibilities with a single source for information will enable improved AM data collection and planning	HIGH	Short Term
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress

## State of Infrastructure ($721.2 million)

This program area secures, treats, stores, and distributes drinking water to its serviced customers. It also maintains water assets in a state of good repair.

Key business drivers at this time are quality management, future population growth and associated infrastructure required, timing of growth, and aging infrastructure.
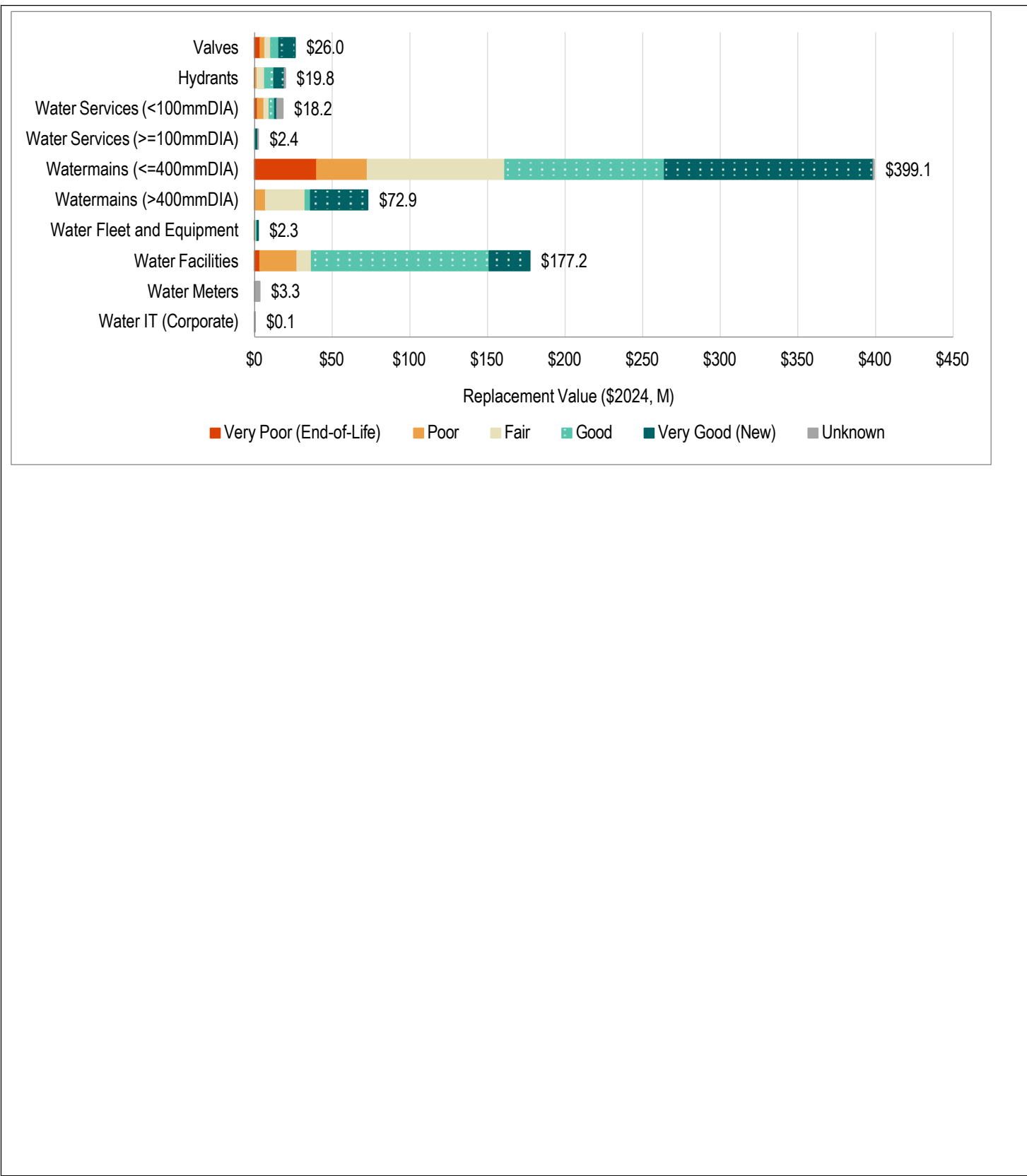
On average, the City's water assets are approaching mid-life in relation to their expected service lives. Various components in the Water facility plants have exceeded the later stages of their useful lives and will require rehabilitation or replacement in the coming years.

Water assets include:
• Water Treatment and Distribution Facilities
• Water Distribution and Transmission Linear Networks
• Supervisory Control and Data Acquisition (SCADA) Systems
• Storage tanks / reservoirs
• Water Fleet and Equipment
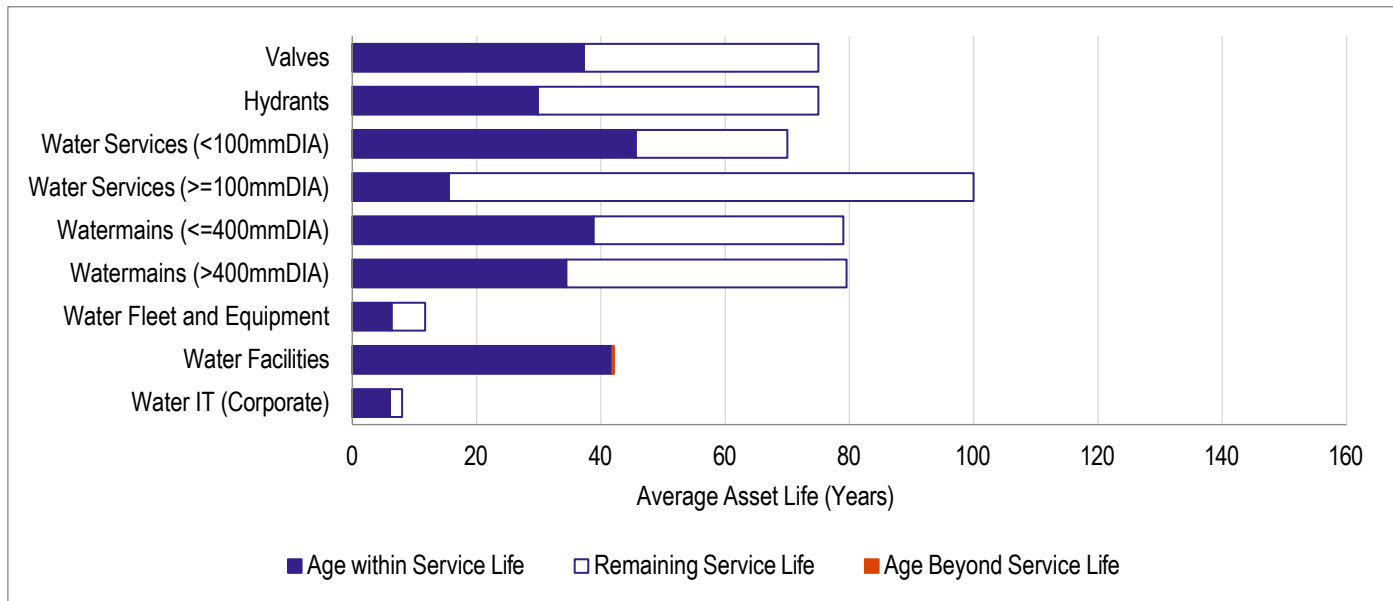
The City's water assets are generally in fair to good condition, as assessed based on inspected conditions. The majority of the City's water assets have not undergone formal inspections, with the exception of facilities and reservoirs, including the elevated water storage tank. It is important to note that water pipes are particularly challenging to inspect effectively, which should be considered when evaluating asset condition and maintenance strategies.

Replacement Value ($2024, M)

Legend: ■ Very Poor (End-of-Life) ■ Poor ■ Fair ■ Good ■ Very Good (New) ■ Unknown

Chart values by category:
- Valves: $26.0
- Hydrants: $19.8
- Water Services (<100mmDIA): $18.2
- Water Services (>=100mmDIA): $2.4
- Watermains (<=400mmDIA): $399.1
- Watermains (>400mmDIA): $72.9
- Water Fleet and Equipment: $2.3
- Water Facilities: $177.2
- Water Meters: $3.3
- Water IT (Corporate): $0.1

Levels of Service

Community Levels of Service	Technical Levels of Service		
		Performance	
Statements	Performance Indicators	Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
Water system has the capacity to provide current and future serviced customers with uninterrupted access to treated water at an adequate pressure	Percentage of properties connected to the municipal water system (O.Reg. 588/17)	79%	Not Applicable – this is an O.Reg. 588/17 required measure.
	Percentage of properties where fire flow is available (O.Reg. 588/17)	78%	Not Applicable – this is an O.Reg. 588/17 required measure.
	Percentage of average day demand / existing water license capacity	36%	>36%
Functional			
Water treated and transported throughout the system meets or exceeds all regulatory requirements for quality	Number of Adverse Water Quality Incidents (AWQIs) in the past year	1	0
	Number of boil water advisories declared in the past year (O.Reg. 588/17)	0	0
Water services are provided prioritizing safety	Number of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system (O.Reg. 588/17)	14.17	Not Applicable – this is an O.Reg. 588/17 required measure.
Quality and Reliability			
Water services are provided prioritizing safety	Number of connection-days per year where a boil water advisory notice is in place compared to the total number of properties connected to the municipal water system	0	0
	Number of reports received due to the system's performance falling below the designated quantity or pressure thresholds.	0	0
Assets are kept in good repair	Percentage of water assets with very-high risk exposure	0%	< 2.5%

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Plants, Pumping/Booster Stations, Elevated Storage Tanks	5
Hydrants, Services >= 100mmDIA, Watermains > 400mm DIA, Heavy Duty Equipment, SCADA	4
Valves, Smaller Services, and Watermains	3
Light/Med Duty Vehicles and Equipment	2
Trailers	1

Risk Evaluation Matrix

PoF						Risk Exposure	CRV($)	CRV(%)
5	$0.04	$1.46	$47.97	$0.73	$0.00	Very High	$20.98	2.9%
4	$0.08	$0.51	$42.75	$8.48	$20.25	High	$130.53	18.3%
3	$0.10	$1.35	$102.91	$30.37	$0.95	Moderate	$313.02	43.9%
2	$1.36	$33.66	$145.74	$42.73	$13.26	Low	$245.52	34.4%
1	$0.05	$1.33	$160.07	$51.61	$5.01	Very Low	$2.73	0.4%
	1	2	3	4	5		$712.79	100.0%
			CoF					

Various components in the Belleville Water Treatment Plant along with watermains, hydrants, fleet and equipment assets are in the Very High or High risk exposure categories.

Lifecycle Management

The following graphs provide the forecast of necessary lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on planned City growth.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.
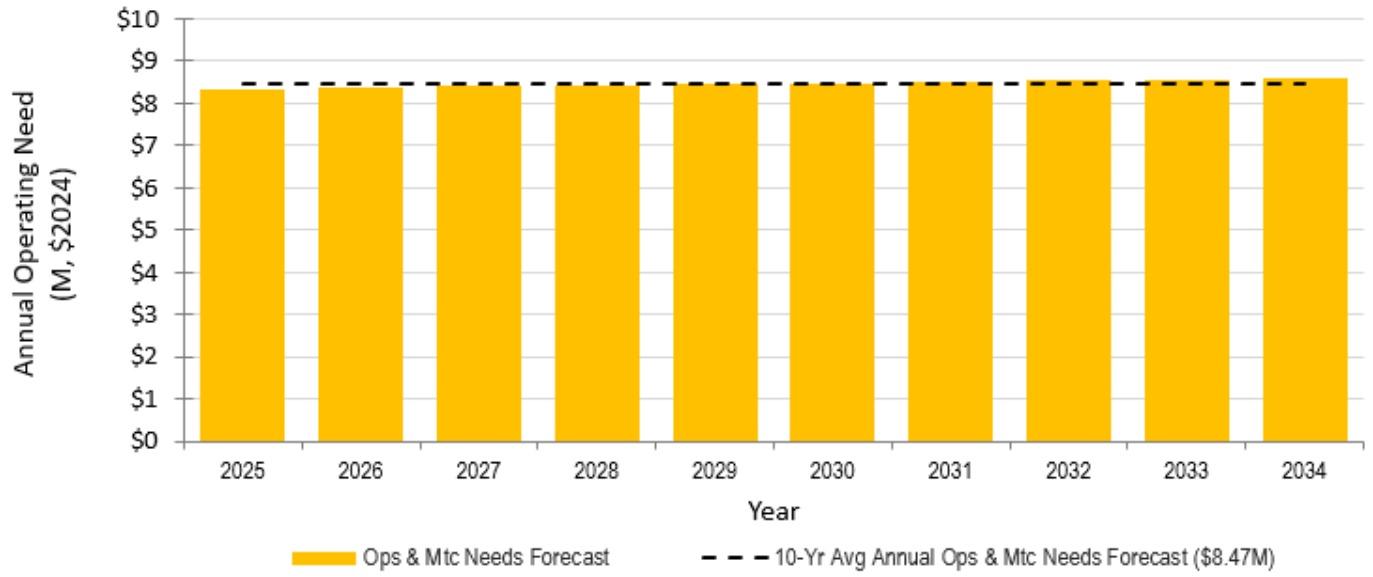
Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from user rates.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$2.07	$2.73	$0.66	132%
Renewal	$7.19	$6.97	-$0.22	97%
Operations & Maintenance	$8.47	$8.61	$0.15	102%
Totals	**$17.73**	**$18.32**	**$0.59**	**Adequately Funded**

Based on calculations to achieve the proposed levels of service, Water is adequately funded to cover the 10 year forecast.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Risk Management	Variations to consequences of failure (CoF) ratings within classes of most linear water infrastructure assets are based on size as a proxy for relative importance to the network, e.g. larger mains service larger areas, more users, and more critical user groups such as hospitals. Conduct review of asset CoF ratings related to more precise asset or system attributes.	Improved accuracy of risk analysis which would enable more suitable prioritization of lifecycle activity planning	HIGH	Short Term
Data Accuracy and Completeness	Utilize Building Condition Assessment data and projections to overwrite proxy data utilized for Water facilities.	Improved accuracy of state of local infrastructure and lifecycle activities, increased granularity of asset inventories and risk assessments.	HIGH	Complete
Data Accuracy and Completeness	Close gaps and resolve assumptions related to asset data describing the state of local infrastructure. Validate assumptive information for hydrants, hydrant laterals, meter chambers, valves, valve chambers, etc.	Improved accuracy of state of local infrastructure and lifecycle activities, quality of AM planning.	MED	Short Term

Asset Condition Ratings	Investigate alternative and new opportunities for assessing the condition of Water linear infrastructure	Improved accuracy of state of local infrastructure data and lifecycle management projections to overwrite those developed through age-based condition data	MED	Medium Term

State of Infrastructure ($606.5 million)

This program area collects wastewater from residents and businesses, conveys it through trunk sewers to wastewater treatment plant for extensive processing before releasing it to the environment. It also operates and maintains wastewater assets in a state of good repair.

Key business drivers at this time are environmental protection, future population growth and associated infrastructure required, timing of growth, wet weather resilience, and aging infrastructure.

Wastewater assets include:
- Wastewater Collection Linear Network
- Wastewater Pumping Stations
- Treatment and Disposal Plant
- Sanitary Forcemains
- Supervisory Control and Data Acquisition (SCADA) Systems

On average, the City's wastewater assets are reaching the middle stages of their useful lives and many will require rehabilitation or replacement in the upcoming years.
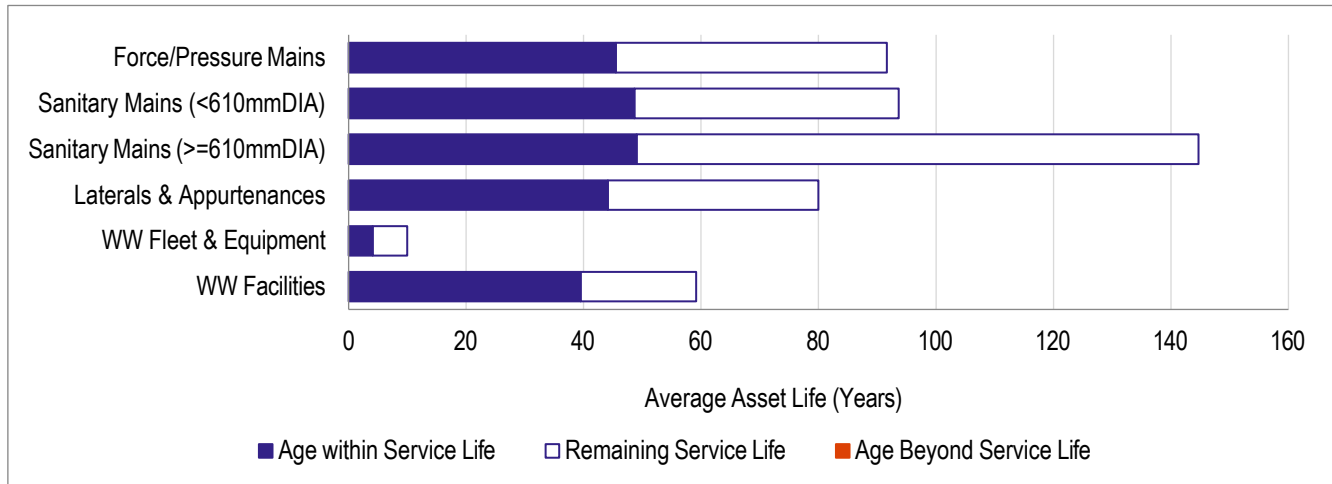
The City's wastewater assets are generally in fair to good condition, few assets are nearing end of life, requiring rehabilitation or replacement in the upcoming years.

Replacement Value ($2024, M)

■ Very Poor (End-of-Life) ■ Poor ■ Fair ■ Good ■ Very Good (New) ■ Unknown

Levels of Service

Community Levels of Service	Technical Levels of Service		
Statements	**Performance Indicators**	**Performance**	
		Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
Wastewater system has the capacity to provide uninterrupted wastewater collection, conveyance and treatment from current and future serviced customers	Percentage of system at risk of backflow/ overflow based on modelling of combined sewer flows	2.8%	< 2.8%
	Number of bypasses caused by plant flow rate exceedance	9	Future
	Percentage of properties connected to the municipal wastewater system (O.Reg. 588/17)	77%	Not Applicable – this is an O.Reg 588/17 required measure.
Functional			
Wastewater system is adequate to cope with extreme operational conditions	Number of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system (O.Reg. 588/17)	0	Not Applicable – this is an O.Reg 588/17 required measure.
	Number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system (O.Reg. 588/17)	2.5	Not Applicable – this is an O.Reg 588/17 required measure.
Quality and Reliability			
Keep assets in a state of good repair	Percentage of wastewater system with high or very high-risk exposure rating	35%	< 35%
	Number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system (O.Reg. 588/17)	10	Not Applicable – this is an O.Reg 588/17 required measure.
Operations are responsive	Percentage of service requests completed within their prescribed timeline	80%	100%

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Plants, Pumping Stations	5
Pressure/Force Mains, Sanitary Mains >= 610 mmDIA, Heavy Duty Equip, SCADA	4
Sanitary Mains < 610 mmDIA, Laterals, SM Structures & Overflows	3
Light/Med Duty Vehicles & Equip, Trailers	1,2

Risk Evaluation Matrix

PoF						Risk Exposure	CRV($)	CRV(%)
5	$0.08	$1.30	$55.50	$0.75	$2.57	Very High	$3.35	0.6%
4	$0.44	$4.35	$44.33	$9.48	$0.03	High	$137.77	23.1%
3	$0.06	$1.42	$62.01	$28.21	$0.26	Moderate	$313.07	52.4%
2	$2.74	$34.90	$41.25	$50.89	$109.24	Low	$135.88	22.8%
1	$0.19	$4.06	$78.97	$21.51	$42.51	Very Low	$6.99	1.2%
	1	2	3	4	5		$597.07	100.0%

CoF

Approximately $3.35 million in wastewater assets (by replacement value) fall within the High or Very High risk exposure categories. These assets are characterized by a high to very high consequence of failure (CoF) and are currently in poor to very poor condition. The majority of these high-risk assets consist of HVAC, plumbing, electrical, and conveying systems.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on planned City growth.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.
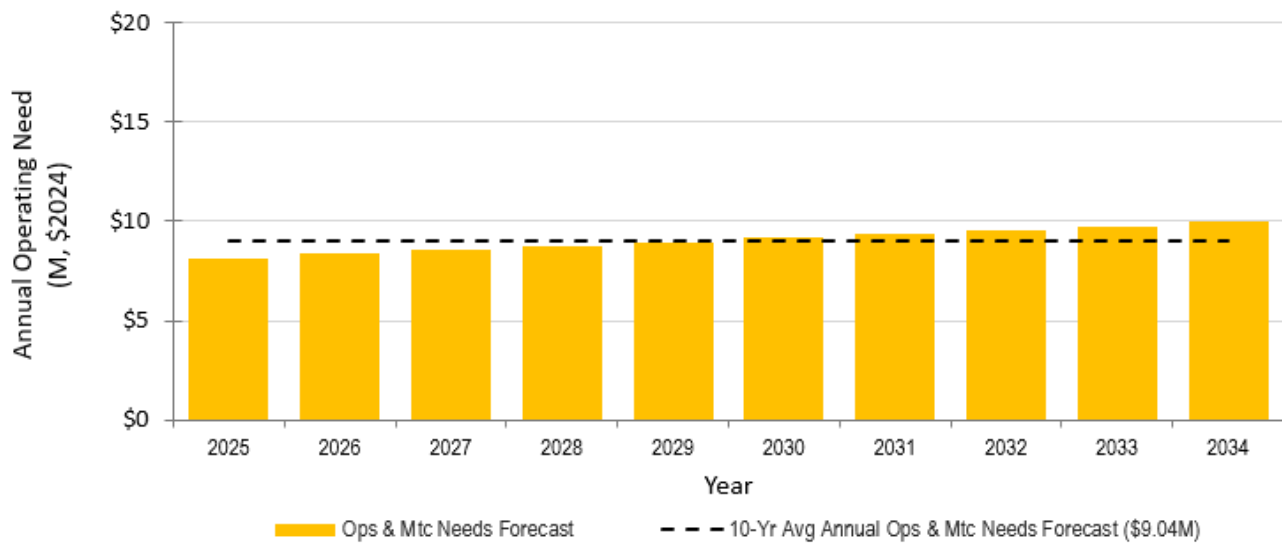
Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio..

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from user rates.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$14.68	$2.03	-$12.65	14%
Renewal	$7.65	$10.78	$3.13	141%
Operations & Maintenance	$9.04	$8.32	-$0.72	92%
Totals	**$31.38**	**$21.13**	**-$10.24**	**67%**

Based on calculations to achieve the proposed levels of service, Wastewater would require a 56.53% user rate increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Management Processes	Variations to consequences of failure (CoF) ratings within most linear wastewater infrastructure assets classes are based on size as a proxy for relative importance to the network, e.g. larger sewers service larger areas and disruptions affect a greater number of individuals. Conduct review of asset CoF ratings related to more precise asset or system attributes.	Improved accuracy of risk analysis which would enable more suitable prioritization of lifecycle activity planning	HIGH	Short Term
Data Quality and Completeness	Investigate gaps associated with asset classes recently added to the asset register via separation from their parent asset, such as pipe appurtenances and service lines, collecting appropriate data where available and resolving assumptions related to asset data.	Improved reliability of information maintained in AM database Improved confidence in input data and recommended solutions	MED	Short Term

Asset Data Quality and Consistency	Generally, the wastewater service area uses estimated costs for asset renewal and replacement activities. Asset replacement values are often based on a combination of staff input, past contracts, and industry standards, extrapolated to suit asset sizes or other categorizing variables as necessary. The City should continue to update these figures with more tailored costing as it becomes available, particularly in areas where recent historical data could not be obtained for this AM Plan.	Improved reliability of replacement and major rehabilitation activities recommended in future iterations of the AM Plan. This improvement activity is particularly relevant to assets at the extremes of size or complexity scales where the accuracy of extrapolated costs may be diminished.	MED	In Progress
Asset Data Quality and Consistency	Perform CCTV assessments of Wastewater linear infrastructure to collect standardized, accurate condition data, and overwrite age-based condition data.	Improved accuracy of state of local infrastructure data and lifecycle management projections. Additional data may be collected through the process to improve inventory completeness, inform risk, aid prioritization, and provide options for rehabilitation.	HIGH	In Progress

State of Infrastructure ($617.0 million)

This service area collects and controls stormwater from Belleville's drainage area. Stormwater is collected through structures such as catch basins, conveyed, and controlled by elements of the linear network and management facilities and released into the environment. It also operates and maintains stormwater assets in a state of good repair.

Key business drivers at this time are quality and quantity control objectives, future population growth and associated infrastructure required and timing of growth.

Stormwater assets include:
- Stormwater Management Linear Network and Appurtenances
- Stormwater Management Facilities including Management Ponds
- A Stormwater Pumping Station

The City's stormwater management assets are generally young compared to the other service area's buried pipe networks and associated infrastructure. While these assets are younger on average, their high replacement values will require considerable planning for replacement and rehabilitation activities to avoid high costs in the medium to long term.
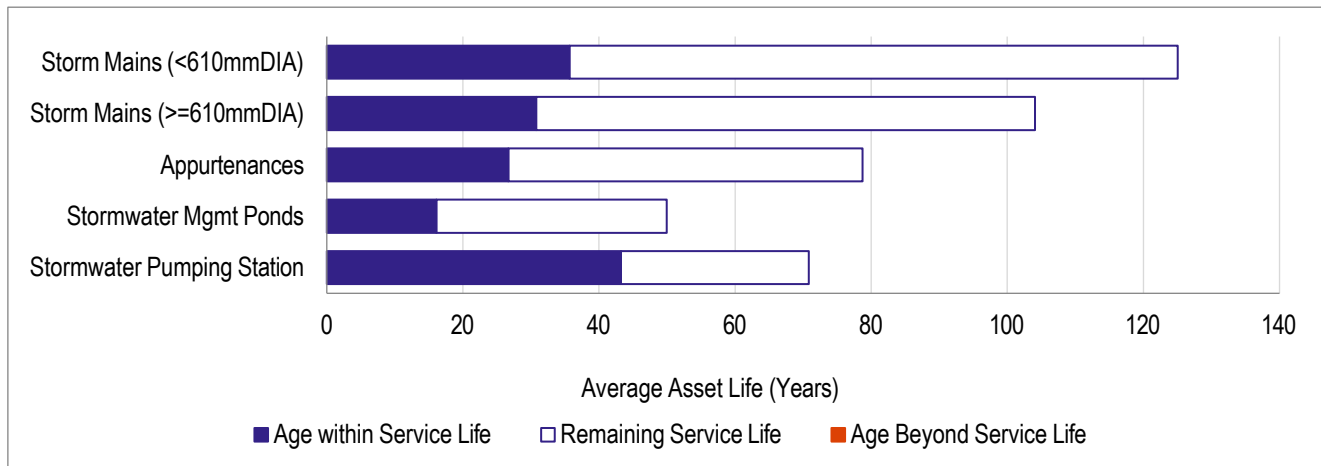
The City's stormwater assets are generally in good to very good condition, as assessed based predominantly on asset ages compared to expected useful lives.

Replacement Value ($2024, M)

Storm Mains (<610mmDIA)	$402.91
Storm Mains (>=610mmDIA)	$45.95
Appurtenances	$74.12
Stormwater Mgmt Ponds	$91.79
Stormwater Pumping Station	$2.21

Legend: ■ Very Poor (End-of-Life) ■ Poor ■ Fair ■ Good ■ Very Good (New) ■ Unknown

Levels of Service

Community Levels of Service	Technical Levels of Service		
		Performance	
Statements	Performance Indicators	Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
Stormwater system protects the municipality from flooding	Percentage of properties in municipality resilient to a 100-year storm (O.Reg. 588/17)	94.6%*	Not Applicable – this is an O.Reg 588/17 required measure.
	Percentage of the municipal stormwater management system resilient to a 5-year storm (O.Reg. 588/17)	99.25%*	Not Applicable – this is an O.Reg 588/17 required measure.
Quality and Reliability			
Keep assets in a state of good repair	Percentage of stormwater system with very high-risk exposure rating	0%	< 5%
Operations are responsive	Percentage of field service requests completed within their prescribed timeline	80%	100%

* Current Performance is based on 2022 performance where 2023 and 2024 is not available – a more reliable method for assessing performance is currently under investigation

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Pumping Station (Cannifton Road)	5
Storm Mains >= 610 mmDIA, Ponds	4
Storm Mains < 610 mmDIA, Structures, Ditches, Swales, OGS, Inlets and Outlets, Headwalls, and Fencing	3

Risk Evaluation Matrix

PoF	1	2	3	4	5	Risk Exposure	CRV($)	CRV(%)
5	$0.00	$0.00	$0.01	$0.00	$0.00	Very High	$0.00	0.0%
4	$0.00	$0.00	$6.23	$0.71	$0.00	High	$40.43	7.0%
3	$0.00	$0.00	$81.27	$33.48	$0.00	Moderate	$294.34	50.9%
2	$0.00	$0.00	$173.88	$39.18	$0.00	Low	$243.14	42.1%
1	$0.00	$0.00	$180.41	$62.73	$0.00	Very Low	$0.00	0.0%
	1	2	3	4	5		$577.92	100.0%

CoF

Stormwater ponds and mains with a diameter of 610 mm or greater are classified within the high risk category. There are currently no stormwater assets identified in the very high risk categories.

Lifecycle Management

The following graphs provide the forecasted necessary lifecycle activities over each of the next 10 years to maintain current levels of service. Note that graphs are plotted using different vertical scales.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on planned City growth.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.
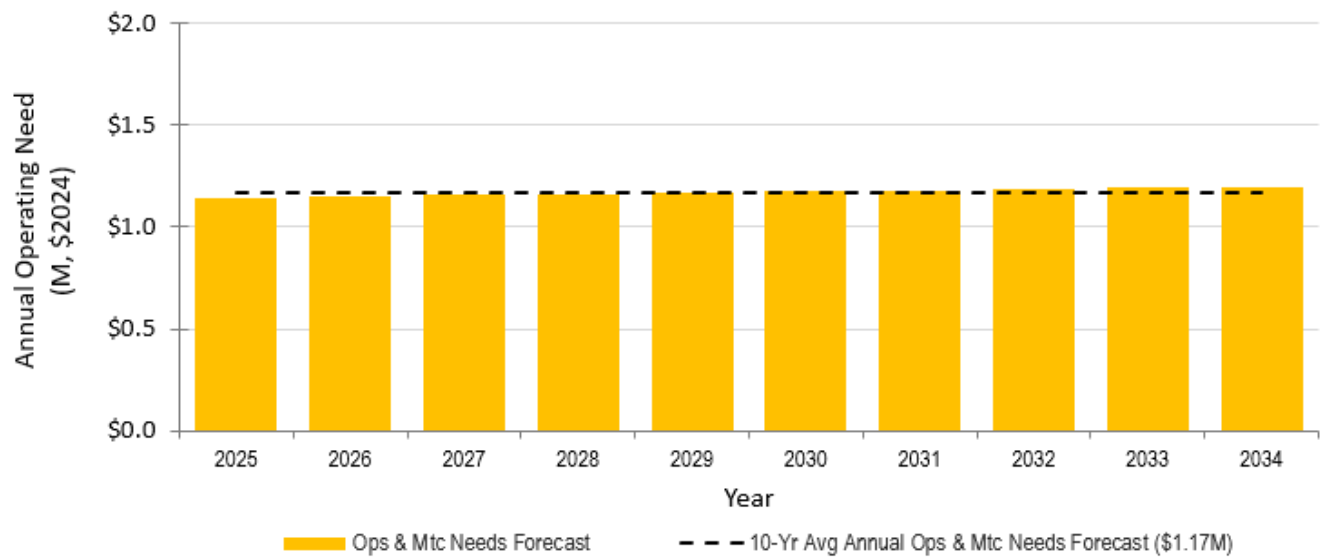
Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$2.84	$0.00	-$2.84	0%
Renewal	$0.34	$0.41	$0.07	120%
Operations & Maintenance	$1.17	$1.02	-$0.15	87%
Totals	**$4.35**	**$1.43**	**-$2.92**	**33%**

Based on calculations to achieve the proposed levels of service, Stormwater would require a 2.12% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Management Processes	Variation to consequences of failure (CoF) ratings within most linear stormwater infrastructure assets classes are based on size as a proxy for relative importance to the network, e.g. larger pipes carry greater volumes and pose larger threats to upstream areas should they fail. Conduct review of asset CoF ratings related to more precise asset or system attributes.	Improved accuracy of risk analysis which would enable more suitable prioritization of lifecycle activity planning	HIGH	Short Term
Asset Data Quality and Consistency	Investigate gaps associated with asset classes recently added to the asset register via separation from their parent asset, such as catch basins and leads, collecting appropriate data where available and resolving assumptions related to asset data.	Improved completeness of stormwater management asset inventory. Improved reliability of information maintained in AM database Improved confidence in input data and recommended solutions	MED	Short Term

Asset Data Quality and Consistency	Generally, the stormwater management service area uses estimated costs for asset renewal and replacement activities. Asset replacement values, such as those for stormwater ponds, are often based on a combination of staff input, past contracts, and industry standards, extrapolated to suit asset sizes or other categorizing variables as necessary. The City should continue to update these figures with more tailored costing as it becomes available, particularly in areas where recent historical data could not be obtained for this AM Plan.	Improved reliability of replacement and major rehabilitation activities recommended in future iterations of the AM Plan. This improvement activity is particularly relevant to assets at the extremes of size or complexity scales where the accuracy of extrapolated costs may be diminished.	MED	In Progress
Asset Data Quality and Consistency	Perform CCTV assessments of stormwater linear infrastructure where possible as well as continuing/ adapting stormwater pond inspections to collect accurate condition data and overwrite age- based condition data.	Improved accuracy of state of local infrastructure data and lifecycle management projections, additional data may be collected through the process to inform risk and lifecycle activity prioritization	HIGH	In Progress

State of Infrastructure ($222.7 million)

The City provides spaces and programs that foster community engagement and social interaction through recreational and educational programs.

Key business drivers at this time are uncertainty of future demand and aging infrastructure.

Recreation assets include:
- Quinte Sports and Wellness Centre
- Operations Building
- Community Centers
- Pools

Many of the fleet and equipment assets have reached the
later stages of their useful lives and will require rehabilitation or replacement in the upcoming years.

The City's assets are generally in fair to very good condition, as assessed based on their condition grading. The assets shown in poor and very poor "condition" are in the latter stages of their useful life.

Levels of Service

Community Levels of Service	Technical Levels of Service		
Statements	**Performance Indicators**	**Performance**	
		Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity and Use			
Provide access to recreational facilities for the whole community	Indoor ice-pads per 15,000 residents	1.0	1.0
	Gymnasiums per 36,000 residents	0.75	1.0
	Splash pads per 2,500 children (ages 0-9)	1.4	1.0
Functional			
City recreation fleet and equipment support environmental sustainability	Percentage of Zambonis that are electric	0%	100%
Quality and Reliability			
Keep assets in a state of good repair	Percentage of recreation assets with high and very high-risk exposure rating	30%	< 15%
Affordability			
City services are affordable	Ratio of 10-year renewal budget to needs	Future	Future
City services are sustainable in the long term	Percentage Average annual renewal rate (reinvested or put into reserve)	Future	Future

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Recreation Facilities	3
Recreation IT	5

Risk Evaluation Matrix

PoF						Risk Exposure	CRV($)	CRV(%)
5	$0.01	$0.12	$0.49	$0.17	$0.00	Very High	$2.07	0.9%
4	$0.06	$1.66	$6.52	$8.71	$1.90	High	$41.74	19.0%
3	$0.01	$0.30	$3.69	$10.85	$15.18	Moderate	$88.62	40.3%
2	$0.25	$4.59	$16.63	$17.79	$44.88	Low	$81.87	37.2%
1	$0.10	$5.37	$26.70	$50.51	$3.53	Very Low	$5.73	2.6%
	1	2	3	4	5		$220.03	100.0%

CoF

Assets classified under the Very High or High risk exposure categories typically represent those with a high consequence of failure (CoF) that are also in poor or very poor condition. These include facility components where failure could significantly impact health and safety.

Specifically, assets identified as Very High Risk include the exterior windows, HVAC systems, and roofing enclosures at the Bethany Community Centre, as well as the substructures at both the Quinte Exhibition Grandstand and the Kinsmen Club / Outdoor Pool.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

Growth and upgrade needs are based on planned City growth.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.

Maintain LOS

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.
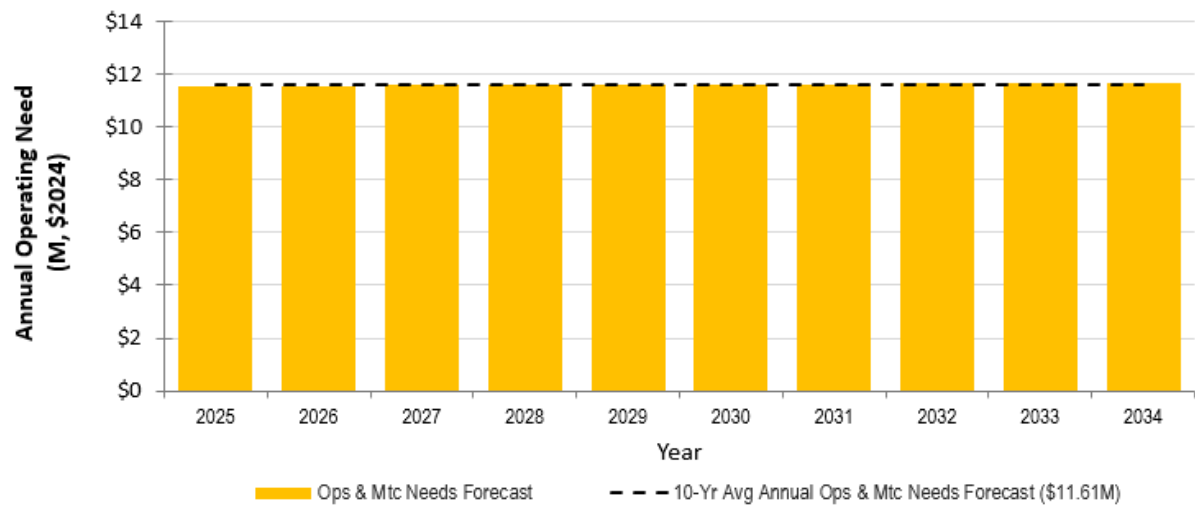
Proposed LOS

*Note: associated condition forecast graphs have been developed for all facilities and can be found in the Appendices under Facilities – ALL

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies and user fees.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.25	$0.00	-$0.25	0%
Renewal	$2.35	$1.54	-$0.81	66%
Operations & Maintenance	$11.61	$11.53	-$0.08	99%
Totals	**$14.22**	**$13.08**	**-$1.14**	**92%**

Based on calculations to achieve the proposed levels of service, Recreation would require a 0.82% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

| Improvement Area	Action	Outcome	Priority	Timeline
Asset Data Quality and Consistency	Conduct building condition assessments at least every five (5) years and integrate assessment information to inform capital planning and decision making.	Improved reliability of information maintained in AM database Improved confidence in input data and recommended solutions	HIGH	Complete
Asset Information Systems	Integrate and adopt an Enterprise Asset Management software solution within the department to support work order management.	Improved confidence in input data and recommended solutions	MED	In Progress

State of Infrastructure ($29.7 million)

The City supports and promotes artistic and cultural initiatives within the community, fostering creativity, heritage preservation, and community engagement.

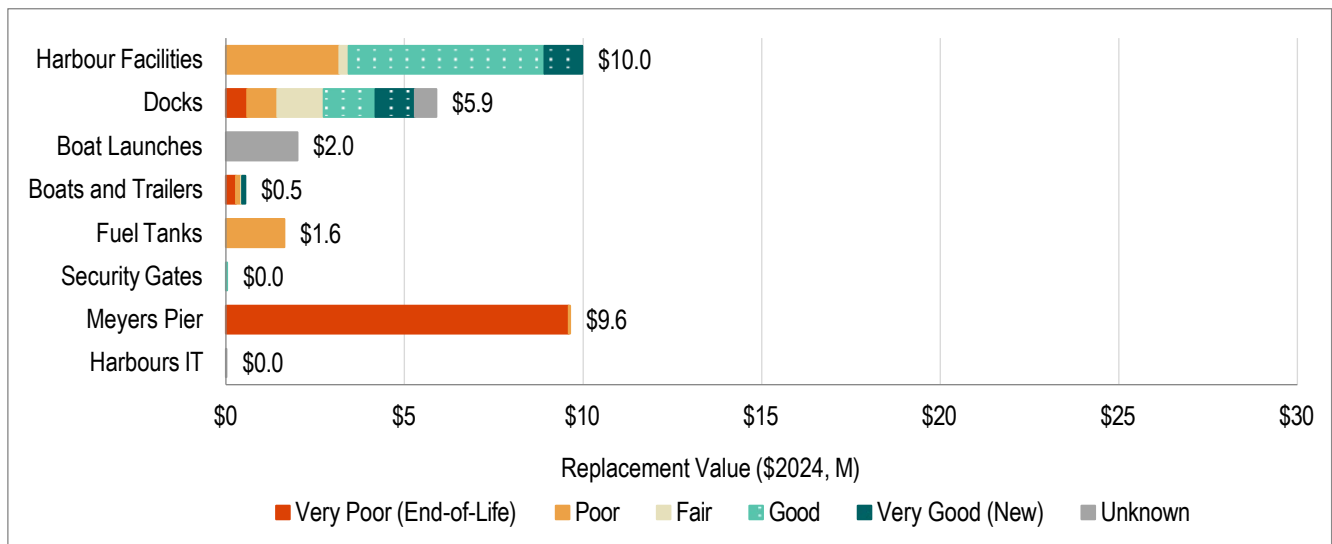Key business drivers at this time are uncertainty of future demand and aging infrastructure.

Most of the assets are reaching the middle to later stages of their useful lives and will require rehabilitation or replacement in the upcoming years.

Harbour assets include:
- Harbour Facilities
- Dock and Boat Launches
- Meyers Pier
- Boats and Trailers
- Fuel Tanks
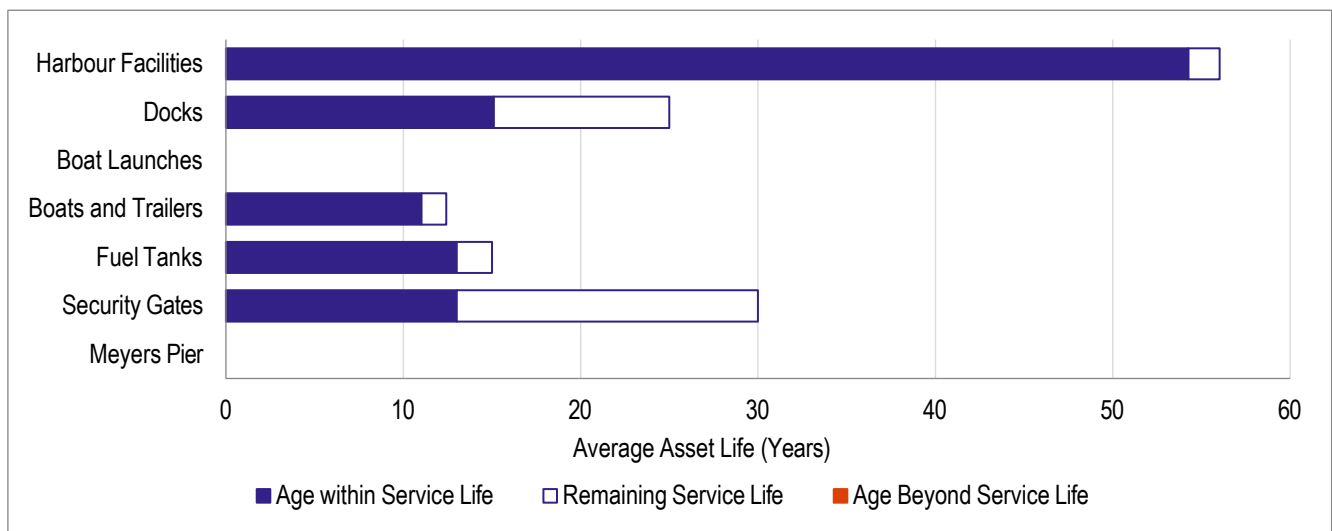
The City's harbour assets are generally in very poor to poor condition, as assessed based on their condition grading. The assets shown in poor and very poor "condition" are in the latter stages of their useful life.

Levels of Service

Community Levels of Service	Technical Levels of Service		
Statements	Performance Indicators	Performance	
		Current (2024)	Proposed (2034)
Capacity and Use			
Provide adequate slips to allow for residents to utilize the waterfront	# residents for applications on waiting list as maintained by the QSWC (slip available)	20	20
Provide docking for transient usage	% of transient slips utilized in season vs. available for use	Future	Future
Quality and Reliability			
Keep assets in a state of good repair	% of harbour assets with high and very high-risk exposure rating	88%	<15%
Affordability			
City services are affordable	Ratio of 10-year renewal budget to needs	Future	Future
City services are sustainable in the long term	% Average annual renewal rate (reinvested or put into reserve)	Future	Future

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Boat Launches, Fuel Tanks	5
Docks, Security gates	4
Boats, Trailers	3
Facilities (Meyers Pier, Bay of Quinte Yacht Club)	3

Risk Evaluation Matrix

PoF	1	2	3	4	5
5	$0.00	$0.00	$0.00	$0.00	$0.00
4	$0.01	$0.00	$0.00	$0.00	$3.17
3	$0.00	$0.19	$0.00	$0.09	$0.00
2	$0.02	$1.14	$2.13	$0.06	$2.13
1	$0.00	$0.46	$0.06	$0.51	$0.00

CoF

Risk Exposure	CRV($)	CRV(%)
Very High	$3.17	31.8%
High	$0.09	1.0%
Moderate	$4.50	45.2%
Low	$1.72	17.3%
Very Low	$0.48	4.9%
	$9.97	100.0%

Assets in the Very High or High risk exposure categories include assets in the high CoF group that are in very poor or poor condition, including elements of Meyers Pier deemed high CoF due to health and safety impacts (i.e. structural elements on Meyers Pier).

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

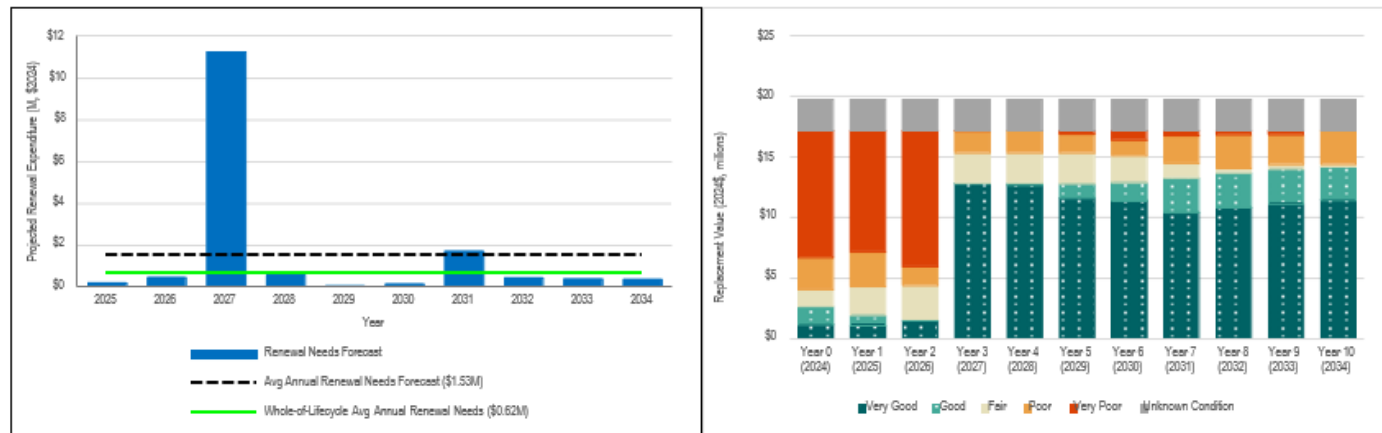Growth and upgrade needs are based on planned City growth.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.
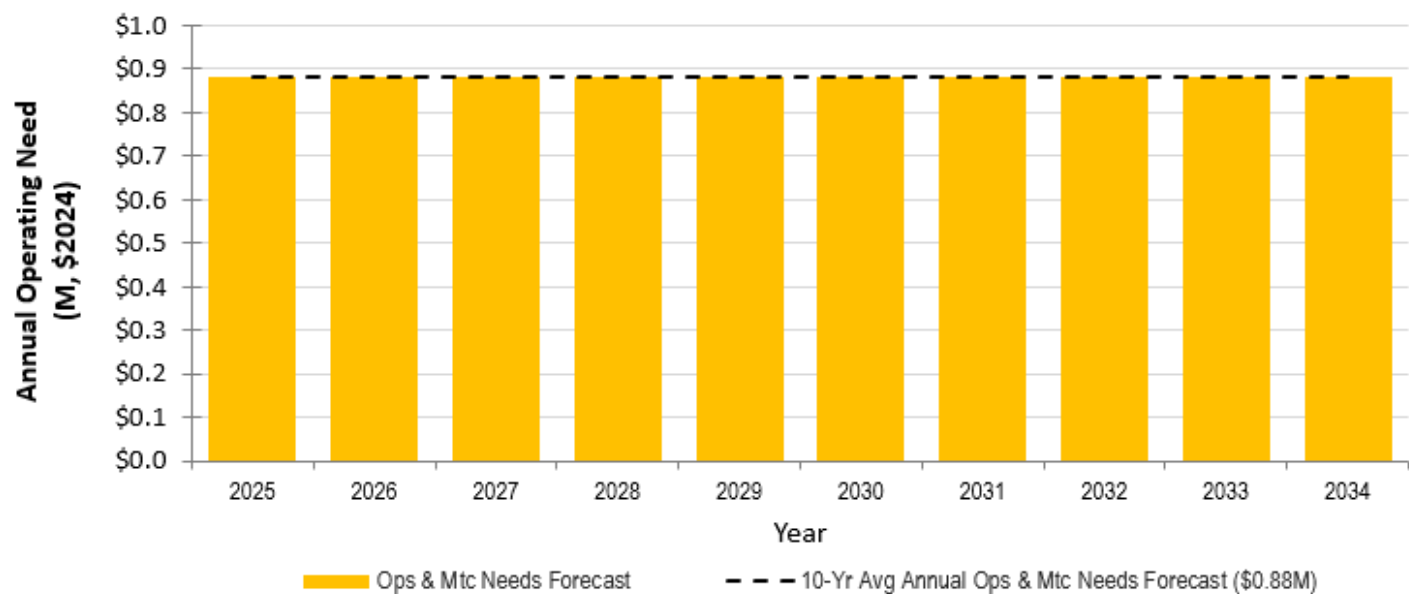

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from user fees and tax levies.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.01	$0.00	-$0.01	0%
Renewal	$1.53	$1.00	-$0.53	66%
Operations & Maintenance	$0.88	$0.86	-$0.02	97%
Totals	**$2.42**	**$1.86**	**-$0.56**	**77%**

Based on calculations to achieve the proposed levels of service, Harbours would require a 0.40% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

| Improvement Area	Action	Outcome	Priority	Timeline
Asset Data Quality and Consistency	Collect condition data in alignment with the corporate condition rating system, where condition and age were not available (docks, launches)	Improved accuracy of state of local infrastructure and lifecycle management activities projections, increased completeness of risk matrix	MED	Short Term
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress

State of Infrastructure ($14.9 million)

The City supports and promotes artistic and cultural initiatives within the community, fostering creativity, heritage preservation, and community engagement.

Key business drivers at this time are uncertainty of future demand and aging infrastructure.
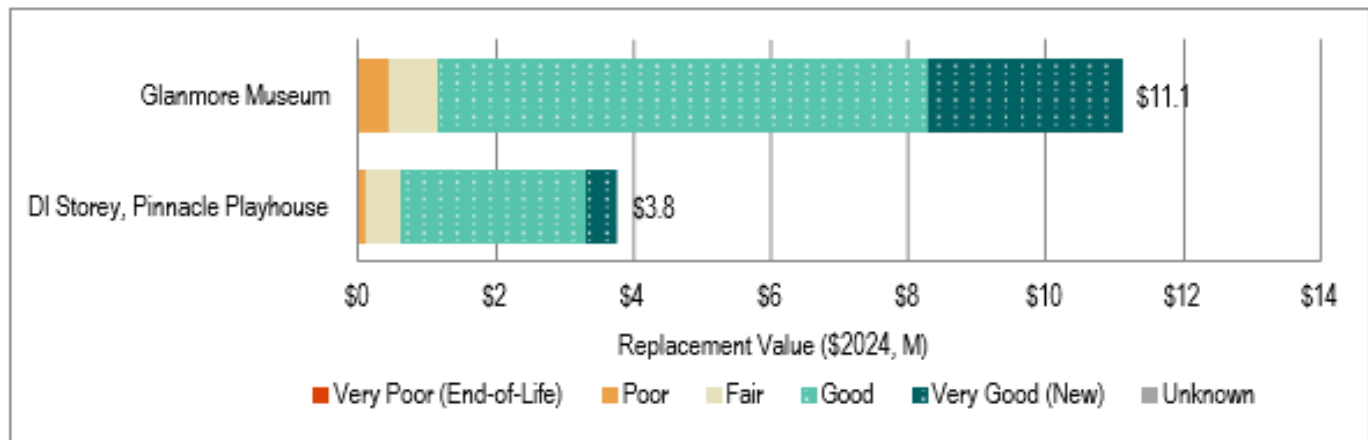
> Culture assets include:
> - Glanmore Museum
> - Pinnacle Playhouse

The Glanmore Museum has surpassed its expected useful life; however, this is common for cultural and historic facilities—particularly those with heritage designation—and does not necessarily reflect a decline in condition or functionality. The Pinnacle Playhouse is currently approaching the end of its expected service life and, once reached, it is anticipated to fall into a similar category as the Museum, where age alone does not diminish its operational viability or cultural value.
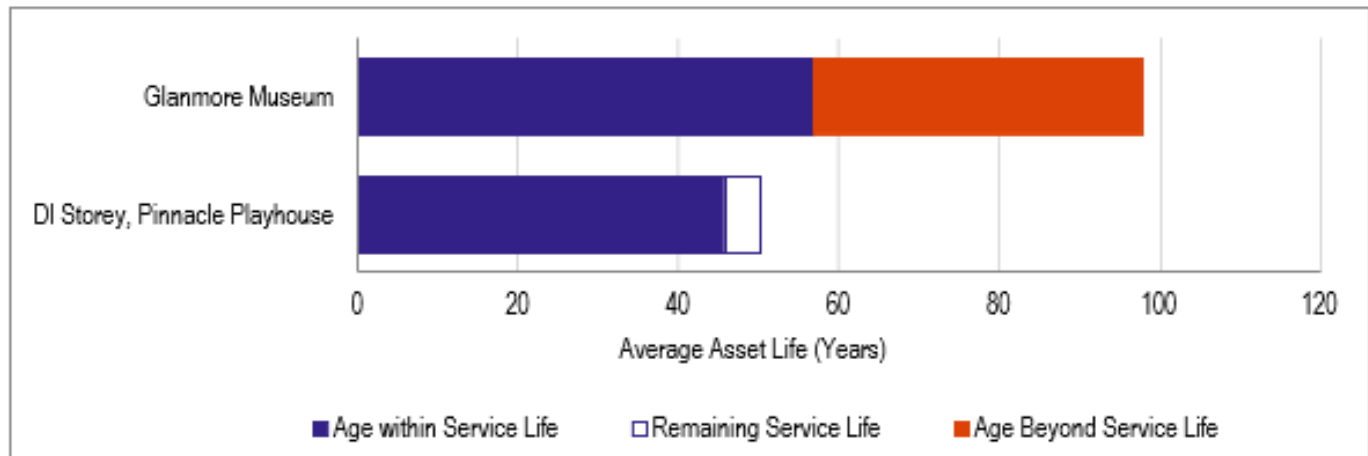
The City's Cultural assets are generally in fair to good condition, as assessed based on their condition grading. The assets shown in poor and very poor "condition" are in the latter stages of their useful life, as assessed based on age and physical condition.

Levels of Service

Community Levels of Service	Technical Levels of Service		
Statements	**Performance Indicators**	**Performance**	
		Current (2024)	**Proposed (2034)**
Quality and Reliability			
Keep assets in a state of good repair	% of cultural assets with high and very high-risk exposure rating	15%	<15%
Affordability			
City services are affordable	Ratio of 10-year renewal budget to needs for Cultural Facilities	Future	Future

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Museum, Playhouse	4

Risk Evaluation Matrix

PoF	1	2	3	4	5		Risk Exposure	CRV($)	CRV(%)
5	$0.00	$0.00	$0.00	$0.00	$0.00		Very High	$0.00	0.0%
4	$0.01	$0.25	$0.01	$0.32	$0.00		High	$0.33	2.2%
3	$0.00	$0.45	$0.76	$0.00	$0.00		Moderate	$9.25	62.2%
2	$0.04	$3.70	$4.03	$0.54	$1.53		Low	$4.94	33.3%
1	$0.01	$0.30	$0.90	$0.33	$1.68		Very Low	$0.34	2.3%
	1	2	3	4	5			$14.86	100.0%

CoF

Assets in the Very High or High risk exposure categories include assets in the high CoF group that are in very poor or poor condition, including elements of facilities deemed high consequence of failure due to health and safety impacts.

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.

Growth and Upgrade Needs Forecast

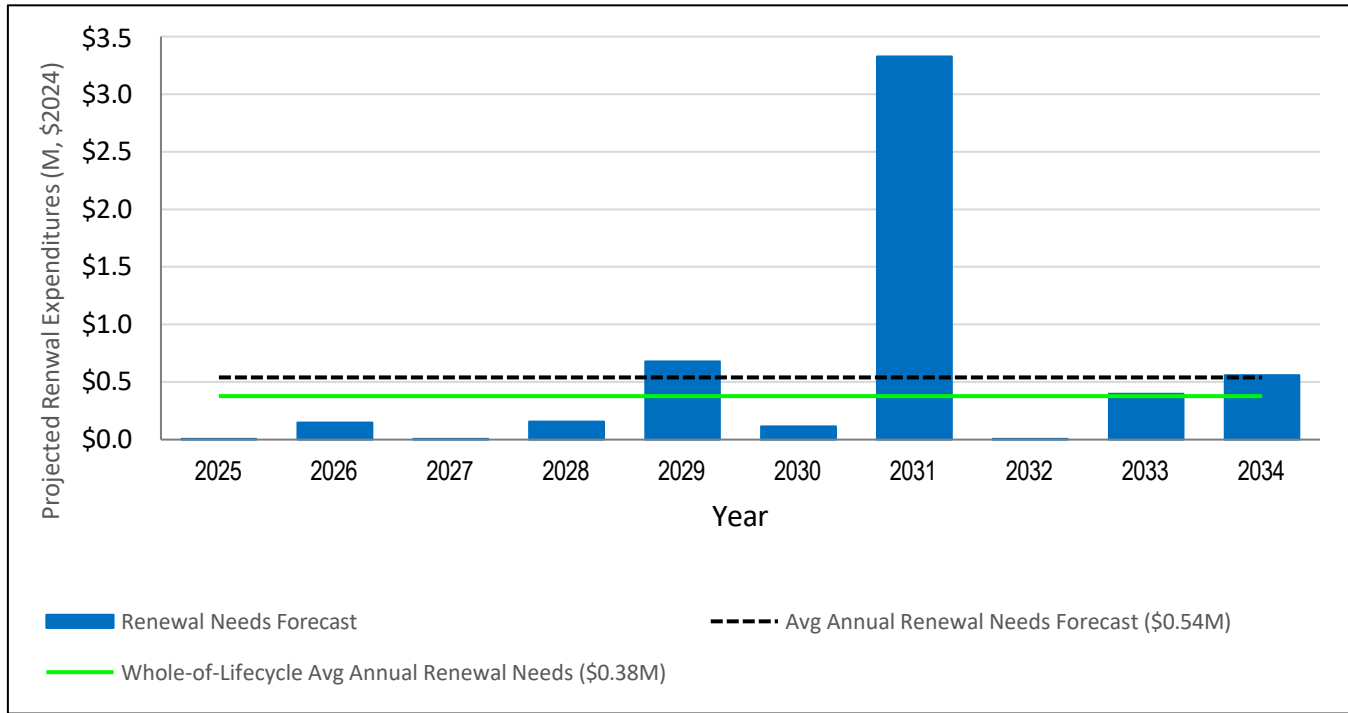Growth and upgrade needs are based on forecast population growth and are minimal.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.
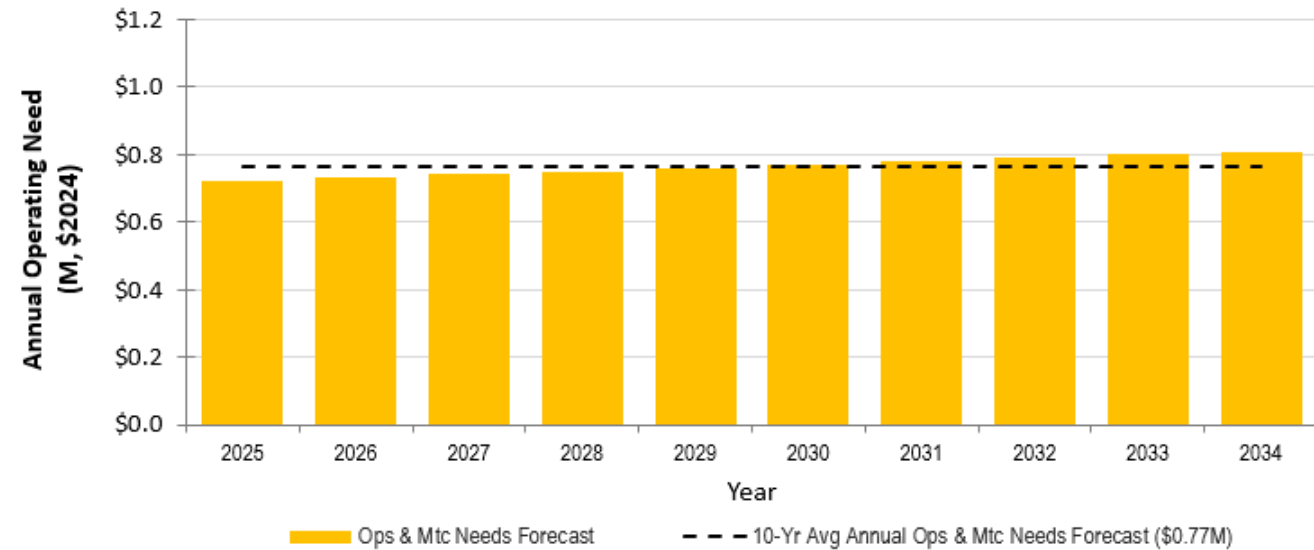
Proposed LOS

*Note: associated condition forecast graphs have been developed for all facilities and can be found in the Appendices under Facilities – ALL

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies and user fees.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.20	$0.00	-$0.20	0%
Renewal	$0.54	$0.35	-$0.19	66%
Operations & Maintenance	$0.77	$0.71	-$0.05	93%
Totals	**$1.51**	**$1.07**	**-$0.44**	**71%**

Based on calculations to achieve the proposed levels of service, Cultural facilities would require a 0.32% tax levy increase to close the 10 year funding gap immediately.

Plan Improvements and Monitoring

Please refer to the 'All Facilities' section for facility related Plan Improvement and Monitoring details.

## State of Infrastructure ($23.8 million)

The City supports and promotes artistic and cultural initiatives within the community, fostering creativity, heritage preservation, and community engagement.

Library assets include:
- Belleville Public Library
- Library IT

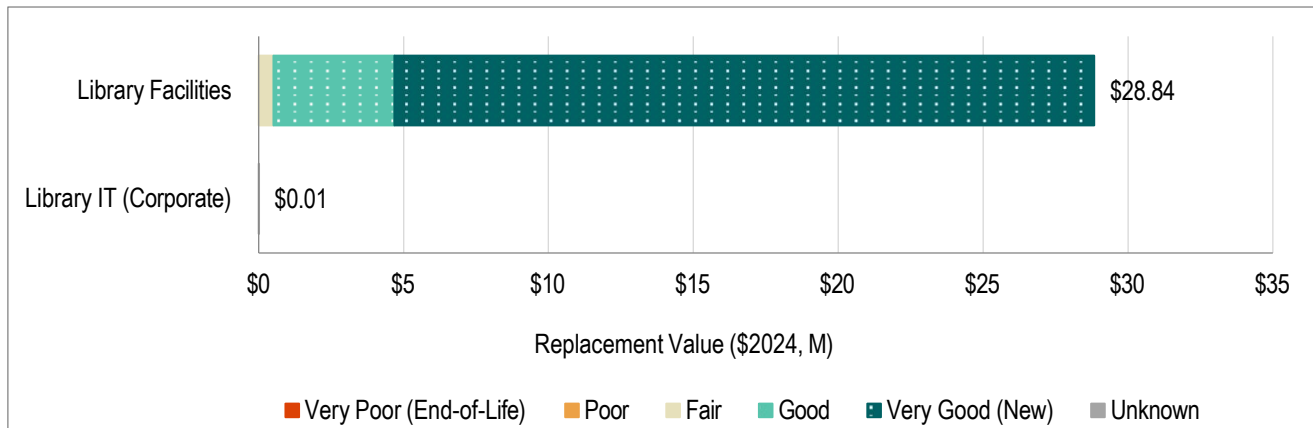Key business drivers at this time are uncertainty of future demand and aging infrastructure.

Many of the assets may be relatively new, others may be reaching the middle to later stages of their useful lives and will require rehabilitation or replacement in the upcoming years.
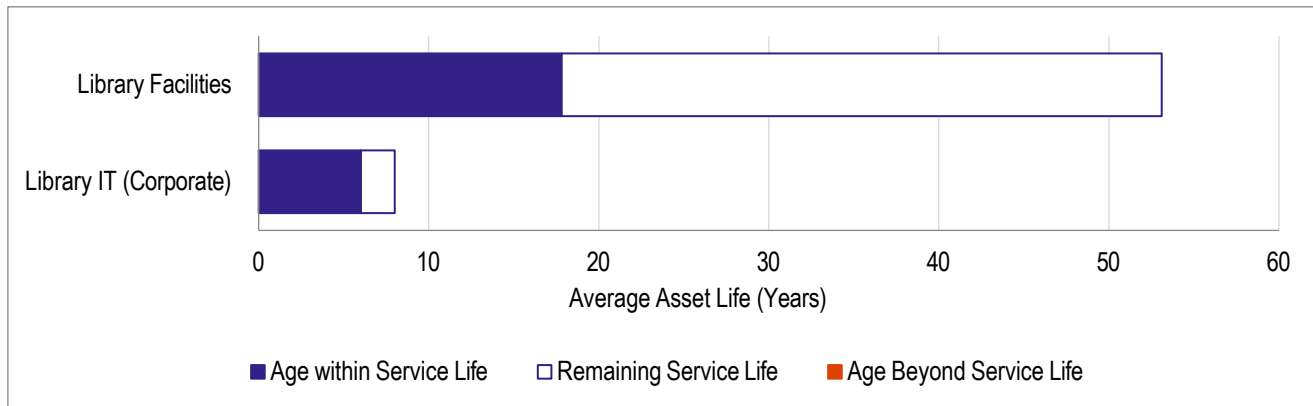
The City's Library assets are generally in very good to fair condition, as assessed based on their condition grading. The assets shown in poor and very poor "condition" are in the latter stages of their useful life.

Levels of Service

Community Levels of Service	Technical Levels of Service		
		Performance	
Statements	Performance Indicators	Current (2023 / 2024 Where Available)	Proposed (2034)
Capacity			
Provide adequate Library Space	Circulation per Capita	6	> 7
	In person Library Visits per Capita	2.22	> 2
	Program Attendance per Capita	0.33	0.33
	Number of Public Computers per Capita	0.0004	0.0004
Quality and Reliability			
Keep assets in a state of good repair	Percentage of library facility and IT assets with high or very high-risk exposure rating	3%	< 5%
Affordability			
City services are affordable	Ratio of 10-year renewal budget to needs for Library Facilities	Future	Future
City services are sustainable in the long term	Percentage Average annual renewal rate (reinvested or put into reserve) for Library Facilities	Future	Future
	Total Operating Expenditures per Capita	50.68	52.07

Risk Assessment

The consequence of failure (CoF) was determined as outlined in the table to the right, by asset group. The probability of failure (PoF) was determined by the condition of the assets. The risk evaluation matrix below shows the results of the risk assessment.

Asset Group	CoF
Library Facility	4
Library IT	4

Risk Evaluation Matrix

PoF						Risk Exposure	CRV($)	CRV(%)
5	$0.00	$0.00	$0.00	$0.00	$0.00	Very High	$0.00	0.0%
4	$0.00	$0.00	$0.00	$0.00	$0.00	High	$0.00	0.0%
3	$0.00	$0.00	$0.51	$0.00	$0.00	Moderate	$12.95	44.9%
2	$0.08	$2.42	$0.94	$0.67	$0.06	Low	$13.27	46.0%
1	$0.05	$2.48	$6.12	$4.73	$10.77	Very Low	$2.61	9.1%
	1	2	3	4	5		$28.84	100.0%

CoF

Assets in the Very High or High risk exposure categories include assets in the high CoF group that are in very poor or poor condition, including elements of x

Lifecycle Management

The following graphs provide the forecast needed lifecycle activities over each of the next 10 years to maintain current levels of service.
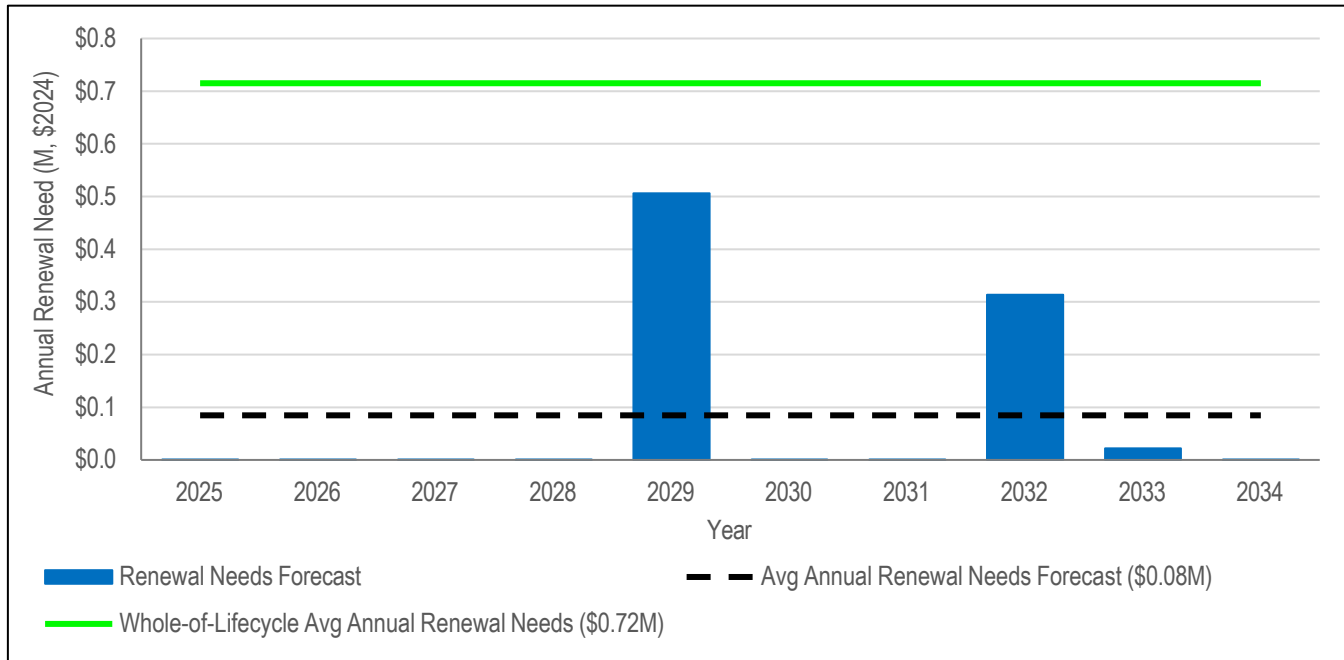
Growth and Upgrade Needs Forecast

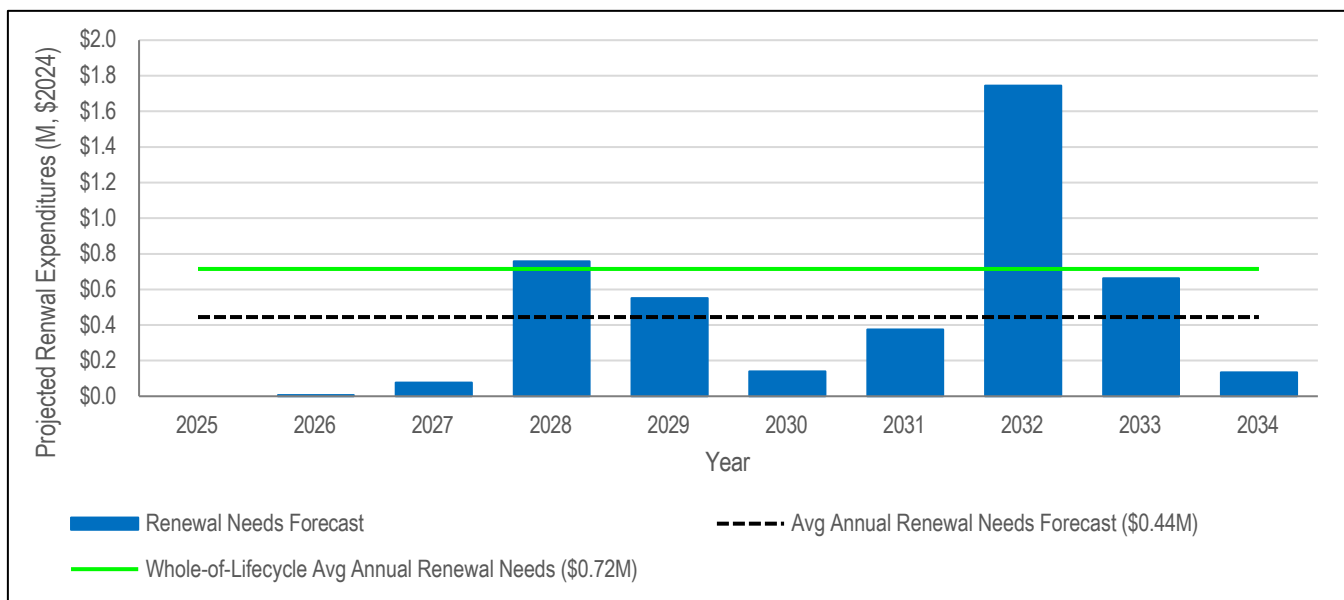Growth and upgrade needs are based on forecast population growth and are minimal.

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.
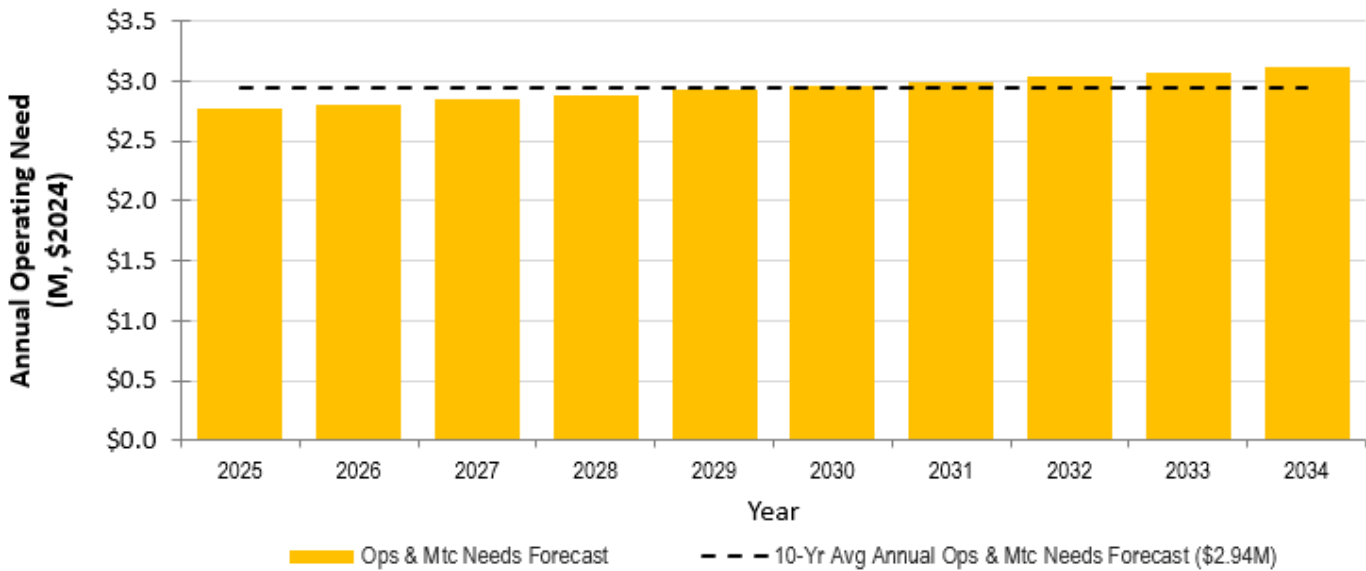

Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS

*Note: associated condition forecast graphs have been developed for all facilities and can be found in the Appendices under Facilities – ALL

Operations and Maintenance Needs Forecast

The Operating needs forecast is based on the anticipated growth of the asset portfolio.

Available Funding, Shortfalls / Surpluses

The following table summarizes the City's needs forecasts for each lifecycle activity based on the proposed level of service analysis from the preceding graphs and provides the estimated average annual funding available over the next ten years. Funding for operating and capital needs is sourced from tax levies and user fees.

Needs and Funding Forecast Per Lifecycle Activity

Lifecycle Activity	10-Yr Avg Annual Needs Forecast (2024$M)	10-Yr Avg Annual Available Funding (2024$M)	10-Yr Avg Annual Shortfalls / Surplus (2024$M)	10-Yr Avg Annual Funding / Funding (%)
Growth & Upgrade	$0.39	$0.00	-$0.39	0%
Renewal	$0.44	$0.29	-$0.15	66%
Operations & Maintenance	$2.94	$2.83	-$0.11	96%
Totals	**$3.78**	**$3.12**	**-$0.66**	**83%**

Based on calculations to achieve the proposed levels of service, Library services would require a 0.47% tax levy increase to close the 10 year funding gap immediately.

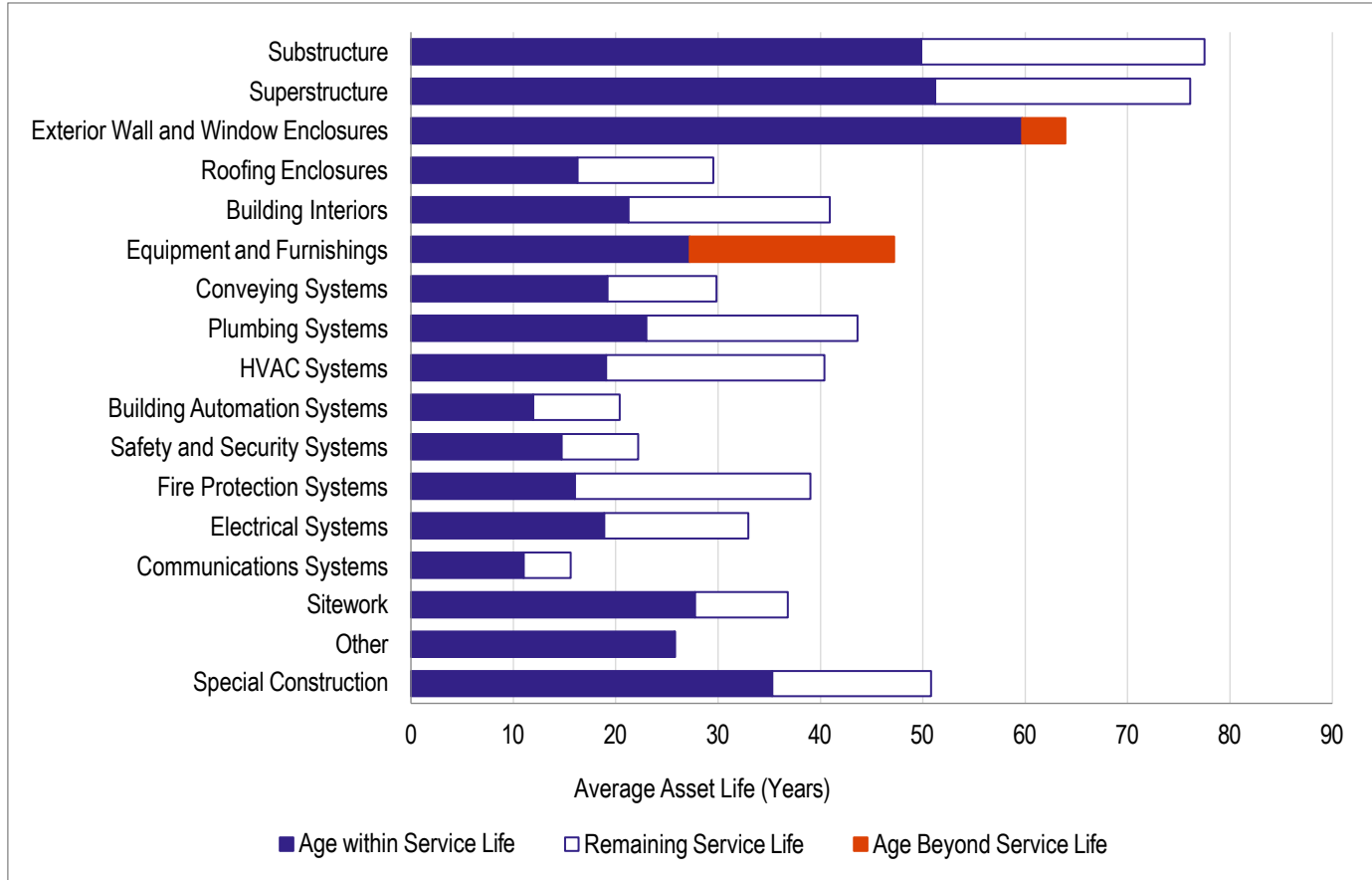## Plan Improvements and Monitoring

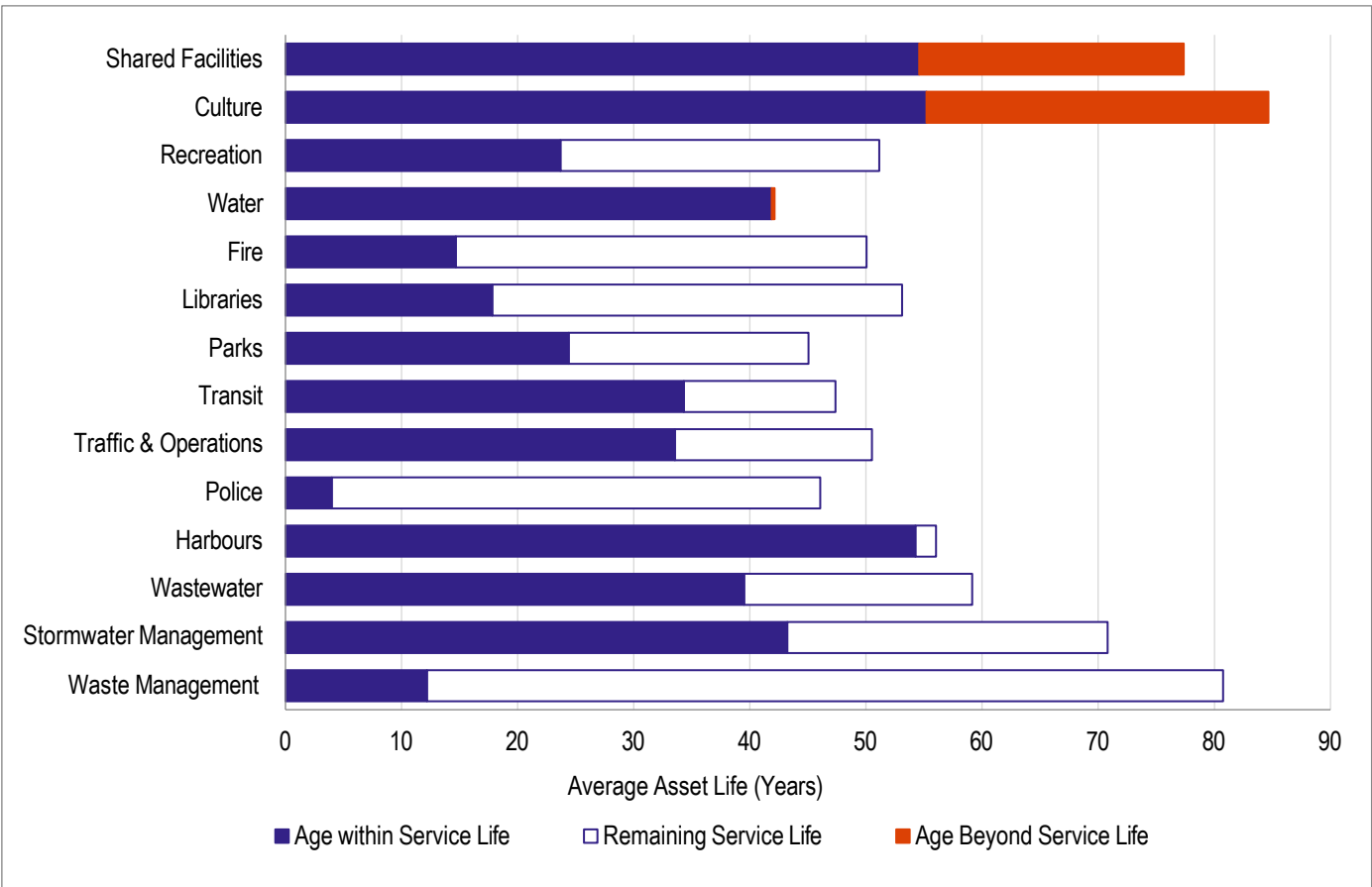| Improvement Area	Action	Outcome	Priority	Timeline
Asset Data Quality and Consistency	Collect further detailed inventories, particularly for Library equipment and specialties, as well as integrated Building Condition Assessment data into forecasting and state of local infrastructure once that information is collected	Improved inventory completeness and accuracy of state of local infrastructure and lifecycle management activities	HIGH	In Progress
Asset Management Processes	Utilize outcomes from the Library Strategic Plan to support future AM growth and upgrade needs.	Improved asset management decision-making	MED	In Progress

State of Infrastructure ($911.1 million)

The following sheets provide the same age distribution and condition data for all City facilities, organized by Uniformat2 and by Program Area.
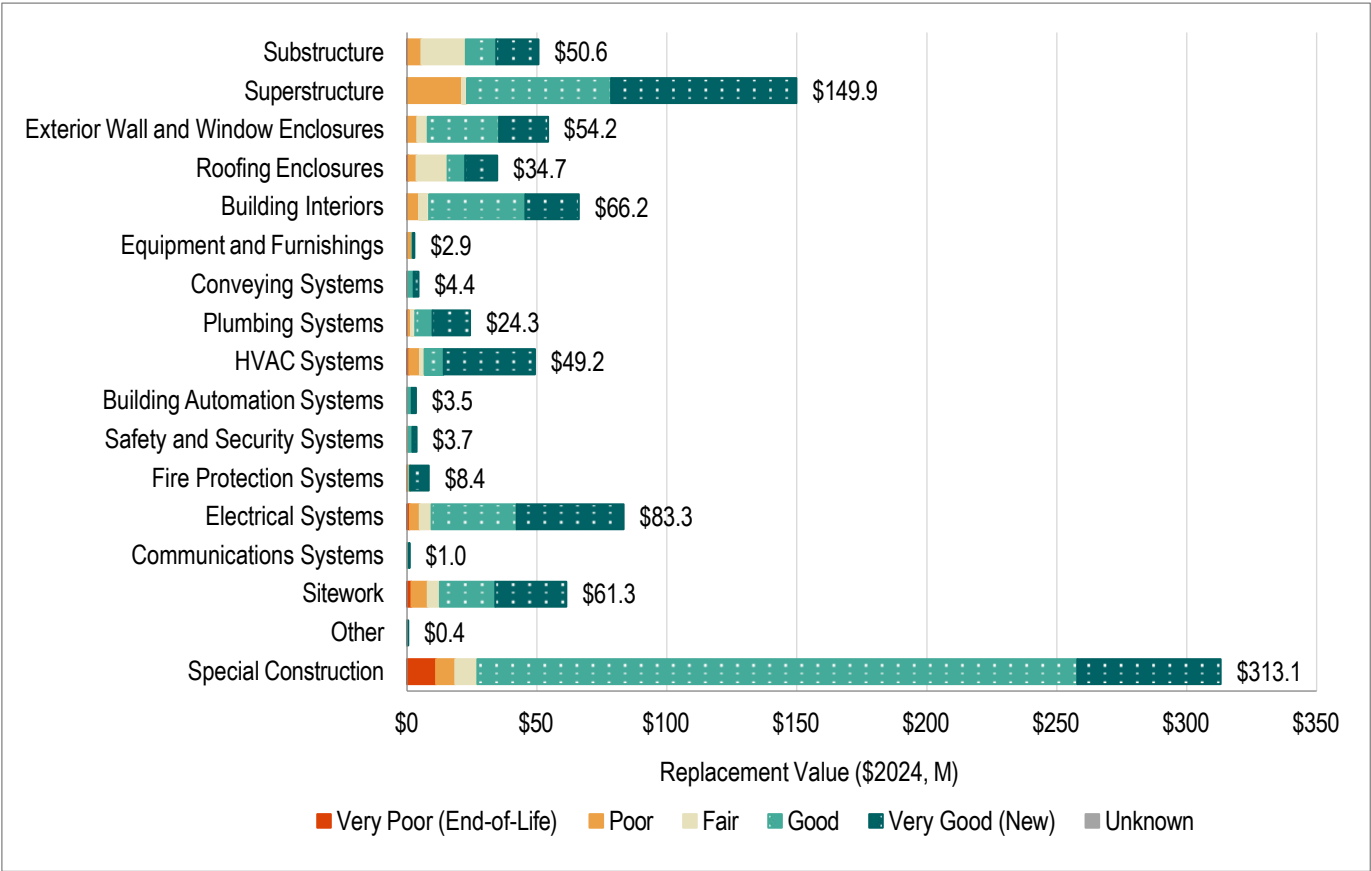
Organized by Uniformat2 (Elements)

Facilities – ALL

**Organized by Program Area (Whole Facility)**

*Horizontal stacked bar chart showing Average Asset Life (Years) by Program Area. X-axis ranges from 0 to 90. Legend: Age within Service Life (dark blue), Remaining Service Life (white/outlined), Age Beyond Service Life (orange).*

Program Area	Age within Service Life (approx)	Remaining / Beyond Service Life
Shared Facilities	~54	beyond to ~77
Culture	~55	beyond to ~85
Recreation	~24	remaining to ~51
Water	~42	beyond to ~43
Fire	~15	remaining to ~50
Libraries	~18	remaining to ~53
Parks	~24	remaining to ~45
Transit	~34	remaining to ~47
Traffic & Operations	~34	remaining to ~51
Police	~4	remaining to ~46
Harbours	~54	remaining to ~56
Wastewater	~40	remaining to ~59
Stormwater Management	~43	remaining to ~71
Waste Management	~12	remaining to ~81

Organized by Uniformat2 (Elements)

Horizontal stacked bar chart showing Replacement Value ($2024, M) by element category:

Element	Replacement Value ($2024, M)
Substructure	$50.6
Superstructure	$149.9
Exterior Wall and Window Enclosures	$54.2
Roofing Enclosures	$34.7
Building Interiors	$66.2
Equipment and Furnishings	$2.9
Conveying Systems	$4.4
Plumbing Systems	$24.3
HVAC Systems	$49.2
Building Automation Systems	$3.5
Safety and Security Systems	$3.7
Fire Protection Systems	$8.4
Electrical Systems	$83.3
Communications Systems	$1.0
Sitework	$61.3
Other	$0.4
Special Construction	$313.1

Legend: Very Poor (End-of-Life), Poor, Fair, Good, Very Good (New), Unknown

Organized by Program Area (Whole Facility)

Facilities – ALL

Renewal Needs Forecast

Renewal needs are based on maintaining the current reliability levels of service, giving priority to the renewal of assets with higher risk ratings, consequently deferring the renewal of lower risk assets as necessary.

Maintain LOS
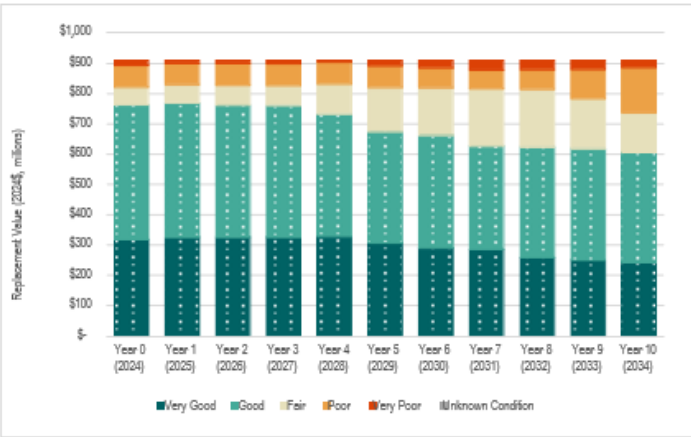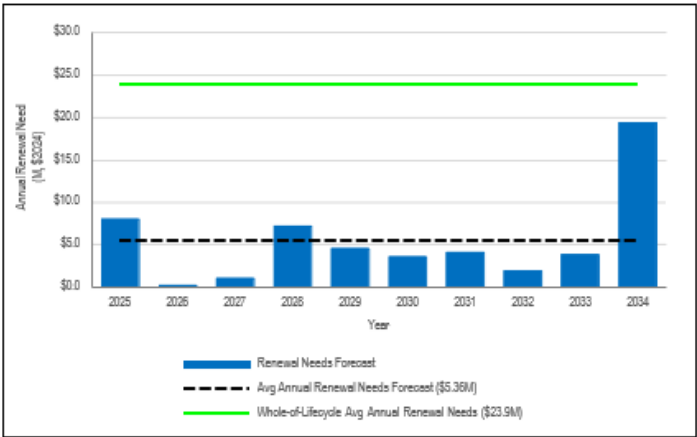
Projected funding scenarios reflect the City's planned lifecycle activities to support targeted service levels based on the 10-year Capital Plan, aligning investment with risk and asset management priorities.

Proposed LOS
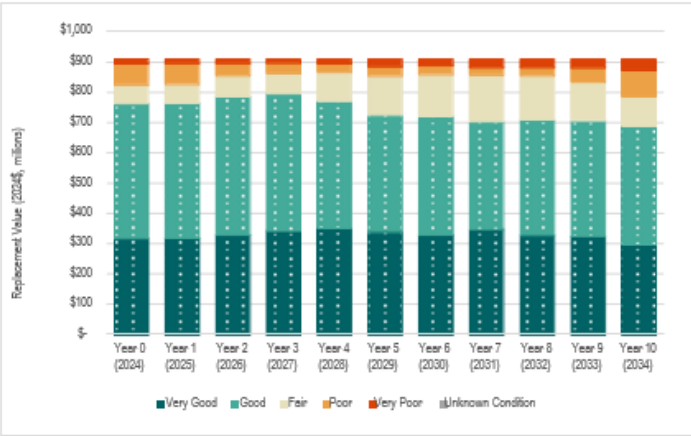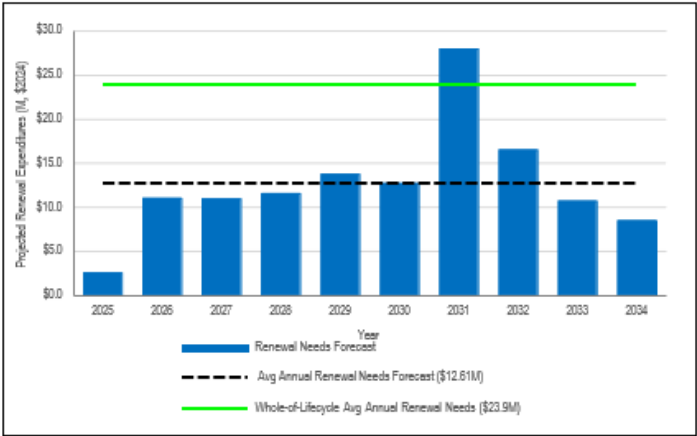
Facilities – ALL

Risk Assessment

The consequence of failure (CoF) of facility assets was determined by third party consultant evaluation through the recently completed Building Condition Assessments.

Risk Evaluation Matrix

PoF	1	2	3	4	5
5	$0.09	$2.78	$11.15	$0.39	$2.57
4	$0.74	$9.29	$16.54	$20.62	$25.85
3	$0.15	$6.98	$19.46	$14.50	$18.25
2	$4.89	$93.41	$89.32	$77.73	$179.36
1	$0.76	$37.20	$80.05	$92.60	$105.87

CoF

Risk Exposure	CRV($)	CRV(%)
Very High	$28.81	3.2%
High	$81.06	8.9%
Moderate	$490.89	53.9%
Low	$266.95	29.3%
Very Low	$42.85	4.7%
	$910.57	100.0%

Assets in the Very High or High risk exposure categories include HVAC systems, electrical systems, windows, roofing, and site features such as parking lots and walkways.

Plan Improvements and Monitoring

Improvement Area	Action	Outcome	Priority	Timeline
Asset Management Processes	Establish formal Service Level Agreements (SLAs) with City customer groups for setting service level expectations.	Improved asset management decision-making	MED	Medium Term
Asset Management Processes	Formalize risk management processes and integrate within business planning and budgeting.	Improved asset management decision-making	MED	In Progress
Asset Information Systems	Integrate and adopt an Enterprise Asset Management software solution within the department to support data management and documentation, including work order management.	Improved confidence in input data and recommended solutions	HIGH	In Progress

8 O.REG. 588/17 COMMUNITY LOS DOCUMENTATION

Water Assets

Areas Connected to Municipal Water System

The City is responsible for the supply of safe drinking water to customers connected to its two drinking water systems. These systems are known as the Belleville Water System and the Point Anne Water System depicted in figure 8.1. Collectively these systems include two surface water treatment plants, four storage facilities, three pump stations, and two bulk water filling stations in addition to the buried water pipe networks and their appurtenances.

The Belleville Water System services the majority of customers within the municipality and extends throughout the area known as the Urban Serviced Area. The Point Anne system by contrast is much smaller and serves approximately 12 properties at present. The Point Anne Water System is distinct and separate from the Belleville system. In total, these municipal water systems service approximately 15,477 or about 79% of properties within the City. In most instances, the rural areas have not been connected to the municipal system.

Drinking water is also supplied to a small portion of Prince Edward County via a trunk main connected to the Bay Bridge. This service is provided by Belleville to the County in accordance with a Service Level Agreement between the two municipalities.

Figure 8-1 Areas Connected to the Belleville Drinking Water System

Belleville Water Distribution System
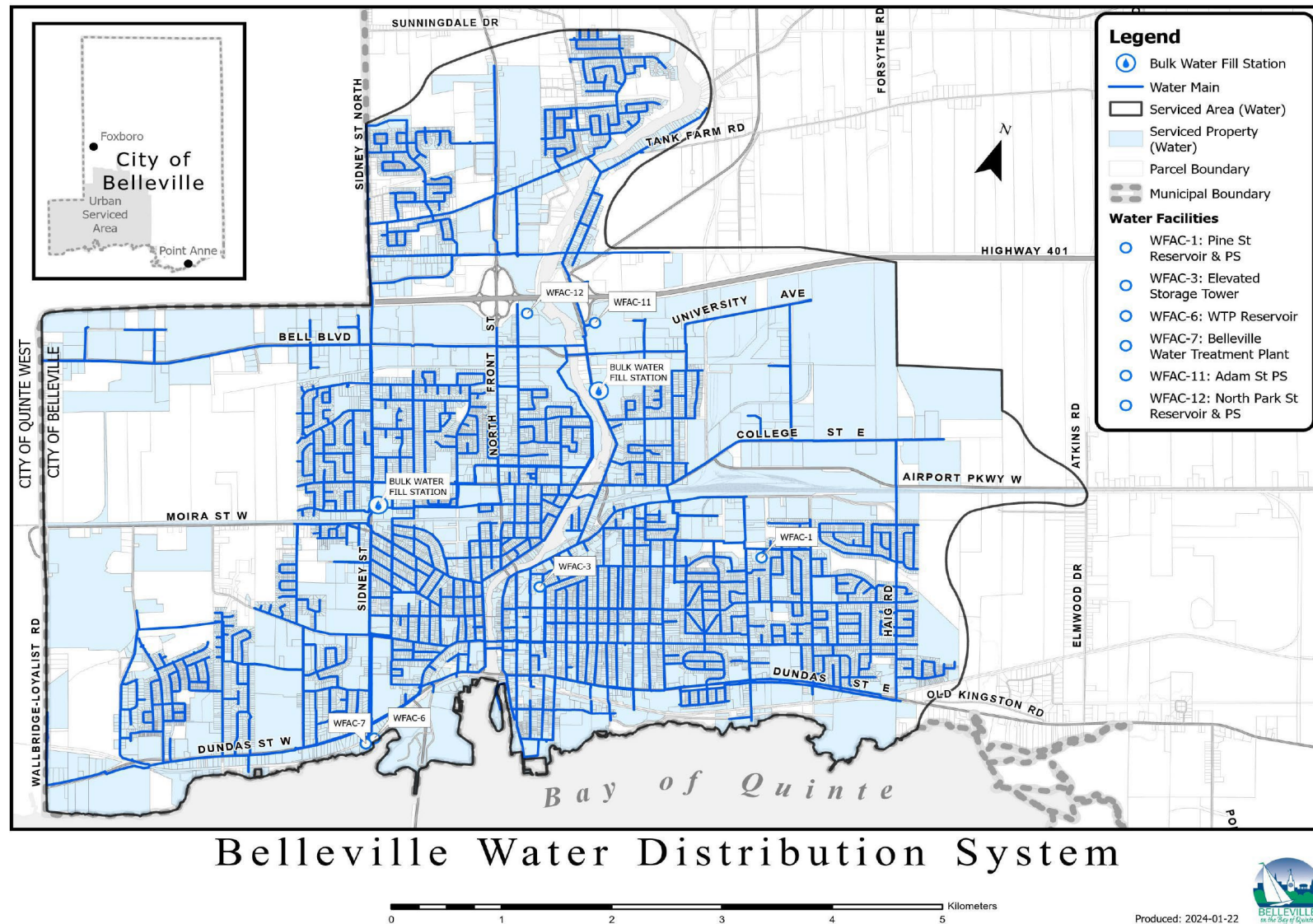
Figure 8-2 Properties Connected to the Point Anne Drinking Water System

Point Anne Water Distribution System
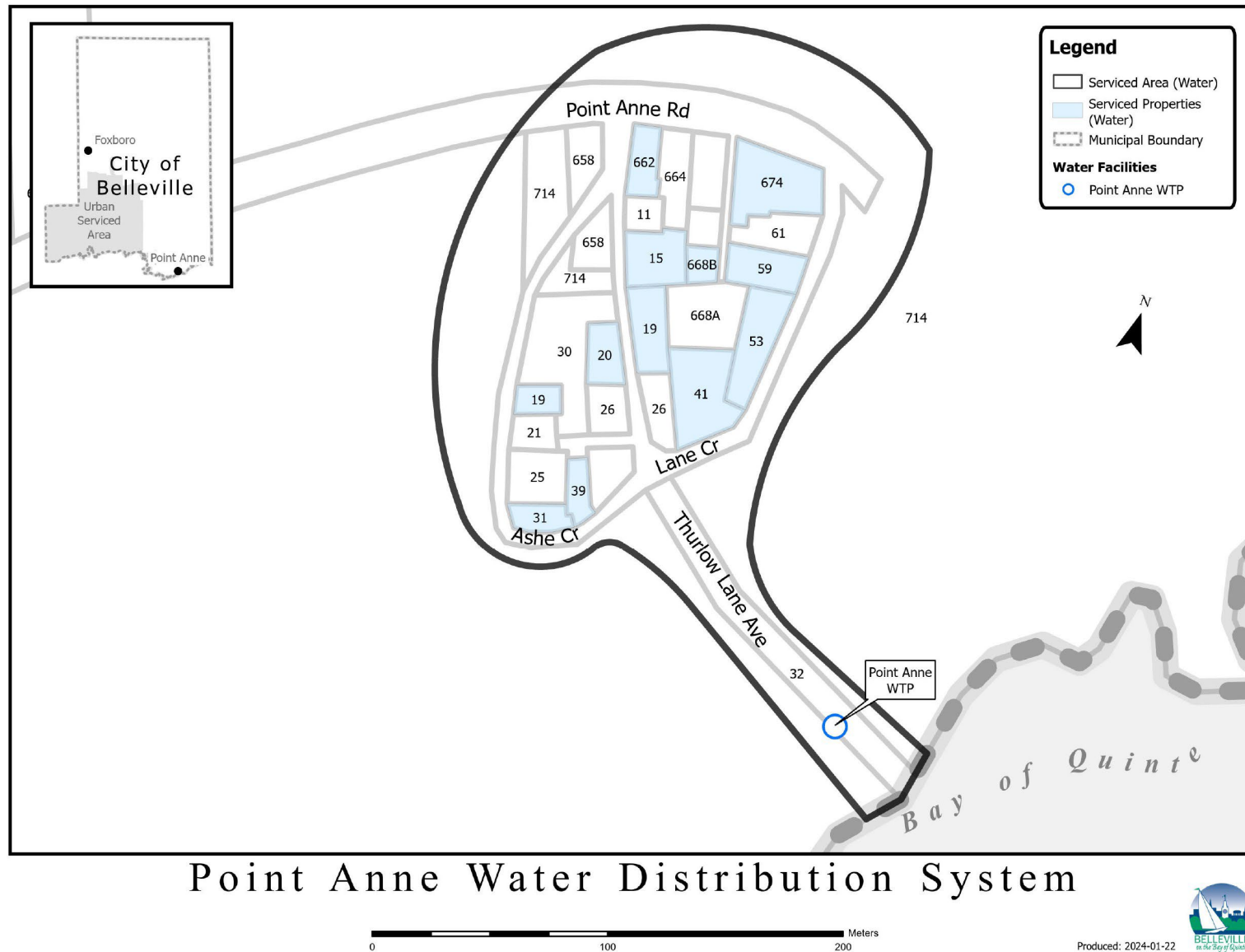
Areas with Fire Flow

All properties within the Urban Serviced Area and connected to the Belleville Drinking Water System are presumed to have fire flow available (See figure 8.1). This subset represents approximately 78.6% of all parcels within the municipal boundary and effectively 100% of all connected properties apart from those connected to the Point Anne Drinking Water System. Properties connected to the Point Anne Drinking Water System are not presumed to be protected by fire flow as this network is not equipped with fire hydrants.

Properties outside of the Urban Serviced area and not connected to the Belleville Drinking Water System are not presumed to have fire flow available. The City continues to conduct pressure testing and monitoring programs to increase its confidence in these figures.

Description of Boil Water Advisories and Service Interruptions

The Environmental Services Area, in collaboration with the Public Health Department, manages drinking water treatment, storage and distribution to ensure a safe water supply for its customers. In rare instances, boil water advisories are issued when conditions or concerns may adversely affect the quality or safety of the potable water supply. A boil water advisory is put in place to protect the community from potentially harmful organisms which may be in the water and may be detrimental to the health of the community.

Most boil water advisories are issued because the equipment and processes used to treat, store or distribute drinking water break down, require maintenance, or have been adversely affected by environmental conditions. Issues could include broken water mains, planned system maintenance, power failures or equipment problems. Also, extreme weather or heavy rains may cause the quality of surface or ground water sources to temporarily worsen, challenging the drinking water treatment system.

It is the experience of the City's Environmental Services department that boil water advisories are rare and seldom linked to asset degradation but arise instead from circumstances which are unpredictable or outside the City's control.

Service Interruptions (Breaks)

Water main breaks, unlike boil water advisories, are a regular occurrence within the City, attributable to such causes as asset degradation, improper installation, environmental factors, and third party damages. Main breaks and more significant leaks tend to occur most in the Winter months arising from issues caused or worsened by cold weather.

Annually the City typically responds to between 10 and 20 main breaks or leak repairs which require service interruption to an average of 20 properties over the course of an hour. In 2023, the City experienced approximately 14.17 connection-days due to watermain breaks compared to approximately 15,477 connected properties. The system does include sections of redundancy however the breaks in question typically occurred in regions where no redundancy existed. The City strives to respond to these issues rapidly and keep the affected members of the community as informed as possible during the course of repairs.

Wastewater Assets

Areas Connected to Municipal Wastewater System

The City is responsible for the collection of connected customer wastewater and its conveyance to a treatment plant where it can be treated to meet federal and provincial standards before being released into the environment. The Belleville Wastewater Collection and Treatment Systems depicted in figure 8.3 are operated to provide this service. Collectively these systems include a Pollution Control Plant (PCP) also known as a Wastewater Treatment Plant, a groundwater pre-treatment facility, and several sewage pumping stations in addition to the buried pipe network and its appurtenances.

Like the Belleville Water System, the Wastewater System serves most properties within the municipality and extends throughout the area known as the Urban Serviced Area. While coverage does not extend to all customers currently serviced by the Belleville Water System, there is near parity of connection between these two systems with some known exceptions within the urban serviced area. Currently there are approximately 15,101 or about 77% of properties connected to the municipal wastewater system within the City. There are no sewer services within Point Anne Hamlet.

Figure 8-3 Areas Connected to Municipal Wastewater System

Belleville Sanitary Collection System
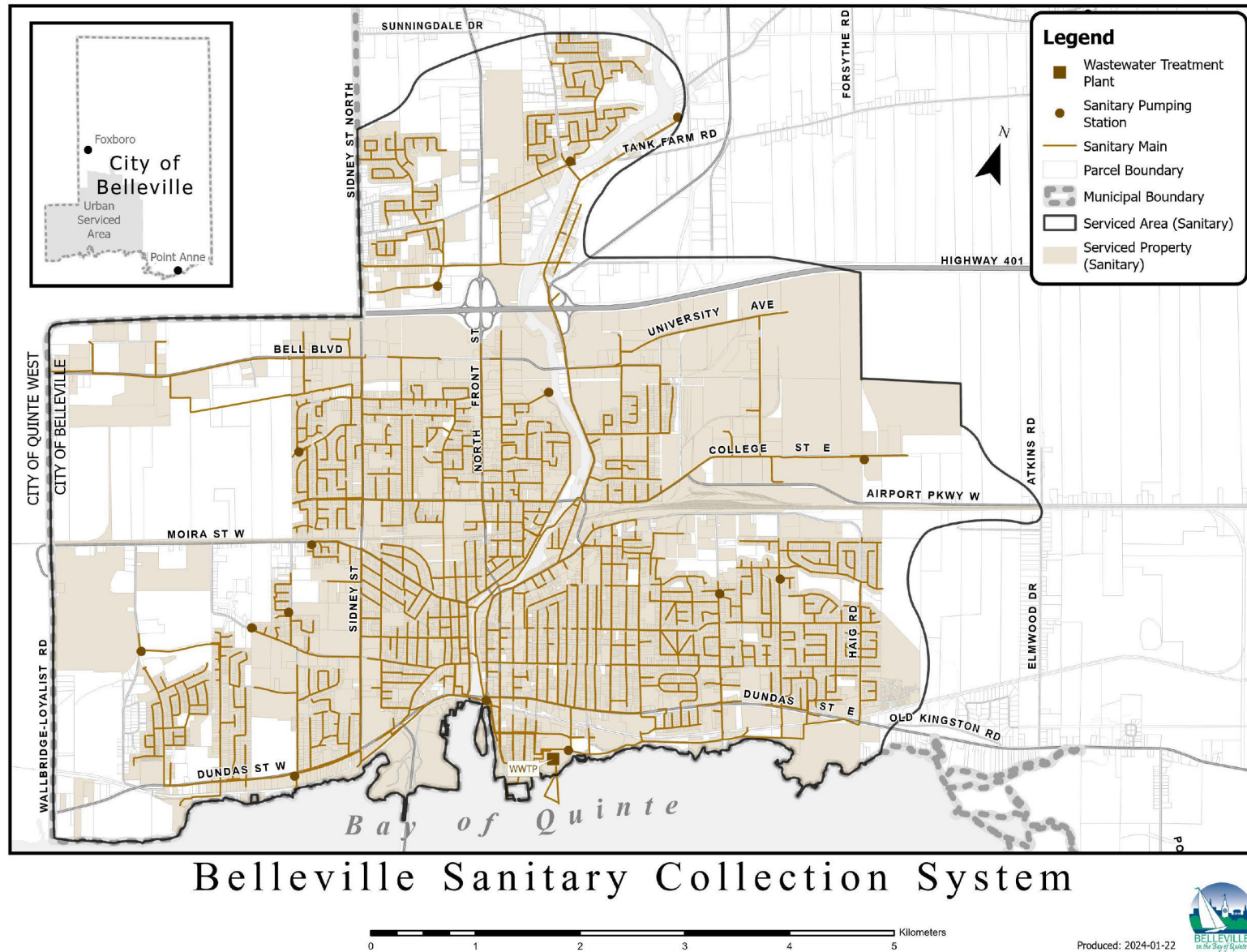
Overflow Structures in Place to Prevent Backups into Homes

Combined sewers in the municipal wastewater collection system may feature systems for designed overflow to manage wastewater volumes during storm events and prevent back ups into homes or other undesired areas such as pumping stations and streets. These are known as collection sewer overflows and may discharge some of this untreated volume into the natural environment or to alternative pathways in the collection network.

The City has identified three such combined or partially separated sewer overflow points in the collection system including pumping stations. One of these is located at the Dundas/Coleman Junction Structure and discharges to the Moira River via a gravity bypass pipe. The remaining two are associated with the Front Street Sewage Pumping Station, one of which discharges via a gravity sewer to the Moira River, the second discharges to the PCP inlet chambers via an interconnection force main connecting to the Moira Pressure Sewer pipe.

Combined Sewer Overflows Occurring in Habitable Areas or Beaches

Combined Sewer Overflows in the wastewater collection system occurring in habitable areas or beaches are rare but can occur. Historically these have occurred in streets where untreated sewage has backed up from a maintenance hole or similar structures due to high flow volumes driven by wet weather including precipitation and snow melt. These are not designed overflow points and as such have no flow monitoring devices by which to estimate volumes discharged. In the 2023 calendar year there were no such events.

Inflow and Infiltration (I/I)

Stormwater entry into Sanitary Sewers typically occurs by a combination of Inflow and Infiltration (I/I). Inflow occurs when stormwater enters the sanitary sewer systems at points of direct connection to the systems such as rain leaders, basement sump pumps, and foundation drains. Infiltration occurs when groundwater enters the sanitary sewer systems through cracks and/or leaky joints in the pipes, service connections or maintenance holes. As such infiltration can be increased dramatically in areas with aging, damaged or improperly installed infrastructure. I/I can also occur by design in areas where sanitary and storm conveyance systems were historically constructed intentionally as a combined system. The City is exploring the prevalence of these combined sewers throughout the municipality and is seeking to separate these services when and where possible.

Stormwater in the wastewater network increases flow to the sanitary collection system which is ultimately received by the Pollution Control Plant (PCP). These extraneous flows by extension increase the risk of sanitary sewage backups into homes, businesses, and the environment as well as the risk of upset to PCP processes including higher bypass frequency and volumes.

The City is currently in the process of an Inflow and Infiltration Pilot Study to identify and remedy some I/I issues, including separation of pipework, flow monitoring, CCTV inspections, and rehabilitation/ repair work.

Resilience of Sanitary Sewers to Stormwater Inflow and Infiltration

Sanitary sewers in the municipal Wastewater Collection System are designed in accordance with the Ontario Water Resources Act and by extension the Ontario Design Guidelines for Sewage Works. These designs use historical, geographic, demographic and other forms of data to anticipate design flows including peak design flows. Consideration in these designs is given to known or suspected impacts for inflow and infiltration which are assessed based on appropriate storm return periods for the area. These design considerations may take the form of increased pipe sizes, greater grading of gravity sewers, improved pumping station capacities and the like to manage additional flows.

Similar to the combined sewer system, the sanitary sewer system includes several designated overflow points, with a total of four in place. These are associated with four sewage pumping stations and may discharge into environment via the Moira River, Potters Creek or the Bay of Quinte.

Wastewater Treatment Effluent Discharge

All effluent discharged from a sewage treatment plant within the City of Belleville is discharged from the Pollution Control Plant (PCP) located at 131 St. Paul St. This facility receives raw wastewater collected from all points within the network and subjects it to a conventional activated sludge treatment process followed by chlorination and subsequent de-chlorination prior to discharge into the Bay of Quinte. Typically >95% of flows through the PCP are treated in this manner. During periods of heavy flows brought on by considerable precipitation and/or snow melt conventional plant flow capacity may be exceeded, requiring some flows to be diverted via secondary bypass. Secondary bypass flows are diverted around the activated sludge process and proceed directly to the chlorination contact chambers until influent flow rate returns to a level within the normal range.

The City monitors all effluent leaving the Pollution Control Plant to ensure all legislative requirements are met. In the 2018 Wet Weather and Wastewater Servicing Master Plan, the future effluent objectives are outlined as well as the recommended level of treatment for the facility. Effluent objectives are established to support protection of the receiving natural environment as well as to meet current and future regulatory requirements.

Stormwater Assets

Areas Connected to the Stormwater Management Network and Extent of Protected from Flooding

The City is responsible for the collection and management of stormwater on municipal roadways and allowances. As the City expands so to do the extent of these systems, requiring ongoing expansion of the stormwater management network. Belleville manages stormwater runoff through an Environmental Compliance Approval (ECA) in accordance with specific rules and standards set by the Ministry of the Environment, Conservation and Parks. The current extent of the City's stormwater management network is shown in figures 8.4 and 8.5 below.

To lower the risk of flooding and protect water quality, the City uses a variety of practices and technologies to manage stormwater. Some assets used to provide these services include storm sewers and catch basins, ditches and swales, culverts, oil and grit separators, stormwater management ponds, and a stormwater pumping station.

The extent of flooding protection offered by these services requires additional investigation to determine performance with respect to levels of service required under O. Reg. 588/17. Design criteria for storm sewers has changed throughout the history of this network's construction increasing considerations for minimum design flows from 2 to 5 year storm return events. The City recognizes the expansion and evaluation of its stormwater service area's levels of service (LoS) as priority for improvement. Given the anticipated changes to operational requirements under the consolidated linear infrastructure ECA for the City's Stormwater Management System and the expected impacts of climate change, there are many opportunities for strategic alignment of these LoS.

Figure 8-4 Urban Areas Protected from Flooding

Belleville Storm Drainage System
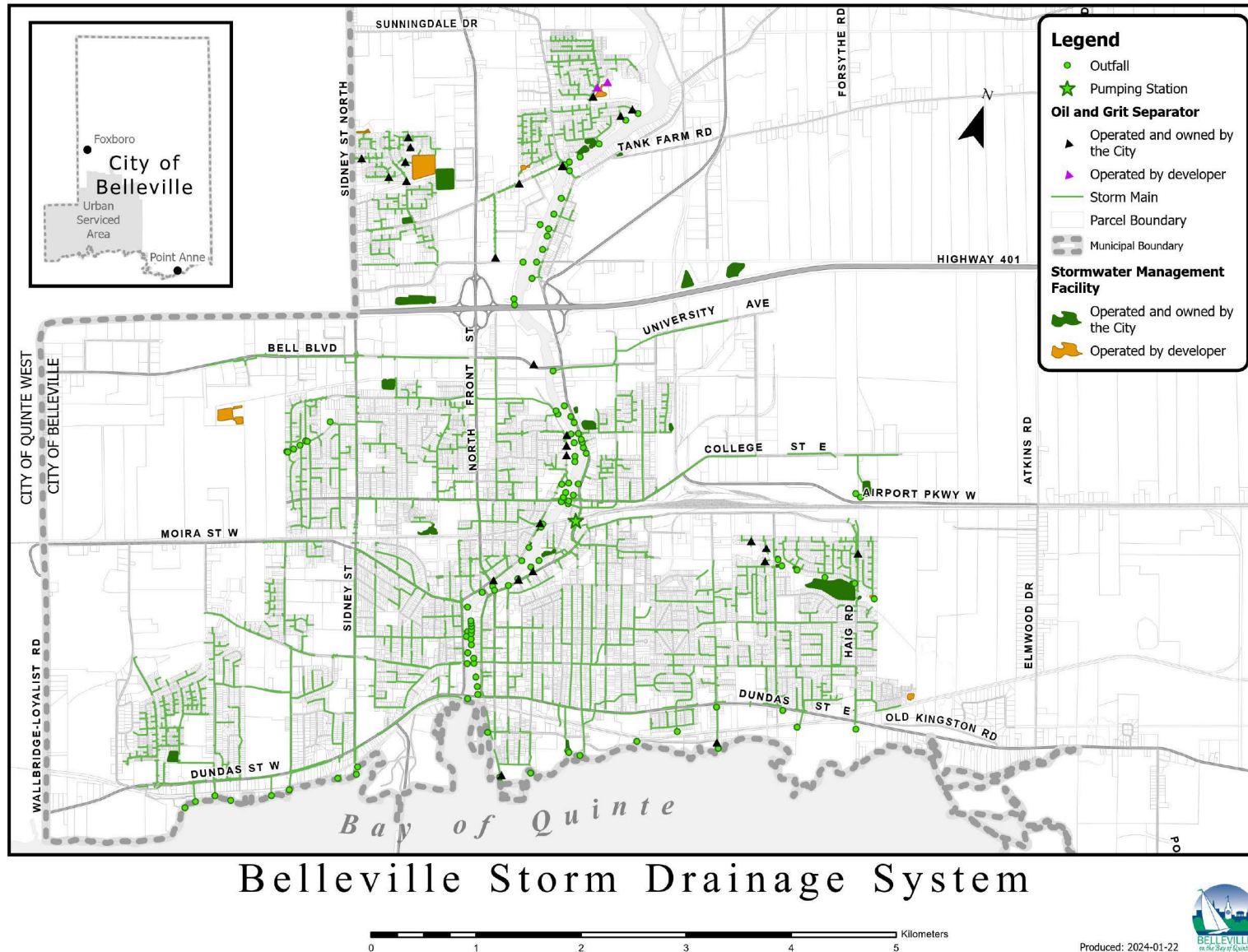
Figure 8-5 Rural Areas Protected from Flooding

Belleville Storm Drainage System (Rural)

Produced: 2024-01-22

Legend
- Storm Main
- Parcel Boundary
- Municipal Boundary

Stormwater Management Facility
- Operated and owned by the City
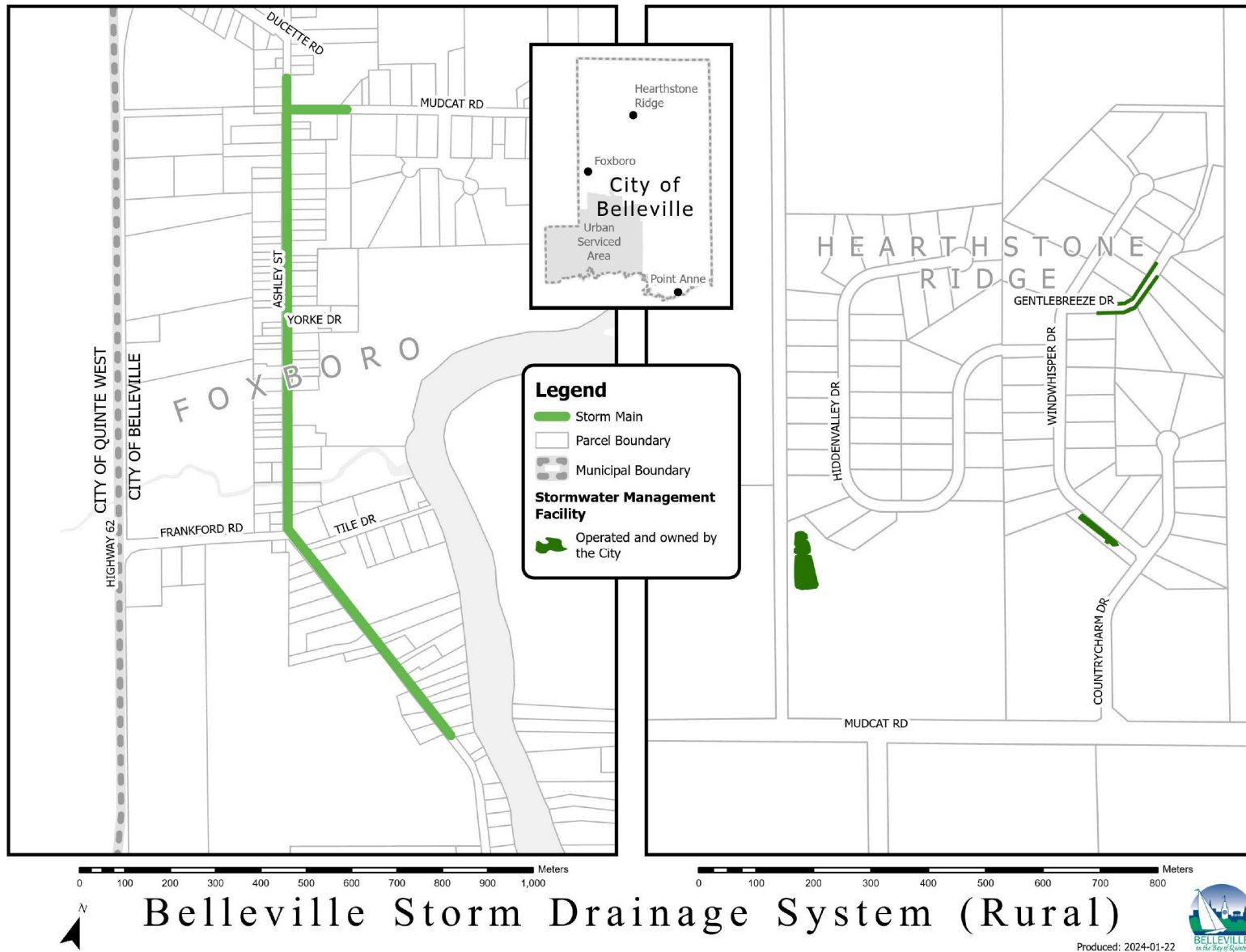
Roads

Road Network Description and its Connectivity

Belleville serves as an approximate halfway point between Toronto and Ottawa along the Highway 401 corridor. Belleville's road network is made up of highways, arterial roads, collector roads and local roads, each serving an integral function in the road network. Higher order roads such as arterials are primarily intended to serve a mobility function, while lower order roads provide access to adjacent properties. These roads provide connections to and within neighborhoods, urban areas, the City Centre, commercial sites, and industrial lands.

The City's Transportation Master Plan states that the city's road network is expected to provide Safe, equitable, and sustainable transportation system. A map of the City's is shown in

.

Figure 8-6 City of Belleville – Road Network
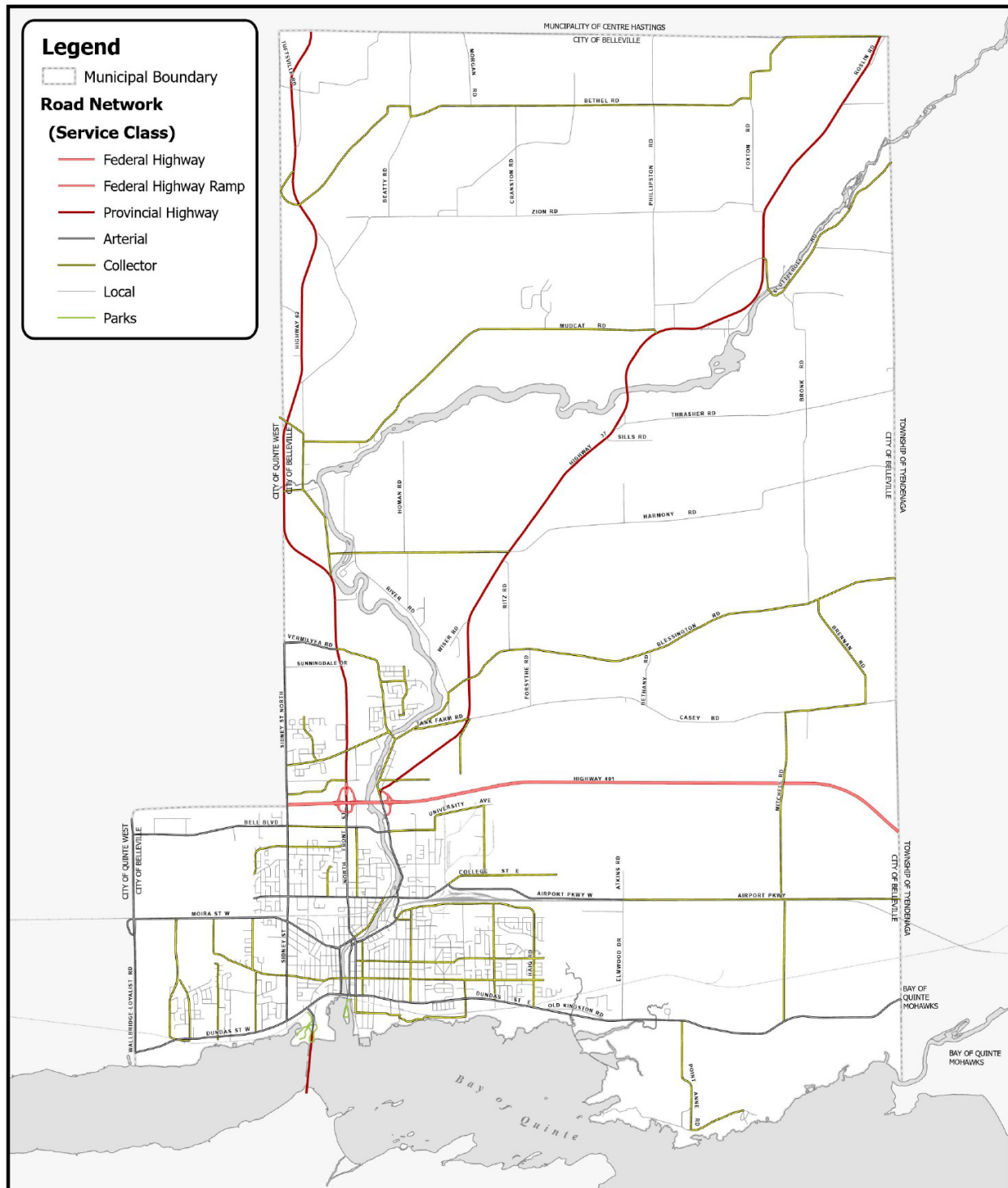
Belleville Road Network

Figure 8-7 City of Belleville – Urban Road Network
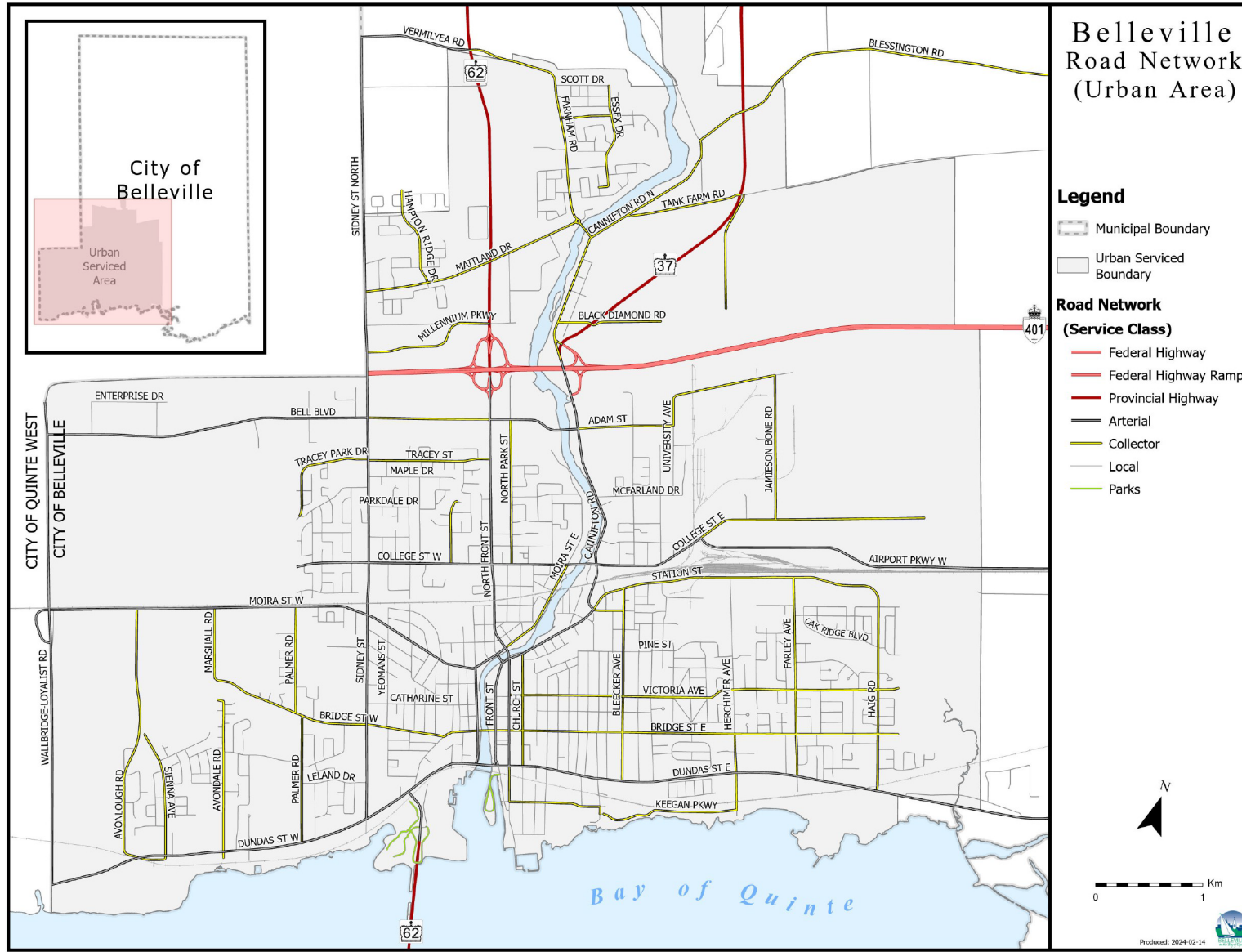
Different Levels of Road Class Pavement Condition

Pavement condition data is collected on the entire road network every three years through a Roads Needs Study. Data collected includes the type, extent and severity of distresses (cracks and rutting) and smoothness or ride comfort of the road. An overall PCI is calculated from all collected data and is used as input into the annual road resurfacing and reconstruction program. The index is scaled from zero to 100 and has been divided into ranges to assess condition. Examples of roads in each of the PCI rating categories are provided in Table 8-1.

Table 8-1 Road Condition Grades

Condition Grade	Urban Road Example
Very Good PCI = >85 to 100	
Good PCI = >70 to 85	
Fair PCI = >55 to 70	
Poor PCI = >40 to 55	
Very Poor PCI = <40	

Bridges and Culverts
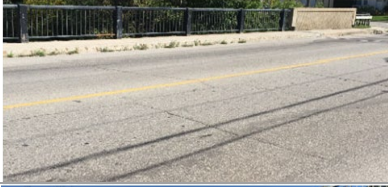
Levels of Bridge and Structural Culvert Condition

The need for mobility requires that the City's roadway system be kept in a state of good repair. Structures are a vital part of this system. An effective structure management system involving the systematic inspection of the structures on the roadway network is required to maintain structures in a state of good repair. In accordance with O. Reg. 104/97 Standards for Bridges, the City conducts detailed inspections of all of its bridges every two years. All inspections are supervised by a trained Professional Engineer following the guidelines in Ontario's Structure

Inspection Manual (OSIM) which sets standards for the visual inspection and condition rating of bridges and their elements. The inspector assesses each bridge element and records the amount of the element in each of four condition states: Excellent, Good, Fair, and Poor. The inspector also records suspected performance deficiencies and recommends maintenance and renewal activities, with costs. The typical follow-up action for a suspected load carrying capacity deficiency would be to carry out a strength evaluation of the structure (or element) to determine the load carrying capacity in accordance with the requirements of the Canadian Highway Bridge Design Code.

An overall Bridge Condition Index (BCI) or Culvert Condition Index (CCI) is calculated from all collected data and informs the annual bridge and structural culvert rehabilitation and reconstruction program. The index is scaled from zero to 100 and has been divided into ranges to assess condition. The BCI is not used to rate or indicate the safety of a bridge or structural culvert. Any safety issues are immediately reported by the inspector to supervising engineers and maintenance crews. Condition grade examples are provided in Table 8-2.

Table 8-2 Bridge and Culvert Condition Grades

Condition Grade	Bridge Examples	Culvert Examples
Very Good BCI = >80 to 100		
Good BCI = >70 to 80		
Fair BCI = >60 to 70		
Poor BCI = >50 to 60		
Very Poor BCI = <50		

Summary of Key Assumptions

This section outlines the key assumptions that underpin the Belleville 2025 Asset Management Plan (AMP). These assumptions inform the Plan's forecasting methodologies, financial strategies, and lifecycle planning approaches. They serve as the foundation for asset management decision-making and long-term infrastructure planning. As the City continues to enhance its data quality, analytical tools, and financial modelling capabilities, these assumptions will be reviewed and refined in future AMP updates to ensure continued accuracy and relevance.

1. Growth Forecasting

- Population is projected to increase by 13.6% from 2024 to 2034.

- Where master plans are outdated or unavailable, the 2021 Development Charges Background Study was used as the basis for estimating growth.

- In some service areas, asset portfolio growth is assumed to occur in direct proportion to population growth.

2. Financial Forecasting Funding Availability

- All financial forecasts are presented in constant 2024 dollars and are not inflated.

- Forecasted funding is based on historical budget trends and inflows of revenues, but does not reflect guaranteed future budgets.

4. Lifecycle Management Strategies

- High-risk renewal activities are prioritized; low-risk activities may be deferred out of projections, although may be undertaken within annual budget approvals.

- Replacement intervals and treatment frequencies are designed to minimize lifecycle costs while maintaining target levels of service.

5. Operations and Maintenance (O&M)

- O&M costs will grow in proportion to asset portfolio expansion.

- Consequential O&M (e.g., costs related to newly constructed assets) is estimated by applying growth factors to existing unit costs.

6. Data and Condition Assumptions

- Where condition data is lacking, assumptions are made based on asset age or industry benchmarks.

- Unit costs and condition estimates for certain assets (e.g., stormwater ponds, appurtenances) are extrapolated from limited data.

8. Capital Plan and Renewal Forecasting

- Forecasted lifecycle needs align with the City's 10-year Capital Plan.

- Capital plan forecasts reflect current financial capacity and available reserves, but may be revised with updated priorities or funding sources.

9. Risk Management

- Risk assessments use proxies such as asset size and service area coverage.

- The AMP assumes continual improvement in risk methodology as better data becomes available.