City of Peterborough

To:	**Members of the General Committee**
From:	**Blair Nelson, Commissioner, Infrastructure, Planning and Growth Management (Acting)**
Meeting Date:	**June 3, 2024**
Report:	**2024 Asset Management Plan, Report IPGACP24-017**

Subject

A report to update and approve the City of Peterborough's Asset Management Plan.

Recommendation

That Council approve the recommendation outlined in Report IPGACP24-017, dated June 3, 2024, of the Commissioner of Infrastructure, Planning and Growth Management (Acting) as follows:

That the 2024 City of Peterborough Asset Management Plan be approved.

Executive Summary

- The Asset Management Plan (the Plan) is a place to start the conversation about achievable service objectives. It is about communicating available options and alternatives, risks and service impacts, and the willingness to pay to deliver services.

- The Plan currently projects an annual capital investment shortfall of approximately $135 million to meet existing service levels and accommodate planned growth.

- The Plan is intended to be used to guide investment decisions to achieve long-term asset sustainability.

- The Asset Management Plan also:

  - Provides a reference for Council and City staff of the asset lifecycle activities currently in place to deliver services (operation, maintenance, rehabilitation, replacement, disposal, etc.), and the levels of service with current performance.
  - Provides the planned approach to maintain assets in accordance with service level provisions and the financial impacts to provide these services.
  - Allows the City to meet legislative asset management reporting requirements.

- The 2024 Asset Management Plan is compliant with the reporting requirements for "Asset Management Plans, Current Levels of Service" as prescribed in Ontario Regulation 588/17 - Asset Management Planning for Municipal Infrastructure.
- It is required that the Asset Management Plan be updated again by July, 2025 to build on previous phases of the Asset Management Plan by adding proposed level of service and lifecycle management and financial strategy.

Background

What is Asset Management?

Asset management is defined by the International Organization for Standardization (ISO) as the "coordinated activity of an organization to realize value from assets". It is an ongoing process of making the best possible decisions regarding the construction, operation, maintenance, renewal, replacement, and disposal of assets. Asset management helps us put rigour and structure around the information we use to make strategic decisions.

The complete Asset Management Plan, appendices, and attachments can be viewed at the following links:

Asset Management Plan 2024:
https://www.peterborough.ca/en/city-hall/resources/Documents/asset-management/2024_AMP_FINAL.pdf

Attachments 1-15:
https://www.peterborough.ca/en/city-hall/resources/Documents/asset-management/Attachments-1-to-15.pdf

Appendices A to B:
https://www.peterborough.ca/en/city-hall/resources/Documents/asset-management/Appendices-A-to-B.pdf

What is an Asset Management Plan?

The Plan is often a place to start the conversation about values and what is important to Stakeholders. It is about communicating available options and alternatives, risks and service impacts, and the willingness to pay to deliver services.

Furthermore, the Plan **is:**

- A living document, based on currently available information that will improve year over year.
- A report used to communicate the City's state of infrastructure assets and the estimated lifecycle expenditures required to sustain those assets.
- Reports Levels of Service, performance measures, trends, risk.
- A reference to inform decision making by using asset and service information as evidence.
- A long-term planning guide – it is intended to be used as a means of guiding investment decisions to achieve long-term asset sustainability.
- Intended to inform the budget – it reports how much we will need to spend, when we should anticipate spending and what the impacts are if we do not spend it.
- Required to fulfill regulatory and/or provincial requirements to access funding grants.

The Plan **is not**:

- A static document – it will be updated regularly.
- A list of asset defects.
- A stand-alone document – it is an aggregating report that pulls from what is existing. It seeks to integrate and align.
- An accounting exercise, TCA exercise, or long-term financial plan (LTFP).
- Meant to impose how to manage assets or how to provide services – this comes from individual Service Areas. The Plan communicates how the City is doing it or desires to do it.
- Instructions on how to eliminate risks and the financial shortfall. We cannot eliminate them entirely, only manage them.
- Directives on how the City will fund the budget and where to get revenue. The Plan highlights what we need, when we need it, and current funding sources available.

Benefit of Asset Management to the Community

Stakeholders want safe, reliable, and sustainable services delivered in a predictable and cost-effective manner. The asset management process formalizes existing management practices and provides sound information to help us determine how to best invest in assets. This is so Stakeholders can continue to receive services and amenities that contribute to their quality of life, and that they can receive the value of

those services without disruption. Asset management can help reduce the risk of service disruptions and poor-quality services. It is a system that helps:

- Maintain the delivery of services
- Plan for the future
- Manage risk
- Invest responsibly by making informed decisions

Asset Management and Role of Council

Council plays a key role in establishing strategic direction and the level of service that will be delivered to Stakeholders. These should consider Stakeholder expectations, legislative requirements, and available resources.

To support Council's role in making informed decisions, sound asset information is needed. This information is required to be able to answer the following questions regarding City assets:

- Performance: What level of service do the assets currently provide?
- Risk: What is the likelihood and consequence of asset failure? What are the service risks without sufficient funding?
- Cost: What funding level is required to maintain or change the current level of service being provided?

Through engagement with City staff and leveraging the information in the Plan, Council will be better positioned to set the direction to deliver safe and sustainable services in a predictable and cost-effective manner.

Strategic Plan

Strategic Pillar: Infrastructure

Strategic Priority: Develop and implement robust long-term capital planning forecasts and budget planning to ensure municipal infrastructure (horizontal, vertical, and underground assets) remain in a state of good repair.

The recommendation of approving this report aligns with the Infrastructure Pillar by aggregating current information on target levels of service, the value and condition of the assets required to deliver the defined services and quantify the investment needs required to maintain existing assets in a state of good repair while also investing in new assets required to support the needs of a growing community.

Budget and Financial Implications

Accepting the updated Asset Management Plan does not inherently create budget implications, however it will begin to assist in the decision-making process in upcoming budgets. Examples of this include the Council endorsed Stormwater Protection Fee (USEC17-001 and as amended through USEC17-026) in which a phased-in 10-year financing strategy was implemented to gradually fund Stormwater assets and lifecycle activities in most need ($620,000/year for a total annual amount of $6.2M after phase-in). The implementation of a similar 10-year phase in of $350,000/year to gradually fund an additional annual amount of $3.5M in sanitary funding through increases in the sanitary surcharge, and the approved increase of the future road pavement capital and operating budget funding (Roads Needs Study Report USEC14-005) to address road assets in most need and stabilize average road asset conditions.

The province has indicated that a Council approved asset management plan that is compliant with O.Reg. 588/17 – Asset Management Planning for Municipal Infrastructure is required to be eligible for provincial funding and grant opportunities.

Conclusion

The Plan is a living document based on currently available information and will evolve with improvements made in future iterations. The Plan combines state of infrastructure, levels of service, asset management strategies, risk, future demands and emerging challenges and the financial summary. The Plan will play a significant role in understanding current and proposed services being delivered, the costs to deliver them and the financial strategy to fund the necessary expenditures to achieve proposed levels of service. The Plan also seeks to help prioritize capital projects and serve as an overarching guiding document for decision making processes.

This Plan is compliant with Phase 1 and Phase 2 of the Province’s asset management planning regulatory requirements (O.Reg. 588/17).

The Plan has had to make several assumptions to come to the conclusions drawn within. In making these assumptions, actions are being reviewed to help improve future iterations and reduce the number of assumptions. All assumptions have been clearly documented in the Plan.

Attachments

Appendix A: Asset Management Plan

Submitted by,

Blair Nelson, P. Eng.
Commissioner, Infrastructure, Planning and Growth Management (Acting)

Contact Name:
Michael Papadacos, M.A., P.Eng.
Director, Asset Management & Capital Planning
Phone: 705-742-7777 Ext. 1756
Toll Free: 1-855-738-3755
Email: mpapadacos@peterborough.ca

Aylin Hearnes
Asset Management Specialist
Phone: 705-742-7777, Extension 1482
Toll Free: 1-855-738-3755
E-mail: ahearnes@peterborough.ca.

2024
City of Peterborough
Asset Management Plan

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I. Overview

This asset management plan (the Plan) supports and promotes evidence-based decision making and the development of strategies to extend the lifecycle of assets while maintaining services and reducing risks. The Plan benefits the City of Peterborough (the City) by looking to the future and identifying the best places to invest limited dollars to provide the greatest benefit to residents, visitors, and businesses.

The Plan reviews the growth and demand that the City is expected to meet based on the City's approved Official Plan. Peterborough currently acts as a gateway to the cottage communities, a commuter area to and from the GTA and a young adult hub due to post secondary institutions. These features are expected to draw more people to the City in the next 20 years. The expected growth has real implications on how the City will develop and maintain its asset base.

Asset management requires an understanding of what we own, what services we are going to deliver and how we are going to deliver it. To do this the Plan will review the current state of the infrastructure, the levels of service (LoS) delivered, the strategies used to manage assets, an assessment of levels of risk, and the funding sources used to finance these strategies. This Plan is a living document and is intended to be monitored annually with full updates every five years. This Plan includes the following fifteen (15) service areas:

- Roads & Related assets
- Stormwater
- Wastewater
- Transit
- Solid Waste Management
- Community Housing
- Community Recreation
- Airport
- Urban Forest
- Social Services – Day Care
- Arts, Culture & Heritage
- Public Works
- Emergency Services – incl. Police and Fire Services
- Information Technology Services
- Administration

Potable water assets are owned by the City, however management of water assets, including asset management planning activities are currently the responsibility of a separate Municipal Service Corporation, Peterborough Utilities Company.

Incorporating green infrastructure assets, including natural assets, into asset management plans is relatively new for many municipalities. The City of Peterborough incorporates some enhanced green infrastructure assets into the existing Plan (e.g., wet/dry stormwater ponds, street trees, park trees, parks and open spaces), however the co-benefits and services provided through an 'ecosystem' lens is not fully quantified and accounting practices for addressing natural assets are evolving. Staff are currently working on updating the

green/natural asset inventory which will assist in defining processes and methodologies for identification of assets, ownership boundaries, service(s) provided, condition, valuation (replacement cost vs. restoration costs) and risk management.

II. Plan Purpose

The asset management plan provides a means of guiding investment decisions to meet key strategic and operational goals. It communicates how the City's assets will be managed to achieve established service levels and targets. The Plan sets the foundation for making informed decisions and prioritizing investments by using asset data and service level objectives as evidence.

The Plan also:

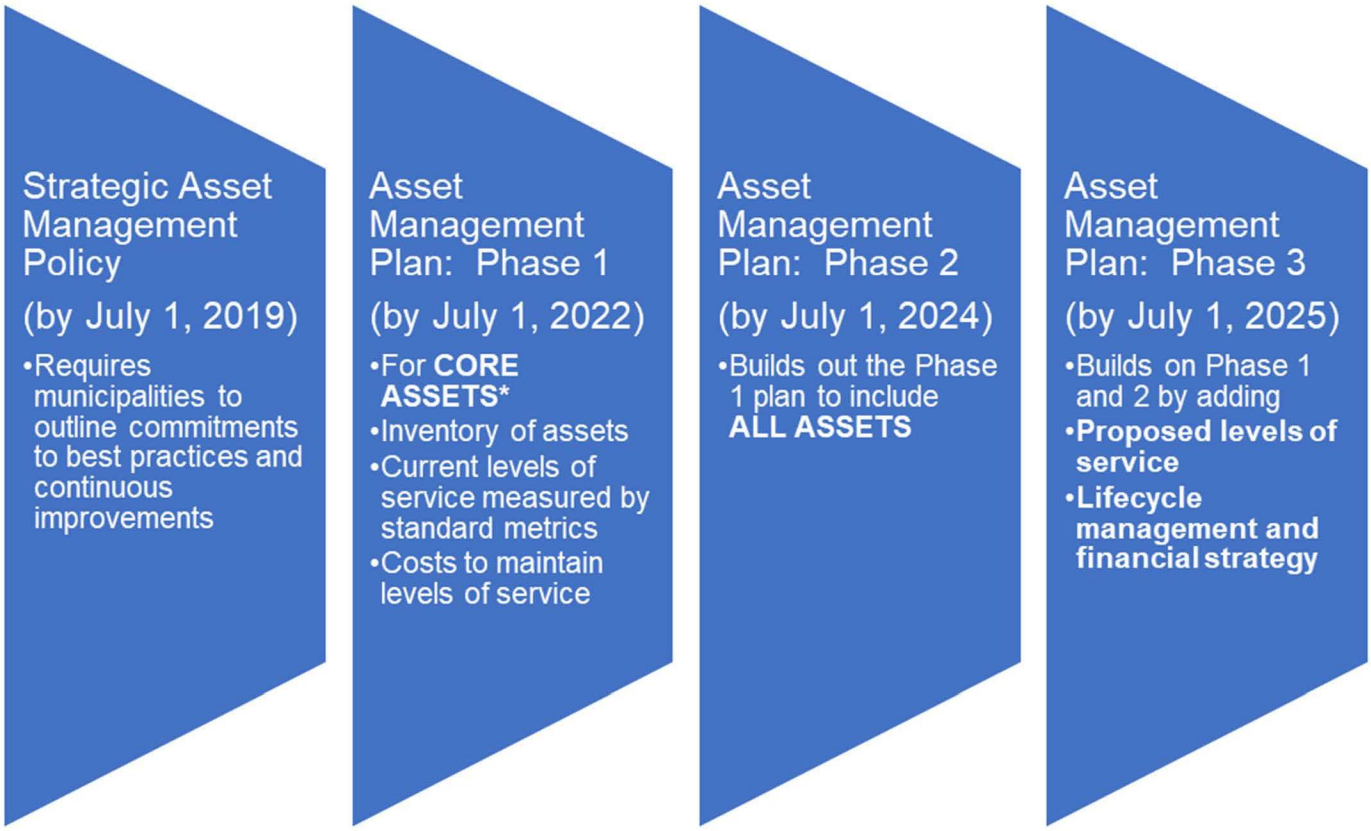
- Reports Council and stakeholder expectations related to asset management
- Provides as a reference for Council, Commissioners, Directors, Managers, and other City staff, the asset lifecycle activities currently in place to deliver services (operation, maintenance, rehabilitation, replacement, disposal, etc.) and the levels of service with current performance.
- Provides the planned approach to maintain assets in accordance with service level provisions, and the financial impacts to provide these services
- Allows the City to meet legislative asset management reporting requirements

The City will continue to apply asset management principals and develop a comprehensive asset management plan. This Plan will seek to prioritize investments over a 25-year period with major updates every five years.

III. Regulatory Asset Management Requirements

On December 27, 2017, under the *Infrastructure for Jobs and Prosperity Act, 2015,* the Province enacted Ontario Regulation 588/17, *Asset Management Planning for Municipal Infrastructure.* The regulation sets forth the following timelines:

Figure E1: Ontario Regulation 588/17 Requirements and Timeline



*Core assets are roads, bridges, stormwater and wastewater assets

The regulation also requires that every municipality's asset management plan be reviewed and approved by the municipal council.

In 2016, the City's Asset Management Policy and Procedure was approved by Council (Report USEC16-021) and complies with the regulation's requirements for the strategic asset management policy, as shown in Figure E1 above.

The intention of the regulation is not only to implement best practice asset management throughout the municipal sector but to also help municipalities better understand what services need to be supported over the long term. It focuses on levels of service and integrating lifecycle management, risk, and financial management to maximize the value on investments and return on ratepayers' dollars.

IV. Elements of the Plan

The 2024 Asset Management Plan provides details about the City's infrastructure (as of year-end 2022), estimated at a total replacement value of $6.3 billion and contains the following sections:

- Executive Summary
- Introduction
- Levels of Service
- State of Infrastructure
- Asset Management Strategies
- Financial Summary
- Plan Improvement and Monitoring
- Conclusion

Individual Service Area Attachments 1 though to 15 are included as part of this Plan in Section 9.0 – Service Area Attachments. The attachments contain detailed information specific to the asset inventory, replacement costs, age, remaining useful life, condition ratings, current levels of service, asset management lifecycle strategies and risk strategies.

Attachments 1 through to 15 contain specific service area details for the following types of strategies:

- Non-infrastructure solutions
- Operations & Maintenance Activities
- Renewal/Rehabilitation
- Replacement
- Disposals/Abandonment
- Service Improvement Activities
- Growth Activities

City staff will continue to refine asset management strategies and associated costs to meet the new provincial asset management reporting requirements set forth in O. Reg 588/17.

The Plan's format aligns with the provincial "Building Together: Guide for Municipal Asset Management Plans". The Plan is also consistent with:

- Ontario Infrastructure for Jobs and Prosperity Act, 2015
- Development Charges Act, 1997 (Consolidated 2023)
- Requirements for the recording of Tangible Capital Assets (TCA)
- The City's TCA Accounting Policy (Policy 009)

V. Asset Management and Climate Change

The City applies several strategies to acquire, maintain, improve assets in a sustainable and effective manner. This is important as municipalities face increasing challenges with managing aging public assets in the face of increasing uncertainty from risks, including those related to the impacts of climate change.

The City is committed to considering climate change when planning asset lifecycle activities (e.g., design, maintenance, renewal, replacement, etc.). and is an important criterion in the decision-making framework. Climate change is also taken into consideration when developing proposed budgets and forecasts, when assigning useful lives and current replacement costs of assets (for asset management planning purposes), and in the risk management plan.

VI. Levels of Service

a) Overview

The City's core purpose is to provide services to stakeholders. Establishing levels of service (LoS) and tracking over time is essential to measuring the success of service delivery and asset management strategies.

When establishing levels of service, the following are taken into consideration:

- Protecting and upholding public safety
- Protecting the environment
- Regulated/legislated requirements
- Stakeholder expectations
- Vulnerabilities and mitigation approaches to impacts of climate change
- Level of service information provided in approved plans and studies

Levels of service reflect how the City delivers services from the perspective of the service user (Stakeholder LoS) and from the perspective of service delivery (Technical LoS). This section of the Plan includes information on current levels of service (both Stakeholder and Technical), performance measures, and trends in service delivery.

In this iteration of the Plan, performance measures and targets are set to current levels of service and will document performance trends against those measures. At a minimum, legislated/regulatory levels of service will be reported and tracked as part of the levels of service review.

Proposed levels of service (which may or may not differ from current levels of service), will be discussed in future Plans and reported prior to the July 1, 2025 deadline as prescribed in the asset management planning regulation O.Reg. 588/17.

b) Summary of Current Performance

The City currently meets all regulatory/legislated requirements relating to provision of services. Performance compared to service areas previously reported in the 2021 Asset Management Plan is mostly neutral but also indicates there were improvements made towards achieving targets in some service areas.

Detailed information about service area levels of service and current performance can be found in Section 9.0 – Service Area Attachments of the Asset Management Plan.

VII. The State of the City's Infrastructure

The State of Infrastructure summarizes the quantity of assets in data inventories, provides a replacement cost valuation of the assets, and summarizes the overall condition of each asset or asset class.

This Plan seeks to answer the following questions of asset management pertaining to City infrastructure:

- What do we own?
- What is it worth?
- How old is it and what is the remaining useful life?
- What is its condition?
- What is the risk rating? (i.e., risk impact should the asset fail)

a) What do we own?

A consolidated list of assets included in the Plan can be found in Appendix A – Assets Included in the Plan.

b) What is it worth?

The 2024 Plan currently includes fifteen (15) service areas with an estimated asset replacement value of $6.3 billion. The highest valued service areas are Wastewater ($1.86 billion), Stormwater ($1.77 billion), and Roads & Related Assets ($1.45 billion). Of of the total estimated current replacement value of City assets (estimated $6.3 billion), 80% (estimated $5.1 billion) are classified as "core" assets (Wastewater, Stormwater and Roads & Related).

Figure E2 and Table E1 below summarizes the total asset replacement value by service area.

Figure E2: Asset Replacement Value by Service Area

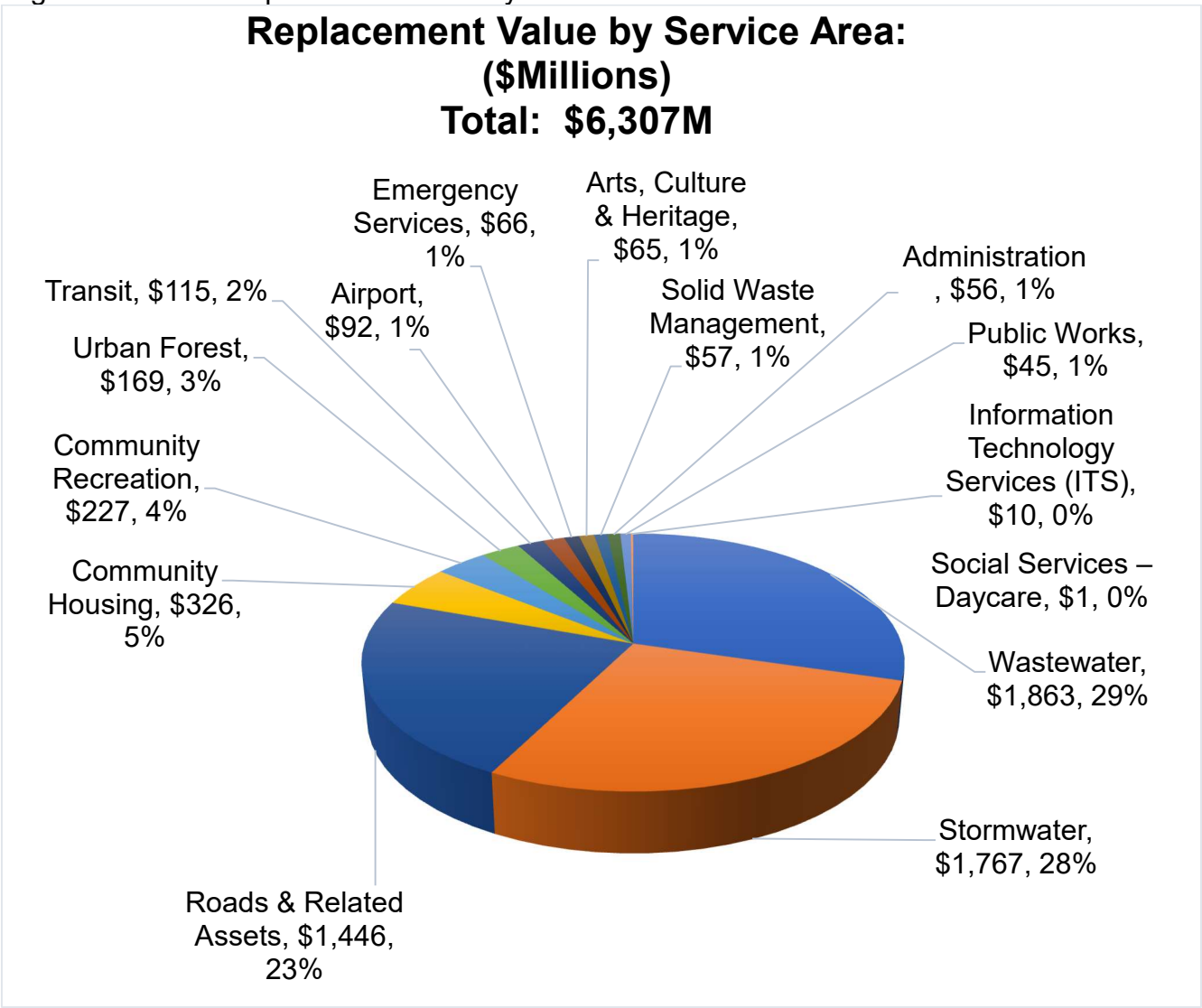


Table E1: Total Asset Replacement Value by Service Area

Service Area	2023 Replacement Value ($Millions)
Wastewater (core asset class)	$1,863
Stormwater (core asset class)	$1,767
Roads & Related Assets (core asset class)	$1,447
Community Housing	$326
Community Recreation	$227
Urban Forest	$169
Transit	$115
Airport	$92
Emergency Services	$66
Arts, Culture & Heritage	$65
Solid Waste Management	$58
Administration	$56
Public Works	$45
Information Technology Services (ITS)	$10
Social Services – Daycare	$1
Total Asset Replacement Value*	**$6,307**

*May not add due to rounding

c) What is the Age and Remaining Useful Life?

A requirement of asset management planning is determining the remaining useful life of an asset based on generally accepted life spans for a given asset. It is important to note, that the age profiles are strictly based on the calculated age of the assets unless otherwise noted. The original useful life span of a given asset can be extended through maintenance and betterments. This process can extend the asset's ability to deliver a service beyond its original life span.

Service area age and remaining useful life details can be found within the respective service area attachments in Section 9.0 of this Plan.

d) What is the Condition?

The state of the City's assets is a snapshot in time and uses a blend of age-based data and observed data. Based on the total asset replacement value, approximately 79% ($5.0 billion) of the City's assets are considered to be in fair condition or better.

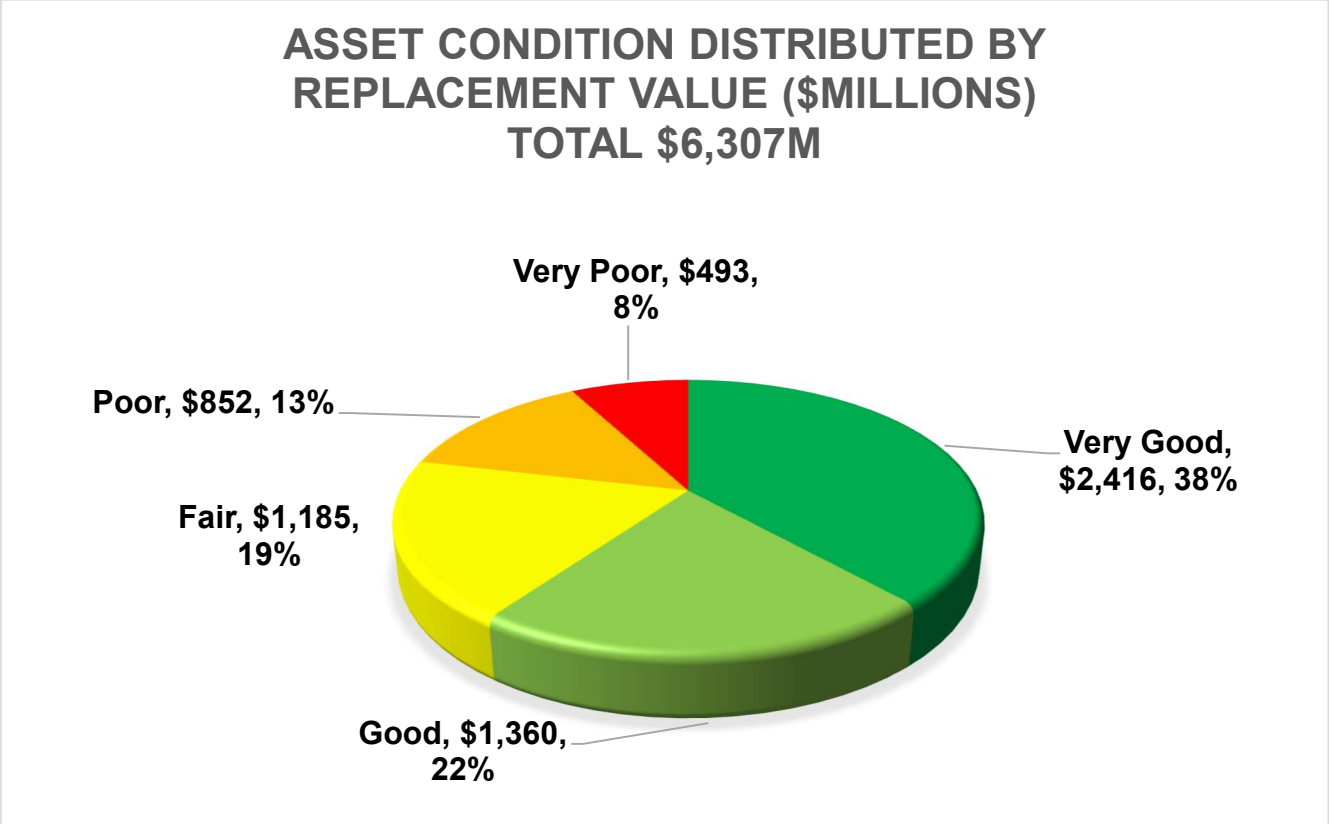
The City significantly invests in ongoing capital programs to maintain existing assets in acceptable condition and to deliver services at sustainable levels. Some of the capital programs planned over the 10-year forecast include a collector and local streets pavement preservation program with a total project cost estimated at $50.6 million, an underground storm and sanitary pipe CCTV inspection program with an estimated total project cost of $21.1 million, a fleet and equipment replacement program with a total cost estimated at $22.9 million

and a sidewalk reconstruction program with an estimated total project cost of $5.9 million. Without these ongoing investments, it would be expected that levels of service would notably start to decline over the long-term, exposure to risk would increase along with increased asset treatment costs.

Figure E3 below shows the distributed condition ratings and total replacement values of City owned assets included in this 2024 Plan.

Where assets may be rated poor or very poor (approximately $1.3 billion or 21% of the City's total asset replacement value), the City ensures that these assets will not represent a hazard or pose a health and safety risk. Generally, these are assets that may not be performing as intended. For example, a road segment considered to be in very poor condition would typically require significant resurfacing treatment or asphalt replacement. This does not mean the road is 'unsafe' for use, it means the road is not providing the same level of service and ride quality as a road rated in fair condition would provide.

Figure E3: Overall Distributed Asset Conditions and Replacement Value



As noted above, an estimated 21% of assets with a replacement value of $1.3 billion are in poor to very poor condition. To maintain established service levels and achieve performance targets, significant investments within the next decade will be needed to avoid further deterioration and/or possible service disruptions.

It is also important to understand that without applying the right treatment at the right time, options typically become more costly. Where lower cost treatments, such as road resurfacing, would significantly improve road surface conditions, not applying this treatment soon enough would result in requiring full asphalt replacement, and at a higher cost. Lifecycle activities, including treatment options are further discussed within individual service area attachments.

e) What is the Risk Rating?

The City has used a risk rating methodology to assign a risk score to each asset included in the asset management plan. The risk ratings are composed of two factors: asset condition and consequence of failure. The asset condition informs the likelihood that an asset will fail, and the consequence of failure informs the impact resulting from the failure. In addition to the asset condition, other asset information, such as size and material, was considered when assigning a risk score where possible. The consequence of failure of an asset is assessed on a 5-point scale that evaluates the impacts on the environment, society, finances, and reputation. It is important to understand that high-risk assets are those with high

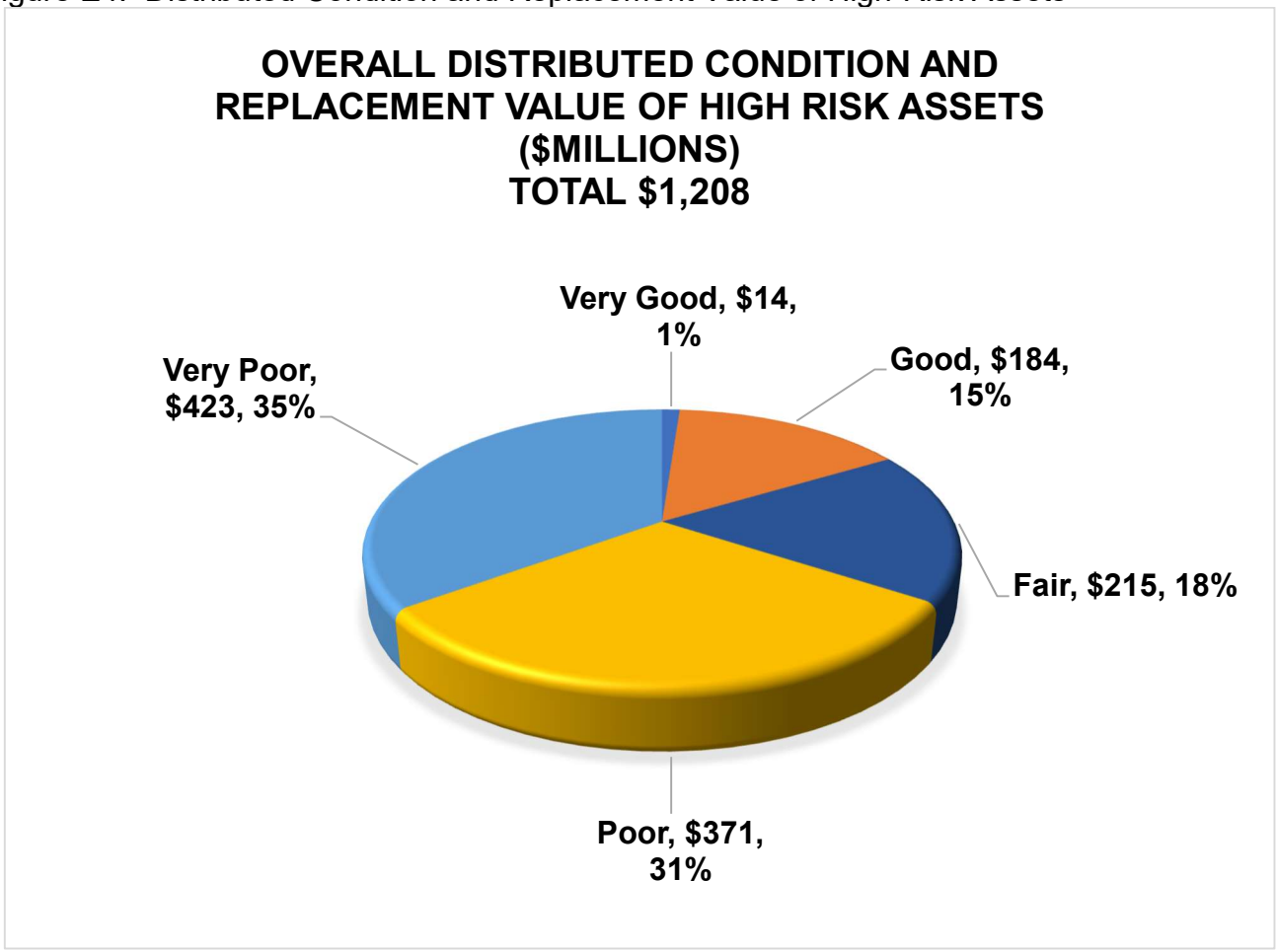
consequence of failure **and** high likelihood of failure (where likelihood is based on asset condition).

The value of high-risk assets in this Plan is an estimated $1.2 billion (19% of total City asset replacement value).

Of the $1.2 billion, an estimated asset replacement value of $795 million are rated poor and very poor, with $489 million (62% of total asset value in poor and very poor condition) being Roads and Related, Stormwater, and Wastewater assets.

Figure E4 below shows the overall distribution of high-risk assets by condition and replacement value.

Figure E4: Distributed Condition and Replacement Value of High-Risk Assets



High-risk assets that are most critical to service delivery should be prioritized. Where asset conditions continue to deteriorate, the risks to service delivery increases. With adequate investment levels, risk exposure is minimized, and the probability of service interruptions are lowered.

Currently, the Roads & Related Assets, Wastewater, and Stormwater service areas comprise of the largest portion (by replacement value) of high-risk assets in poor or worse condition. The City seeks to prioritize high-risk asset investment needs whenever feasible.

VIII. Future Demand and Emerging Challenges

There are several factors, challenges and trends that influence demand. Also known as demand drivers, these can significantly impact the services delivered by the City of Peterborough. Some examples of demand drivers include (but are not limited to):

- Changing population
- Changing demographics
- Stakeholder service priorities
- Aging assets
- Climate Change
- Legislation/Regulation
- Changing technologies
- Land use planning

Understanding the drivers and challenges that impact levels of service is a key step in forecasting and managing demand. Demand drivers may change the City's requirements for acquisition, operation, maintenance, renewal, or disposal of assets. Demand drivers impact the type of *services* that are delivered, which directly impacts the type of *assets* needed to deliver these services. The City reviews demand drivers through various strategic planning studies, development charges studies, etc. and considers options on how demand drivers will be affordably managed.

Some options (other than the acquisition/construction of new assets) that may be considered to manage demand include (but are not limited to):

- Sharing of services with other local boards, agencies and municipalities
- User fees/pricing
- Service hours of operation
- Restrictions of use (e.g., seasonal use of bridges or roads)
- Incentives for services (e.g., on/off peak times service charges for parking)
- Awareness/education to efficiently and effectively use services the City provides (e.g., plans that inform on stormwater management, energy reduction strategies, GHG reduction strategies)
- Provision of alternative services (e.g., encouragement of using public transit or other methods identified in transportation demand management studies)

It is also important to understand demand drivers and the potential risks they may pose, e.g., climate change. Effects of climate change poses significant risks to both assets and the services they provide and will need to be managed and monitored by the City regularly. High level risks and associated impacts to the City's ability to effectively deliver services are discussed within the individual Service Area Attachments. The City is working towards developing an Integrated Infrastructure Risk Management Plan in which the identification and management strategies of demand drivers and associated risks are better understood and documented.

IX. Financial Summary

Asset funding is often a complex process drawing from several revenue sources. The funding for the City's programs strives to maximize the use of external funding to limit the burden on taxpayers and ratepayers. However, ageing assets and population demographic changes will create a need to replace and expand the current asset base and requires adequate funding.

a) What is the Financial Shortfall?

The financial shortfall represents the unavailable renewal funding for lifecycle activities required to deliver current levels of service. Where a shortfall is identified, management strategies to balance service levels, costs and risks will be considered by staff and Council and incorporated into future plans when possible.

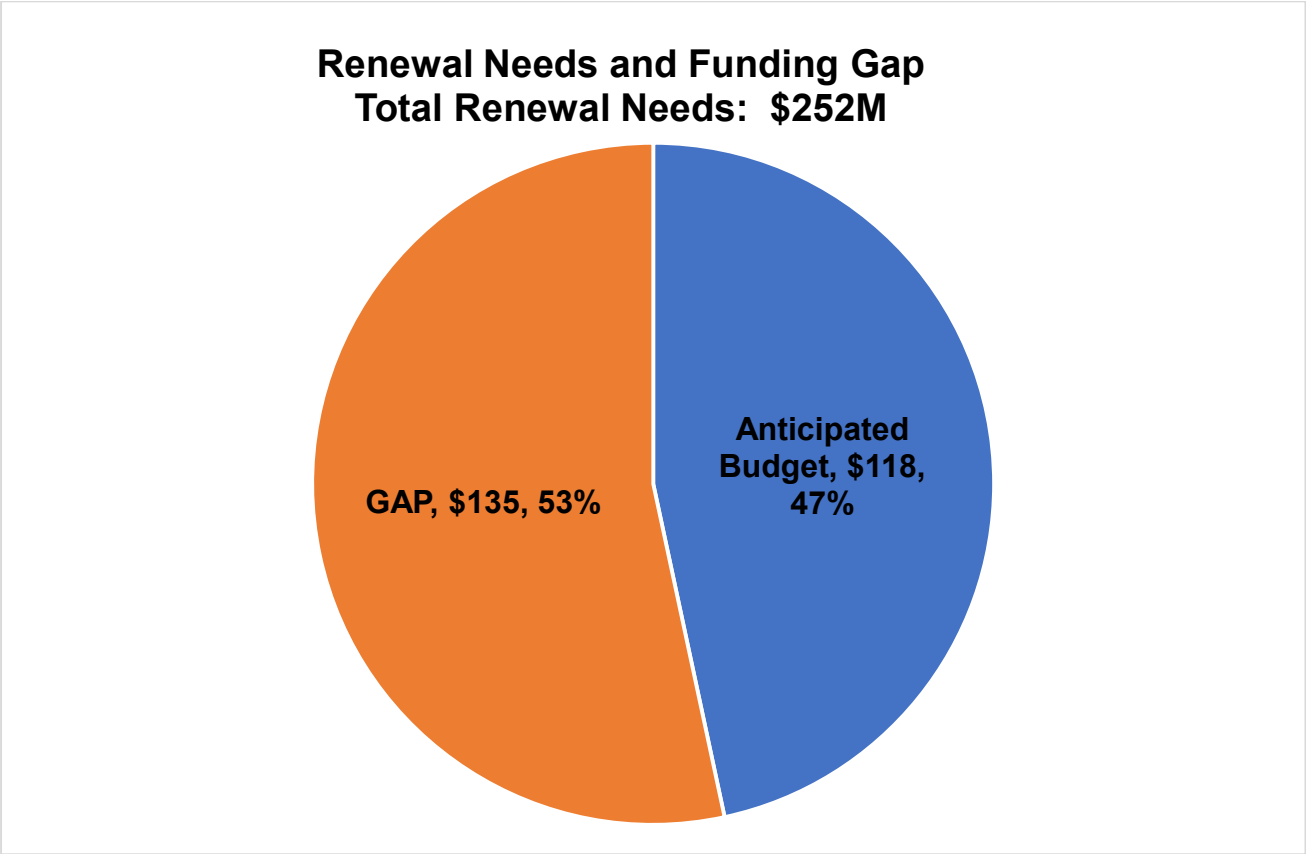
In this Plan, *investment needs* are the estimated lifecycle activity costs for all service areas reported in this Plan. These are based on a 10-year planning period and considers lifecycle costs, investments required to meet growth demands and to achieve 100% established levels of service.

The *anticipated budget* – is represented by the historical 3-year lifecycle costs funded in the City's capital budget. With the assumption that there will not be any significant impacts to revenue sources, this will be used as a baseline to calculate the financial shortfall.

The emphasis of the asset management plan is to communicate the consequences and risks that the shortfall may have on the services provided so that decision making is informed

For the service areas reported in this Plan, the annual lifecycle needs (averaged over 10-years) for existing assets and needs related to growth demands is an estimated $252.4 million. The anticipated annual budget (estimate for forecasted expenditure) is $117.8 million, leaving an average annual shortfall of $134.6 million (as shown in Figure E5 below). With the City expected to experience increased demands such as growth, increased extreme weather events and growing asset inventories etc., without intervention, levels of service are likely to decrease over the long-term planning period.

Figure E5: 2024 Financial Shortfall



The City is currently implementing a variety of strategies to effectively address the increasing capital investment needs and the financial shortfall. Some of the key strategies include:

1. A Debt Management Policy and Capital Financing Plan to assist in financing capital works as presented in report CPFS12-011 Debt Management and Capital Financing Plan, (April 4, 2012) and amended through Report CLSFS23-033 (August 14, 2023)
2. Implementation of the City's approved Asset Management Policy and Procedure and Asset Management Plan which together provide guidance for capital budget planning through asset management principles
3. Review current levels of service for all service areas. Council approved metrics that measure the expected performance of delivering levels of service will influence prioritization of investments during the budget deliberation process.
4. Expand on the use of the existing multi-criteria analysis technique for prioritizing capital projects for all service areas. The analysis technique is intended to consider a range of qualitative and quantitative criteria and reflect the social, cultural, economic, and environmental characteristics of a project's purpose. This process provides transparency to critical/high priority investments and will support planning capital investments with the greatest cost benefit while balancing an acceptable level of risk.
5. Analyze and weigh benefits of maximizing existing revenue sources vs. the provision of current service levels. The City's ability to afford the current service levels will need to be examined in more detail to ensure sustainability or, if necessary, a reduction in

service levels is the more achievable option to avoid increases to user fees or increased property taxes.

X. Managing the Risks

Some of the overarching service area risks associated with the City's ability to deliver established service levels include:

- Insufficient funding levels
- Insufficient staffing and resources to implement lifecycle strategies
- Asset deterioration assessments/models are underestimated/miscalculated
- External/environmental factors such as climate change effects (more severe weather instances, increased demands due to growth)
- Acquisition of new assets

Impacts associated with above risks include:

- Further/accelerated asset deterioration
- Increased backlog of work
- Service interruptions due to poor asset conditions
- Increased treatment costs
- Changes to the level/degree of required asset treatment, requiring increased resources/costs (i.e., maintenance now needing replacement)
- Planned budget/needs forecast not reflective of actual asset needs
- Additional assets/expansion of services required
- Reputation/image negatively affected

Staff are working on developing a more detailed risk register in which risk identification, risk impacts, risk treatment plan and costs, and residual risk ratings will be documented in the asset management plan.

XI. Next Steps

1. The City is collaboratively working towards refining its asset management practices as well as aligning them with the ISO 55000 series of standards. Additionally, the City will work towards ensuring reporting requirements set forth in regulation O. Reg 588/17 *Asset Management Planning for Municipal Infrastructure* are satisfied by the stipulated timelines.
2. Staff will consult with the community to refine and evaluate Levels of Service and associated costs.
3. Complete standardized condition assessments of assets currently without inspected condition and regularly update existing assessments.
4. Develop comprehensive LoS Policy and Procedure.
5. Develop Asset Risk Management Policy and Procedures, which will improve probability assumptions used to determine risk ratings and implement consequence rating system procedures that are data driven

6. Enhance considerations of Climate Change and Sustainability risks
7. Improve the Optimized Decision-Making process including a policy and procedure.
8. Use the Plan to drive capital investment priorities.
9. Monitor progress of strategies and recommendations from AMP.

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1.0 Introduction

The services the City of Peterborough delivers depends on effectively managed assets. The effective management of these assets has a significant impact on the ability for the City to deliver services. Incorporating an 'asset management lens' into the decision-making process involves the understanding of levels of service, cost of service, and risk, as depicted in Figure 1-0.

Managing the assets requires activities such as planning, purchasing, construction, maintenance, rehabilitation, and disposal. In order to continue to deliver the services stakeholders and businesses depend on day-to-day. The City must make the right investments at the right time in the right assets.

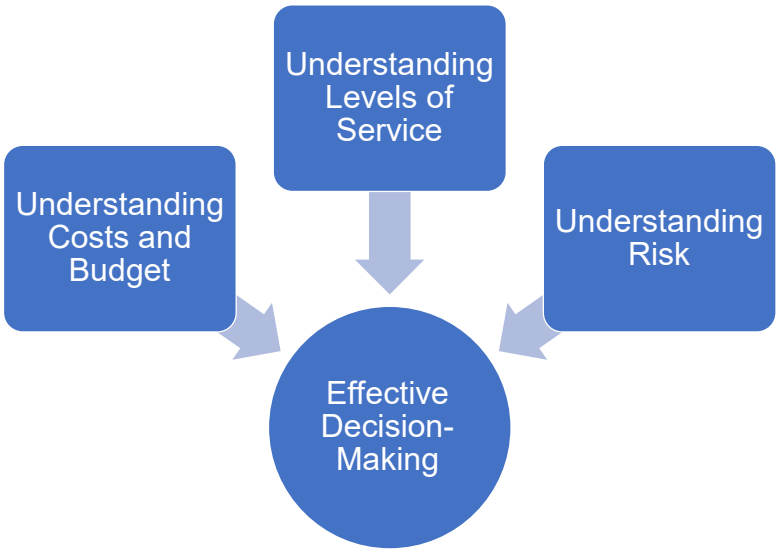


Figure 1-0: Asset Management Lens and Decision-Making

1.1 City of Peterborough Goals

The Official Plan states that 'Peterborough is a prosperous community, distinctive in its natural beauty, cultural heritage and strong sense of community. As a leader in environmental sustainability, growth in Peterborough uses infrastructure and land efficiently, promotes healthy lifestyles and incorporates green initiatives. The City will continue to develop as a complete, resilient and connected community that provides a high quality of life, supports a strong and diverse economy and promotes a unique, vibrant sense of place. Peterborough is equitable and accessible for all residents and visitors and celebrates its engaged, inclusive and diverse community'.[1] The City's Official Plan further details the City's goals for growth and outlines the steps needed to meet them.

The Strategic Plan[2] states that the Peterborough 2050 vision as 'build a future-ready City with a forward-looking, contemporary community, thriving in creativity and a modern economy. The Peterborough of tomorrow will be bold, innovative, progressive, caring, vibrant, inclusive, prosperous, and sustainable, a place that respects its past, heritage, culture, and readily embraces its future with excitement and renewed vigor. Leading today for tomorrow will ensure our City's fair share of respect and economic growth, locally as well as globally.' The Strategic Plan further details the four (4) strategic priority pillars:

- Growth & Economic Development

[1] City of Peterborough, City of Peterborough Official Plan, (Adopted April 2023),

[2] City of Peterborough Strategic Plan 2023-2050, (Approved April 2023)

- Infrastructure
- Community & Wellbeing
- Governance & Fiscal Sustainability

These pillars lay the foundation for the development of business and work plans for City departments as well as act as guiding beacons to achieve the Peterborough 2050 vision.

This asset management plan is intended to support these visions, goals and objectives of both the Official Plan and Strategic Plan.

1.2 Relationship with Other Corporate Planning Documents

The Plan considers the goals of several planning documents including the Official Plan and the City of Peterborough Strategic Plan, as well as other various master plans. Information gathered from these documents are included in the assessments and prioritization of asset investments and when defining level of service measures and targets.

Additionally, the Plan contains information that integrates with the budgeting process. The City presents the current year committed funding for both the operating and capital budget. A projected four-year, nine-year, and 24-year forecast is proposed for capital and 'other' capital projects only. The Plan is intended to influence budgets through various asset management strategies and processes such as, but not limited to, evaluating against defined levels of service measures and targets, risk assessment, alignment with climate change adaptation/mitigation strategies, etc.

1.3 The Plan Scope

For a list of service areas and assets included in the 2024 asset management plan, see Section 8.0 – Appendices, Appendix A – Assets Included in the Plan

Refer to Section 9.0 of this Plan for the complete service area analysis that discuss the following:

- Asset inventory
- Replacement cost
- Asset condition and remaining useful life
- Risk analysis
- Levels of service
- Asset management strategies and associated risks

The asset management plan excludes assets owned by other organizations that are funded by the City; however, all organizations are encouraged to align with the Plan's strategies where feasible.

The Plan is based on data as of December 31, 2023 and uses a lifecycle model to forecast renewal needs and other investment needs over a 10 and 25-year planning period. The long-term planning period used is intended to align with master plans and Development Charge Study forecasts and to inform the sustainability of the City's assets and services.

1.4 Council Presentation and Approval

To maintain visibility, transparency and accountability, the Plan including the state of infrastructure report will be updated and reported to council for approval annually, following the final phase implementation of O.Reg. 588/17 in 2025, and fully re-evaluated every five years. If during this timeframe, significant changes occur that will impact the asset management plan, an interim review may be undertaken. A proposed timeline for the Plan and related documents is shown in the table below.

Table 1-0: Asset Management Related Documents and Updates

Document	Frequency of Update
Asset Management Policy and Procedure	Reviewed every five years as required
Asset Management Plan	Annual review with full re-evaluation every 5 years
State of Infrastructure Report	Annual update with full re-evaluation every 5 years
Capital and Operating Budget	Annually

1.5 Developing the Plan

The Council approved Asset Management Policy and Procedure outlines how a constant and reliable asset management plan and effective budget will be delivered. The asset management workflow (Figure 1-1), which includes the asset management plan, is delivered with employee involvement as shown in (Figure 1-2) below.

Figure 1-1: Asset Management Workflow

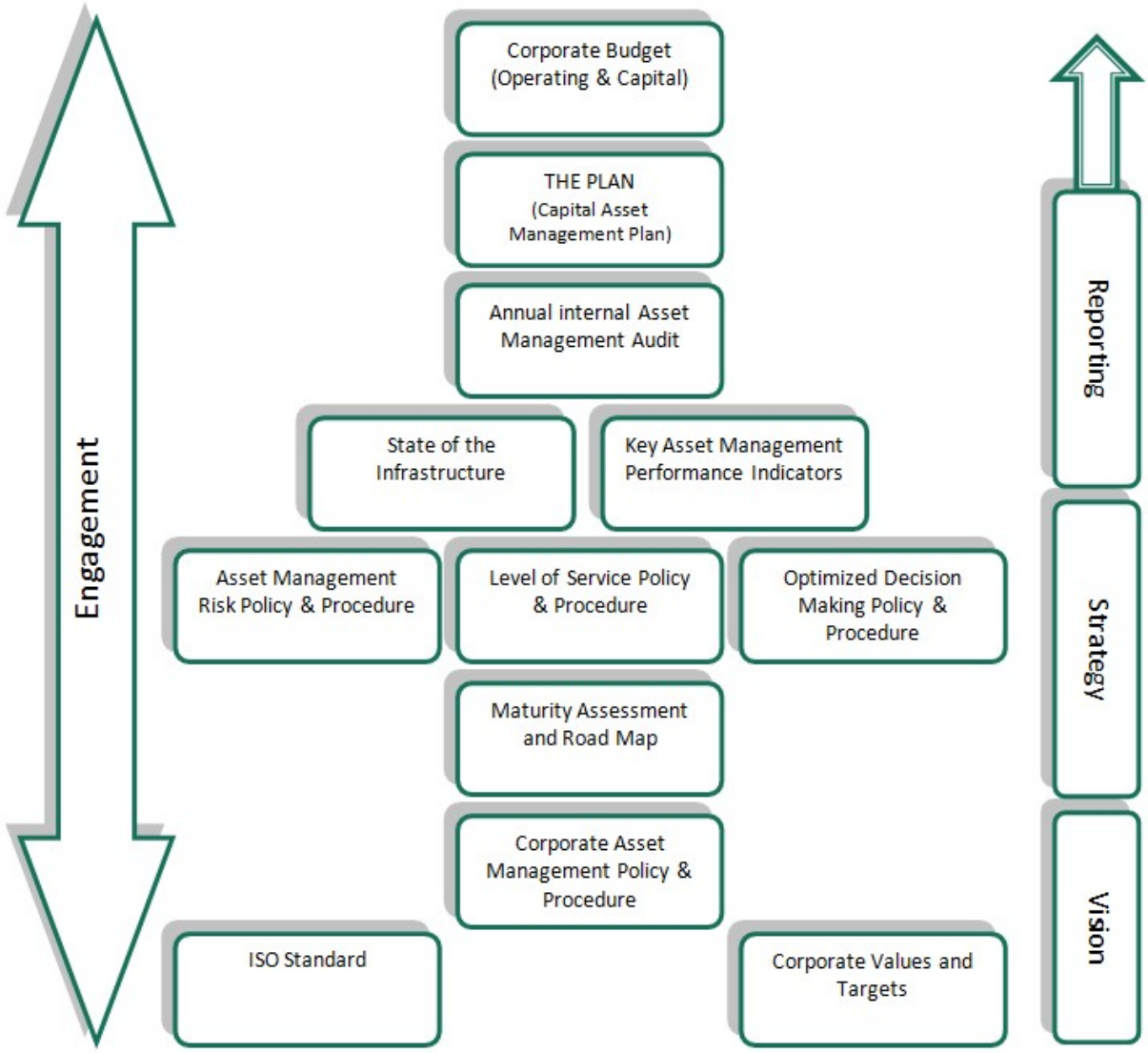
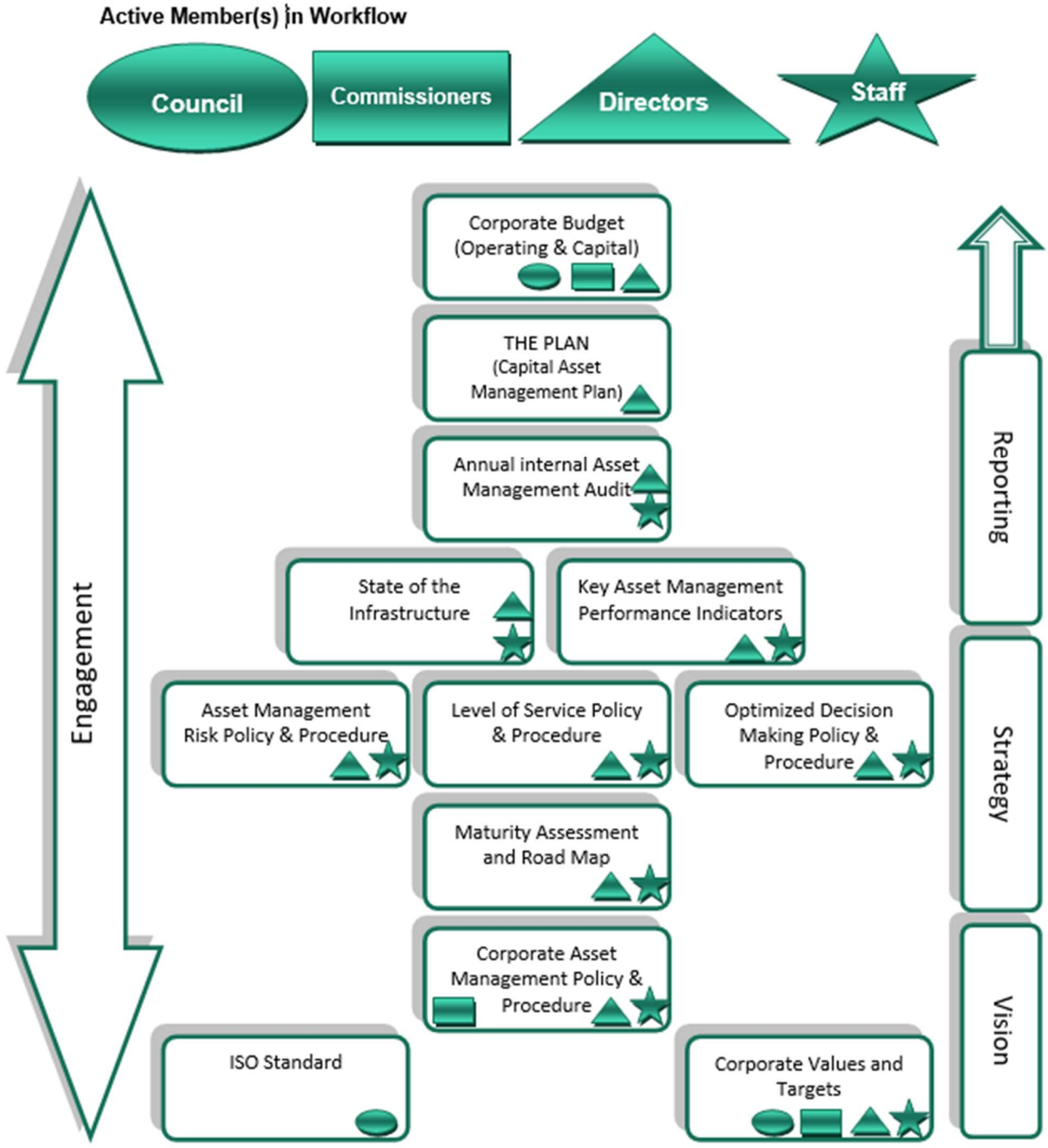


Figure 1-2: Employee Involvement in Workflow Stages



This Plan is developed by utilizing best available information until full implementation of the workflow shown above is applied. The City is working towards fully implementing the asset management workflow to effectively deliver the asset management plan as well as deliver services in a sustainable and transparent manner. Steps to achieve this are detailed in Section 7.0 – Plan Improvement & Monitoring.

1.6 Assumptions and Limitations of the Plan

Key assumptions or limitations made in developing this Plan are documented below. Most assumptions were noted as comments or footnotes throughout the document to show areas where improvements are most required for future iterations of the Plan.
With further developments in the City's asset management program such as policies, procedures, full integration of all asset and data collection templates many of these assumptions will be minimized or eliminated in the future.

Table 1-1: Assumptions and Limitations of the Plan

Assumption	Level of Confidence	Data Used	Comment
Assets 'useful life/remaining useful life' used as proxy for condition when actual condition rating unavailable	Low	Useful life/remaining useful life of assets are based on Public Sector Accounting Board (PSAB) 3150 Asset Register or based on recommendations of subject matter expert.	Misrepresents actual condition and does not account for maintenance activities that extend useful life of the asset
Remaining service life reflects actual conditions	Intermediate	Expected useful life from PSAB 3150 asset register is used to calculate remaining useful life. Current age is based on install date, not 'observed age' for most assets. Updated BCA's use observed age for facility assets.	Unless otherwise stated in the Plan, or when recommended by City staff, the age of the assets used are calculated and not based on 'observed age', unless an updated BCA is completed for a facility.
Consequence of Failure scores are accurate	Intermediate	Manually applied consequence score for many assets.	Provides a very conservative consequence estimate
Fleet condition is in better condition than useful life data	High	Useful Life from TCA register	Fleet maintenance program greater than recommended preventative maintenance program by Original Equipment Manufacturer (OEM)
Information technology equipment/asset condition ratings are accurate	Low	Condition ratings have been assigned using age/service life as proxy in funding model. This is due to not having a	Information Technology Service (ITS) Area reports condition of assets based on age which resulted in significant

Assumption	Level of Confidence	Data Used	Comment
		formalized condition assessment methodology implemented. IT assets are in better condition than calculated age-condition rating.	value of assets in poor/very poor. ITS staff provided high level recommendations on actual condition of assets for consideration which provide more accurate condition (good).
Guardrail condition data from 2009 remains accurate. Visual assessments only to update replacements	Low	Visual images used to update 2009 assessment.	Accurate for capturing replacements since 2009 only.
Trails inspections and roads inspections are similar in nature	High	Condition assessment program is managed through the *Paver* pavement management software system.	Pavement management software system is robust and captures defects that apply for trails.
Treatment equipment was not inspected in Wastewater treatment building inspections	Intermediate	Historical MP2 database and Megamation Databases.	If treatment equipment is part of the database, it is in large rolled up groups that cannot be broken down for reporting in this report. MP2 database has all assets separated.
Wastewater treatment asset inventory updated to year end 2023	Intermediate	SOI data from previously approved AM Plan (2021) has been updated to reflect actual inventory and condition.	Treatment data is in the process of being fully re-evaluated in detail and will be included in future iterations of the Plan.
Assets with unknown installation dates built at same time as nearby assets	Intermediate	City age polygon from GIS	Generally accurate for engineered assets but not very accurate for 'green' assets
Asset register is complete and at useful level of granularity	Low	Data used to develop asset register is based on best available information	Pooled assets are not at the level of granularity best for lifecycle analysis and

Assumption	Level of Confidence	Data Used	Comment
		and may use pooled assets to ensure the scope of assets in each service area are captured	forecasting costs. Pooled assets may inflate annual renewal needs as the whole replacement cost is reported in one given year.
Risk analysis on a 5-point scale for likelihood and consequence provides enough granularity for assessment	Intermediate	Matrix provided in Section 2.0 State of Infrastructure	May overestimate risk due to a basic consequence matrix being used to assign risk scores. Risk bands in the matrix provide broad measures to compare against.
Customer values understood from previous engagement activities	Intermediate	Workshops with service area management team	Not all service areas have had recent public engagement to understand desired service levels.
Renewal needs are based on current (performance) condition of assets.	Intermediate	Most recent condition assessment data and/or age and useful life as a proxy for condition	Condition data may not be up-to date or accurate, particularly for assets that used age as a proxy for condition. Underestimates needs for most service areas.
Camera and other equipment for CCTV inspection fleet not included in fleet cost	Low	PSAB 3150 Asset Register	Investigation into equipment for CCTV required. Currently not accounted for in the Plan
Annual financial shortfall includes the complete cost of implementing all asset management strategies	Low	Renewal activities and associated costs have had in-depth review however other lifecycle activities and associated costs use existing approved capital budget as baseline.	New budgeting/accounting hierarchy structure is required to do accurate 1:1 comparison of lifecycle activities and related costs. Hierarchy structures are being investigated to track these costs.

Assumption	Level of Confidence	Data Used	Comment
Investment needs are aligned with budget forecast	Low	Data to calculate investment needs is for existing assets and only assumes RUL and/or condition rating	The investment needs are based on the inventory used to calculate SOI, and not necessarily what is submitted by department managers for budget reviews.
Anticipated level of funding in 10-year forecast is accurate	Low	Three-year historical average of previously approved capital budget used as anticipated level of funding for financial strategy section	Currently, capital budgets are only approved for the current year and does not have committed funds to proposed projects beyond current year.

1.7 Continuing Evaluation and Improvement

Asset management practices are constantly evolving and improving. An effective Plan will note the areas that can be improved and the steps that will be taken to make improvements.

These areas may be where data used was not strong objective data or required assumptions. Improvements will also include the identification of any data gaps and a plan to fill those gaps.

Beyond raw data improvements, LoS measures will be limited to the primary service provided by the asset. A plan to identify more comprehensive service measures is in development. While developing these service measures the current service level will be our current target.

There is the need to improve the alignment of financial planning and asset management planning. A corporate asset management communication plan is proposed to be developed in which asset management plans, policies and procedures that define how we will align such activities can effectively be communicated to internal and external stakeholders.

2.0 State of Infrastructure

2.1 Overview

The development of the state of infrastructure (SOI) includes not only an assessment of physical condition, but also the capacity where available. The SOI considers the risk of asset failure by considering the likelihood an asset will fail and the consequence of that failure.

The SOI seeks to review services rather than assets. This means that the report often assesses assets that are owned and managed by different departments to provide a single service. This Plan contains the analysis of the following service areas:

1. Roads & Related Assets
2. Stormwater
3. Wastewater
4. Transit
5. Solid Waste Management
6. Community Housing
7. Community Recreation
8. Airport
9. Urban Forest
10. Social Services - Daycare
11. Arts, Culture & Heritage[3]
12. Information Technology Services (ITS)
13. Emergency Services (Police and Fire Services)
14. Public Works
15. Administration

2.2 Condition Ratings and Weighted Methodology

A standardized 5-point rating scale has been utilized to assign scores to assets. The following table shows the rating scale range and letter grading system used for assigning condition scores, including using an age-based rating methodology.

Table 2-0: 5 Point Scale for Rating Asset Condition

Condition Rating (Likelihood)	Score	Percent Life Consumed	Grade
Very Good	5	10%	A
Good	4	50%	B
Fair	3	80%	C

[3] Heritage is currently within the City's Planning Department but included as part of the ACH Service Area Attachment for grouping of assets with similar services.

Condition Rating (Likelihood)	Score	Percent Life Consumed	Grade
Poor	2	100%	D
Very Poor	1	>100%	F

Facility Condition Index

The Facility Condition Index (FCI) is a standard facility management benchmark that is used to assess the current and/or projected needs of a facility. It is defined as the ratio of the required renewal costs to current replacement value of the facility. The calculated ratio is compared to an FCI scale as follows:

0%-5% = Good
5%-10% = Fair
10%-20% = Poor
Greater than 20% = Very Poor

The City calculates FCI's based on the three-year projected needs rather than using only the current year needs. This ensures that the overall facility rating is not based on a single high dollar capital project needed in the current year and takes into consideration mid-term needs for a better reflection of the state the facility is in. For this AMP, FCI's are used as a performance measure for Levels of Service for each relevant service area with facility assets. Unless otherwise stated in the Plan, facilities with complete and up-to-date condition assessments will use observed age of the inspected building element at the time of assessment as a proxy for condition ratings.

Weighted Average Methodology

A weighted average methodology using replacement costs of assets has been used to compare varying asset types more easily (e.g. a linear asset to a non-linear asset). By applying this methodology, the overall service area condition rating is influenced more by assets with the greater cost, as these represent a greater liability to the City should they not be performing as intended or are nearing failure.

2.3 Trend Scoring System

Trends have been assessed where SOI have been previously documented. The following table shows the system used for assessing trends.

Table 2-1: Trend Scoring System

Trend	Symbol	Meaning
Improving		Condition grade improvement from previous grades.
Neutral		Condition grade remained the same from previous grades.

Declining		Condition grade degraded from previous grades.
N/A	**N/A**	Condition grade has not been assessed more than once.

The trend development compares the condition grade from previous assessments to the current assessment. This process is a raw comparison. It does not consider changes to data collection process or improvements of data quality. It does consider new assets, updated inspections and expansion of a service.

2.4 Risk Analysis

Every asset has a risk of failure. To measure risk the likelihood of asset failure must be considered against the consequence of failure. The table shown below (also in Appendix B) provides a guideline by which the asset consequence of failure score was assigned:

Table 2-2: Consequence of Failure Scoring System

Consequence	Description	Score
Minimal	No noticeable damage to environment and/or society, no injuries, not a nuisance, no time delays, little to no known fines, no media attention	5
	Minor amount of damage to environment or society, less than a few or very minor injuries, easy work around, limited delays, small fines, no media attention	4
Moderate	Some damage to environment or society, a few injuries or minor injuries, work around available, some delay, subject to fines or investigation, possible media attention	3
	Damage to environment or society, several injuries (varying degrees), work arounds are not easy to implement, large delays, large fines and investigation, local media attention	2
Catastrophic	Major damage to environment/society, life threatening injuries or death, work arounds are not possible or time consuming and costly, major delays, legal action, large fines, major investigations, national media attention	1

Using the product of the likelihood of asset failure score and the consequence of failure score, the asset is placed within a risk category using the ranges shown in the chart below:

Category	Range
High Risk	< 5
Medium Risk	5 – 20
Low Risk	> 20

By evaluating risk, the City of Peterborough can develop a deeper understanding of the state of the infrastructure along with impacts of failures. The City continues to refine risk management strategies and implement a more consistent risk-based approach. The City owns an estimated $1.0 billion worth of high-risk assets.

2.5 Asset Valuations

As a part of Public Sector Accounting Board (PSAB) 3150, all departments were required to develop an asset register. This register required basic asset information such as the historical purchase or construction costs. Since historical record keeping varied on the level of details, many assumptions were required.

The current replacement costs (where current construction costs are not available) are evaluated by escalating the historical cost based on inflation. The actual replacement costs of assets in this Plan include soft costs and assumes that the replacement considers current technologies and enhancements available today.

2.6 Age and Useful Life

PSAB 3150 accounting requires the City to report the age of the assets and the expected useful life of assets. The expected useful life for the PSAB 3150 relates to the period of time that the City will apply depreciation to the assets. This also helps the City to build reserves for asset replacement over the life of an asset.

In practice, assets often are well beyond their accounting useful life. Improvements in maintenance and operational practices have also contributed to extending the useful life of the City's assets

For older assets where acquisition (e.g. donation, constructed, purchased) data is not available, the age of the asset was assumed to be at the time of the historical growth patterns of the City. Sub-asset classes were assumed to be purchased at the time of initial construction of the asset class.

The useful life of assets is assumed using engineering best practices and the current institutional knowledge of the time. These values are not regularly updated and are applied to all assets of a similar type.

Assuming condition using useful life often shows asset conditions in worse condition than the formal condition assessments. Over time the City will improve condition inspection programs to include additional service areas.

2.7 Overview of the Corporate SOI

The current SOI for the services covered in this plan is summarized in Table 2-3 and shown by service area in Table 2-4. Detailed state of infrastructure information for each service area can be found in Section 9.0- Service Area Attachments.

Table 2-3: SOI Overview

City of Peterborough State of Infrastructure Summary		
Valuation	**Average Condition (by Replacement $)**	**Trend**
$6.3 Billion	Good (B)	

Table 2-4: Service Area Condition and Replacement Value[4]

Service Area	Overall Condition	Replacement Value ($M)
Wastewater	Good (B)	$1,863
Stormwater	Good (B)	$1,767
Roads & Related Assets	Fair (C)	$1,447
Community Housing	Poor (D)	$326
Community Recreation	Fair (C)	$227
Urban Forest	Fair (C)	$169
Transit	Fair (C)	$115
Airport	Good (B)	$92
Emergency Services	Fair (C)	$66
Arts, Culture & Heritage	Good (B)	$65
Solid Waste Management	Fair (C)	$58
Administration	Fair (C)	$56
Public Works	Good (B)	$45
Information Technology Services (ITS)	Good (B)	$10
Social Services – Daycare	Very Good (A)	$1.0
Total Replacement Value*		**$6,307**

*May not add due to rounding

2.8 Condition Assessments

Over the years, the City's condition inspection program has been growing to capture more of the core assets such as facilities, pipes, manholes, etc. and continues to capture regulated or legislated assets such as wastewater treatment assets and sidewalks. These inspection programs have formal standards based on engineering best practices and regularly scheduled updates. Where visual condition assessments have not been completed, the age of the asset has been used to assume the physical condition of the asset.

[4] Total replacement values may not add up due to rounding

2.9 Limitations of the SOI

The City is currently working towards improving fixed asset reporting through the upgrade of the Enterprise Resource Management software. The City is also pursuing the development of a formal data governance policy and procedure to create clear lines of communication around data ownership, collection and maintenance practices.

The asset management group has reviewed the current state of asset management and is working through a plan to improve all asset management practices at the City. These programs and projects will all contribute to the improvement of the development of the asset management plan and state of infrastructure data.

3.0 Levels of Service (LoS)

3.1 Overview

The City's levels of service review depicts City services delivered from the perspective of the service user (Stakeholder LoS) and from the perspective of service delivery (Technical LoS). The measures included in this Plan are fluid and may be revised in future iterations of the Plan where applicable. In 2019, the City acquired a community engagement platform where internal and external stakeholders are able to provide input on municipal topics, such as performance on level of service delivery. Determining sustainable levels of service is the key to successful asset management as it allows the City to meet the needs of stakeholders in a low-risk and cost-efficient manner.

For the purpose of this report, each service area will have a service objective statement that describes the service offered by the City, a stakeholder value/service attribute and at least one technical and one stakeholder level of service for each of the major service areas. Technical measures relate to the City's delivery of a service while stakeholder level of service measures show the service from the perspective of citizens and businesses.

3.2 Current Levels of Service and Performance

In this iteration of the Plan, the levels of service and targets will be set to current performance. The Plan will also include required legislated/regulatory levels of service and measures in addition to previously established levels of service. For core assets, current reported qualitative descriptions and technical metrics are in accordance with those set forth in O. Reg 588/17 *Asset Management Planning for Municipal Infrastructure.* In the future, targets will be set and measured using a formal procedure. Levels of service analysis for each service areas can be found in detail in Section 9.0 of this Plan.

3.3 Trends in Service Delivery

Levels of service objectives are typically supported by one or more key performance indicators or measures that help quantify the services being delivered. The table below summarizes the overall trend in how the City is performing against defined targets and provides a brief description of what performance measure is not being met when a level of service has not met its objective. Full details are found in the service area attachments.

Table 3-0: Current Service Area Levels of Service Trends

Service Area	Asset Class	Target Achieved	Comments
Roads & Related Assets	Roads-ROW	✗	• Currently, 21% of local roads are in poor or better condition (target of minimum 50%) • Currently 84% of streetlight inventory has had low energy retrofit (target of 100%)
	Municipal Structures	✓	• Stakeholder and Technical LoS performance measures are currently being met
	Active Transportation Network – Sidewalks	✓	• Stakeholder and Technical LoS performance measures are currently being met
	Active Transportation Network – Trails	✗	• Currently only 84% of the population is 400m from a trail (target of 90%)
Stormwater	Management	✗	• Currently 17% of properties resilient to 100-yr storm, where buildings are not impacted by flooding (target of 21%) • Currently 94% of conveyance assets are in poor or better condition (target of 100%) and 81% of SWM assets are in poor or better condition (target of 100%)
	Conveyance		
Wastewater	Treatment	✗	• Currently 86% of treatement assets are in fair or better condition (target of 100%) • Effluent occurances were outside target parameters
	Conveyance	✗	• Currently 97% of conveyance assets are in poor or better condition (target of 100%) • Quantities of serviced parcels is increasing however not all (target of 100%) parcels are serviced. • Current ratio of 163 connection days: 26,082 serviced parcels (target of zero connection days: current parcels serviced).

Service Area	Asset Class	Target Achieved	Comments
Transit	Fleet Facilities	✕	• Fleet: 14% of vehicles past their useful life (target of max. 10%) • Facilities: 2 out of 3 facilities with an overall condition rating of 'Fair' (target of 3 facilities)
Solid Waste	Fleet Facilities	✕	• Fleet: Currently 50% of vehicles are past their useful life (target of 10%) • Facilities: Currently 1 facility with a Facility Condition Index of 10% (poor) or better (target of 2)
Community Housing	Facilities	✕	• Currently 1,848 households seeking placement (target of less than 1000) • Facilities: 84% of all community housing facilities with Facility Condition Index of 10% (poor) or better (target 100%)
Recreation	Arenas and Rec. Facilities	✕	• Facitliy: Current provision of 1 ice surface to 16,730 population (target of 1 ice surface to 11,000 population) • Facility: Current provision of 1 indoor pool to 83,651 population (target of 1 indoor pool to 25,000 population) • Fleet: 52% of fleet current replacement value in poor or better condition (target of 100%)

Service Area	Asset Class	Target Achieved	Comments
	Parks	✗	• Average ratio of neighbourhood parts to current population is 0.76ha/1,000 (target of 1ha/1,000 population). • Average ratio of outdoor pool facilities to current population is 1:83,631 (target of 1:25:000 population) • Average ratio of splash pads/wading pools is 1:9,295 (target of 1:7,500 population) • 43 neighbourhood parks not meeting minimum design standards (target of all parks meeting min. design standards) • 70% of parks amenity assets in poor or better condition (target of 100%)
Airport	Facilities	✗	• Annual energy use intensity is 1.23 GJ/m2 (target of 0.86 GJ/m2 or less)
Urban Forest	Trees	✗	• 2207 service requests processed and reviewed (target of minimum 2,700) • 94% of tree inventory is in poor or better condition (targetof 100%)
Social Services - Daycare	Facility	✓	• Stakeholder and Technical LoS performance measures are currently being met
Arts, Culture & Heritage Facilities	Libraries	✗	• Currently 0.3 gross square feet/capita (target of 0.8 – 1.25 gross square feet/capita)
	Museum & Heritage	✗	• Annual energy use intensity of 0.83 GJ/m2 (target of 0.41 GJ/m2 or less)
	Art Gallery	✗	• Ratio of galleries to current population is 1 facitlity : 83,651 population (target of 1 facility : 45,000 population) • Annual energy use intensity is 1.34 GJ/m2 (target of 0.41 GJ/m2 or less).

Service Area	Asset Class	Target Achieved	Comments
Information Technology Services (TS)	Equipment	✓	• Stakeholder and Technical LoS performance measures are currently being met.
Emergency Services	Fire Services	✗	• Facilities: Fire supression incidents are within NFPA response travel time – Target of 90% • Fire Station 1: 86% • Fire Station 2: 71% • Fire Station 3: 95% • Facilities: 3 facilities in overall condition of fair or better (target of 4 facilities) • Facilities: Annual energy use intensity is 1.10 GJ/m2 (target of 0.66 GJ/m2 or less) • Fleet: 25% of fleet (apparatus and first response) vehicles past their useful life (target of less than 5%)
	Police Services		• Facilities: Facility parking needs are not being met for staff and service vehicles • Facilities: Annual energy use intensity is 1.05GJ/m2 (target of 0.66 GJ/m2 or less)
Public Works	Fleet, Facilities	✗	• Fleet: • 36% of vehicles past their useful life (target of max 10%) • 20% of machinery and equipment past their useful life (target of max. 10%) • Facilities: Annual energy use intensity is 2.39GJ/m2 (target of 0.86 GJ/m2 or less)
Administration	Facilities	✗	• Parking needs of staff at City Hall and Provincial Court House are not being met • Annual energy use intensity of 210 Wolfe St is 1.23 GJ/m2 (target of 0.87 GJ/m2)

4.0 Asset Management Strategy

4.1 Overview

The City of Peterborough has adopted several strategies to maintain and deliver LoS; however, some of these strategies have been developed in an ad-hoc fashion based on expert knowledge of the area and what works in the context of the City. These have not been formally documented. The strategies involve a wide range of corporate involvement across several departments to coordinate staff and funding.
An Optimized Decision-Making strategy has been initiated but will be developed as a part of the City's Asset Management Road Map previously approved by council. This strategy will formalize how investments are made to maintain services and optimize spending while reducing risks across the corporation.

4.2 Asset Lifecycle Strategies

Asset lifecycle strategies seek to optimize the life cycle of assets to improve service and minimize risk at an appropriate level of investment. The strategy includes several processes that are dependent on life cycle stage, condition, ability to meet service targets and available operational and capital budgets. Strategies seek to combine projects where feasible to share resources and reduce the instances of negatively impacting other assets or services and lower overall cost of ownership.

The strategy for each service area will consider:

- Non-infrastructure Solutions
- Maintenance Activities
- Rehabilitation/Renewal Activities
- Replacement Programs
- Disposal/Abandoning Policies
- Service Expansion Programs
- Future Strategies in development/investigation

This section will also discuss the potential risks should the strategy fail to meet or improve condition or service targets. Service area asset management strategy details and associated risks can be found in Section 9.0 of this Plan.

4.3 Procurement Methodologies

The City's Procurement By-law outlines the different types of procurement processes, including co-operative purchasing, that may be used for the acquisition and disposal of goods and services such as request for proposals, request for tenders, request for formal quotations, pre-qualifications, etc. The purpose of the By-law is to ensure the following:

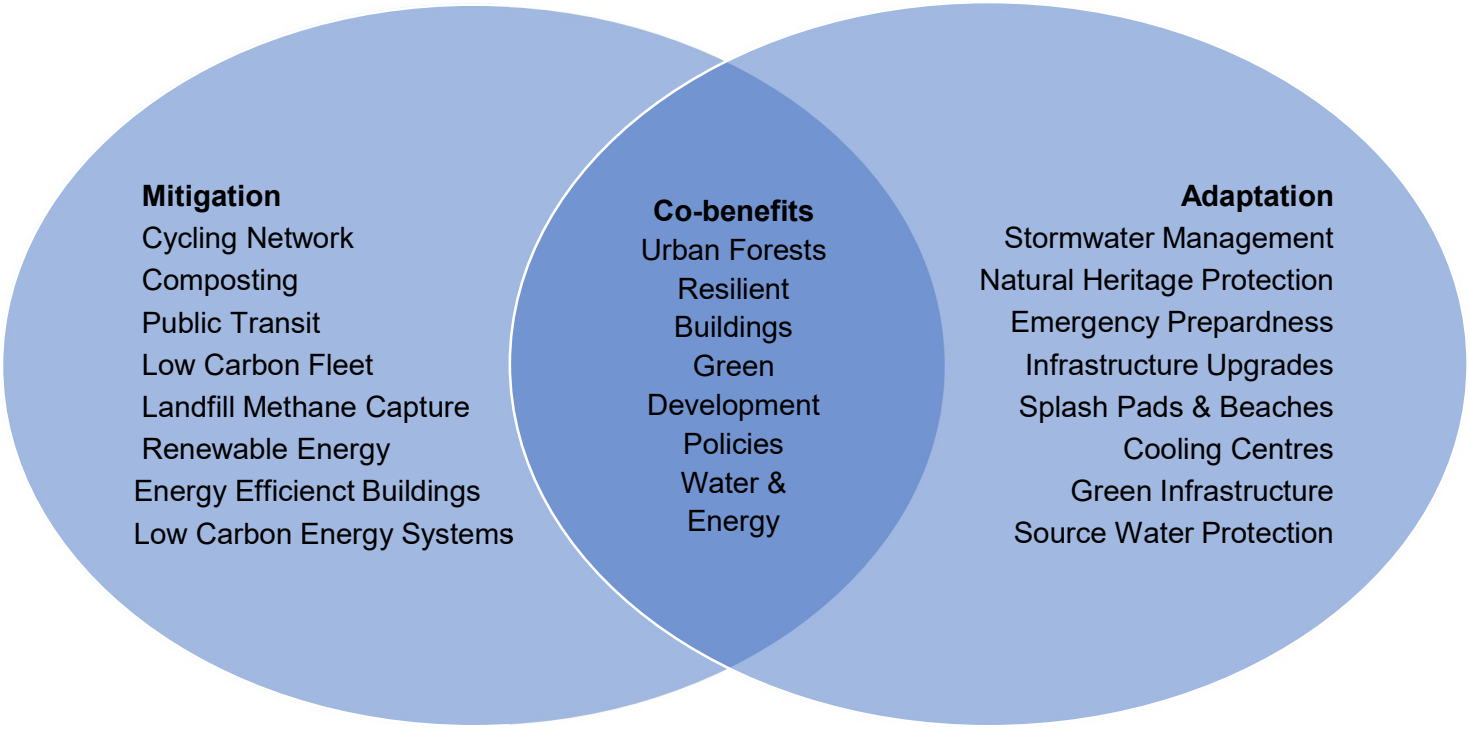
- To ensure openness, accountability and transparency while protecting the financial best interests of the City of Peterborough.
- To maximize savings for taxpayers.
- To ensure service and product delivery, quality, efficiency and effectiveness.
- To encourage competitive bidding for the acquisition and disposal of goods and services where practicable.
- To ensure fairness among bidders.
- To encourage the procurement of goods and services with due regard to the preservation of the natural environment; to this end, a Supplier may be selected to supply goods made by methods that are environmentally friendly and sustainable and where practicable, incorporating recycled materials; and
- To provide City staff, which have purchasing responsibilities, clear direction on the policy to be followed.

4.4 Asset Management Strategies and Climate Change

Commitment to Climate Change

Climate change impacts all community and corporate sectors, with each containing varying levels of unique vulnerabilities and exposure to climate risks. Developing asset management strategies for high at-risk assets is necessary to reduce the risk of incurring potential catastrophic losses to built and natural infrastructure. Introducing mitigation and adaptation policies within corporate assets can significantly reduce greenhouse gas (GHG) emissions and improve asset resiliency against climate risks. Integrating mitigation and adaptation strategies simultaneously reduces the impact of future risks from climate change and contributes to the efficient management of asset lifecycles. This can be achieved by developing holistic plans targeting assets and asset management approaches that are both adaptive and mitigative, which accelerates achieving both interrelated climate change goals, as seen in Figure 4-1.

Figure 4-0: Mitigation and Adaptation Strategies



The City officially embarked on taking action against climate change in December 2016, when City Council approved Report CSD16-031, thereby adopting a Climate Change Action Plan (CCAP) for the community and corporate sectors. The CCAP established an initial GHG emissions reduction target of 30% below the 2011 baseline by 2031. Following the Federation of Canadian Municipalities' Partners for Climate Protection framework, the CCAP sets a course to reduce local contributions to climate change and prepare municipalities for present and expected changes due to our shifting climate. The corporate CCAP identifies nine strategies with 45 specific actions addressing how buildings, water and sewage infrastructure, solid waste, streetlighting, and the fleet will achieve the 30% target.

In September 2019, the City of Peterborough declared a climate emergency and upgraded the emission target to 45% GHG reduction by 2030 and net-zero by 2050. To support the modified GHG emission goal, the declaration affirmed the adoption of using a climate change lens to verify all corporate actions and policies to enable reaching the revised target. Furthermore, additional climate actions are slated to be developed to facilitate the accelerated timelines and emission goals.

4.4.1 Climate Change & Asset Management Integrated Policies

The City of Peterborough has striven to entrench climate change considerations into corporate operations and asset planning. Adaptation approaches are being incorporated concurrently within multiple bodies of work to address climate risk within community and corporate assets and strategizing plans to lower additional risks, as evident in the following documents:

- Official Plan 2021-2051,
- Community Climate Change Resiliency Strategy; and
- Watershed Planning Study.

Moreover, to lessen the inherent vulnerabilities of community and corporate assets from climate disruptions caused by unmitigated global GHG emissions are supported through corporate mitigation policies and plans. These bodies of works advance GHG emissions reductions from assets and contribute to lowering corporate assets being sources of emissions. The following are key documents that target GHG reductions from community and corporate assets:

- Official Plan 2021-2051,
- Corporate Energy Management Plan 2019-2023; and
- Climate Change Action Plan.

Official Plan 2021-2051

The new Official Plan (OP) provides direction and guidelines for the community to 2051 and has been embedded with many adaptation and mitigation policies throughout the plan. Multiple sections in the OP include direct and indirect adaptation and mitigation objectives to support mainstreaming climate action. Furthermore, climate change is addressed explicitly in section 5.7 of the OP with the vision to,

"In the face of a changing climate, the City recognizes the need to adopt climate change mitigation and adaption measures to enhance the resiliency of its built and natural environments. The intent of this Plan is to support energy efficiency, improved air quality, reduced greenhouse gas emissions and climate change adaption through sustainable land use patterns and the integration of green infrastructure." – 5.7.a, OP (2021)

The OP encourages a multisectoral approach to improving community and corporate resiliency and mitigation outcomes through the following strategies:

- Active travel and transit focused neighborhoods,
- Promoting zero and low carbon built forms,
- Expanding the utilization of renewable and alternative energy systems,
- Sustainable land-use planning and implementing low-impact developments,
- Increasing the role of green infrastructure for mitigation and adaptation,
- Protect and enhance natural heritage features, especially assets that have hydrological or ecological functions,
- Incorporating adaptation plans for all capital planning projects; and

- Monitoring GHG emissions and strategizing reduction.

Community Climate Change Resiliency Strategy

In 2020, the Community Climate Change Resiliency Strategy (CCCRS) was finalized that identified local vulnerabilities and risks associated with the changing local climate. The CCCRS is intended to be a guiding document to be further refined and integrated within corporate operations and capital programs. The strategy seeks to reduce climate vulnerabilities by addressing the following adaptation themes:

- Reducing flood risk and protecting water quality and quantity from changing climate and extreme weather,
- Reducing damage and/or disruptions to infrastructure due to extreme weather and improving the safety of travel on roads and sidewalks,
- Protecting and enhancing natural heritage, tree canopy, natural vegetation, and wildlife from extreme weather and climate-related risks; and
- Integrating climate change into municipal decision-making processes that inform the way Peterborough is planned, developed, used, restored and maintained.

The CCCRS dovetails with asset management planning by recognizing that asset lifecycle activities can be directly impacted by extreme weather conditions fuelled by the changing climate. Asset management planning can utilize the adaptation themes of the CCCRS to inform how planning, acquisitions, maintenance schedules, asset renewals, and monitoring schedules can be implemented to support new and existing asset lifecycles.

Watershed Planning Study

The Watershed Planning Study is intended to characterize the urban watershed to inform how the impacts of extreme weather will affect the built and natural infrastructure in Peterborough. Modelling the watershed will reveal how varying climate extremes will impact assets and levels of services. The study has five overarching goals to protect, support, and enhance the watershed within the city boundaries are as follows:

- Minimize flood risks to infrastructure,
- Support natural channel morphology and protect against erosion and sedimentation,
- Prevent eutrophication and algae growth,
- Protect drinking water supply; and
- Protect, restore, and enhance the integrity of the watershed ecosystem through an integrated approach of natural areas, habitats, and connected links.

The Watershed Planning Study will guide land-use and water management practices, natural infrastructure restoration targets, and best practices for water quality and quantity to inform asset management planning for at-risk assets in the city.

Corporate Energy Management Plan 2019-2023

In 2014, the City adopted the Corporate Energy Management Plan (CEMP) mandated by the Province of Ontario through Ontario Regulation 507/18. The CEMP objectives were to encourage energy efficiency and staff awareness combined with establishing a target of 5% energy intensity (ekWh/ft^2) reduction below the 2013 baseline by 2018 for all non-wastewater treatment facilities. The original plan was superseded with a revised CEMP containing new energy reduction goals and targeted a 10% energy intensity reduction below 2018 levels. The objectives of the updated CEMP are as follows:

- Introduce climate lens reporting to review all new corporate project's impact on GHG emissions,
- Develop energy training for staff to support energy usage reduction goals,
- Undertake a multi-division facility GHG reduction pathway study to understand the budgetary and technological requirements needed to achieve significant emission savings before 2050. This study is intended to explore some of the following topics:

    - Strategies to lower natural gas consumption for heating and domestic hot water heaters to reduce GHG emissions,
    - Solar photovoltaic and solar thermal opportunity mapping to support the introduction of zero-carbon energy sources,
    - Examine corporate phantom electricity loads and plan for decreasing usage; and
    - Investigate alternatives to traditional lighting to reduce electricity demand during daytime operating hours at facilities.

The CEMP is a leading document to support facility management planning to improve building energy efficiency and reduce associated energy GHG emissions. The CEMP also seeks to protect the City against the rising fuel cost attributed to the federal carbon tax that will increase throughout this decade. Asset management strategies can further boost the CEMP goals by targeting equipment renewals for high efficiency and by adopting low or no carbon energy systems during lifecycle activity updates instead of replacing like-for-like equipment.

Climate Change Action Plan

In 2016, the corporate Climate Change Action Plan (CCAP) was adopted that targeted a 30% reduction in GHG emissions by 2031. The CCAP developed a multiple sector strategy to realize its mitigation goal with the following actions:

- Institutionalize energy efficiency and low-carbon thinking into the corporation,
- Enhance operational efficiency of existing buildings,
- Build municipal facilities to ensure high environmental performance,
- Improve the environmental performance of existing municipal facilities,
- Utilize renewable energy sources,

- Transition the municipal fleet to be more efficient and less carbon-emitting,
- Enhance operation efficiency of the water services system,
- Improve the energy efficiency of the streetlighting system; and
- Reduce the amount of organic waste generated through municipal operations.

Incorporating asset management strategies within the CCAP actions can improve many outcomes, such as implementing lifecycle equipment renewals that target energy efficiency and low or no carbon energy systems.

The CCAP has subsequently produced results that have lowered the energy consumption and GHG emissions from corporate assets. These achievements are as follows:

  - Conversion of all streetlights to LEDs has reduced energy consumption by 52% and GHG emissions by 49 tCO_2e,
  - In 2016, a solar photovoltaic array was installed onto the rooftop of Kinsmen Arena that generates 530,000 kWh of electricity per year and supplies 45% of the building's power annually,
  - Added synchronized traffic lights and conversion to smart signal lights to improve traffic flow to reduce vehicle emissions,
  - Increased tree planting to expand the urban canopy to support adaptation and mitigation efforts,
  - Replaced ice resurfacers with electrically powered equipment,
  - Added biogas digestor at the landfill to capture anaerobic organic methane leaking from the landfill to lower GHG emissions and generate renewable energy,
  - Upgraded nine facilities interior lighting systems with LEDs,
  - Implemented lighting motion sensors to reduce electricity usage,
  - Replaced community centre pool pumps with variable frequency drive to lower energy use; and
  - Expanded waste diversion efforts at the landfill to collect reclaimable items and divert hazardous material away from the landfill.

The CCAP has also initiated the following corporate projects that are in the development phase that will reduce energy and GHG emissions:

- Planned conversion of decorative streetlights to LEDs,
- Development of Source Separated Organics/curbside green bin collection,
- Construction of a net-zero emission fire station,
- Planned installation of electric vehicle charging stations at facilities; and
- Planned purchase of light-duty electric vehicles.

4.4.2 Climate Risk Analysis

The Federation of Canadian Municipalities (FCM) four-step climate asset management framework is utilized to support integrating strategic decision-making to understand

corporate risks and impacts to levels of service from climate change. The framework enables a municipality to identify how climate change will impact its ability to provide municipal services and whether plans are in place to ameliorate losses to services or assets. The framework assesses a municipality's corporate climate readiness on the spectrum of identification, assessment, prioritization, and management. The FCM developed separate frameworks for risk management (Table 4-1) and level of service (Table 4-2) to distinguish between corporate service groups' climate readiness. The City will continue to utilize the frameworks below to assess its current state and seek to improve in areas identified.

Climate Risk Management Assessment

The framework for climate risk management contributes to understanding the state of vulnerability of City services and assets from climate change hazards and identifying planned or implemented strategies to improve resiliency (Table 4-0). Determining the level of risk to services and assets will support decision-makers to prioritize additional investments to reduce climate at-risk corporate service areas.

Table 4-0. FCM Climate Change Asset Management Risk Management Assessment Framework

Identification	**Assessment**	**Prioritization**	**Management**
Confirming the existing services the municipality provides, gathering regional and local climate change data, and identifying potential climate change hazards.	Determining the areas where the community is the most vulnerable due to climate change, looking specifically at how this could compromise a municipality's ability to provide services.	Exploring potential strategies to mitigate or adapt to climate change risks.	Incorporating climate change strategies in infrastructure plans, programs and budgets, and monitoring progress over time.

Question	
Identification	Have all assets been identified to deliver the service?
	Have the latest local climate projections been utilized to determine future impact?
	Have the implication of climate risks to asset been understood?
	Has the identification of most likely asset climate hazards been recognized?
Assessment	Has an asset risk assessment (consequence vs likelihood) been completed?
	Are controls in place to reduce risks from climate hazards?

	Question
	Has the impact of climate change on standards that inform future infrastructure design been understood?
Prioritization	Has a management plan limiting impacts of climate risks to assets been developed?
	Has a proactive strategy to overcome climate risk impacts been created?
	Has a preferred strategy for addressing the highest asset risks been selected?
Management	Has an asset management climate strategy been completed and activated?
	Has an evaluation of asset strategies in relation to its climate risk been completed?

Levels of Service Assessment

Evaluating the level of service impacts from climate change follows a similar stepwise pathway as climate risk management. This assessment seeks to understand if service groups' capacity and municipal asset conditions can withstand climate stressors, in addition to describing if strategies and implementation plans are in place to lower potential disruptions to service (Table 4-1).

Table 4-1. FCM Climate Change Asset Management Level of Service Assessment Framework

Identification	Assessment	Prioritization	Management
Documenting existing services provided to your community and identify the built or natural assets that enable service delivery.	Identifying the level at which your municipality currently provide services and commitments that are expected to meet; exploring current and future gaps in your ability to provide services; and assessing how the municipality's ability to provide services may be compromised because of climate change.	Exploring strategies to address current and potential future gaps in levels of service as a result of climate change.	Incorporating climate change strategies in infrastructure plans, programs and budgets, and monitoring progress.

Question	
Identification	Are existing levels of services provided to the community understood?
	Have built and natural assets required to deliver the service been identified?
Assessment	Has the impact of climate change affecting service been determined?
	Have the implications to maintaining the current performance service level in relation to climate hazards been undertaken?
	Have the most climate vulnerable areas of service been identified?
Prioritization	Have strategies to address current and future gaps in the level of services from climate impacts been created?
	Has a preferred strategy for tackling the largest gap in service been completed?
Management	Have climate risk management strategies been completed and activated?
	Has an evaluation of strategies in relation to its climate risk been completed?

4.4.3 Strategic Facilities Planning

The Corporate Facilities and Energy Manager uses a Long-Term Strategic Facilities Planning Tool to assess the condition and the life expectancy of the Municipality's current facilities. Supported by energy audits and asset management, the tool provides for a comprehensive and detailed overview of all electrical, mechanical and facility components by life expectancy. This tool helps to populate the annual budget and work plan for energy management and facilities planning. Furthermore, the City is seeking funding to develop a greenhouse gas emissions reductions study for municipal facilities to include the impacts of climate change in future facility planning.

4.5 Investment Priorities

Capital forecasting and the prioritization thereof play a key role to the City's annual budget process particularly with the financial shortfall challenge. Projects proposed in the capital budget are subject to an internal prioritization process using a two-tiered review. Individuals involved in the initial review process include Department Commissioners and Financial Services staff. The second review is completed by the CAO, Commissioner of Corporate and Legislative Services, Manager of Financial Services, Budget Analyst and individual Department Commissioners. After this second review process, the budget is finalized and presented to Council for approval.

It is important to note that the review process is extremely fluid, however investment priorities follow the direction set in the approved annual budget guideline and are also focused towards projects that:

- Are legislated requirements for services and infrastructure,
- Maintain service levels that are expected by Council, the community, and the asset management plan,
- Are identified as part of the service area's lifecycle management strategies, and;
- Preserve the long-term financial health of the City.

The City has recently implemented a project prioritization tool that is intended to support the capital budget review process. The tool will allow the City to score each project proposed in the capital budget against each other using various criteria that considers legislation, risk management, strategic planning, community benefits, climate change and finance.

5.0 Financial Summary

5.1 Overview

This section of the Plan reviews operating investment needs, growth investment needs, historical revenues, historical capital and operating expenditures, and the lifecycle costs required to provide a level of service over a 10-year period. Unless otherwise noted, amounts shown are budgeted amounts, not actuals.

Financial projections will be improved as the discussion of proposed levels of service and asset performance matures. Various assumptions were made to determine the lifecycle costs sourced from the City's capital budget and 10-yr forecast due to departmental hierarchy and project costs not fully aligning to the type of asset and lifecycle activities reported in this Plan.

5.2 Operating Investment Needs

The following section outlines the current and forecasted operational lifecycle costs to maintain levels of service for the service areas reported in this plan.

Operating costs include those associated with the day-to day activities required to provide the service such as general maintenance costs, preventative maintenance costs, energy and utility costs, etc.

Table 5-0 summarizes the estimated operating costs by service area required to deliver current levels of service over the 10-yr forecast. Values shown are based on the current year budgeted values and are indexed 3% over the 10-year horizon.

Table 5-0: Operating Lifecycle Costs

Operating Lifecycle Cost Forecast ($000)											
Service Area	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
Roads & Related	$13,149	$13,543	$13,949	$14,368	$14,799	$15,243	$15,700	$16,171	$16,656	$17,156	$17,671
Stormwater	$773	$796	$820	$845	$870	$896	$923	$951	$979	$1,009	$1,039
Wastewater	$17,268	$17,786	$18,319	$18,869	$19,435	$20,018	$20,618	$21,237	$21,874	$22,530	$23,206
Transit	$19,282	$19,860	$20,456	$21,070	$21,702	$22,353	$23,023	$23,714	$24,425	$25,158	$25,913
Solid Waste Management	$15,575	$16,043	$16,524	$17,020	$17,530	$18,056	$18,598	$19,156	$19,730	$20,322	$20,932
Community Housing	$3,919	$4,037	$4,158	$4,282	$4,411	$4,543	$4,679	$4,820	$4,964	$5,113	$5,267
Community Recreation	$3,385	$3,487	$3,591	$3,699	$3,810	$3,924	$4,042	$4,163	$4,288	$4,417	$4,549
Airport	$933	$961	$990	$1,020	$1,051	$1,082	$1,115	$1,148	$1,182	$1,218	$1,254
Social Services - Daycare	$2,318	$2,387	$2,459	$2,533	$2,609	$2,687	$2,768	$2,851	$2,936	$3,024	$3,115
Arts, Culture & Heritage	$6,339	$6,529	$6,725	$6,927	$7,135	$7,349	$7,569	$7,796	$8,030	$8,271	$8,519
Emergency Services	$48,868	$50,334	$51,844	$53,399	$55,001	$56,651	$58,351	$60,101	$61,905	$63,762	$65,675
Public Works	$632	$651	$670	$690	$711	$732	$754	$777	$800	$824	$849
ITS	$3,793	$3,906	$4,024	$4,144	$4,269	$4,397	$4,529	$4,665	$4,804	$4,949	$5,097
Administration Facilities	$2,127	$2,190	$2,256	$2,324	$2,394	$2,465	$2,539	$2,616	$2,694	$2,775	$2,858
Engineering, Construction & Public Works - Pooled Assets - Roads, Wastewater, Storm)	$3,407	$3,509	$3,615	$3,723	$3,835	$3,950	$4,068	$4,190	$4,316	$4,445	$4,579
Fleet (all service areas)	$350	$361	$371	$382	$394	$406	$418	$430	$443	$457	$470
Underground Services (Pooled Assets - Wastewater, Stormwater)	$467	$481	$495	$510	$525	$541	$557	$574	$591	$609	$627
Parks and Forestry (Pooled Assets - Park Amenities, Urban Forest)	$4,317	$4,446	$4,580	$4,717	$4,859	$5,004	$5,155	$5,309	$5,468	$5,633	$5,802
Total	**$146,901**	**$151,308**	**$155,847**	**$160,522**	**$165,338**	**$170,298**	**$175,407**	**$180,669**	**$186,089**	**$191,672**	**$197,422**

5.3 Growth Investment Needs

Based on the City's adopted Official Plan (November 2021) and the Growth Plan for the Greater Golden Horseshoe, the City of Peterborough's projected residential population will grow from a population of 83,000 in 2016 to 125,000 by 2051. It is anticipated that the employment sector will grow from 45,000 jobs in 2016 to 63,000 jobs by 2051.

Adding to service demands, the City of Peterborough also provides services to the surrounding townships within the County of Peterborough, where many County residents commute to the City of Peterborough for work. The City's population also fluctuates with post secondary enrolment in Trent University and Fleming College for eight months of the year, as well as servicing the cottage community during the summer months. These factors combined all play a significant role to the service requirements for the City.

To accommodate residential growth, the City has annexed large plots of land, mainly at the north, east and south boundary limits. These annexations have placed further strain on the City's servicing needs where annexed residents are expecting full City service.

In order to recover costs for development-related capital works, the City of Peterborough levies two types of development charges (DC): Planning Area development charges and City-wide uniform development charges. The City needs to continue to levy DCs to help fund capital projects throughout Peterborough so that development continues to be serviced in a fiscally sustainable manner.

Many of the assets in this Plan are captured in the Development Charges (Citywide and Area Specific) study and By-law[5] [6] for growth. The By-law is generally based on the findings from Secondary Planning Area Studies, the Transportation Master Plan, and previous Development Charge (DC) By-laws. Consideration shall be given to the City's growth targets provided by the province and applied to the DC study versus achieved growth rates. This alone could have drastic impacts on the overall 'needs' of the Plan. If the City does not meet the proposed growth, the overall need can likely be reduced.

Table 5-1 illustrates that by 2033 the City will need to fund an additional estimated $30.6 million (benefit to existing only) per year to properly fund the full lifecycle costs of assets supporting the increased demand caused by growth. The growth-related capital expenditures shown in Table 5-1 are based on the 2024 to 2033 growth horizon and development needs identified in the DC bylaws. Costs beyond the planning horizon identified in the DC Study have been estimated using an average of the first three years of the forecast.

[5] City of Peterborough & Hemson Consulting Limited, Citywide Development Charges Background Study, (November 2019 as amended May 26, 2022)

[6] City of Peterborough & Hemson Consulting Limited, Planning Area-Specific Development Charges Background Study, (June 2017 as amended May 26, 2022)

Table 5-2 below summarizes the estimated increase in net operating costs that the City will experience due to increases related to growth demands. Table 5-1 shows that by 2033, the net operating costs are estimated to increase by $50.7 million.

Table 5-1: Growth-Related Lifecycle Costs

Lifecycle Costs for Growth Related Demands (2024-2033) ($000)				
	Annual Lifecycle Cost for Growth 2024-2033		Total (10-yr)	Annual 10-Yr Average (BTE only)
Service Area	**New Assets**	**Benefit to Existing**		
Library Services	$5,652	$4,230	**$9,882**	**$423**
Fire Services	$375	$9,892	**$10,267**	**$989**
Police Services	$2,547	$63,111	**$65,658**	**$6,311**
Recreation*	$3,191	$31,001	**$34,192**	**$3,100**
Parks	$13,576	$16,545	**$30,121**	**$1,655**
Public Works	$4,166	$13,417	**$17,583**	**$1,342**
Parking	$8,065	$25,646	**$33,711**	**$2,565**
Transit	$8,065	$25,646	**$12,467**	**$813**
Affordable Housing	$4,340	$8,127	**$6,040**	**$544**
Waste Management	$604	$5,436	**$2,002**	**$192**
Roads & Related Assets, City-Wide Engineered Assets**	$79	$1,924	**$453,150**	**$11,237**
Wastewater Treatment	$340,781	$112,369	**$4,774**	**$0**
Wastewater Pumping Stations	$4,774	$	**$1,778**	**$178**
Stormwater/Wastewater Conveyance	$	$1,778	**$4,015**	**$402**
Stormwater Facilities	$	$4,015	**$8,371**	**$837**
Total	**$388,147**	**$305,862**	**$694,401**	**$30,586**

*Recreation includes arena facilities, Morrow Park, Peterborough Marina Building and Peterborough Sport and Wellness Centre.
**Includes growth related demands for Airport Service Area and Parking

Table 5-2: Operating Cost Impacts Associated with Growth-Related Demands

Cumulative Net Operating Impacts	2024 ($000)	2025 ($000)	2026 ($000)	2027 ($000)	2028 ($000)	2029 ($000)	2030 ($000)	2031 ($000)	2032 ($000)	2033 ($000)
Library	$8	$8	$8	$8	$8	$8	$8	$8	$8	$8
Fire	$5,780	$5,780	$5,780	$5,780	$5,780	$5,780	$5,780	$5,780	$5,780	$5,780
Police	$	$	$	$	$33,750	$33,750	$33,750	$33,750	$33,750	$33,750
Recreation	$798	$798	$798	$1,298	$1,298	$798	$798	$798	$798	$798
Parks	$533	$633	$2,678	$2,703	$2,728	$1,281	$1,281	$1,281	$1,281	$1,281
Public Works	$258	$208	$208	$208	$208	$208	$208	$208	$208	$208
Parking	$1,229	$1,229	$1,229	$1,229	$1,229	$1,229	$1,229	$1,229	$1,229	$1,229
Transit	$6,481	$6,540	$7,061	$7,120	$7,180	$6,694	$6,694	$6,694	$6,694	$6,694
Engineered Services										
Roads & Other City-Wide Engineering	$788	$907	$1,032	$1,159	$1,287	$909	$909	$909	$909	$909
Net Operating Impacts	**$15,874**	**$16,103**	**$18,794**	**$19,505**	**$53,468**	**$50,657**	**$50,657**	**$50,657**	**$50,657**	**$50,657**

5.4 Review of Historical Revenues and Historical Capital & Operating Expenditures

Figure 5-0 and Table 5-3 provides the average values for the historical three-year operating revenues by type (2021-2023). Values shown are gross revenues as per the approved annual Budget Highlights books.

Table 5-4 shows historical expenditures (2018-2020) for capital and 'other' capital and Table 5-5 shows historical operating expenditures. Operating expenditures include the costs for maintenance and operation activities for service areas covered in this Plan. The year-over-year increase is primarily due to inflation and additional asset inventory.

Figure 5-0: Three Year Average - Historical Operating Revenue by Type

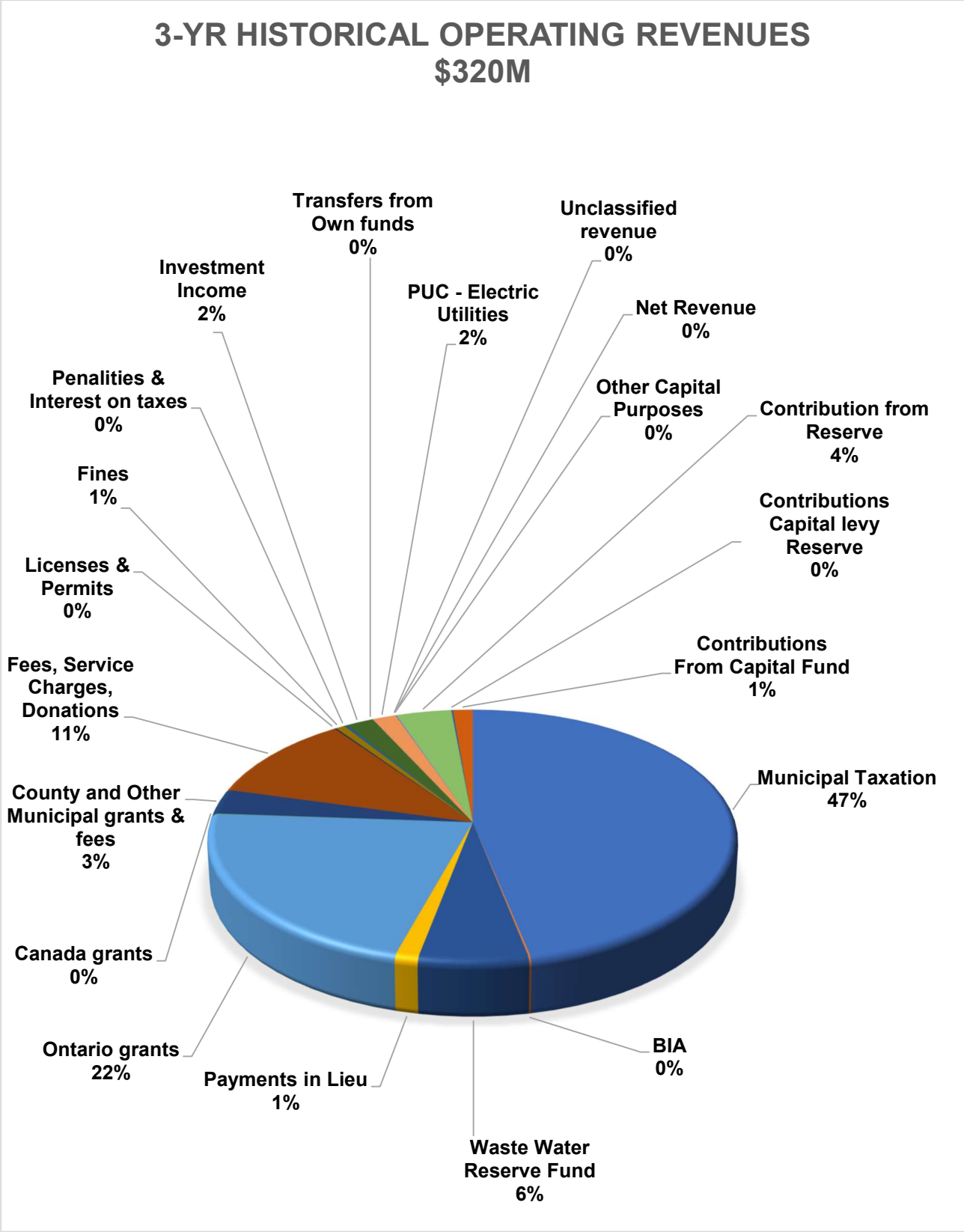


Table 5-3: Three Year Historical Operating Revenues by Type

Revenues by Type	2021 Approved ($millions)	2022 Approved ($millions)	2023 Approved ($millions)	3-Yr Historical Average ($millions)
Municipal Taxation	$143.5	$149.0	$156.1	$149.5
BIA	$0.3	$0.4	$0.4	$0.4
Wastewater Reserve Fund	$19.1	$19.5	$20.4	$19.7
Payments in Lieu	$4.0	$4.2	$4.2	$4.1
Ontario grants	$66.3	$62.4	$79.9	$69.5
Canada grants	$0.1	$0.2	$0.2	$0.2
County and Other Municipal grants & fees	$9.7	$10.3	$10.5	$10.2
Fees, Service Charges, Donations	$33.1	$34.6	$37.0	$34.9
Licenses & Permits	$0.4	$0.4	$0.4	$0.4
Fines	$2.2	$1.9	$1.9	$2.0
Penalties & Interest on taxes	$0.7	$0.7	$0.8	$0.7
Investment Income	$4.9	$5.9	$7.2	$6.0
Transfers from Own funds	$0.1	$0.1	$0.0	$0.1
PUC - Electric Utilities	$5.2	$5.2	$5.2	$5.2
Unclassified revenue	$0.2	$0.2	$0.2	$0.2
Net Revenue	$0.0	$0.1	$0.1	$0.1
Other Capital Purposes	$0.1	$0.1	$0.4	$0.2
Contribution from Reserve	$10.4	$12.2	$12.8	$11.8
Contributions Capital levy Reserve	$0.0	$0.0	$1.0	$0.3
Contributions From Capital Fund	$4.6	$4.1	$4.2	$4.3
TOTAL with Grants	**$289.6**	**$294.6**	**$324.2**	**$319.7**

The following Table 5-4 and Table 5-5 provide a breakdown of historical annual expenditures for capital and 'other' capital projects and historical operating expenditures for service areas that are reported in this iteration of the Plan. Values shown in Table 5-4 and Table 5-5 are approved budgeted capital and operating expenditures. The City's Capital Budget is categorized and reported by Department and Division.

Table 5-4: Historical Capital Expenditures for Existing Assets by Lifecycle Activity

Combined Tangible and Other Capital Program Summary	2021 ($millions)	2022 ($millions)	2023 ($millions)	3 Year Average ($millions)
Non-Infrastructure Solutions	$13.1	$10.9	$15.1	$13.0
Operation and Maintenance Type Activities	$4.4	$4.8	$2.4	$3.9
Renewal Activities	$48.3	$54.4	$60.0	$54.2
Disposal/Abandonment Policies	$0.1	$0.0	$0.2	$0.1
Service Improvement Activities	$14.7	$19.5	$38.3	$24.2
Total	**$80.6**	**$89.6**	**$116.1**	**$95.5**

Table 5-5: Historical Operating Expenditures

Expenditures	2021 Approved ($millions)	2022 Approved ($millions)	2023 Approved ($millions)
Personnel	$110.7	$115.6	$121.8
Contractual	$93.3	$93.4	$112.1
Materials, Supplies	$11.2	$11.1	$11.6
Repairs, Maintenance	$3.1	$3.6	$3.8
Debt Charges	$19.5	$20.5	$22.6
Fees	$9.9	$10.6	$10.6
Tax Write-offs	$1.7	$1.6	$1.5
Other Transfers	$20.0	$19.7	$21.2
Inter-departmental Charges	$21.7	$22.4	$26.0
New Equipment	$0.2	$0.2	$0.2
Rentals	$1.4	$1.5	$1.3
Travelling, Training	$1.6	$1.6	$1.7
Contributions to Reserves	$20.4	$21.8	$24.0
Transfer to FRMP from Capital Levy	$1.3	$0.8	$1.0
Transfer to FRMP WWRF	$2.5	$2.5	$2.5
Transfer to Capital Fund	$8.8	$9.3	$9.2
Recoveries	-$22.6	-$24.7	-$28.5
County Share	$0.2	$0.0	$0.1
Total	**$304.8**	**$311.3**	**$342.8**

5.5 Financial Strategy Methodology

The financial strategy was developed by completing an analysis on the City's current capital budget forecast (2023-2033), and combining that with the City's lifecycle, risk and LoS strategies to develop a 10-year investment forecast. The following sections detail the methodology used to complete this analysis for the financial strategy.

The City's lifecycle models have been developed to account for asset condition-based lifecycle strategies (rehabilitation and replacement), which is the driver for most capital works that the City undertakes. Additional activities to meet Levels of Service (LOS) related non-condition-based aspects of asset performance, including growth, performance and/or climate change impacts can also be modelled. The City may seek to include non-condition-based models into its overall lifecycle modelling strategy in the future.

5.5.1 Budget Analysis

The purpose of the budget analysis was to identify the different lifecycle costs for each of the Service and Subservice areas. The projects in the City's approved capital budget were used and categorized by lifecycle activity and asset hierarchy (where information was available). Table 5-6 below shows the definitions of Lifecycle Activities used for the analysis in this Plan.

Table 5-6: Lifecycle Activities

Lifecycle Activity	Definition
Non-Infrastructure Solutions	Actions or policies that can lower costs or extend useful lives. Activities include strategic plans, modelling, demand analysis, etc.
Operations and Maintenance Activities	Costs to deliver the service. Including regularly scheduled inspection and maintenance or more significant repair and activities associated with unexpected events. For this AMP, the Capital Budget was used as the source for operations and maintenance type activity costs.
Renewal Activities (Rehabilitation and Replacement)	Significant repairs designated to extend the life of the asset.
	Activities that are expected to occur once an asset has reached the end of its useful life and renewal/rehab is no longer an option.
Disposals/Abandonment Policies	Activities associated with disposing of an asset once it has reached the end of its useful life or is otherwise no longer needed by the City.
Service Improvement Activities	Planned activities to improve the asset's capacity, quality, and system reliability.

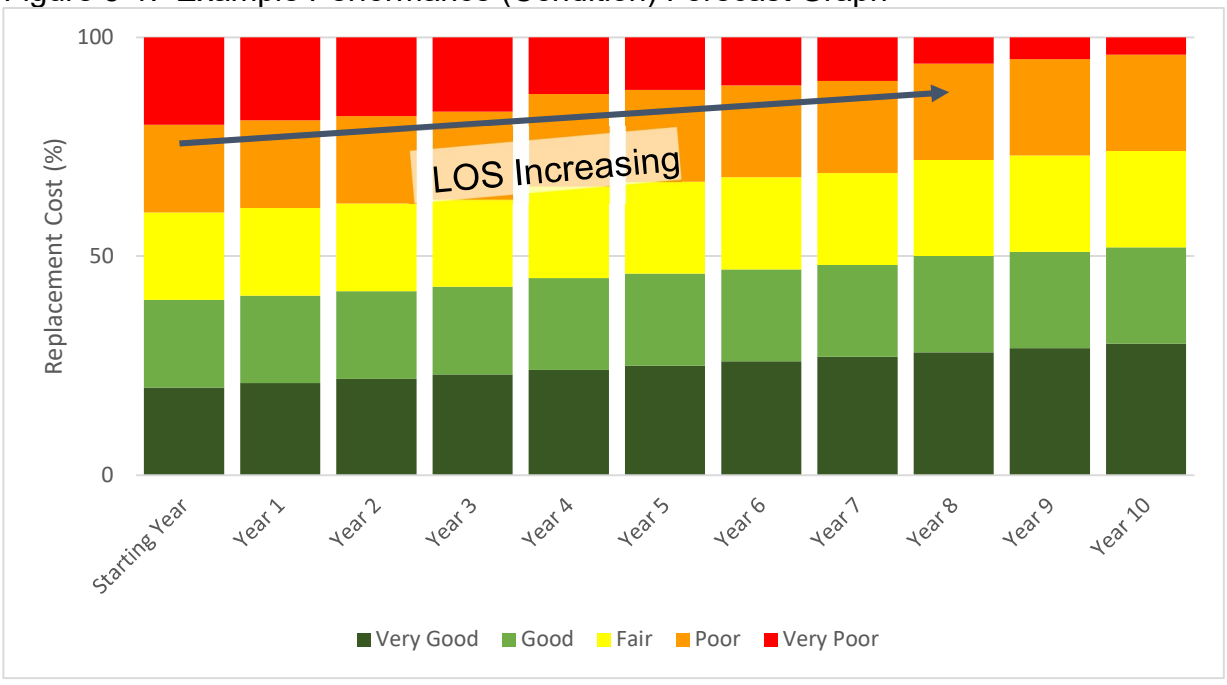
Lifecycle Activity	Definition
	New assets not related to growth would be considered a service improvement.
Growth Activities	Planned activities required to extend services to previously unserved areas or expand services to meet growth demands.

Projects in the capital budget forecast that had multiple lifecycle activities were separated to isolate the costs for each year. For example, if a $1 million project was split 70% growth and 30% renewal then the first row would be categorized as growth and the remaining cost of the project changed to $700K. An additional row would be added and categorized to renewal with the cost at $300K. The same process was done for projects with multiple Service, Subservice, or Asset Categories.

5.5.2 Asset Needs Forecasting

Asset needs forecasting combines the lifecycle models, levels of service (LoS) measures, and risk management strategy in a decision support (DSS) model. The model has the ability to forecast either asset performance (condition) or spending needs over a given time horizon. This relationship between performance and spending needs is important to understanding the costs associated to achieving various service level requirements. The model allows the City to assess the resulting forecasted performance and related spending over time to support decision making. The following figure illustrates an example of a performance forecast graph.

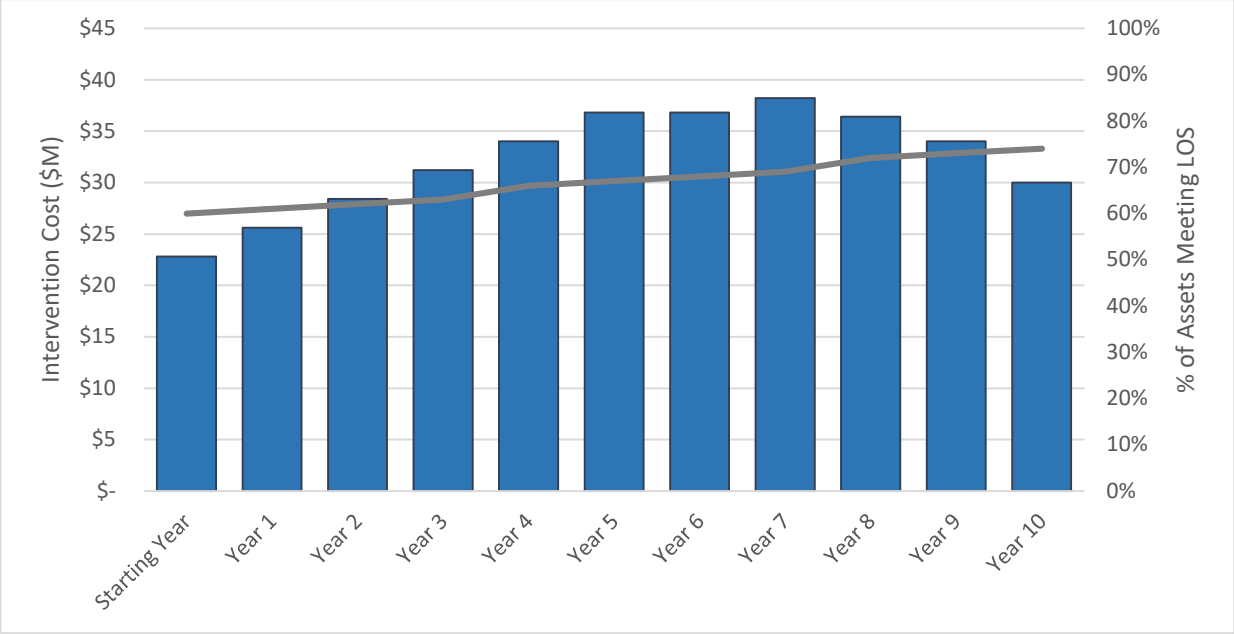
Figure 5-1: Example Performance (Condition) Forecast Graph



The graph can be interpreted as follows. Each of the bars in the figure represent the condition distribution of a group of assets in a given year. The condition is distributed over five (5) condition states: Very Good, Good, Fair, Poor and Very Poor. The City's LoS measures are tied to asset condition through a condition-based measure. As the proportion of assets in Very Poor condition decreases, the City's LoS improves. If this proportion of assets is maintained, then so is the City's LoS.

Each performance forecast figure is paired with a spending graph. The following figure provides an example spending graph.

Figure 5-2: Example Spending Graph



The spending graph illustrates the amount of spending required over time to achieve the given performance state. Each bar on the graph is the amount of spending required in a given year to match that same year's performance (condition) distribution. Also on the graph, represented by the right axis, is a line that indicates the percentage of assets meeting LoS under this given scenario.

The City reviewed scenarios for the cost to maintain current levels of service, and the cost to achieve 100% current established levels of service (Backlog Analysis).

The following subsection describes each scenario:

5.5.3 Forecast Scenarios

Scenario 1: Cost to Maintain Current Levels of Service

This scenario derives the cost that would be required to maintain current levels of service over a 10-year forecast period. This is performed by calculating the condition based LoS for each asset group, which is represented as the percentage of assets meeting objectives (i.e. not in very poor condition/past its service life). This percentage is maintained over the

forecast period, and the associated spending needs are calculated by the model. Understanding the cost to maintain current LoS is a requirement of the July 1, 2024 milestone of O.Reg. 588/17.

For this iteration of the Plan, Service Area Attachments will report the renewal costs to maintain current levels of service.

Scenario 2: Achieve 100% LoS Targets - Backlog Analysis

A second scenario that was completed as part of the asset needs forecasting is the backlog analysis. This scenario derives the cost that would be required for the City to meet 100% of its condition-based LOS measure. It represents the cost to complete all necessary lifecycle activities on each asset at the appropriate time. It is referred to as a backlog analysis, due to the fact that it often identifies a significant financial need in the first year of the analysis (otherwise known as the backlog). This need represents the amount of outstanding asset capital works that is currently required.

Note that this scenario is not necessarily intended to represent a practical plan that can be enacted, but rather, it illustrates the theoretical upper limit of asset performance that can be achieved, given an unlimited amount of funding. It may or may not be practical, given available funding and LOS targets that the City may propose to achieve.

5.6 Results

5.6.1 Anticipated Funding Analysis

The summary of the Capital Budget Analysis by lifecycle activity is provided in Tabe 5-6 below. Costs shown are the historical three-year annual average from the City's capital budget forecast.

Total costs shown in Table 5-7 below will be assumed as the baseline level of funding available for financial analysis purposes. Operating and maintenance costs shown are based on activities/projects from the capital budget forecast only.

Table 5-7: Summary of Lifecycle Activity Costs – Anticipated Budget

Lifecycle Activity	Scenario 1: Anticipated Budget
Non-Infrastructure Solutions	$13,048,774
Operations and Maintenance Activities[7]	$3,881,667
Renewal Activities	$53,798,263
Disposals/Abandonment Policies	$113,333
Growth Activities	$7,723,656
Service Improvement Activities	$24,170,590
Total	**$102,736,284**

5.6.2 Costs to Maintain Current Levels of Service

The compiled investment needs under this scenario are presented in Table 5-7 below. The analysis focused on identifying the renewal and rehabilitation investments, with renewal activity investments for this scenario reporting condition based LoS needs over the 10-yr forecast.

The City may also be experiencing operational and maintenance investment gaps and is working towards quantifying the true cost to maintain LoS from the operational side. The City is working towards refining processes to capture the full lifecycle investment needs for inclusion in future iterations of the Plan.

Table 5-8 shows the lifecycle costs to maintain current LoS. Growth activity costs are based on the most recent Development Charge Study (and amendments).

Table 5-8: Summary of Lifecycle Activity Costs to Maintain Current LoS

Lifecycle Activity	Scenario 2: Maintain LOS (10-yr annual average)
Non-Infrastructure Solutions	$19,571,731
Operations and Maintenance Activities	$5,990,200
Renewal Activities	$56,376,000
Disposals/Abandonment Policies	$100,000
Growth Activities	$30,546,386

[7] Costs classified as operations and maintenance type activities from the Capital Budget only (for all scenarios)

Lifecycle Activity	Scenario 2: Maintain LOS (10-yr annual average)
Service Improvement Activities	$50,098,386
Total	**$162,722,538**

The following Figures 5-3 and 5-4 illustrate the forecasted performance (condition) and spending required to maintain levels of service for renewals for all service areas reported in this plan.

Figure 5-3: 10-Yr Performance Forecast – Maintain Current LoS, All Service Areas

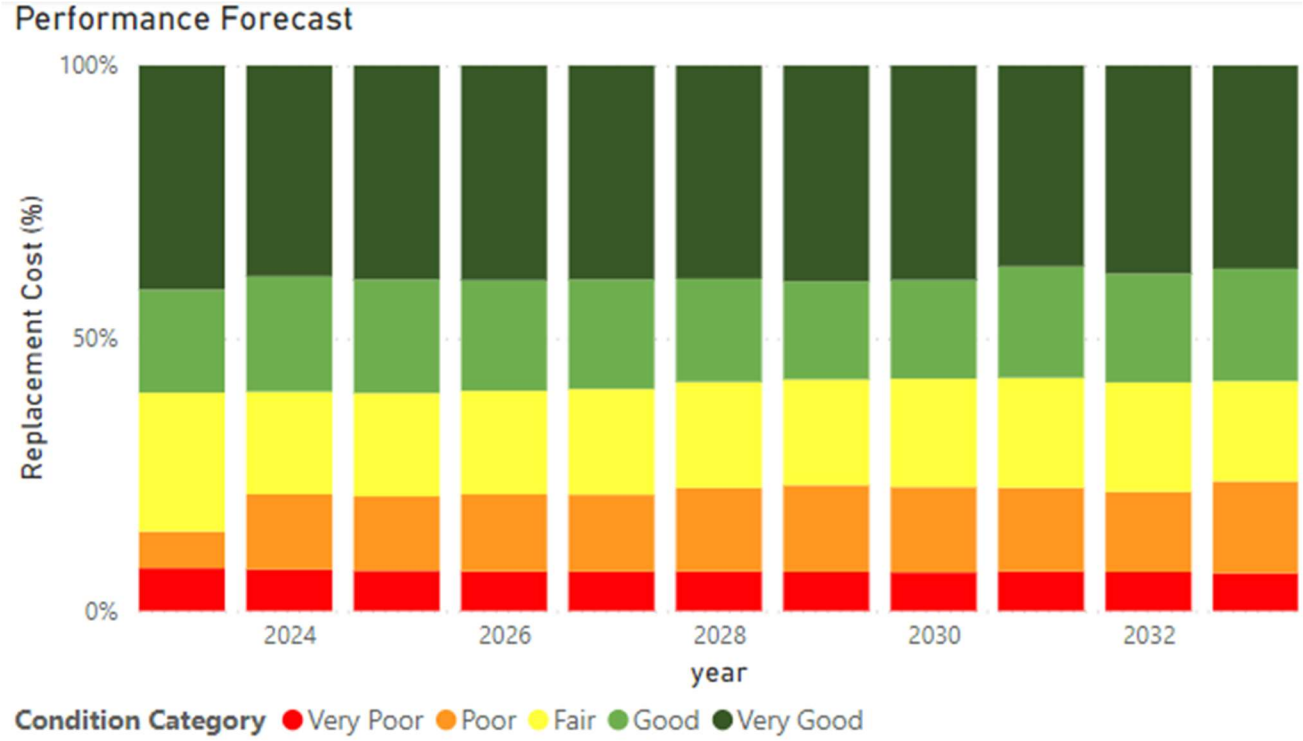
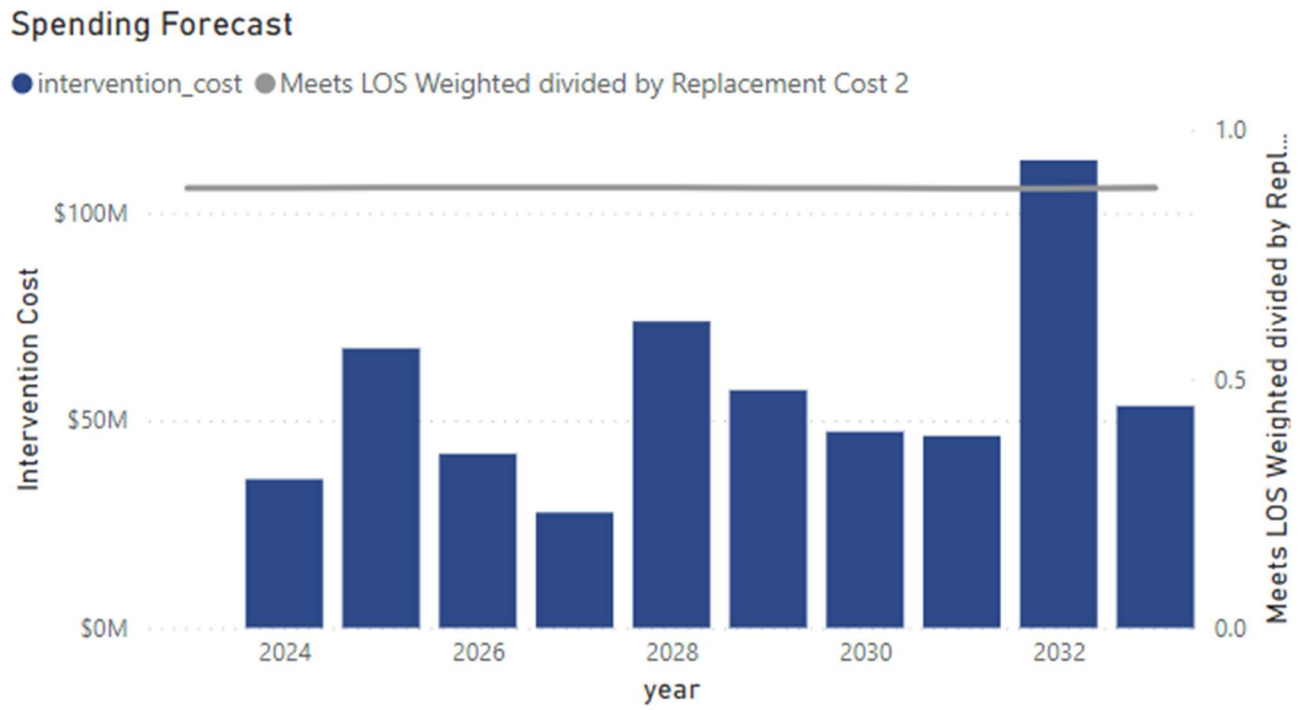


Figure 5-4: 10-Yr Spending Forecast – Maintain Current LoS, All Service Areas



As shown above in Table 5-8, the average equivalent annual spending for renewals to maintain the current conditions shown in Figure 5-3 is estimated at $56.38 million per year over the next 10 years. The spending graph indicates that 88% of assets will be achieving current levels of service.

Refinements to lifecycle activity investments will be required as condition assessments are updated, and data accuracy improves. This Plan is a fluid document and will require continual updating to make the best-informed decisions possible.

5.6.3 Backlog Analysis

The compiled investment needs under this scenario are presented in Table 5-9 below.

The backlog analysis considers all necessary lifecycle activities and costs on each asset at the appropriate time. While this may present a significant up-front investment which the City realistically will not be able to fund in a single year, it represents the cost that would be needed to achieve 100% of the established level of service targets as discussed in Section 3.0 – Levels of Service.

Table 5-9: Summary of Lifecycle Activity Costs – Backlog Analysis

Lifecycle Activity	Scenario 3: Backlog Analysis (10-yr annual average)
Non-Infrastructure Solutions	$19,571,731
Operations and Maintenance Activities	$5,990,200
Renewal Activities	$113,780,000
Disposals/Abandonment Policies	$100,000
Growth Activities	$30,586,386
Service Improvement Activities	$50,098,386
Total	**$220,126,538**

The following Figures 5-5 and 5-6 illustrate the forecasted performance (condition) and spending required to achieve 100% LoS for renewals for all service areas reported in this plan.

Figure 5-5: 10-Yr Performance Forecast – Achieve 100% LoS, All Service Areas

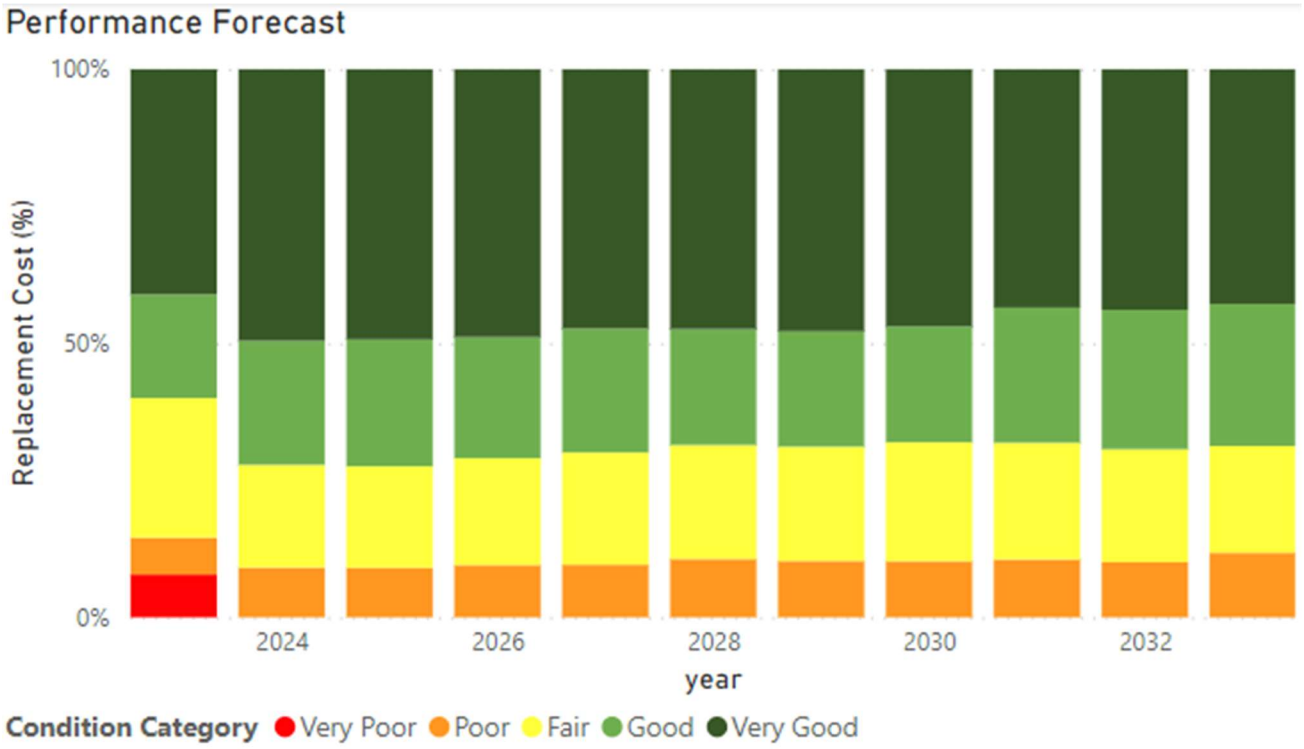
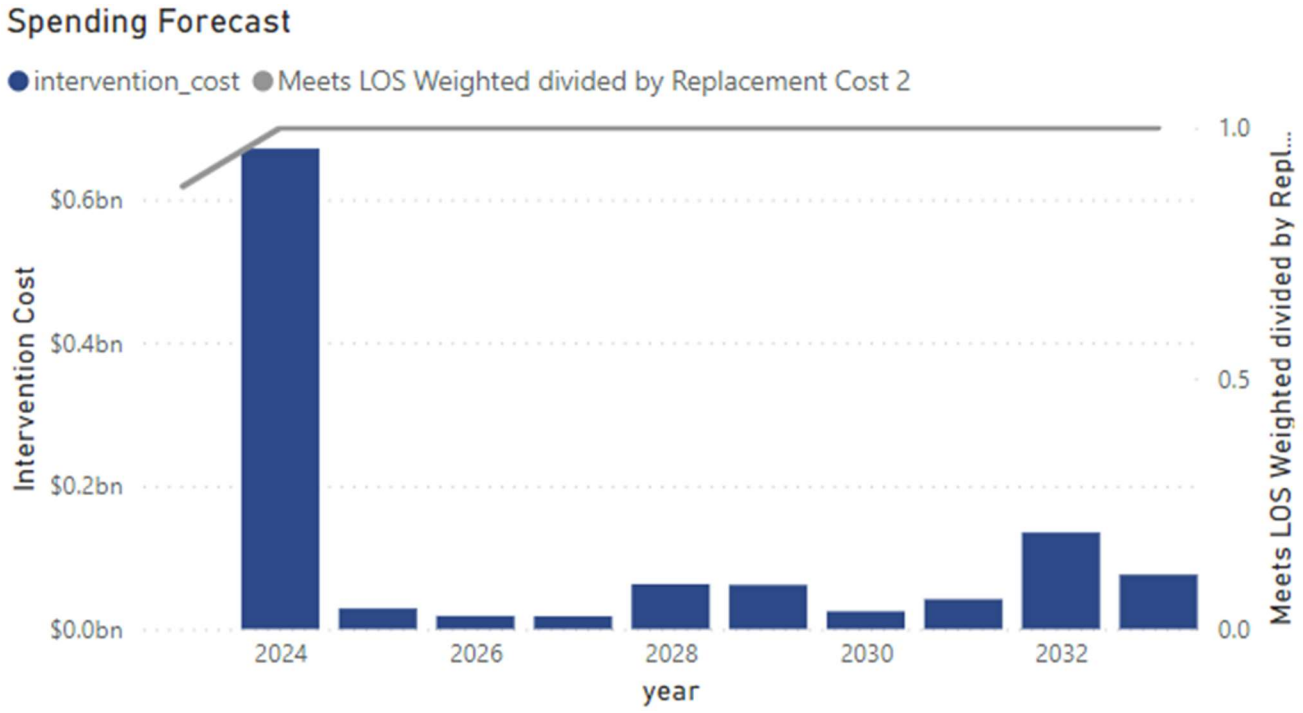


Figure 5-6: 10-Yr Spending Forecast – Achieve 100% LoS, All Service Areas



As shown above in Table 5-9, the average equivalent annual spending for renewals to maintain the current conditions shown in Figure 5-3 is estimated at $113.78 million per year over the next 10 years. The spending graph indicates that 100% of assets will be achieving current levels of service with the related level of spending.

5.7 Summary of the Financial Shortfall

Public infrastructure is often looked at as the backbone of our economy and quality of life. Unfortunately, years of under investment throughout the country has resulted in years of deferred repairs. Canada is beginning to confront its "infrastructure deficit" but it is not without challenges. Peterborough and most other municipalities struggle with the same infrastructure challenges.

The financial shortfall represents the amount of funding that is unavailable to achieve 100% current levels of service for existing assets and growth-related demands. The financial shortfall analysis is determined over a 10-year planning period by comparing the 'investment needs' to the 'anticipated budget'.

Many assumptions are made when determining the financial shortfall. Currently, the cost of fully implementing the lifecycle strategies identified in this Plan and the cost for delivering current levels of service are not fully understood and do not align with the City of Peterborough's budget planning processes. As a result, not all lifecycle strategy costs are accurately presented in the needs analysis. This also creates a somewhat misleading financial shortfall that will be improved as the City's asset management planning matures. Until levels of service are fully understood, it can be assumed that the needs identified in this Plan ensure that assets are (at a minimum) maintained in acceptable condition, funding is available to meet growth demands and regulatory requirements are met. Also incorporated into the analysis are other assumptions such as provincial targets for growth in Peterborough, user rates remaining constant and Community Housing support continuing with reduced provincial involvement.

For the purpose of the financial shortfall analysis, investment needs and anticipated budget are defined as follows:

Investment Needs – This is the average annual lifecycle investment needs for all service areas reported in this Plan. These are based on a 10-year planning period and considers all lifecycle costs for existing assets, investments required to meet growth demands and to achieve 100% established levels of service. The 2024 investment needs used for this part of the analysis is based on the backlog analysis and is an estimated **$220.1 million**.

Anticipated Budget – This is the averaged three year historical expenditures for lifecycle activities from the City's approved Capital Budget and forecasted out over the 10-year planning period. With the assumption that there will not be any significant impacts to revenue sources, the average of the City's current funding levels allocated for lifecycle costs will be used as the anticipated budget and used to calculate the annual shortfall/surplus. The 2024 anticipated budget is an estimated **$102.7 million.**

Service area investment dollars and projected budget dollars shown in Table 5-10 below have been indexed by 3% per year to reflect inflationary costs.

Table 5-10: Investment Needs and Anticipated Funding – Existing and Growth Related

	Lifecycle Investment Needs ($millions)									
Lifecycle Activity	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**
Non-Infrastructure Solutions	$19.6	$20.2	$20.8	$21.4	$22.0	$22.7	$23.4	$24.1	$24.8	$25.5
Operations and Maintenance Activities	$6.0	$6.2	$6.4	$6.5	$6.7	$6.9	$7.2	$7.4	$7.6	$7.8
Renewal Activities	$113.8	$117.2	$120.7	$124.3	$128.1	$131.9	$135.9	$139.9	$144.1	$148.5
Disposals/Abandonment Policies	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1	$0.1
Growth Activities	$30.6	$31.5	$32.4	$33.4	$34.4	$35.5	$36.5	$37.6	$38.7	$39.9
Service Improvement Activities	$50.1	$51.6	$53.1	$54.7	$56.4	$58.1	$59.8	$61.6	$63.5	$65.4
Total	**$220.1**	**$226.7**	**$233.5**	**$240.5**	**$247.8**	**$255.2**	**$262.8**	**$270.7**	**$278.8**	**$287.2**
Anticipated Budget	$102.7	$105.8	$109.0	$112.3	$115.6	$119.1	$122.7	$126.4	$130.1	$134.0
Shortfall/Surplus	**-$117.4**	**-$120.9**	**-$124.5**	**-$128.3**	**-$132.1**	**-$136.1**	**-$140.2**	**-$144.4**	**-$148.7**	**-$153.2**
Average Total Lifecycle Needs	**$252.4**									
Average Anticipated Budget	**$117.8**									
Average Shortfall	**-$134.6**									

5.7.1 Current Financial Shortfall

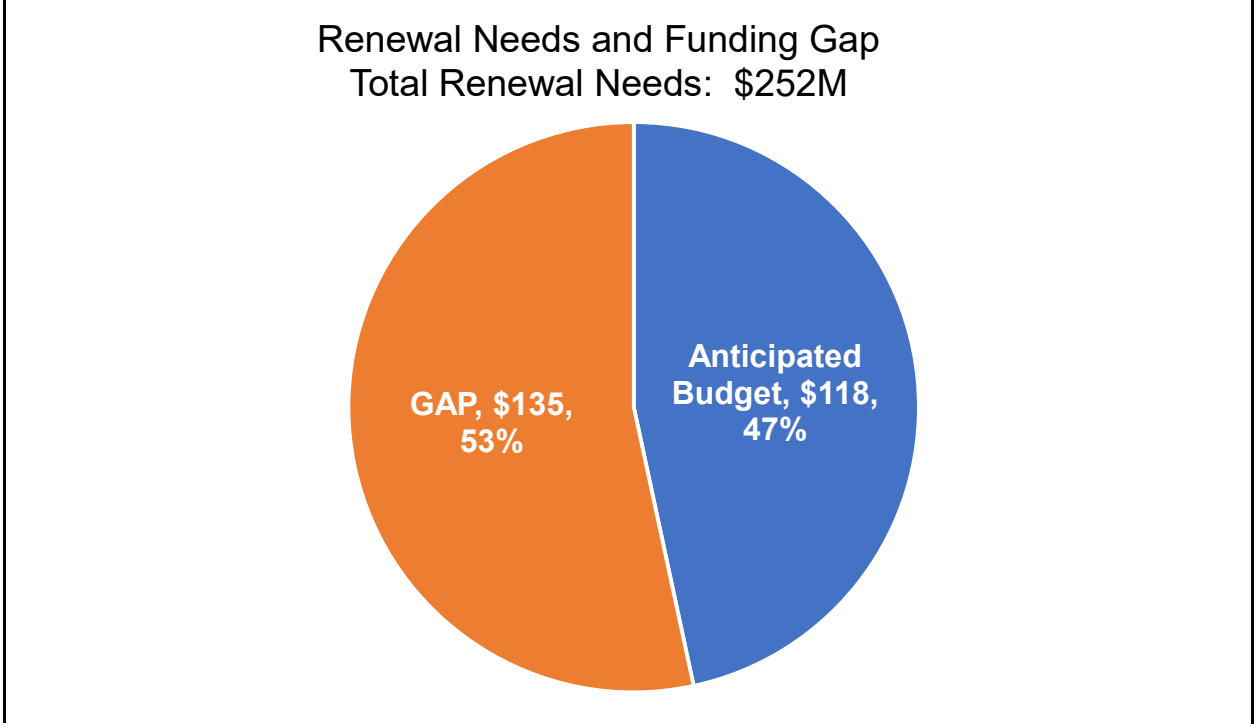
As shown in Figure 5-7 below, the projected average budget over the 10-yr forecast is estimated at $118 million per year giving an average financial shortfall of $135 million. This indicates that 47% of the forecasted lifecycle costs needed to provide the services reported in this Plan at the lowest lifecycle cost are accommodated in the proposed budget.

Figure 5-7 provides a high-level summary the current financial shortfall for existing and growth-related infrastructure.

Figure 5-7: Current Financial Shortfall Analysis

Average Annual Needs for Existing & Growth Related* 2024-2033	Average Anticipated Budget	Average Financial Shortfall
$252 million	**$118 million**	**($135 million)**

*Value represents annual needs averaged over the projected 10-year planning period



Assets that are not able to maintain current LoS are likely to experience a reduction in service levels over the 10-year period. They may potentially experience more frequent asset failures or disruption to services, as well as increased levels of maintenance to keep assets in service.

Several possibilities exist to begin minimizing the gap between needs versus anticipated budget. To overcome this financial challenge, the City must review asset needs comprehensively in view of the services they deliver. As unplanned revenues become available, the City will seek to apply them towards mitigating the shortfall whenever possible. The assets included in this Plan have a large impact on delivering the services that Stakeholders expect, and at reasonable costs (taxes, fees etc.). As further information becomes available and is refined, these financial projections will be improved.

5.7.2 Options for the Financial Shortfall

Finding the right balance between service delivery and funding can be a complicated process with pros and cons. For example, strategically prioritizing the City's land development growth areas allows for responsible delivery of services in a fiscally responsible manner but may have an impact on economic growth.

A plan to increase the City financing available for capital works was recommended to council in 2012 and amended in 2021[8], in which a Debt Management Policy and other changes to assist in capital works was outlined. The report is a result of a full analysis Finance staff undertook to review the City's financial situation, existing debt policy, the options available and consequences of those options.

Of significant importance to capital planning, the following was adopted by Council;

- That the Debt Management Policy will increase the maximum amount of debt the City of Peterborough can issue.
- That the annual draft operating budget include a 5% increase in the capital levy provision as a means of providing more capital levy to support the capital investment needs.
- A phase-in of the new maximum debt limit, the total annual amount of new tax-supported debt charges and any increase in the base capital levy provision be limited so that the impact on the all-inclusive tax increase does not exceed 1% per year.

In reference to the information in this Plan and as previously reported to council in the Debt Management and Capital Financing Plan, the City will consider a blend of the Debt Management Policy and the approaches outlined below in order to manage the shortfall and achieve service delivery goals:

- Alignment of the City's budget process with the asset management plan.
- Review and prioritize assets in poor to very poor condition.
- Give priority to asset renewal expenditure vs. new build.
- Maximize available Federal and Provincial Funding.

[8] City of Peterborough, Report CPFS12-011 Debt Management and Capital Financing Plan, (April 4, 2012) and amended through Report CLSFS21-024 (July 2, 2021)

- Growth area strategies and funding.
- Lifecycle costing prior to new development or renewals to understand future expenditure needs and commitments.
- Expanded partnerships or external funding.
- Revisit disposal strategies.
- Dedicated funding programs.
- Community review of and input on service levels; and
- Procurement methodologies as per the Procurement By-law.

In addition to the approaches listed above, the City recently developed a Capital Project Prioritization Questionnaire in which the discussion on prioritization is initiated by aligning the criteria in which projects are scored against with asset management program initiatives, objectives, and overarching City goals and targets. Factors such as legislative requirements, achieving levels of service, risk, cost benefits and climate change, etc. play a significant role in developing investment plans across the organization. The capital project prioritization process helps position investments with the greatest benefit (considering impact and benefit from a financial aspect and the consequences of not completing it), while balancing an acceptable level of risk.

6.0 Plan Improvement & Monitoring

6.1 Improvement Plan

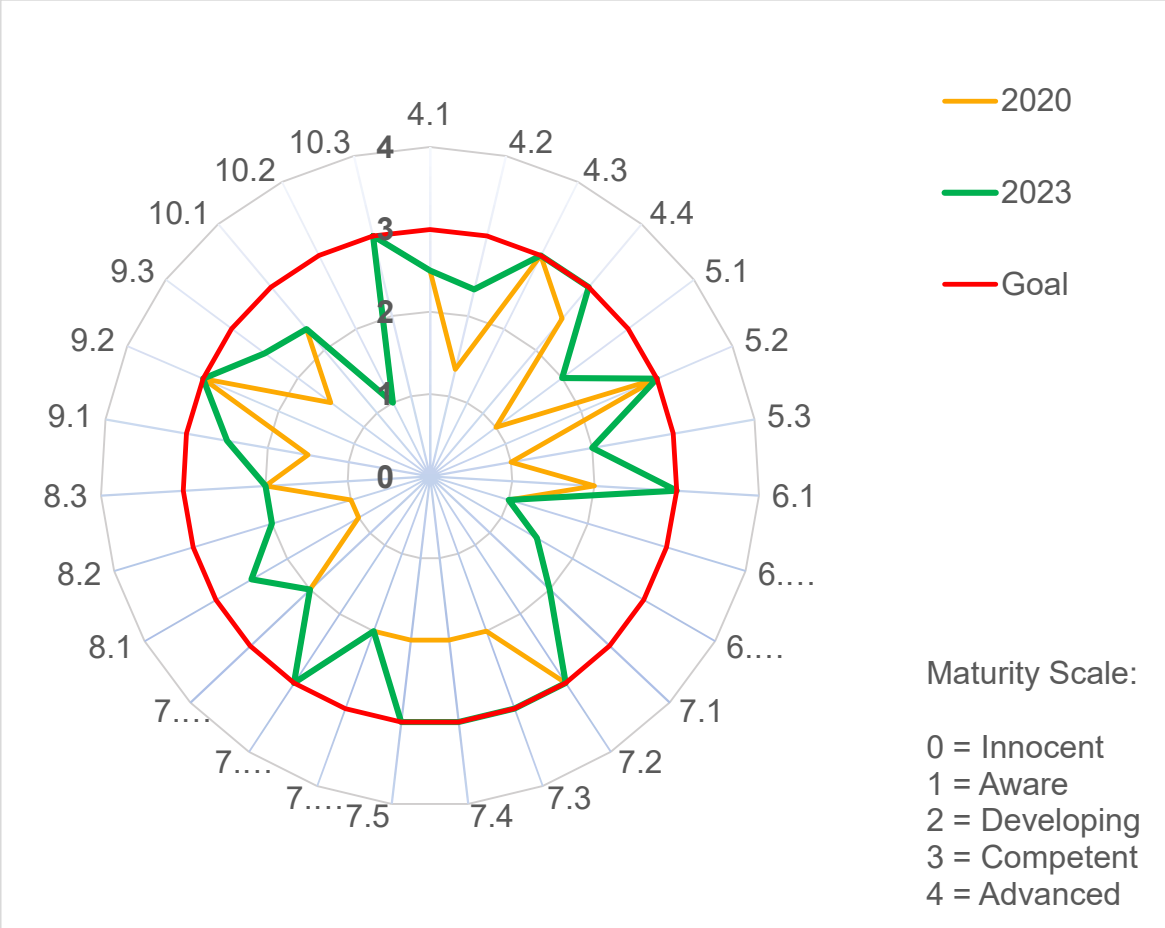
Asset management is a continuously improving practice that is rapidly being applied across all Municipalities. As the City's asset management practices evolve and matures this Plan will also mature. The City completed a State of Asset Management (SOAM) assessment and an Asset Management Road Map to improve the City's asset management practices for decision making.

6.2 Asset Management Maturity

The SOAM identifies that the City has implemented a continual improvement process for the City's asset management practices based on ISO 55000 for Asset Management. The most recent internal audit completed in 2023 has determined that the City is currently considered to be asset management "Developing" and moving towards "Competent" with an average score of 2.4, with the goal of achieving a minimum average score of 3.0 or 'Competent' (bold circle).

Figure 6.0 below shows where the City scores relative to the AM Maturity 'wheel' and the criteria in which the City was scored against. Asset management maturity audits are anticipated to be completed on a regular cycle where each section shown in the figure below is evaluated and scored for compliance.

Figure 6-0: City of Peterborough State of Asset Management Maturity



Clause No.	Subsection
4.1	Understanding the organization and its context
4.2	Understanding the needs and expectations of stakeholders
4.3	Determining the scope of the asset management system
4.4	Asset Management system
5.1	Leadership and commitment

Clause No.	Subsection
5.2	Policy
5.3	Organizational roles, responsibilities, and authorities
6.1	Actions to address risks and opportunities for the asset management system
6.2.1	Asset management objectives
6.2.2	Planning to achieve asset management objectives
7.1	Resources
7.2	Competence
7.3	Awareness
7.4	Communication
7.5	Information requirements
7.6.1	Documented information general
7.6.2	Creating and updating documented information
7.6.3	Control of documented information
8.1	Operational planning and control
8.2	Management of change
8.3	Outsourcing
9.1	Monitoring, measurement, analysis, and evaluation
9.2	Internal audit
9.3	Management review
10.1	Nonconformity and corrective action
10.2	Preventive action
10.3	Continual improvement

7.0 Conclusion

The City strives to effectively deliver services to the expectations of the public while meeting legal obligations. To meet the service expectations the City has developed several strategies in which some are successful to reduce the costs to the City while improving the overall asset condition. Other strategies are either recently approved or have not been documented well enough to fully understand their impact to the overall condition or service delivery.

Beyond the current asset base, the City needs to plan for new assets to meet growth needs. Growth needs are based on planning areas in the Official Plan and are influenced by the Province's Places to Grow Act and the Greater Golden Horseshoe Growth Plan.

Options are available for the City to manage the financial shortfall. The City can continue to deliver services at the current levels and maintain the commitment to fund required investments whenever possible. As additional revenue sources become available, these can be put towards reducing the shortfall (a.k.a. paying for the gap). However, the capital program needs continue to exceed the available funding on an ongoing basis, leaving the City with no other option but to defer asset renewals to future years, This often results in higher costs over the long-term planning period. The second option is reducing service levels to align with the available budget (with the understanding that there are legislated/regulated/essential services that can't be reduced or eliminated). This may be received with hesitation since Stakeholders are often unwilling to give up services being enjoyed and do not fully understand the true cost of delivering them (and the willingness to pay). Finally, the City can seek to implement more efficient strategies to deliver services such as the sharing of services with other local boards, agencies and municipalities, offering incentives for services, or the provision of alternate services.

The options outlined above is not an exhaustive list and have yet to be discussed as part of proposed levels of service. This will play an integral part in meeting O.Reg 588/17 *Asset Management Planning for Municipal Infrastructure* reporting requirements prior to the 2025 deadline.

The asset management plan will play a significant role in understanding current and proposed services being delivered, the costs to deliver them and associated risks. The Plan also seeks to help prioritize capital projects and serve as an overarching guiding document for decision making processes.

This Plan has had to make several assumptions to come to the conclusions drawn. In making these assumptions, actions are being reviewed to help improve future iterations and reduce the number of assumptions.

Council approved Plans, Policies and Procedures are available on the City's corporate website. Asset specific details relating to the asset management plan can be found in

the Service Area Attachments which are also available on the City's website at www.peterborough.ca.

8.0 Appendices

Separately attached

9.0 Service Area Attachments

The service area attachments in this section contain details relating to the topics below and are further analyzed:

- Inventory Details
- Replacement Costs
- Asset Condition and Remaining Useful Life
- Risk Assessment
- Levels of Service
- Asset Management Strategies