City of PICKERING

Report to Council

Report Number: FIN 10-25
Date: May 26, 2025

From: Stan Karwowski
Director, Finance & Treasurer

Subject: 2025 Asset Management Plan
- File: F-1200-001

Recommendation:

1. That the 2025 Asset Management Plan, set out in Attachment 1 to this report, be received;

2. That Council endorse the use of the 2025 Asset Management Plan for financial planning purposes as it relates to the development of the Ten Year financial plan; and

3. That the appropriate City of Pickering officials be authorized to take the necessary actions as indicated in this report.

Executive Summary: The City is required to have an updated Asset Management Plan (AMP) as per Ontario Regulation 588/17. Asset management is defined as the coordinated activity of an organization to realize value from assets. It considers all asset types, and includes all activities involved in the asset's life cycle from planning and acquisition/creation; to operational and maintenance activities, rehabilitation, and renewal; to replacement or disposal and any remaining liabilities. Asset management is comprehensive and normally involves balancing costs, risks, opportunities and performance benefits to achieve the total lowest lifecycle cost for each asset.

After months of preparation, staff have updated the City's 2025 Asset Management Plan. With Council endorsing the 2025 AMP, the City has met the obligations for July 1, 2025, under this Regulation and the document will be posted on the City's website.

Relationship to the Pickering Strategic Plan: The recommendations in this report respond to the Pickering Strategic Plan Corporate Key:Good Governance/Customer Service Excellence.

Financial Implications: The attached 2025 AMP provides a comprehensive summary of the City's key assets, their current condition and investments required to maintain these assets in working condition. The AMP identifies the need for the City to increase its annual funding for the AMP categories by an additional levy increase of 2.8% per year.

Discussion: Asset management builds on the Public Sector Account Board standard PS 3150, which required municipal government to account and report on their Tangible Capital

Assets (TCA), effective with fiscal years starting January 1, 2009. The City, through its annual financial statements, reports on its TCA through Note 11.

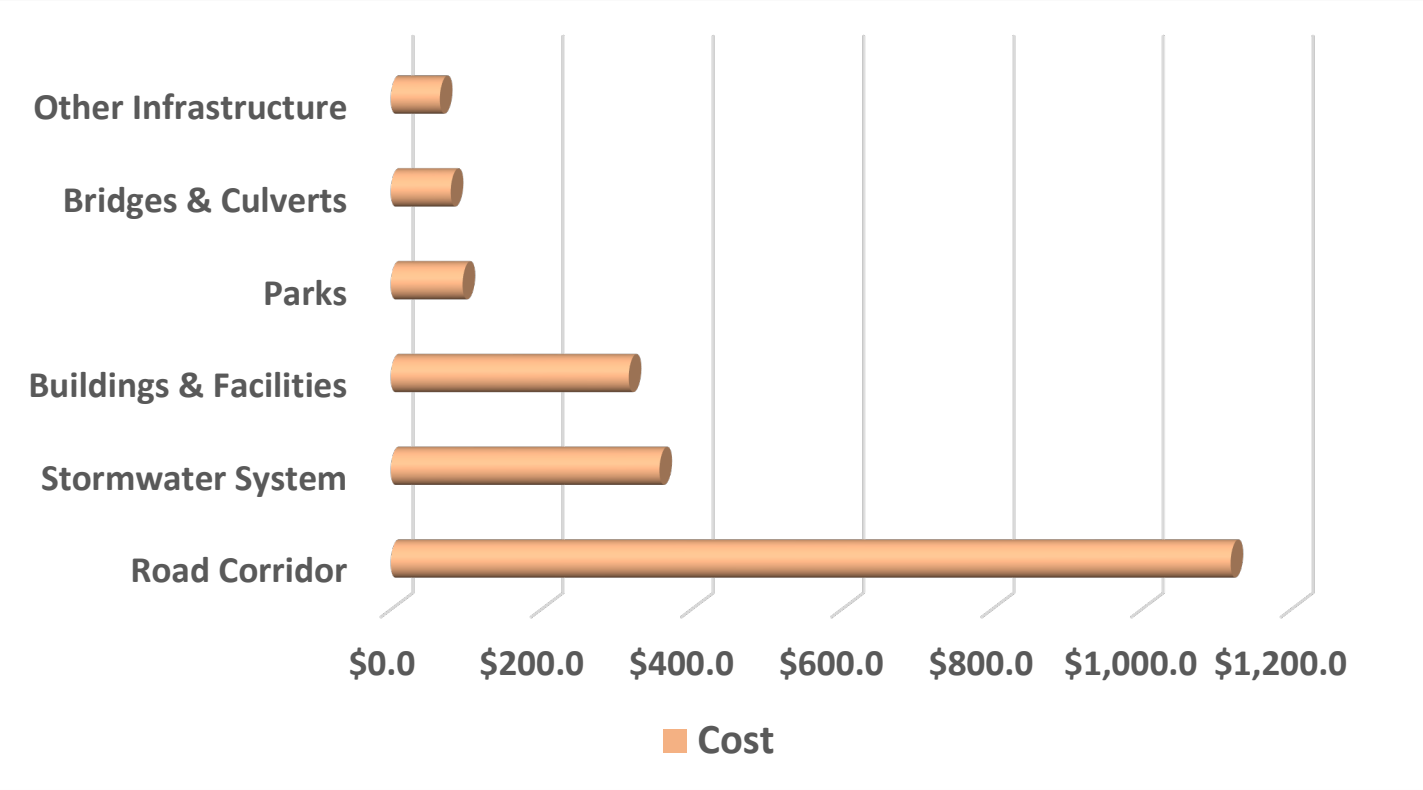
Following the development of FIN 050 Accounting for Tangible Assets Policy, the City developed FIN 080 Strategic Asset Management Policy, the first requirement of the Ontario Regulation 588/17. The next requirement of the Regulation was our 2020 AMP which met the requirements for July 1, 2022, and July 1, 2024. The attached 2025 AMP is the next requirement of the regulation in the progression of asset management. With Council endorsing the 2025 AMP, the City has met the obligations for July 1, 2025, under this Regulation and the document will be posted on the City's website.

The City of Pickering's 2025 AMP satisfies Ontario Regulation 588/17 requirements by addressing proposed levels of service, assessing asset conditions, analyzing lifecycle strategies, and developing a long-term financial plan. It enables Pickering to make informed decisions, optimize infrastructure investments, and ensure service reliability in the face of growth and climate change.

AMP Key Points

Pickering owns and manages a diverse asset portfolio valued at $2.1 billion, as shown in the chart below.

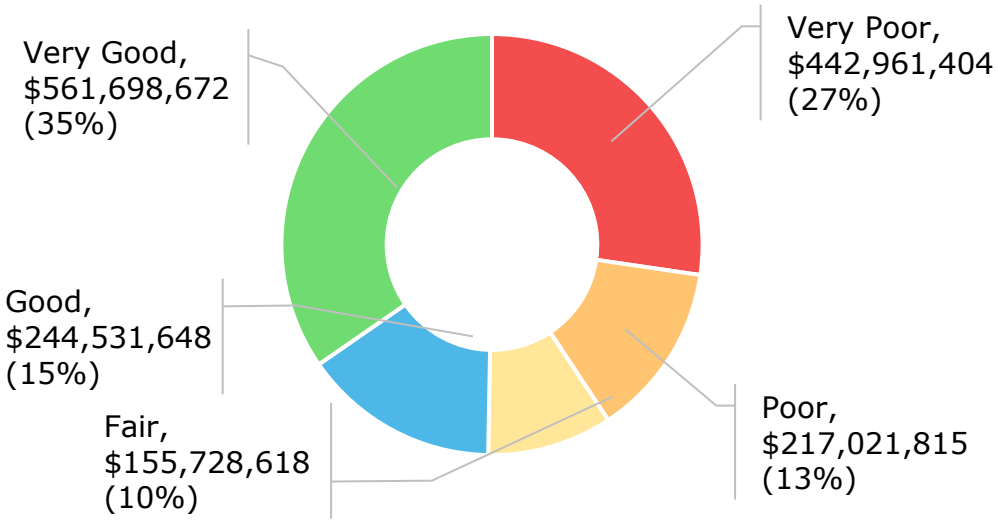
Chart One
Replacement Cost by Major Category
(Millions)



The above chart shows the replacement cost of each major asset category. As expected, and based on the City's geographical area, the road corridor would be the largest asset class.

Chart two summarizes asset condition at the portfolio level. Chart two data is based on assessed conditions and aged based analysis. Approximately 60% of the City's assets, excluding facilities and parks are in a "fair to very good" condition and the infrastructure backlog is estimated to be $85.9 million, reflecting overdue capital reinvestment needs.

Chart Two
Asset Portfolio Condition
Overall Portfolio Condition



Assets that are in the "poor or very poor" condition, may require replacement or major rehabilitation in the near future. The above graph excludes Buildings & Facilities and Park assets, which are assessed using the Facilities Condition Index (FCI) and Parks Condition Index. The current City Facilities Condition Index is 25.68%. (A lower score is better.) This FCI indicates that, on average, 25.68% of the total replacement cost of facility assets is required to address current renewal and rehabilitation needs. This condition level is presented in the attached report as "Needs Improvement."

The Parks Condition Index is 12.08%. This reflects the ratio of identified parks repairs and renewal costs (over five years) to the total replacement cost of park assets. A score of 12.08% falls within the "Excellent" range suggesting that the majority of the parks portfolio is in good condition.

The AMP document outlines an average annual capital need of $61.7M across asset classes:

Asset Category	**Annual Need**	**Available Funding**	**Annual Gap**
Road Corridor	$33.3M	$10.4M	$22.9M
Stormwater System	$6.6M	$0.9M	$5.7M

Asset Category	Annual Need	Available Funding	Annual Gap
Other Assets	$21.8M	$17.5M	$4.3M
Total	$61.7M	$28.85M	$32.8M

There is currently an annual funding shortfall of $32.8 million.

Addressing the $32.8 million annual infrastructure funding shortfall is an issue that needs to be addressed as part of the AMP. The AMP presents multiple tax levy phase-in strategies, recognizing the need to balance fiscal sustainability with affordability for residents. A structured and predictable funding approach is essential to avoid further erosion of critical infrastructure.

The “For consideration scenario” is a 10-year phased tax levy increase of 2.8% annually that offers to some degree a strategic middle ground. It allows the City to address the funding gap within a reasonable period. In contrast, the 5-year option, while more aggressive, would be difficult to implement in these challenging economic times. The 15-year option, though more gradual, may expose the City to higher risks and escalating long-term costs due to deferred maintenance and rising asset failure rates.

The scenarios outlined in the AMP document, were developed through rigorous modeling and reflect the funding required to maintain current levels of service, support sustainable growth, and respond to climate pressures. Importantly, these figures are exclusive of inflation, which will further increase future needs if not proactively addressed.

Scenario	Period	Annual Increase
5-Year	2025–2029	5.7%
10-Year (For Consideration)	2025–2034	2.8%
15-Year	2027–2042	1.9%

The AMP analysis, indicates that the current annual property tax funded capital investment falls short of the required sustainable levels, creating risks to infrastructure condition and service reliability over time. Implementing annual property tax levy increases over ten or fifteen years results in closing the infrastructure deficit while addressing to some degree, the affordability issue.

Attachments:

1. 2025 Asset Management Plan
2. *Infrastructure for Jobs and Prosperity Act, 2015*, Ontario Regulation 588/17

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Director, Finance & Treasurer

SK:jsr

Recommended for the consideration of Pickering City Council

Marisa Carpino, M.A.
Chief Administrative Officer

Asset Management Plan 2025

City of Pickering

Asset Inventory Data is current as of January 31st, 2025

Annual Capital Funding includes the 2024 Capital Budget

psdcitywide

This Asset Management Plan was prepared by:

Empowering your organization through advanced asset management, budgeting & GIS solutions

Key Statistics

$2.1b	2025 Replacement Cost of Asset Portfolio
$61k	Replacement Cost of Infrastructure Per Household
60%	Percentage of Assets in Fair or Better Condition
71%	Percentage of Assets with Assessed Condition Data
$32.8m	Annual Capital Infrastructure Deficit
10 Years	Recommended Timeframe for Eliminating Annual Infrastructure Deficit
3.03%	Target Reinvestment Rate
1.56%	Actual Reinvestment Rate

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1. Executive Summary

Municipal infrastructure delivers critical services that are foundational to the economic, social, and environmental health and growth of a community. The goal of asset management is to enable infrastructure to deliver an adequate level of service in the most cost-effective manner. This involves the ongoing review and update of infrastructure information and data alongside the development and implementation of asset management strategies and long-term financial planning.

1.1 Scope

This Asset Management Plan (AMP) identifies the current practices and strategies that are in place to manage public infrastructure and makes recommendations where they can be further refined. Through the implementation of sound asset management strategies, the City can ensure that public infrastructure is managed to support the sustainable delivery of municipal services.

This AMP includes the following asset categories:

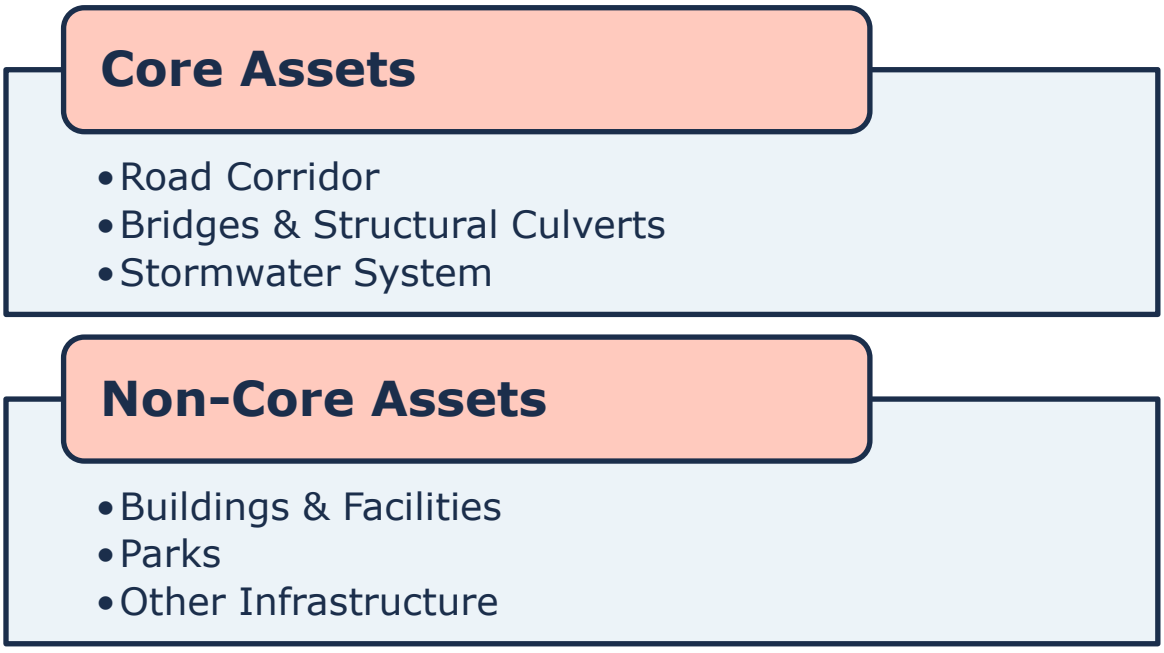


Figure 1 Core and Non-Core Asset Categories

1.2 O. Reg. 588/17 Compliance

With the development of this AMP the Municipality has achieved compliance with July 1, 2025, requirements under O. Reg. 588/17. This includes requirements for proposed levels of service and inventory reporting for all asset categories. More details on compliance can be found in section 2.5.1 O. Reg. 588/17 Compliance Review.

1.3 Findings

The overall replacement cost of the asset categories included in this AMP totals $2.1 billion. 60% of the assets analyzed in this AMP, based on replacement cost, are in fair or better condition. Additionally, condition data was available for 71% of the assets assessed. For the remaining 29% of assets, assessed condition data was unavailable, and asset age was used to approximate condition – a data gap that persists in most municipalities. Condition data is ideal for asset assessment, but when unavailable, asset age is used. Although asset age is less precise, it still provides valuable data.

The development of a long-term, sustainable financial plan requires an analysis of whole lifecycle costs. This AMP uses a combination of proactive lifecycle strategies (paved roads, bridges and culverts, and stormwater ponds) and replacement strategies (all other assets) to determine the lowest cost option to maintain the current level of service.

To meet capital replacement and rehabilitation needs for existing infrastructure, prevent infrastructure backlogs, and achieve long-term sustainability, the City's average annual capital requirement totals $61.7 million. Based on a historical analysis of sustainable capital funding sources, the City is committing approximately $31.8 million towards capital projects or reserves per year. As a result, there is currently an annual funding gap of $32.8 million.

It is important to note that this AMP represents a snapshot in time and is based on the best available processes, data, and information at the City of Pickering. Strategic asset management planning is an ongoing and dynamic process that requires continuous improvement and dedicated resources.

1.4 Recommendations

A financial strategy was developed to address the City's annual capital funding gap. The following graphics illustrate the annual tax increase required to eliminate the City's infrastructure deficit over a 10-year period.

Closing the infrastructure gap within 10 years is essential to avoid the risks associated with continued asset deterioration and escalating costs. Extending the timeline beyond a decade would result in greater lifecycle costs due to deferred maintenance, reduced levels of service, and increased risk of service disruptions or emergency repairs. A 10-year horizon strikes a balance between fiscal responsibility and long-term sustainability, enabling the City to proactively manage its assets, stabilize future funding needs, and maintain safe, reliable services for the community:

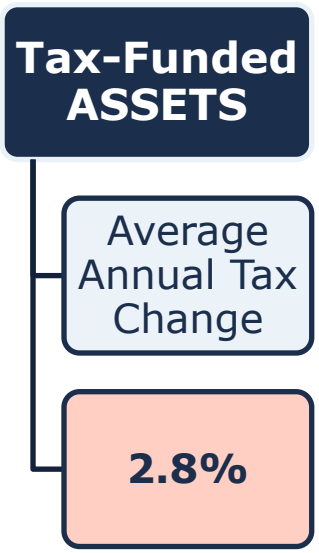


Figure 2 Proposed Tax Changes

2. Introduction & Context

2.1 Community Profile

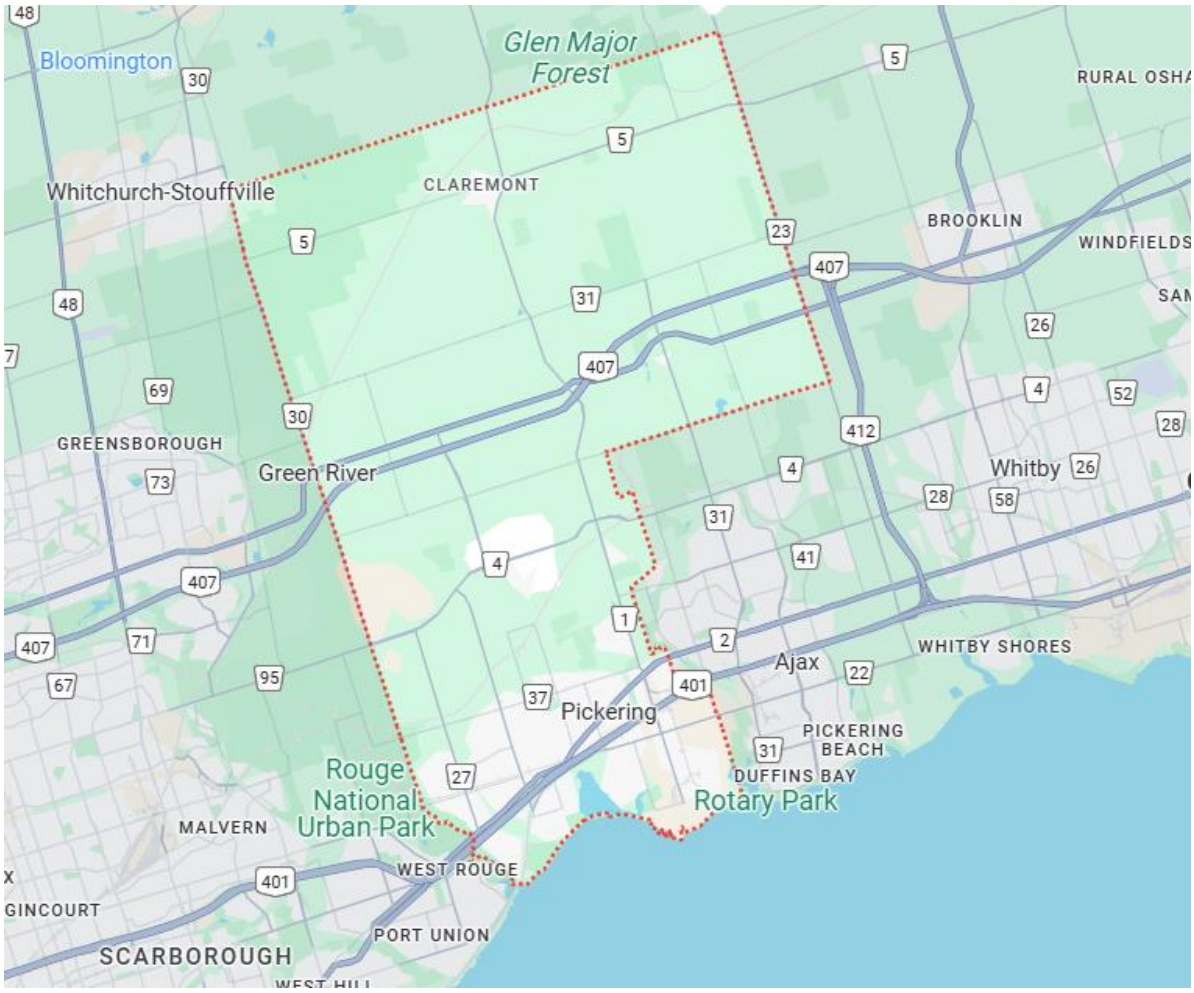


Figure 3: A Google Maps snapshot of the City of Pickering

Pickering, located in Southern Ontario just east of Toronto, is a thriving City in Durham Region with a rich history and diverse community. As the gateway to the eastern Greater Toronto Area (GTA), Pickering is strategically positioned where Toronto, York, and Durham Regions converge. Recognized by The Globe and Mail as one of the most livable cities in Canada for two consecutive years, Pickering continues to grow both economically and residentially. Its award-winning municipality offers an exceptional quality of life for those who live, work, and play here.

The dynamic City Centre has been designated by the Province of Ontario as both an Urban Growth Centre and Mobility Hub, positioning it as a key area for innovation and connectivity. Pickering is fast becoming a vibrant destination for creative learning, memorable events, and unique experiences, all set within a connected and engaged community.

Table 1 provides census data for the City of Pickering and the Province of Ontario, obtained from the 2021 Statistics Canada (StatsCan).

Census Characteristic	City of Pickering	Ontario
Population 2021	99,186	14,223,942
Population Change 2016-2021	8.1%	5.8%
Total Private Dwellings	34,327	5,929,250
Population Density	429.2/km^2	15.9/km^2
Land Area	231.1 km^2	892,411.76 km^2

Table 1 Census data: City of Pickering & the province of Ontario

Pickering's history spans several distinct phases: it was a Township from 1811 to 1973, a Town from 1974 to 2000, and has been a City since 2000. Over the 19th century, small communities along key trade routes like Kingston Road contributed to Pickering’s growth, particularly in industries such as milling and agriculture. In the 20th century, the city experienced rapid urbanization, with suburban growth spreading southward. The establishment of the Pickering Nuclear Generating Station in the 1970s became a major catalyst for economic development, solidifying Pickering’s role as an industrial and energy hub. Significant milestones in the city’s evolution include the creation of Durham Region in 1974 and its designation as a City in 2000.

The population has continued to grow, driven by residential expansion and new developments such as the Seaton community in the 21st century. Modern projects, including high-rise condominiums and the Durham Live entertainment complex, have further shaped the city's identity as both a residential and entertainment destination. Durham Live is a key tourism hub, bringing in visitors from near and far with its vibrant mix of entertainment, dining, and leisure activities.

Today, Pickering remains a blend of suburban and rural landscapes. While the southern part of the City is home to residential neighbourhoods and industrial sectors, the northern areas preserve their rural charm, with historic hamlets such as Claremont, Greenwood, and Whitevale. Pickering hosts a variety of businesses ranging from manufacturing to technology, contributing to its diverse and growing economy. The Pickering Nuclear Generating Station remains a major employer and a key player in the local economy.

The City is well-connected through its transit infrastructure, including the Pickering GO Station and major highways such as 401 and 407, linking it to Toronto and the surrounding region. These transportation networks are essential to their role as a significant regional center.

As Pickering continues to grow, plans for intensified development in the downtown core and the creation of new communities like Seaton are expected to fuel further expansion. Notable projects include new facilities at Durham Live, the development of residential and commercial spaces around key transit hubs, and improvements in transit, such as the planned Bus Rapid Transit (BRT) system. With its rich history, modern developments, and robust infrastructure, Pickering is well-positioned to thrive in the years to come.

2.2 Climate Change

Climate change has significant impacts on both human and natural systems globally, leading to rising temperatures, increased precipitation, droughts, and extreme weather events. Canada's Changing Climate Report (CCCR 2019) highlights that from 1948 to 2016, Canada's average temperature rose by 1.7°C, with Northern Canada warming 2.3°C—twice the global average. If emissions are not reduced, temperatures could rise by up to 6.3°C by 2100. Precipitation in Canada has increased by 20% since 1948 and could rise another 24% by the late 21st century. Some regions, especially in Southern Canada, may face more frequent summer droughts. Extreme weather-related events such as poor air quality from wildfires, extreme precipitation, and extreme temperature shifts are becoming more common.

These changes present significant risks to Canada's economy, society, environment, and infrastructure. Climate-related extremes like droughts, floods, freeze-thaw cycles, wildfires, and heatwaves threaten infrastructure, increasing damage and wear. Municipalities are tasked with safeguarding local economies, citizens, and physical assets from these climate challenges.

2.2.1 Pickering Climate Profile

The City of Pickering is located in proximity to Lake Ontario. The area is expected to experience notable effects of climate change which include higher average annual temperatures, an increase in total annual precipitation, and an increase in the frequency and severity of extreme weather-related events.

In 2020, the Ontario Climate Consortium, in partnership with Durham Region, area municipalities and the five local conservation authorities, published a guidance document titled, Guide to Conducing a Climate Change Analysis at the Local Scale: Lessons Learned from Durham Region (2020) to present downscaled climate projections across Durham Region using an ensemble modelling approach. According to this document the City of Pickering may experience the following trends:

Higher Average Annual Temperature:

- Between the years 1971 and 2000 the annual average temperature was 7.0ºC
- Under a high emissions scenario, the annual average temperatures are projected to increase to 8.5ºC by the year 2040 and about 12.2ºC by 2100.

Increase in Total Annual Precipitation:

- Under a high emissions scenario, Pickering is projected to experience a 12% increase in precipitation by the year 2040 and a 27% increase by 2100.

2.2.2 Impacts of Climate Change on Asset Management

The City of Pickering, like many municipalities across Canada, is facing the increasing impacts of climate change on its infrastructure. Rising temperatures, shifting precipitation patterns, and more frequent extreme weather events pose significant risks to roads, stormwater systems, buildings, natural assets, and municipal services. These changes threaten not only infrastructure longevity but also the City's ability to provide consistent levels of service to residents.

2.2.2.1. Climate Risks to Pickering's Infrastructure

Climate change is expected to intensify existing vulnerabilities across various municipal asset classes. The risks associated with changing climate conditions include:

Transportation & Road Infrastructure

- Increased freeze-thaw cycles may accelerate pavement deterioration, pothole formation, and structural degradation of bridges and culverts.
- More frequent and intense rainfall events can cause localized flooding, erosion, and washouts, particularly in areas with insufficient stormwater drainage capacity.
- Increased temperature fluctuations can cause road surfaces to break down faster, increasing the frequency of resurfacing and maintenance requirements.

Stormwater Management Systems

- Extreme precipitation could overwhelm drainage networks, leading to increased flood risks, basement flooding, and erosion of public and private properties.
- A higher frequency of high-intensity storms places additional stress on culverts, outfalls, and stormwater management systems, necessitating upgrades in capacity.
- Warmer temperatures can lead to higher evaporation rates, reducing water availability in natural stormwater management areas.

Municipal Buildings & Facilities

- Increased cooling demands due to higher summer temperatures may strain HVAC systems, increasing energy costs and the risk of equipment failure.
- Extreme weather events such as storms, heavy snowfall, and ice accumulation could damage municipal structures, increasing repair and maintenance costs.
- Older facilities with insufficient insulation and inefficient heating/cooling systems may require extensive retrofits to meet evolving climate conditions.

Parks, Natural Assets, and Green Spaces

- Urban heat islands may become more pronounced, requiring expanded tree canopy coverage and green infrastructure to mitigate rising temperatures.
- Changes in precipitation patterns can lead to soil degradation, reduced water retention, and increased maintenance needs for recreational spaces.
- Biodiversity loss and ecosystem imbalances may affect tree health, pollination, and overall landscape resilience.

Fleet, Equipment, and Municipal Operations

- Rising fuel costs and new regulations on emissions reduction necessitate a greater shift toward electric and hybrid municipal vehicles, along with the use of alternate fuels such as renewable diesel, which can further reduce the carbon footprint and provide a transitional solution for fleets that may not yet be ready to fully electrify.
- More frequent extreme weather events could disrupt municipal operations, requiring additional emergency response resources.
- Increased mechanical wear due to extreme temperatures and humidity could shorten equipment lifespan and increase maintenance costs.

2.2.2.2. Approach: Integrating Climate Adaptation into Asset Management

To proactively address these climate risks, Pickering is integrating climate resilience considerations into its asset management framework and decision-making, ensuring infrastructure investments align with both sustainability goals and regulatory requirements, including Ontario Regulation 588/17. This approach supports long-term financial sustainability, risk reduction, and enhanced service reliability. This integration will be structured around the following activities:

Climate Risk Assessment & Data Integration

- Utilize historical weather data and future climate projections to assess vulnerabilities in asset classes.
- Conduct climate impact assessments in coordination with provincial and federal agencies. This includes agencies such as:
    - Impact Assessment Agency of Canada – Responsible for federal environmental impact assessments.
    - Environment & Climate Change Canada – Provides climate-related policies, programs, and data.
    - Ontario Provincial Climate Change Impact Assessment – Supports regional climate risk analysis and adaptation planning.
    - The Climate Risk Institute (formerly OCCIA) – Specializes in climate risk and adaptation research.
- Align with risk-based asset management principles to prioritize high-risk infrastructure.

Lifecycle Costing and Climate-Resilient Design

- Evaluate the long-term cost implications of climate-related deterioration.
- Promote the use of climate-adaptive materials (e.g., permeable pavements, high-albedo surfaces such as cool roofs, flood-resistant building materials).
- Enhance the resilience of assets through modifications, upgrades, and alternative design standards. Alternative design standards are emerging to address climate resilience in infrastructure. While some standards have been well-documented and integrated into national and provincial guidelines, others are still undergoing research and validation. Below are key areas where alternative design standards are being explored:
    - High-Albedo Surfaces & Reflective Materials
        - Proven: The use of cool roofs, reflective pavements, and light-colored building materials has been widely studied, with research indicating their effectiveness in reducing the urban heat island effect. Studies by the National Research Council Canada and CMHC provide data on the cooling benefits and energy savings of such materials.
        - Reference: Government of Canada research on cool roofs and reflective pavements (e.g., NRCan studies on urban climate adaptation).
    - Flood-Resistant Infrastructure & Permeable Pavements
        - Proven: Permeable concrete, bio-retention systems, and stormwater management solutions have been implemented in multiple Canadian municipalities to enhance flood resilience.
        - Reference: The Ontario Provincial Climate Change Impact Assessment highlights best practices for integrating permeable infrastructure into urban planning.
    - Alternative Building Materials & Design Life Adjustments
        - Proven: Research has been conducted on mass timber construction, insulated concrete forms (ICFs), and climate-resilient coatings to improve energy efficiency and withstand extreme weather events.
        - Reference: Government of Canada’s National Research Council study on climate-based design life adjustments.
    - Wind and Storm Resilience
        - Under Research: Enhanced building codes for hurricane-rated structures, impact-resistant windows, and aerodynamic roof designs are being tested in response to more frequent extreme weather patterns.
        - Reference: The Canadian Standards Association (CSA) S478 on climate durability of buildings.

Service Level Adjustments and Performance Monitoring

- Define climate-adjusted levels of service (LOS) to guide investment and operational planning.
- Establish performance indicators that reflect climate resilience, including flood management efficiency, road deterioration rates, and energy performance in buildings.
- Implement a climate resilience monitoring framework to track adaptation efforts.

Funding and Partnerships

- Seek funding opportunities through federal and provincial programs, such as the Federation of Canadian Municipalities (FCM) Green Municipal Fund.
- Engage in regional collaboration with neighbouring municipalities to share best practices and cost-effective adaptation strategies.
- Explore public-private partnerships to support innovative climate adaptation projects.

2.2.2.3. Municipal Climate Resilience Initiatives: Lessons for Pickering

Many Canadian municipalities have successfully integrated climate adaptation into their infrastructure planning, providing valuable insights for Pickering. Examples include:

- Toronto’s Green Street Selection Project: Uses GIS mapping to prioritize streets for climate-resilient infrastructure.
- Vancouver’s Raincity Strategy: Implements permeable pavements and stormwater retention features to mitigate flooding risks.
- Fredericton’s Flood Risk Management: Converts municipal parking areas into floodwater detention sites to prevent urban flooding.
- Halton Hills’ Net-Zero Building Initiative: Ensures all new municipal buildings meet net-zero energy standards to enhance sustainability.
- Aurora's Climate Change Adaptation Plan: Assesses and prioritizes infrastructure resilience against climate change by identifying risks and implementing actions like improving flood resilience in stormwater systems, ensuring sufficient cooling capacity in public buildings, and maintaining stormwater management ponds during dry summer conditions. An example for linear engineered assets is evaluating future projected precipitation impacts on the stormwater system and applying lot-level runoff controls to manage localized flooding.
- Whitby’s Climate Emergency Response Plan Phase 1: Focuses on adapting to climate change by addressing key hazards such as flooding and heatwaves. Actions include shifting new development away from projected floodplains, using accurate floodplain mapping to guide zoning decisions, and improving culverts to prevent road flooding. Additionally, building retrofits for at-risk residents aim to enhance safety during heatwaves and reduce energy consumption, while developing public cooling strategies to protect vulnerable groups during extreme heat events.

Pickering is currently finalizing the 2025-2035 Community Climate Adaptation Plan. In addition to that, Pickering can adapt these approaches to its own geographic, economic, and regulatory environment, ensuring local relevance and feasibility.

2.2.2.4. Challenges and Opportunities for Pickering

Challenges

Despite the benefits of climate adaptation, several barriers must be addressed:

- Budget Constraints: Funding major climate adaptation projects requires upfront capital investment.
- Data Gaps: Integrating climate risk data with existing asset condition assessments can be complex.
- Limited Technical Capacity: Many adaptation strategies require specialized expertise, which may necessitate external consultants or new training programs.
- Regulatory Compliance: Adapting to climate change must align with O. Reg. 588/17 and evolving federal/provincial sustainability policies.

Opportunities

By embedding climate resilience into asset management, Pickering can unlock significant long-term benefits:

- Cost Savings: Investing in climate-adaptive infrastructure reduces maintenance costs and minimizes unexpected repairs.
- Improved Service Delivery: Resilient infrastructure enhances reliability and reduces service disruptions.
- Economic Growth: Climate-conscious planning can attract green technology investments and job creation.
- Community Resilience: Public engagement and education can foster stronger community support for sustainability initiatives.

Conclusion

Integrating climate adaptation into Pickering's Asset Management Plan will ensure the City is well-prepared for the impacts of climate change while continuing to provide high-quality municipal services. A structured, data-driven approach will help balance risk, service delivery, and financial sustainability. By implementing best practices, leveraging funding opportunities, and fostering regional collaboration, Pickering can proactively adapt its infrastructure to future climate conditions while ensuring long-term sustainability, economic resilience, and community well-being.

2.3 Asset Management Overview

Municipalities are responsible for managing and maintaining a broad portfolio of infrastructure assets to deliver services to the community. The goal of asset management is to minimize the lifecycle costs of delivering infrastructure services, manage the associated risks, while maximizing the value ratepayers receive from the asset portfolio.

The acquisition of capital assets accounts for only 10-20% of their total cost of ownership. The remaining 80-90% comes from operations and maintenance. This AMP focuses its analysis on the capital costs to maintain, rehabilitate and replace existing municipal infrastructure assets.

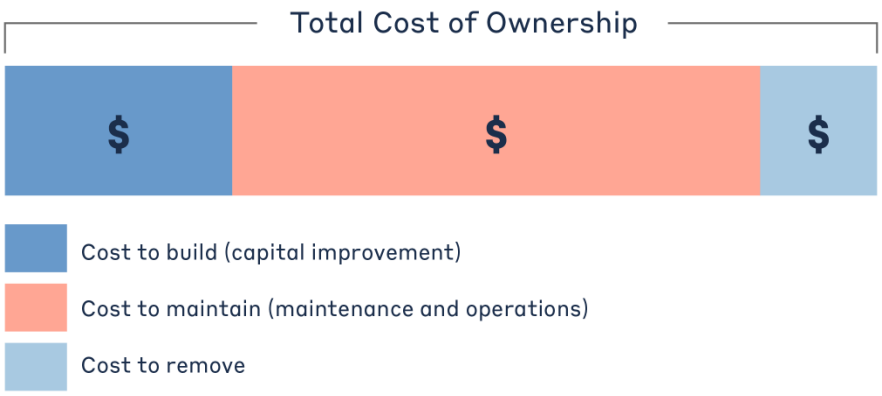


Figure 4 Total Cost of Asset Ownership

These costs can span decades, requiring planning and foresight to ensure financial responsibility is spread equitably across generations. An asset management plan is critical to this planning, and an essential element of a broader asset management program.

2.3.1 Foundational Asset Management Documentation

The industry-standard approach and sequence to developing a practical asset management program begins with a Strategic Plan, followed by an Asset Management Policy and an Asset Management Strategy, concluding with an Asset Management Plan.

This industry standard, defined by the Institute of Asset Management (IAM), emphasizes the alignment between the corporate strategic plan and various asset management documents. The strategic plan has a direct, and cascading impact on asset management planning and reporting.

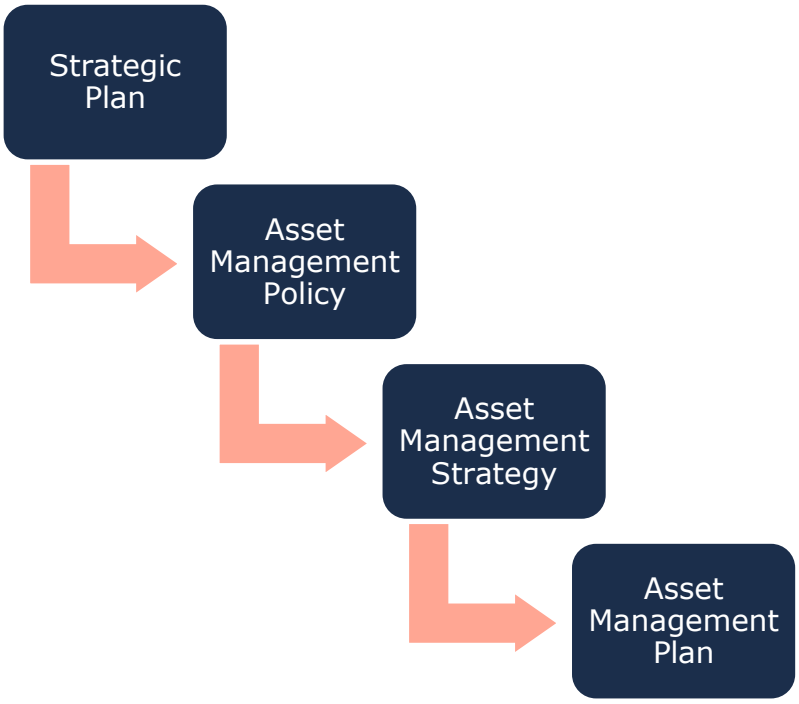


Figure 5 Foundational Asset Management Documents

Corporate Strategic Plan (2024-2028)

Pickering's Corporate Strategic Plan (CSP) serves as a roadmap for the City's growth, development, and governance over the next four years. It is designed to guide decision-making and resource allocation while ensuring alignment with community priorities. The plan was developed through extensive stakeholder engagement, including residents, businesses, and advisory committees.

The CSP is structured around six strategic priorities and a Corporate Key:

- Champion Economic Leadership & Innovation – Supporting business growth, job creation, and infrastructure development.
- Advocate for an Inclusive, Welcoming, Safe & Healthy Community – Enhancing safety, accessibility, and quality of life.
- Advance Innovation & Responsible Planning to Support a Connected, Well-Serviced Community – Investing in sustainable urban planning and infrastructure.
- Lead & Advocate for Environmental Stewardship, Innovation & Resiliency – Addressing climate resilience and sustainability.
- Strengthen Existing & Build New Partnerships – Collaborating with governmental, business, and community stakeholders.
- Foster an Engaged & Informed Community – Improving civic engagement and transparent governance.
- The Corporate Key that underpins all priorities is a commitment to good governance, fiscal responsibility, and customer service excellence.

Connection to Pickering's 2025 Asset Management Plan

The 2025 AMP will play a critical role in advancing several objectives of the CSP by ensuring infrastructure and municipal assets are effectively managed, renewed, and expanded to support Pickering's growth and sustainability goals. Below are key linkages:

1. Infrastructure Investment & Renewal (Supports CSP Priorities 3 & 4)

- The AMP will align with the CSP's goal of responsible planning and sustainable growth, ensuring roads, bridges, sidewalks, and municipal facilities meet current and future needs.
- The plan emphasizes climate resilience, ensuring infrastructure investments considering environmental sustainability.
- Investments in cycling, pedestrian, and transportation networks (as outlined in the Integrated Transportation Master Plan) will be reflected in AMP funding priorities.

2. Fiscal Responsibility & Sustainable Asset Funding (Supports CSP Governance Goals)

- The AMP will provide a long-term financial strategy to ensure Pickering remains fiscally sustainable while meeting infrastructure demands.
- By linking asset renewal to Pickering's strategic budget process, the AMP ensures alignment with the CSP's commitment to transparent decision-making and responsible financial stewardship.

3. Environmental Resilience & Sustainability (Supports CSP Priority 4)

- The AMP will incorporate sustainability objectives, supporting Pickering's climate action and green infrastructure commitments.
- Strategies such as green building standards, sustainable road design, and low-impact stormwater management will be integrated into asset management planning.

4. Community Well-Being & Accessibility (Supports CSP Priority 2)

- The AMP will ensure that infrastructure investments support equitable access to services, including accessible public spaces and inclusive mobility networks.
- Investments in parks, recreation, and municipal facilities will align with CSP's focus on community health and safety.

5. Performance Measurement & Public Engagement (Supports CSP Priority 6)

- The AMP will incorporate progress tracking and reporting mechanisms that align with CSP's annual progress updates.
- The Let's Talk Pickering platform and other engagement tools will ensure the public remains informed and involved in infrastructure decision-making.

Conclusion

The 2025 Asset Management Plan will operationalize the Corporate Strategic Plan's vision by ensuring infrastructure investments are data-driven, financially sustainable, and aligned with Pickering's economic, environmental, and social priorities. By integrating asset renewal strategies with the City's broader strategic framework, the AMP will help Pickering grow responsibly, optimize service delivery, and maintain fiscal sustainability.

Asset Management Policy

An asset management policy represents a statement of the principles guiding the City's approach to asset management activities. It aligns with the organizational strategic plan and provides clear direction to municipal staff on their roles and responsibilities as part of the asset management program.

The City adopted By-law No. 2018-47 "A By-law to Adopt an Asset Management Strategy Policy" on July 23rd, 2018, in accordance with Ontario Regulation 588/17.

The objectives of the policy include:

- Fiscal Responsibility
- Delivery of Services/Programs
- Public Input/Council Direction
- Risk/Impact Mitigation

Asset Management Strategy

The City of Pickering adopted an Asset Management Action Plan in April 2023, which serves as its Asset Management Strategy. This plan translates organizational objectives into asset management objectives and provides a strategic overview of the activities required to achieve them. It outlines planned initiatives and decision-making criteria that support asset management objectives, offering greater detail than the Asset Management Policy. While the policy establishes an overarching framework, the Action Plan guides the City's approach to implementing asset management practices and may be further refined in future updates.

Asset Management Plan

The Asset Management Plan (AMP) presents the outcomes of the City's asset management program and identifies the resource requirements needed to achieve a defined level of service. The AMP typically includes the following content:

- State of Infrastructure
- Asset Management Strategies
- Levels of Service
- Financial Strategies

The AMP is a living document that should be updated regularly as an additional asset and financial data becomes available. This will allow the City to re-evaluate the state of infrastructure and identify how the organization's asset management and financial strategies are progressing.

2.3.2 Key Concepts in Asset Management

Effective asset management integrates several key components, including lifecycle management, risk & criticality, and levels of service. These concepts are applied throughout this asset management plan and are described below in greater detail.

Lifecycle Management Strategies

The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including asset's characteristics, location, utilization, maintenance history and environment. Asset deterioration has a negative effect on the ability of an asset to fulfill its intended function, and may be characterized by increased cost, risk and even service disruption.

To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

There are several field intervention activities that are available to extend the life of an asset. These activities can be generally placed into one of three categories: maintenance, rehabilitation, and replacement. The following table provides a description of each type of activity and the general difference in cost.

Depending on initial lifecycle management strategies, asset performance can be sustained through a combination of maintenance and rehabilitation, but at some point, replacement is required. Understanding what effect these activities will have on the lifecycle of an asset, and their cost, will enable staff to make better recommendations.

Lifecycle Activity	Cost	Typical Associated Risks
Maintenance Activities that prevent defects or deteriorations from occurring	**$**	• Balancing limited resources between planned maintenance and reactive, emergency repairs and interventions. • Diminishing returns are associated with excessive maintenance activities, despite added costs. • The intervention selected may not be optimal and may not extend the useful life as expected, leading to lower payoff and potential premature asset failure.

Lifecycle Activity	Cost	Typical Associated Risks
Rehabilitation/ Renewal Activities that rectify defects or deficiencies that are already present and may be affecting asset performance	**$$$**	• Useful life may not be extended as expected. • May be costlier eventually when assessed against full reconstruction or replacement. • Loss or disruption of service, particularly for underground assets.
Replacement/ Reconstruction Asset end-of-life activities that often involve the complete replacement of assets	**$$$$$**	• Incorrect or unsafe disposal of existing assets. • Costs associated with asset retirement obligations. • Substantial exposure to high inflation and cost overruns. • Replacements may not meet capacity needs for a larger population. • Loss or disruption of service, particularly for underground assets.

Table 2 Lifecycle Management: Typical Lifecycle Interventions

The City's approach to lifecycle management is described within each asset category outlined in this AMP. Staff will continue to evolve and innovate current practices for developing and implementing proactive lifecycle strategies to determine which activities to perform on an asset and when they should be performed to maximize useful life at the lowest total cost of ownership.

Risk & Criticality

Asset risk and criticality are essential building blocks of asset management, integral in prioritizing projects and distributing funds where they are needed most based on a variety of factors. Assets in disrepair may fail to perform their intended function, pose substantial risk to the community, lead to unplanned expenditures, and create liability for the municipality. In addition, some assets are simply more important to the community than others, based on their financial significance, their role in delivering essential services, the impact of their failure on public health and safety, and the extent to which they support a high quality of life for community stakeholders. Failure to properly assess and manage these risks may also expose the municipality to legal liability, particularly if negligence in maintaining critical infrastructure leads to harm or service disruptions.

Risk is a product of two variables: the probability that an asset will fail, and the resulting consequences of that failure event. It can be a qualitative measurement, (i.e., low, medium, high) or quantitative measurement (i.e., 1-5), that can be used to rank assets and projects, identify appropriate lifecycle strategies, optimize short- and long-term budgets, minimize service disruptions, and maintain public health and safety.

Figure 6 Risk Equations

The approach used in this AMP relies on a quantitative measurement of risk associated with each asset. The probability and consequence of failure are each scored from 1 to 5, producing a minimum risk index of 1 for the lowest risk assets, and a maximum risk index of 25 for the highest risk assets.

Probability of Failure

Several factors can help decision-makers estimate the probability or likelihood of an asset's failure, including its condition, age, previous performance history, and exposure to extreme weather events, such as flooding and ice jams—both a growing concern for municipalities in Canada.

Consequence of Failure

Estimating criticality also requires identifying the types of consequences that the organization and community may face from an asset's failure, and the magnitude of those consequences. Consequences of asset failure will vary across the infrastructure portfolio; the failure of some assets may result primarily in high direct financial cost but may pose limited risk to the community. Other assets may have a relatively minor financial value, but any downtime may pose significant health and safety hazards to residents.

Table 3 illustrates the various types of consequences that can be integrated in developing risk and criticality models for each asset category and segments within. We note that these consequences are common, but not exhaustive.

Type of Consequence	Description
Direct Financial	Direct financial consequences are typically measured as the replacement costs of the asset(s) affected by the failure event, including interdependent infrastructure.
Economic	Economic impacts of asset failure may include disruption to local economic activity and commerce, business closures, service disruptions, etc. Whereas direct financial impacts can be seen immediately or estimated within hours or days, economic impacts can take weeks, months or years to emerge, and may persist for even longer.
Socio-political	Socio-political impacts are more difficult to quantify and may include inconvenience to the public and key community stakeholders, adverse media coverage, and reputational damage to the community and the Municipality.
Environmental	Environmental consequences can include pollution, erosion, sedimentation, habitat damage, etc.
Public Health and Safety	Adverse health and safety impacts may include injury or death, damage to property, or impeded access to critical services.
Strategic	These include the effects of an asset's failure on the community's long-term strategic objectives, including economic development, business attraction, etc.
Legal Liability	These include the financial and reputational impact of lawsuits, fines, and compensation claims resulting from asset failure, which could strain municipal resources and hinder the achievement of broader community objectives.

Table 3 Risk Analysis: Types of Consequences of Failure

This AMP includes a preliminary evaluation of asset risk and criticality. Each asset has been assigned a probability of failure score and consequence of failure score

based on available asset data. These risk scores can be used to prioritize maintenance, rehabilitation, and replacement strategies for critical assets.

These models have been built in Citywide for continued review, updates, and refinements. Appendix C – Risk Rating Criteria provides a detailed breakdown of the risk rating criteria, organized by category, used in this AMP.

Levels of Service

A level of service (LOS) is a measure of the services that the City provides to the community and the nature and quality of those services. Within each asset category in this AMP, technical metrics and qualitative descriptions that measure both technical and community levels of service have been established and measured as data is available.

The City measures the level of service provided at two levels: Community Levels of Service, and Technical Levels of Service. This AMP includes those LOS that are required under O. Reg. 588/17 as well as any additional metrics the City wishes to track.

Community Levels of Service

Community levels of service are a simple, plain language description or measure of the service that the community receives. For core asset categories as applicable (Roads, Bridges & Structural Culverts, and Stormwater), the province, through O. Reg. 588/17, has provided qualitative descriptions that are required to be included in this AMP.

Technical Levels of Service

Technical levels of service are a measure of key technical attributes of the service being provided to the community. These include mostly quantitative measures and tend to reflect the impact of the City's asset management strategies on the physical condition of assets or the quality/capacity of the services they provide.

For core asset categories as applicable (Roads, Bridges & Structural Culverts, and Stormwater) the province, through O. Reg. 588/17, has also provided technical metrics that are required to be included in this AMP.

Current and Proposed Levels of Service

This AMP focuses on evaluating the current level of service provided to the community. Existing service levels serve as a benchmark for establishing realistic and achievable service targets over the next 10 years, in compliance with O.Reg. 588/17.

The proposed levels of service are designed to balance community expectations, financial capacity, regulatory requirements, corporate goals, and long-term sustainability. To support the development of the Levels of Service Framework, a comprehensive review of strategic documents was conducted. Key documents provided by the City of Pickering include:

- Recreation & Parks Master Plan (2017)
- Recreation and Parks Ten Year Plan (2024)
- Integrated Transportation Master Plan (2021)
- Asset Management Plan (2021)
- IT Capability Assessment (2024)
- Pickering Public Library Facilities Plan (2023 Update)
- Facilities Renewal Study (2024)
- Corporate Strategic Plan (2024)

Levels of Service Framework

The Levels of Service Framework is a structured approach designed to define, assess, and prioritize municipal service expectations. It ensures alignment with the City's strategic objectives, operational capacity, and community needs.

1. Strategic Alignment

The framework is grounded in key strategic plans that outline infrastructure priorities, service expectations, and long-term sustainability goals.

2. Defining Levels of Service

A structured methodology identifies service areas requiring improvement and establishes clear distinctions between:

- Acceptable levels of service (baseline requirements)
- Excellent levels of service (enhanced performance targets)

3. Levels of Service Reporting

To ensure accountability and transparency, a reporting structure is developed that defines:

- Responsible departments for service tracking
- Reporting methodology for performance measurement
- Reporting frequency to monitor trends over time

4. Impact-Based Prioritization

Service areas are prioritized based on the risk of failing to meet acceptable standards. The framework evaluates five key impact areas:

- Environmental (e.g., erosion control, flood prevention)
- Operational (e.g., service reliability, efficiency)
- Health & Safety (e.g., emergency access, road safety)
- Financial (e.g., maintenance costs, capital planning)
- Community Satisfaction (e.g., accessibility, public expectations)

5. Levels of Service Treatment Options

A structured process is applied to evaluate and implement service improvements:

- Baseline Analysis – Assessing current service levels
- Risk Assessment – Identifying critical service gaps
- Scenario Analysis – Projecting potential service outcomes
- Implementation Planning – Developing cost-effective solutions

6. Public Engagement & Community Feedback

The Community Levels of Service Survey (October–November 2024) collects feedback on service priorities, satisfaction levels, and willingness to support improvements. This public engagement initiative ensures that municipal decisions align with community expectations and regulatory requirements, including a meeting with the Accessibility Advisory Committee to gather input on accessibility-related service levels.

7. Integration with Asset Management Planning

The framework supports long-term infrastructure investment by balancing cost, risk, and performance, ensuring sustainable service delivery in compliance with O.Reg. 588/17.

This structured approach enables the City of Pickering to evaluate, prioritize, and enhance service levels effectively, promoting transparency, efficiency, and alignment with community needs.

2.4 Scope & Methodology

2.4.1 Asset Categories for this AMP

This asset management plan for the City of Pickering is produced in compliance with O. Reg. 588/17. The July 2025 deadline under the regulation—the third of three AMPs—requires analysis of core and non-core asset categories.

The AMP summarizes the state of the infrastructure for the City's asset portfolio, establishes proposed levels of service and the associated technical and customer-oriented key metrics, outlines lifecycle strategies for optimal asset management and performance, and provides financial strategies to reach sustainability for the asset categories listed below.

Figure 7 Tax Funded Asset Categories

2.4.2 Data Effective Date

It is important to note that this plan is based on data as of **January 31, 2025**; therefore, it represents a snapshot in time using the best available processes, data, and information at the Municipality. Strategic asset management planning is an ongoing and dynamic process that requires continuous data updates and dedicated data management resources.

2.4.3 Deriving Replacement Costs

There are a range of methods to determine the replacement cost of an asset, and some are more accurate and reliable than others. This AMP relies on two methodologies:

User-Defined Cost and Cost Per Unit

Based on costs provided by municipal staff which could include average costs from recent contracts; data from engineering reports and assessments; staff estimates based on knowledge and experience.

Cost Inflation / CPI Tables

Historical costs of the assets are inflated based on Consumer Price Index or Non-Residential Building Construction Price Index.

User-defined costs based on reliable sources are a reasonably accurate and reliable way to determine asset replacement costs. Cost inflation is typically used in the absence of reliable replacement cost data. It is a reliable method for recently purchased and/or constructed assets where the total cost is reflective of the actual costs that the City incurred. As assets age, and new products and technologies become available, cost inflation becomes a less reliable method.

2.4.4 Estimated Useful Life & Service Life Remaining

The estimated useful life (EUL) of an asset refers to the total period during which the City expects the asset to be available for use and remain in service before requiring replacement or disposal. It represents the asset's lifespan based on industry standards, historical data, and municipal expertise. In contrast, the service life remaining (SLR) indicates how much of the EUL is left at a given point in time, calculated primarily based on the asset's age. However, when additional data is available, factors such as condition assessments and actual usage patterns can be incorporated to refine the estimate, providing a more accurate forecast of when the asset may require replacement. This allows for a proactive approach to asset management, ensuring timely interventions and optimal resource allocation. The SLR is calculated as follows:

Figure 8 Service Life Remaining Calculation

2.4.5 Reinvestment Rate

As assets age and deteriorate, they require additional investment to maintain a state of good repair. The reinvestment of capital funds, through asset renewal or replacement, is necessary to sustain an adequate level of service. The reinvestment rate is a measurement of available or required funding relative to the total replacement cost.

The actual reinvestment rate represents the percentage of the asset portfolio's total replacement cost that the City is currently investing in renewal or replacement on an annual basis. The target reinvestment rate reflects the percentage that should

be invested each year to ensure assets are maintained at an appropriate condition level, considering lifecycle needs and long-term sustainability.

By comparing the actual vs. target reinvestment rate, the City can determine the extent of any existing funding gap and assess whether current investment levels are sufficient to prevent infrastructure deficits. The reinvestment rate is calculated as follows:

Figure 9 Target Reinvestment Rate Calculation

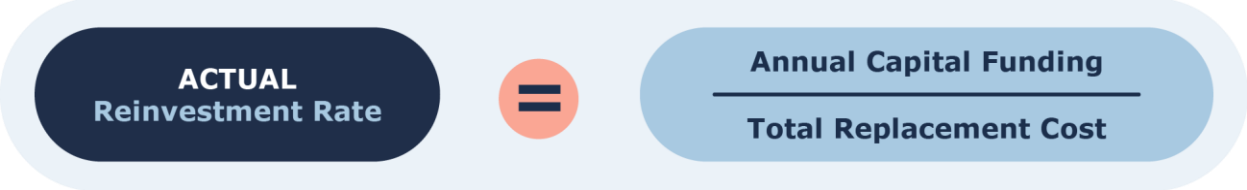


Figure 10 Actual Reinvestment Rate Calculation

2.4.6 Deriving Asset Condition

An incomplete or limited understanding of asset conditions can mislead long-term planning and decision-making. Accurate and reliable condition data prevents costly rehabilitation or replacement, whether premature or delayed, and ensures that lifecycle activities occur at the right time to maximize asset value and useful life.

A condition assessment rating system provides a standardized descriptive framework that allows comparative benchmarking across the City's asset portfolio. The table below outlines the condition rating system used in this AMP to determine asset condition. This rating system is aligned with the Canadian Core Public Infrastructure Survey which is used to develop the Canadian Infrastructure Report Card. When assessed condition data is not available, service life remaining is used to approximate asset condition.

The analysis in this AMP is based on assessed condition data only as available. In the absence of assessed condition data, asset age is used as a proxy to determine asset condition.

Condition	Description	Criteria	Service Life Remaining (%)
Very Good	Fit for the future	Well-maintained, good condition, new or recently rehabilitated	80-100
Good	Adequate for now	Acceptable, generally approaching mid-stage of expected service life	60-80
Fair	Requires attention	Signs of deterioration, some elements exhibit significant deficiencies	40-60
Poor	Increasing potential of affecting service	Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration	20-40
Very Poor	Unfit for sustained service	Near or beyond expected service life, widespread signs of advanced deterioration, some assets may be unusable	0-20

Table 4 Standard Condition Rating Scale

Condition vs. Suitability

It is important to note that condition is only one aspect of determining an asset's suitability to providing the service intended. Other factors, such as capacity, should be considered on a category level.

For example, the Town Hall Office Facility may be in good condition with sufficient service life remaining, but it only has office space for 20 employees. If the municipality requires office space for 30 employees, solutions should be considered which may include replacement amongst other alternatives such as secondary office space, remote work options, etc. As these considerations are nuanced for the specific asset, suitability factors may not be directly addressed as part of this Asset Management Plan.

2.5 Ontario Regulation 588/17

As part of the Infrastructure for Jobs and Prosperity Act, 2015, the Ontario government introduced Regulation 588/17 - Asset Management Planning for

Municipal Infrastructure (O. Reg 588/17)[1]. Along with creating better performing organizations, more livable and sustainable communities, the regulation is a key, mandated driver of asset management planning and reporting. It places substantial emphasis on current and proposed levels of service and the lifecycle costs incurred in delivering them.

Figure 11 below outlines key reporting requirements under O. Reg 588/17 and the associated timelines.

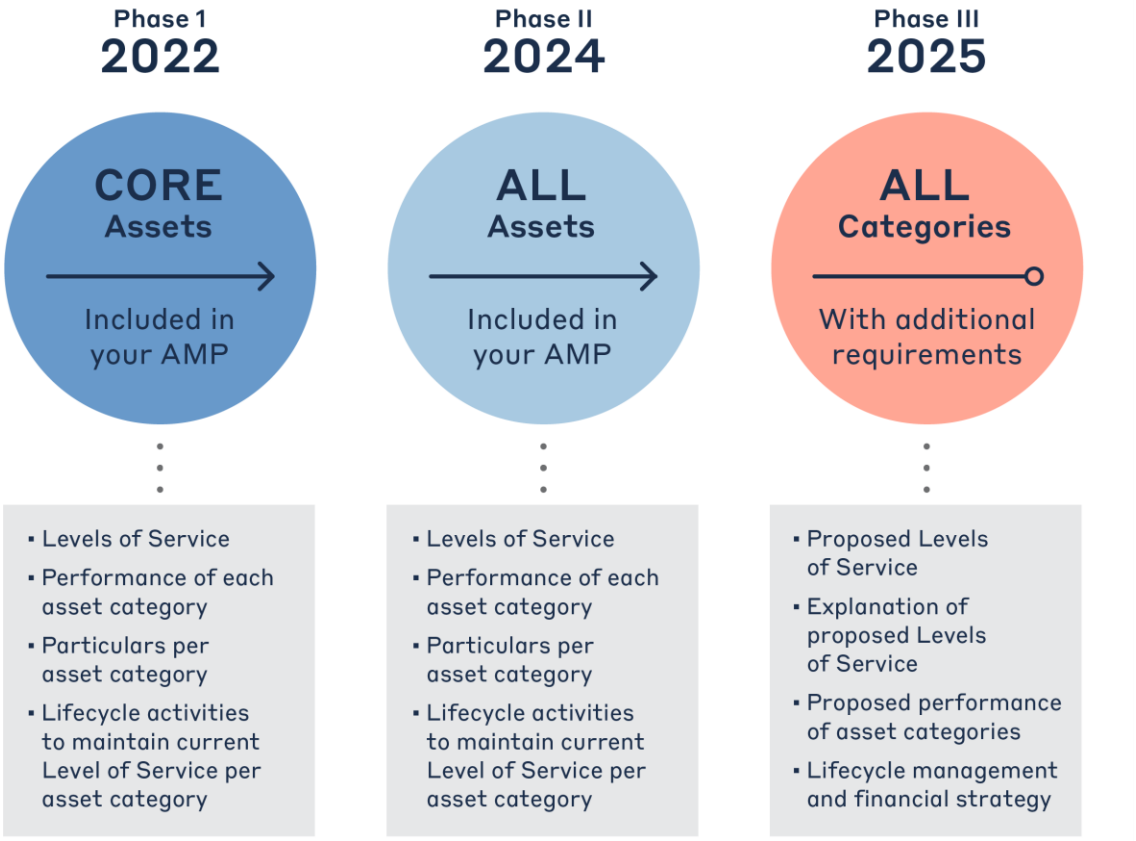


Figure 11 O. Reg. 588/17 Requirements and Reporting Deadlines

2.5.1 O. Reg. 588/17 Compliance Review

Ontario Regulation 588/17 - Asset Management Planning for Municipal Infrastructure establishes mandatory requirements for municipalities to develop and maintain asset management plans that align with regulatory timelines. The regulation emphasizes the importance of evaluating and documenting both current

[1] O. Reg. 588/17: Asset Management Planning for Municipal Infrastructure https://www.ontario.ca/laws/regulation/170588

and proposed levels of service while ensuring that municipalities adopt long-term lifecycle and financial strategies to support infrastructure sustainability.

The City of Pickering's 2025 Asset Management Plan has been prepared in full compliance with the July 1, 2025, regulatory deadline, ensuring that all required components are included. This section provides an overview of compliance against the key regulatory requirements.

Portfolio Overview – State of the Infrastructure

The state of the infrastructure (SOTI) analysis in this AMP includes:

- A detailed inventory of core and non-core asset categories.
- Condition assessment data and, where unavailable, age-based estimates as a proxy.
- Replacement cost estimates using the latest available data.
- Asset hierarchy and classification structures to support strategic decision-making.

This ensures compliance with O. Reg. 588/17's requirements for asset inventory documentation.

Current & Proposed Levels of Service

The AMP evaluates current levels of service (LOS) across all asset categories, measuring both:

- Community Levels of Service (CLOS): Qualitative descriptions of how infrastructure assets contribute to service delivery.
- Technical Levels of Service (TLOS): Quantitative metrics such as asset condition, reinvestment rates, and regulatory compliance.

For core assets, including roads, bridges, structural culverts, and stormwater infrastructure, the AMP provides both regulatory-mandated technical metrics and additional performance indicators tailored to Pickering's needs.

The proposed levels of service reflect a balance between:

- Community expectations and feedback from public engagement.
- Financial capacity and sustainable funding strategies.
- Risk assessments and long-term infrastructure planning.

This meets O. Reg. 588/17's requirement for municipalities to establish target service levels for the next 10 years and outline a path to achieving them.

Lifecycle Management Strategies

The AMP outlines asset lifecycle strategies to extend asset service life and optimize costs. This includes:

- Preventive maintenance strategies for key assets.
- Rehabilitation and renewal schedules based on asset deterioration models.
- Integration of condition assessment data into decision-making.

By documenting these lifecycle strategies, the City ensures compliance with the requirement to analyze and optimize asset lifecycle costs.

Financial Strategy & Sustainable Funding

The financial strategy evaluates:

- The total annual capital reinvestment required ($61.7M). Table 38 provides a detailed breakdown of the annual capital reinvestment required for each asset category.
- The current reinvestment rate (1.56%), which highlights an existing funding gap.
- Funding strategies to close the gap and ensure long-term sustainability.

Pickering's AMP includes a structured approach to financial planning, ensuring that funding needs align with service expectations. This satisfies the requirement to establish a financial strategy that supports infrastructure sustainability.

Risk & Climate Change Considerations

The AMP integrates risk-based asset management by:

- Conducting a risk assessment that prioritizes critical assets.
- Identifying climate-related risks (e.g., flood resilience, extreme weather events).
- Recommending adaptation strategies to mitigate infrastructure vulnerabilities.

This aligns with the requirement under O. Reg. 588/17 to consider risk and climate change impacts in asset planning.

The City of Pickering's 2025 AMP has been developed in accordance with O. Reg. 588/17 requirements. It provides a comprehensive evaluation of infrastructure conditions, proposed levels of service, lifecycle strategies, financial planning, and risk considerations. Through this plan, Pickering ensures compliance while adopting best practices for asset management and long-term sustainability.

3. Portfolio Overview – State of the Infrastructure

The state of the infrastructure (SOTI) summarizes the inventory, condition, age profiles, and other key performance indicators for the City's infrastructure portfolio. These details are presented for all core and non-core asset categories.

3.1 Asset Hierarchy & Data Classification

Asset hierarchy explains the relationship between individual assets and their components, and a wider, more expansive network and system. How assets are grouped in a hierarchy structure can impact how data is interpreted. Assets were structured to support meaningful, efficient reporting and analysis. Key category details are summarized at asset segment level.

Figure 12 Asset Hierarchy and Data Classification

3.2 Portfolio Overview

3.2.1 Total Replacement Cost of Asset Portfolio

The six asset categories analyzed in this Asset Management Plan have a total current replacement cost of $2.1 billion. This estimate was calculated using user-defined costing, as well as unit costs derived from the most recent projects. This estimate reflects replacement of historical assets with like-for-like assets available for procurement today. Figure 13 illustrates the replacement cost of each asset category; at 55% of the total portfolio, the road corridor forms the largest share of the City's asset portfolio, followed by the stormwater system at 18%.

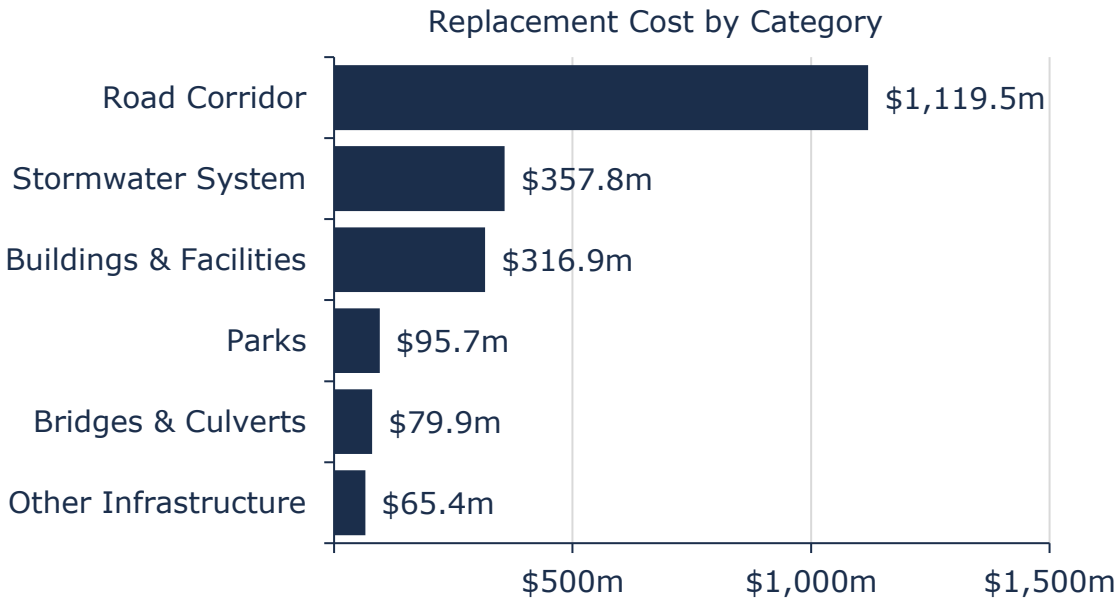


Figure 13 Current Replacement Cost by Asset Category

3.2.2 Target vs. Actual Reinvestment Rate

The graph below depicts funding gaps by comparing the target to the current reinvestment rate. To meet the existing long-term capital requirements, the City requires an annual capital investment of $61.7 million, for a target portfolio reinvestment rate of 3.03%. Currently, the annual investment from sustainable revenue sources is $31.8 million, for a current portfolio reinvestment rate of 1.56%. Target and current re-investment rates by asset category are detailed below.

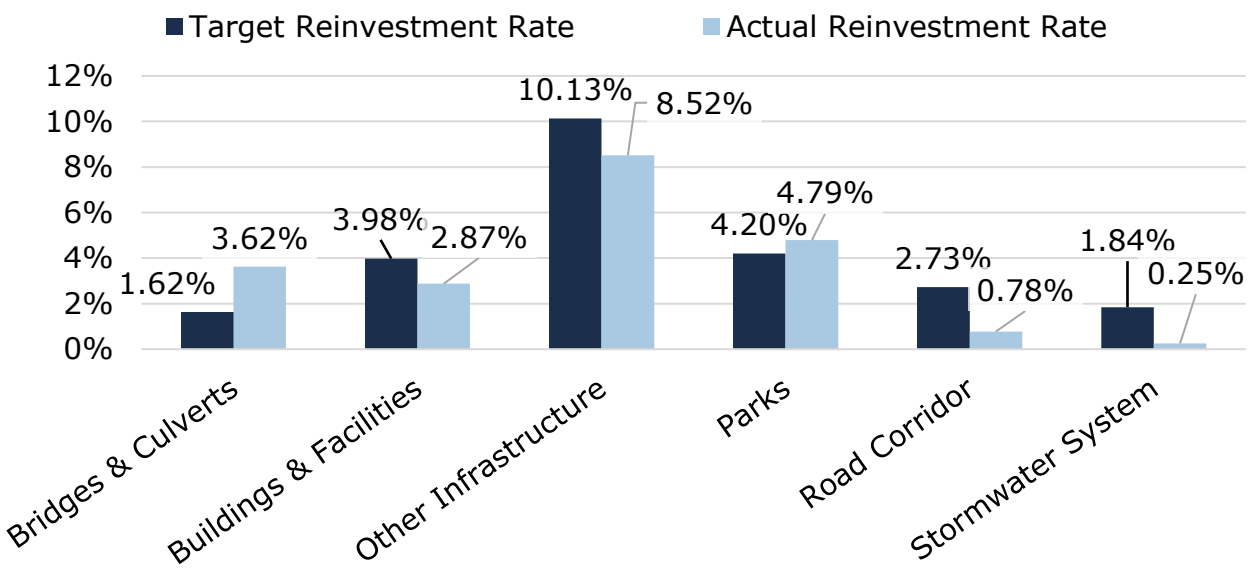


Figure 14 Current Vs. Target Reinvestment Rate

3.2.3 Condition of Asset Portfolio

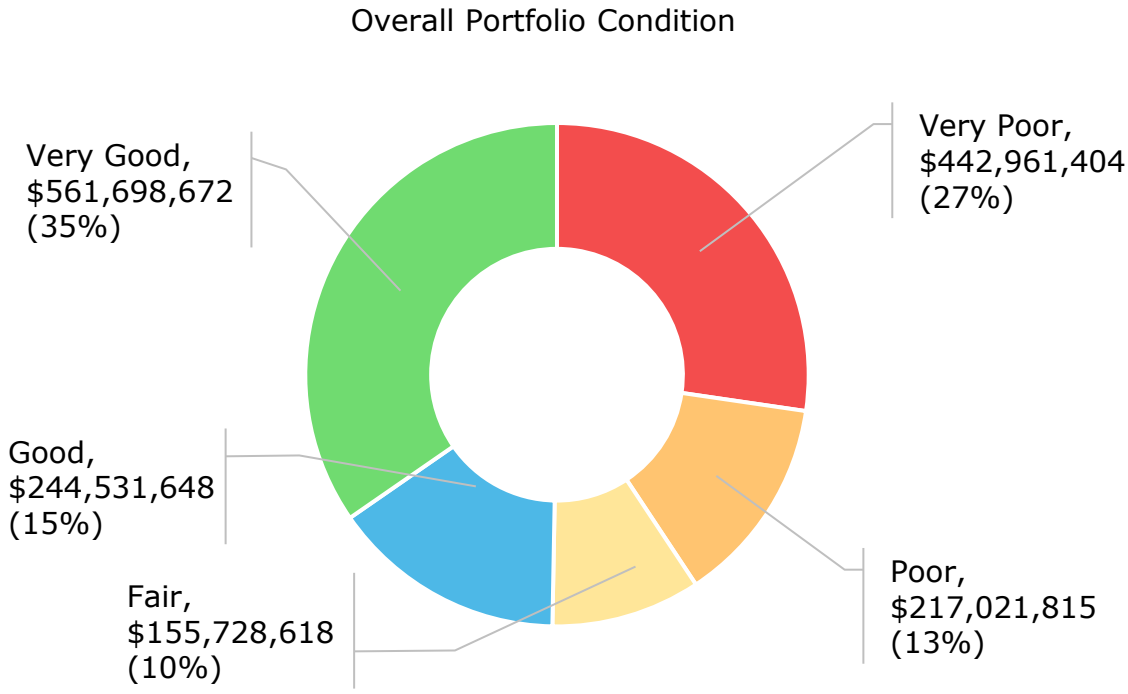


Figure 15 Asset Condition: Portfolio Overview[2]

[2] This graph excludes Buildings & Facilities and Parks assets, which are assessed using the Facilities Condition Index (FCI) and Parks Condition Index (Parks CI), respectively.

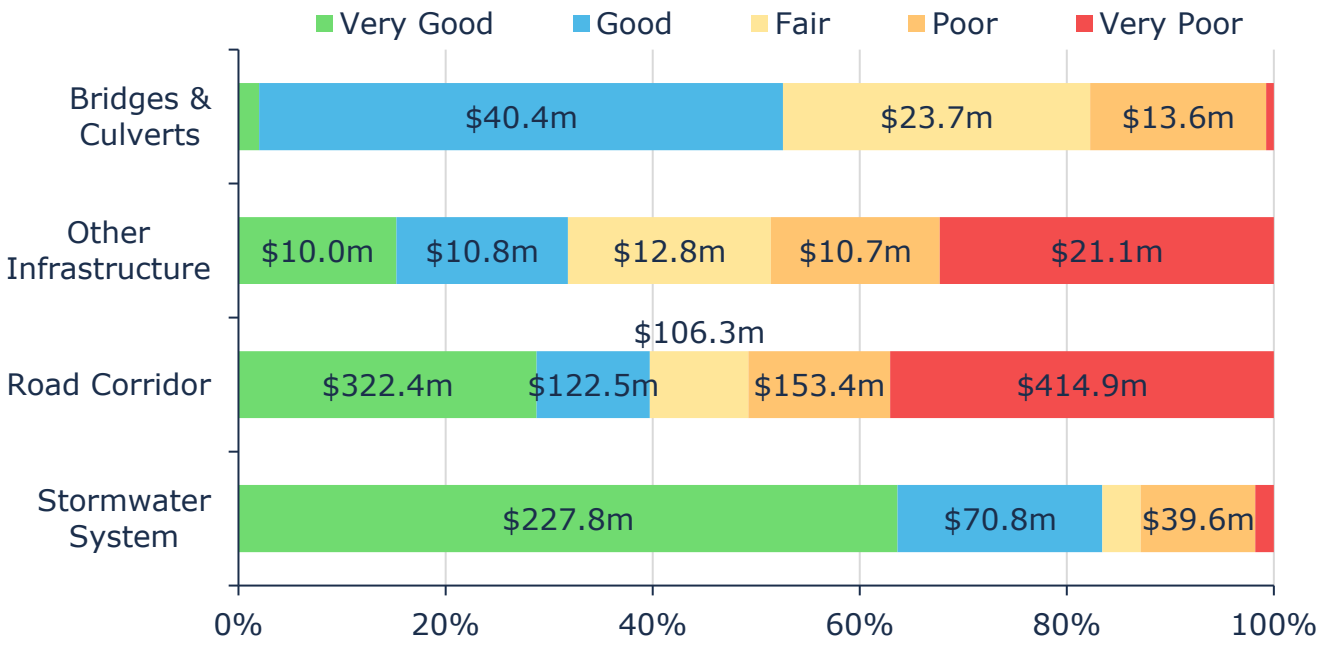


Figure 16 Asset Condition by Asset Category

Figure 15 and Figure 16 summarize asset condition at the portfolio and category levels, respectively. Based on both assessed conditions and age-based analysis, 60% of the City's infrastructure portfolio is in fair or better condition, with the remaining 40% in poor or very poor condition. Typically, assets in poor or worse condition may require replacement or major rehabilitation in the immediate or short-term. Targeted condition assessments may help further refine the list of assets that may be candidates for immediate intervention, including potential replacement or reconstruction.

Similarly, assets in fair condition should be monitored for disrepair over the medium term. Keeping assets in fair or better condition is typically more cost-effective than addressing assets needs when they enter the latter stages of their lifecycle or decline to a lower condition rating, e.g., poor, or worse.

Condition data was available for the majority of the asset categories, except other infrastructure assets. For other infrastructure assets, age was used as an approximation of condition for most of these assets. Age-based condition estimations can skew data and lead to potential under- or overstatement of asset needs.

Source of Condition Data

This AMP relies on assessed condition for 71% of assets, based on and weighted by replacement cost. For the remaining assets, age is used as an approximation of condition. Assessed condition data is invaluable in asset management planning as it

reflects the true condition of the asset and its ability to perform its functions. The table below identifies the source of condition data used throughout this AMP.

Asset Category	Asset Segment	Asset Sub-segment	% of Assets with Assessed Condition	Source of Condition Data
Road Corridor	Roads	Arterial	62% Assessed, 38% Age-based	R.J. Burnside & Associates Limited - 2016
Road Corridor	Roads	Collector	80% Assessed, 20% Age-based	R.J. Burnside & Associates Limited - 2016
Road Corridor	Roads	Local	89% Assessed, 11% Age-based	R.J. Burnside & Associates Limited - 2016
Road Corridor	Roadside Appurtenances	Broadband	0% Assessed	100% Age-based
Road Corridor	Roadside Appurtenances	Guide Rails	0% Assessed	100% Age-based
Road Corridor	Roadside Appurtenances	Retaining Walls	0% Assessed	100% Age-based
Road Corridor	Sidewalks	Sidewalks	0% Assessed[3]	100% Age-based
Road Corridor	Street Lights	Head Luminaires	83% Assessed, 17% Age-based	Staff Assessments
Road Corridor	Street Lights	Poles & Assemblies	93% Assessed, 7% Age-based	Staff Assessments

[3] Staff evaluate the structural integrity of sidewalks—including cracking, spalling, and broken pieces—as well as safety concerns such as elevation differences; however, no official condition score is currently assigned.

Asset Category	Asset Segment	Asset Sub-segment	% of Assets with Assessed Condition	Source of Condition Data
Road Corridor	Traffic & Pedestrian Signals	Controllers	86% Assessed, 14% Age-based	Staff Assessments
Road Corridor	Traffic & Pedestrian Signals	Infrastructure	88% Assessed, 12% Age-based	Staff Assessments
Stormwater System	Drainage Channels	Drainage Channels	0% Assessed	100% Age-based
Stormwater System	Storm Sewers	Catch Basin and Lead	88% Assessed, 12% Age-based	Staff Assessments
Stormwater System	Storm Sewers	Clean Water Collectors[4]	0% Assessed	100% Age-based
Stormwater System	Storm Sewers	Inlet/Outlet Structures	0% Assessed	100% Age-based
Stormwater System	Storm Sewers	Oil Grit Separators	0% Assessed	100% Age-based
Stormwater System	Storm Sewers	Service Connections	93% Assessed, 7% Age-based	Staff Assessments
Stormwater System	Storm Sewers	Storm Sewer Mains	0% Assessed	100% Age-based
Stormwater System	Stormwater Ponds	Dry Ponds	0% Assessed	100% Age-based
Stormwater System	Stormwater Ponds	Wet Ponds	64% Assessed, 36% Age-based	Staff Assessments

[4] The 2020 Stormwater Management Facilities Asset Management Plan assesses 12 wet ponds and 6 dry ponds. At the time of the assessment, the City owned 14 wet ponds; however, two ponds were recently assumed and were not included in the evaluation.

Asset Category	Asset Segment	Asset Sub-segment	% of Assets with Assessed Condition	Source of Condition Data
Bridges & Structural Culverts	Bridges	Bridges	100% Assessed	2024 OSIM Inspections
Bridges & Structural Culverts	Structural Culverts	Structural Culverts	99% Assessed	2024 OSIM Inspections
Buildings & Facilities	Civic Complex	Civic Complex	100% Assessed	VFA Database & Facilities Condition Index (FCIs)
Buildings & Facilities	Community & Cultural Buildings	Community & Cultural Buildings	100% Assessed	VFA Database & Facilities Condition Index (FCIs)
Buildings & Facilities	Fire Services	Fire Services	100% Assessed	VFA Database & Facilities Condition Index (FCIs)
Buildings & Facilities	Operations Centre	Operations Centre	100% Assessed	VFA Database & Facilities Condition Index (FCIs)
Buildings & Facilities	Recreation, Pools & Arenas	Recreation, Pools & Arenas	100% Assessed	VFA Database & Facilities Condition Index (FCIs)
Parks	Active Recreation Facilities	Playground Equipment	100% Assessed	VFA Database & Parks Condition Index (Parks CIs)
Parks	Active Recreation Facilities	Sport Playing Surfaces	100% Assessed	VFA Database & Parks Condition Index (Parks CIs)
Parks	Amenities, Furniture & Utilities	Buildings	100% Assessed	VFA Database & Parks Condition Index (Parks CIs)

Asset Category	Asset Segment	Asset Sub-segment	% of Assets with Assessed Condition	Source of Condition Data
Parks	Amenities, Furniture & Utilities	Electrical Lighting	100% Assessed	VFA Database & Parks Condition Index (Parks CIs)
Parks	Amenities, Furniture & Utilities	Site Furniture	100% Assessed	VFA Database & Parks Condition Index (Parks CIs)
Parks	Amenities, Furniture & Utilities	Site Structures	88% Assessed	VFA Database & Parks Condition Index (Parks CIs)
Parks	Amenities, Furniture & Utilities	Subsurface Infrastructure	100% Assessed	VFA Database & Parks Condition Index (Parks CIs)
Parks	Amenities, Furniture & Utilities	Waterfront Infrastructure	100% Assessed	VFA Database & Parks Condition Index (Parks CIs)
Parks	Vehicular & Pedestrian Networks	Parking Lots & Internal Roads	100% Assessed	VFA Database & Parks Condition Index (Parks CIs)
Parks	Vehicular & Pedestrian Networks	Pedestrian Corridors	100% Assessed	VFA Database & Parks Condition Index (Parks CIs)
Other Infrastructure	Furniture & Fixtures	Furniture & Fixtures	0% Assessed	100% Age-based
Other Infrastructure	Information Technology	Information Technology	0% Assessed	100% Age-based
Other Infrastructure	Library Collection Materials	Library Collection Materials	0% Assessed	100% Age-based
Other Infrastructure	Machinery & Equipment	Major	0% Assessed	100% Age-based

Asset Category	Asset Segment	Asset Sub-segment	% of Assets with Assessed Condition	Source of Condition Data
Other Infrastructure	Machinery & Equipment	Minor	0% Assessed	100% Age-based
Other Infrastructure	Vehicles	Fire Vehicles	0% Assessed	100% Age-based
Other Infrastructure	Vehicles	Vehicles	0% Assessed	100% Age-based

Table 5: Source of Condition Data

3.2.4 Risk Matrix

Using the risk equation and preliminary risk models, Figure 17 shows how assets across the different asset categories are stratified within a risk matrix.

1 - 4 Very Low	5 - 7 Low	8 - 9 Moderate	10 - 14 High	15 - 25 Very High
$499,352,463 (31%)	$246,076,681 (15%)	$138,979,061 (9%)	$478,141,251 (29%)	$259,924,669 (16%)

Figure 17 Risk Matrix: All Assets

The analysis shows that based on current risk models, approximately 16% of the City's assets, with a current replacement cost of approximately $259 million, carry a risk rating of 15 or higher (red) out of 25. Assets in this group may have a high probability of failure based on available condition data and age-based estimates and were considered to be most essential to the city.

As new asset attribute information and condition assessment data are integrated with the asset register, asset risk ratings will evolve, resulting in a redistribution of assets within the risk matrix. Staff should also continue to calibrate risk models.

We caution that since risk ratings rely on many factors beyond an asset's physical condition or age, assets in a state of disrepair can sometimes be classified as low risk, despite their poor condition rating. In such cases, although the probability of failure for these assets may be high, their consequence of failure ratings was determined to be low based on the attributes used and the data available.

Similarly, assets with very high condition ratings can receive a moderate to high-risk rating despite a low probability of failure. These assets may be deemed as highly critical to the City based on their costs, economic importance, social

significance, and other factors. Continued calibration of an asset's criticality and regular data updates are needed to ensure these models more accurately reflect an asset's actual risk profile.

3.2.5 Forecasted Capital Requirements

Aging infrastructure assets require ongoing maintenance, rehabilitation, and eventual replacement. Figure 18 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements across all asset categories analyzed in this AMP over an 84-year time horizon. On average, approximately $61.7 million is required annually to remain current with capital replacement needs for the City's asset portfolio. This benchmark, represented by the red dotted line, serves as a guide for setting annual capital expenditure targets or allocating funds to reserves to prevent deferred maintenance and ensure timely asset replacement. While actual spending may fluctuate significantly due to varying infrastructure renewal cycles, this figure provides a reference point for sustainable financial planning. The forecasted capital requirements show periods of heightened investment needs, particularly in 2025-2029 ($360.5 million), 2055-2059 ($423.6 million), 2060-2064 ($417.7 million) and 2095-2099 ($416.9 million). Road corridors and stormwater systems account for the majority of capital expenditures, with other infrastructure categories contributing smaller portions. The analysis relies on asset age and available condition data to project future needs, highlighting the importance of proactive asset management strategies to smooth funding requirements and prevent financial strain during peak investment periods.

The chart also highlights a backlog of approximately $85.9 million[5], representing assets that have exceeded their estimated useful life but remain in service. While not all of these assets necessarily require immediate replacement, their continued use underscores the importance of targeted and consistent condition assessments. Expanding these assessments will help differentiate between assets in critical condition and those that can remain operational with maintenance or rehabilitation. A proactive approach incorporating risk frameworks, lifecycle strategies, and levels of service targets will allow for more effective prioritization of projects and refinement of both backlog and long-term capital needs. Additionally, improved asset segmentation, particularly in complex asset categories such as buildings and facilities, will enhance forecasting accuracy and support data-driven investment decisions.

[5] Bridges were not included in the backlog total because many of the structures with limited remaining useful life are scheduled for future rehabilitation or maintenance under the OSIM program. However, these assets effectively represent immediate needs and should be closely monitored to ensure planned interventions proceed as scheduled.

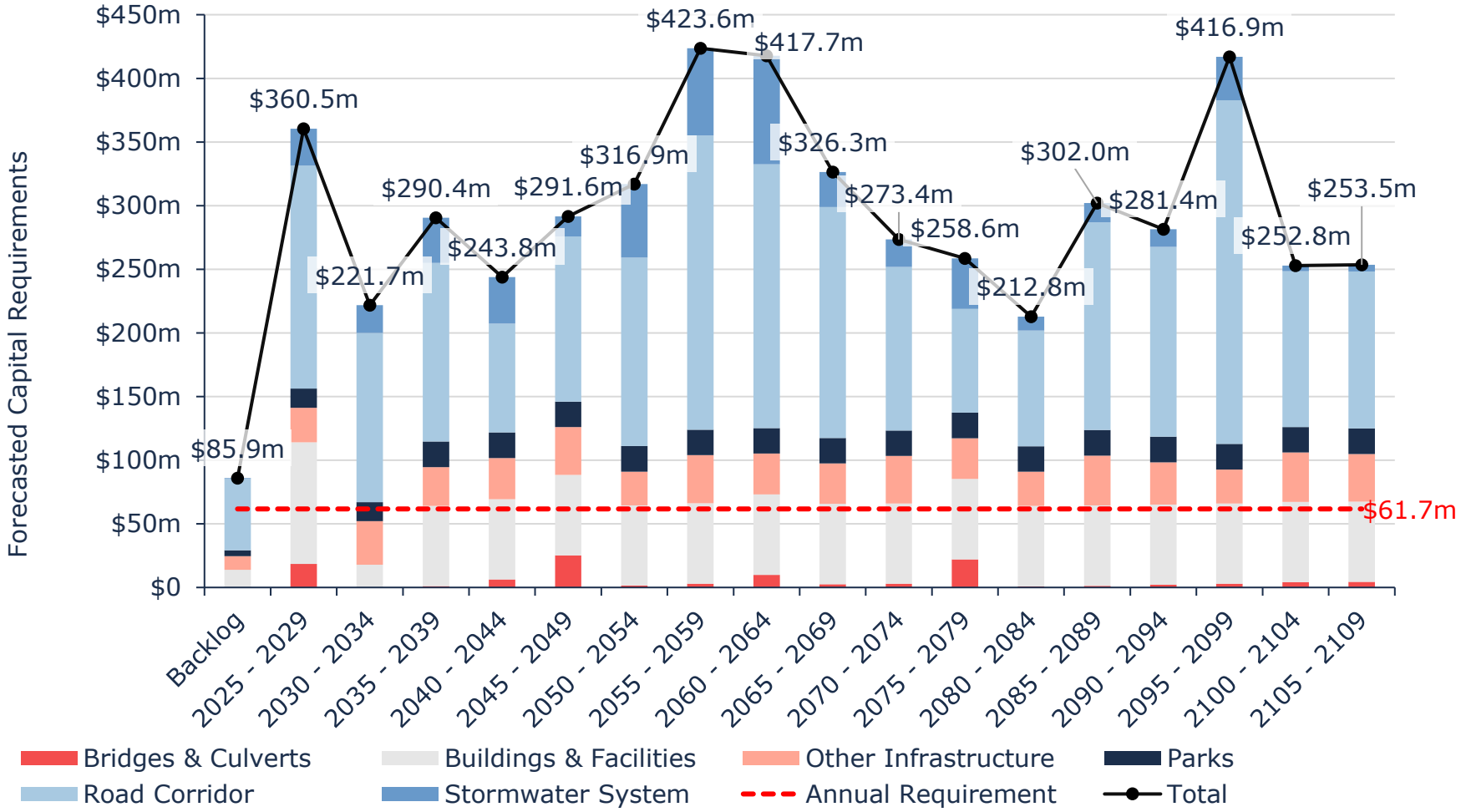


Figure 18 Capital Replacement Needs: Portfolio Overview 2025-2109[6].

[6] This data is based solely on the current assets and does not account for future growth, upgrades, or the disposal of assets without replacement.

Core Assets

4. Road Corridor

The road corridor assets are critical components of the provision of safe and efficient transportation services and represent the highest value asset category in the City's asset portfolio. It includes all municipally owned and maintained roadways in addition to supporting roadside infrastructure including sidewalks, multi-use paths, streetlights, traffic signals, guiderails, and retaining walls.

The Operations Department provides roadway operational maintenance including patching, grading, sweeping, ditching as well as winter control activities such as sanding, salting, and plowing.

Engineering Services Department is responsible for the design and construction of major roadway maintenance and rehabilitation activities such as crack seal, asphalt resurfacing, curb and sidewalk repair/replacement, and reconstruction. They are also responsible for the maintenance and repair of streetlights, traffic signals, and guide rails.

Staff are working towards improving the accuracy and reliability of their road corridor inventory to assist with long-term asset management planning.

4.1 Inventory & Valuation

Table 6 summarizes the quantity and current replacement cost of the City's various road corridor assets as managed in its primary asset management register, citywide.

Segment	Sub-Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Roads	Arterial	12,122	Metres	$104,155,837	Cost/ Unit
Roads	Collector	37,495	Metres	$120,629,199	Cost/ Unit
Roads	Gravel	102,645	Metres	-	Not Planned For Replacement
Roads	Local	267,920	Metres	$694,223,564	Cost/ Unit
Roadside Appurtenances	Broadband	1,028	Metres	$200,751	CPI

Segment	Sub-Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Roadside Appurtenances	Guide Rails	950[7]	Metres	$1,244,964	CPI
Roadside Appurtenances	Retaining Walls	7	Each	$1,218,127	CPI
Sidewalks	Sidewalks	442,512	Square Meters	$100,424,127	Cost/ Unit
Streetlights	LED Lights	8,121	Each	$10,383,754	CPI
Streetlights	Poles & Assemblies	11,660[8]	Each	$81,247,104	CPI
Traffic & Pedestrian Signals	Controllers	30	Each	$972,825	CPI
Traffic & Pedestrian Signals	Infrastructure	50	Each	$4,758,211	CPI
Total				**$104,155,837**	

Table 6: Detailed Asset Inventory: Road Corridor

[7] 950m and two additional assets that are missing their length information.

8 Includes 35 km of wiring

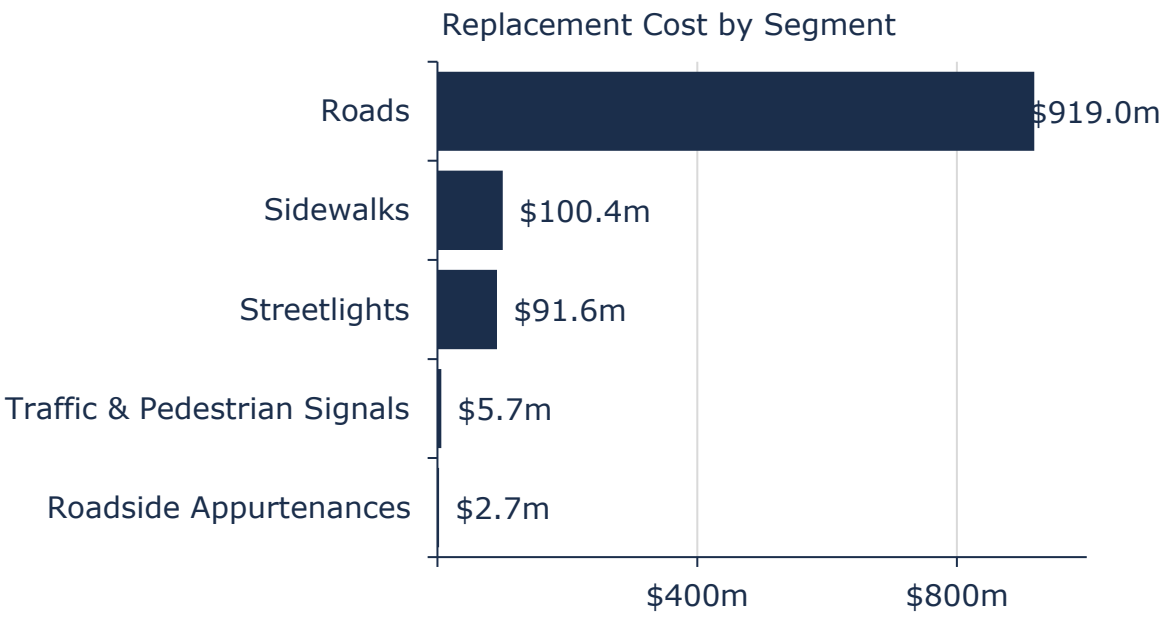


Figure 19: Road Corridor: Portfolio valuation by Segments

4.2 Asset Condition

Figure 20 summarizes the replacement cost-weighted condition of the City's road corridor. Based on a combination of field inspection data and age, 49% of assets are in fair or better condition; the remaining 51% of assets are in poor to very poor condition. Based on the total replacement cost of each asset category, condition assessments were completed for 88% of roads, 90% of streetlights, and 87% of traffic and pedestrian signals. This condition data was projected from inspection date to current year to estimate their condition today. No condition data was available for the remaining asset types.

Figure 21 reveals a contrast in the condition of road corridor assets. While sidewalks and roadside appurtenances are mostly in good to very good condition, a significant portion of roads, streetlights, and signals are rated poor or very poor.

Assets in poor or worse condition may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

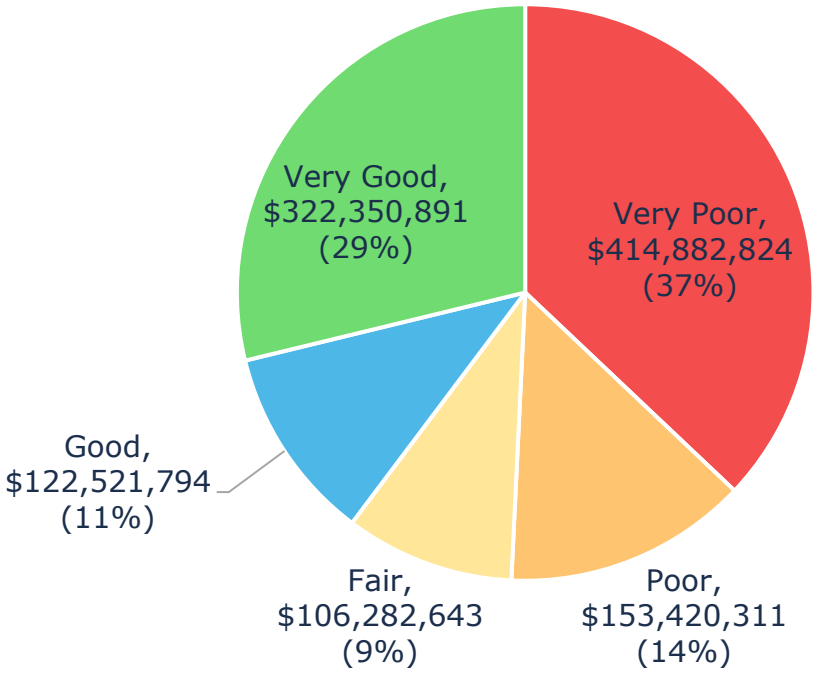


Figure 20 Asset Condition: Road Corridor Overall

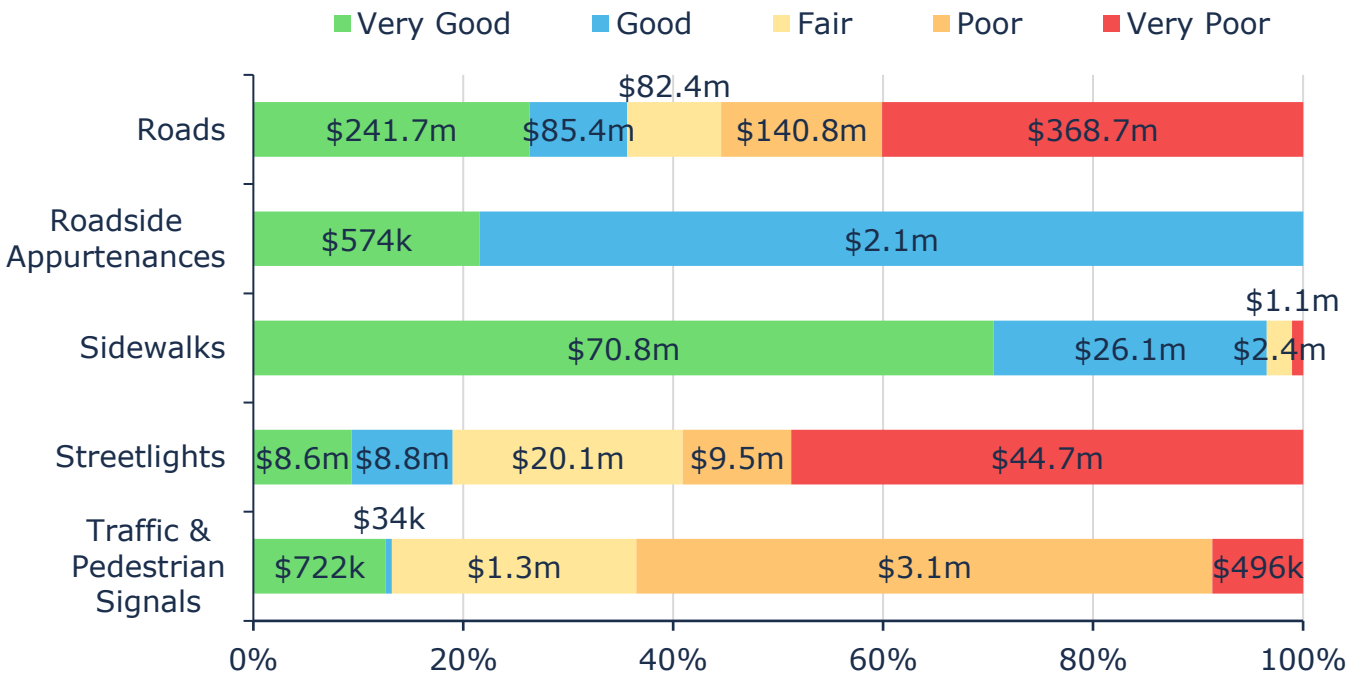


Figure 21 Asset Condition: Road Corridor by Segment

4.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential long-term replacement spikes.

Figure 22 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

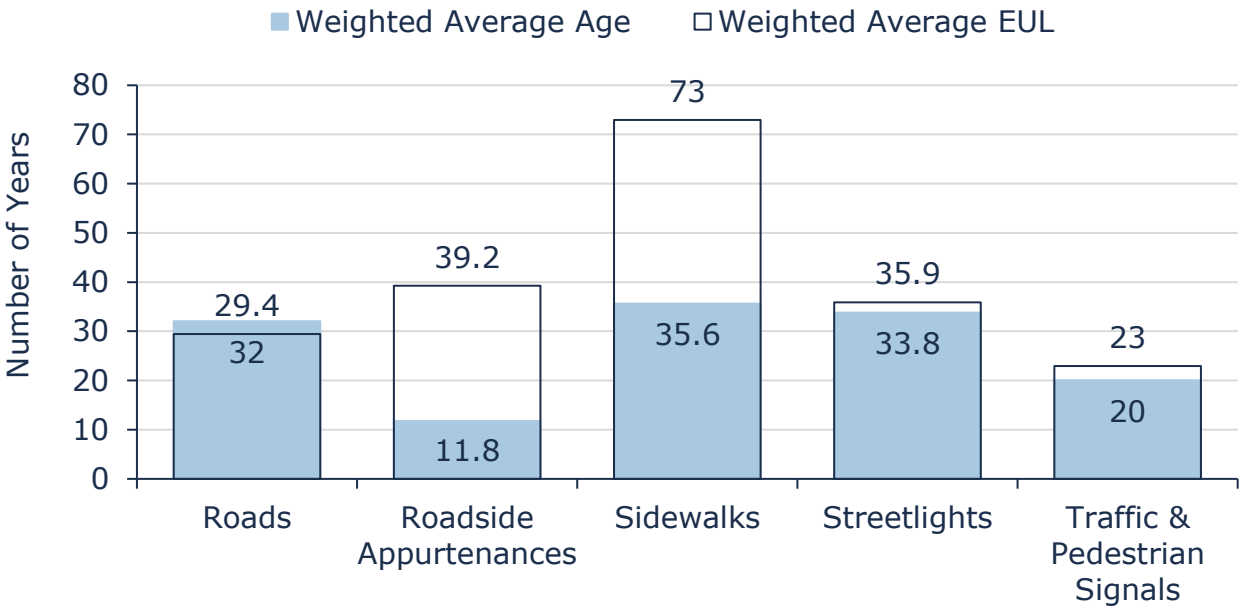


Figure 22 Estimated Useful Life vs. Asset Age: Road Corridor

Age analysis provides a general overview of all paved roads exceeding their expected useful lives. Figure 69 from Appendix D provides an additional breakdown of age analysis, where arterial and collector roads are within their expected useful lives. However, local roads have already exceeded their expected useful lives. Most of the city's streetlights were replaced 10 years ago and are well within their expected lives. However, Streetlights poles & assemblies are quickly approaching their proposed end of life. Remaining assets are currently within their expected useful lives.

With the current and proposed lifecycle management strategies, the useful lives of paved roads can be extended well beyond their expected useful lives because of rehabilitation events.

Although asset age is an important measurement for long-term planning, condition assessments provide a more accurate indication of actual asset needs.

4.4 Current and Proposed Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including asset's characteristics, location, utilization, maintenance history and environment.

4.4.1 Current Lifecycle Management Activities

The following table expands on maintenance and inspection activities for road corridor assets.

Activity Type	Description of Current Strategy
Maintenance	The City employs preventative maintenance programs to minimize the destructive impact of climate and traffic through the timely application of remedial treatments to the pavement.
Maintenance	Asphalt Roads – The crack sealing program, which is budgeted for annually, includes crack sealing/filling and spot base repairs (small area patching) Surface Treatment Roads – small area patching and drainage improvements
Rehabilitation/ Replacement	The most cost-effective expenditures for road rehabilitation can be achieved through the application of the right rehabilitation at the right time. This decision-making process relies primarily on the condition of the road surface.
Rehabilitation/ Replacement	The City's current road rehabilitation methods include: • Grind and Overlay • Full depth surface replacement • Full reconstruction

Activity Type	Description of Current Strategy
Rehabilitation/ Replacement	Full road reconstruction may be required when substantial base repairs are necessary or when sub-surface infrastructure also requires replacement.
Rehabilitation/ Replacement	The City develops a 10-year capital forecast which includes a mix of named reconstruction projects and general budget allocations for road resurfacing projects.

Table 7: Lifecycle Management Strategy: Road Corridor

4.4.2 Proposed Lifecycle Management Strategies

The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of hard surfaced (asphalted) rural and urban roads as well as surface treated rural roads. Instead of allowing the roads to deteriorate until replacement is required, strategic rehabilitation is expected to extend the service life of roads at a lower total cost. Lifecycle management strategies were not developed for other road types[9] within the City.

[9] The City only owns and operates 500m of concrete roads (old gravel pit). Once this road reaches its end of service life, it will be replaced with asphalt.

Gravel roads have low AADT and are inspected regularly. Grading is an important part of rural road maintenance and involves reshaping the roads. Public Works replaces gravel that has been either pushed off the road during winter operations and/or swept away during the spring thaw.

Asphalt Roads (Urban & High Class)		
Event Name	**Event Class**	**Event Trigger**
Crack Seal -1st event	Preventative Maintenance	10 Years
New Surface – Single Lift - 2nd event	Rehabilitation	20-25 Years
Crack Seal – 3rd event	Preventative Maintenance	30 Years
New Surface – Double Lift – 4th event	Rehabilitation	38 Years
Partial Base and Surface - Double Lift – 5th event	Rehabilitation	50 Years
Asset Replacement	Replacement	40-45 PCI

Asphalt Roads (Urban & High Class)

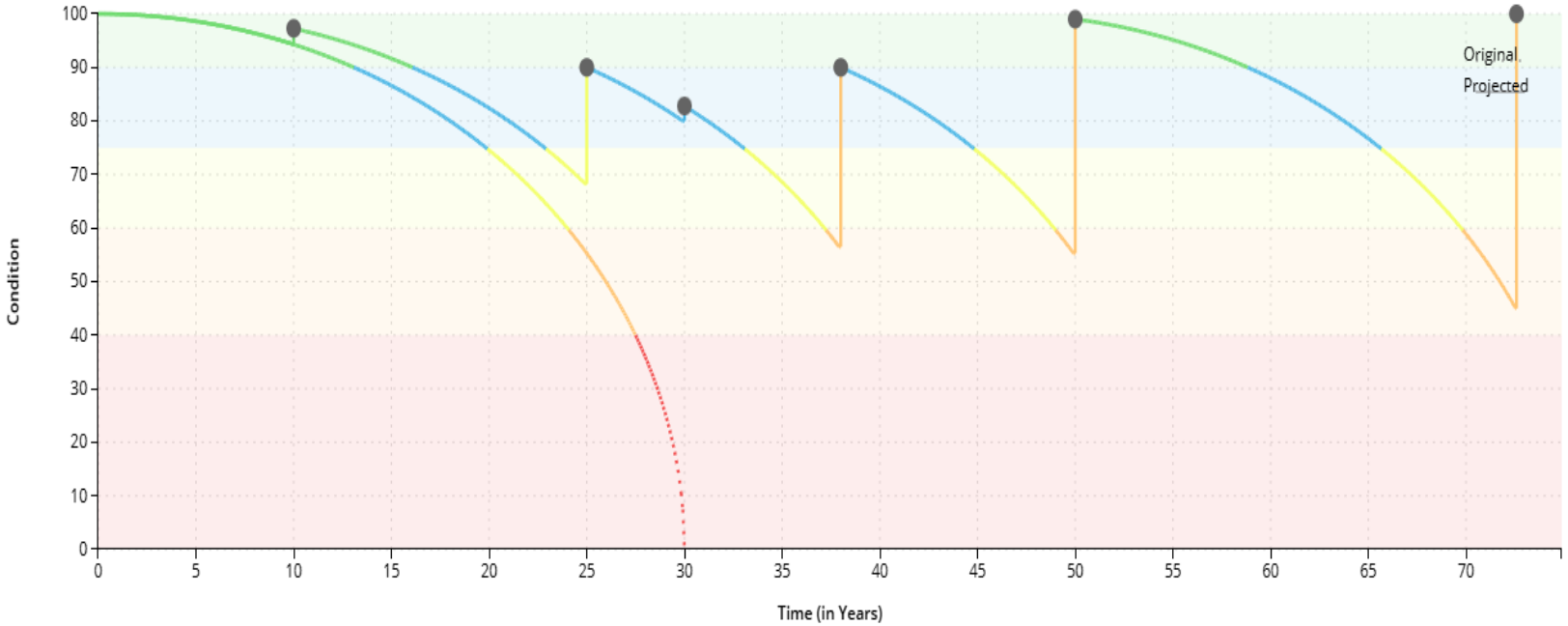


Table 8: Lifecycle Management Strategy: Asphalt Roads (Urban & High Class)

Asphalt Roads (Rural & Low Class)		
Event Name	**Event Class**	**Event Trigger**
Crack Seal -1st event	Preventative Maintenance	10 Years
New Surface – Single Lift - 2nd event	Rehabilitation	28 Years
Crack Seal – 3rd event	Preventative Maintenance	33 Years
New Surface – Double Lift – 4th event	Rehabilitation	42 Years
Partial Base and Surface - Double Lift – 5th event	Rehabilitation	55 Years
Asset Replacement	Replacement	40 PCI

Asphalt Roads (Rural & Low Class)

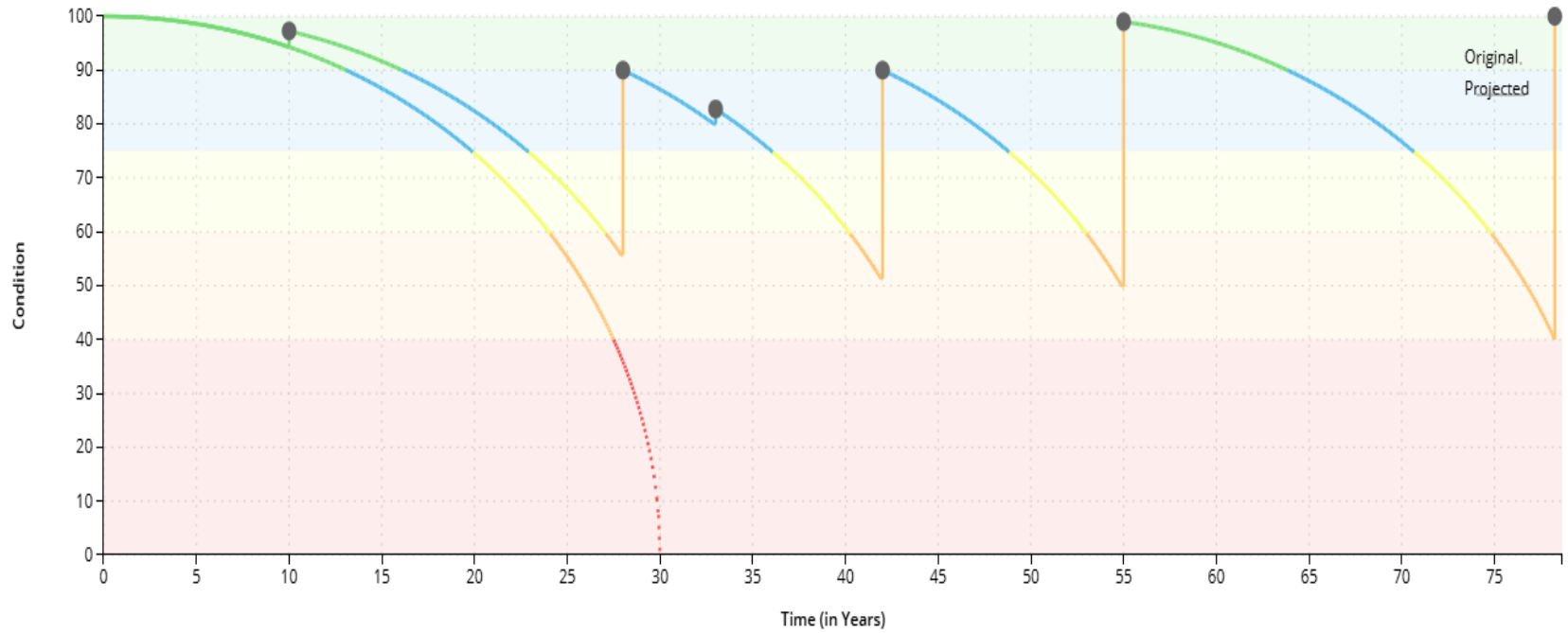


Table 9: Lifecycle Management Strategy: Asphalt Roads (Rural & Low Class)

Surface Treated Roads (Rural)		
Event Name	**Event Class**	**Event Trigger**
Spot Repair -1st event	Maintenance	7.5 Years
Surface Treatment – Double Lift – 1st event	Rehabilitation	15 Years
Spot Repair -2nd event	Maintenance	22.5 Years
Partial Base Repairs and Double Lift	Rehabilitation	30 Years
Spot Repair -3rd event	Maintenance	37.5 Years
Surface Treatment – Double Lift – 2nd event	Rehabilitation	45 Years
Asset Replacement	Replacement	20 Condition

Surface Treated Roads (Rural)

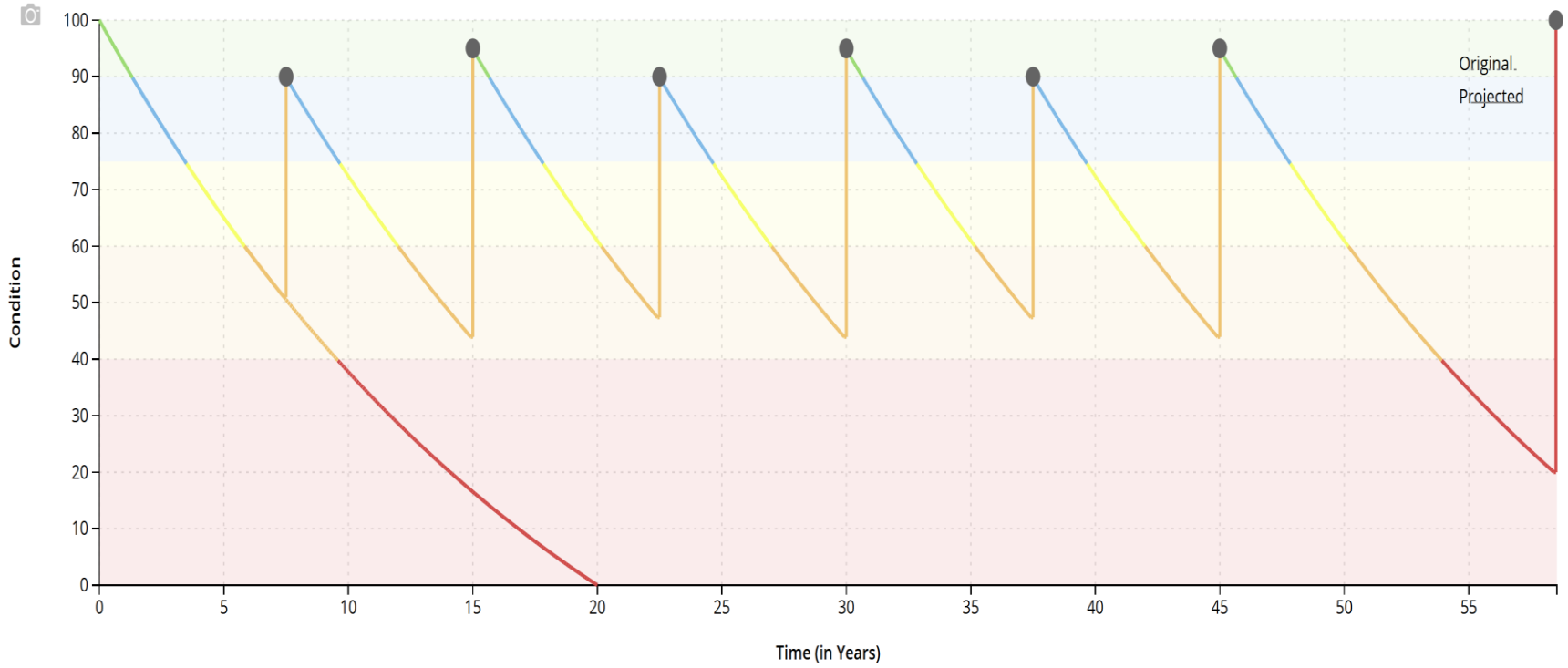


Table 10: Lifecycle Management Strategy: Surface Treated Roads (Rural)

4.5 Forecasted Long-Term Replacement Needs

Figure 23 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the City's road corridor. This analysis was run until 2099 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the City's primary asset management system and asset register. The City's average annual requirements (red dotted line) total $30.5 million for all assets in the road corridor. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

The chart illustrates substantial capital needs throughout the forecast period. It also shows a backlog of $56 million, dominated by roads. These projections are based on asset replacement costs, age analysis, and condition data when available, as well as lifecycle modeling (roads only). They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

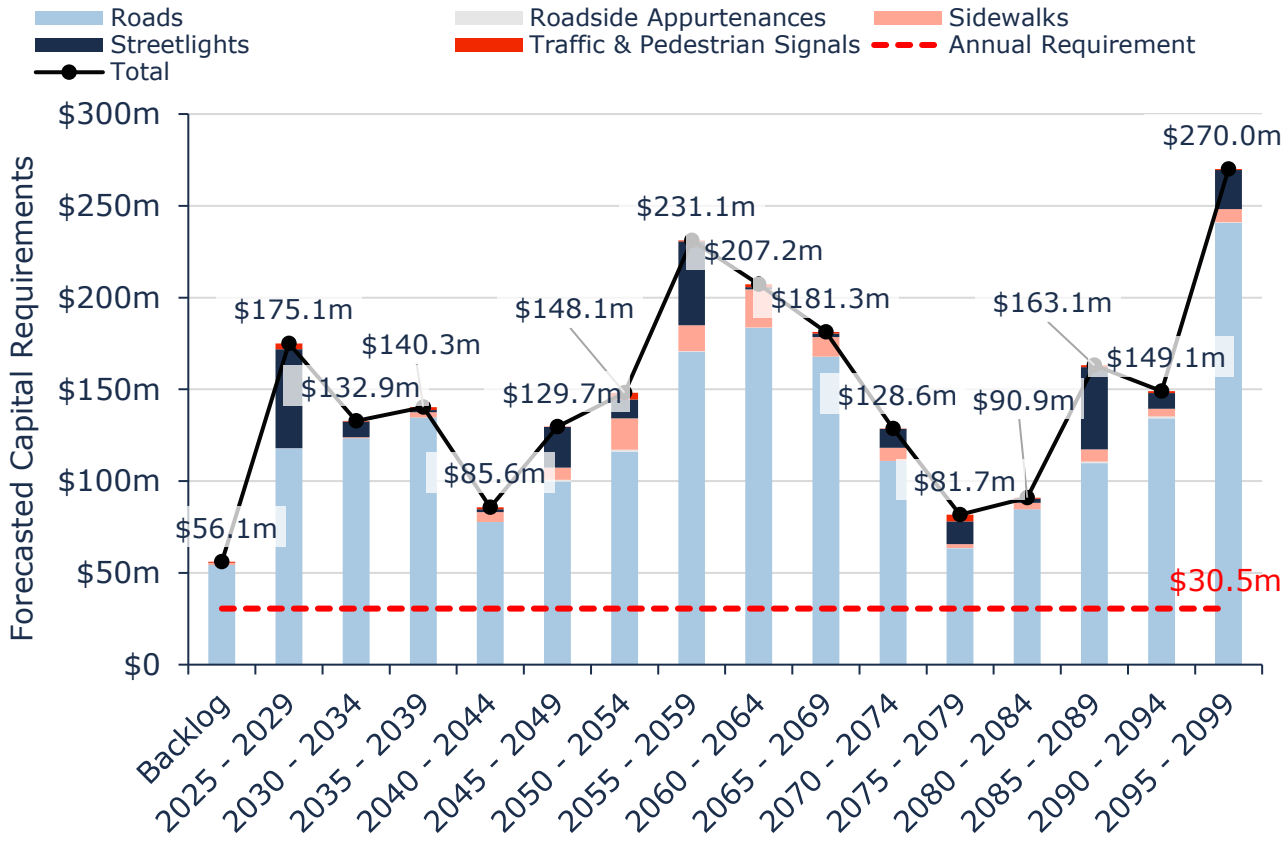


Figure 23 Forecasted Capital Replacement Needs: Road Corridor 2025-2099

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. Regular pavement condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A detailed 10-year capital replacement forecast can be found in Appendix A – 10-Year Capital Requirements.

4.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition, surface material, design class, traffic data, and roadside environment. The risk ratings for assets without useful attribute data were calculated using only condition, service life remaining, and their replacement costs.

The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the City may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the City's Asset Management Database (Citywide Assets). See Risk & Criticality section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 **Very Low** $339,736,781 (30%)	5 - 7 **Low** $99,400,799 (9%)	8 - 9 **Moderate** $88,598,351 (8%)	10 - 14 **High** $397,757,819 (36%)	15 - 25 **Very High** $193,964,714 (17%)

Figure 24 Risk Matrix: Road Corridor

4.6.1 Risk to Current Asset Management Strategies

Asset Data & Information

The maturity level of the available inventory data for the road corridor in this Asset Management Plan remains at a basic level. However, staff have made progress in addressing some data gaps since the 2021 plan. Efforts are ongoing to refine and consolidate asset data to enhance accuracy and reliability. These improvements will support the development of more data-driven strategies to address infrastructure

needs. While advancements have been made, further improvements are still required to strengthen confidence in decision-making and long-term planning.

Climate Change & Extreme Weather Events

Due to climate change, the frequency of extreme weather events is expected to increase, leading to higher precipitation levels in Pickering. This increased rainfall can weaken the road base, exposing it over time, especially if the stormwater system is not designed to handle the greater volume of water. As a result, the focus is shifting to designing more resilient stormwater systems to prevent damage, rather than just the roadway design itself.

Lifecycle Management Strategies

The current lifecycle management strategy for roads is largely reactive rather than proactive. The City aims to defer costly and disruptive road reconstruction by implementing more strategic interventions. The proposed models in this Asset Management Plan were based on the 2016 Road Needs Study and staff notes. However, there is a need to develop updated lifecycle management strategies informed by the findings of the Road Needs Study, which is currently underway. This will help refine decision-making and improve the long-term sustainability of the road network.

4.7 Levels of Service

The City of Pickering is committed to maintaining a high standard of road corridor service that is accessible, dependable, sustainable, and cost-effective for all residents. These corridors are designed to support the community's traffic needs, ensuring safe and efficient transportation year-round, even under varying weather conditions. While the City effectively manages its roads, challenges arise with regional and provincial roads, which are outside the City's direct control, complicating efforts to maintain consistent local standards. This highlights the need for public education to manage expectations regarding road maintenance and service quality.

To keep roadways in a state of good repair, the City conducts regular inspections and maintenance, aiming to minimize unplanned disruptions and respond promptly to issues. Sustainability is also a priority, with initiatives supporting sustainable transportation options like cycling and walking to reduce the environmental impact of the road corridor. With an average Pavement Condition Index (PCI) of 51, Pickering's roads fall between "Needs Improvement" and "Acceptable." While maintenance efforts are ongoing, the City faces challenges in improving road conditions, particularly when compared to neighbouring municipalities. Setting realistic targets and benchmarks for road conditions and working with the public and neighbouring municipalities will be essential in achieving infrastructure goals and securing adequate funding. The following tables summarize the City's current levels of service, including KPIs under Ontario Regulation 588/17 and additional performance measures selected for this AMP.

4.7.1 Community Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Accessibility	Description, which may include maps of the transportation system in the City and its level of connectivity. Including roads, sidewalks, as well as all supporting infrastructure such as bike lanes, bus stops, pathways etc.[10]	Acceptable	The transportation system offers an acceptable level of service with well-maintained roads, and some sidewalks, at convenient locations. While there are some bike lanes, connections are limited, and not all modes of transportation are fully supported. Improvements are made as resources allow.
Accessibility	Traffic Flow and Congestion Management	Needs Improvement	Needs Improvement – The road corridor experiences congestion and delays due to limitations in network capacity and connectivity.[11]

[10] Please refer to Appendix B – Level of Service Maps & Photos for maps of road corridors & sidewalk network classification maps, and road corridor adequacy maps within the city.

[11] Some of the public feedback related to congestion may reflect confusion between City-maintained roads and Regional Roads, which are under the jurisdiction of the Region. This distinction will be clarified in future engagement efforts to ensure more accurate input regarding the City's transportation network.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance	Description or images that illustrate the different levels of road class pavement condition	Excellent	Staff have a strong understanding of road classifications and pavement conditions, as well as the factors that impact road quality, such as traffic volume, climate, and soil type. This expertise allows them to make informed decisions about maintenance and repairs to ensure safe road conditions.
Reliability & Performance	Description of the compliance with the minimum maintenance standards for roads	Excellent	The City provides an excellent level of service, meeting or exceeding the minimum maintenance standards.

Table 11: O. Reg. 588/17 Community Levels of Service: Road Corridor

4.7.2 Technical Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Accessibility	Bike lanes and multi-use paths KM per capita	Acceptable	The municipality is meeting best practices, providing 116 km of bike lanes and 12.5 km of multi-use paths per 100,000 population, similar to the quantity found in neighbouring communities.
Accessibility	The adequacy of accessible parking determined by evaluating whether the available spaces provide convenient and sufficient access for individuals with mobility challenges.	Acceptable	Accessible parking spaces are sufficiently available and conveniently located near entrances, meeting basic regulatory standards. Individuals with mobility challenges can generally access facilities with ease, though there may be room for improvement in the overall user experience or efficiency.
Accessibility	Lane-km of arterial roads (MMS classes 1 and 2) per land area (km/km2)	Acceptable	0.24
Accessibility	Lane-km of collector roads (MMS classes 3 and 4) per land area (km/km2)	Acceptable	0.66

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Accessibility	Lane-km of local roads (MMS classes 5 and 6) per land area (km/km2)	Acceptable	3.35
Reliability & Performance	Average pavement condition index for paved roads in the Municipality (Arterial)	Acceptable	The PCI is 71, based on condition scores provided by R.J. Burnside & Associates in 2016, staff updates, and age-based data.
Reliability & Performance	Average pavement condition index for paved roads in the Municipality (Collector)	Needs Improvement	The PCI is 54, based on condition scores provided by R.J. Burnside & Associates in 2016, staff updates, and age-based data.
Reliability & Performance	Average pavement condition index for paved roads in the Municipality (Local)	Needs Improvement	The PCI is 48, based on condition scores provided by R.J. Burnside & Associates in 2016, staff updates, and age-based data.
Reliability & Performance	Average surface condition for unpaved roads in the Municipality (e.g., excellent, good, fair, poor)	Acceptable	Based on staff input, the average surface condition of unpaved roads ranges from satisfactory to good.
Reliability & Performance	Percentage of roads in poor or worse condition (Arterial)	Needs Improvement	30% of Arterial Roads are in poor or worse condition.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance	Percentage of roads in poor or worse condition (Collector)	Needs Improvement	52% of Collector Roads are in poor or worse condition.
Reliability & Performance	Percentage of roads in poor or worse condition (Local)	Needs Improvement	60% of Local Roads are in poor or worse condition.
Affordability	Annual sustainable capital reinvestment/required capital reinvestment rate	Needs Improvement	The actual reinvestment rate is just over 10% of the target rate, highlighting a potential risk of infrastructure deterioration if reinvestment levels remain low.
Sustainability	Percentage of streetlights converted to LED	Excellent	Approximately 95%-98% of streetlights have been converted to LEDs, significantly improving energy efficiency and reducing maintenance costs.

Table 12: O. Reg. 588/17 Technical Levels of Service: Road Corridor

4.7.3 Proposed Levels of Service

This section provides recommendations for maintaining and improving the road corridor based on the current Levels of Service (LOS) assessment, public engagement results, and risk analysis. The recommendations focus on addressing service deficiencies, sustaining acceptable performance levels, and evaluating risks associated with not meeting target service levels.

4.7.3.1. Pavement Condition and Road Rehabilitation

Current LOS

- Arterial Roads: Acceptable (PCI = 71)
- Collector Roads: Needs Improvement (PCI = 54)
- Local Roads: Needs Improvement (PCI = 48)
- Unpaved Roads: Acceptable
- Percentage of Roads in Poor or Worse Condition:
    - Arterial: 30%
    - Collector: 52%
    - Local: 60%

Public Engagement Results

- Road maintenance was the highest-ranked priority (67% of respondents).
- 44.8% of respondents were satisfied with pavement conditions, while 21.7% expressed dissatisfaction.
- 37% of respondents were willing to pay more for enhanced road maintenance and rehabilitation.

Recommendations

- Increase capital reinvestment in road rehabilitation, prioritizing collector, and local roads, where conditions are below acceptable levels.
- Implement a proactive pavement management program to optimize asset life-cycle performance and minimize long-term costs.
- Develop a communications strategy to improve public awareness of road rehabilitation efforts and planned investments.

Risk of Not Providing Acceptable LOS

- Heightened safety risks for road users due to poor surface conditions.
- Decreased public trust and satisfaction with municipal service delivery.
- Potential economic impact due to reduced accessibility for businesses and residents.

The graph illustrates the projected condition of the City’s road corridor assets under three funding scenarios from 2025 to 2040: current, recommended, and optimal budgets. Under the current budget (green line), asset condition steadily declines from good to fair and approaches poor by 2040, highlighting the consequences of underinvestment. The recommended budget (purple line), aligned with a 10-year financial strategy, stabilizes condition levels around the mid-60% range, avoiding further deterioration. The optimal budget (blue line) maintains assets in the high "good" range, offering the best long-term performance. This underscores the importance of closing the infrastructure gap within 10 years to prevent costly service disruptions, rising rehabilitation expenses, and declining public satisfaction.

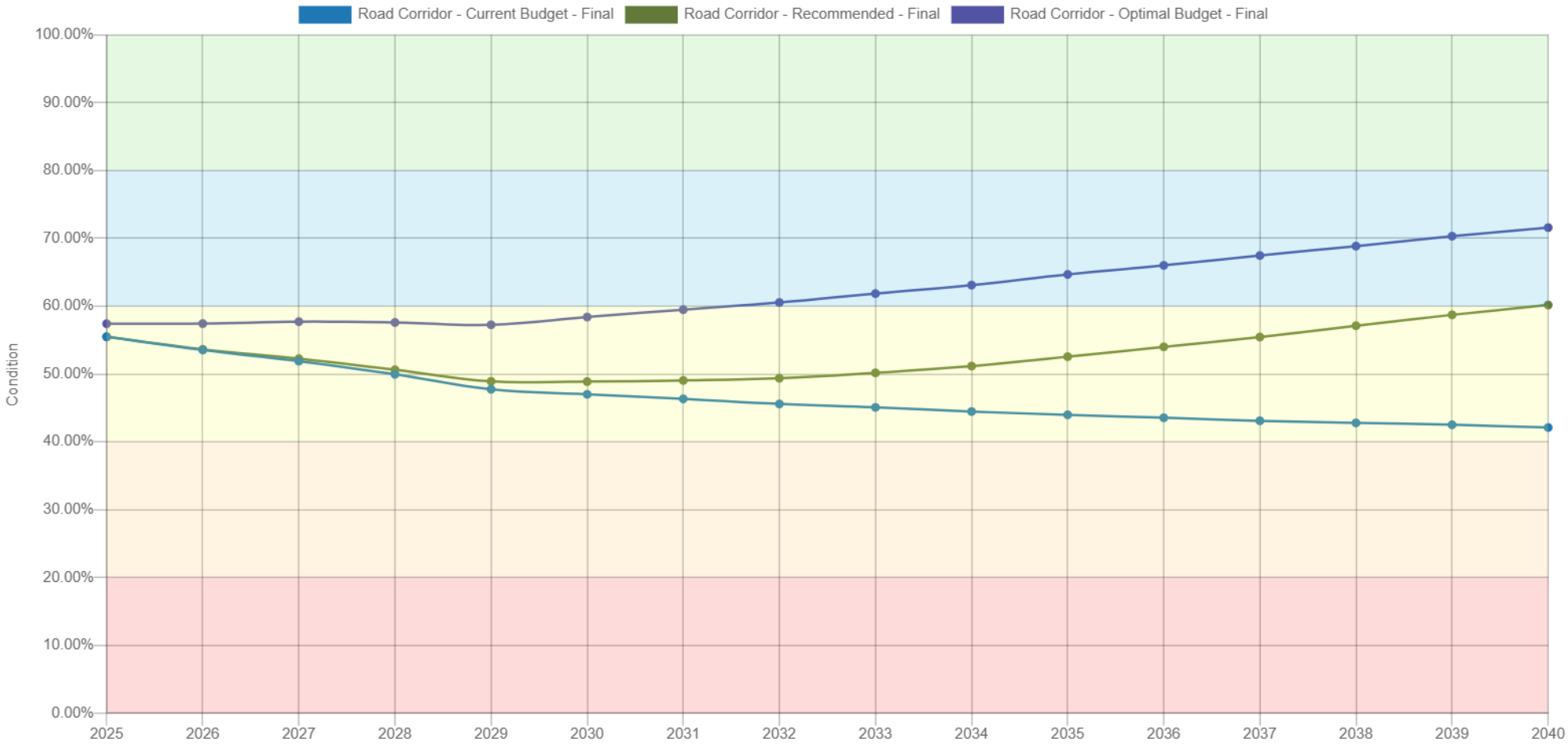


Figure 25 A Comparison of Road Corridor Conditions Under Optimal vs. Current vs Recommended Budget Scenarios in Pickering

4.7.3.2. Traffic Flow and Congestion Management

Current LOS

- Needs Improvement – The road corridor experiences congestion and delays due to limitations in network capacity and connectivity.

Public Engagement Results

- Traffic flow and congestion had the highest dissatisfaction rate (40.3%), highlighting a key concern.
- Only 27.5% of respondents reported being satisfied, while 32.2% were neutral, indicating uncertainty or a lack of awareness of current efforts to reduce congestions.
- 37.1% of respondents expressed willingness to pay for traffic management improvements.

Recommendations

- Implement congestion mitigation strategies, including traffic signal optimization and adaptive control systems.
- Enhance network connectivity by addressing critical bottlenecks and improving intersection efficiency.
- Conduct a corridor capacity study to evaluate long-term needs for roadway expansion or alternate transportation solutions.
- Engage the public through targeted outreach to align congestion management strategies with community expectations.

Risk of Not Providing Acceptable LOS

- Longer travel times, increased commuter frustration, and reduced quality of life.
- Higher emissions and environmental impacts due to increased idling and congestion.
- Economic consequences, including reduced business activity and logistical inefficiencies.

4.7.3.3. Pedestrian and Cyclist Infrastructure

Current LOS

- Bike lanes and multi-use paths per capita are within best practices but offer limited connectivity.
- Accessible parking meets minimum standards but could be enhanced.

Public Engagement Results

- 78.1% of respondents rated pedestrian infrastructure as important, though neutrality (16%) suggests a lack of strong opinions.
- 33.4% of respondents were unwilling to pay for additional pedestrian and cyclist infrastructure, the highest level of opposition across service categories.
- Safety concerns were raised regarding pedestrian crossings and cyclist accessibility in certain areas.

Recommendations

- Focus investments on pedestrian and cyclist infrastructure on high-use areas, such as transit hubs, schools, and commercial corridors.
- Improve pedestrian safety through enhanced crosswalk visibility and signal timing adjustments.
- Pursue grant funding for active transportation projects to minimize direct financial impact on municipal budgets.

Risk of Not Providing Acceptable LOS

- Increased risk of pedestrian and cyclist accidents due to inadequate infrastructure.
- Reduced accessibility for individuals with mobility challenges.
- Potential non-compliance with evolving accessibility and sustainability regulations.

4.7.3.4. Sustainable Reinvestment in the Road Corridor

Current LOS

- Needs Improvement – Annual reinvestment is only 10% of the required sustainable funding level.

Public Engagement Results

- Public concern over infrastructure funding gaps is increasing.

- Willingness to pay for road maintenance and rehabilitation is higher than for other transportation investments.
- Neutral responses suggest a need for better communication on funding needs and long-term benefits.

Recommendations

- Secure sustainable funding through a combination of dedicated infrastructure levies, grants, and alternative revenue sources.
- Develop a financial strategy that links road rehabilitation funding to long-term asset preservation benefits.
- Increase transparency in budget allocations to reinforce public confidence in infrastructure investment planning.

Risk of Not Providing Acceptable LOS

- Accelerated infrastructure deterioration leading to costly emergency repairs.
- Increased budget strain due to deferred maintenance and higher capital costs.
- Reduced public trust in municipal decision-making regarding infrastructure investments.

4.7.3.5. Maintaining Strong Performance Areas

Current LOS

- Compliance with minimum maintenance standards: Excellent.
- LED streetlight conversion: Excellent (95-98% of streetlights upgraded).

Public Engagement Results

- No major dissatisfaction was reported regarding road safety and lighting.
- LED conversion is viewed as a positive infrastructure improvement.

Recommendations

- Maintain existing high-performing service areas through proactive monitoring and maintenance.
- Complete LED lighting upgrades where feasible to further reduce long-term operational costs.
- Ensure road safety compliance through ongoing performance assessments.

Risk of Not Maintaining Current LOS

- Potential decline in service quality over time due to reduced monitoring.
- Loss of public confidence if previously well-performing services begin to deteriorate.

5. Bridges and Culverts

Bridges and structural culverts represent a critical portion of the transportation services provided to the community. Engineering Services is responsible (through the Capital Budget process) for any structure replacements or rehabilitation. The Operations Department is responsible for the maintenance of all bridges and culverts located across municipal roads with the goal of keeping structures in an adequate state of repair and minimizing service disruptions. This AMP is for bridges and culverts with a span of three meters or more. The City has many culverts with a span that is less than three meters, including driveway culverts, which are not included in this section.

5.1 Inventory & Valuation

Table 13 summarizes the quantity and current replacement cost of bridges and culverts. The City owns and manages 27 bridges and 35 structural culverts.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Bridges	27[12]	Quantity	$54,921,000	User-Defined
Structural Culverts	35[13]	Quantity	$24,930,422	User-Defined
Total	**62**		**$79,851,422**	

Table 13: Detailed Asset Inventory: Bridges & Structural Culverts

[12] The bridge quantity represents the total number of bridges with a span of 3 m and more, including 9 pedestrian bridges.

[13] The culvert quantity represents the total number of culverts with a span of 3 m and more, including 1 pedestrian culvert.

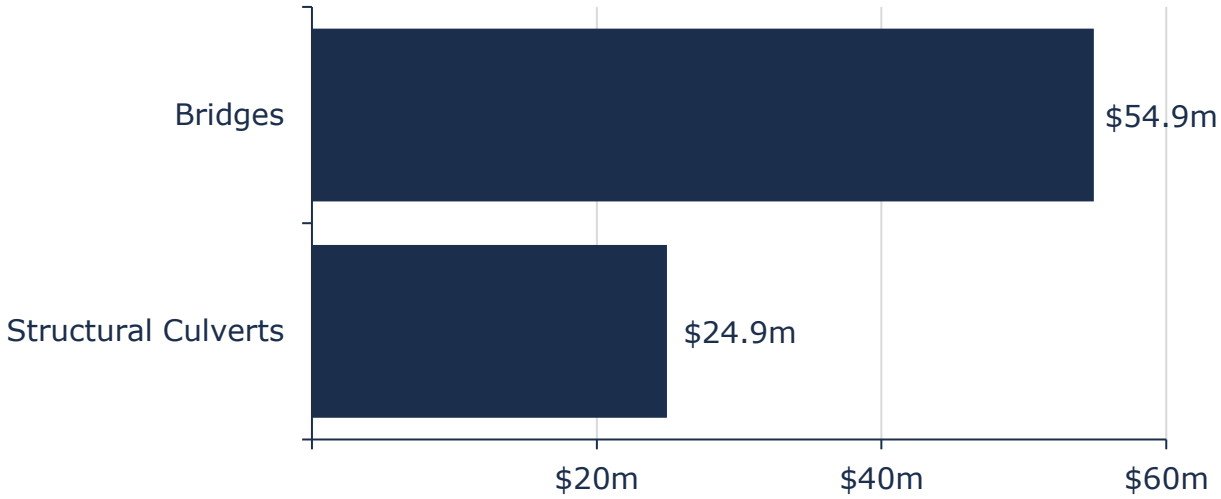


Figure 26 Portfolio Valuation: Bridges & Structural Culverts

5.2 Asset Condition

Figure 27 summarizes the replacement cost-weighted condition of the City's bridges and structural culverts. Based on the City's recent Ontario Structures Inspection Manual (OSIM) assessments, 82% of bridges and structural culverts are in fair or better condition. Some elements or components of these structures may be candidates for replacement or rehabilitation in the medium term and should be monitored for further degradation in condition. At 17% of the total bridges and culverts portfolio, assets in poor or worse condition may require replacement in the immediate or short term.

As bridges and structures reach a poor or worse rating (i.e., a bridge condition index of less than 40), they are not necessarily unsafe for regular use, individual circumstances must be considered. The OSIM ratings are designed to identify repairs needed to elevate condition ratings to fair or higher.

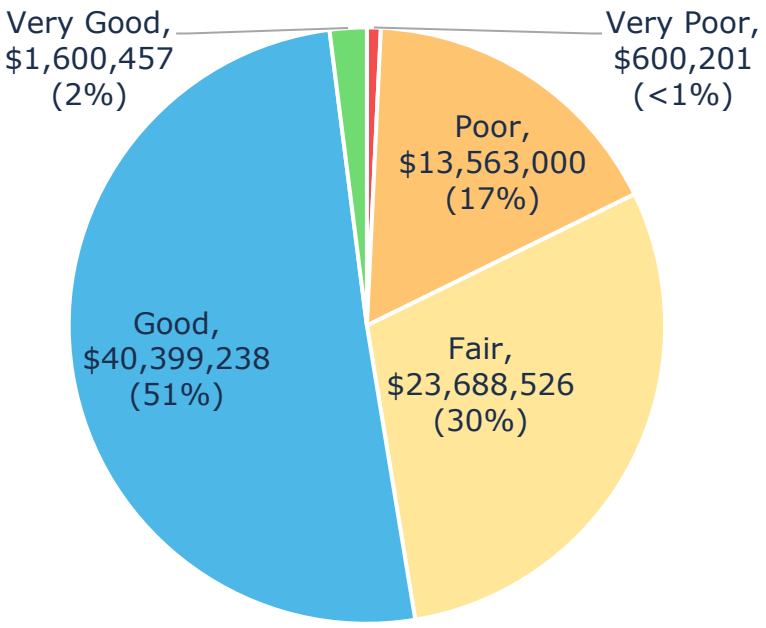


Figure 27 Asset Condition: Bridges & Structural Culverts Overall

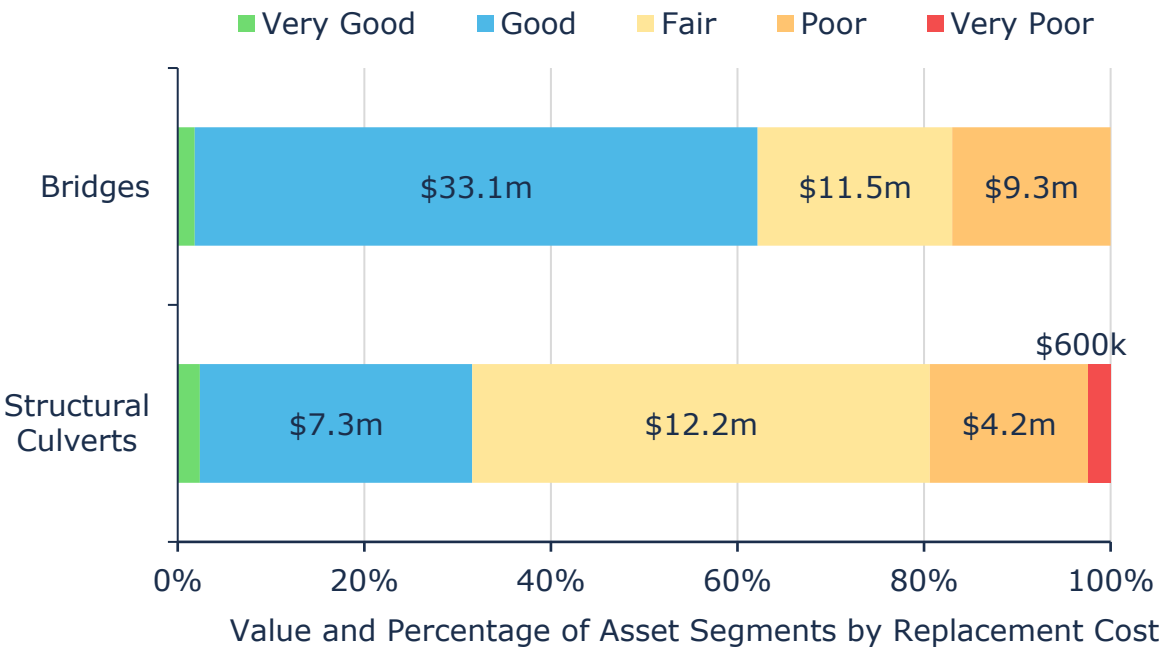


Figure 28 Asset Condition: Bridges & Structural Culverts by Segment

5.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

Figure 29 illustrates the average current age of each asset type and its EUL. Both values are weighted by the replacement cost of individual assets.

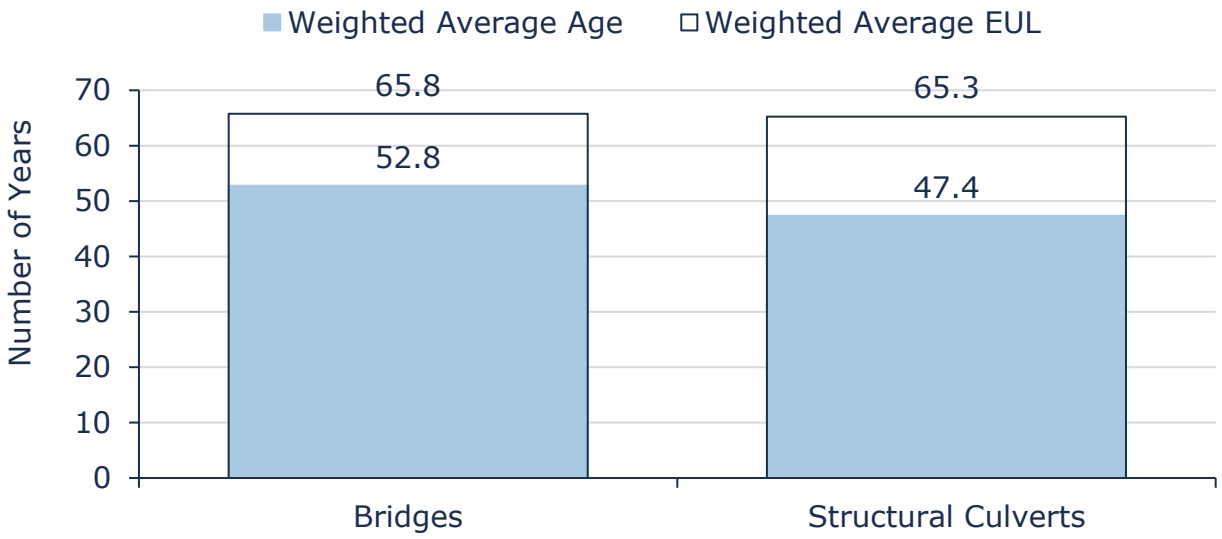


Figure 29: Estimated Useful Life vs. Asset Age: Bridges and Structural Culverts

Age analysis reveals that bridges & structural culverts are well under their respective Estimated Useful Lives. OSIM assessments should continue to be used in conjunction with age and asset criticality to prioritize capital and maintenance expenditures.

5.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of

customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table outlines the City's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Rehabilitation / Replacement	Biennial OSIM inspection reports including a Capital Needs List identifying recommended rehabilitation and replacement activities with estimated costs.
Rehabilitation / Replacement	The report also includes a 2-year priority report to assist the City with determining the timing and urgency of capital needs when developing budgets and capital plans.
Maintenance	Biennial OSIM inspections including a list of recommended maintenance activities that the City considers and completes according to cost and urgency.
Maintenance	Typical maintenance activities include: • Obstruction removal • Cleaning/sweeping • Erosion control • Brush/tree removal • Signage and roadside safety repair

Table 14: Lifecycle Management Strategy: Bridges & Structural Culverts

5.5 Forecasted Long-Term Replacement Needs

Figure 30 illustrates the cyclical short-, medium- and long-term infrastructure rehabilitation and replacement requirements for the City's bridges and culverts. This analysis was run until 2099 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the City's primary asset management system and asset register. The City's average annual requirements (red dotted line) for bridges and culverts total $1.3 million. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Capital needs will rise between 2025-2029 at $18.4 million[14], and peak at $25.3 million between 2045 and 2049 as assets reach the end of their useful life. These projections and estimates are based on asset replacement costs, age analysis, and condition data. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

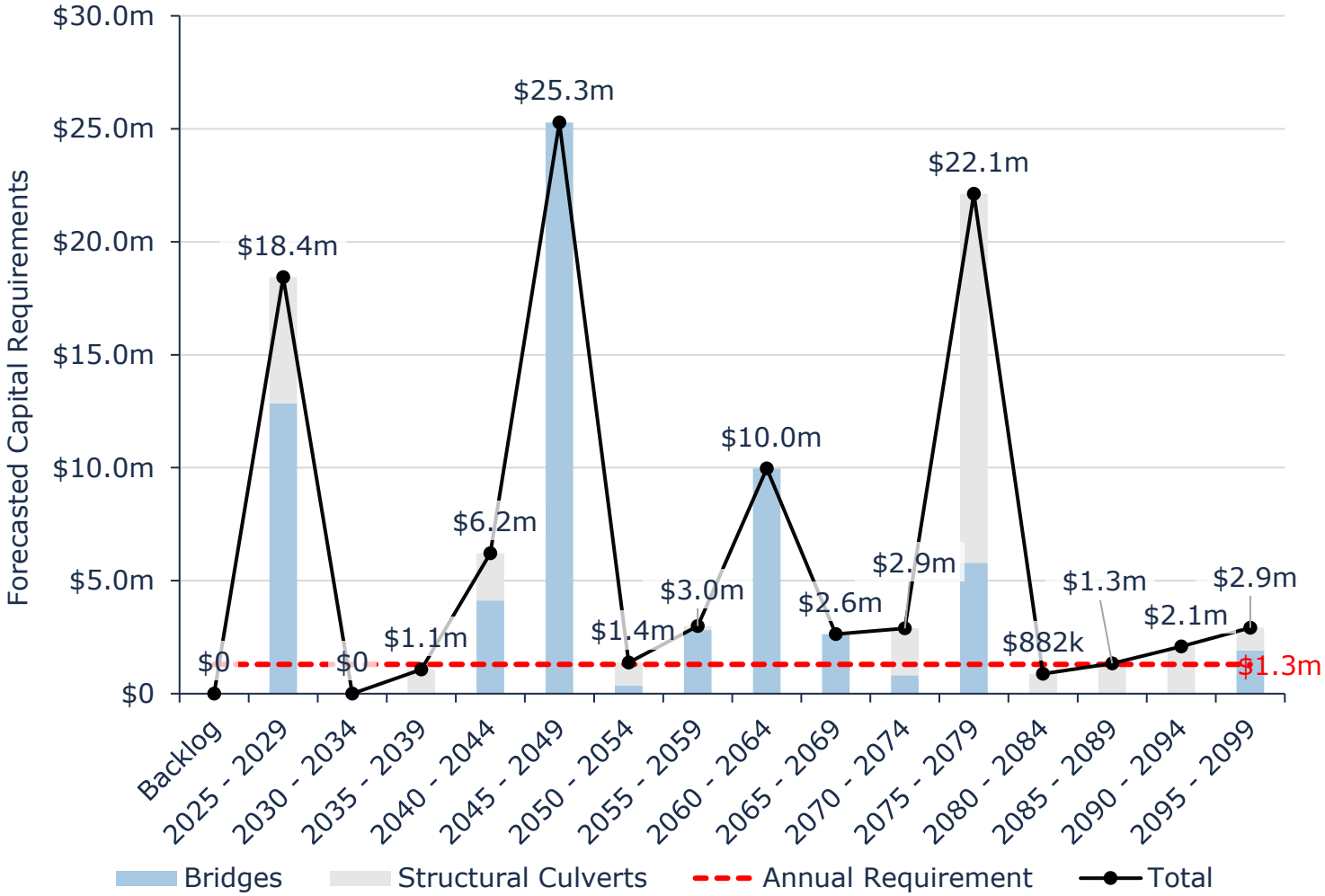


Figure 30: Forecasted Capital Replacement Needs: Bridges & Structural Culverts 2025-2099

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be

[14] Many of the structures with limited remaining useful life are scheduled for future rehabilitation or maintenance under the OSIM program. However, these assets effectively represent immediate needs and should be closely monitored to ensure planned interventions proceed as scheduled.

replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. OSIM condition assessments and a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A detailed 10-year capital replacement forecast can be found in Appendix A – 10-Year Capital Requirements.

5.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition and replacement costs.

The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the City may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the City's Asset Management Database (Citywide Assets). See Risk & Criticality section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 **Very Low** $8,029,737 (10%)	5 - 7 **Low** $10,044,303 (13%)	8 - 9 **Moderate** $22,860,853 (29%)	10 - 14 **High** $22,115,076 (28%)	15 - 25 **Very High** $16,801,453 (21%)

Figure 30 Risk Matrix: Bridges & Structural Culverts

5.6.1 Risk to Current Asset Management Strategies

Climate Change & Extreme Weather Events

Changes to intensity, duration, and frequency of rainfall may impact the condition of bridges and culverts, increasing the risk of flooding. Although design standards have evolved over time to meet changing climate, older structures were designed to a different standard, and therefore not as resilient as newer structures.

5.7 Levels of Service

The City of Pickering is committed to maintaining high standards for its bridges and culverts, ensuring they are accessible and can efficiently accommodate local traffic needs. These essential infrastructure elements are designed to remain reliable under all weather conditions, providing a dependable transportation network for residents and visitors. Maintenance is conducted to minimize unplanned interruptions or closures, with a focus on safety and public well-being.

The City balances the economic challenges of maintaining and repairing bridges and culverts with the need to manage costs responsibly, ensuring that expenditures are sustainable without placing an undue financial burden on the community. Pickering also adheres to internal traffic bylaws and provincial regulations, meeting both local and provincial standards. Although the City's budget aligns with OSIM inspection recommendations, the current Bridge Condition Index (BCI) of 68.81% indicates room for improvement. In comparison, neighbouring municipalities such as Ajax, Oshawa, Whitby, and Durham maintain BCIs between 69% and 77%. Ongoing monitoring and robust asset management are critical to ensuring the safety and reliability of these structures. The following tables summarize the City's current levels of service, including KPIs under Ontario Regulation 588/17 and additional performance measures selected for this AMP.

5.7.1 Community Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Accessibility	Description of the traffic that is supported by Municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists)	Acceptable	Municipal bridges serve various traffic types, including heavy vehicles, pedestrians, and cyclists. The analysis mainly covers rural bridges, like those in North Pickering, with ten underload limits and detour routes of 5 km or more. Bridges on gravel roads that can't support pedestrians or cyclists are excluded from some assessments. Urban bridges are rated excellent, while rural ones are generally ranked lower.
Reliability & Performance	Description or images of the condition of bridges & structural culverts and how this would affect use of the bridges & structural culverts	Acceptable[15]	The City has a strong understanding of the condition and lifecycle needs of bridges and culverts. OSIM inspections are conducted following established guidelines, with recommendations from these inspections actively applied.

[15] Please refer to Appendix B – Level of Service Maps & Photos for examples of Bridge & Culvert conditions.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance	Description of the compliance with the minimum maintenance standards for roads	Excellent	The City provides an excellent level of service, meeting and exceeding the minimum maintenance standards.

Table 15: O. Reg. 588/17 Community Levels of Service: Bridges & Structural Culverts

5.7.2 Technical Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance	Percentage of bridges in the City with loading or dimensional restrictions	Excellent	In the City of Pickering, excluding rural bridges, 0% of bridges have loading or dimensional restrictions. Rural roads, as outlined in Schedule A of the Traffic & Parking Bylaw, are not designed to support heavy traffic loads.
Reliability & Performance	Average bridge condition index value for bridges in the City	Acceptable	70% - Adjusted results based on the scores from the 2024 OSIM inspections.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance	Average bridge condition index value for structural culverts in the City	Acceptable	66% - Adjusted results based on the scores from the 2024 OSIM inspections.
Reliability & Performance	Percentage of bridges in poor or worse condition	Acceptable	17% - Adjusted results based on the scores from the 2024 OSIM inspections.
Reliability & Performance	Percentage of culverts in poor or worse condition	Acceptable	19% - Adjusted results based on the scores from the 2024 OSIM inspections.
Affordability	Annual sustainable capital reinvestment/required capital reinvestment rate	Acceptable	The funding received in recent years is intended to address the backlog of bridges with 0-4 years of EUL remaining.

Table 16: O. Reg. 588/17 Technical Levels of Service: Bridges & Structural Culverts

5.7.3 Proposed Levels of Service

This section provides recommendations for maintaining and optimizing the bridges and culverts within the road corridor based on the current Levels of Service (LOS) assessment, public engagement results, and risk analysis. The recommendations focus on sustaining infrastructure condition, ensuring accessibility, and addressing service risks, while recognizing that current funding levels are sufficient to meet ongoing needs.

5.7.3.1. Structural Condition of Bridges and Culverts

Current LOS

- Average Bridge Condition Index (BCI): Acceptable (70%)
- Average Structural Culvert Condition Index: Acceptable (66%)
- Percentage of Bridges in Poor or Worse Condition: 17%
- Percentage of Culverts in Poor or Worse Condition: 19%

Public Engagement Results

- Structural safety of bridges was the highest priority (89.3% of respondents).
- Regular inspections and maintenance were also highly rated (81.7% public support).
- Flood prevention through culvert maintenance was considered very important by 81.6% of respondents.
- Satisfaction with bridge structural integrity was relatively high (57.9%).

Recommendations

- Continue utilizing required funding levels to implement planned rehabilitation and replacement projects, ensuring gradual improvements in condition over time.
- Focus bridge and culvert investments on structures currently rated as poor, prioritizing those with the highest traffic volumes or strategic importance. In parallel, establish a preventative maintenance program to extend the service life of assets in fair or good condition, minimizing long-term costs and reducing the likelihood of sudden failures.
- Monitor condition trends through ongoing OSIM inspections to validate the effectiveness of existing rehabilitation strategies.
- Enhance public awareness of rehabilitation efforts to reinforce confidence in the municipality’s infrastructure management.

Risk of Not Maintaining Current LOS

- Delays in rehabilitation could slow overall condition improvements, leading to longer timelines for achieving an optimal state of good repair.
- Public perception of deteriorating infrastructure, despite adequate funding, if improvements are not effectively communicated.
- Increased maintenance costs if issues are not proactively addressed within planned timelines.

5.7.3.2. Accessibility and Network Availability

Current LOS

- Acceptable – Municipal bridges support various traffic types, including heavy vehicles, emergency vehicles, pedestrians, and cyclists.
- Urban bridges are in excellent condition, but rural bridges are generally ranked lower, with ten bridges under load restrictions requiring detours of 5 km or more.

Public Engagement Results

- 72.7% of respondents considered accessibility important, though 21.3% were neutral, indicating it is less of a concern compared to structural safety.
- Accessibility had the highest share of lower-priority responses (6.0%), reflecting mixed public sentiment.
- 50.5% of respondents were satisfied with accessibility, while 9.4% were dissatisfied.

Recommendations

- Maintain existing bridge and culvert accessibility levels while monitoring rural bridge usage to assess future needs.
- Continue prioritizing investments in critical structures that impact emergency response times and essential goods movement routes.
- Communicate the municipality’s strategy for balancing accessibility improvements with other infrastructure priorities.

Risk of Not Maintaining Current LOS

- Potential disruptions for rural road users if bridge accessibility issues are not addressed over time.
- Reduced efficiency for emergency services and goods movement on load-restricted routes.
- Public perception that accessibility issues are being overlooked, despite funding sufficiency.

5.7.3.3. Culvert Functionality and Flood Prevention

Current LOS

- Needs Improvement – around 19% of culverts are in poor or worse condition.

Public Engagement Results

- Flood prevention effectiveness of culverts was ranked very important by 81.6% of respondents.
- 43.3% of respondents were neutral regarding flood prevention, suggesting a need for better public communication.
- Satisfaction with culvert maintenance effectiveness was 48.4%, but 8.2% of respondents were dissatisfied.

Recommendations

- Continue leveraging existing funding to systematically rehabilitate culverts with the highest flood risk exposure.
- Monitor high-risk culverts and drainage structures to ensure adequate capacity for extreme weather events.
- Enhance public awareness of culvert maintenance efforts and how they mitigate flooding risks.

Risk of Not Maintaining Current LOS

- Increased potential for localized flooding, impacting transportation and adjacent properties.
- Higher maintenance costs if culvert deterioration is not proactively addressed within planned rehabilitation cycles.
- Public perception that flood risk is not being adequately managed if maintenance efforts are not visible.

5.7.3.4. Inspection Frequency and Preventative Maintenance

Current LOS

- Acceptable – The municipality exceeds minimum maintenance standards and follows OSIM guidelines.
- Regular inspections are conducted, but high neutral public response suggests a lack of visibility of these efforts.

Public Engagement Results

- Regular inspections and maintenance were ranked as important by 81.7% of respondents.
- Satisfaction with inspection frequency was 55.9%, but 52.2% of respondents were neutral, suggesting limited public awareness.
- 30.3% of respondents were unwilling to pay for increased inspection frequency, the highest resistance of any feature.

Recommendations

- Maintain current inspection cycles while exploring opportunities to enhance efficiency through technology (e.g., remote monitoring, predictive analytics).
- Improve public communication about ongoing inspections to address neutral responses and reinforce trust in maintenance efforts.
- Continue integrating OSIM inspection findings into long-term capital planning to ensure funding remains aligned with infrastructure needs.
- Increase efforts and allocate additional funding toward preventative and routine operational maintenance for bridges and culverts to preserve asset condition, reduce lifecycle costs, and delay the need for costly rehabilitation or replacement.

Risk of Not Maintaining Current LOS

- Public misperception that inspections are not being conducted thoroughly, despite strong existing maintenance practices.
- Reduced public trust in infrastructure management if inspection transparency is not improved.
- Delayed detection of potential structural issues, increasing long-term rehabilitation costs.

5.7.3.5. Sustainable Infrastructure Investment

Current LOS

- Excellent – Capital reinvestment has exceeded average annual requirements in recent years.

Public Engagement Results

- 33.1% of respondents were willing to pay for structural upgrades to improve bridge safety.
- However, 27.9% remained neutral, indicating an opportunity for public education on infrastructure investment benefits.
- Willingness to pay for increased inspections was lower (21.3%), with 30.3% of respondents unwilling.

Recommendations

- Continue sustaining current funding levels to ensure long-term infrastructure resilience.
- Increase transparency in budget allocations and infrastructure spending to reinforce public trust in the financial strategy.
- Leverage grant funding opportunities where applicable to optimize capital reinvestment efficiency.

Risk of Not Maintaining Current LOS

- Potential misalignment between funding perceptions and actual infrastructure needs if spending is not clearly communicated.
- Reduced public willingness to support long-term funding if infrastructure investments are not visible.
- Risk of funding reductions in future budget cycles due to a lack of demonstrated need.

6. Stormwater System

The City owns and maintains a stormwater system consisting of storm sewer mains and other supporting infrastructure. Staff are working towards improving the accuracy and reliability of their Stormwater System inventory to assist with long-term asset management planning.

6.1 Inventory & Valuation

Table 17 includes the quantity, replacement cost method and total replacement cost of each asset segment in the City's Stormwater System inventory.[16]

Segment	Sub-Segment	Quantity	Unit of Measure	Replacement Cost4	Primary RC Method
Drainage Channels	Drainage Channels	839	Meters	$4,925,552	CPI
Storm Sewers	Catch Basin and Lead	5,519	Each	$22,793,470	Cost per Unit
Storm Sewers	Clean Water Collectors	6,265	Meters	$1,532,910	CPI
Storm Sewers	Inlet/Outlet Structures	73	Each	$2,351,091	CPI
Storm Sewers	Maintenance Holes	3,344	Each	$32,296,930	Cost per Unit
Storm Sewers	Oil Grit Separators	37	Each	$4,786,018	User-Defined

[16] The level of maturity of the asset quantity data is still at a basic level. Staff plan to prioritize data refinement and consolidation efforts to increase confidence in the accuracy and reliability of asset data and information.

Segment	Sub-Segment	Quantity	Unit of Measure	Replacement Cost4	Primary RC Method
Storm Sewers	Service Connection	16,895	Each	$10,566,133	Cost per Unit
Storm Sewers	Storm Sewer Mains	213,470	Meters	$250,428,399	Cost per Unit
Storm Sewers	Stormwater Wall	36	Meters	$207,370	CPI
Stormwater Ponds	Access Roads	249	Square Meters	$44,552	CPI
Stormwater Ponds	Dry Ponds	30,838	Cubic Meters	$1,592,305	CPI
Stormwater Ponds	Fencing	424	Meters	$88,230	CPI
Stormwater Ponds	Wet Ponds	187,150	Cubic Meters	$26,194,976	User-Defined
Total				**$357,807,936**	

Table 17: Detailed Asset Inventory: Stormwater System

Figure 31 provides the portfolio valuation of the stormwater system by Segments. Moreover, these segments have been classified into further sub-segments. Replacement costs by subsegments are provided in the Appendix D – Additional Asset Portfolio Breakdown by Sub-segments.

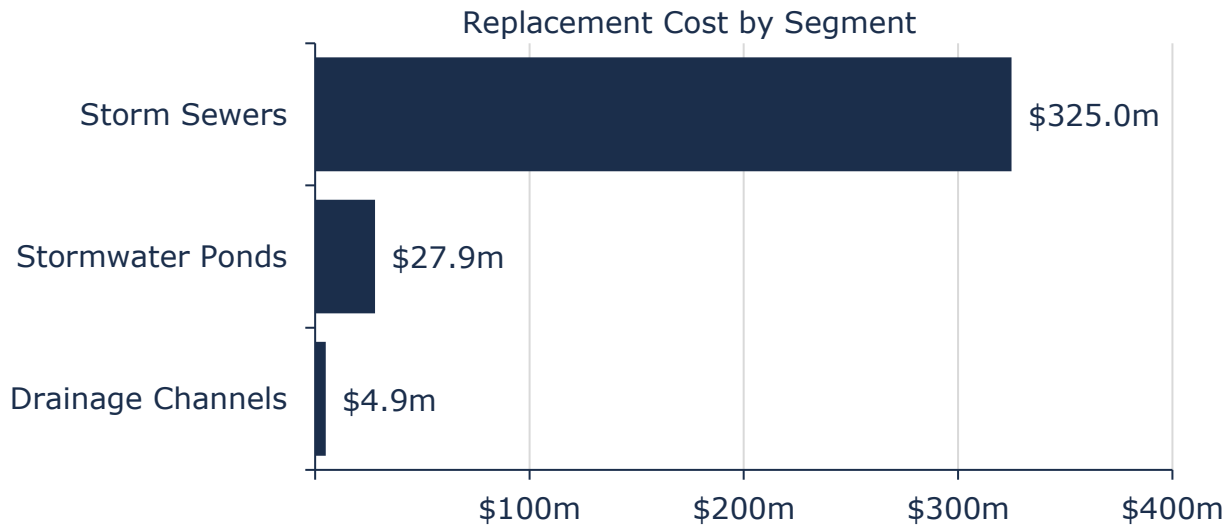


Figure 31: Portfolio Valuation: Stormwater System

6.2 Asset Condition

Figure 32 summarizes the replacement cost-weighted condition of the City's stormwater system assets. Based on age data only, approximately 13% of assets are in poor to very poor condition. These assets may be candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

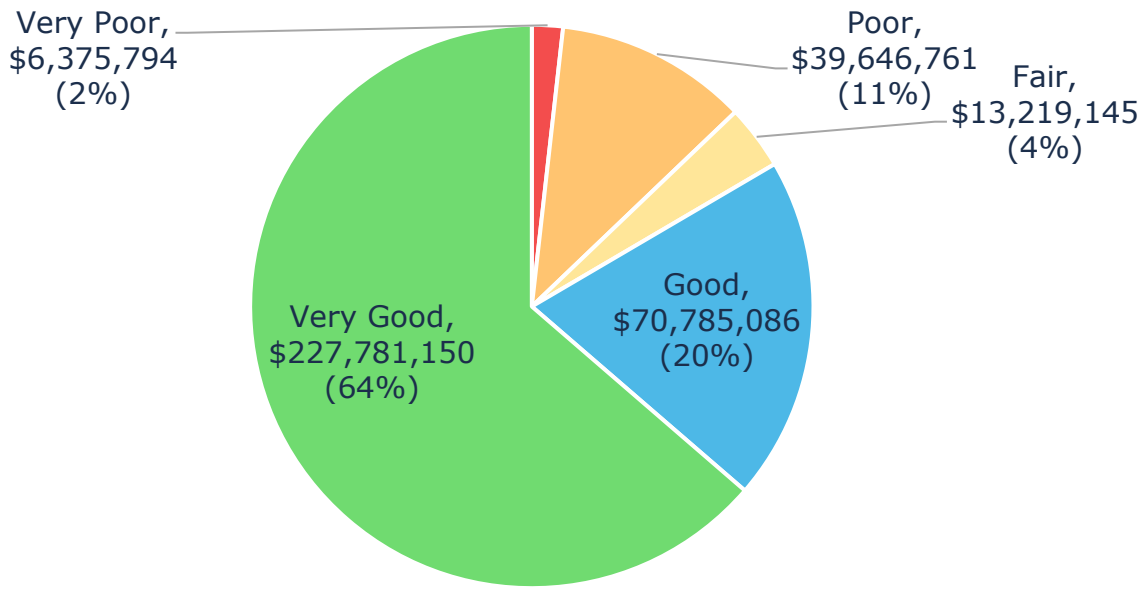


Figure 32: Asset Condition: Stormwater System Overall

Figure 33 summarizes the age-based condition of stormwater assets[17]. The analysis illustrates that the majority of stormwater mains are in fair or better condition.

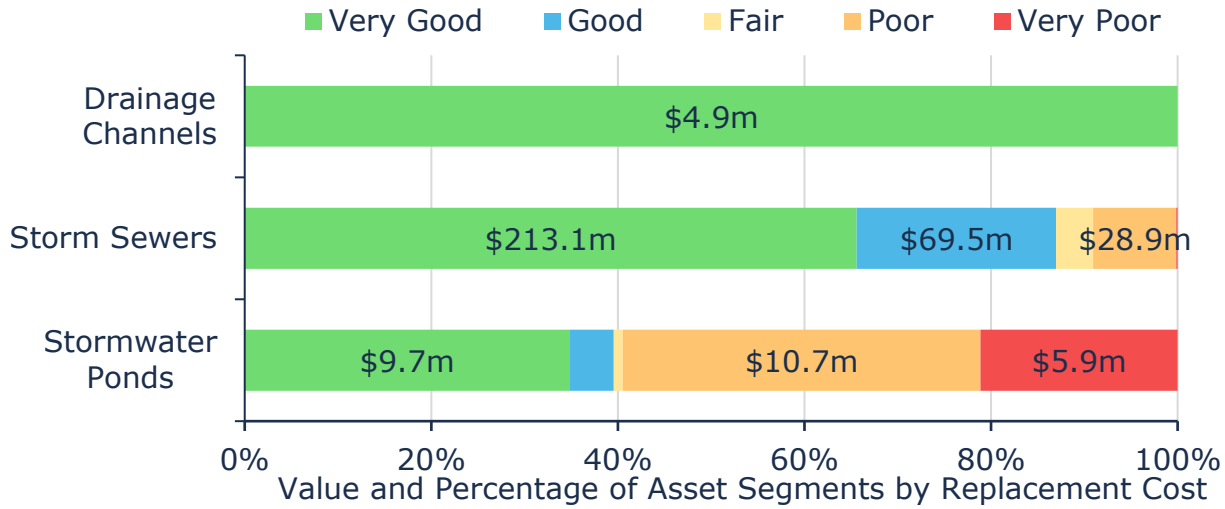


Figure 33: Asset Condition: Stormwater System by Segment

6.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

Figure 34 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

[17] A desktop assessment was completed by City staff. The results of the assessment were used along with Age-based ratings to calculate the average condition of assets. Desktop assessment ratings were given a weight of 50% compared to 50% for the age-based rating when performing the final condition calculation for Catch Basin and Leads. For Service Connections, the desktop assessments were given a weight of 55% compared to 45% for the age-based rating when performing the final condition calculation. Age-based conditions were solely used when desktop assessments were not performed.

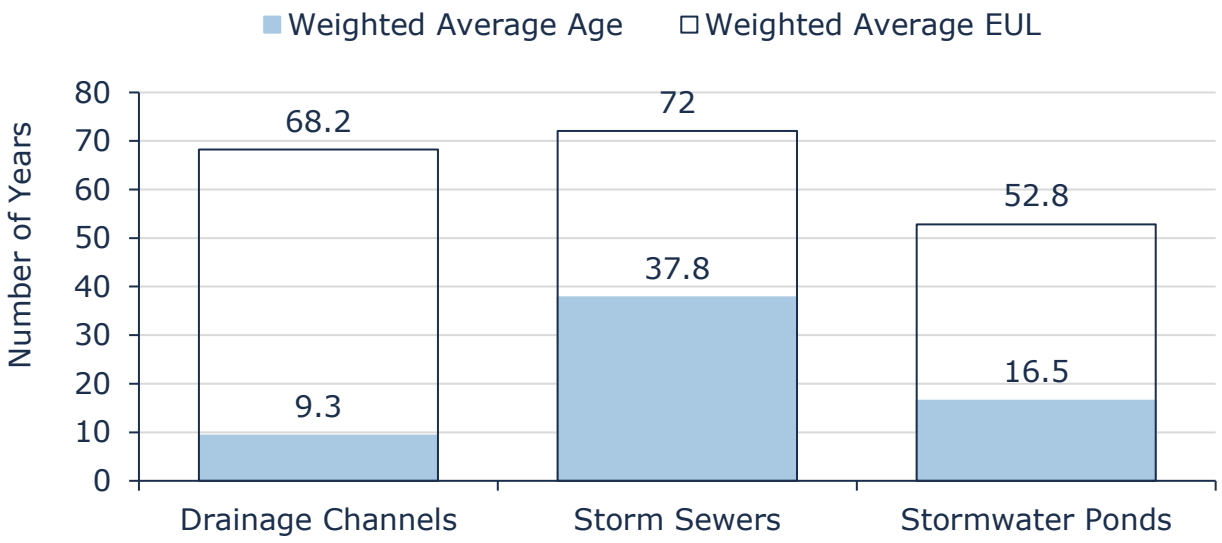


Figure 34: Estimated Useful Life vs. Asset Age: Stormwater System

Age analysis reveals that drainage channels & stormwater ponds are far from reaching their end of useful life. Moreover, storm sewers are midway through their expected useful life.

6.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. This process is affected by a range of factors including asset's characteristics, location, utilization, maintenance history and environment.

The following lifecycle strategies have been developed as a proactive approach to managing the lifecycle of wet stormwater ponds. Instead of allowing stormwater ponds to deteriorate until replacement is required, strategic rehabilitation is expected to extend the service life of stormwater ponds at a lower total cost.

Stormwater Ponds (Wet)		
Event Name	**Event Class**	**Event Trigger**
Pond Cleanout 1st cycle	Maintenance	Year: 20
Pond Cleanout 2nd Cycle	Maintenance	Year: 40
Asset Replacement	Replacement	Condition: 0

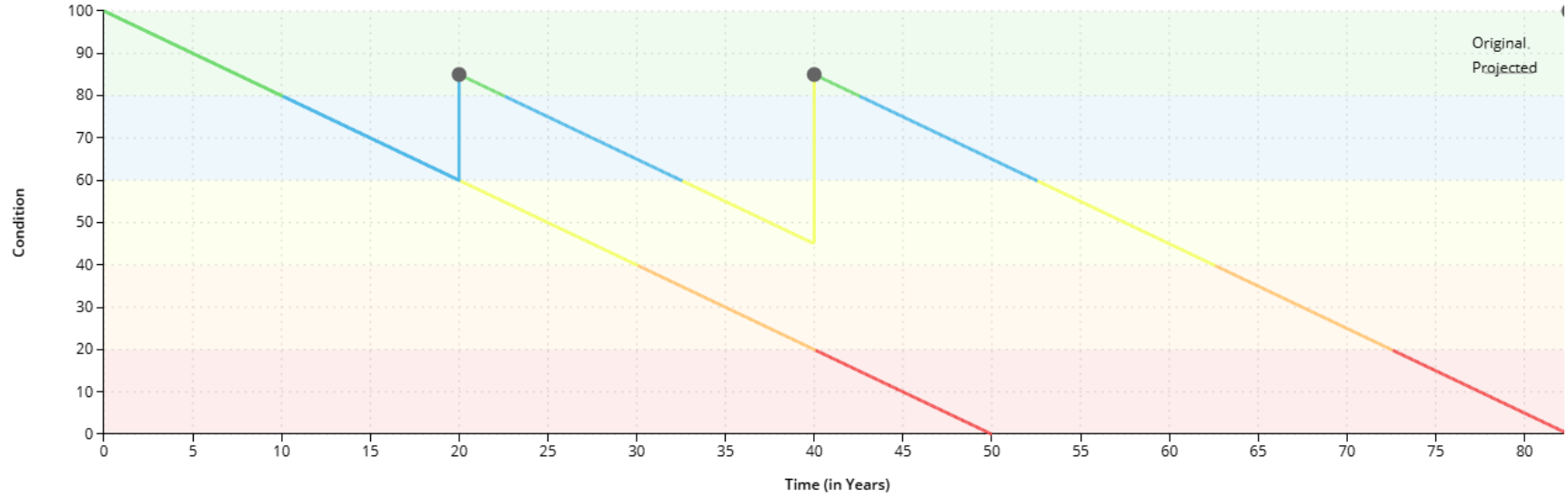


Table 18: Lifecycle Management Strategy: Stormwater Ponds

The following table outlines the City's current lifecycle management strategy for Stormwater Management Facilities.

Activity Type	Description of Current Strategy
Maintenance	Regular inspections are completed across all facilities. When more detailed inspections were completed in 2020 this included: • Inspection of maintenance hole covers, control structures and access barriers • Bathymetric surveys and sediment depth measurements at wet ponds • Sediment quality sampling to determine proper disposal requirements
Maintenance	Staff are in the process of evaluating and implementing a proactive maintenance program which may include: • Debris cleanup • Repairs to outlets, grates, and fences
Rehabilitation/ Replacement	Sediment removal and disposal needs to occur on a regular basis (~ every 20 years).
Rehabilitation/ Replacement	The excavation and removal of sediment from ponds will require a sampling and analysis plan outlining frequency and testing parameters.
Rehabilitation/ Replacement	Due to the relatively young age of the City's stormwater management facilities, there has not been a previous urgency or requirement to plan for reconstruction/retrofit needs.

Table 19: Lifecycle Management Strategy: Stormwater Management Facilities

The following table outlines the City's current lifecycle management strategy for Storm Sewers.

Activity Type	Description of Current Strategy
Maintenance	The City's annual maintenance program for storm sewer mains includes: • Storm sewer flushing and video inspection • Calcite blockage removal (reaming) • Catch basin cleaning
Rehabilitation	The City is in the process of refining its inventory data and collecting better condition data on linear storm sewer infrastructure. Once this process is completed staff will consider the benefits of trenchless sewer re-lining.
Replacement	Storm sewer replacement is aligned with road reconstruction programs. When a road is planned for reconstruction, CCTV inspections are completed to determine if the storm sewer needs repair or replacement. This project coordination ultimately leads to lower total project costs and reduces the impact of more frequent road reconstruction.
Replacement	The City develops a 9-year capital forecast which includes specific named projects

Table 20: Lifecycle Management Strategy: Storm Sewers

6.5 Forecasted Long-Term Replacement Needs

Figure 35 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the City's stormwater system assets. This analysis was run until 2109 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the City's primary asset management system and asset register. The City's average annual requirements (red dotted line) total $6.6 million for all assets in the stormwater system. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

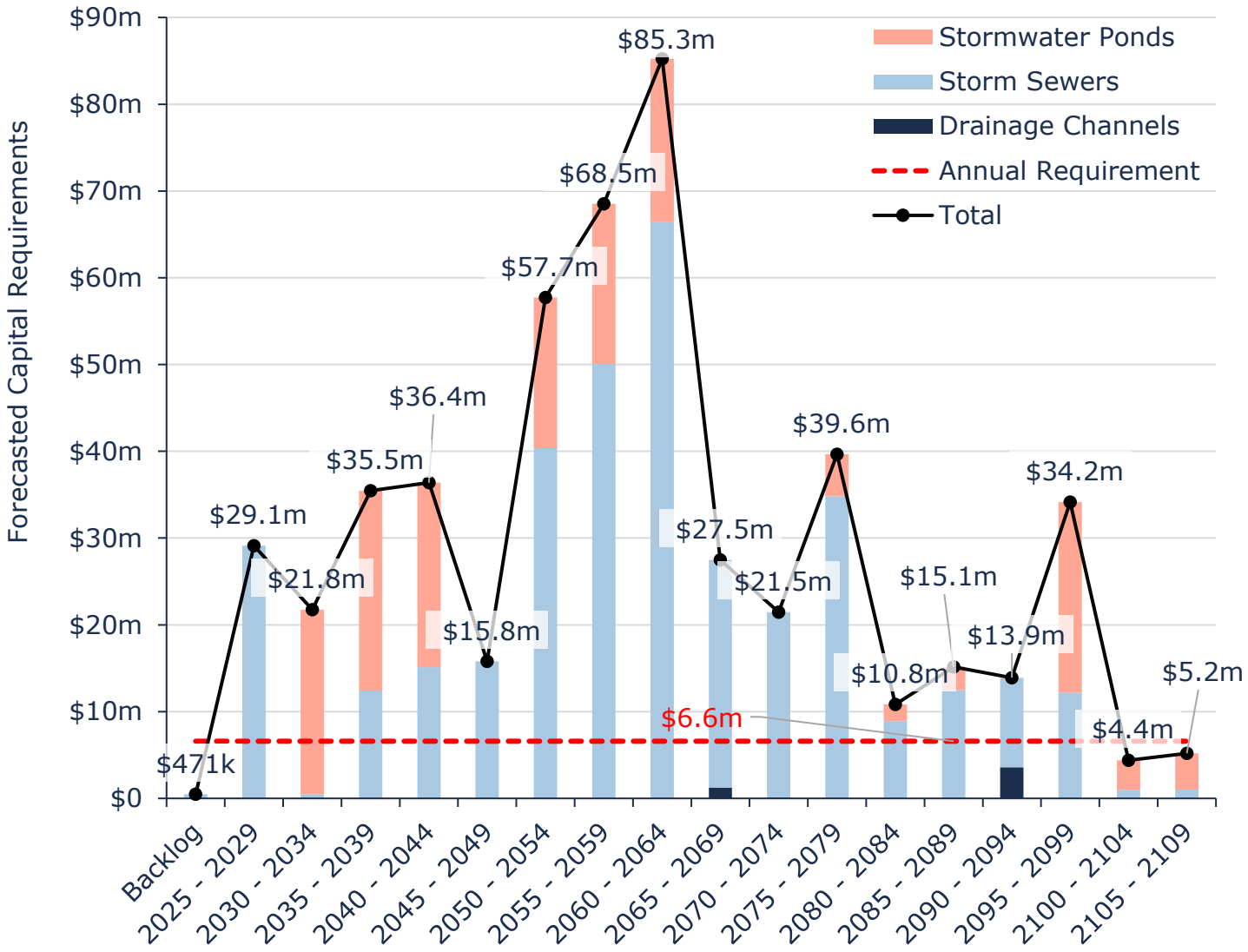


Figure 35: Forecasted Long-Term Replacement Needs: Storm Sewers

The largest replacement spike is forecasted to be $85.3 million in 2060-2064 followed by $68.5 million in 2055 - 2059 as assets reach the end of their expected design life. These projections and estimates are based on asset replacement costs and age analysis. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. In addition, a

robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A detailed 10-year capital replacement forecast can be found in Appendix A – 10-Year Capital Requirements.

6.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, pipe material, and replacement costs. As no additional attribute data was available for storm assets, the risk ratings for assets were calculated using only these asset fields.

The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the City may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the City's Asset Management Database (Citywide Assets). See Risk & Criticality section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 **Very Low**	5 - 7 **Low**	8 - 9 **Moderate**	10 - 14 **High**	15 - 25 **Very High**
$144,290,633 (40%)	$126,383,874 (35%)	$23,398,915 (7%)	$48,027,393 (13%)	$15,707,122 (4%)

Figure 36: Risk Matrix: Stormwater System

6.6.1 Risk to Current Asset Management Strategies

Climate Change & Extreme Weather Events

Changes to intensity, duration, and frequency of rainfall may impact the condition and performance of the Stormwater System. Design criteria can become outdated as Intensity, Duration, and Frequency (IDF) curves are updated. The City's IDF curves were last updated in 2013 and were further analyzed in the Climate Change IDF Study, prepared for Durham Region in 2024. The study indicates a slight increase in intensity for short-duration events, with no significant change observed for long-duration events. The results suggest that the current design practices remain as adequate as they ever were, though continued monitoring is recommended. While this risk is industry-driven, the City's current IDF curves are

still considered relevant for design purposes, with future updates and monitoring suggested for ongoing accuracy.

The forthcoming Community Climate Adaptation Plan—scheduled for Council consideration in May 2025—may introduce additional recommendations or direction for addressing long-term climate resilience. As the Plan is currently in draft form, future asset management updates may be required to align with its finalized objectives and actions once formally adopted.

Installation

Design guidelines have been updated to reflect new requirements around storm sewer sizing for new developments. Although newer subdivisions are being designed to meet overland flow requirements, this is not necessarily the case for all of the older developments.

Currently, design standards for linear infrastructure are built to capture and convey the 1 in 5-year storm event.

Infrastructure Re-investment

Plans to maintain and rehabilitate ponds are entirely dependent on budget approvals. When adequate budgets are not available, these plans may be deferred or canceled.

Lifecycle Management Strategies

For storm sewers, inspections are not completed on a strategic level. Inspections are done on a geographic zone basis, not necessarily targeted towards areas of elevated need.

The storm sewer age is relatively young north of Highway 401 (the majority) and getting older south of the Highway. It is rare that the City has to plan for full reconstruction/replacement. However, The City is looking to expand inspection programs to become more strategic as the average age of storm infrastructure increases.

Furthermore, ponds within the City are relatively new and not at the end of their lifecycle. The City will be developing a robust lifecycle management strategy based on a recently completed asset management plan.

6.7 Levels of Service

The City of Pickering is committed to maintaining a high standard of service for its stormwater management system, ensuring it effectively meets the needs of the community while safeguarding the environment and public well-being. The system is designed with redundancies to manage high flow conditions and prevent overflows, ensuring reliability and minimizing service interruptions. This robust infrastructure plays a vital role in managing stormwater, reducing flood risks, and mitigating environmental impacts.

The City strives to balance affordability with the necessary investments in stormwater infrastructure maintenance, and upgrades. While Pickering's stormwater system is relatively new, it requires financial reserves for future upkeep. Currently, 95% of properties are resilient to a 5-year storm, and 60% to a 100-year storm. However, neighbouring municipalities like Ajax, Whitby, and Durham report higher resiliency rates, highlighting the need for improved data collection and financial planning in Pickering. The following tables summarize the City’s current levels of service, including KPIs under Ontario Regulation 588/17 and additional performance measures selected for this AMP.

6.7.1 Community Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Accessibility	Description, which may include maps, of the user groups or areas of the City that are protected from flooding, including the extent of the protection provided by the Municipal stormwater management system	Acceptable[18]	The zoning, dating back to the 1960s, lacks sufficient flood management infrastructure, particularly in the face of extreme weather events. While floodplain mapping is available online to highlight vulnerable areas, a detailed analysis of the storm sewer system is still missing. As a result, maintenance has been reactive and localized rather than proactive and planned. However, the City benefits from not having combined sewers, which can alleviate some stormwater management challenges. Engineering Services are working to address these issues through a more comprehensive approach, as outlined in their Level of Service Framework, effective as of March 14, 2024.

Table 21: O. Reg. 588/17 Community Levels of Service: Stormwater System

[18] Please refer to Appendix B – Level of Service Maps & Photos for stormwater system classification maps.

6.7.2 Technical Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance	Percentage of inspected catch basins yearly	Acceptable	27.8%
Reliability & Performance	Percentage of properties in Municipality resilient to a 100-year storm	Needs Improvement	60%[19] - The City assumes that the minor system in urban and estate development areas is designed to handle a 5-year event, while the major system is expected to manage a 100-year event without affecting buildings. However, further studies are needed to accurately assess the system's ability to handle these events without impacting infrastructure. Staff have started measuring asset performance against these metrics, with ongoing work that will provide a more accurate representation of the City's Level of Service (LOS) in a future Asset Management Plan (AMP).

[19] High level assumption.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance	Percentage of the Municipal stormwater management system resilient to a 5-year storm	Acceptable	95% - The City assumes that the minor system in urban and estate areas is designed to handle a 5-year event, and the major system is built to manage a 100-year event without affecting buildings. Further studies are needed to accurately assess how well both systems perform. Staff are currently measuring asset performance against these standards, with a more precise Level of Service (LOS) assessment to be included in a future Asset Management Plan (AMP).
Reliability & Performance	Yearly Percentage of inspected and flushed pipes (urban areas)	N/A[20]	The City conducts manual clean and flush programs annually, but the current quantity per year is insufficient to inspect the entire sewer system within five years. As a result, only a small percentage of pipes are inspected each year due to budget limitations. There is no specific policy guiding this process; instead, planning is determined by the available budget allocation.

[20] For the current LOS that are marked as N/A (Not Available), the city will gather additional data to establish accurate values.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance	Yearly Percentage of inspected and flushed pipes (non-urban areas)	N/A	The City conducts manual clean and flush programs annually, but this quantity per year is insufficient to inspect the entire sewer system within five years. As a result, only a small percentage of pipes are inspected each year due to budget constraints. There is no dedicated policy for this process; instead, planning is based on the available budget allocation.
Reliability & Performance	Average condition of stormwater system assets	Acceptable	70% – Based on the calculations from Citywide
Reliability & Performance	Percentage of storm network assets in poor or worse condition	Acceptable	29% - Based on the calculations from Citywide
Affordability	Annual sustainable capital reinvestment/required capital reinvestment rate	Needs Improvement	The actual reinvestment rate is just over 11% of the target rate, highlighting a potential risk of infrastructure deterioration if reinvestment levels remain low.

Table 22: O. Reg. 588/17 Technical Levels of Service: Stormwater System

6.7.3 Proposed Levels of Service

This section provides recommendations for maintaining and improving the stormwater system within the road corridor based on the current Levels of Service (LOS) assessment, public engagement results, and risk analysis. The recommendations focus on addressing deficiencies in storm resiliency and funding sustainability, ensuring proactive maintenance, and improving public engagement.

6.7.3.1. Storm Resiliency and Flood Prevention

Current LOS

- Percentage of properties resilient to a 100-year storm: Needs Improvement (60%)
- Percentage of the stormwater system resilient to a 5-year storm: Acceptable (95%)
- Floodplain mapping is available, but a detailed storm sewer and overland flow system analysis for older neighbourhoods is lacking.
- Maintenance has been reactive and localized rather than proactive and planned.

Public Engagement Results

- Flood prevention was rated as the highest priority (81.0% of respondents).
- Satisfaction with flood prevention was the highest among stormwater features (45.8%).
- Neutral responses about flood prevention were moderate (43.9%), indicating a lack of strong public awareness.

Recommendations

- Enhance flood resilience by investing in system-wide upgrades in flood-prone areas to improve capacity for extreme weather events.
- Develop a detailed storm sewer system analysis to accurately assess vulnerabilities and prioritize upgrades.
- Improve stormwater retention and drainage capacity in flood-prone areas.
- Increase public education on floodplain mapping and household-level flood mitigation strategies.

Risk of Not Improving Storm Resiliency

- Increased flooding risk, leading to property damage and infrastructure failures.
- Higher long-term costs due to emergency response and reactive repairs.
- Reduced public trust in the municipality’s ability to manage extreme weather impacts.

6.7.3.2. Stormwater System Maintenance and Inspection Frequency

Current LOS

- Yearly percentage of inspected catch basins: Acceptable (27.8%)
- Yearly percentage of inspected and flushed pipes (urban areas): N/A (Budget-limited program, unable to complete all inspections within five years).
- Yearly percentage of inspected and flushed pipes (non-urban areas): N/A (Budget-limited program, unable to complete all inspections within five years).
- Average condition of stormwater system assets: Acceptable (70).
- Percentage of storm network assets in poor or worse condition: Acceptable (29%).

Public Engagement Results

- Regular maintenance of stormwater components was highly rated (80.3% of respondents).
- Satisfaction with maintenance was moderate (44.2%), but 46.1% of respondents were neutral, suggesting a lack of public awareness.
- Willingness to pay for more frequent maintenance was lower (24.7%), with significant opposition (30.5%).

Recommendations

- Optimize maintenance scheduling to ensure system components are cleaned and inspected within a five-year cycle.
- Implement a risk-based inspection strategy, prioritizing high-risk areas and aging infrastructure.
- Increase public communication about ongoing maintenance efforts to address neutral perceptions.
- Leverage technology, such as remote monitoring, to improve maintenance efficiency and reduce costs.

Risk of Not Improving Maintenance and Inspection Frequency

- Increased risk of blockages, backups, and localized flooding.
- Deterioration of stormwater assets leading to premature replacement costs.
- Public perception of poor infrastructure management, reducing willingness to support future funding.

6.7.3.3. Sustainable Capital Reinvestment and Funding

Current LOS

- Annual sustainable capital reinvestment rate: Needs Improvement (11% of the required funding).

- Stormwater projects are currently constrained by budget limitations, leading to deferred maintenance and delayed system upgrades.

Public Engagement Results

- Willingness to pay for enhanced flood prevention was moderate (29.2%), with 29.0% of respondents neutral.
- Willingness to pay for more frequent maintenance was lower (24.7%), with 30.5% unwilling.
- Public prioritization favors flood prevention and maintenance over transparency and communication.

Recommendations

- Secure long-term, dedicated funding for stormwater infrastructure upgrades and rehabilitation.
- Leverage available grants and alternative funding sources to supplement municipal investments.
- Develop a financial strategy linking reinvestment levels to long-term cost savings and risk reduction.
- Communicate the benefits of proactive reinvestment to increase public support for funding allocation.

Risk of Not Securing Sustainable Funding

- This graph illustrates the projected condition of the City's stormwater system under three funding scenarios from 2025 to 2040: current, recommended, and optimal budgets. Under the current budget (green line), asset condition gradually declines, falling below 80% and trending downward, signaling a slow but steady deterioration. This decline increases the risk of system failures, local flooding, costly emergency repairs, and reduced resilience to climate-related events such as intense rainfall. In contrast, the recommended budget (purple line) helps stabilize condition above 80%, while the optimal budget (blue line) significantly improves condition, reaching the mid-90% range by 2040. Without increased investment, the City risks higher future costs, service disruptions, and greater vulnerability to extreme weather, making it essential to address the funding gap within the next decade.

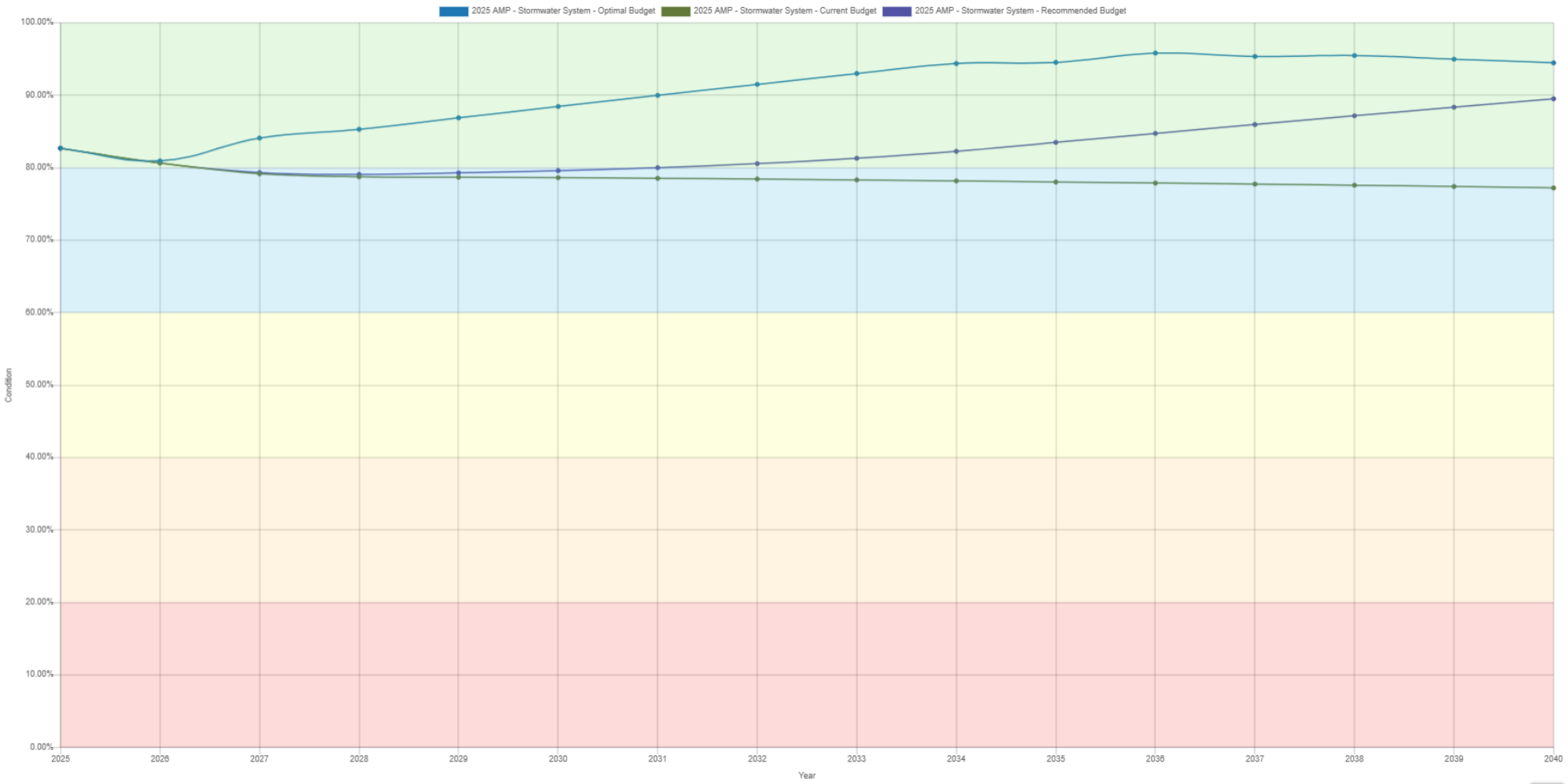


Figure 37: Projected Stormwater System Conditions in Pickering Under Optimal vs. Current vs Recommended Budget Scenarios"

6.7.3.4. Communication and Transparency in Stormwater Management

Current LOS

- Public awareness of stormwater management practices is limited, with high neutral responses in engagement surveys.

Public Engagement Results

- Transparency and communication about stormwater management were the lowest-rated priority (67.7%).
- Satisfaction with stormwater communication was the lowest of all categories (31.0%).
- Dissatisfaction with communication was relatively high (27.0%), indicating a need for improvement.

Recommendations

- Develop an outreach strategy to educate residents on stormwater system functionality and its impact on community safety.
- Improve accessibility of stormwater data, including maps and maintenance schedules, through an online portal.
- Increase engagement through public meetings and stormwater management workshops.

Risk of Not Improving Communication

- Public misperceptions about the municipality’s stormwater management efforts.
- Reduced willingness to support funding increases due to a lack of understanding of system needs.
- Increased public frustration during storm events due to limited information availability.

Non-Core Assets

7. Buildings & Facilities

The City owns and maintains a variety of facilities and recreation centers that provide essential services to the community. These buildings are categorized as follows:

- Civic Complex
- Community & Cultural Buildings
- Fire Services
- Operations Centre
- Recreation, Pools & Arenas

To effectively manage the operational data of these facilities, the City utilizes VFA, ensuring informed decision-making and strategic asset management.

7.1 Inventory & Valuation

Table 23 includes the quantity, replacement cost method and total replacement cost of each asset segment in the City's Buildings & Facilities asset inventory.

Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Civic Complex	1	Buildings	$39,442,725	User-Defined
Community & Cultural Buildings	18	Buildings	$55,798,059	User-Defined
Fire Services	5	Buildings	$27,242,565	User-Defined
Operations Centre	5	Buildings	$36,053,371	User-Defined
Recreation, Pools & Arenas	11	Buildings	$158,293,225	User-Defined
Other	1	Buildings	$63,858	CPI
TOTAL			**$316,893,803**	

Table 23: Detailed Asset Inventory: Buildings & Facilities

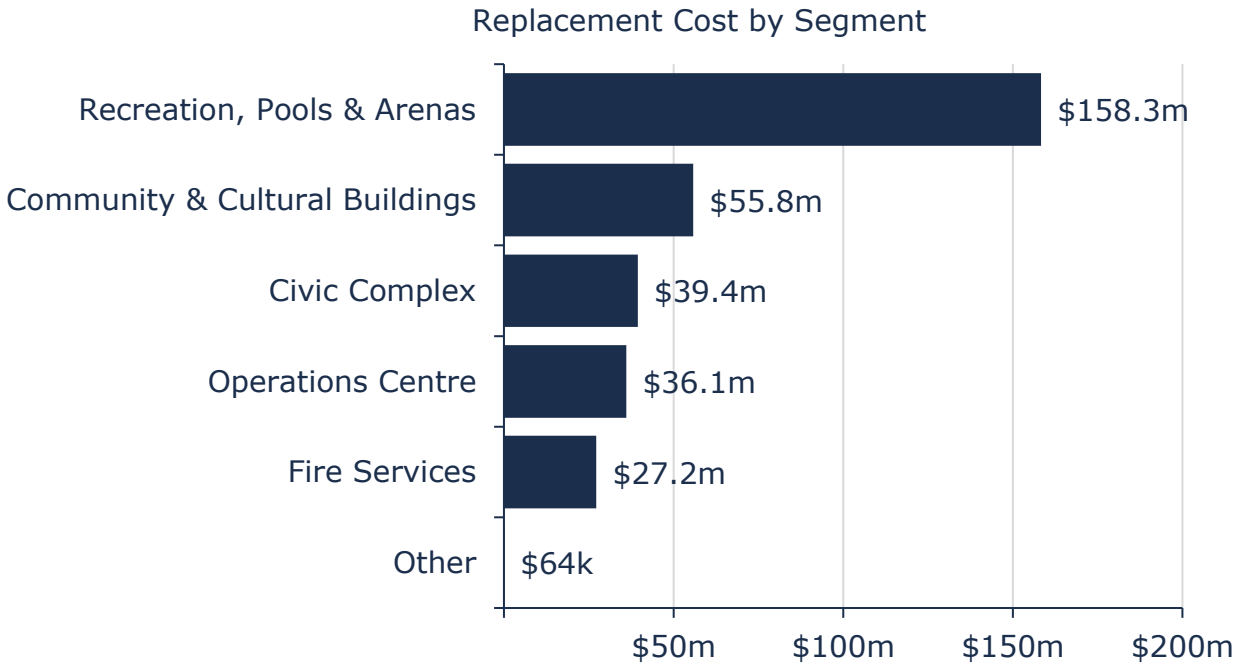


Figure 38: Portfolio Valuation: Buildings & Facilities

7.2 Asset Condition

The City maintains a detailed breakdown of all facilities in its VFA/Facilities database, which compiles and summarizes information for the AMP, offering a more robust budgeting tool. This database is further refined through staff observations and supported by third-party consultant reviews. Appendix E – Facility Condition Indices presents the FCI scores of facilities, as outlined in the Facilities Renewal Study.

A Facility Condition Index (FCI) score is a ratio of the total cost of identified building repairs and renewals (i.e., component replacement) over a defined period (the City uses 5 years) divided by the assets' total estimated replacement cost. It is calculated using the formula:

FCI = Requirement and Renewal Costs / Current Replacement Value

An FCI of 0 percent indicates a facility in perfect condition with no outstanding capital investment backlog or deferred maintenance within the next five years. Low FCI values, typically below 20 percent, indicate good condition with minimal maintenance needs. Higher FCI values, above 40 percent, suggest significant maintenance backlogs and a potential need for major rehabilitation, replacement, or disposal. These thresholds were identified in the City's 2024 Facilities Renewal Study.

The City maintains separate asset management software for its buildings, VFA Facilities, which reports an FCI of 25.68 percent for the entire facility portfolio. This suggests that the facility is at risk of accelerated deterioration, increased maintenance costs, and potential service disruptions. Immediate attention and strategic reinvestment are required to prevent further decline and ensure continued functionality.

To ensure that the City's Building & Facilities continue to provide an acceptable level of service, the City monitors the condition of all individual systems and assets in each of its facilities. As their condition declines, staff re-evaluate their lifecycle management and funding strategy to determine what combination of maintenance, rehabilitation and replacement activities is required to improve the overall condition of Buildings & Facilities.

7.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and service life remaining (SLR). EUL is the initial estimated serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life. With proper care and maintenance, SLR can be extended beyond the initial EUL.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

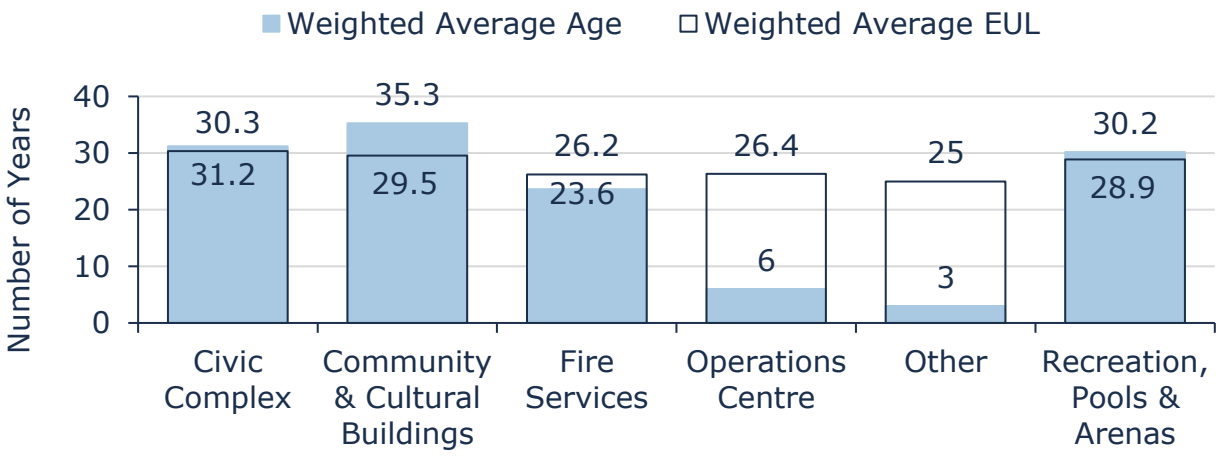


Figure 39: Estimated Useful Life vs. Asset Age: Buildings & Facilities

Figure 39 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets. Age analysis reveals that civic complex, community & cultural buildings, and recreation pools & arenas have exceeded their expected useful lives. On the contrary, operations centre, and other buildings are in the early stages of their expected useful lives. Moreover, fire services facilities are quickly approaching their useful lives.

Age-based analysis would require intensive review of the over 10,000 assets represented in the VFA database, as each of these will have its own established EUL. Detailed analysis will be undertaken in regular updates to the City's Facilities Renewal Study and as part of ongoing facilities management efforts. Data and analysis provided in the City's broader asset management plan is limited to high level summaries of this information to demonstrate overall trends and conditions.

7.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of stakeholders, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

A number of City facilities are approaching the end of their serviceable lives and will compete with growth-related and other priorities for limited available capital funds. The City's Facilities Renewal Study provides guidelines to help develop the required strategies, and feed into the City's broader asset management objectives.

Table 24 outlines the City's current lifecycle management strategy.

Activity Type	Description of Current Strategy
Maintenance	City Facilities Maintenance staff develop preventative maintenance plans that are tailored for each facility. These plans include a variety of activities that are completed by both internal staff and external contractors including: • Routine health & safety inspections and general facility maintenance • Elevator & life safety systems testing • Utilities inspection & maintenance (e.g., generators, plumbing, HVAC)

Activity Type	Description of Current Strategy
Rehabilitation	Facility rehabilitation relies on determining the optimal time to replace systems to control costs and manage risks without jeopardizing facility safety and operational standards. Staff prioritize rehabilitation needs into three broad categories: • Primary: health & safety, roofs, HVAC • Secondary: Back of house areas, non-critical systems • Tertiary: cosmetics, lighting, cladding, flooring
Rehabilitation	In general terms, the City's approach is reviewing facilities in terms of generational life cycles, with each cycle lasting roughly 25-30 years. A major renovation is typically required at that point to address the end of life of a broad number of building systems and consolidated into a single project for order of magnitude cost savings while minimizing overall down time. Most facilities have 2-3 generational cycles in them, leaning towards the lower number if each generation is stretched to 30+ years. Beyond this point, critical infrastructure like foundations require expensive repairs and operating costs can become prohibitive, as well as the increasing risks of unplanned closures.
Replacement	Determining facility replacement requirements involves analyzing several key sources of information, including: • Facility condition index & staff inspections • Maintenance and work order records. • Master Plans • Stakeholder input
Replacement	Staff aim to start evaluating and planning for facility replacements at least 10 years in advance of required capital works. The City's Facilities Renewal Study is the current guiding document for these efforts, aligning objectives with the Parks and Recreation 10-Year Plan, Corporate Energy Management Plan, and other related policies and documents, all falling under the auspices of the City's overall Strategic Plan.

Table 24: Lifecycle Management Strategy: Buildings & Facilities

7.5 Forecasted Long-Term Replacement Needs

Funding needs for facilities assets can vary significantly from year to year. In 2025, there is a backlog of $13.8 million, which grows to $15.6 million in 2026. The highest funding requirement is shown in the latest capital budget forecast in 2027 at $33.5 million, likely due to major planned projects or deferred maintenance. Projected costs within the next five years often include deferred maintenance from previous years that have not yet been funded or approved.

Beyond these specific expenditures, the City's capital budget estimates an average annual requirement of $12.6 million after 2034 to maintain facilities in good condition. These fluctuations underscore the importance of consistent and strategic funding. Without sufficient investment in high-need years, maintenance could be delayed, leading to higher long-term costs and a greater risk of asset failures. By leveraging data-driven planning, the City can allocate resources effectively, ensuring funding is available when needed, preventing costly emergency repairs, and keeping facilities safe and functional for the community.

A detailed 10-year capital replacement forecast can be found in Appendix A – 10-Year Capital Requirements.

7.6 Risk Analysis

This table, sourced from the City’s 2024 Facilities Renewal Study, highlights facility risk rankings based on both condition (FCI) and service criticality. It identifies priority buildings requiring attention, including several fire stations and community centres, and supports a risk-based approach to capital planning and reinvestment.

Facility	FCI	Score	Rank
Animal Services Shelter	0%[1]	4.96	1
Fire Station #5	51%	4.78	2
Fire Station #2	49%	4.26	3
Fire Station #4	38%	4.07	4
Fire Station #6	20%	3.82	5
Civic Complex	35%	3.73	6
Brou	107%	3.55	7
Greenwood Community Centre	78%	3.44	8
Mount Zion Community Centre	59%	3.38	9
East Shore Community Centre	43%	3.26	10
Greenwood Library	58%	3.21	11
Dunbarton Pool	22%	3.11	12
Don Beer Arena	42%	3.11	13
Whitevale Community Centre	76%	3.11	14
Chestnut Hill Developments Recreation Complex	26%	3.09	15
Whitevale Arts & Culture Centre	115%	3.05	16
Pickering Museum Village	14%[2]	3.02	17
Fire Station #1	0%	2.74	18
George Ashe Library & Community Centre	25%	2.65	19
Dr. Nelson F. Tomlinson Community Centre	28%	2.61	20
Operation Center	3%	2.40	21
West Shore Community Centre	36%	2.02	22
Pickering Soccer Centre	2%	1.91	23

Figure 40: Risk Scores vs FCI: Buildings & Facilities from the 2024 Facilities Renewal Study[21]

This table, sourced from the City's 2024 Facilities Renewal Study, highlights facility risk rankings based on both condition (FCI) and service criticality. It identifies priority buildings requiring attention, including several fire stations and community centres, and supports a risk-based approach to capital planning and reinvestment.

7.6.1 Risk to Current Asset Management Strategies

The following section summarizes key trends, challenges, and risks to service delivery that the City's facilities are currently facing:

[21] Footnote 1: Animal Shelter is a leased facility with no VFA data; however, the city is responsible for all capital upgrades and significant investment is required. Therefore, it is assumed that if there was an assessment the FCI score would be 50% or more and score of 5 would apply.

Footnote 2: Historic pavilion structures are not included in the Museum FCI. This value only includes Redman House, the Conservation Building and Upper Site Storage Building.

Climate Change & Extreme Weather Events

Increasing temperatures place greater stress on HVAC systems. More frequent and severe windstorms, heavier snowfall and deluge precipitation can overwhelm the system design capacities of City facilities, especially older buildings designed to less stringent codes and requirements. Climate resiliency is already a key consideration in any discussion of new construction/retrofits - e.g., building roof curbs to allow additional insulation thickness at a later date.

Infrastructure Design/Installation

Futureproofing is already a key strategy for all City facility capital projects. The City acknowledges the need to build in as much resilience, durability, and flexibility as possible. The City wants to be able to keep up with technological advancements, and aging systems often become more difficult to maintain as parts and required expertise become sparse. Redundancy is key for critical systems, such as HVAC, electrical and life safety systems.

The City's 2024-2029 Corporate Energy Management Plan (CEMP) includes recommendations to develop a corporate building standard for City facilities that could address long term needs and resiliency to maintain an inventory of robust assets, which notably include emergency and post-disaster buildings.

Aging Infrastructure

Aging infrastructure poses a significant risk to the City of Pickering's facilities, especially as essential structural systems reach the end of their serviceable lives. As buildings age, key components such as foundations, load-bearing walls, roofs, and mechanical systems deteriorate, increasing the likelihood of failures that could compromise safety, functionality, and service delivery. Structural degradation can lead to issues such as leaks, cracks, corrosion, and weakened load-bearing capacities, which, if left unaddressed, can escalate into costly emergency repairs or even facility closures. Once a facility's key structural systems reach end of life, rehabilitation is rarely cost-effective, requiring full replacement or disposal of the building.

7.7 Levels of Service

The City of Pickering is dedicated to providing exceptional services across all municipal facilities, with a strong focus on accessibility, sustainability, reliability, performance, and cost-effectiveness. The City strives to ensure that all residents and visitors to the community can access and benefit from its facilities, with accessible entrances, washrooms, and assistive technologies in place, exceeding minimum code requirements whenever possible. In addition, sustainable practices are integrated into the City's procurement practices, building operations and capital

project planning to minimize environmental impact, reinforced by the objectives of the City’s Corporate Energy Management Plan 2024-2029, Community Climate Adaptation Plan 2025-2035 and Corporate Strategic Plan 2024-2028. Regular inspections and maintenance ensure that these facilities remain safe, secure, and resilient, while also being reliably responsive to emergencies.

Several City building assets already have Facility Condition Index (FCI ratings exceeding 40 percent, with low service life remaining. This will require significant attention over the short term. The renewal study should be further developed and inform the City's broader strategic objectives to ensure that target levels of service can be maintained over the long run. The City continuously strives to offer high-quality service to all visitors and stakeholders by regularly reviewing service delivery and actively seeking customer feedback to improve its offerings. Committed to affordability, the City ensures that its facilities remain accessible and enjoyable for all residents and visitors. The following tables summarize the City’s current levels of service, including KPIs under Ontario Regulation 588/17 and additional performance measures selected for this AMP.

7.7.1 Community Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Accessibility	Description of the availability of recreational and cultural services supported by municipal facilities to residents	Acceptable	The City's Recreational and cultural services are primarily concentrated in South Pickering, providing good access. Central and North Pickering have more limited availability, requiring improvement. Issues include an insufficient number of facilities, several aging facilities set for decommissioning, and accessibility challenges like a lack of elevators in some buildings. Two new facilities (Pickering Heritage & Community Centre and Seaton Recreation Complex & Library) are planned but will not be completed until after 2025.
Accessibility	Description of the state of modernization of recreational facilities	Needs Improvement	As demographics shift and density increases, especially near existing facilities, aging buildings need modernization to meet evolving community needs. This should go beyond health and safety updates to include new features aligned with current trends, such as fitness classes and improved amenities, as outlined in the Recreation and Parks 10-Year Plan. A proactive approach will help ensure facilities stay

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
			relevant, accessible, and capable of serving a growing, diverse population.
Accessibility	Description of the state of modernization of Library Facilities	Needs Improvement	As demographics shift and density increases, aging buildings need modernization to meet evolving community needs. This should include updates beyond health and safety, incorporating current trends and upgraded amenities, as outlined in the Public Library Facilities Plan (2023). A proactive approach will ensure facilities stay relevant, accessible, and serve the diverse, growing population.
Accessibility	Description of any initiatives and plans to make buildings and facilities more accessible	Acceptable	Initiatives to improve building accessibility include documenting barriers in the work plan prepared by the City's Accessibility Advisory Committee, which also reviews major capital projects through the lens of accessibility. City staff also conduct bi-annual accessibility reviews with recommendations sent to the province, and submitting compliance audits. An ad hoc staff accessibility committee oversees various audits and walkthroughs.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Accessibility	Description of any initiatives and plans to make libraries more accessible	Acceptable	Library services in Pickering are currently considered accessible based on the availability of public transportation and existing facilities. However, the proximity analysis should be refined using KPIs such as ensuring 95% of residents are within 5 km of a library, achieving 15-minute walkability, and locating facilities along major bus routes. A new bookmobile outreach service was also launched in 2024, and two new facilities are planned to offer library services.
Accessibility	Description of the availability of the library services supported by municipal facilities to residents	Acceptable	Library services are concentrated in South Pickering, offering acceptable access, while Central and North Pickering have more limited availability, which needs improvement. Key issues include an insufficient number of facilities for the population. Two new facilities are planned for North of Finch (Pickering Heritage & Community Centre) and Central Pickering (Seaton Recreation Complex & Library), both featuring library amenities. However, these projects are not part of the current plan, as they will be completed after 2025.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance	Description of lifecycle management strategies and assessment programs applied to municipal facilities	Acceptable	Lifecycle management for municipal facilities includes a structured maintenance program, monthly inspections of fire alarms and systems, and energy management through automation controls. Honeywell Building Management Systems are implemented in 6 of 24 buildings. The City uses the VFA database for tracking and planning capital renewal activities, though there is no formal lifecycle management policy in place. The VFA database is regularly updated by staff inspections and third-party building condition assessments.
Reliability & Performance	Description of inspection programs applied to municipal facilities	Acceptable	Municipal building assessments include inspections by third parties and governing authorities, such as monthly compliance audits by the Electrical Safety Authority (ESA) and inspections by the Technical Standards and Safety Authority (TSSA) for elevators and valves. Health and safety inspections are conducted monthly, and condition reviews are done prior to budget planning to prioritize replacements or upgrades, with capital budgets forecasted for 10 years. Other assessments include HVAC inspections, roof and elevator checks, thermographic

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
			scans, non-destructive testing, and structural reviews. Inspection reports with recommendations are provided to relevant department stakeholders.
Sustainability	Description of any initiatives and plans to make municipal facilities more energy efficient	Acceptable	To improve energy efficiency in municipal buildings, the City targets performance improvements when replacing old equipment, leverages automation and controls to optimize energy use. Strategic goals are developed through the Corporate Energy Management Plan (CEMP), updated every 5 years. Annual reports track energy usage, efficiency gains, and regulatory compliance, while also leveraging incentive programs and grants to support energy-efficient upgrades.

Table 25: Community Levels of Service: Buildings & Facilities

7.7.2 Technical Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance	Average Facility Condition Index	Needs Improvement	25.68 - The Facility Condition Index (FCI) is calculated and updated annually by the VFA database ensuring reference information remains current. Costs are linked to the RS, which means pricing database and adjusted to local Durham Region Costs by this system.
Affordability	Annual sustainable capital reinvestment/required capital reinvestment rate	Needs Improvement	The City's actual reinvestment rate is just over 58% of the target rate, highlighting a potential risk of infrastructure deterioration if reinvestment levels remain low.

Table 26: Technical Levels of Service: Buildings & Facilities

7.7.3 Proposed Levels of Service

The condition of the City's facilities plays a critical role in supporting community wellbeing, safety, and satisfaction. Current data shows that many municipal buildings, particularly recreational and cultural facilities, are aging and in need of modernization. With a Facility Condition Index (FCI) of 25.68% and capital reinvestment levels at just 58% of what is required, the City's ability to maintain service levels is increasingly challenged. Public engagement indicates strong support for the modernization and functionality of recreational assets, yet a relatively low willingness to fund such improvements. To understand the implications of various investment levels and guide future planning, five capital investment scenarios were developed and assessed, both with and without new construction. These scenarios highlight the importance of strategic reinvestment and reveal how metrics like the FCI can mask critical infrastructure gaps if not interpreted in context.

7.7.3.1. Facility Condition and Capital Reinvestment

Current LOS

- Facility Condition Index (FCI): Needs Improvement (25.68%)
- Annual capital reinvestment rate: Needs Improvement (58% of required funding).
- Aging buildings, particularly recreational and cultural facilities, require modernization to meet evolving community needs.

Public Engagement Results

- Condition and maintenance of municipal buildings was rated important (65.4%) but had high neutral responses (25.6%).
- Modernity and functionality of recreational facilities were rated highly (74.3%), showing strong demand for modernization.
- Willingness to pay for modernization was low (18.4%), with 36.0% unwilling to support funding increases.

Scenario Analysis

1. Current Year Capital Budget Without New Construction

- **Trends**: The capital budget is highest during 2027–2029 due to significant planned renovations. This spike aligns with the previously mentioned projects such as renovations at George Ashe Library & Community Centre, O'Brien Arena, and the Civic Complex.
- **FCI Decline**: In this scenario, the FCI decreases over time, indicating better facility conditions overall. However, the decrease in FCI is driven by significant capital investments, which improve overall asset values. This does not necessarily mean that all facilities are in good condition—some buildings may still require major rehabilitation, but the average FCI improves due to targeted investments in specific assets. FCI, as a metric, also does not capture service life remaining, which may override any benefit to capital reinvestment.

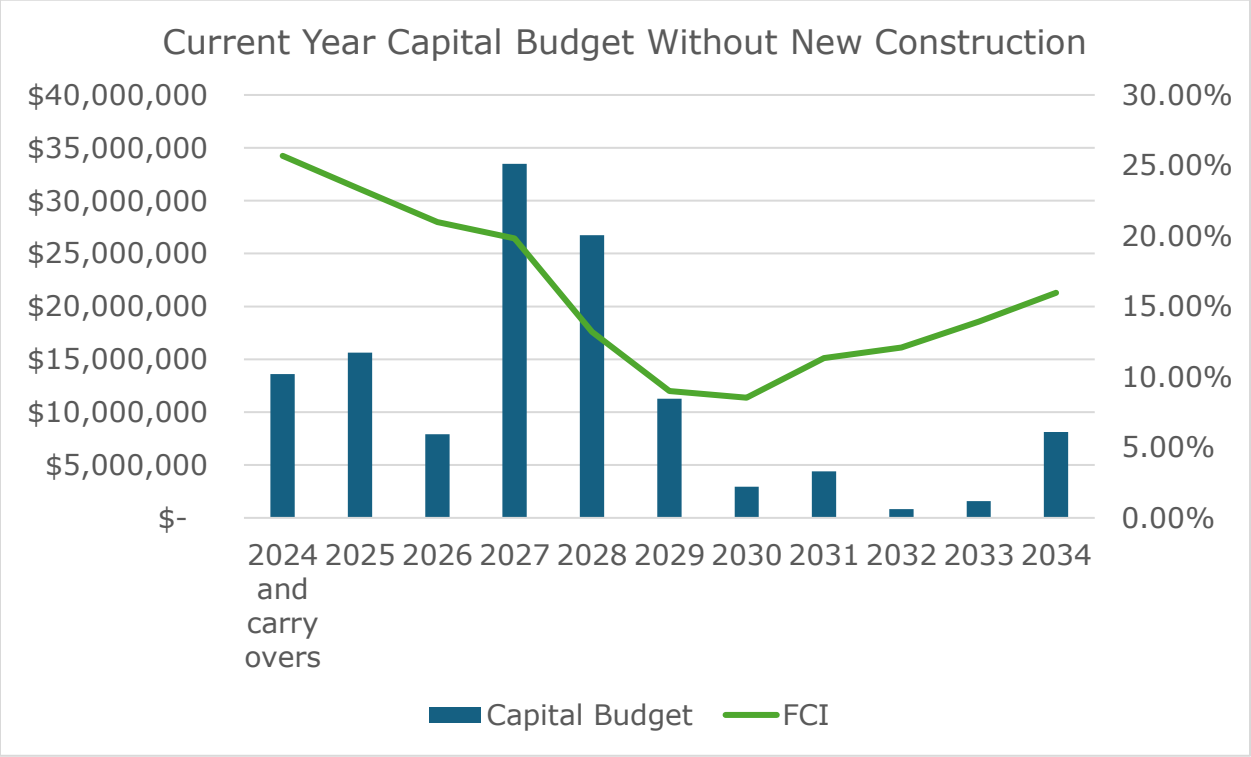


Figure 41: Capital Budget Forecast and FCI Trends (Excluding New Construction)

2. Maintain FCI Without New Construction

- **Capital Budget:** This scenario assumes funding levels that keep the Facility Condition Index (FCI) steady, at the current level, over time. The budget fluctuates to ensure facilities do not fall below a certain condition level, mainly by addressing overdue maintenance and preventing further deterioration. While this approach may seem cost-effective, it is important to

understand that a stable FCI doesn't mean every facility is in good shape, it simply means the overall metric is not getting worse. Some buildings may still be aging and in poor condition, but their impact is balanced out by maintenance efforts elsewhere.

- **Stability of FCI:** Unlike the current budget scenario, where large investments lower the FCI significantly, this approach maintains the current condition levels without major improvements. However, it is crucial to understand what this stability actually means. If FCI is kept steady at a low level, it implies facilities see regular and timely reinvestment. But if it stabilizes at a lower level, it could mean that many buildings are aging without necessary upgrades. Readers should compare the actual FCI values in each scenario to see the full picture—without this context, the option with the lowest cost might seem like the best choice when, in reality, it could lead to bigger problems in the long run, such as higher repair costs, safety concerns, or even facility closures.

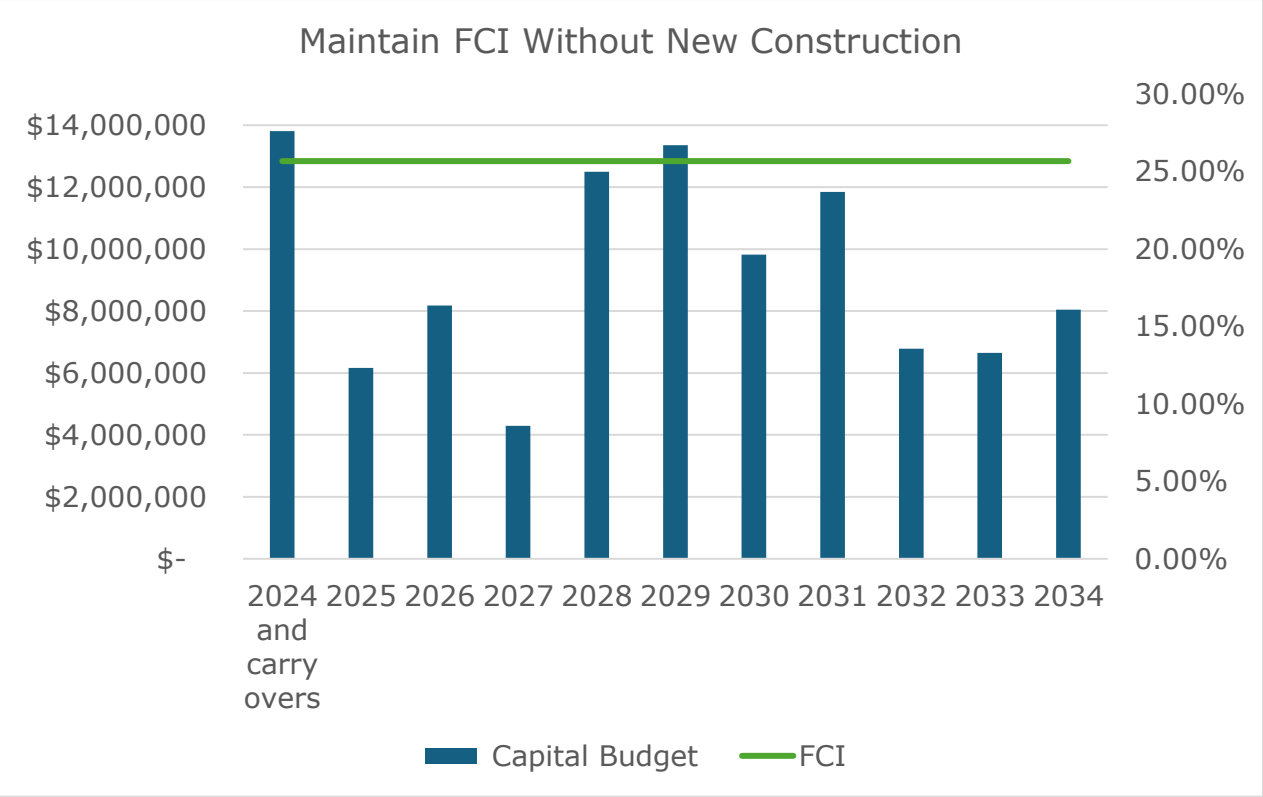


Figure 42: Capital Budget Plan to Maintain FCI (Excluding New Construction)

3. Historical Funding Levels Without New Construction

- **Rising FCI**: The FCI increases over time in this scenario, as the capital budget is insufficient to address growing deferred maintenance.
- **Budget Impact**: This trend demonstrates that without adequate capital investment, the condition of facilities worsens, leading to compounding maintenance needs or costly emergency repairs.

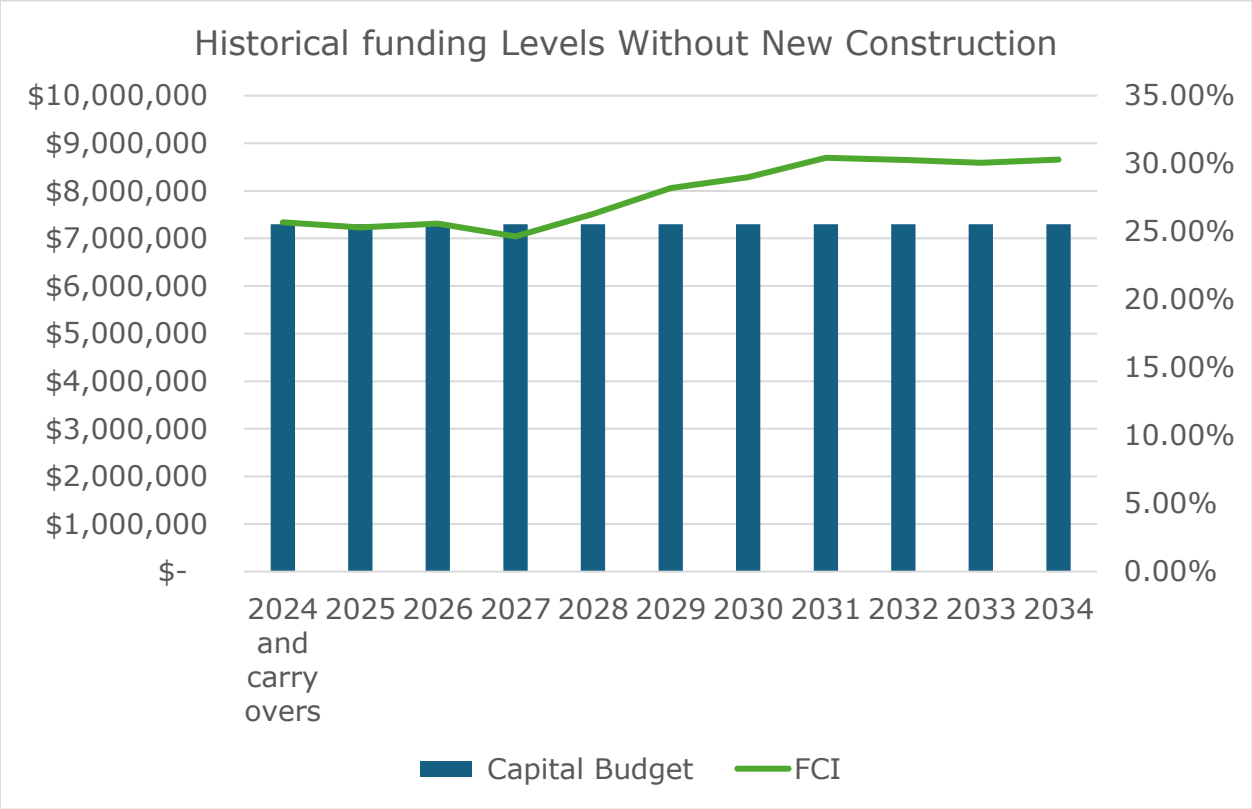


Figure 43: Historical Capital Funding and FCI Trends (Excluding New Construction)

4. Capital Budget With New Construction

- **Capital Budget Spikes**: Similar to the first scenario, there are significant spikes in the budget during 2027–2029. However, additional funds for new construction, such as the Seaton Recreation Complex & Library, Animal Shelter, Northern Operations Depot and Fire Stations, are evident.
- **Steeper FCI Decline**: The inclusion of newly constructed facilities, which are in excellent condition, significantly lowers the overall FCI by inflating the overall value of the portfolio. This reflects skewed averages rather than consistent improvements across all facilities. Some facilities may still be in poor condition but will reflect a smaller proportion of the whole.

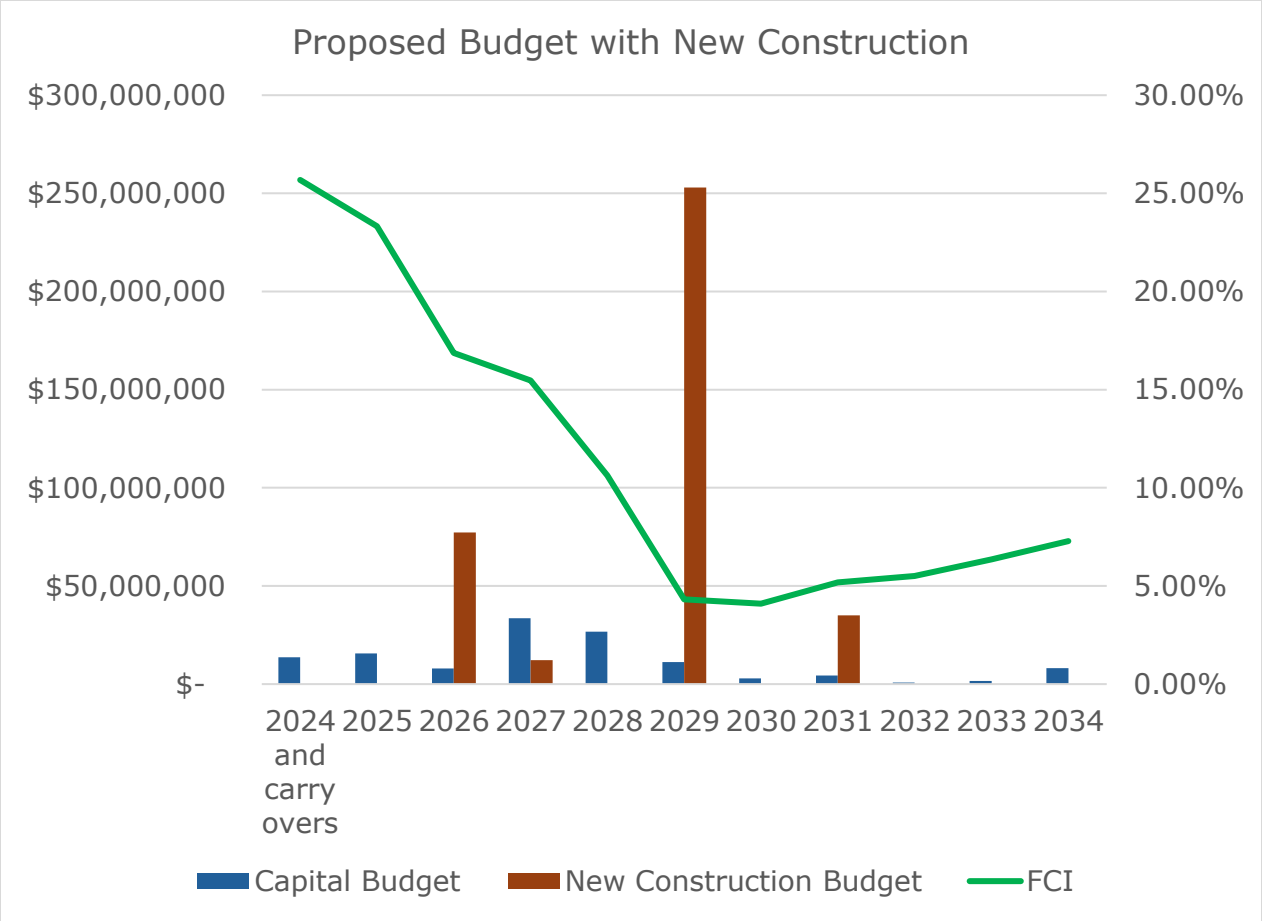


Figure 44: Capital Budget and FCI Trends with New Construction

5. Historical Budget With New Construction

- **Capital Budget Trends**: The budget remains relatively flat, insufficient to address both deferred maintenance and new construction demands.

- **FCI Plateau:** While new facilities slightly improve the average FCI, the insufficient budget fails to curb the growth of deferred maintenance, causing the FCI to plateau around 15% over time.

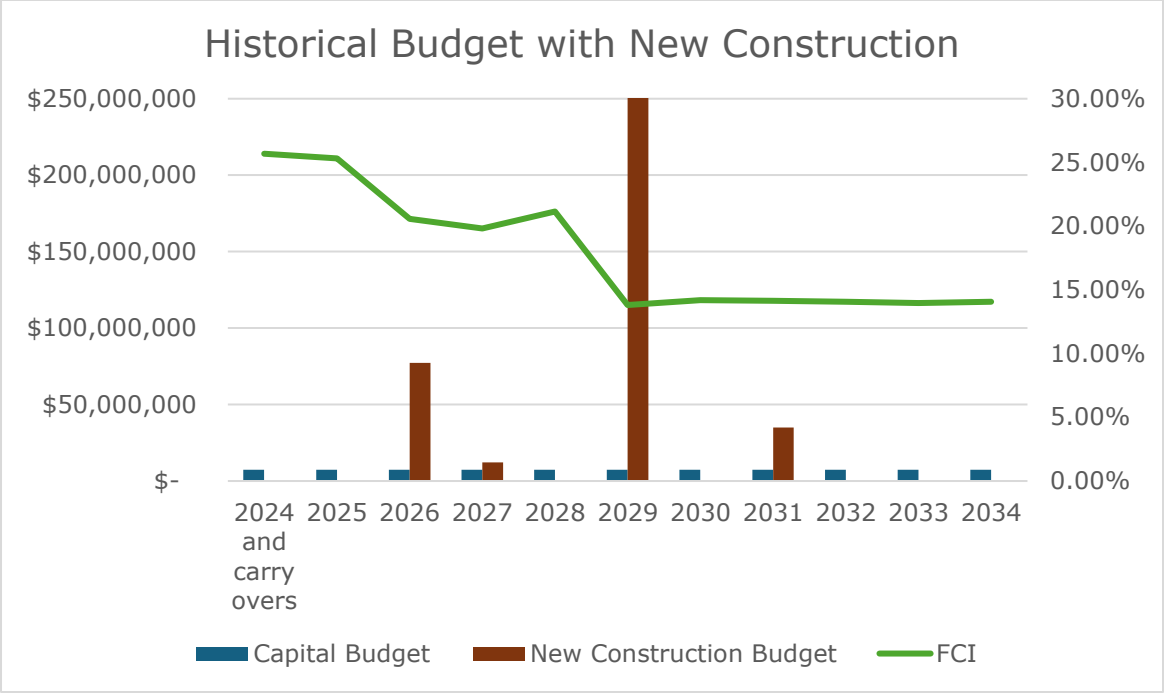


Figure 45: Historical Capital Budget and FCI Trends with New Construction

Impact of Increasing the Total Portfolio

When new construction is added to the portfolio, the Total Replacement Cost (TRC) increases accordingly, and significantly for large-scale projects. Since new construction has little to no deferred maintenance, initially, the deferred maintenance as a proportion of the total TRC temporarily decreases, artificially lowering the FCI for the portfolio. This gives the impression that the overall portfolio is in better condition than it actually is. The actual dollar value of required capital investment across the portfolio actually remains unchanged. The same cost is simply being compared against a higher TRC.

Key Reasons for Skewed Results

1. **Dilution of Deferred Maintenance**:

- The new buildings have no backlog of deferred maintenance, or projected reinvestment needs within five years, so, their inclusion effectively "dilutes" the overall ratio.
- For example, adding a new $250 million recreation complex with no deferred maintenance will significantly lower the FCI of an existing portfolio worth $300 million, even if other older buildings still have substantial repair needs.

2. **Averaging Across Diverse Conditions**:

- Facilities challenged with serious or severe deterioration leading to end of respective component lifecycles may remain underfunded while new buildings in pristine condition lower the FCI. This distorts the reality of the older facilities' poor conditions.

3. **Neglected Deferred Maintenance Backlogs**:

- Older facilities often have deferred maintenance costs that exceed their available capital budgets, as owners hesitate to see the value in ongoing investment. The focus on constructing new facilities can push these issues further down the priority list, exacerbating long-term deterioration. There is a threshold beyond which reinvestment is no longer cost-effective, and where divesting the City of severely deteriorated assets should be considered.
- Disposing of assets in poor condition, where reinvestment is not possible or not deemed an effective use of limited available resources, should be considered a viable option and will likewise reduce the FCI of the overall portfolio by eliminating assets with high deferred maintenance costs.

4. **Misleading Portfolio Trends**:

- Stakeholders might interpret a declining FCI as an indicator of overall portfolio improvement, even though only specific new assets are driving this decline, not the repair or maintenance of existing ones.
- FCI, while a valuable metric, is also not the only guiding principle or indicator for facilities asset management, as demonstrated in the Facilities Renewal Study.

Example from the Data[22]

In the "Current Budget With New Construction" scenario:

- The inclusion of major new projects such as the Seaton Recreation Complex & Library ($253 million) and the Pickering Heritage & Community Centre ($60 million) drastically increases the Total Replacement Value.
- As a result, the overall FCI of the portfolio decreases, but older facilities would still have unresolved maintenance backlogs.
- Severe deterioration of older facilities could go unnoticed in FCI trends due to the disproportionately large impact of new construction on the overall index. Separate tracking of asset life consumption is required, in addition to monitoring FCI, to fully capture the true state of the portfolio.

[22] Applicable to other scenarios with new construction.

Implications for Asset Management

1. **Focus on Core Condition Metrics**:

    - Instead of relying solely on FCI, it is important to examine specific metrics for aging facilities, such as individual building condition scores or component-level assessments (e.g., roof, HVAC systems). The City addresses this by maintaining the VFA database with much higher levels of detail for individual systems and components within its facilities.
    - Certain building systems, such as foundations and other major structural components, are never fully replaced. As they approach the end of their serviceable life, or deteriorate beyond a point of cost-effective repair, full replacement may eventually be required. Long-term strategic planning for eventual building replacement must be considered.

2. **Highlighting the Deferred Maintenance Gap**:

    - The absolute value of deferred maintenance should be tracked separately from the FCI to avoid overshadowing critical repairs needed for older assets.

3. **Portfolio Segmentation**:

    - Separating the analysis of newly constructed facilities from legacy facilities provides a clearer picture of the challenges within older assets. The City is maintaining the VFA database with much higher levels of detail for individual systems and components within its facilities.

4. **Strategic Resource Allocation**:

    - A balanced investment strategy is needed to ensure older facilities receive adequate funding or are decommissioned, while accommodating new construction.
    - In addition to addressing the funding gap, establishing and maintaining a suitable reserve fund to address peaks and valleys in deferred maintenance trends will be essential to avoiding occasional demand spikes where multiple expensive assets come due for repair or replacement simultaneously.

Conclusion

While FCI is a useful metric, its reliance on aggregate values like deferred maintenance and TRV expose its limitations such as when large-scale new construction is added to the portfolio. To address this, asset management practices should prioritize transparency in reporting, using multiple metrics, and provide a nuanced analysis of individual facility conditions, ensuring that the true state of aging infrastructure is not masked by the addition of new assets or other factors.

Recommendations

- Optimize Facility Investments with a Rationalization Strategy: Implement a facility rationalization plan that prioritizes reinvestment in high-use, critical facilities while identifying aging assets that have surpassed their viable service life. Establish a "beyond-repair" policy to systematically assess when reinvestment is no longer cost-effective, allowing strategic disposal, repurposing, or consolidation of underutilized or deteriorated assets. This would help to ensure that financial resources are allocated efficiently and that new investments align with long-term community needs.
- Balance New Construction with Deferred Maintenance: While new projects improve the overall FCI, and the health of the portfolio, they should not overshadow urgent capital renewal needs in older buildings. A structured funding approach should ensure that both existing and new assets receive timely and adequate resources.
- Leverage Grant Funding and Alternative Financing: Explore external funding sources, including government grants and public-private partnerships, to supplement capital reinvestment and reduce reliance on municipal budgets.
- Develop a Long-Term Modernization Strategy: Establish a phased plan for modernizing recreational and cultural buildings to meet evolving community expectations and new technologies while maintaining financial sustainability.
- Enhance Public Awareness and Engagement: Improve communication about the need for lifecycle investments and the long-term impact of deferred maintenance to build public support for sustainable infrastructure funding.
- Track Deferred Maintenance Separately: Implement reporting mechanisms that separate deferred maintenance values from overall FCI trends to ensure transparency in the true condition of aging assets.
- Strategic Asset Disposal and Renewal: Identify severely deteriorated assets where reinvestment is no longer viable and consider divestment, replacement, or repurposing to optimize the portfolio.
- Establish a Reserve Fund for Facility Lifecycle Costs: Create a dedicated reserve to manage fluctuations in deferred maintenance demands, preventing unexpected spikes in required funding and ensuring long-term sustainability.

Risks of Not Addressing Facility Condition

- Accelerated Infrastructure Deterioration: Without timely reinvestment, facilities will continue to degrade, leading to higher repair costs and potential service disruptions.
- Public Dissatisfaction and Reduced Service Levels: Outdated, underperforming facilities, especially recreational and cultural spaces, could result in lower community engagement, declining usage, and increased pressure to build new assets instead of maintaining existing ones.
- Increased Operational and Energy Costs: Older buildings with inefficient systems and outdated infrastructure will continue to incur higher maintenance and utility costs, straining operational budgets.

- Hidden Risks in FCI Trends: A declining FCI due to new construction may give the false impression of improvement while older facilities remain in poor or critical condition, potentially leading to unexpected failures.
- Strained Financial Resources: Insufficient funding for deferred maintenance could result in emergency repairs, forced closures, or expensive last-minute interventions, impacting long-term financial planning.
- Equity and Accessibility Challenges: Facilities in poor condition may become less accessible, unsafe, or non-compliant with modern standards, disproportionately affecting vulnerable populations.

7.7.3.2. Accessibility and Availability of Services

Current LOS

- Municipal buildings are generally accessible, with ongoing audits and improvement initiatives.
- Recreational and cultural services[23] are concentrated in South Pickering, leaving Central and North Pickering underserved.
- Two new facilities - Pickering Heritage & Community Centre is expected to be operational in 2026, and Seaton Recreation Complex and Library is currently being considered.

Public Engagement Results

- Accessibility of municipal buildings was rated highly (76.8%).
- Physical availability of library
- and recreational spaces was the most important feature (78.8%).
- Moderate support for improving accessibility (24.1% willing to pay), but 30.3% were unwilling.

Recommendations

- Expand accessibility-focused renovations to improve compliance with evolving standards and user needs.
- Implement interim service delivery solutions (e.g., mobile libraries or pop-up recreation programs) in underserved areas until new facilities are operational.
- Improve transportation links and accessibility for residents in areas with limited facility availability.

[23] Cultural services are currently offered at the Pickering Museum Village in Central Pickering (Greenwood). With the upcoming opening of the Pickering Heritage & Community Centre, it will become a major hub for cultural services.

- Combine accessibility improvements with other capital renewals for greater cost effectiveness and to minimize down time with multiple separate projects.

Risk of Not Addressing Accessibility and Availability

- Barriers to facility use for residents with mobility challenges.
- Reduced engagement in recreational and cultural activities, particularly in underserved areas.
- Potential non-compliance with accessibility legislation and best practices.

7.7.3.3. Maintenance and Lifecycle Management

Current LOS

- Facility inspections are conducted regularly by third-party and regulatory bodies.
- Lifecycle management is structured but lacks a formal policy to guide long-term planning.
- VFA Facilities database is used for tracking and planning capital renewal activities.

Public Engagement Results

- Maintenance of municipal buildings was rated important (65.4%), but 25.6% were neutral, suggesting a lack of awareness.
- Satisfaction with facility condition was moderate (48.5%), with 39.7% neutral responses.
- Willingness to pay for more frequent maintenance was low (24.7%), with 30.5% unwilling.

Recommendations

- Develop a formal lifecycle management policy to guide proactive asset maintenance and renewal.
- Improve public communication about maintenance efforts to address neutral perceptions and build support for preventative investment.
- Optimize inspection cycles and asset tracking to enhance efficiency and reduce reactive maintenance costs.
- Implement technology solutions to improve preventative maintenance tracking, scheduling, and reporting.

Risk of Not Improving Lifecycle Management

- Deferred maintenance leading to accelerated deterioration of facilities.
- Higher long-term costs due to increased reliance on reactive repairs.

- Reduced public confidence in the municipality's ability to manage infrastructure assets effectively.

7.7.3.4. Energy Efficiency and Sustainability

Current LOS

- Energy efficiency upgrades are targeted during equipment replacements, but there is no dedicated energy management policy.
- The Corporate Energy Management Plan (CEMP) monitors and report annual energy usage and greenhouse gas emissions and is updated every five years.
- Six out of 24 municipal buildings use Honeywell Building Management Systems for energy control.

Public Engagement Results

- Energy efficiency was rated important (59.7%) but had the highest neutral response (29.6%).
- Satisfaction with energy efficiency was the lowest-rated category (38.4%), with 52.4% neutral responses.
- Willingness to pay for energy efficiency improvements was low (20.7%), with 33.3% unwilling.

Recommendations

- Expand the implementation of energy management systems across all municipal facilities to optimize energy use.
- Improve public awareness of energy-saving initiatives to address high neutrality and build support for sustainability measures.
- Seek funding opportunities for green building retrofits to reduce the financial impact of energy efficiency investments.
- Implement the recommendations of the 2024 CEMP to enhance the City's ability analyze and better strategically set and achieve energy management goals.

Risk of Not Addressing Energy Efficiency

- Higher operational costs due to inefficient energy use.
- Increased environmental impact and failure to meet sustainability targets.
- Missed opportunities to access funding incentives for green infrastructure upgrades.

8. Parks

The City owns and operates several assets that fall under the Parks assets category. These assets are essential for the Parks' service delivery. The asset segments include[24]:

- Active Recreation Facilities
- Amenities, Furniture & Utilities
- Vehicular and Pedestrian Networks

8.1 Inventory & Valuation

Table 27 includes the quantity, replacement cost method and total replacement cost of each asset segment in the City's Parks asset inventory.

Segment	Sub-Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Active Recreation Facilities	Playground Equipment	86	Each	$6,773,085	User-Defined
Active Recreation Facilities	Sport Playing Surfaces	125	Each	$22,844,467	User-Defined
Amenities, Furniture & Utilities	Buildings	33	Each	$6,299,299	User-Defined
Amenities, Furniture & Utilities	Electrical/ Lighting	549	Each	$11,324,556	User-Defined
Amenities, Furniture & Utilities	Site Furniture	433	Each	$1,508,671	User-Defined
Amenities, Furniture & Utilities	Site Structures	611	Each	$11,138,550	User-Defined
Amenities, Furniture & Utilities	Subsurface Infrastructure	171	Each	$2,541,826	Cost per Unit

[24] The asset inventory includes only traditional tangible capital assets and does not include natural assets.

Segment	Sub-Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Amenities, Furniture & Utilities	Waterfront Infrastructure	10	Each	$13,047,086	User-Defined
Vehicular & Pedestrian Networks	Parking Lots & Internal Roads	51,320	Square Meters	$4,996,721	User-Defined
Vehicular & Pedestrian Networks	Pedestrian Corridors	94,413	Square Meters	$15,197,162	User-Defined
TOTAL				**$95,671,423**	

Table 27: Detailed Asset Inventory: Parks

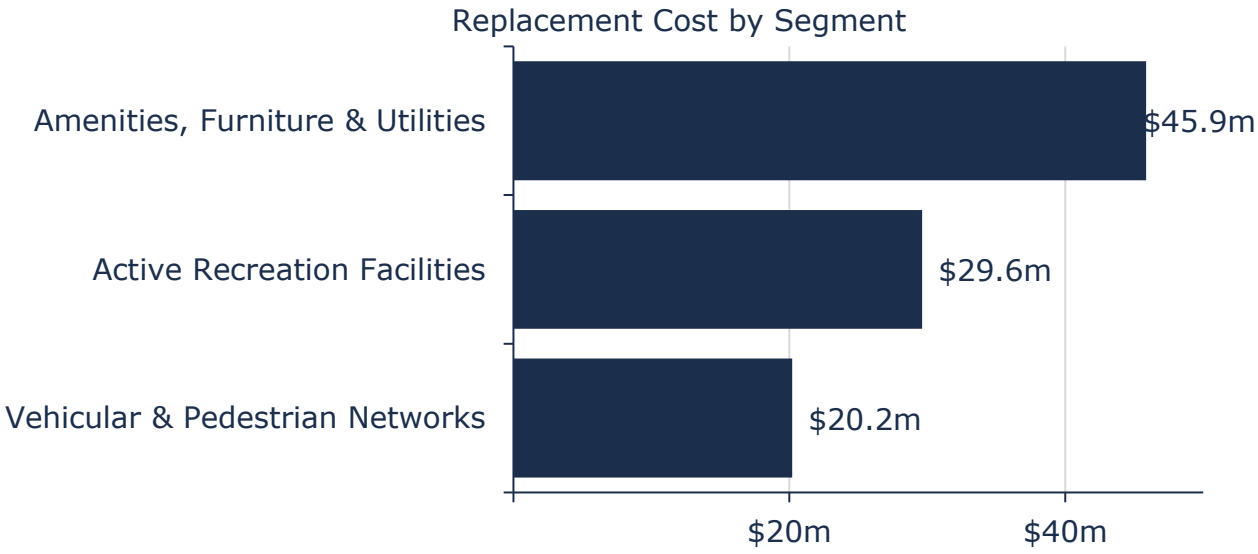


Figure 46: Portfolio Valuation: Parks

8.2 Asset Condition

The City maintains a full breakdown of all Parks in its VFA database, which compiles and feeds summarized information into the AMP, and provides a more robust budgeting tool. The VFA database is further refined by staff observations, supported by third party consultant reviews. VFA provides a Parks Condition Index (Parks CI) value, currently reported at 12.08%

A Parks Condition Index (Parks CI) score is a ratio of the total cost of identified parks' repairs and renewals (i.e., component replacement) over a defined period

(the City uses 5 years) divided by the assets' total estimated replacement cost. It is calculated using the formula:

Parks CI = Requirement and Renewal Costs / Current Replacement Value

A Parks CI of 0% indicates a park in excellent condition, with no outstanding capital investment backlog or deferred maintenance within the next five years. Parks with a CI less than 15% are considered to be in excellent condition, while those below 30% are considered good, requiring only minor maintenance. CI values under 45% reflect fair condition, indicating moderate needs. Parks with a CI below 60% are considered to be in poor condition, and those above 60% may require full renewal or disposal due to significant deterioration or deferred investment.

The City maintains separate asset management software, similar to Facilities using VFA which reports a Parks CI of 12.08%. This suggests that while most park assets are in relatively good condition, ongoing maintenance and targeted reinvestment are necessary to prevent long-term deterioration. Without proper funding, aging park infrastructure—such as playgrounds, trails, and recreational amenities—may experience accelerated wear, leading to increased repair costs and potential service disruptions.

To ensure that the City's parks and recreational spaces continue to meet acceptable service levels, condition data of all individual systems and assets are actively monitored, and lifecycle management strategies are regularly updated. As park infrastructure ages, staff evaluate whether a combination of maintenance, rehabilitation, or full replacement is required to sustain asset performance and community access. This proactive approach ensures that parks remain safe, functional, and aligned with community needs, while optimizing available funding for long-term sustainability.

8.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

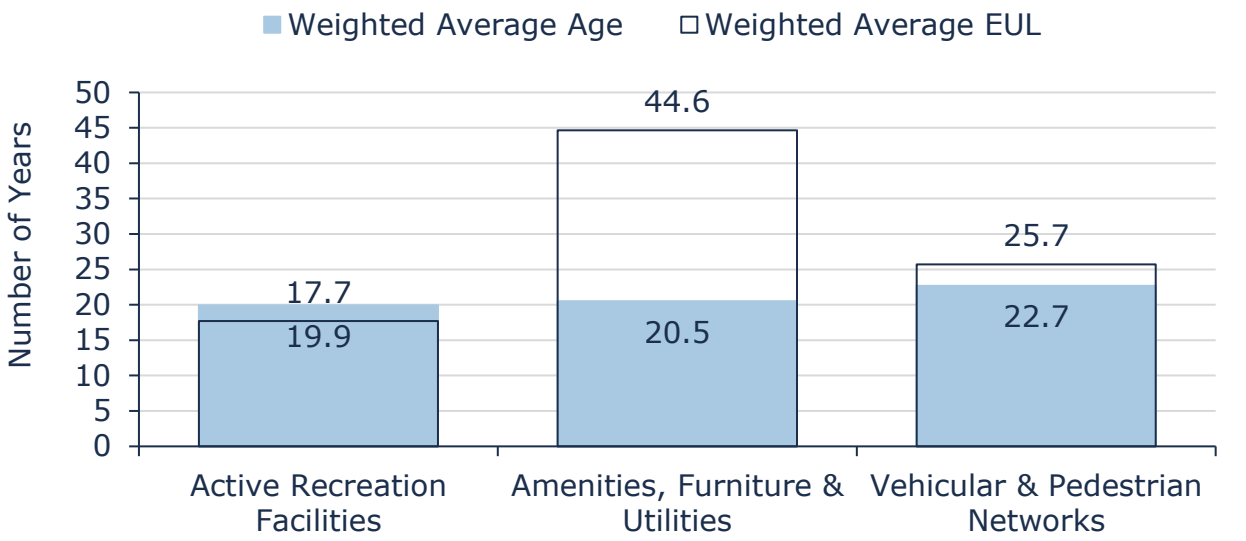


Figure 47: Estimated Useful Life vs. Asset Age: Parks

Figure 47 illustrates the average current age of each parks asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets. Age analysis reveals that Active Recreation Facilities have exceeded their expected useful lives. On the contrary, Amenities, Furniture & Utilities are in the early stages of their expected useful lives. Moreover, Vehicles & Pedestrian Networks are quickly approaching the end of their useful life cycles.

Age-based analysis would require intensive review of thousands of parks assets represented in the VFA database, as each of these will have its own established estimated useful life (EUL). Detailed analysis will be undertaken in regular updates to the City's Parks and Open Space Asset Renewal Plan and as part of ongoing facilities and parks management efforts. Data and analysis provided in the City's broader asset management plan is limited to high-level summaries to demonstrate overall trends and conditions.

8.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of stakeholders, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following table further expands on the City's current approach to lifecycle management:

Activity Type	Description of Current Strategy
Maintenance	The City's parks maintenance program is tailored to each park and includes activities such as: • Garbage disposal • Grass cutting • Park and playground inspections & repairs • Park lighting inspections & repairs • Irrigation system inspections & repairs
Rehabilitation / Replacement	Determining Parks Capital and maintenance requirements involve analyzing several key sources of information, including: • Parks Condition Index (Park CI) • staff inspections • Maintenance and work order records • Master Plans • Stakeholder input
Rehabilitation / Replacement	Parks staff also receive feedback from park users that informs the development of both maintenance and capital plans.

Table 28: Lifecycle Management Strategy: Parks

8.5 Forecasted Long-Term Replacement Needs

Park Rehabilitation relies on determining the optimal time to replace systems to control costs and manage risks without jeopardizing Parks and operational standards. According to VFA, funding requirements for parks fluctuate significantly from year to year. In 2024, including carryovers, the capital budget for parks is $4.35 million, followed by a decline to $2.7 million in 2025 and $2.4 million in 2027. The funding levels then fluctuate, with the lowest allocation occurring in 2031 at $1.6 million, before increasing to $5 million in 2034.

Beyond these variations, VFA data projects a stable funding requirement of $4.018 million per year from 2035 onwards (based on a 10-year average from 2025) to sustain park infrastructure. While this provides predictability in future planning, the earlier fluctuations highlight the need for strategic reinvestment to avoid accumulating maintenance backlogs. Without consistent funding in high-need years, aging playgrounds, trails, and recreational facilities may deteriorate, leading to higher long-term costs, accessibility challenges, and service disruptions.

By leveraging VFA's data-driven insights, the City can proactively allocate resources to ensure parks remain safe, functional, and aligned with community needs. A well-planned funding strategy will help prevent emergency repairs and ensure that park facilities continue to support recreational and environmental benefits for residents.

A detailed 10-year capital replacement forecast can be found in Appendix A – 10-Year Capital Requirements.

8.6 Risk Analysis

8.6.1 Risk to Current Asset Management Strategies

Climate Change & Extreme Weather Events

Flooding can impact programs and activities (e.g., soccer fields). Waterfront is a major flood risk area (two record high flooding levels have been recorded in the past 4 years). Erosion has been an ongoing issue, causing damages to waterfront infrastructure such as the break-wall. Furthermore, the waterfront infrastructure is deteriorating and suffering from premature wear from flooding, and also the sandblasting effect caused by the City's natural sandy beach and wind.

Infrastructure Design/Installation

There are concerns with contractors and installation practices (e.g., grading and their impact on drainage and safety with grass cutting).

8.7 Levels of Service

The City of Pickering is committed to providing high-quality services through its municipal parks, focusing on accessibility, reliability, performance, and affordability. The City believes everyone in the community should have access to well-maintained, accessible public spaces, including those with disabilities. To achieve this, the City invests in its parks and public spaces, ensuring they are safe and welcoming for all. Regular inspections and maintenance are carried out to prevent hazards and minimize the risk of accidents, ensuring that parks remain safe for public use.

Performance and affordability are central to the City's park management strategy. The City monitors park usage to identify areas for improvement, ensuring that parks meet the evolving needs of residents. In addition, the City remains dedicated to offering affordable services while maintaining high standards. The following tables summarize the City's current service levels. Although Ontario Regulation 588/17 does not prescribe specific KPIs for non-core assets, the City has selected performance measures for inclusion in its Asset Management Plan (AMP).

8.7.1 Community Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Accessibility	Description of the availability of the recreational services supported by municipal parks and trails to residents in urban area	Acceptable	Updates to the recreation & parks master plan have been approved by council in 2024. The update includes per capita metrics for amenities such as tennis courts, playgrounds, trails, splash pads, and parkland, and compares amenities with neighbouring regions like Ajax, Whitby, and Oshawa. Public engagement is ongoing, considering factors like population density and urban-rural differences. Playgrounds are being upgraded to meet accessibility standards as they reach the end of their lifecycle, though heavy use near schools reduces their lifespan. The plan is updated every five years, with input from various City departments and technical metrics.
Safety & Regulatory	Description of the inspection process applied to park equipment and playgrounds	Acceptable	The City's inspection process meets Ontario's minimum safety standards.

Table 29: Community Levels of Service: Parks

8.7.2 Technical Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Accessibility	Acres of parkland per 1,000 people	Acceptable	The current score is 1.76, more than the target level of 1.5
Accessibility	Linear meters of trails per capita	Acceptable	The City has over 40 Kms of recreational trails, contributing to the current score to 0.39, which is above target.
Reliability & Performance	Average Parks Condition Index	Excellent	12.08, which is below 15
Affordability	Annual sustainable capital reinvestment/required capital reinvestment rate	Acceptable	The actual reinvestment rate is just over 91% of the target rate, highlighting an adequate financial contribution to parks.

Table 30: Technical Levels of Service: Parks

8.7.3 Proposed Levels of Service

The condition of the City's parks and trails plays a vital role in supporting quality of life, physical activity, and community enjoyment. Current data shows that while many assets are in fair condition, portions of the network—particularly active recreation areas and trail infrastructure—are aging and will require increased attention over time. With capital reinvestment levels currently at 91% of what is required, the City is generally able to sustain service levels; however, this leaves limited capacity to address deferred needs and proactively modernize aging assets.

This section provides recommendations based on the current Levels of Service (LOS) assessment, public engagement feedback, and risk analysis. Public input indicates strong support for maintaining safe, accessible, and well-equipped parks, though funding priorities vary across user groups. The recommendations aim to balance reinvestment in existing infrastructure with targeted expansion to meet community growth and evolving recreational needs. This analysis highlights the importance of long-term planning and strategic investment to prevent service decline and address condition challenges as they emerge.

8.7.3.1. Park Condition and Capital Reinvestment

Current LOS

- Average Parks Condition Index: Acceptable (12.08)
- Annual capital reinvestment rate: Acceptable (91% of required funding).

Public Engagement Results

- Availability and accessibility of parkland was the highest-rated feature (83.5%).
- Condition and safety of playgrounds and park equipment was also highly rated (82.0%).
- Willingness to pay for improved maintenance was moderate (37.5%), but 25.8% were unwilling.

Scenario Analysis

1. Current Budget Without New Park Development

- **Trends:** The capital budget for parks fluctuates significantly, with the highest allocations occurring in 2024 and 2034 due to major planned maintenance and upgrades. Funding remains relatively low between 2030 and 2032, with the lowest point at $1.6 million in 2031, suggesting a period of limited investment in park assets.
- **Parks CI Impact:** The Parks Condition Index (Parks CI) increases over time in this scenario, indicating a decline in overall park conditions. While the

capital budget provides funding for some deferred maintenance, it is not enough to sustain improvements across all parks. Targeted investments in specific parks may lower their individual Parks CI, but many others may continue to deteriorate due to limited resources. Without additional investment, aging park amenities—including trails, playgrounds, and sports fields—may require emergency repairs, leading to higher long-term costs and potential service reductions.

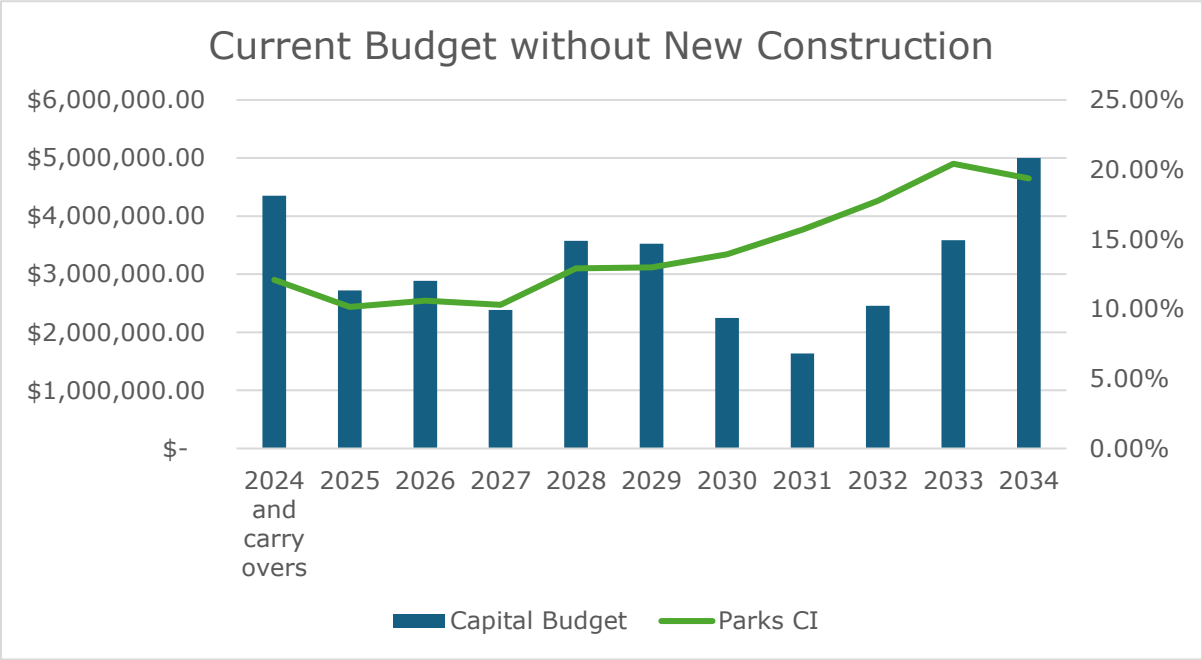


Figure 48: Capital Budget and Parks CI Trends Without New Park Development

2. Maintain FCI Without New Park Development

- **Capital Budget:** This scenario assumes funding levels that keep the FCI steady over time, meaning that investment is sufficient to prevent further deterioration but does not significantly improve overall park conditions. The budget fluctuates between $2.5 million and $4.9 million but is designed to address only the most critical maintenance needs while maintaining a consistent service level.
- **Stability of Parks CI:** Unlike the current budget scenario, where aging infrastructure continues to degrade, this approach stabilizes park conditions. However, stability does not mean that all parks are in good condition, it only prevents further decline. Some parks may still require major rehabilitation, but their condition is maintained at a functional level through incremental maintenance efforts. While this scenario appears cost-effective, it does not address long-term modernization needs, which may become more expensive in future years if investment is not increased.

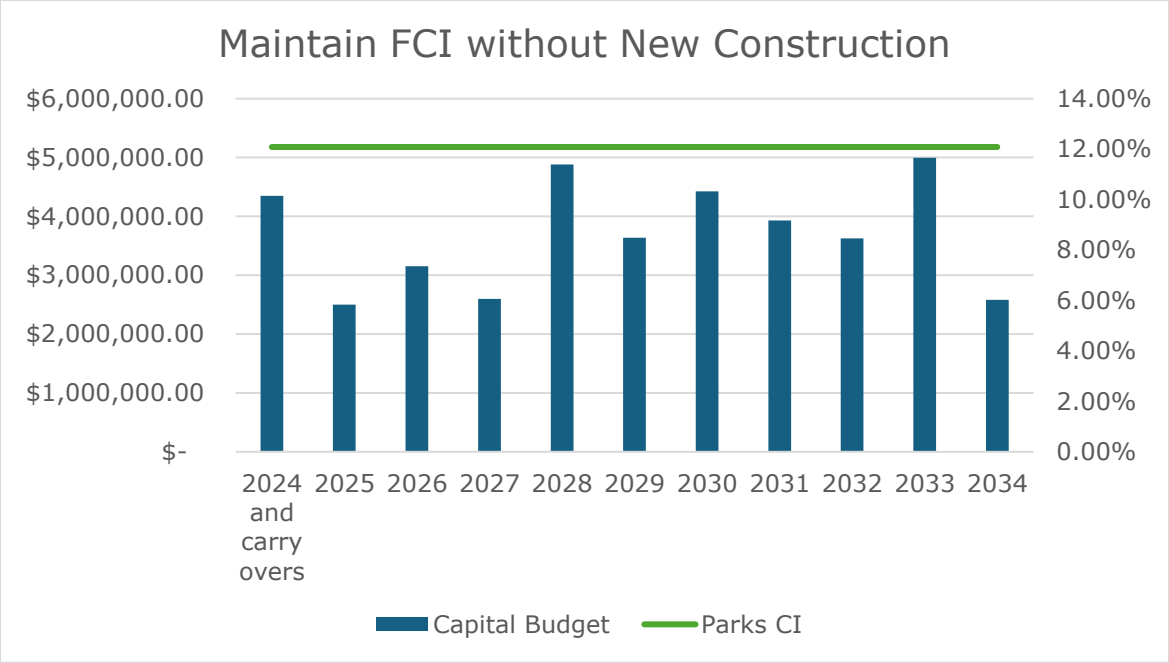


Figure 49: Capital Budget Plan to Maintain Parks CI Without New Park Development

3. Historical Funding Levels Without New Park Development

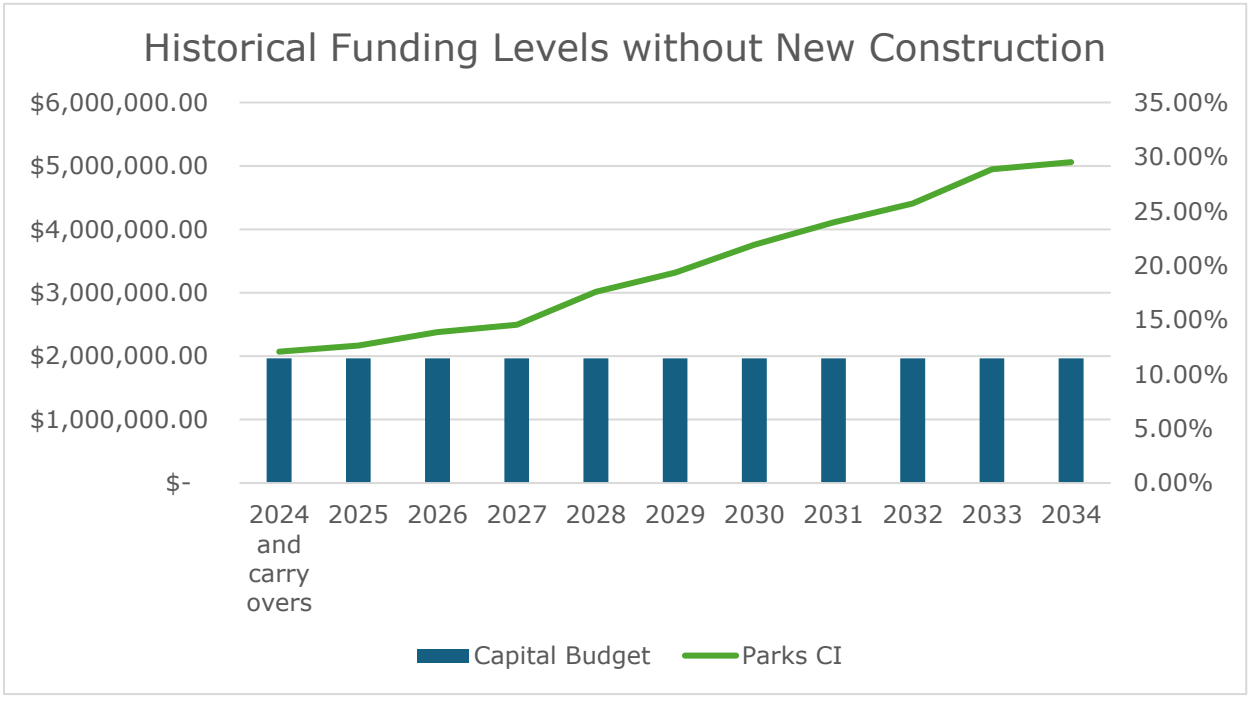


Figure 50: Historical Capital Funding and Parks CI Trends Without New Park Development

- **Rising FCI:** In this scenario, Parks CI increases steadily over time because historical funding levels are insufficient to keep up with growing deferred

maintenance needs. The capital budget remains relatively flat, while parks' conditions worsen, leading to compounding maintenance backlogs.

- **Budget Impact:** Without additional investment, this scenario leads to a continuous decline in parks' conditions. Playgrounds, trails, and sports fields may experience damages, safety hazards, and reduced usability, forcing higher emergency repair costs and, in some cases, closures.

4. Current Budget With New Park Development

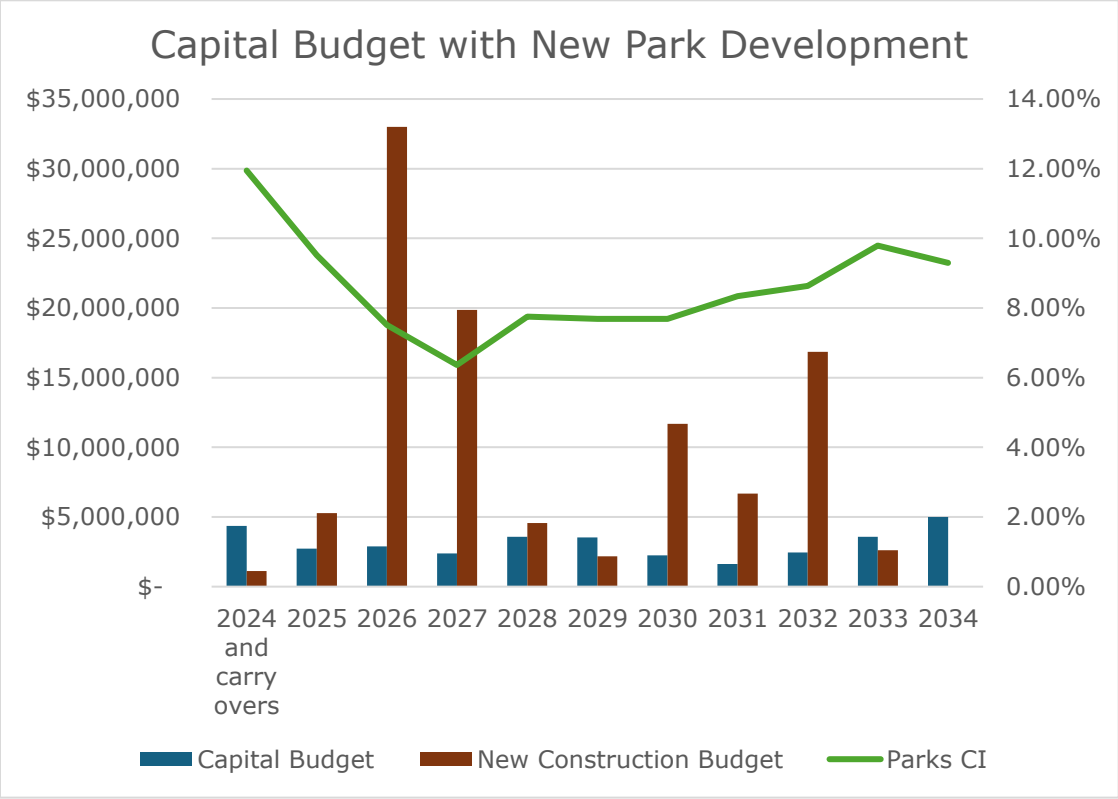


Figure 51: Capital Budget and Parks CI Trends With New Park Development

- **Capital Funding Volatility:** While this scenario follows a similar overall funding pattern to the "No New Development" scenario, it features major capital budget spikes in 2026 and 2027 to support the creation of new parks and recreational amenities. These investments include expansions to green spaces and the development of new park infrastructure. Outside of these peak years, capital funding remains relatively flat, limiting the City's ability to address aging infrastructure in the rest of the network.
- **Artificial Improvement in Parks CI:** The introduction of newly constructed parks—initially in excellent condition—temporarily lowers the overall Parks Condition Index (CI). However, this masks the continued decline of older parks that face significant deferred maintenance needs. As a result, the average CI improves on paper, but the condition of existing assets continues

to worsen, presenting an uneven service experience and growing long-term reinvestment needs.

5. Historical Budget With New Park Development

- **Capital Budget Trends:** This scenario reflects the addition of new parks to the City's portfolio, supported by large spikes in new construction funding in 2026 and 2027. Despite these one-time investments, the ongoing capital budget for maintenance remains consistently low throughout the period. As a result, while the network expands, there is no corresponding increase in reinvestment capacity, leading to a growing backlog of maintenance needs over time.
- **Parks CI Increase:** Initially, the development of new parks—typically in excellent condition—lowers the overall Parks Condition Index (Parks CI). However, this improvement is temporary and does not reflect upgrades to older infrastructure. As aging parks continue to deteriorate without sufficient reinvestment, the Parks CI begins to climb steadily from 2027 onward. This creates a high financial risk scenario, where the City must simultaneously fund the maintenance of a larger asset base while struggling to address the condition decline of existing facilities.

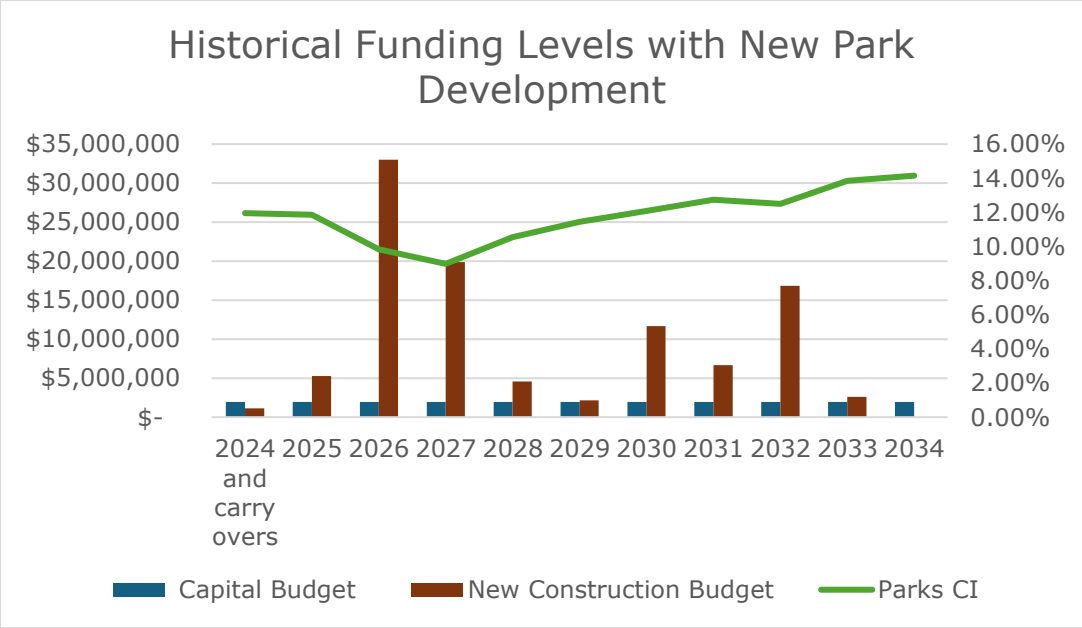


Figure 52: Historical Capital Funding and Parks CI Trends With New Park Development

Impact of Expanding the Park Portfolio

Effect on Total Replacement Cost (TRC):

When new parks are added, the Total Replacement Cost (TRC) of park assets increases significantly. Since new parks have little to no deferred maintenance, the proportion of deferred maintenance relative to the total portfolio temporarily decreases, artificially lowering the overall Parks CI.

However, this may create the illusion of improved overall parks' conditions, when in fact the condition of older parks, some of which may still be in critical condition, remains unchanged. The actual dollar value of required capital investment across the portfolio does not change; rather, the same cost is being compared against a higher TRC.

Key Reasons for Skewed Parks CI Trends in Parks

1. **Dilution of Deferred Maintenance**

    - Newly developed parks have no immediate maintenance backlogs, or projected reinvestment needs within 5 years effectively diluting the Parks CI of the entire portfolio.
    - For example, adding a $50 million new park with no maintenance needs will significantly lower the overall Parks CI, even if existing parks still require major repairs.

2. **Averaging Across Diverse Conditions**

    - Some parks with severe deterioration may remain underfunded, while newly built parks in pristine condition lower the overall Parks CI.
    - This distorts the true state of aging park assets, as some parks may still be at potential risk for reduced performance or service.

3. **Neglected Deferred Maintenance Backlogs**

    - Older parks may have deferred maintenance costs exceeding available budgets, making it difficult to justify reinvestment.
    - The focus on developing new parks can cause existing parks to fall behind in funding priorities.
    - Park assets that are beyond repair should be assessed for potential removal or repurposing to optimize resource allocation and community usage.

4. **Misleading Portfolio Trends**

    - Stakeholders might interpret a declining Parks CI as an indicator of overall portfolio improvement, even though only specific new assets are driving this decline, not the repair or maintenance of existing ones.
    - Separate tracking of older parks is necessary to fully capture their true condition. To address this, Parks and playgrounds are inspected monthly. This information is captured in CityReporter and helps provide background information to VFA in updating overall Park Assets Conditions.

Implications for Park Asset Management

1. **Focus on Core Condition Metrics**

    - Instead of relying solely on Parks CI, the City should examine specific metrics for older parks, such as playground conditions, trail safety, and field usability. Currently, Parks have dedicated staff that completes inspections at parks.

2. **Highlighting the Deferred Maintenance Gap**

    - The total deferred maintenance value should be tracked separately to avoid overshadowing critical repairs needed for aging parks.

3. **Portfolio Segmentation**

    - Separating the analysis of newly built parks from aging parks will provide a clearer picture of maintenance challenges. This will help ensure that newer parks do not skew the total deferred maintenance results for the overall portfolio.

4. **Strategic Resource Allocation**

    - A balanced investment strategy is necessary to ensure older parks receive adequate funding while accommodating the growth of new parks.
    - Establishing a dedicated reserve fund will help manage fluctuations in deferred maintenance needs.

Conclusion

While Parks CI is a useful metric, it should not be the only measure used to assess parks' conditions. The reliance on aggregate values like deferred maintenance and TRV expose its limitations, such as when new parks are introduced into the portfolio.

To address these challenges, the City must prioritize transparency in reporting, using multiple metrics to provide a comprehensive analysis of parks' conditions. Ensuring that aging parks do not fall behind in funding while expanding the park system strategically will be critical for maintaining long-term service levels.

Recommendations

- Prioritize Funding for Aging Parks and Trails: Focus reinvestment on parks, playgrounds, and trails in the worst condition, prioritizing upgrades based on community usage, safety concerns, and accessibility needs. Parks that have deteriorated beyond cost-effective rehabilitation should be assessed for removal, repurposing, or consolidation to optimize resources.
- Ensure Sustainable Capital Funding: Maintain at least 91% of the required reinvestment rate to prevent deferred maintenance from accumulating. Avoid funding gaps that could accelerate asset deterioration and increase future rehabilitation costs.
- Develop a Strategic Lifecycle Management Plan: Establish a proactive renewal and rehabilitation framework that outlines predictable funding needs for parks and trails. This plan should consider asset aging trends, major component replacements (e.g., playgrounds, pathways, and sports fields), and service level expectations.
- Improve Transparency in Asset Condition Reporting: Separate the analysis of newly developed parks from older assets to prevent misleading trends in the Parks Condition Index (Parks CI). Reporting should highlight deferred maintenance backlogs independently from total park portfolio growth.
- Enhance Public Communication and Engagement: Strengthen outreach efforts to increase awareness of park maintenance efforts, ensuring residents understand the need for ongoing investment and lifecycle planning. This can help build public support for infrastructure funding.
- Optimize Resource Allocation for Expansion and Maintenance: Ensure that funding for new park developments includes long-term maintenance considerations. Establish a dedicated reserve fund to manage fluctuations in deferred maintenance needs, preventing financial strain during high-investment years.

Risks of Not Addressing Park Condition

- Accelerated Asset Deterioration: Without sufficient reinvestment, playgrounds, trails, and recreational spaces will degrade, leading to increased safety hazards, reduced usability, higher repair costs, and potential service disruptions.
- Escalating Long-Term Rehabilitation Costs: Delaying necessary maintenance will result in higher costs for emergency repairs and full-scale replacements, straining future budgets.
- Public Dissatisfaction and Reduced Community Engagement: Aging park infrastructure may deter public use, leading to lower participation in recreational activities and decreased overall satisfaction with City-provided services.
- Misleading Perception of Park Conditions: Without segmented reporting, stakeholders may misinterpret improvements in FCI as widespread progress, even if aging parks remain underfunded and in poor condition.

- Inefficient Use of Limited Funding: Failing to strategically phase out or repurpose deteriorated parks could lead to inefficient spending, where underutilized or unmaintainable parks consume a disproportionate share of available resources.

8.7.3.2. Accessibility and Availability of Parkland

Current LOS

- Acres of parkland per 1,000 people: Acceptable (1.76, above the target of 1.5).
- Linear meters of trails per capita: Acceptable (0.39, above target).
- Recreational services are primarily concentrated in urban areas, with some gaps in accessibility for suburban and rural areas.

Public Engagement Results

- Availability of parkland was the highest-rated feature (83.5%).
- Availability of multi-use paths and trails was also strongly rated (77.7%).
- Willingness to pay for expanded parkland was the highest among all categories (43.8%).

Recommendations

- Prioritize expansion of parkland in areas with limited access, particularly in developing neighbourhoods.
- Enhance trail connectivity by linking existing networks to improve access to recreational spaces.
- Implement accessibility-focused upgrades to ensure compliance with evolving standards.
- Combine accessibility improvements with other capital renewals for greater cost effectiveness and to minimize down time with multiple separate projects.

Risk of Not Addressing Accessibility and Availability

- Unequal access to recreational spaces, particularly for residents in underserved areas.
- Increased demand pressures on existing parkland, leading to overuse and accelerated deterioration.
- Missed opportunities to enhance community well-being and support active lifestyles.

8.7.3.3. Park Safety and Playground Equipment Condition

Current LOS

- Park equipment and playgrounds meet Ontario's minimum safety standards.
- Upgrades to playgrounds occur as they reach the end of their lifecycle, but high usage near schools accelerates wear.

Public Engagement Results

- Condition and safety of playgrounds was a top priority (82.0%).
- Satisfaction with playground safety was the highest-rated category (58.8%).
- Neutral responses were moderate (28.8%), suggesting room for improved awareness.

Recommendations

- Increase frequency of inspections and proactive maintenance to address accelerated wear in high-use areas.
- Enhance public communication on playground safety initiatives to reduce neutral responses and reinforce confidence.
- Target improvements in parks serving high-density neighbourhoods to balance wear and tear.

Risk of Not Addressing Park Safety

- Increased risk of injuries due to aging or damaged equipment.
- Higher liability exposure for the municipality if safety concerns are not addressed.
- Reduced public confidence in the quality of recreational facilities.

8.7.3.4. Environmental Sustainability and Green Space Preservation

Current LOS

- The City's Recreation and Parks Ten Year Plan adopted in 2024includes sustainability metrics.
- Green spaces are well-maintained, but public engagement results indicate mixed perceptions about preservation efforts.

Public Engagement Results

- Quality of green spaces and natural areas was highly rated (82.1%).
- Satisfaction with environmental preservation was moderate (51.0%), but neutral responses were high (32.4%).

- Willingness to pay for environmental preservation was lower (35.8%), with 26.7% unwilling.

Recommendations

- Develop and implement a long-term environmental sustainability strategy for parks, focusing on native planting and biodiversity.
- Enhance public engagement on conservation efforts to improve awareness and support for sustainability initiatives.
- Leverage funding opportunities for ecological restoration projects to offset costs.

Risk of Not Addressing Environmental Sustainability

- Loss of biodiversity and ecological degradation in parks and natural areas.
- Higher maintenance costs for non-native plantings and artificial landscapes.
- Public perception that environmental efforts are insufficient, reducing support for future investments.

9. Other Infrastructure

The City owns and maintains several Other Infrastructure that provide key services to the community. These Other Infrastructure fall under the following categories:

- Furniture & Fixtures
- Information Technology
- Library Collection Materials[25]
- Machinery & Equipment
- Vehicles

9.1 Inventory & Valuation

Table 31 includes the quantity, replacement cost method and total replacement cost of each asset segment in the City's Other Infrastructure inventory.

Segment	Sub-Segment	Quantity	Unit of Measure	Replacement Cost	Primary RC Method
Furniture &Fixtures	Furniture& Fixtures	833	Assets	$2,314,157	CPI
Information Technology	Information Technology	903	Assets	$2,829,398	CPI
Library Collection Materials	Library Collection Materials	9	Assets	$1,671,930	CPI
Machinery& Equipment	Major Machinery& Equipment	36	Assets	$10,129,284	User-Defined
Machinery& Equipment	Minor Machinery& Equipment	1,534	Assets	$9,916,874	CPI
Vehicles	Fire Vehicles	12	Assets	$22,000,000	User-Defined
Vehicles	Vehicles	137	Assets	$16,494,660	User-Defined
Total				**$65,356,303**	

[25] Through the Current Budget, the Library purchases an additional $300,000 per year in short term Library collection assets such as e-books and magazines that is not reflected in the above Library long term assets.

Table 31: Detailed Asset Inventory: Other Infrastructure

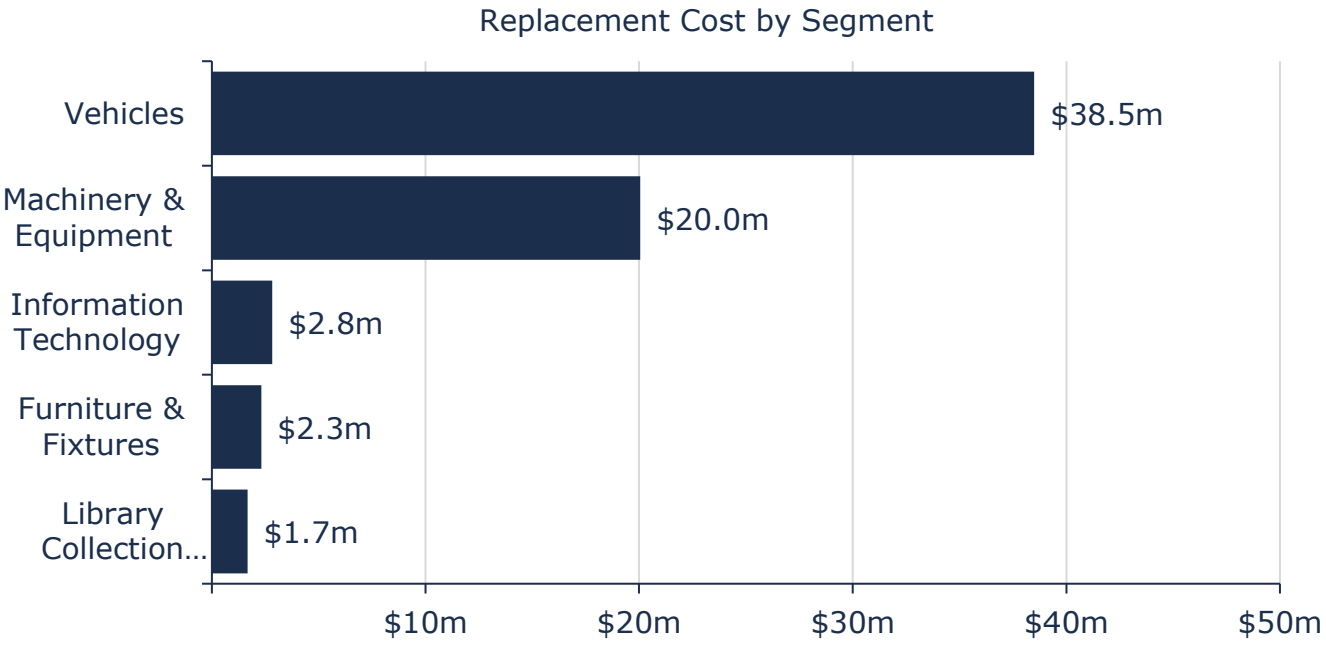


Figure 53: Portfolio Valuation: Other Infrastructure

9.2 Asset Condition

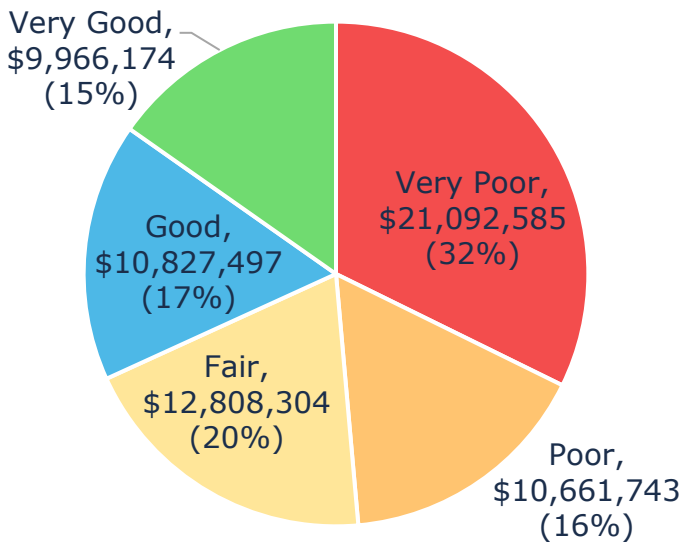


Figure 54: Asset Condition: Other Assets Overall

Figure 54 summarizes the replacement cost-weighted condition of the City's portfolio. Based primarily on age-based data, 52% of assets are in fair or better condition, with the remaining 48% in poor or worse condition. These assets may be

candidates for replacement in the short term; similarly, assets in fair condition may require rehabilitation or replacement in the medium term and should be monitored for further degradation in condition.

Figure 55 summarizes the condition of vehicles by each department. The majority of all vehicles across all asset segments are in poor or worse condition.

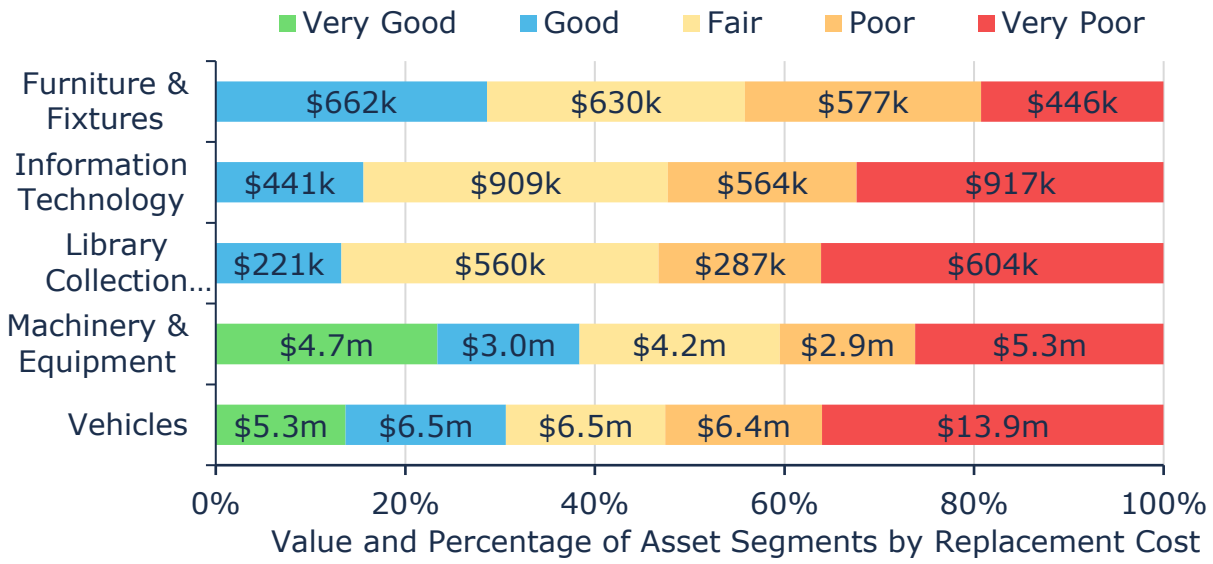


Figure 55: Asset Condition: Other Assets by Segment

9.3 Age Profile

An asset's age profile comprises two key values: estimated useful life (EUL), or design life; and the percentage of EUL consumed. The EUL is the serviceable lifespan of an asset during which it can continue to fulfil its intended purpose and provide value to users, safely and efficiently. As assets age, their performance diminishes, often more rapidly as they approach the end of their design life.

In conjunction with condition data, an asset's age profile provides a more complete summary of the state of infrastructure. It can help identify assets that may be candidates for further review through condition assessment programs; inform the selection of optimal lifecycle strategies; and improve planning for potential replacement spikes.

Figure 56 illustrates the average current age of each asset type and its estimated useful life. Both values are weighted by the replacement cost of individual assets.

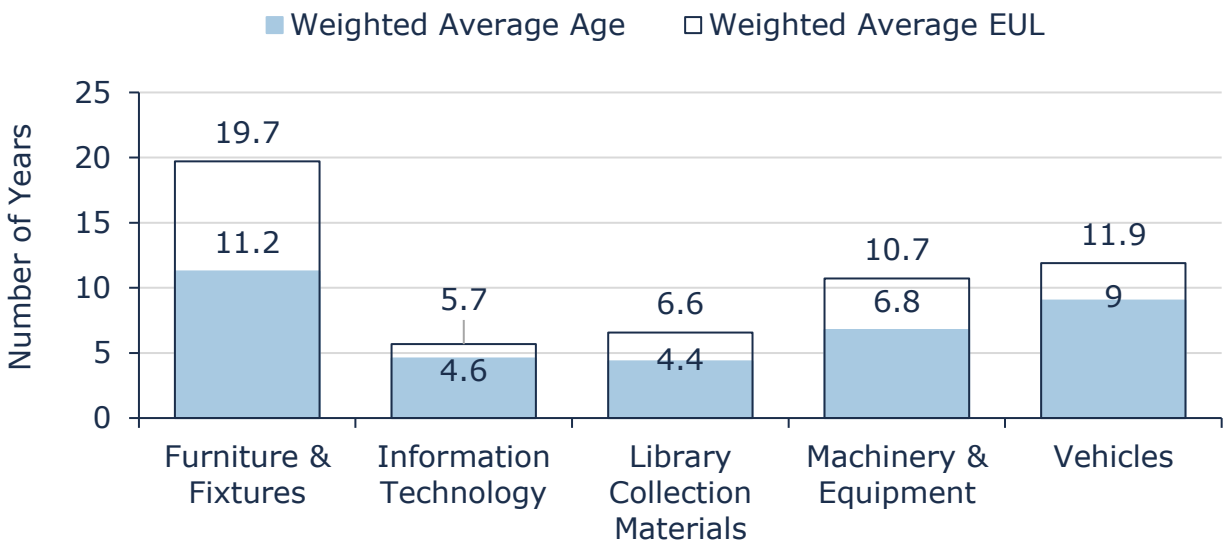


Figure 56: Estimated Useful Life vs. Asset Age: Other Infrastructure Assets

Age analysis reveals that, on average, most assets are in moderate stages of their expected life.

9.4 Current Approach to Lifecycle Management

The condition or performance of most assets will deteriorate over time. To ensure that municipal assets are performing as expected and meeting the needs of customers, it is important to establish a lifecycle management strategy to proactively manage asset deterioration.

The following section outlines the City's current lifecycle management strategy.

Fleet: Vehicles, Machinery, and Equipment

- **Maintenance:**
    - Preventative and corrective maintenance is regularly performed to minimize downtime.
    - Vehicles undergo regular inspections, with CVOR vehicles inspected 3-4 times a year and non-CVOR vehicles inspected up to 4 times annually.
    - Fire trucks and emergency support vehicles comply with NFPA standards and undergo rigorous annual testing.
    - Equipment is maintained through a lifecycle strategy, with 4-10 pieces replaced and 3-5 new units added annually.

- **Replacement:**
    - Vehicles and equipment are replaced based on age, condition, repair costs, warranties, and total cost of ownership.
    - Residual values from disposed assets are reinvested into the reserve fund for future replacements.
    - A data-driven approach ensures optimal fleet performance, though challenges exist in funding sustainable capital reinvestment.
- **Inspection:**
    - Fleet assets are closely monitored using digital platforms that track fuel consumption, idle time, mileage, and engine status.
    - Unplanned maintenance accounts for 20-25% of all vehicle repairs.
    - The City's 7 pumper trucks undergo annual pump testing by external specialists.

Information Technology (IT) Assets

- **Maintenance:**
    - Strong cybersecurity measures, including Multi-Factor Authentication (MFA), ensure data security.
    - Regular updates and system monitoring help maintain performance.
- **Replacement:**
    - Best practices recommend a five-year replacement cycle for IT hardware, but staffing limitations hinder implementation.
    - The IT department has requested additional resources to improve asset management.
- **Inspection:**
    - Ongoing security assessments identify vulnerabilities and assess access control.

Library Collection

- **Maintenance:**
    - Managed in alignment with the Pickering Public Library Strategic Plan.
    - Routine assessments ensure accessibility and relevance of materials.

- **Replacement:**
    - Library materials are periodically updated to maintain high service levels.
    - Funding constraints impact the ability to replace materials at the optimal rate.
- **Inspection:**
    - Regular audits of library collections ensure compliance with public demand and accessibility standards.

Furniture & Fixtures

- **Maintenance:**
    - Municipal and library furniture is maintained to provide a comfortable and accessible environment.
    - Adjustable-height desks and AODA-compliant pathways enhance accessibility.
- **Replacement:**
    - Accessibility improvements continue to be a priority, but funding limitations affect the rate of new acquisitions.
- **Inspection:**
    - Periodic assessments identify areas for improvement, ensuring compliance with accessibility standards.

9.5 Forecasted Long-Term Replacement Needs

Figure 57 illustrates the cyclical short-, medium- and long-term infrastructure replacement requirements for the City's other infrastructure portfolio. This analysis was run until 2059 to capture at least one iteration of replacement for the longest-lived asset in Citywide Assets, the City's primary asset management system and asset register. The City's average annual requirements (red dotted line) total $6.6 million for all assets. Although actual spending may fluctuate substantially from year to year, this figure is a useful benchmark value for annual capital expenditure targets (or allocations to reserves) to ensure projects are not deferred and replacement needs are met as they arise.

Replacement needs are expected to increase from 2025 with a forecasted peak of $37.1 million for the 2045-2049 period, as assets reach the end of their useful life. These projections and estimates are based on asset replacement costs and age analysis. They are designed to provide a long-term, portfolio-level overview of capital needs and should be used to support improved financial planning over several decades.

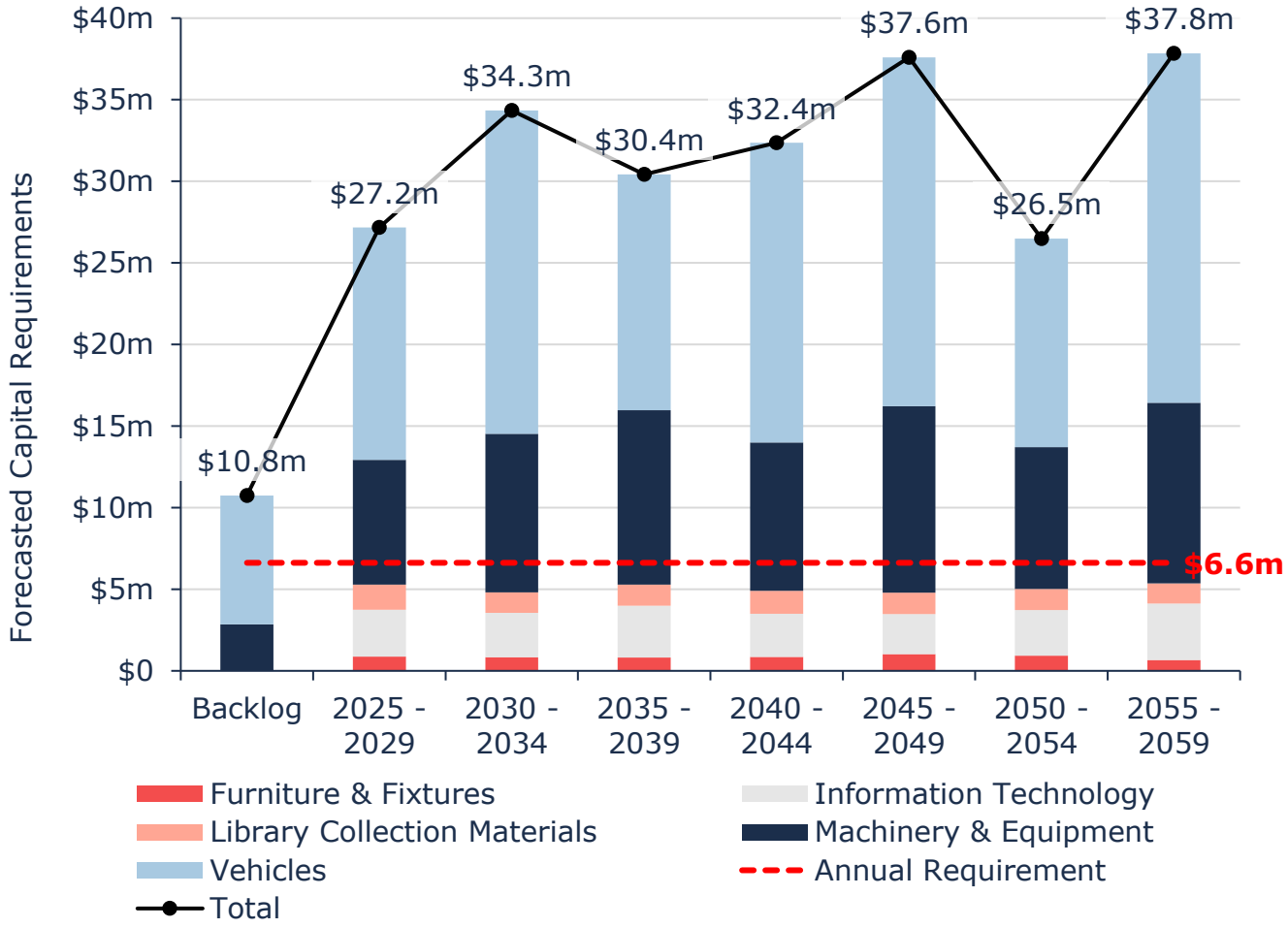


Figure 57: Forecasted Capital Replacement Needs: Vehicles 2025-2059

Often, the magnitude of replacement needs is substantially higher than most municipalities can afford to fund. In addition, most assets may not need to be replaced. However, quantifying and monitoring these spikes is essential for long-term financial planning, including establishing dedicated reserves. In addition, a robust risk framework will ensure that high-criticality assets receive proper and timely lifecycle intervention, including replacements.

A detailed 10-year capital replacement forecast can be found in Appendix A – 10-Year Capital Requirements.

9.6 Risk Analysis

The risk matrix below is generated using available asset data, including condition, service life remaining, replacement costs, and department or service area. The risk ratings for assets without useful attribute data were calculated using only condition, service life remaining, and their replacement costs.

The matrix stratifies assets based on their individual probability and consequence of failure, each scored from 1 to 5. Their product generates a risk index ranging from 1-25. Assets with the highest criticality and likelihood of failure receive a risk rating of 25; those with lowest probability of failure and lowest criticality carry a risk rating of 1. As new data and information is gathered, the Municipality may consider integrating relevant information that improves confidence in the criteria used to assess asset risk and criticality.

These risk models have been built into the City's Asset Management Database (Citywide Assets). See Risk & Criticality section for further details on approach used to determine asset risk ratings and classifications.

1 - 4 **Very Low**	5 - 7 **Low**	8 - 9 **Moderate**	10 - 14 **High**	15 - 25 **Very High**
$7,295,311 (11%)	$10,247,705 (16%)	$4,120,942 (6%)	$10,240,964 (16%)	$33,451,381 (51%)

Figure 58: Risk Matrix: Other Infrastructure Assets

9.7 Levels of Service

The City of Pickering is dedicated to providing high-quality service through its fleet of municipal vehicles, machinery, equipment, and other assets. These resources are managed to ensure reliability, safety, and efficiency in delivering the services residents rely on. While current maintenance practices for vehicles, machinery, and equipment are effective, a thorough assessment of funding and resources is needed to meet future demands. This includes evaluating maintenance schedules, asset lifespans, and future City growth, ensuring that fleet operations remain efficient and capable of meeting evolving needs.

Additionally, the City is committed to maintaining its IT systems, library collections, and municipal furniture and fixtures to high standards. Similarly, municipal furniture and fixtures are well-maintained, but long-term funding and resource allocation should be evaluated to ensure sustainability. The City's library collection materials are managed in line with the Pickering Public Library Facilities Plan. The following tables summarize the City's current levels of service, with KPIs reflecting performance measures for non-core assets as selected by the City.

9.7.1 Community Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale
Reliability & Performance Vehicles	Description of lifecycle management strategies and assessment programs applied to municipal vehicles	Acceptable	The municipal fleet's lifecycle management strategy ensures optimal vehicle availability through advanced practices. With only 2.5% of the 200-vehicle fleet unserviceable, well below the 5% target, the strategy uses a comprehensive platform to monitor fuel consumption, idle time, mileage, and engine status for efficiency. Vehicle maintenance is closely tracked, with 20-25% being unplanned, while the fleet management program ensures timely regular and unplanned maintenance for various municipal services, minimizing downtime and extending vehicle lifespan.

Table 32: Community Levels of Service: Vehicles

9.7.2 Technical Levels of Service

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale[26]
Reliability & Performance (Vehicles)	How many vehicles are unserviceable at any time	Acceptable	2.5% - based on staff inputs
Reliability & Performance (Vehicles)	Average condition for municipal vehicles	Needs Improvement	32 – Calculated from Citywide
Reliability & Performance (Vehicles)	Percentage of vehicles in poor or worse condition	Needs Improvement	70% - Calculated from Citywide

[26] The conditions calculated from citywide are strictly age-based and might not be reflective of a vehicle's actual condition.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale[26]
Safety & Regulatory Compliance (Vehicles)	Description of the municipal vehicle management and safety program	Acceptable	PMA (light service and safety inspection) and PMB (complete vehicle service) inspections and repairs are conducted 3-4 times a year for CVOR vehicles (GVW > 4,500 kg), typically with one vehicle inspected per week. Non-CVOR vehicles, such as passenger cars and SUVs, are inspected up to 4 times a year, with five vehicles inspected weekly. Fire trucks and support vehicles, including command and rescue trucks, are inspected and repaired every 18 months to meet NFPA standards. Additionally, the City's 7 pumper trucks undergo annual pump testing, performed by Dependable22 in collaboration with the City's mechanics, with the process taking up to three days.
Affordability (Vehicles)	Annual sustainable capital reinvestment/required capital reinvestment rate	Acceptable	The actual reinvestment rate is just over 81% of the target rate.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale[26]
Reliability & Performance (Machinery & Equipment)	Description of lifecycle management strategies and assessment programs applied to municipal machinery and equipment assets	Acceptable	The lifecycle management strategy replaces 4-10 pieces of equipment annually and adds 3-5 new units. Equipment is replaced based on factors like deterioration, repair costs, warranties, and total cost of ownership (TCO). Residual value from replaced equipment is reinvested into the reserve fund for future replacements. Growth-related needs are also considered in lifecycle management for expansion projects.
Reliability & Performance (Machinery & Equipment)	Average condition for municipal machinery and equipment	Needs Improvement	32 – Calculated from Citywide
Reliability & Performance (Machinery & Equipment)	Percentage of machinery and equipment in poor or worse condition	Needs Improvement	41% - Calculated from Citywide

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale[26]
Affordability (Machinery & Equipment)	Annual sustainable capital reinvestment/required capital reinvestment rate	Needs Improvement	The actual reinvestment rate is just over 3% of the target rate, highlighting a potential risk of infrastructure deterioration if reinvestment levels remain low.
Reliability & Performance (Information Technology)	Description of the initiatives employed to maintain the services provided by information technology assets	Needs Improvement	The IT department faces staffing limitations, prompting a proposal to the council for additional resources. While best practices suggest replacing laptops every five years, the department struggles to meet this due to staffing constraints. Additionally, improvements are needed for security controls and equipment. On a positive note, cybersecurity measures are strong, with Multi-Factor Authentication (MFA) effectively implemented. Overall, while there are strengths, improvements are needed, particularly in staffing, to meet operational standards and best practices.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale[26]
Affordability (Information Technology)	Annual sustainable capital reinvestment/required capital reinvestment rate	Needs Improvement	The actual reinvestment rate is just over 22% of the target rate, indicating a potential risk of infrastructure deterioration if reinvestment continues at these low levels.
Reliability & Performance (Furniture & Fixtures)	Description of the initiatives employed to make library furniture and fixtures more accessible	Needs Improvement	The library provides accessible features like adjustable-height desks, but more accessible furniture is needed. Pathways meet AODA standards with at least three feet of aisle space for mobility aids, and shelving is placed at varying heights with glare-reducing lighting. Ongoing assessments drive continuous improvements to enhance accessibility for all patrons.
Affordability (Furniture & Fixtures)	Annual sustainable capital reinvestment/required capital reinvestment rate	Acceptable	The actual reinvestment rate is just over 76% of the target rate.

Service Attribute	Key Performance Indicator	Current LOS (2024)	Rationale[26]
Affordability (Library Collection Material)	Annual sustainable capital reinvestment/required capital reinvestment rate	Needs Improvement	Material costs are increasing at a higher rate than funding, resulting in a need for further investment.

Table 33: Technical Levels of Service: Other Infrastructure Assets

9.7.3 Proposed Levels of Service

This section provides recommendations for municipal vehicles, machinery & equipment, information technology (IT), furniture & fixtures, library collections, and fire services based on the current Levels of Service (LOS) assessment, public engagement results, and risk analysis. The recommendations focus on modernization, reliability, affordability, and accessibility, ensuring that these assets continue to support service delivery effectively while considering funding constraints and public priorities.

9.7.3.1. Municipal Vehicles

Current LOS

- Unserviceable Vehicles at Any Time: Acceptable (2.5% of fleet, below the 5% target).
- Average Vehicle Condition: Needs Improvement (Score: 32).
- Percentage of Vehicles in Poor or Worse Condition: Needs Improvement (70%).
- Annual Sustainable Capital Reinvestment Rate: Acceptable (81% of the required funding).

Public Engagement Results

- Availability of services provided by municipal vehicles was the highest-rated feature (87.7%).
- Environmental impact of municipal vehicle operations was rated important by 55.5%, but neutrality was high (27.1%).
- Willingness to pay for environmentally friendly vehicle initiatives was low (18.4%), with 41.4% unwilling.

Condition and Budget Scenarios

This graph illustrates the projected condition of vehicle assets over time under two budget scenarios: the Optimal Budget (blue line) and the Current Budget (green line), which is 81% of the Optimal Budget. The vertical axis represents asset condition as a percentage, while the horizontal axis spans the years from 2025 to 2074. The background shading categorizes condition ranges, with green (80-100%) representing excellent condition, blue (60-80%) indicating good condition, yellow (40-60%) reflecting fair condition, orange (20-40%) signifying poor condition, and red (0-20%) marking critical condition. Under the Optimal Budget, vehicle condition gradually improves and stabilizes in the fair-to-good range, while the Current Budget scenario results in a lower trajectory, remaining mostly within the fair and poor condition zones. The fluctuations in both scenarios suggest periodic reinvestments, but the widening gap between the two highlights the long-term impact of constrained funding. Without additional investment, the Current Budget

scenario leads to a gradual decline in asset condition, potentially increasing future replacement costs and reducing service reliability. In contrast, maintaining the Optimal Budget ensures a more stable and sustainable asset condition over the long term.

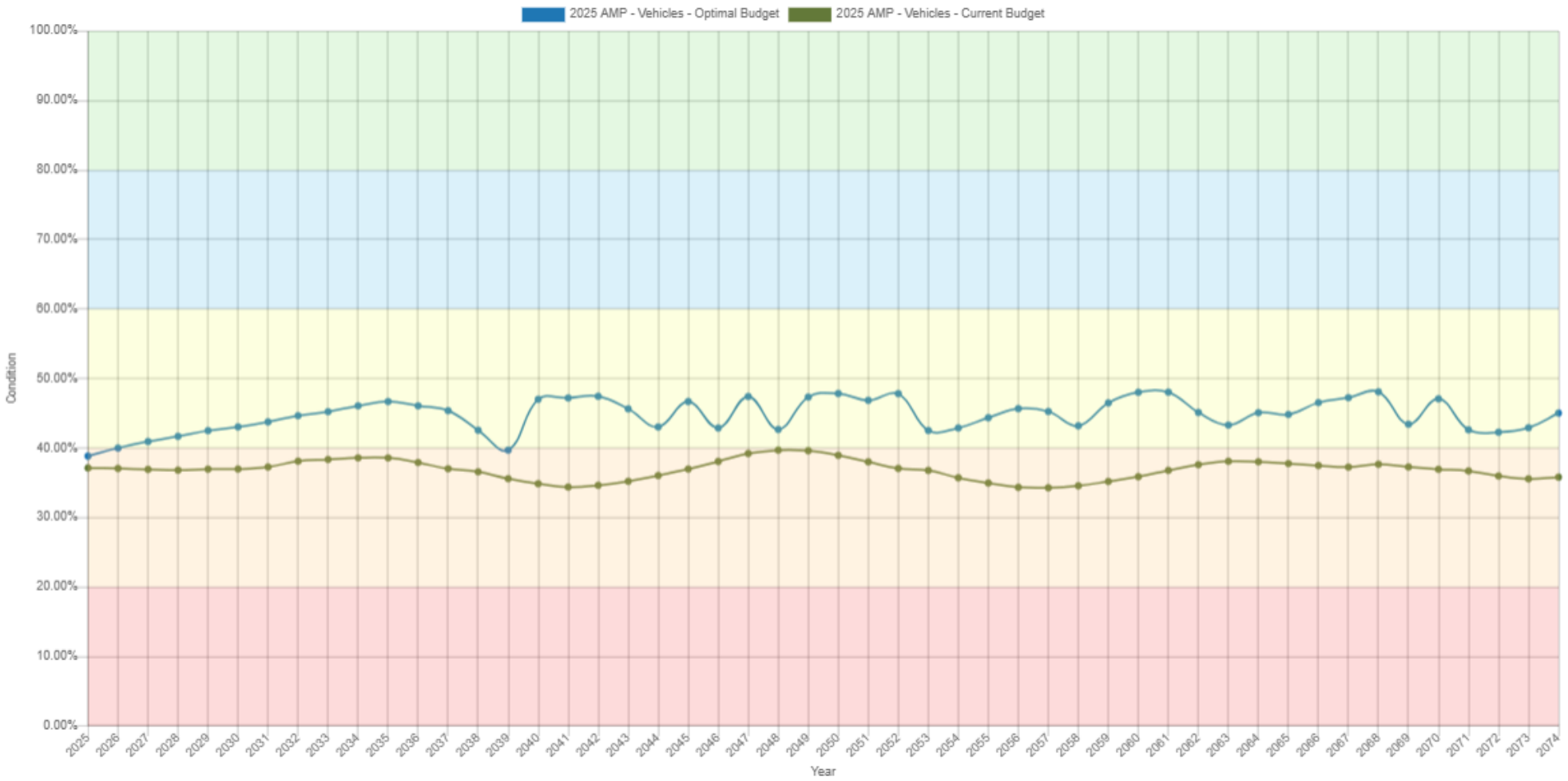


Figure 59: Projected Vehicle Asset Condition Under Optimal vs. Current Budget Scenarios

Recommendations

- Prioritize replacement of vehicles in poor or worse condition while maintaining fleet availability.
- Develop a dedicated capital reinvestment strategy to ensure long-term fleet sustainability.
- Enhance public awareness of fleet modernization efforts to improve perceptions of efficiency and environmental impact.

Risk of Not Addressing Vehicle Condition

- Increased service disruptions and higher maintenance costs.
- Reduced reliability of emergency and service vehicles, impacting municipal operations.
- Negative public perception regarding environmental sustainability.

9.7.3.2. Municipal Machinery & Equipment

Current LOS

- Average Condition of Equipment: Needs Improvement (Score: 32).
- Percentage of Equipment in Poor or Worse Condition: Needs Improvement (41%).
- Annual Sustainable Capital Reinvestment Rate: Needs Improvement (3% of required funding).

Public Engagement Results

- Public awareness of machinery and equipment management was low.
- No specific dissatisfaction was recorded, but neutrality was high, indicating limited public visibility.

Condition and Budget Scenarios

This graph illustrates the projected condition of Machinery & Equipment assets over time under two budget scenarios: the Optimal Budget (blue line) and the Actual Budget (green line), which is only 3% of the Optimal Budget. The vertical axis represents the asset condition as a percentage, while the horizontal axis spans the years from 2025 to 2074. The background shading categorizes condition levels: green (80-100%) represents excellent condition, blue (60-80%) indicates good condition, yellow (40-60%) reflects fair condition, orange (20-40%) signifies poor condition, and red (0-20%) marks critical condition.

Under the Optimal Budget, the asset condition remains relatively stable within the fair-to-good range, ensuring a sustainable level of service. However, with the Actual

Budget at only 3% of the Optimal Budget, the condition rapidly deteriorates, falling into the poor and critical ranges within the first decade. By 2035, the assets are essentially non-functional, with condition levels approaching 0%, indicating a complete failure. This dramatic decline highlights the severe consequences of insufficient funding, leading to accelerated deterioration, increased maintenance costs, and ultimately the need for premature replacements. Without a significant increase in investment, the current funding strategy is unsustainable and will likely result in equipment failures that compromise operational efficiency and service delivery.

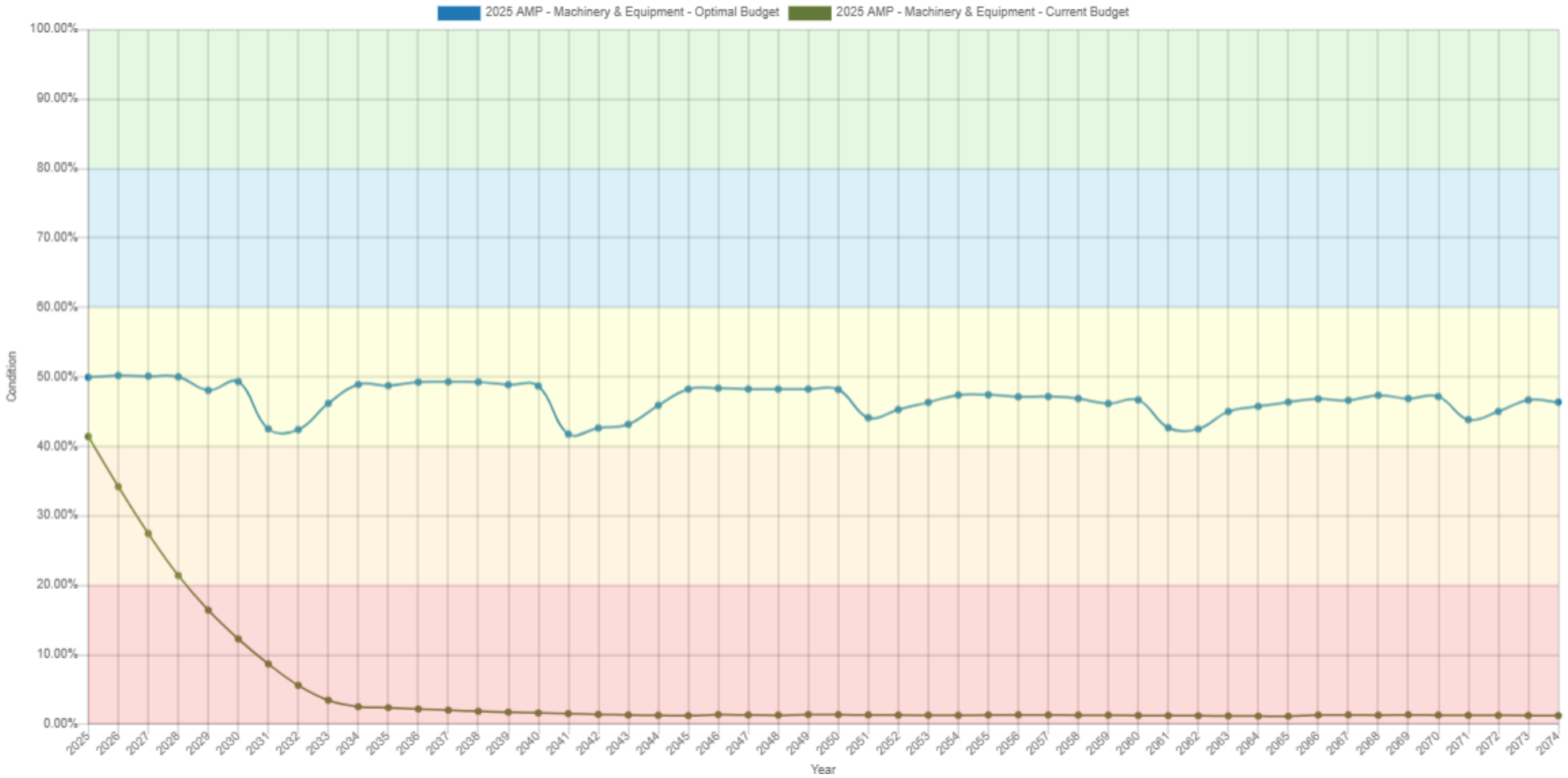


Figure 60: Projected Machinery & Equipment Asset Condition Under Optimal vs. Current Budget Scenarios

Recommendations

- Increase reinvestment in machinery and equipment to address funding gaps.
- Ensure replacement cycles align with asset performance data to maintain efficiency.
- Improve transparency in capital reinvestment planning to build public understanding.

Risk of Not Addressing Equipment Condition

- Higher lifecycle costs due to reactive maintenance.
- Potential operational inefficiencies in municipal service delivery.
- Increased safety risks for staff using outdated equipment.

9.7.3.3. Information Technology (IT)

Current LOS

- IT Performance: Needs Improvement (Staffing limitations impact replacement cycles).
- Security & Reliability: Strong cybersecurity practices, but improvements needed in staffing and infrastructure.
- Annual Sustainable Capital Reinvestment Rate: Needs Improvement (22% of required funding).

Public Engagement Results

- Reliability and security of IT systems were the highest-rated feature (77.7%).
- Accessibility and user-friendliness of online services were also highly prioritized (76.9%).
- Willingness to pay for improved IT services was low (24.5%), with 33.6% unwilling.

Condition and Budget Scenarios

This graph illustrates the projected condition of Information Technology (IT) assets over time under two budget scenarios: the Optimal Budget (blue line) and the Current Budget (green line), which is 22% of the Optimal Budget. The vertical axis represents the asset condition as a percentage, while the horizontal axis spans the years from 2025 to 2074. The background shading categorizes condition levels: green (80-100%) represents excellent condition, blue (60-80%) indicates good condition, yellow (40-60%) reflects fair condition, orange (20-40%) signifies poor condition, and red (0-20%) marks critical condition.

Under the Optimal Budget, IT assets maintain a relatively stable condition within the fair-to-good range, ensuring adequate service levels. However, under the Current Budget, condition levels decline sharply, dropping into the poor and critical ranges within the first decade. By 2035, IT assets are operating at minimal functionality, with condition values remaining in the red zone, signifying an urgent need for replacement. The long-term impact of underfunding IT assets includes increased system failures, cybersecurity risks, and operational inefficiencies. Without increased investment, IT infrastructure will continue to degrade, leading to higher emergency costs, reduced performance, and potential service disruptions.

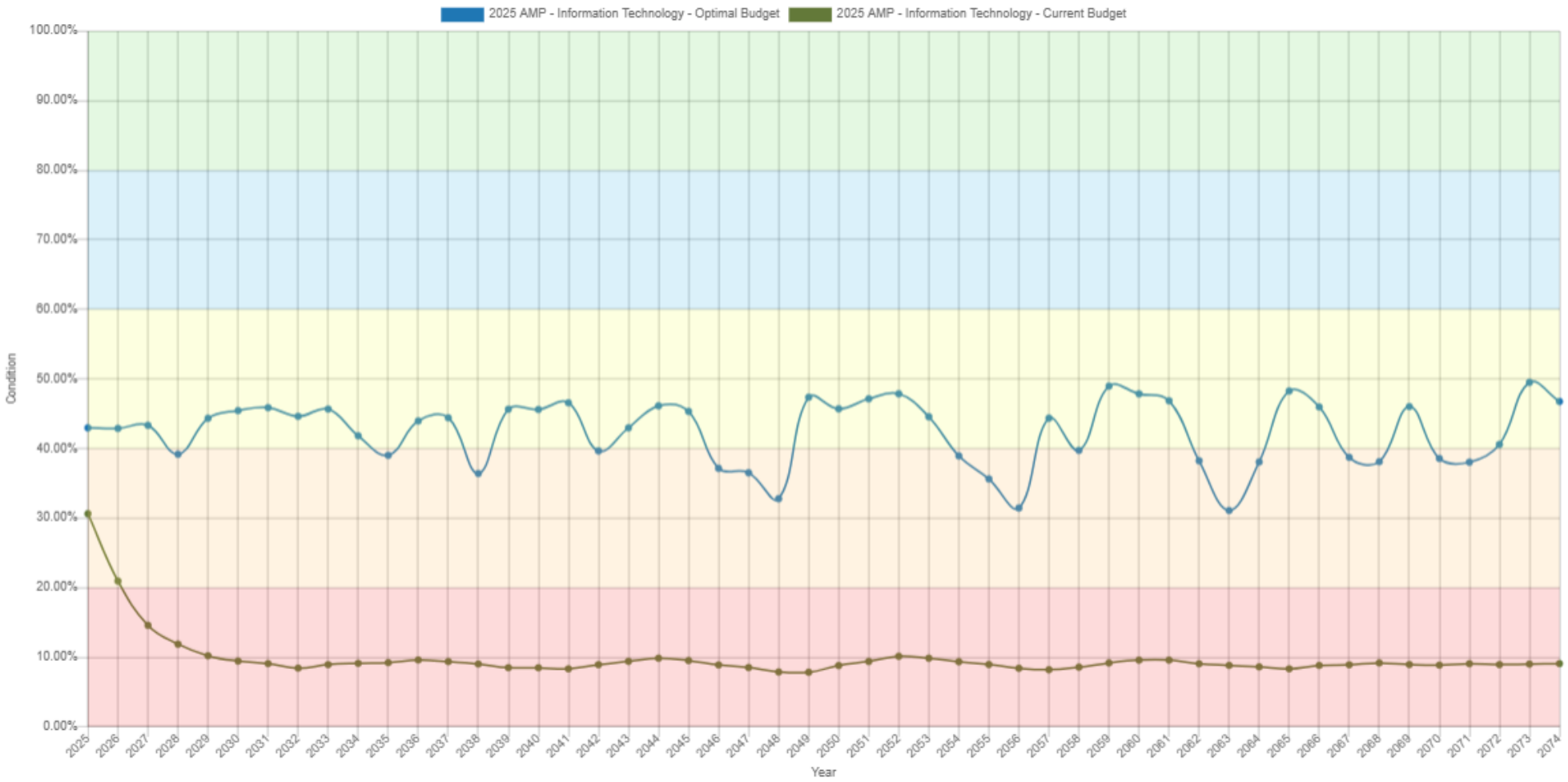


Figure 61: Projected IT Asset Condition Under Optimal vs. Current Budget Scenarios

Recommendations

- Increase IT staffing levels to support service delivery and meet best practices.
- Prioritize cybersecurity investments while improving system accessibility and performance.
- Enhance public communication on IT upgrades to justify investment needs.

Risk of Not Addressing IT Performance

- Increased vulnerability to cybersecurity threats.
- Reduced efficiency of municipal operations due to outdated systems.
- Diminished public trust in digital municipal services.

9.7.3.4. Furniture & Fixtures (Library & Public Spaces)

Current LOS

- Accessibility: Needs Improvement (Additional accessible furniture required).
- Annual Sustainable Capital Reinvestment Rate: Acceptable (76% of required funding).

Public Engagement Results

- Accessibility of library furniture was a moderate concern.
- High neutrality in responses suggested a lack of public awareness of ongoing improvements.

Recommendations

- Continue replacing and upgrading furniture to enhance accessibility.
- Ensure new acquisitions comply with accessibility legislation.
- Increase public engagement on accessibility improvements.

Risk of Not Addressing Accessibility in Furniture & Fixtures

- Limited access for individuals with disabilities.
- Potential non-compliance with accessibility regulations.
- Public perception of municipal facilities is not inclusive.

9.7.3.5. Library Collection Materials

Current LOS

- Annual Sustainable Capital Reinvestment Rate: Needs Improvement.

Public Engagement Results

- Availability and accessibility of library materials were rated highly important (70.9%).
- Diversity and relevance of collections were moderately important (61.1%) but had the highest neutral responses (25.0%).
- Willingness to pay for library collection expansion was low (27.4%), with 42.2% unwilling.

Recommendations

- Continue structured reinvestment in library collections to ensure diversity and relevance.
- Improve outreach efforts to highlight the benefits of digital and physical collections.
- Ensure ongoing alignment with evolving community needs.

Risk of Not Addressing Library Collection Needs

- Declining engagement with library services due to outdated materials.
- Limited availability of digital and physical collections to support diverse community needs.
- Public dissatisfaction with library resources.

Strategies

10. Growth

The demand for infrastructure and services will change over time based on a combination of internal and external factors. Understanding the key drivers of growth and demand will allow the City to plan for new infrastructure more effectively, as well as upgrade or dispose of existing infrastructure. Increases or decreases in demand can affect what assets are needed and what level of service meets the needs of the community.

10.1 Pickering Official Plan Review Growth Management & Urban Structure Discussion Papers (November 2024)

10.1.1 Overview of Growth Trends

The above-noted discussion paper quotes from the Durham Regional Official Plan, which was approved by the Minister of Municipal Affairs and Housing on December 13, 2024. The Region allocates the City of Pickering significant growth to 2051. Pickering's population expected to increase from approximately 100,000 to 256,370 residents and employment reaching 93,790 jobs. This rapid growth necessitates careful planning and investment in infrastructure services to ensure sustainable development while maintaining high-quality services for residents and businesses.

10.1.2 Implications for Infrastructure Services

As Pickering expands, the demand for infrastructure services—including transportation, regional water & wastewater, stormwater management, and community facilities—will increase. The City must ensure that its asset management strategies align with projected growth to support sustainable and efficient service delivery.

- Transportation and Road Networks: The intensification of urban areas, particularly in Strategic Growth Areas such as the City Centre, Kingston Road Corridor, and Brock Road Node, will require enhanced road networks and transit services to support increased population density. Investment in road rehabilitation, bridge maintenance, and active transportation infrastructure will be critical to accommodate both residents and commercial growth.
- Regional Water and Wastewater Services: With growth in Seaton and the planned Northeast Pickering expansion, the City must ensure the capacity and timing of Regional water and wastewater infrastructure, and other utility providers such as Enbridge gas, and hydro, are sufficient to support new residential and employment areas. Coordination with regional authorities and other utility providers will be essential to align long-term service strategies with expected population increases.

- Stormwater and Climate Resilience: The intensification of Pickering's urban areas will impact stormwater management systems, necessitating infrastructure upgrades to mitigate flooding risks and support climate resilience. The City's asset management plan should incorporate green infrastructure solutions and enhanced drainage systems.
- Community Facilities and Public Services: The rising population will increase the demand for recreational facilities, parks, libraries, and emergency services. Strategic planning will be needed to ensure adequate space, funding, and operational efficiency for these public services.

10.1.3 Employment Growth and Infrastructure Demand

Employment in Pickering is expected to more than double by 2051, requiring expanded infrastructure to support economic growth. Employment growth will be concentrated on:

- Innovation Corridor (Seaton): A major employment hub, requiring investment in road networks, transit access, and servicing capacity to attract businesses.
- Northeast Pickering Employment Area: Pending provincial approvals, this area will need infrastructure investment to support industrial, commercial, and mixed employment uses.
- Mixed-Use and Transit-Oriented Development Areas: The shift towards mixed-use developments in Strategic Growth Areas will necessitate infrastructure upgrades to support live-work environments, integrating commercial and residential spaces with reliable transit connections.

10.1.4 Asset Management Strategies for Growth

To accommodate growth while maintaining fiscal responsibility, Pickering's asset management strategies should include:

- Data-Driven Planning: Utilizing updated growth forecasts on an annual basis to prioritize infrastructure investments, based on long-term needs.
- Lifecycle Cost Analysis: Ensuring that new infrastructure investments consider long-term maintenance and renewal costs to optimize service delivery.
- Integrated Planning with Regional Authorities: Aligning Pickering's infrastructure investments with the Region of Durham's Official Plan and the Region's capital and infrastructure investment strategies.
- Sustainable Infrastructure Solutions: Implementing green building practices, low-impact development (LID) for stormwater management, and energy-efficient infrastructure upgrades.

10.1.5 Conclusion

Pickering's projected growth presents opportunities for economic development and enhanced community services, but it also brings challenges in maintaining infrastructure services. The City's 2025 Asset Management Plan must proactively address these challenges by ensuring that infrastructure investments align with anticipated population and employment growth while maintaining service levels and financial sustainability.

10.2 Pickering Official Plan – Edition 9 (March 2022)

In 1997, the City of Pickering (Corporation of the Town of Pickering, at the time) and the Council of the Regional Municipality of Durham approved the Official Plan. The Official Plan lays the "foundation" for building a good community. As a foundation, it provides a vision of the City, identifies how the vision can be reached, and establishes a monitoring program for checking progress and making necessary adjustments. The last consolidation of the plan was in March 2022.

This vision of the plan can be translated into the following set of guiding principles for Pickering's future growth and development:

A. To meet people's needs while ensuring environmentally appropriate actions.
B. To become more self-sufficient while seeking broader connections.
C. To support individual rights while upholding community goals.
D. To welcome diversity while respecting local context, and
E. To manage change while recognizing uncertainty.

Future growth in the City is centered principally around redevelopment and intensification in the Pickering City Centre and on lands along the Kingston Road Corridor and within the Specialty Retailing Node (located east of Brock Road, north of Highway 401 and south of Kingston Road), new development within the Duffin Heights Neighbourhood and the Seaton Urban Area.

10.2.1 The City Centre

The Pickering Official Plan supports growth in all portions of the City Centre and restricts new residential development in City Centre south of Highway 401 to 6,300 people or 3,400 units by 2031 until at least an additional 2,000 people or 1,100 new units have been developed on lands north of Highway 401 in the City Centre. Furthermore, the South Pickering Urban Area Employment Target Policy adopts an employment target for the City Centre of 13,500 jobs for the year 2031, which represents adding 8,800 jobs to the area. Moreover, the total population in the City Centre is expected to grow from 5,100 (2011) to 13,500 by 2031.

10.2.2 The Kingston Road Corridor and Specialty Retailing Node

The Pickering Official Plan has been amended by the approval of Official Plan Amendment 38, providing a comprehensive policy framework for the redevelopment and intensification of the lands along the Kingston Road Corridor and within the Specialty Retailing Node, with the exception of a number of properties which, at the time of this report, were still the subject of site-specific appeals. The potential mix of uses and densities along the Corridor and within the Node is expected to yield a total of 22,000 population and 8,100 jobs by 2041. A map depicting the Kingston Road Corridor and Specialty Retailing Node Intensification Plan Area can be found below.

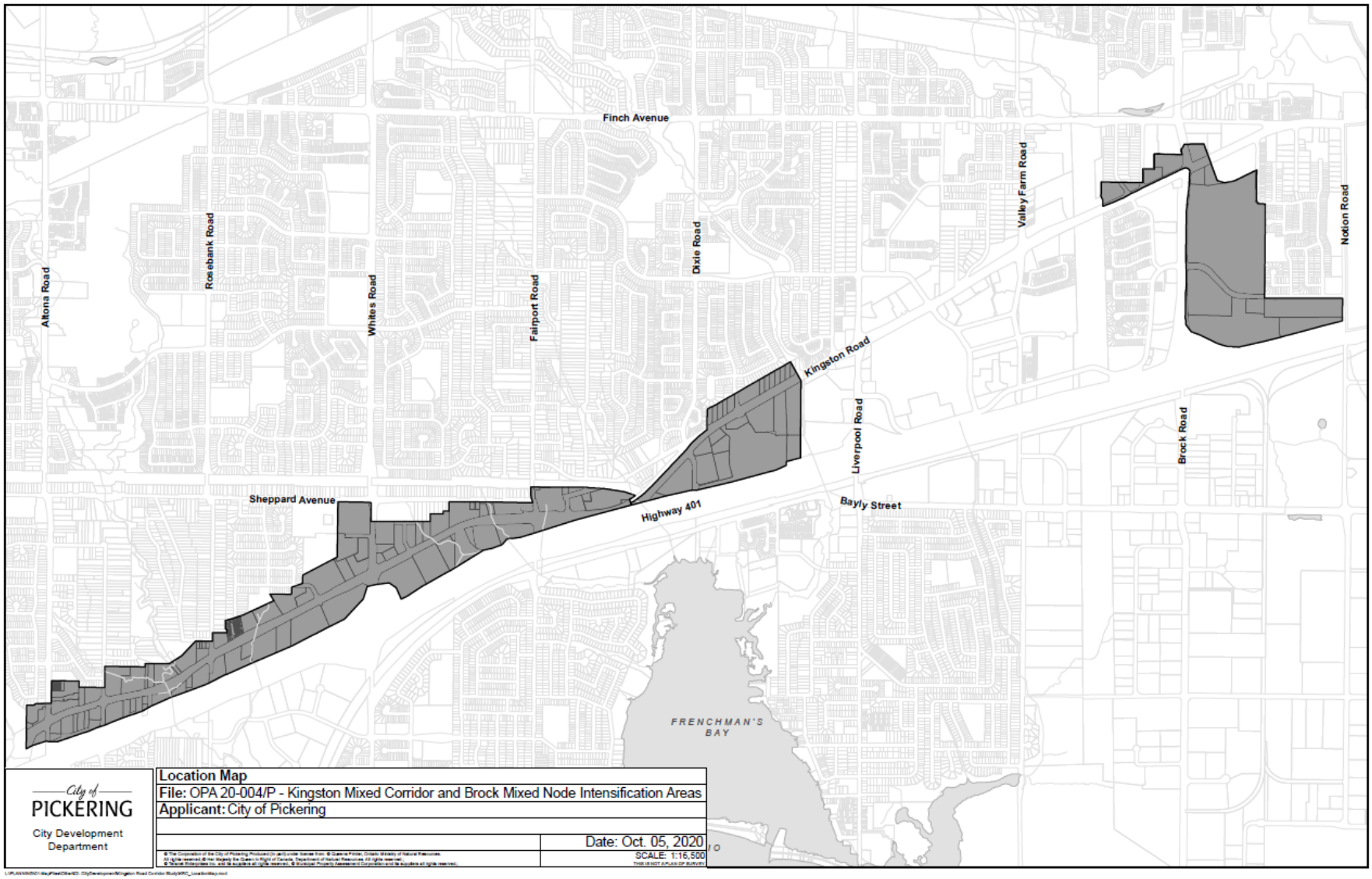


Figure 62: Location Map - Kingston Road Corridor

10.2.3 The Duffin Hights Neighbourhood

The development of the Duffin Heights Neighbourhood, located north of Third Concession Road and centered around Brock Road, kicked off in 2011. According to the City's 20-year Detailed Population Forecast, the Duffin Heights Neighbourhood is forecasted to grow to 10,425 people and 2845 units by 2031.

The following map presents the Duffin Heights Neighbourhood (Neighbourhood #15) as part of the South Pickering Urban Area Neighbourhoods

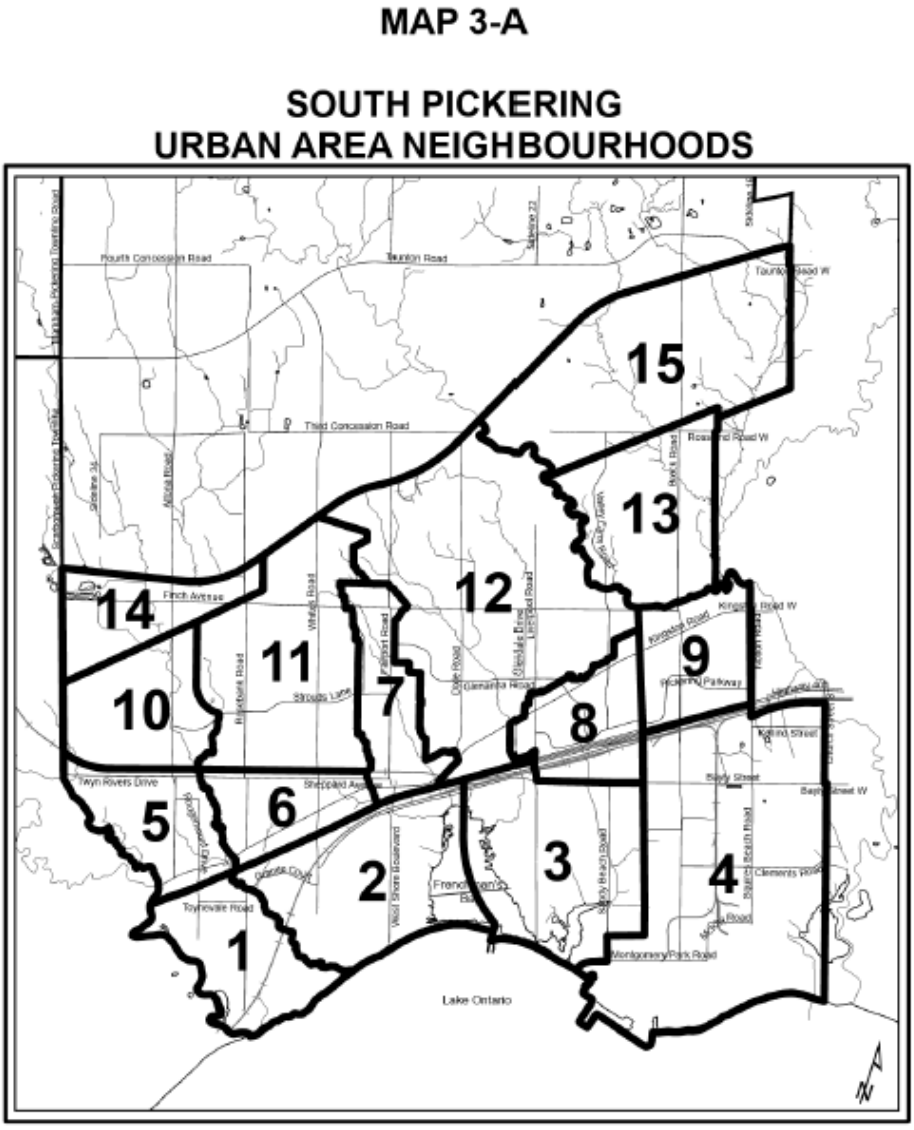


Figure 63: Map of South Pickering Urban Area Neighbourhoods

Table 34: Neighbourhood Number and Name

Neighbourhood #	Neighbourhood Name
1	Rosebank
2	West Shore
3	Bay Ridges
4	Brock Industrial
5	Rougemount
6	Woodlands
7	Dunbarton
8	City Centre
9	Village East
10	Highbush
11	Amberlea
12	Liverpool
13	Brock Ridge
14	Rouge Park
15	Duffin Heights

10.2.4 The Seaton Urban Area

According to the Seaton Urban Area Population and Employment Policy, City Council supports the development of an urban community that will accommodate 61,000 people by 2031 and be planned to accommodate up to 70,000 people through long-term intensification. The plan also includes the provision of high-quality employment opportunities that reflect the needs of the community with the identification of sufficient employment lands to generate approximately one job for every two residents with 30,500 jobs by 2031, and up to 35,000 jobs through long-term intensification.

The following tables 35 and 36 provide a breakdown of the anticipated 2031 population forecast of the Seaton Urban Area based on Neighbourhood Plans approved in 2012. Current City population projections are available on the City's website. The current projections show development is taking place at a slower rate than anticipated.

Table 35: Population of Neighbourhoods in the Seaton Urban Area

Neighbourhood Name and Number	2031 Population
Lamoreaux	17,500
Brock-Taunton	5,000
Mount Pleasant	18,000
Wilson Meadows	15,000
Thompson's Corners	5,500
Pickering Innovation Corridor	0

The following map exhibits the neighbourhood of the Seaton Urban Area listed above:

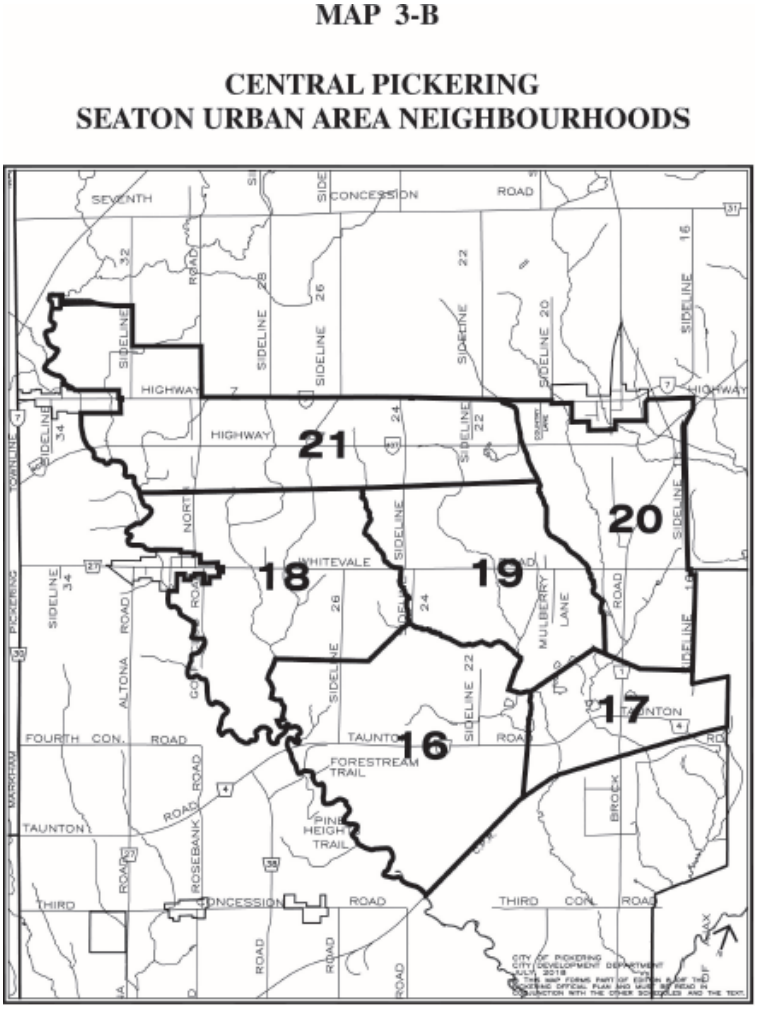


Figure 64: Map of Seaton Area Neighbourhoods

Table 36: Neighbourhood Number and Name

Neighbourhood#	Neighbourhood Name
16	Lamoreaux
17	Brock Taunton
18	Mount Pleasant
19	Wilson Meadows
20	Thompson's Corners
21	Innovation Corridor

10.3 Durham Regional Plan (2024)

10.3.1 Population and Employment Growth

- The Province allocated 1.3 million people and 460,000 jobs to Durham Region by 2051.
- Pickering's allocation is:
    - 2021: 102,940 people, 33,430 households, 39,310 jobs
    - 2026: 125,830 people, 41,310 households, 47,000 jobs
    - 2051: 256,370 people, 88,590 households, 93,790 jobs
- The Seaton Community in central Pickering is expected to accommodate 70,000 people and 35,000 jobs.
- The region is planning for a 50% job-to-population ratio, meaning for every two residents, there should be one job.

10.3.2 Strategic Growth Areas and Urban Expansion

- Seaton and other strategic growth areas will be prioritized for development.
- Pickering's Urban System will see high-density growth, supported by mixed-use developments..

10.3.3 Infrastructure and Services to Support Growth

- Durham is ensuring infrastructure aligns with intensification goals (50% of growth should occur in built-up areas).
- Focus on:
    - Regional water and wastewater services to accommodate increased population.
    - Transit-oriented development, particularly around major transit stations and corridors.
    - Expanding the road network and improving goods movement corridors.
    - Green and resilient infrastructure, including climate adaptation measures.

10.3.4 Economic Development and Employment Growth

- Key objectives include:
    - Supporting the Seaton Innovation Corridor as a major employment hub.
    - Leveraging Pickering's proximity to Toronto and highway network.
    - Preparing for high-tech and knowledge-based industries.
    - Encouraging innovation hubs and commercial development.

10.3.5 Sustainability and Resilient Infrastructure

- Growth to align with Durham and the City's sustainability and climate change related policies and plans.
- Expansion of tree canopy, stormwater management, and renewable energy projects.
- Sustainable building and infrastructure development are priorities.

10.4 Impact of Growth on Lifecycle Activities

As Pickering experiences significant population and employment growth, the demand for municipal services will rise. The City will need to expand, maintain, and optimize its infrastructure and facilities to meet community needs while ensuring financial sustainability. Below is an analysis of the impact of growth on key services managed by the City, focusing on lifecycle activities such as capital investments, operational costs, human resource needs, and long-term sustainability.

10.4.1 Roads and Transportation Infrastructure

Lifecycle Considerations:

- Capital Costs: Expansion of road networks, rehabilitation of existing roads, intersection improvements, and investments in active transportation (sidewalks, cycling lanes).
- Operational Costs: Increased road maintenance, snow removal, traffic signal operations, and road resurfacing programs.
- Human Resources: Additional public works staff for road repairs, maintenance crews for winter operations, and transportation planners.

Growth-Related Impacts:

- Strategic Growth Areas like the City Centre, Kingston Road Corridor, and Brock Road will require road capacity upgrades and enhanced transit infrastructure.
- New developments in Seaton and Northeast Pickering will necessitate new arterial and collector roads to support residential and employment growth.
- Increased traffic volumes will drive the need for traffic signal upgrades, intersection improvements, and transit priority measures.

10.4.2 Stormwater Management and Climate Resilience

Lifecycle Considerations:

- Capital Costs: Upgrading drainage systems, implementing green stormwater infrastructure, and increasing stormwater retention capacity.
- Operational Costs: Regular inspections, dredging of stormwater ponds, maintenance of culverts, and monitoring flood-prone areas.
- Human Resources: More engineering and maintenance staff for stormwater asset management and climate adaptation planning.

Growth-Related Impacts:

- Urban intensification will increase impermeable surfaces, requiring investments in stormwater mitigation infrastructure such as bioswales, permeable pavements, and green roofs.
- Increased precipitation events due to climate change will necessitate higher drainage system capacity and improved flood management strategies.
- Development in Seaton and Northeast Pickering will require coordination with regional authorities for stormwater servicing.

10.4.3 Community Facilities and Recreational Services

Lifecycle Considerations:

- Capital Costs: Expanding or constructing new community centers, sports complexes, and public facilities.
- Operational Costs: Increased facility maintenance, security, energy costs, and staffing for programming.
- Human Resources: More staff for facility management, recreation programming, and customer service.

Growth-Related Impacts:

- New residential developments will drive demand for additional recreational spaces, pools, and gymnasiums.
- Aging community centers will require major retrofits and accessibility improvements.
- Higher population density in mixed-use areas will increase the need for multi-use recreational facilities.

10.4.4 Parks, Trails, and Open Spaces

Lifecycle Considerations:

- Capital Costs: Land acquisition for new parks, development of trails, playground installations, and natural habitat restoration.
- Operational Costs: Ongoing maintenance, landscaping, waste collection, and tree management.
- Human Resources: Additional park maintenance crews, arborists, and recreational programming staff.

Growth-Related Impacts:

- Increased population density will require more green spaces and parkland acquisitions.
- Expansion of urban trails and pedestrian pathways will be necessary to support active transportation.

- Higher usage of parks will lead to increased maintenance costs and more demand for sports fields and recreational amenities.

10.4.5 IT Infrastructure and Digital Services

Lifecycle Considerations:

- Capital Costs: Investments in broadband expansion, network security, smart city initiatives, and data centers.
- Operational Costs: Software licensing, cybersecurity measures, and IT support services.
- Human Resources: More IT specialists for system maintenance, data security, and smart infrastructure deployment.

Growth-Related Impacts:

- Expansion of digital services and smart city applications will be required for efficient service delivery.
- More residents and businesses will increase demand for online municipal services, digital permitting, and virtual public engagement tools.
- Cybersecurity risks will grow, requiring stronger IT governance and data protection measures.

10.4.6 Library Services

Lifecycle Considerations:

- Capital Costs: Expansion or renovation of library branches, technology upgrades, and digital resource investments.
- Operational Costs: Staffing, book acquisitions, digital subscriptions, and program development.
- Human Resources: Additional librarians, program coordinators, and IT support for digital literacy programs.

Growth-Related Impacts:

- Higher population densities will increase demand for new library branches, study spaces, and digital learning resources.
- Growth in employment areas will require library services tailored to workforce needs, such as co-working spaces and career development programs.
- Digital transformation will drive the need for expanded online resources and e-learning platforms.

10.4.7 Fire and Emergency Services

Lifecycle Considerations:

- Capital Costs: Construction of new fire stations, procurement of fire trucks and emergency response equipment.
- Operational Costs: Training programs, staffing, equipment maintenance, and emergency response planning.
- Human Resources: Additional administration, firefighters, training, and fire prevention personnel.

Growth-Related Impacts:

- More residential and commercial developments will require new fire stations, apparatus, equipment, and updated emergency response plans.
- Intensification areas will require enhanced fire prevention, fire code enforcement and public education measures.
- Climate change-related risks (e.g., flooding, and extreme weather) will require expanded emergency preparedness and response efforts

10.4.8 Long-Term Financial and Asset Management Considerations

To maintain financial sustainability, the City must:

- Incorporate Lifecycle Cost Analysis: Ensure that new infrastructure considers not only capital costs but also long-term maintenance and renewal.
- Develop Sustainable Funding Strategies: Balance capital expenditures with operating budgets and secure provincial/federal funding where possible.
- Prioritize Infrastructure Investment Based on Growth Projections: Align infrastructure plans with population and employment forecasts.
- Enhance Asset Management Practices: Utilize data-driven planning to optimize asset performance and service delivery.

10.4.9 Conclusion

Pickering's rapid growth presents both opportunities and challenges in managing its municipal infrastructure and services. By proactively addressing lifecycle activities—capital costs, operational expenses, and workforce requirements—the City can ensure that roads, stormwater systems, facilities, parks, IT, libraries, and emergency services continue to meet the needs of its expanding population while maintaining financial sustainability.

11. Financial Strategy

For an asset management plan to be effective and meaningful, it must be integrated with financial planning and multi-year capital forecasting. The development of a comprehensive financial plan will allow the City of Pickering to identify the financial resources required for sustainable asset management based on existing asset inventories, desired levels of service, and projected growth requirements.

This report develops such a financial plan by presenting several scenarios for consideration and culminating with final recommendations. As outlined below, the scenarios presented model different combinations of the following components:

1. The financial requirements for:
    a. Existing assets
    b. Existing service levels
    c. Requirements of contemplated changes in service levels (none identified for this plan)
    d. Requirements of anticipated growth (none identified for this plan)
2. Use of traditional sources of municipal funds:
    a. Tax levies
    b. User fees
    c. Debt
    d. Development charges
    e. Reserve Funds
3. Use of non-traditional sources of municipal funds:
    a. Reallocated budgets
    b. Partnerships
    c. Procurement methods
4. Use of Senior Government Funds:
    a. Canada Community-Building Fund (CCBF)
    b. Annual grants

Note: Periodic grants are normally not included due to Provincial requirements for firm commitments. However, if moving a specific project forward is wholly dependent on receiving a one-time grant, the replacement cost included in the financial strategy is the net of such grant being received.

If the financial plan component results in a funding shortfall, the Province requires the inclusion of a specific plan as to how the impact of the shortfall will be managed. In determining the legitimacy of a funding shortfall, the Province may evaluate a City's approach to the following:

1. In order to reduce financial requirements, consideration has been given to revising service levels downward.
2. All asset management and financial strategies have been considered. For example:
    a. If a zero-debt policy is in place, is it warranted? If not the use of debt should be considered.
    b. Do user fees reflect the cost of the applicable service? If not, increased user fees should be considered.

11.1 Annual Requirements & Capital Funding

11.1.1 Annual Requirements

The annual requirements represent the amount the City should allocate each year to each asset category to meet replacement needs as they arise, prevent infrastructure backlogs, and achieve long-term sustainability. In total, the City must allocate approximately $61.7 million annually to address capital requirements for the assets included in this AMP.

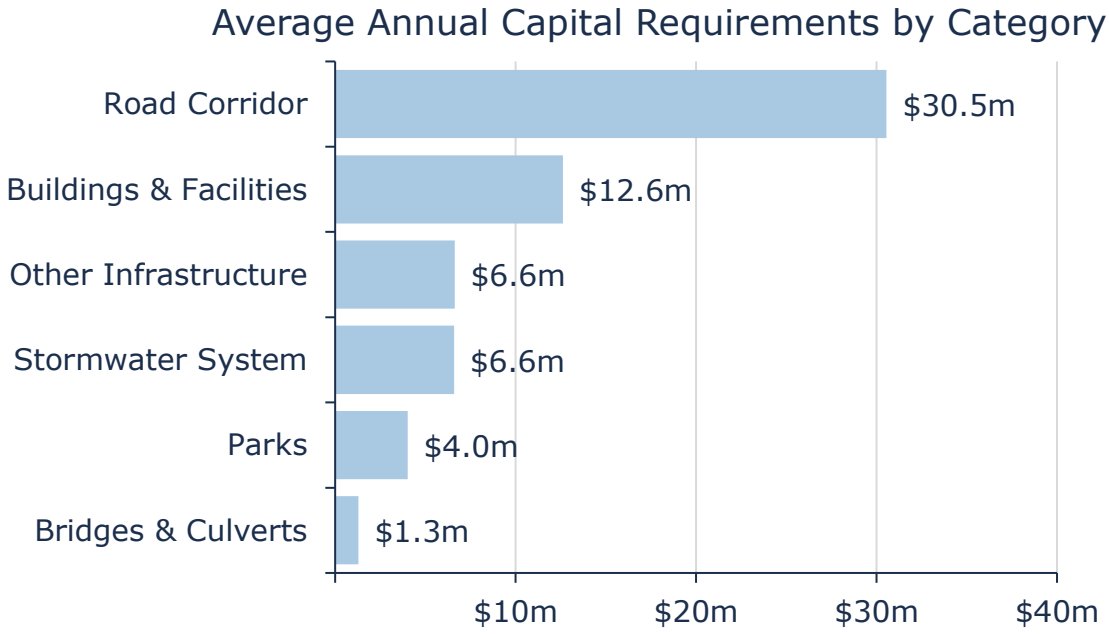


Figure 65: Annual Capital Funding Requirements by Asset Category

For most asset categories the annual requirement has been calculated based on a "replacement only" scenario, in which capital costs are only incurred at the construction and replacement of each asset.

However, for the Road Corridor lifecycle management strategies have been developed to identify capital costs that are realized through strategic rehabilitation and renewal of the City's roads. The development of these strategies allows for a comparison of potential cost avoidance if the strategies were to be implemented. The following table compares two scenarios for the Road Corridor:

1. **Replacement Only Scenario**: Based on the assumption that assets deteriorate and – without regularly scheduled maintenance and rehabilitation – are replaced at the end of their service life.
2. **Lifecycle Strategy Scenario**: Based on the assumption that lifecycle activities are performed at strategic intervals to extend the service life of assets until replacement is required.

Asset Category	Annual Requirements (Replacement Only)	Annual Requirements (Lifecycle Strategy)	Difference
Road Corridor	$36,120,000	30,550,000	$5,570,000

Table 37: Lifecycle Strategies Annual Savings

The implementation of a proactive lifecycle strategy for roads leads to potential annual cost avoidance of $5.6 million for the road corridor. This represents an overall reduction of 15% in terms of annual requirements for the road corridor. As the lifecycle strategy scenario represents the lowest cost option available to the City, we have used these annual requirements in the development of the financial strategy.

11.1.2 Annual Funding Available

Based on a historical analysis of sustainable capital funding sources, the City is currently committing approximately $31.8 million annually towards capital projects. However, this figure includes Ontario Community Infrastructure Fund (OCIF) contributions, which are expected to be discontinued in future years. With the anticipated loss of approximately $3 million in OCIF funding, the City's sustainable capital funding will decline to about $28.8 million annually. Given the annual capital requirement of $61.7 million, this results in an increased funding gap of approximately $32.8 million per year.

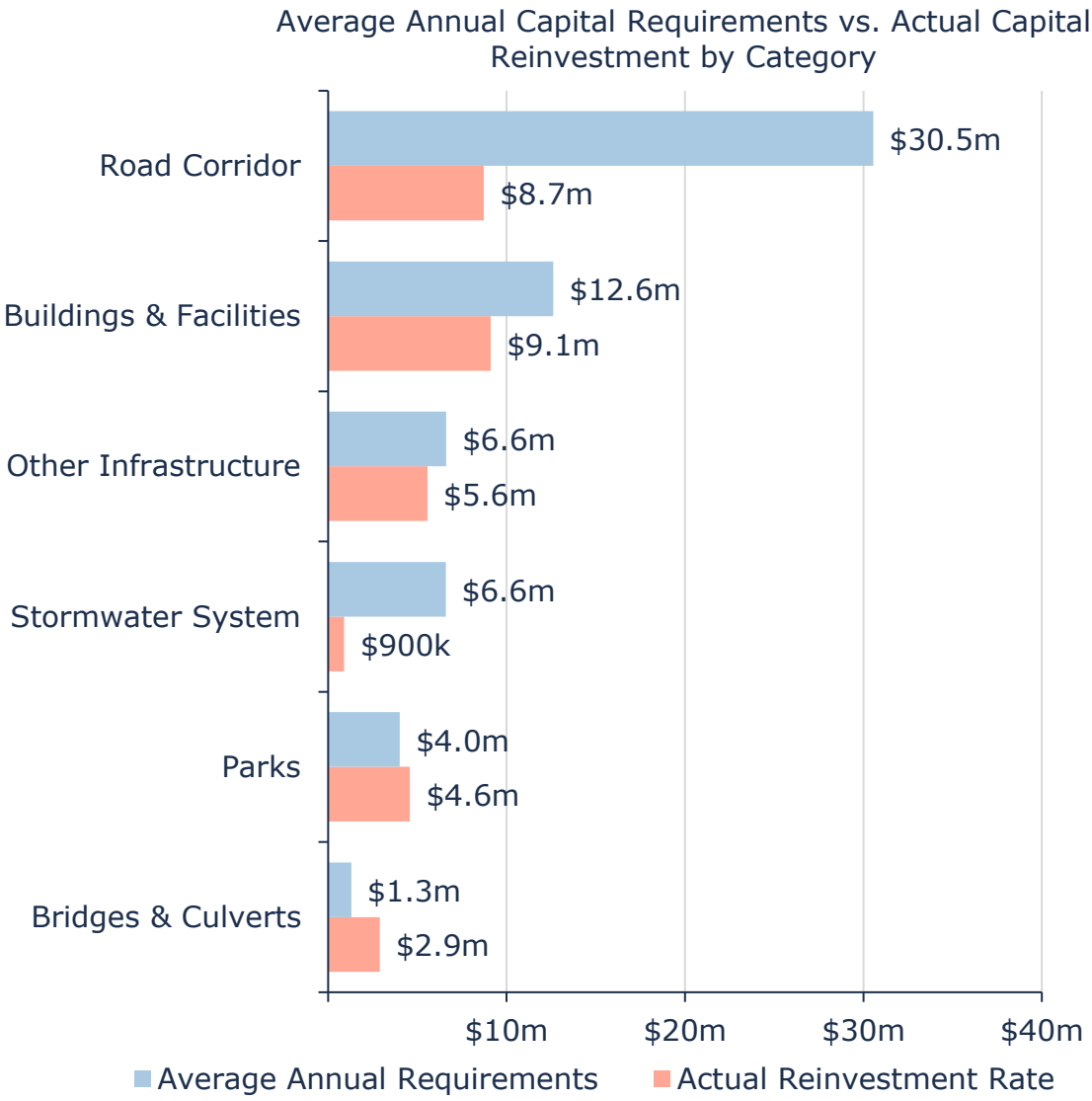


Figure 66: Annual Requirements vs. Capital Funding Available

11.2 Funding Objective

We have developed a scenario that would enable Pickering to achieve full funding within 5-20 years for the following assets:

- **Tax Funded Assets:** Road Corridor, Stormwater System, Bridges & Structural Culverts, Buildings & Facilities, Parks, and Other Infrastructure

Note: For the purposes of this AMP, we have excluded gravel roads since they are a perpetual maintenance asset and end of life replacement calculations do not normally apply. If gravel roads are maintained properly, they can theoretically have a limitless service life.

For each scenario developed we have included strategies, where applicable, regarding the use of cost containment and funding opportunities.

11.3 Financial Profile: Tax Funded Assets

11.3.1 Current Funding Position

The following tables show, by asset category, Pickering's average annual asset investment requirements, current funding positions, and funding increases required to achieve full funding on assets funded by taxes.

Asset Category	Avg. Annual Requirement	Annual Funding Available					
		Taxes	Reserves/ Reserve Funds	Gas Tax	Casino Reserve	Total Available	Deficit
Bridges & Culverts	$1,296,000		$555,000			$555,000	$741,000
Buildings & Facilities	$12,615,000	$145,000	$1,620,000	$650,000	$6,693,000	$9,108,000	$3,507,000
Other Infrastructure	$6,621,000	$52,000	$4,175,000		$1,338,000	$5,565,000	$1,056,000
Parks	$4,018,000	$721,000	$863,000	$325,000	$2,677,000	$4,586,000	($568,000)
Road Corridor	$30,548,000		$3,185,000	$2,274,000	$2,677,000	$8,136,000	$22,412,000

Asset Category	Avg. Annual Requirement	Annual Funding Available					
		Taxes	Reserves/ Reserve Funds	Gas Tax	Casino Reserve	Total Available	Deficit
Stormwater System	$6,589,000		$900,000			$900,000	$5,689,000
Total	**$61,687,000**	**$918,000**	**$11,298,000**	**$3,249,000**	**$13,385,000**	**$28,850,000**	**$32,837,000**

Table 38: Annual Available Funding for Tax Funded Assets

The average annual investment requirement for the above categories is $61.7 million. The annual revenue currently allocated to these assets for capital purposes is $28.8 million, leaving an annual deficit of $32.8 million. Put differently, these infrastructure categories are currently funded at 46.8% of their long-term requirements.

11.3.2 Full Funding Requirements

In 2025, the City of Pickering budgeted annual tax revenues of approximately $103.7 million. As illustrated in the following table, without consideration of any other sources of revenue or cost containment strategies, full funding would require the following tax change over time:

Asset Category	Tax Change Required for Full Funding
Bridges & Culverts	0.7%
Buildings & Facilities	3.4%
Other Infrastructure	1.0%
Parks	-0.5%
Road Corridor	21.6%
Stormwater System	5.5%
Total	**31.7%**

Table 39: Tax Increase Requirements for Full Funding

Our scenario modeling includes capturing the above changes and allocating them to the infrastructure deficit outlined above. The table below outlines this concept and presents several options:

	5 Years	10 Years	15 Years	20 Years
Infrastructure Deficit	$32,837,000	$32,837,000	$32,837,000	$32,837,000
Change in Debt Costs	N/A	N/A	N/A	N/A

	5 Years	10 Years	15 Years	20 Years
Resulting Infrastructure Deficit:	**$32,837,000**	**$32,837,000**	**$32,837,000**	**$32,837,000**
Tax Increase Required	31.7%	31.7%	31.7%	31.7%
Annually:	**5.7%**	**2.8%**	**1.9%**	**1.4%**

Table 40: Tax Increase Options 5-20 Years

11.3.3 Financial Strategy Recommendations

Considering all the above information, we recommend the 10-year option. This involves full funding being achieved over 10 years by:

a) increasing tax revenues by 2.8% each year for the next 10 years solely for the purpose of phasing in full funding to the asset categories covered in this section of the AMP.
b) allocating the current revenue streams as outlined previously.
c) reallocating appropriate revenue from categories in a surplus position to those in a deficit position.
d) increasing existing and future infrastructure budgets by the applicable inflation index on an annual basis in addition to the deficit phase-in.

Notes:

- As in the past, periodic senior government infrastructure funding will most likely be available during the phase-in period. By Provincial AMP rules, this periodic funding cannot be incorporated into an AMP unless there are firm commitments in place.
- We realize that raising tax revenues by the amounts recommended above for infrastructure purposes will be very difficult to do. However, considering a longer phase-in window may have even greater consequences in terms of infrastructure failure.

Although this option achieves full funding on an annual basis in 10 years and provides financial sustainability over the period modeled, the recommendations do require prioritizing capital projects to fit the resulting annual funding available. It is recommended to start by addressing the critical assets that are within the City's infrastructure backlog.

Prioritizing future projects will require the current data to be replaced by condition-based data. Although our recommendations include no further use of debt, the results of the condition-based analysis may be required otherwise.

11.3.4 Other considerations.

Scenario 1: Gradual and Steady Increases Over 15 Years

This scenario proposes a longer phase-in period to reduce the annual burden on taxpayers. It involves:

- 1% annual tax increases from 2027 to 2030, followed by
- 2% annual increases from 2031 to 2042

This gradual approach allows the City to work toward full funding over 17 years while easing short-term financial pressures on the community. However, the slower increase in available funding means that critical infrastructure needs may not be addressed as quickly, and risks related to asset failure could increase in earlier years.

- Target Year for Full Funding: 2042
- Annual Tax Impact: Low to Moderate
- Key Trade-off: Affordability now vs. delayed sustainability

Scenario 2: Lower Increases Now, Accelerated Catch-Up (10-Year Plan)

Scenario 2 is designed to reach full funding by 2036, six years earlier than Scenario 1, while still providing near-term relief. It proposes:

- 1% annual increases from 2027 to 2030, followed by
- 4.82% annual increases from 2031 to 2035

This option defers most of the financial pressure to the second half of the funding window, allowing for a gentler transition in the short term while still meeting the recommended 10-year timeline for full funding. However, the steeper increases from 2031 onward could pose future challenges in terms of public and political support.

- Target Year for Full Funding: 2036
- Annual Tax Impact: Low initially, then High
- Key Trade-off: Short-term relief vs. steeper increases later

Scenario 3: Moderate and Predictable Growth (12-Year Plan)

Scenario 3 offers a balanced middle-ground approach between affordability and timely financial sustainability. It proposes:

- 1.4% annual tax increases from 2027 to 2030, followed by
- 2.8% annual increases from 2031 to 2038

This strategy aligns closely with the City's original funding model but introduces a slightly gentler ramp-up in the first four years, easing the initial impact on ratepayers while still moving decisively toward full funding within a 12-year period. The plan achieves the funding target six years earlier than Scenario 1 and two years later than Scenario 2.

Scenario 3 supports earlier reinvestment in aging infrastructure compared to Scenario 1, reducing the risk of unexpected failures while avoiding the sharp mid-period tax spikes seen in Scenario 2.

- Target Year for Full Funding: 2038
- Annual Tax Impact: Moderate and consistent
- Key Trade-off: Earlier infrastructure investment than Scenario 1, without the steep increases of Scenario 2

This scenario may be particularly appropriate for municipalities seeking predictability in budgeting, a moderate pace of infrastructure renewal, and greater public support through steady, manageable tax adjustments.

These three alternatives offer more flexibility than the flat 2.8% increase model but come with trade-offs related to timing, risk, and long-term cost implications. These should be carefully considered alongside infrastructure condition data and public willingness to pay.

11.4 Use of Reserves

11.4.1 Available Reserves

Reserves play a critical role in long-term financial planning. The benefits of having reserves available for infrastructure planning include:

a) the ability to stabilize tax rates when dealing with variable and sometimes uncontrollable factors
b) financing one-time or short-term investments
c) accumulating the funding for significant future infrastructure investments
d) managing the use of debt
e) normalizing infrastructure funding requirement

By asset category, the table below outlines the details of the reserves currently available to Pickering.

Asset Category	Balance on December 31, 2023
Bridges & Culverts	$11,494,696
Facilities & Buildings	$15,758,610
Other Infrastructure	$3,209,648
Parks	$1,250,320
Roads	$13,621,166
Stormwater System	$5,052,701
Total Tax Funded:	**$50,387,140**

Table 41: Pickering Reserve Balances

There is considerable debate in the municipal sector as to the appropriate level of reserves that a City should have on hand. There is no clear guideline that has gained wide acceptance. Factors that municipalities should consider when determining their capital reserve requirements include:

a) breadth of services provided
b) age and condition of infrastructure
c) use and level of debt
d) economic conditions and outlook
e) internal reserve and debt policies.

These reserves are available for use by applicable asset categories during the phase-in period to full funding. This coupled with Pickering's judicious use of debt in

the past, allows the scenarios to assume that, if required, available reserves and debt capacity can be used for high priority and emergency infrastructure investments in the short- to medium-term.

11.4.2 Recommendation

To achieve the proposed levels of service goals outlined in this Asset Management Plan, the City must address the funding gap for tax-funded assets. The analysis indicates that the current annual tax-funded capital investment falls short of the required sustainable levels, creating risks to infrastructure condition and service reliability over time.

To bridge this gap and maintain long-term financial sustainability, the following strategies should be considered:

- Gradual tax levy increases to phase in additional funding for capital rehabilitation and replacement. A structured annual increase would help align funding with lifecycle needs while minimizing short-term financial strain.
- Strategic reallocation of budget surpluses and reserve contributions to prioritize critical infrastructure needs and reduce reliance on debt financing.
- Increased grant and partnership funding to support major capital investments while reducing the burden on taxpayers. The City should proactively apply for available provincial and federal funding programs such as the Canada Community-Building Fund (CCBF).
- Enhanced asset lifecycle management strategies to extend the useful life of tax-funded assets and optimize long-term capital planning, reducing the immediate financial burden.

Without these adjustments, the City will face continued infrastructure deterioration, increasing maintenance costs, and higher long-term financial risks. Proactive funding strategies will ensure that the City's tax-funded assets can meet service level expectations while maintaining fiscal responsibility.

12. Recommendations & Key Considerations

This section outlines key financial and asset management recommendations to ensure the City of Pickering can achieve long-term financial sustainability, service reliability, and infrastructure resilience. The focus is on aligning capital investment with service level expectations while accounting for growth impacts and the increasing complexity of asset management.

12.1 Financial Sustainability & Long-Term Funding Strategy

To achieve the proposed levels of service goals, the City must address the $32.8 million annual funding gap for tax-funded assets. The following strategies should be considered:

- Structured tax levy increases: Implementing a phased tax increase (e.g., 2.8% annually over 10 years) to close the infrastructure deficit while balancing affordability.
- Reallocating existing revenue sources: Redirecting funding from asset categories with surpluses to those facing deficits.
- Expanding the use of senior government grants: Prioritizing applications for funding programs such as the Building Faster Fund (BFF) and Canada Community-Building Fund (CCBF).
- Evaluating debt financing for critical projects: While the City has historically limited debt use, targeted borrowing may or may not be available for high-priority infrastructure investments.
- Adjusting future budgets for inflation: Ensuring annual infrastructure funding accounts for construction cost escalations and inflationary pressures.

Failure to implement these strategies could result in accelerated asset deterioration, increased maintenance costs, and reduced service reliability, making long-term infrastructure sustainability difficult to achieve.

12.2 Growth-Related Financial Planning & Asset Rationalization

As Pickering's infrastructure portfolio expands, the City must account for the long-term cost of growth. While new development often brings additional tax revenue, it also creates new financial liabilities for maintenance, rehabilitation, and eventual replacement. To ensure sustainable expansion, the City should:

- Develop a long-term growth cost model: Incorporate lifecycle funding requirements for new infrastructure in financial planning to avoid creating unfunded liabilities.

- Assess the cost-benefit of new asset acquisitions: Before assuming ownership of new infrastructure, ensure that the long-term maintenance and replacement costs are accounted for.
- Review opportunities for asset disposal: As the City's portfolio grows, some underutilized or redundant assets may be candidates for divestment, reducing financial strain and allowing reinvestment in critical infrastructure.
- Increase development charge allocations for infrastructure renewal: Ensuring that new developments contribute fairly to the cost of maintaining the overall infrastructure network.

Without integrating growth planning into financial forecasting, the City risks accumulating infrastructure that cannot be adequately maintained without substantial future tax increases.

12.3 Improving Asset Data for Better Decision-Making

To enhance capital planning and risk management, the City should:

- Expand condition assessments across all asset classes to reduce reliance on age-based deterioration models.
- Refine risk models to prioritize high-impact assets and optimize capital investment decisions.
- Improve lifecycle cost modeling to identify cost-effective intervention points and maximize infrastructure longevity.
- Leverage emerging technologies (e.g., GIS, IoT sensors) for real-time monitoring and predictive maintenance.

Better data will enable more accurate funding requirements and support strategic reinvestment in the City's growing asset base.

12.4 Conclusion

Pickering's infrastructure portfolio is not only expanding but also aging and deteriorating, and increasing financial pressures present significant challenges for effective management and maintenance. To maintain service reliability and compliance with O. Reg. 588/17, the City must commit to a phased financial strategy, integrate growth considerations, and optimize asset management practices.

By implementing these recommendations, the City can balance infrastructure investment, financial sustainability, and community expectations, ensuring long-term resilience and responsible asset stewardship.

Appendices

Appendix A – 10-Year Capital Requirements

Appendix B – Level of Service Maps & Photos

Appendix C – Risk Rating Criteria

Appendix D – Additional Asset Portfolio Breakdown by Sub-segments

Appendix E- Facility Condition Indices

Appendix A – 10-Year Capital Requirements

The tables The tables below summarize the projected costs of lifecycle activities (rehabilitation and replacement) expected over the next 10 years to support the proposed levels of service. These projections are based on a 2.8% annual tax increase over 10 years and cover the road corridor, stormwater system, bridges and culverts, as well as specific budget figures for facilities and parks. The estimates are generated using Citywide and VFA, drawing from data in the asset register.

Where available, condition assessments and replacement costs were used to forecast asset replacement needs. For assets lacking condition data, age-based estimates were applied. Projected needs were then compared to available funding, and any shortfalls are reflected as backlog—indicating overdue investment at the time of analysis.

These projections may differ from actual capital forecasts. Ongoing updates to condition data, replacement costs, and lifecycle models will improve alignment between system-generated requirements and the City's capital planning.

Road Corridor

Segment	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Roads	$54.3m	$8.0m	$9.0m	$9.7m	$11.9m	$13.7m	$15.7m	$17.8m	$16.6m	$23.4m	$26.6m
Roadside Appurtenances		-	-	-	-	-	-	-	-	-	-
Sidewalks	$1.1m	$12k	$269k	-	-	-	$40k	$45k	-	-	-
Streetlights	$223k	-	-	-	-	$67k	$51k	$80k	$3.8m	$14k	$12k
Traffic & Pedestrian Signals	$496k	$138k	$58k	$934k	$240k	-	$21k	$93k	$72k	$44k	$134k
Total	**$56.1m**	**$8.1m**	**$9.3m**	**$10.6m**	**$12.1m**	**$13.8m**	**$15.8m**	**$18.0m**	**$20.5m**	**$23.5m**	**$26.8m**

Table 42: System Generated 10-Year Capital Replacement Forecast: Road Corridor

Bridges & Structural Culverts

Segment	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Bridges	-[27]	$1.1m	$362k	-	-	-	-	-	$168k	-	-
Culverts	-	$102k	$36k	$108k	-	-	-	$777k	$2.1m	$500k	$823k
Total	-	**$1.2m**	**$398k**	**$108k**	**-**	**-**	**-**	**$777k**	**$2.3m**	**$500k**	**$823k**

Table 43: System Generated 10-Year Capital Replacement Forecast: Bridges & Structural Culverts

Stormwater System

Segment	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Drainage Channels	-	-	-	-	-	-	-	-	-	-	-
Storm Sewers	$471k	-	-	$454k	$1.6m	$2.0m	$2.4m	$3.0m	$3.6m	$4.4m	$5.4m
Stormwater Ponds	-	-	$1.2m	$1.6m	-	-	-	-	-	-	-
Total	**$471k**	**-**	**$1.2m**	**$2.1m**	**$1.6m**	**$2.0m**	**$2.4m**	**$3.0m**	**$3.6m**	**$4.4m**	**$5.4m**

Table 44: System Generated 10-Year Capital Replacement Forecast: Stormwater System

[27] Many of the structures with limited remaining useful life are scheduled for future rehabilitation or maintenance under the OSIM program. However, these assets effectively represent immediate needs and should be closely monitored to ensure planned interventions proceed as scheduled.

Buildings & Facilities

Segment	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total	**$13.8m**	**$15.6m**	**$7.9m**	**$33.5m**	**$26.7m**	**$11.9m**	**$2.9m**	**$4.4m**	**$832k**	**$1.6m**	**$8.1m**

Table 45: System Generated 10-Year Capital Replacement Forecast: Buildings & Facilities

Parks

Segment	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Total	**$4.7m**	**$2.7m**	**$2.9m**	**$2.4m**	**$3.6m**	**$3.5m**	**$2.2m**	**$1.6m**	**$2.5m**	**$3.6m**	**$5.0m**

Table 46: System Generated 10-Year Capital Replacement Forecast: Parks

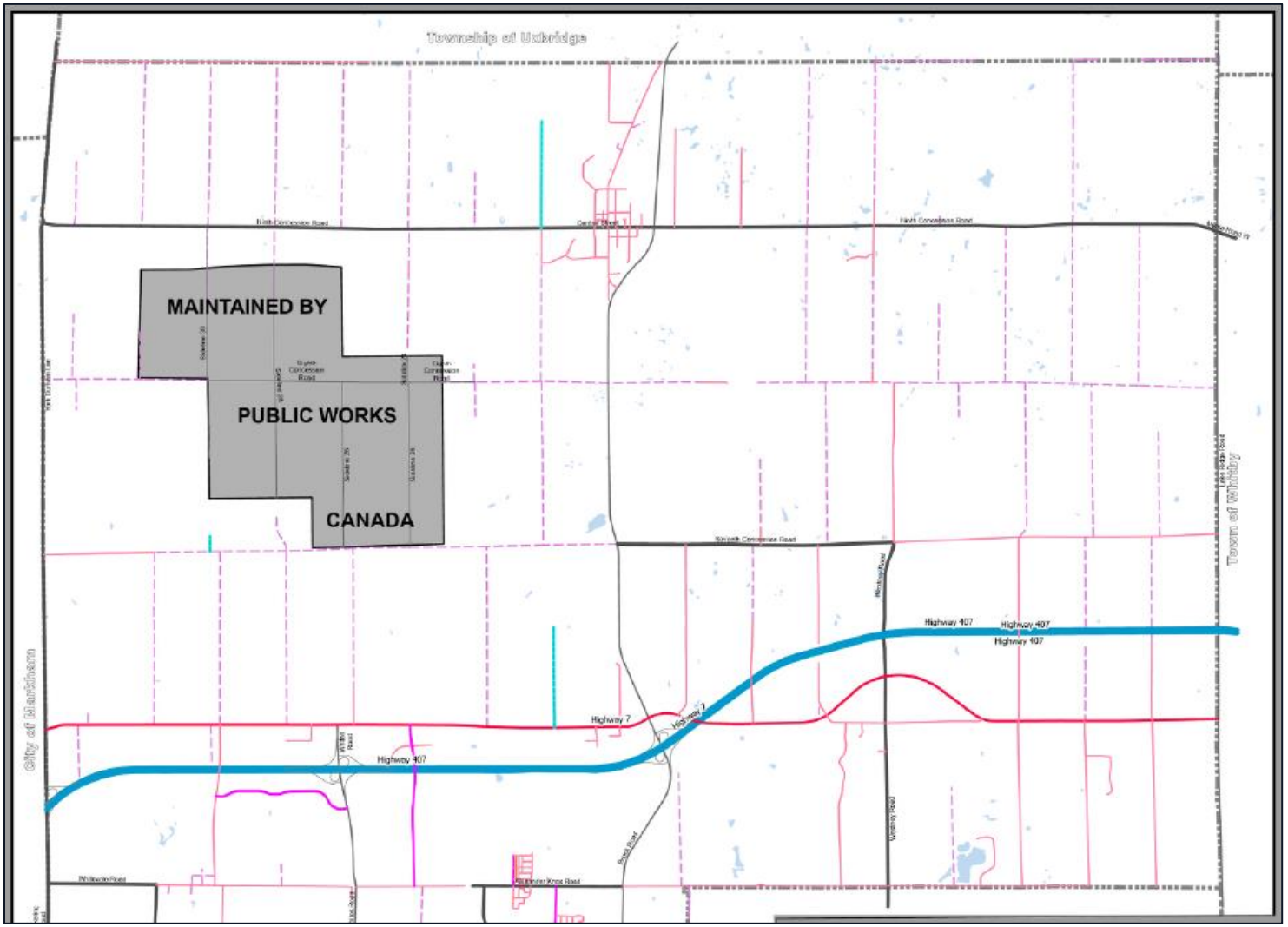
Other Infrastructure

Segment	Backlog	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Furniture & Fixtures	-	$65k	$86k	-	$140k	$122k	$451k	$77k	$59k	$287k	$344k
Information Technology	-	$622k	$259k	$247k	$768k	$748k	$431k	$538k	$695k	$737k	$318k
Library Collection Materials	-	-	$354k	$333k	$277k	$260k	$314k	$304k	$74k	$266k	$338k
Machinery & Equipment	$2.8m	$1.3m	$1.4m	$1.1m	$1.9m	$1.6m	$2.4m	$1.5m	$897k	$1.6m	$2.9m
Vehicles	$7.9m	$3.6m	$3.6m	$4.0m	$2.7m	$3.2m	$2.5m	$3.8m	$4.6m	$3.5m	$2.6m
Total	**$10.8m**	**$5.6m**	**$5.7m**	**$5.8m**	**$5.9m**	**$6.0m**	**$6.1m**	**$6.2m**	**$6.3m**	**$6.4m**	**$6.5m**

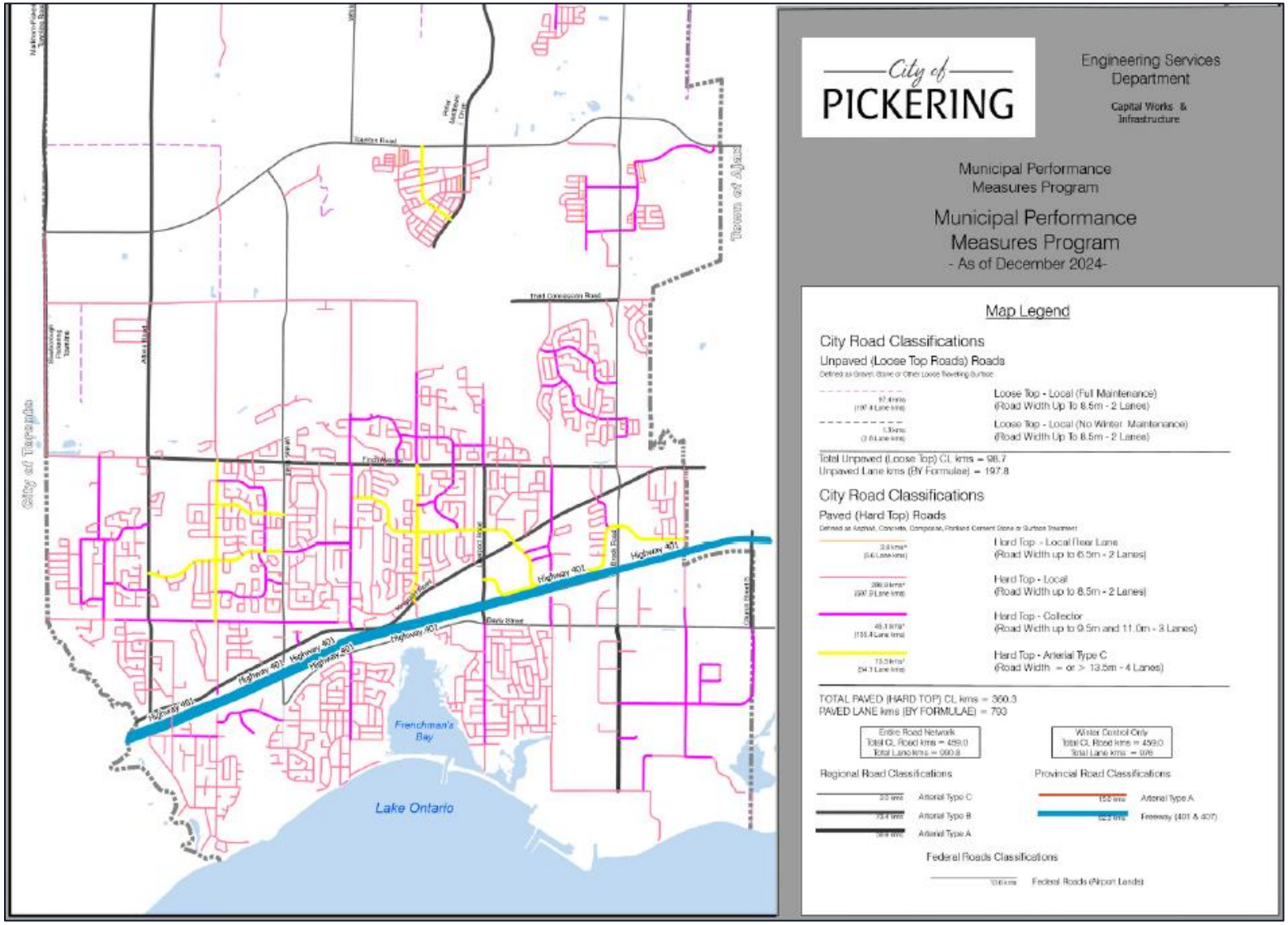
Table 47: System Generated 10-Year Capital Replacement Forecast: Other Infrastructure

Appendix B – Level of Service Maps & Photos

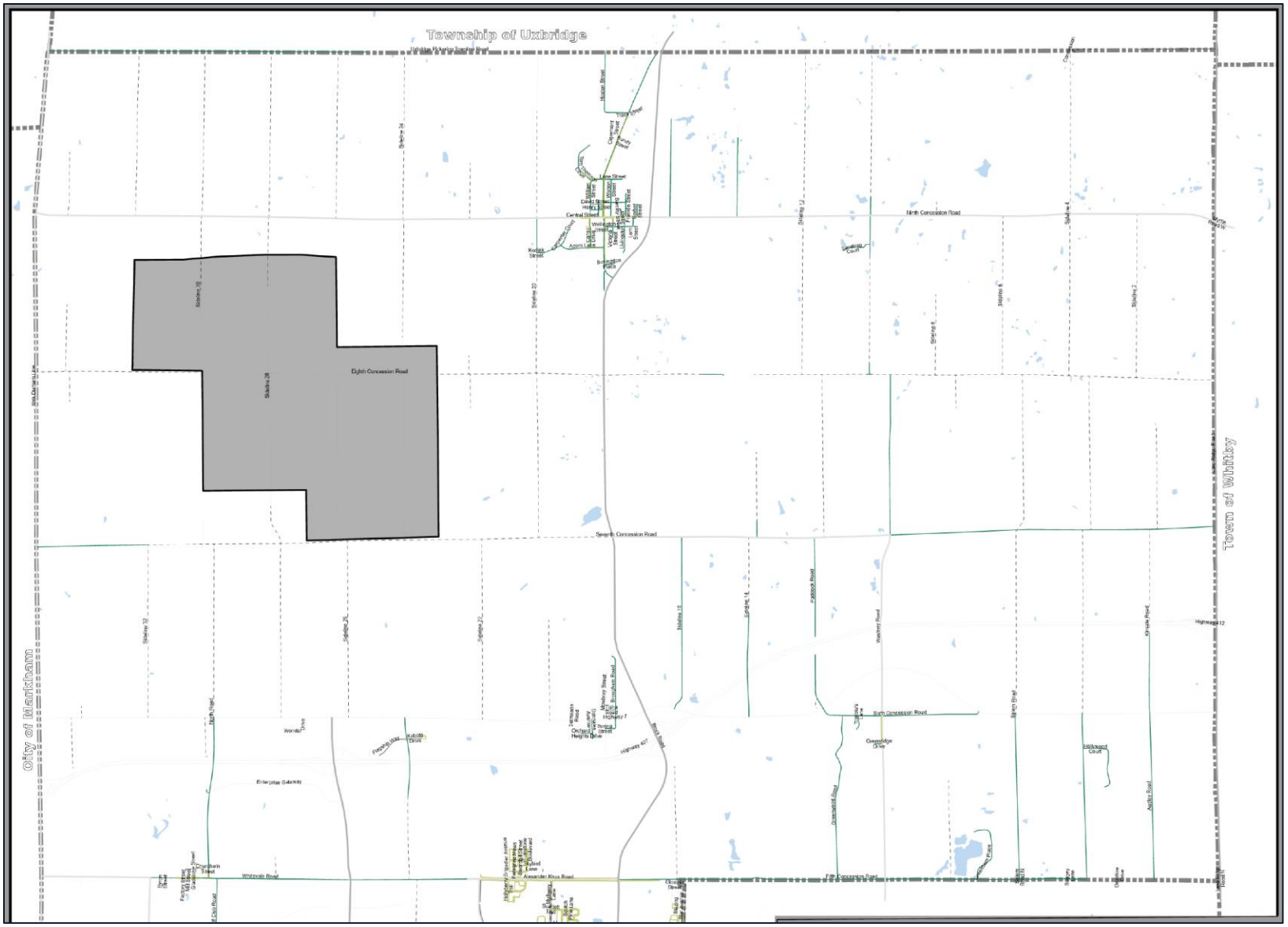
Road Corridor Classification Map – Part 1



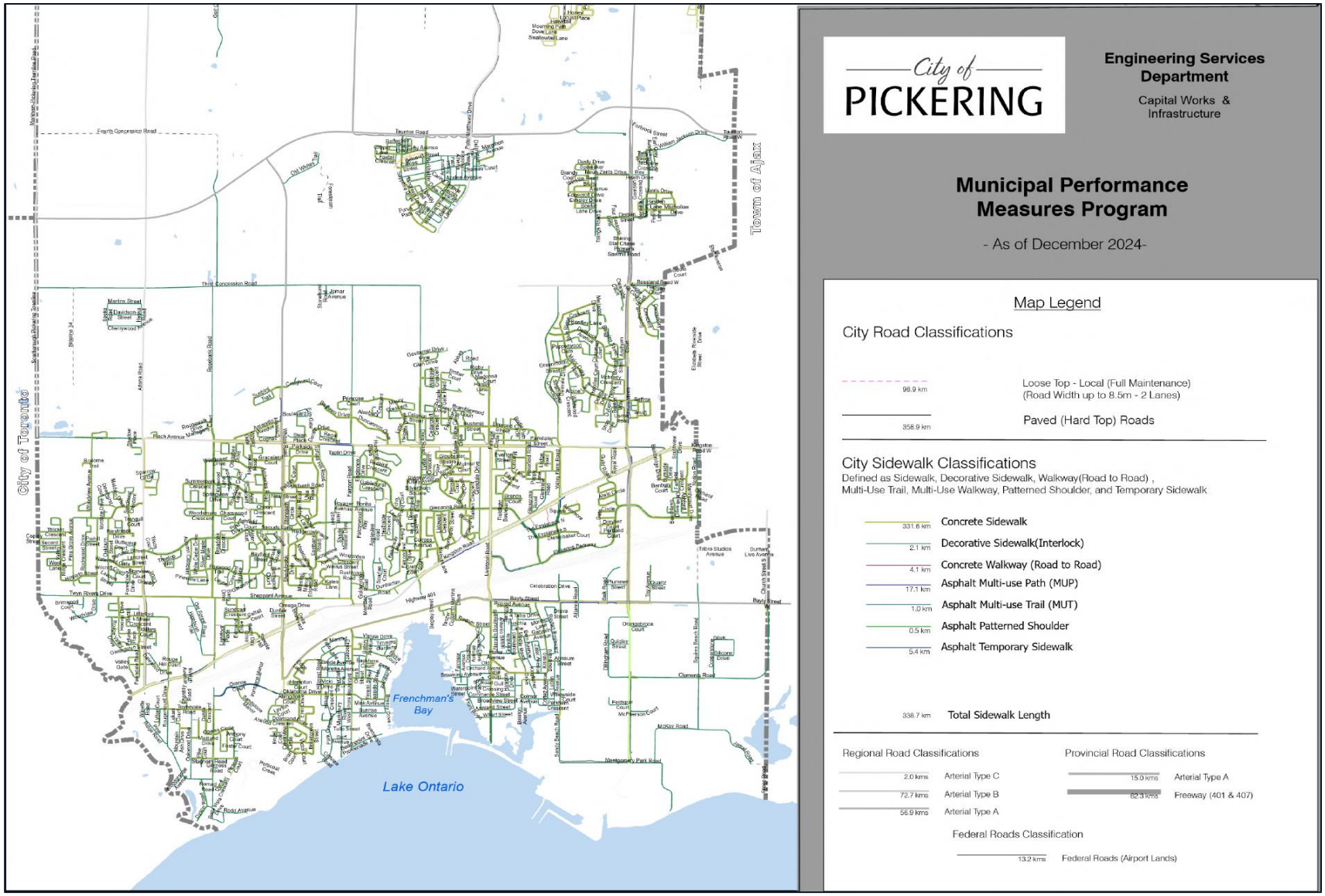
Road Corridor Classification Map – Part 2



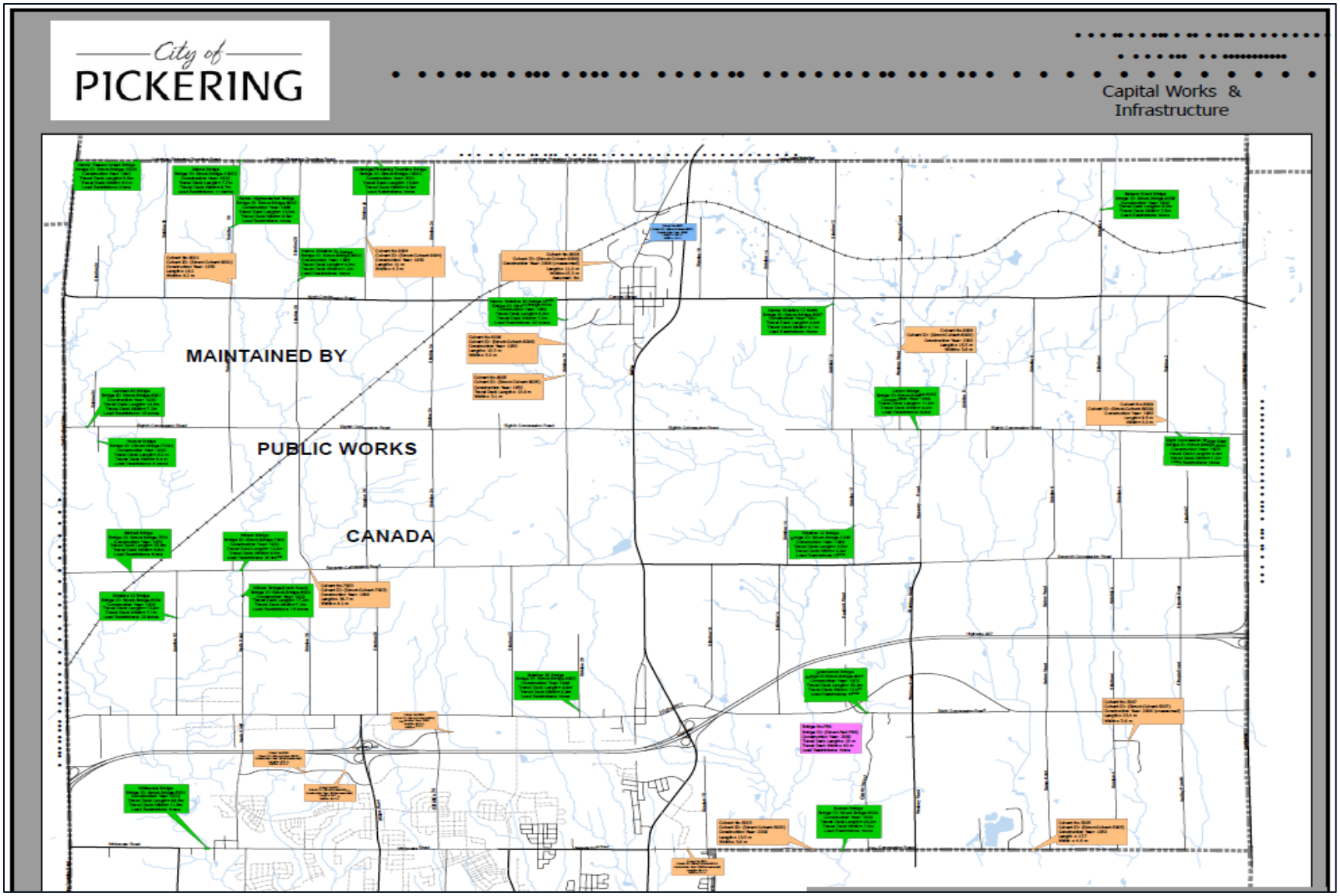
Sidewalk Network Classification Map – Part 1



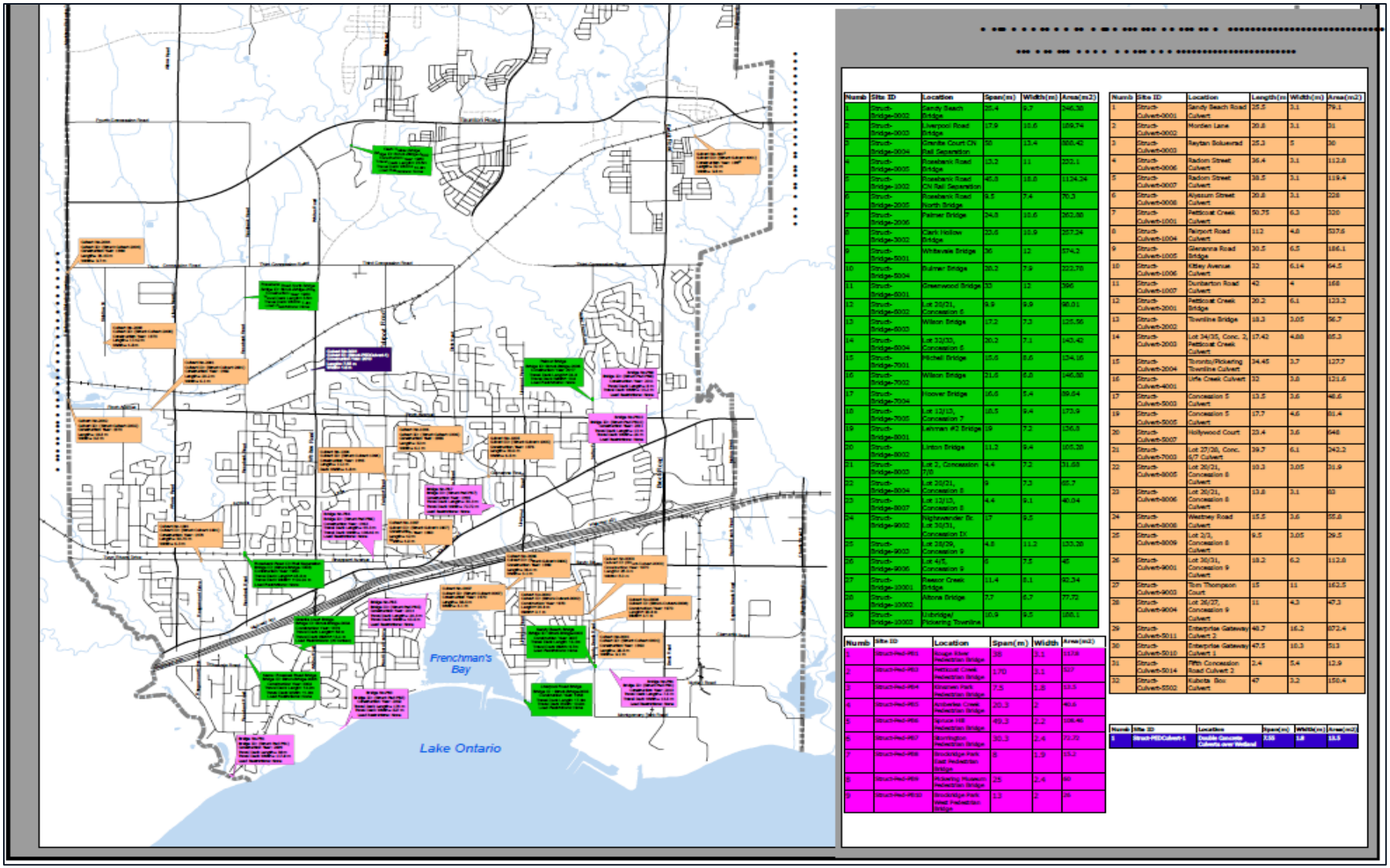
Sidewalk Network Classification Map – Part 2



Bridges & Culverts Locations Map – Part 1



Bridges & Culverts Locations Map – Part 2



Images of a Bridge in Good Condition

Palmer Bridge

BCI Rating: Good

Image 1: Pavement of the road going over the Bridge

Image 2: View of the span structure from underneath the Bridge

Image 3: View of the span structure from underneath the Bridge

Image 4: Sideview of the bridge structure

Images of a Bridge in Fair Condition

Petticoat Bridge

BCI Rating: Fair

Image 1: Pavement of the road going over the bridge

Image 2: Cracks in the pavement

Image 3: Sideview of the bridge

Image 4: Delamination in the bridge structure

Images of a Culvert in Good Condition

Palmer Culvert

BCI Rating: Good

Image 1: A stream flowing through the culvert

Image 2: A stream flowing through the culvert

Image 3: Structure of the culvert from the sideview

Image 4: Structure of the culvert from underneath the bridge

Images of a Culvert in Fair Condition

Petticoat Culvert

BCI Rating: Fair

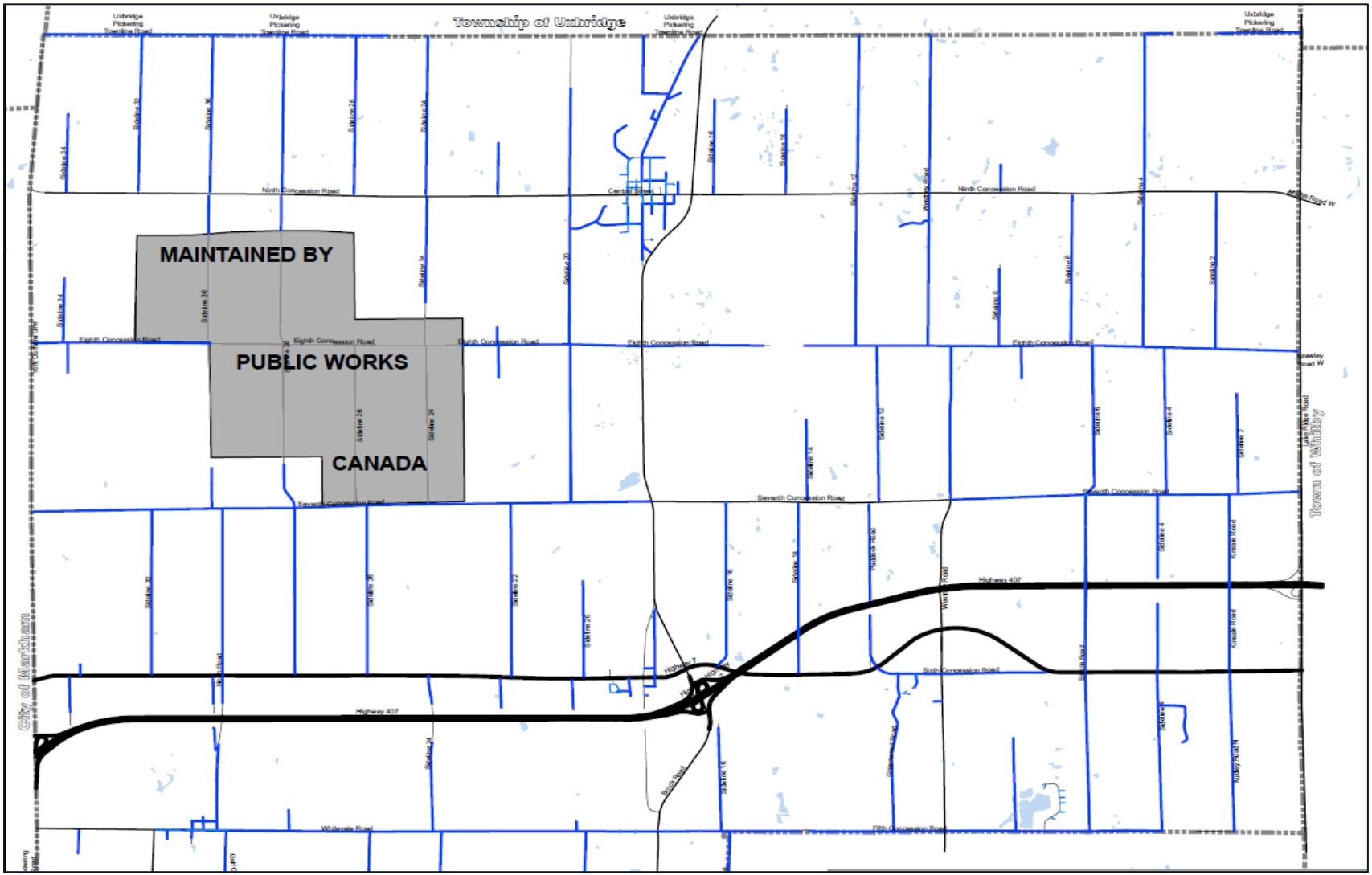
Image 1: Image overlooking the structure of the culvert

Image 2: Image showing structure of the culvert

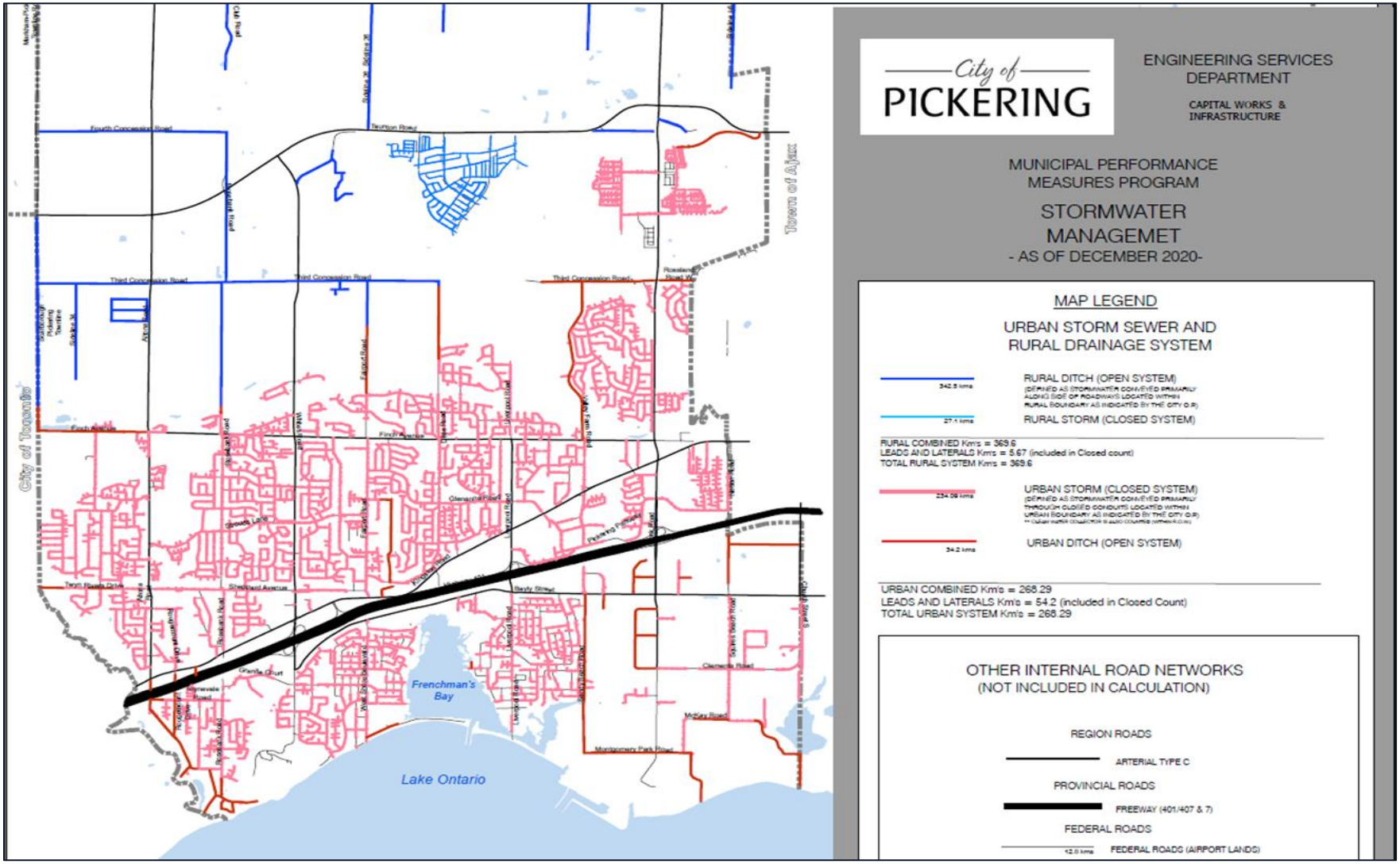
Image 3: Image of a stream flowing through the culvert

Image 4: Image of a stream flowing through the culvert

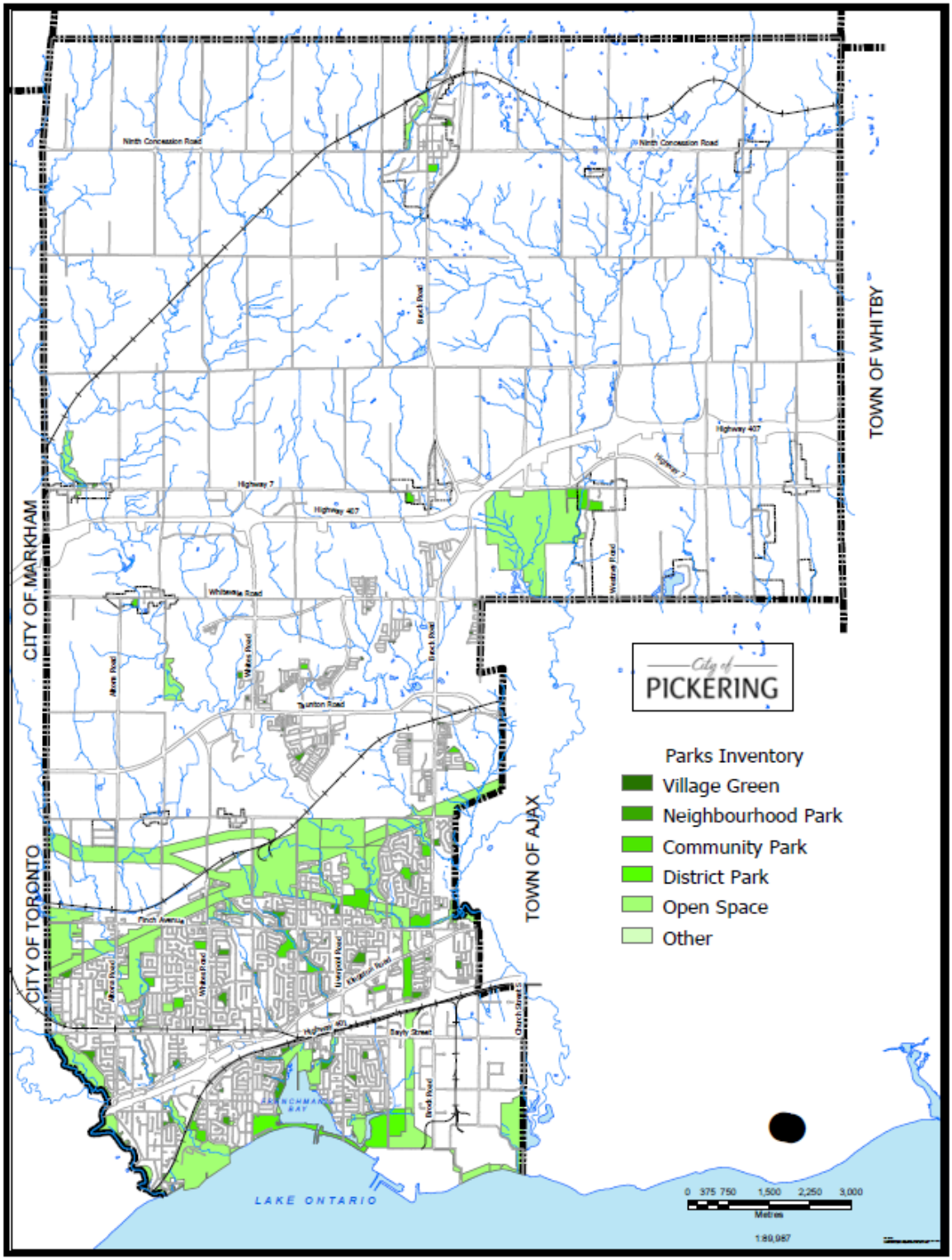
Stormwater System Classification Map – Part 1



Stormwater System Classification Map – Part 2



Parks Inventory Map



Appendix C – Risk Rating Criteria

Probability of Failure

Table 48: Probability of Failure Rating Criteria

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
Road Corridor	Condition	100%	0-40	5
	Condition	100%	41-60	4
	Condition	100%	61-75	3
	Condition	100%	75-90	2
	Condition	100%	91-100	1
Stormwater System (Main)	Condition	90%	0-20	5
	Condition	90%	21-40	4
	Condition	90%	41-60	3
	Condition	90%	61-80	2
	Condition	90%	80-100	1
	Pipe Material	10%	Concrete	2
	Pipe Material	10%	Steel	3
All Other Assets	Condition	100%	0-20	5
	Condition	100%	21-40	4
	Condition	100%	41-60	3
	Condition	100%	61-80	2

Asset Category	Risk Criteria	Criteria Weighting	Value/Range	Probability of Failure Score
	Condition	100%	81-100	1

Consequence of Failure

Table 49: Consequence of Failure Rating Criteria

Asset Category	Risk Classification	Risk Criteria
Road Corridor	Economic (100%)	Surface Material (20%)
	Economic (100%)	Design Class (25%)
	Economic (100%)	AADT Range (35%)
	Economic (100%)	Roadside Environment (20%)
Stormwater System (Main)	Economic (100%)	Replacement Cost (100%)
All other Assets	Economic (100%)	Replacement Cost (100%)

Appendix D – Additional Asset Portfolio Breakdown by Sub-segments

Road Corridor – Portfolio Breakdown by Sub-segments

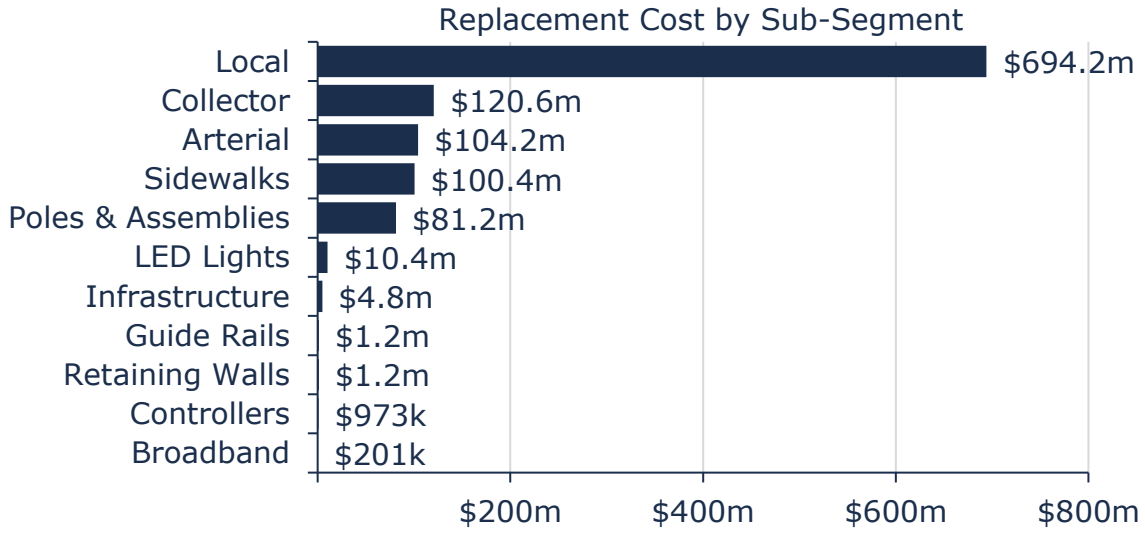


Figure 67: Road Corridor: Portfolio Valuation by Sub-segments

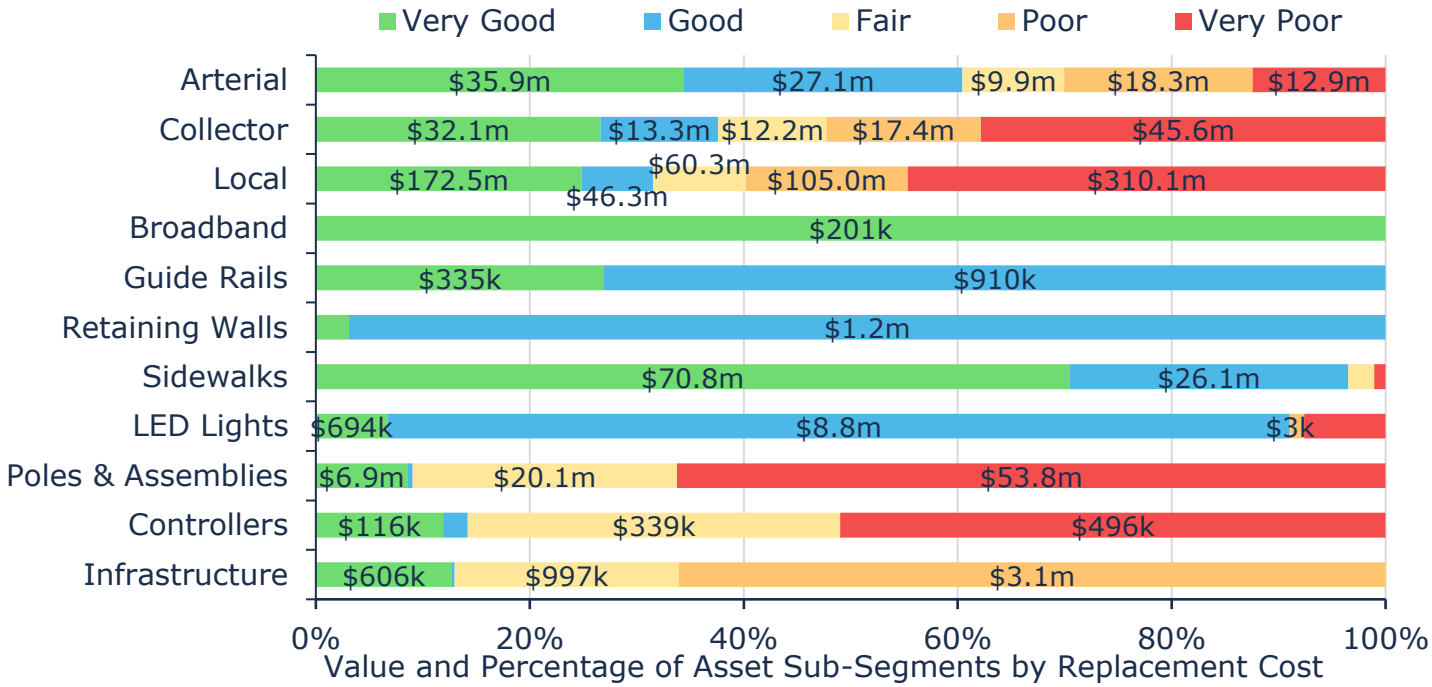


Figure 68: Road Corridor: Conditions by Sub-segments

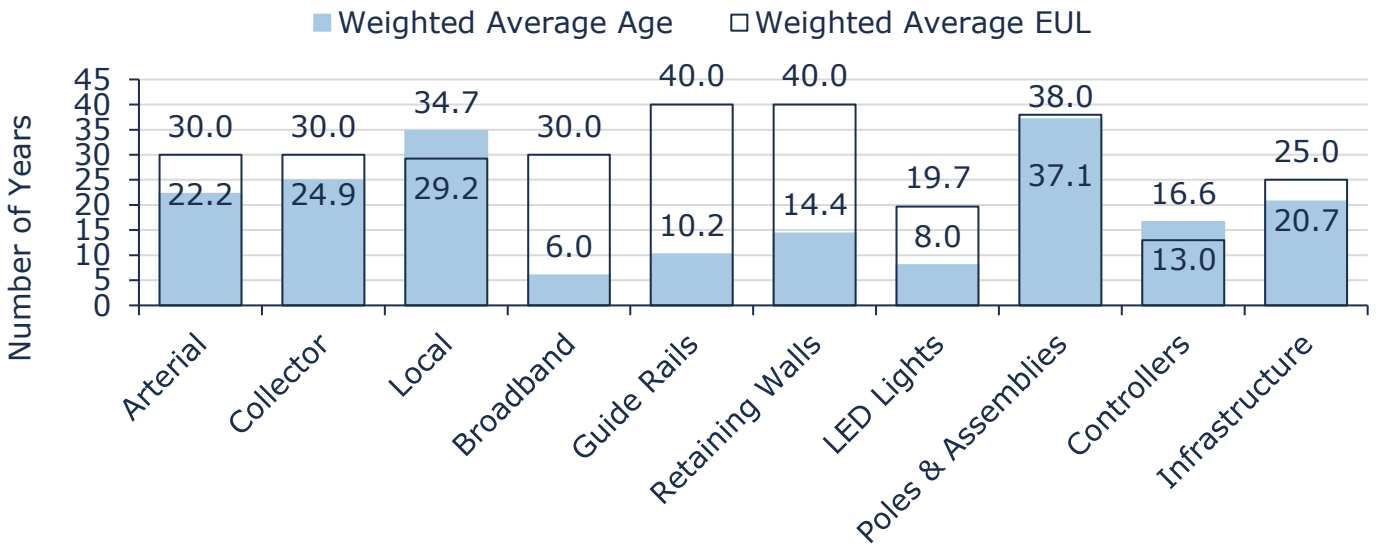


Figure 69: Road Corridor: Average Age vs Average Estimated Useful Life (EUL)

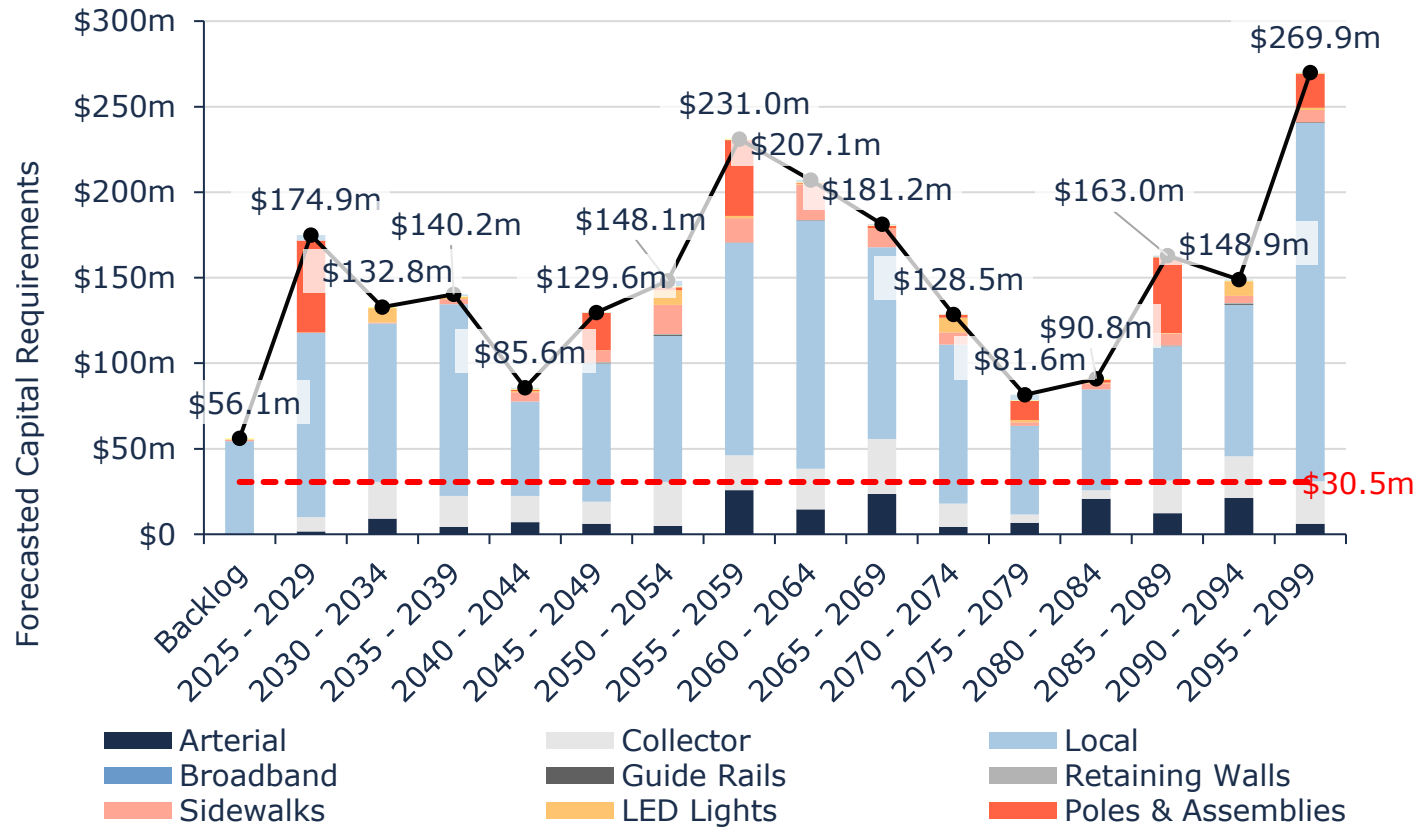


Figure 70: Road Corridor: Forecasted Capital Requirements (2025-2099)

Stormwater System – Portfolio Breakdown by Sub-segments

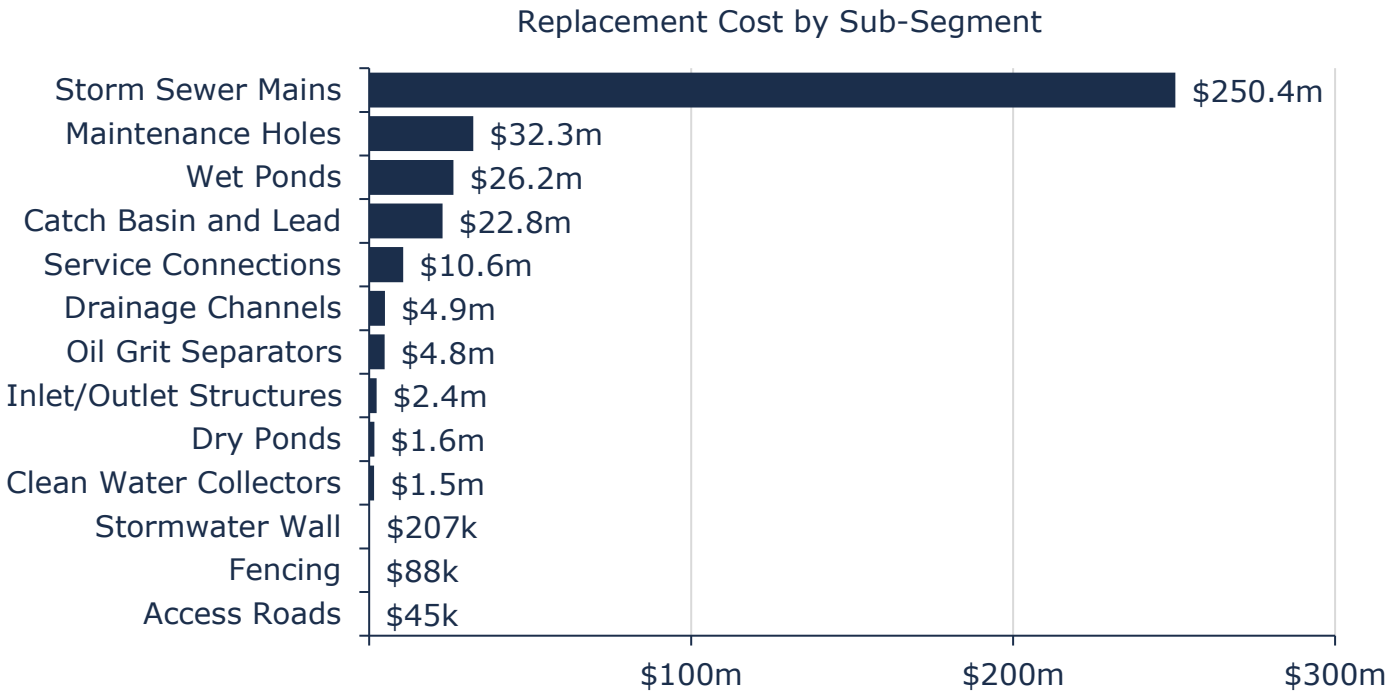


Figure 71: Stormwater System: Portfolio Valuation by Sub-segments

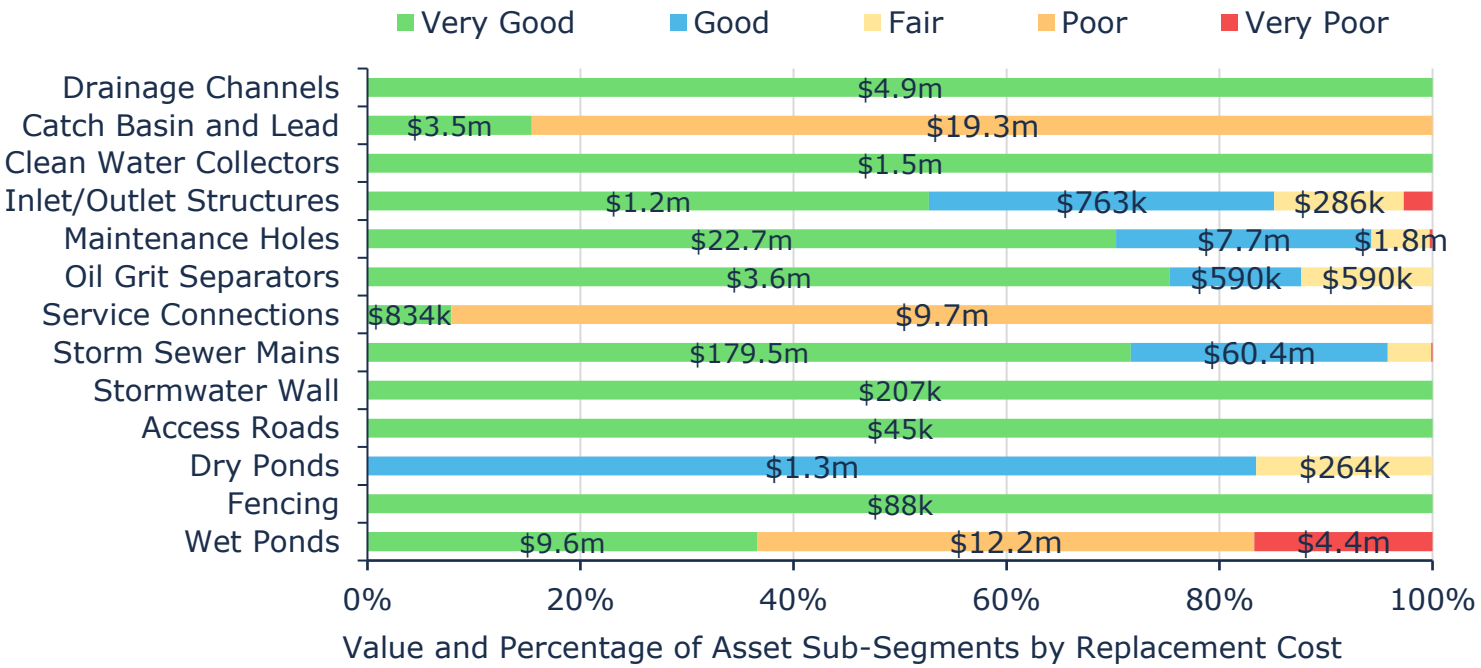


Figure 72: Stormwater System: Conditions by Sub-segments

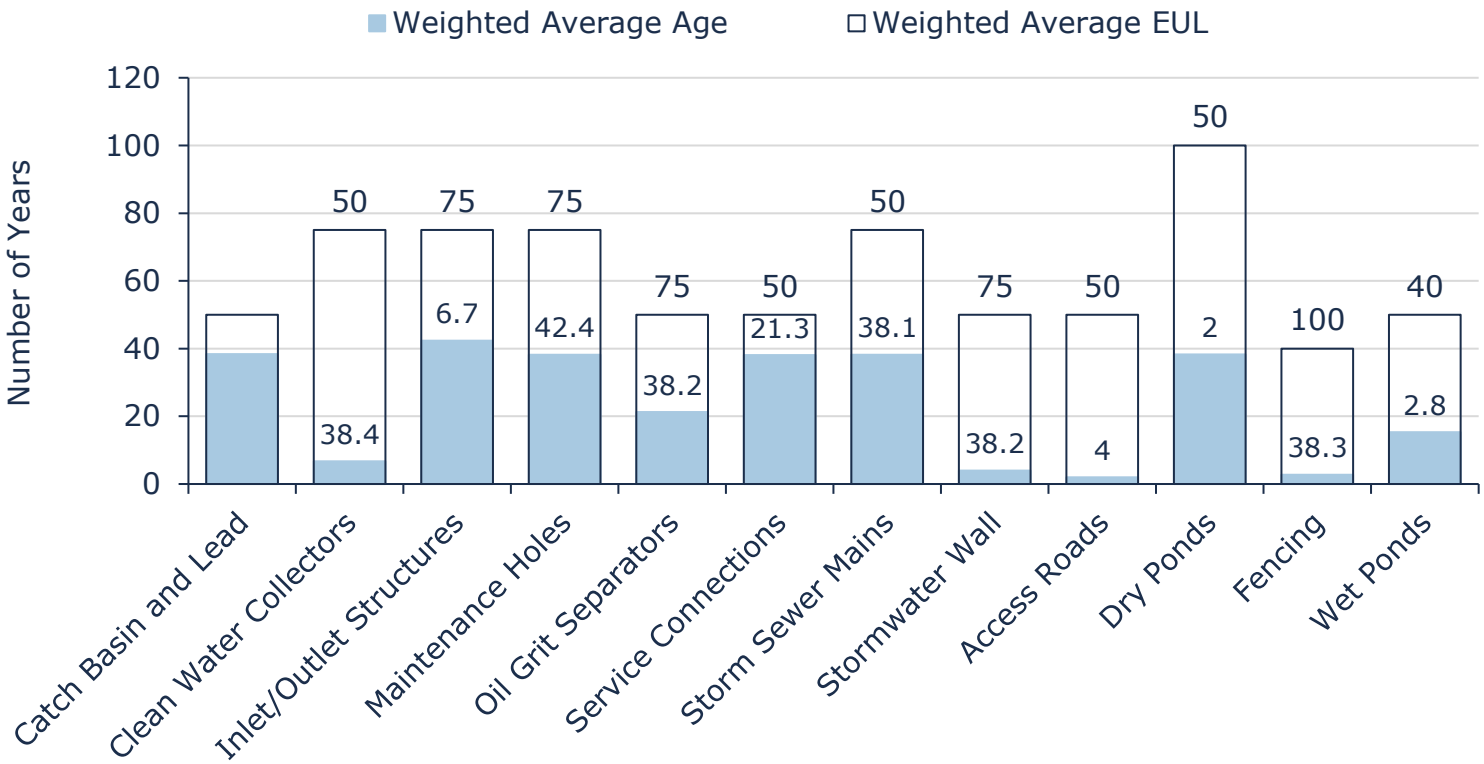


Figure 73: Stormwater System: Average Age vs Average Estimated Useful Life (EUL)

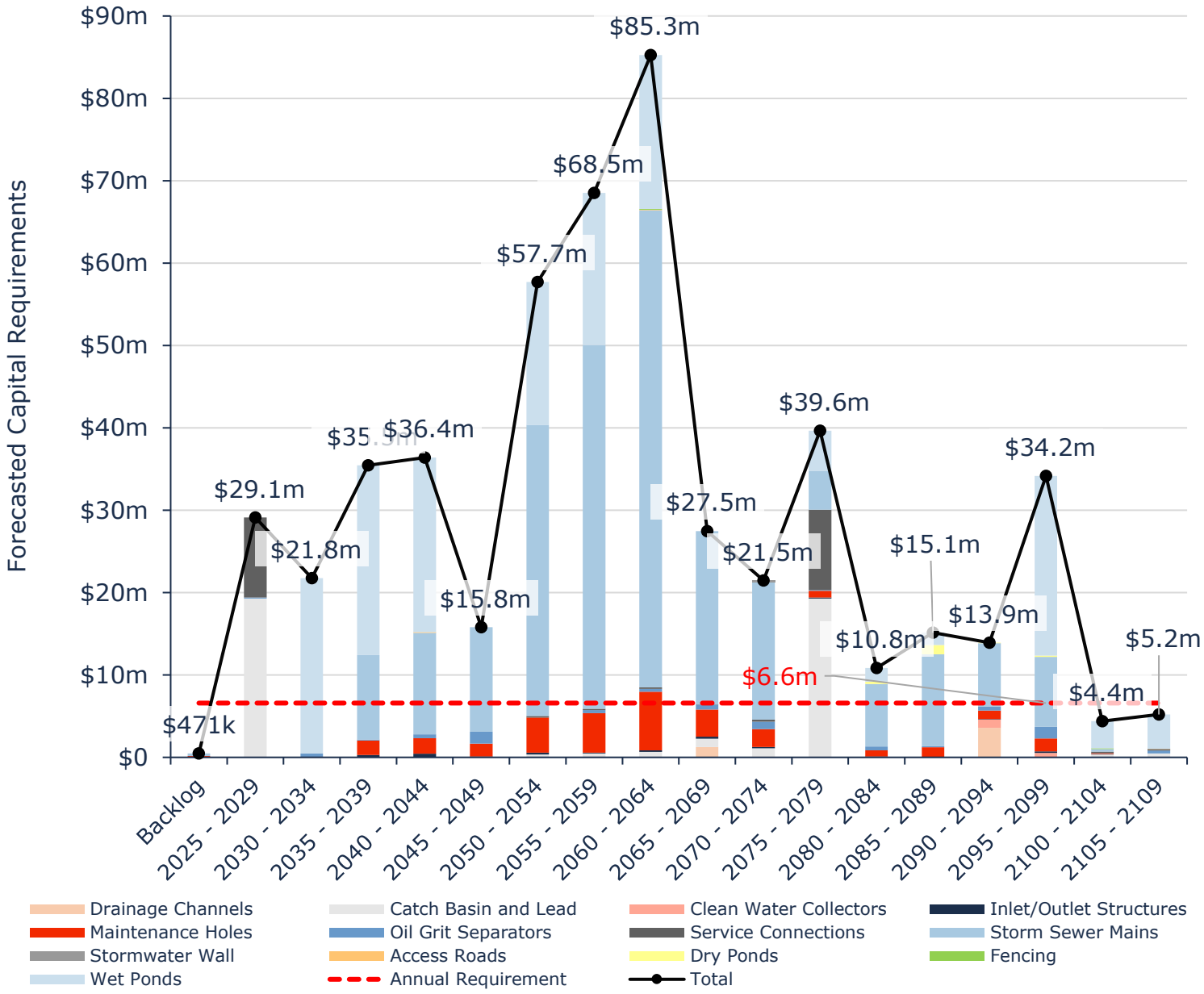


Figure 74: Stormwater System: Forecasted Capital Requirements (2025-2109)

Parks – Portfolio Breakdown by Sub-segments

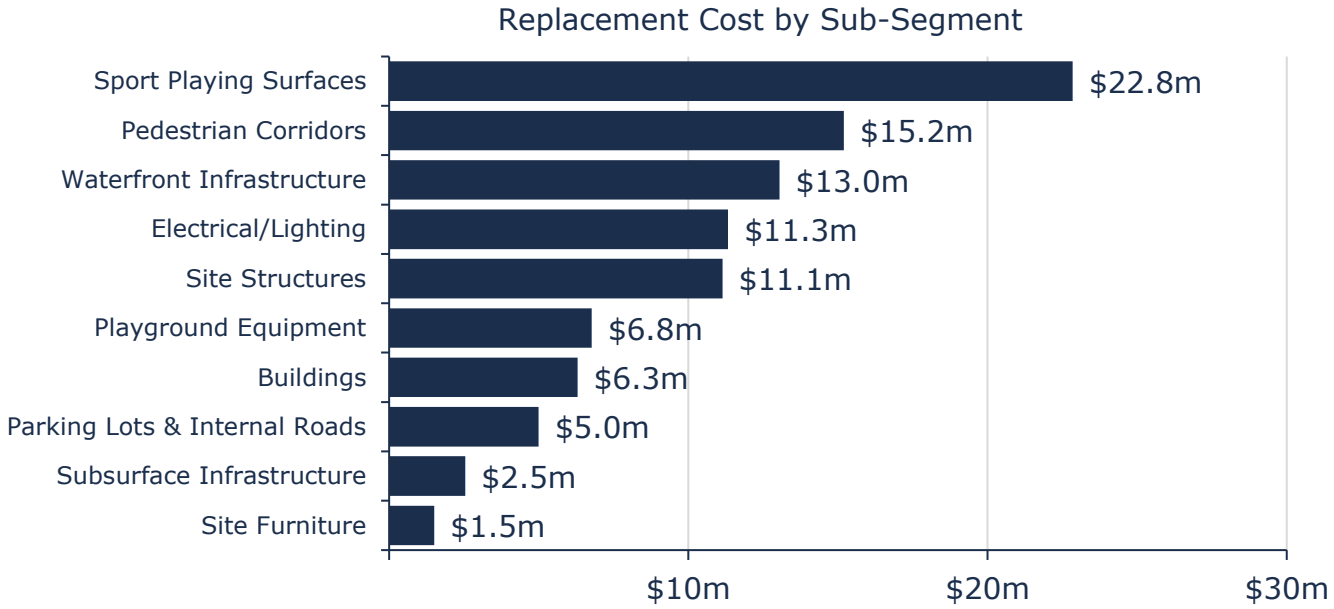


Figure 75: Parks: Portfolio Valuation by Sub-segments

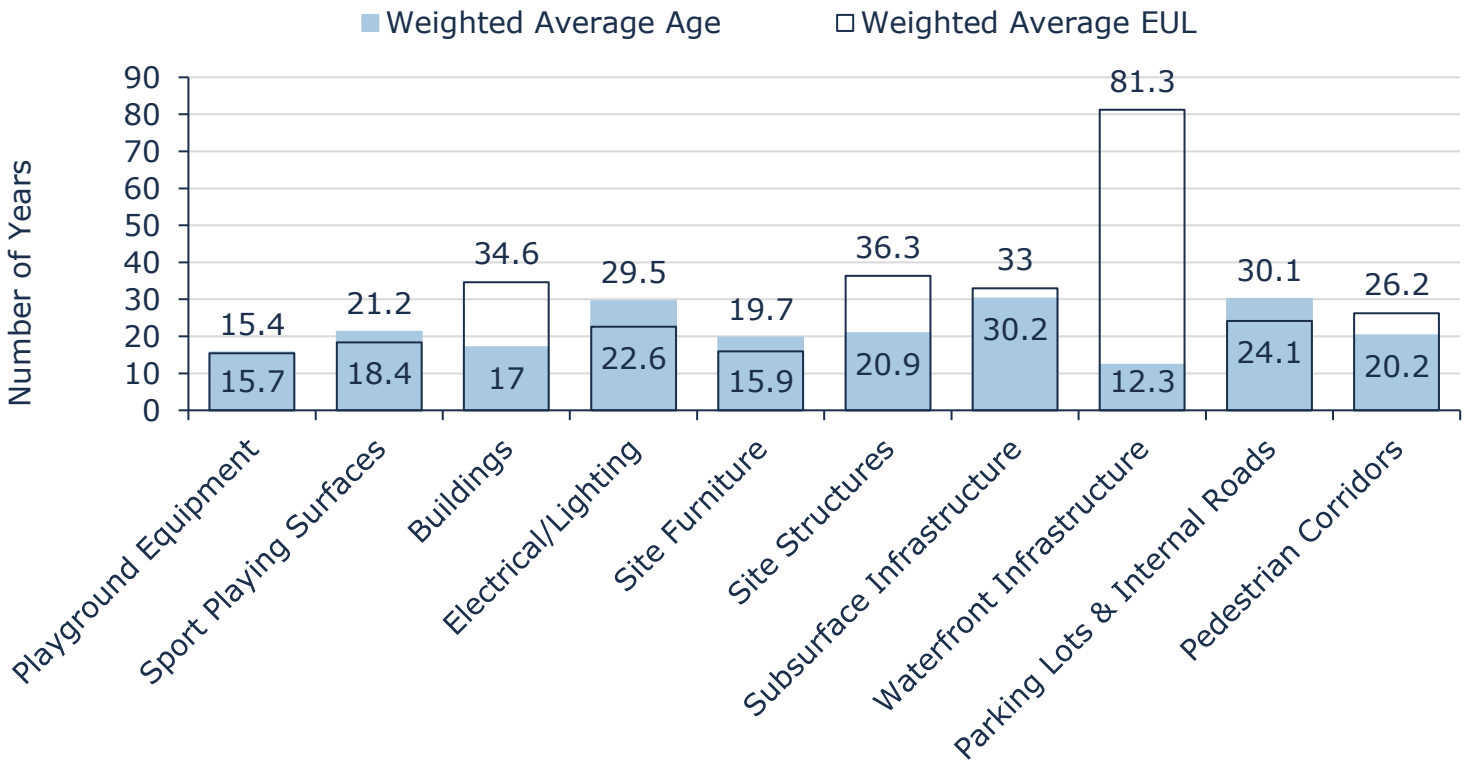


Figure 76: Parks: Weighted Average Age vs Weighted Average EUL

Other Infrastructure – Portfolio Breakdown by Sub-segments

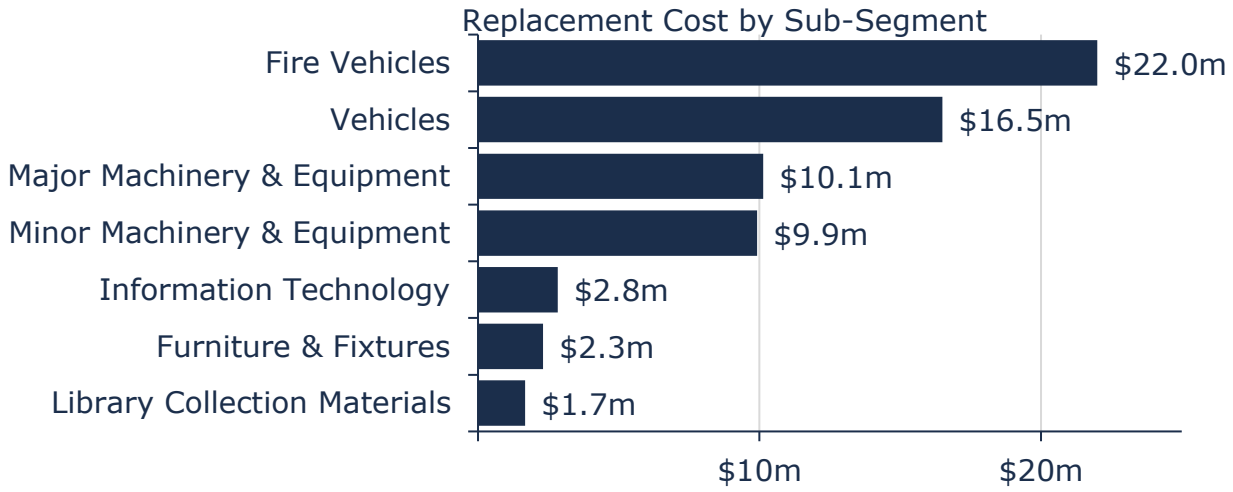


Figure 77: Other Infrastructure: Portfolio Valuation by Sub-segments

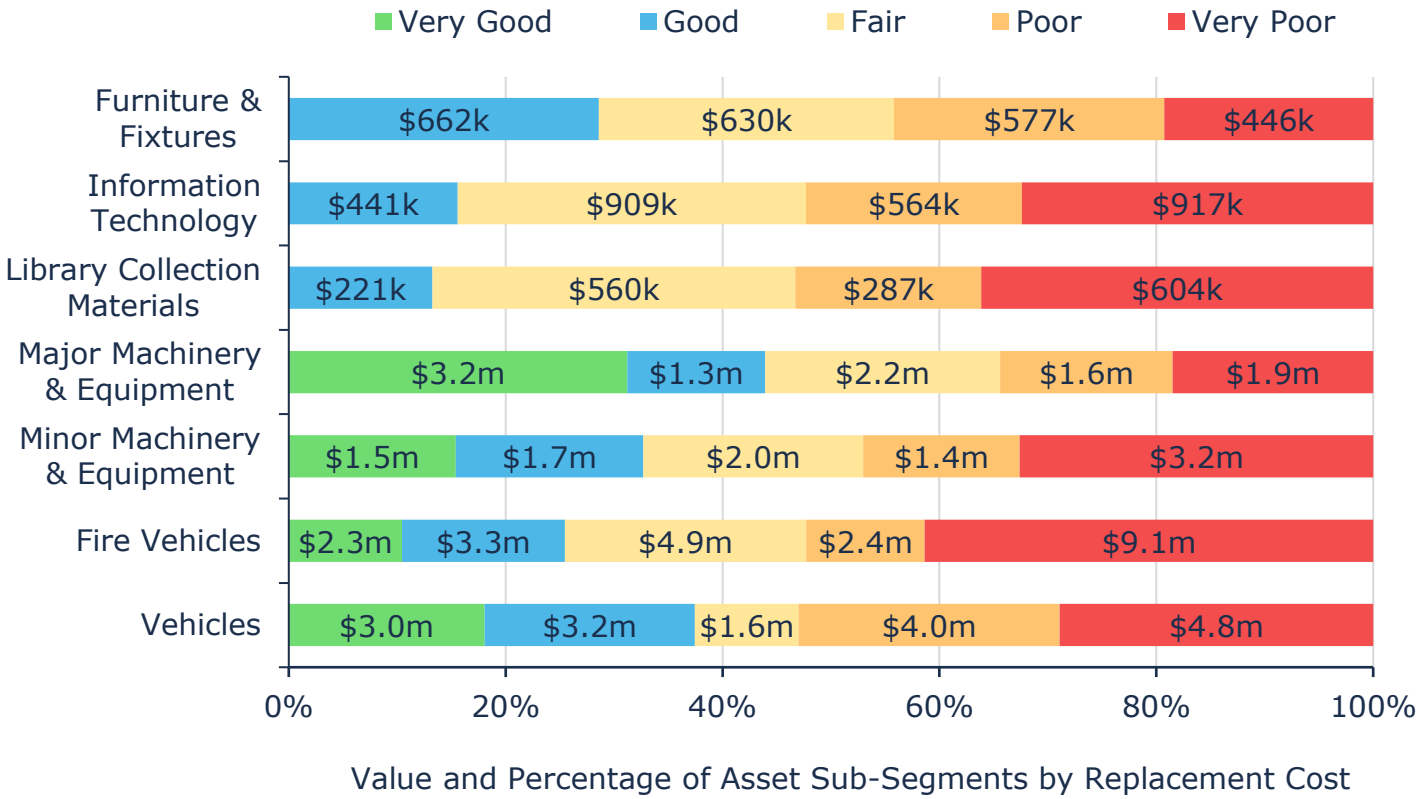


Figure 78: Other Infrastructure: Conditions by Sub-segments

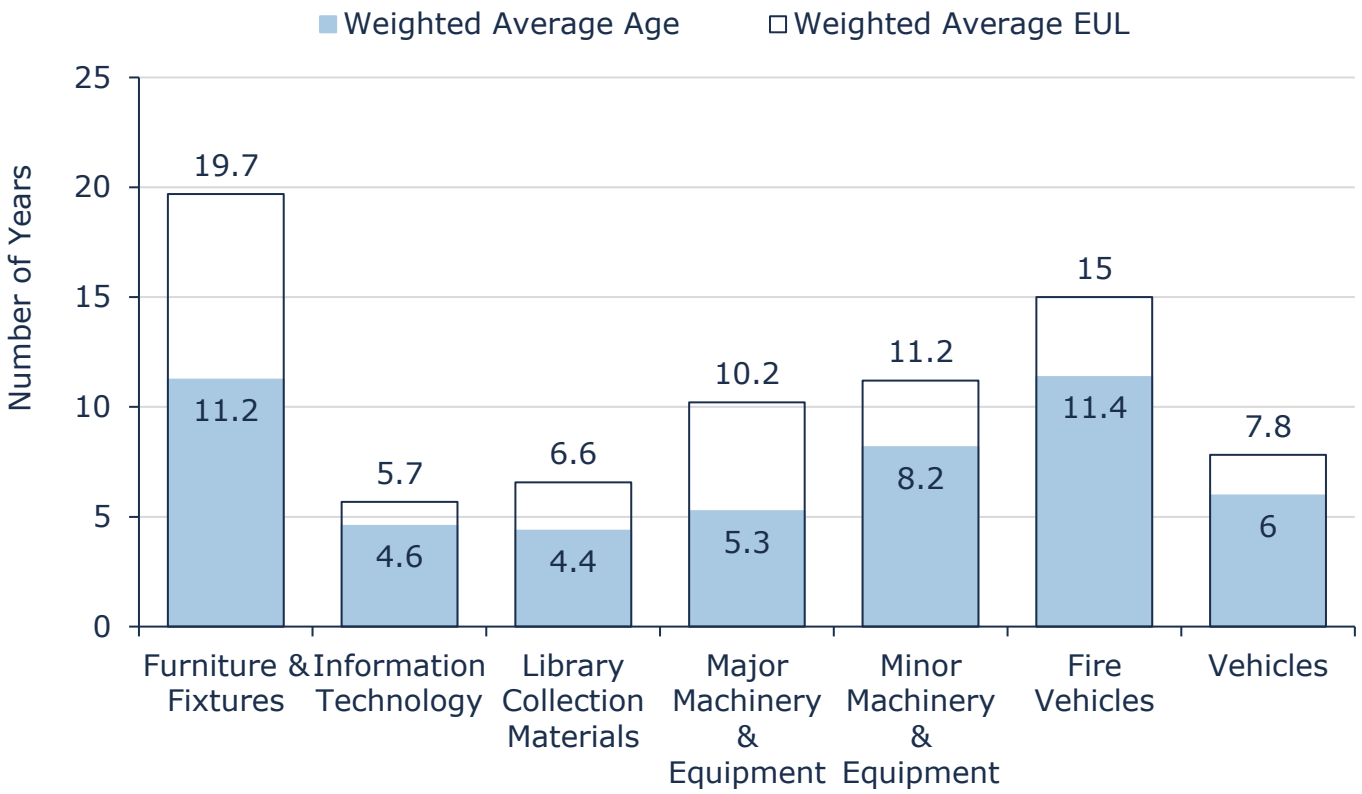


Figure 79: Other Infrastructure: Average Age vs Average EUL

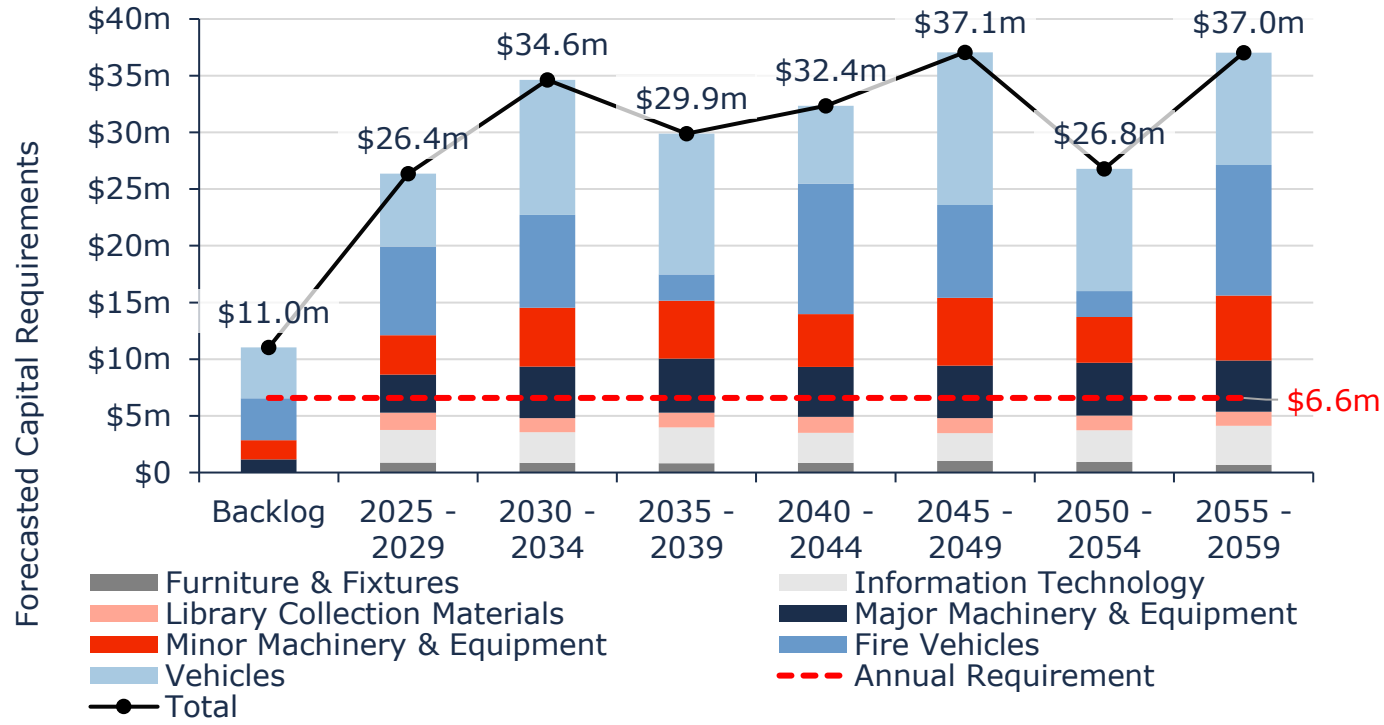


Figure 80: Other Infrastructure: Conditions by Sub-segments

Appendix E – Facility Condition Indices

Table 50: Facility Condition Indices

Facility Name	FCI (%)	City of Pickering Scale (From Facilities Renewal Study)
Fire Station #1	0	Excellent
Operation Centre	2	Excellent
Pickering Soccer Centre	2	Excellent
Pickering Museum Village (Does not include historic pavilion structures)	14	Good
Fire Station #6	20	Good
Dunbarton Pool	22	Fair
George Ashe Library & Community Centre	25	Fair
Chestnut Hill Developments Recreation Complex	26	Fair
Dr. Nelson F. Thomlinson Community Centre	28	Fair
Civic Complex	35	Poor
West Shore Community Centre	36	Poor
Fire Station #4	38	Poor
Don Beer Arena	42	Disposal
East Shore Community Centre and East Shore Senior Citizens Centre	43	Disposal
Fire Station #2	49	Disposal
Animal Services Shelter (FCI is assumed)	50	Disposal
Fire Station #5	51	Disposal
Greenwood Library	58	Disposal
Mount Zion Community Centre	59	Disposal
Whitevale Community Centre	76	Disposal
Greenwood Community Centre	78	Disposal
Brougham Hall	107	Disposal
Whitevale Arts & Culture Centre	115	Disposal

Français

Infrastructure for Jobs and Prosperity Act, 2015

ONTARIO REGULATION 588/17
ASSET MANAGEMENT PLANNING FOR MUNICIPAL INFRASTRUCTURE

Consolidation Period: From March 15, 2021 to the e-Laws currency date.

Las amendment: 193/21.

Legislative History: 193/21.

This is the English version of a bilingual regulation.

CONTENTS

INTERPRETATION AND APPLICATION

Definitions

1. (1) In this Regulation,

"asset category" means a category of municipal infrastructure assets that is,

(a) an aggregate of assets described in each of clauses (a) to (e) of the definition of core municipal infrastructure asset, or

(b) composed of any other aggregate of municipal infrastructure assets that provide the same type of service; ("catégorie de biens")

"core municipal infrastructure asset" means any municipal infrastructure asset that is a,

(a) water asset that relates to the collection, production, treatment, storage, supply or distribution of water,

(b) wastewater asset that relates to the collection, transmission, treatment or disposal of wastewater, including any wastewater asset that from time to time manages stormwater,

(c) stormwater management asset that relates to the collection, transmission, treatment, retention, infiltration, control or disposal of stormwater,

(d) road, or

(e) bridge or culvert; ("bien d'infrastructure municipale essentiel")

"ecological functions" has the same meaning as in Ontario Regulation 140/02 (Oak Ridges Moraine Conservation Plan) made under the *Oak Ridges Moraine Conservation Act, 2001*; ("fonctions écologiques")

"green infrastructure asset" means an infrastructure asset consisting of natural or human-made elements that provide ecological and hydrological functions and processes and includes natural heritage features and systems, parklands, stormwater management systems, street trees, urban forests, natural channels, permeable surfaces and green roofs; ("bien d'infrastructure verte")

"hydrological functions" has the same meaning as in Ontario Regulation 140/02; ("fonctions hydrologiques")

"joint municipal water board" means a joint board established in accordance with a transfer order made under the *Municipal Water and Sewage Transfer Act, 1997*; ("conseil mixte de gestion municipale des eaux")

"lifecycle activities" means activities undertaken with respect to a municipal infrastructure asset over its service life, including constructing, maintaining, renewing, operating and decommissioning, and all engineering and design work associated with those activities; ("activités relatives au cycle de vie")

"municipal infrastructure asset" means an infrastructure asset, including a green infrastructure asset, directly owned by a municipality or included on the consolidated financial statements of a municipality, but does not include an infrastructure asset that is managed by a joint municipal water board; ("bien d'infrastructure municipale")

"municipality" has the same meaning as in the *Municipal Act, 2001*; ("municipalité")

"operating costs" means the aggregate of costs, including energy costs, of operating a municipal infrastructure asset over its service life; ("frais d'exploitation")

"service life" means the total period during which a municipal infrastructure asset is in use or is available to be used; ("durée de vie")

"significant operating costs" means, where the operating costs with respect to all municipal infrastructure assets within an asset category are in excess of a threshold amount set by the municipality, the total amount of those operating costs. ("frais d'exploitation importants")

(2) In Tables 1 and 2,

"connection-days" means the number of properties connected to a municipal system that are affected by a service issue, multiplied by the number of days on which those properties are affected by the service issue. ("jours-branchements")

(3) In Table 4,

"arterial roads" means Class 1 and Class 2 highways as determined under the Table to section 1 of Ontario Regulation 239/02 (Minimum Maintenance Standards for Municipal Highways) made under the *Municipal Act, 2001*; ("artères")

"collector roads" means Class 3 and Class 4 highways as determined under the Table to section 1 of Ontario Regulation 239/02; ("routes collectrices")

"lane-kilometre" means a kilometre-long segment of roadway that is a single lane in width; ("kilomètre de voie")

"local roads" means Class 5 and Class 6 highways as determined under the Table to section 1 of Ontario Regulation 239/02. ("routes locales")

(4) In Table 5,

"Ontario Structure Inspection Manual" means the Ontario Structure Inspection Manual (OSIM), published by the Ministry of Transportation and dated October 2000 (revised November 2003 and April 2008) and available on a Government of Ontario website; ("manuel d'inspection des structures de l'Ontario")

"structural culvert" has the meaning set out for "culvert (structural)" in the Ontario Structure Inspection Manual. ("ponceau structurel")

Application

2. For the purposes of section 6 of the Act, every municipality is prescribed as a broader public sector entity to which that section applies.

STRATEGIC ASSET MANAGEMENT POLICIES

Strategic asset management policy

3. (1) Every municipality shall prepare a strategic asset management policy that includes the following:

1. Any of the municipality's goals, policies or plans that are supported by its asset management plan.
2. The process by which the asset management plan is to be considered in the development of the municipality's budget or of any long-term financial plans of the municipality that take into account municipal infrastructure assets.

3. The municipality's approach to continuous improvement and adoption of appropriate practices regarding asset management planning.
4. The principles to be followed by the municipality in its asset management planning, which must include the principles set out in section 3 of the Act.
5. The municipality's commitment to consider, as part of its asset management planning,
    i. the actions that may be required to address the vulnerabilities that may be caused by climate change to the municipality's infrastructure assets, in respect of such matters as,
        A. operations, such as increased maintenance schedules,
        B. levels of service, and
        C. lifecycle management,
    ii. the anticipated costs that could arise from the vulnerabilities described in subparagraph i,
    iii. adaptation opportunities that may be undertaken to manage the vulnerabilities described in subparagraph i,
    iv. mitigation approaches to climate change, such as greenhouse gas emission reduction goals and targets, and
    v. disaster planning and contingency funding.
6. A process to ensure that the municipality's asset management planning is aligned with any of the following financial plans:
    i. Financial plans related to the municipality's water assets including any financial plans prepared under the *Safe Drinking Water Act, 2002*.
    ii. Financial plans related to the municipality's wastewater assets.
7. A process to ensure that the municipality's asset management planning is aligned with Ontario's land-use planning framework, including any relevant policy statements issued under subsection 3 (1) of the *Planning Act*, any provincial plans as defined in the *Planning Act* and the municipality's official plan.
8. An explanation of the capitalization thresholds used to determine which assets are to be included in the municipality's asset management plan and how the thresholds compare to those in the municipality's tangible capital asset policy, if it has one.
9. The municipality's commitment to coordinate planning for asset management, where municipal infrastructure assets connect or are interrelated with those of its upper-tier municipality, neighbouring municipalities or jointly-owned municipal bodies.
10. The persons responsible for the municipality's asset management planning, including the executive lead.
11. An explanation of the municipal council's involvement in the municipality's asset management planning.
12. The municipality's commitment to provide opportunities for municipal residents and other interested parties to provide input into the municipality's asset management planning.

(2) For the purposes of this section,

"capitalization threshold" is the value of a municipal infrastructure asset at or above which a municipality will capitalize the value of it and below which it will expense the value of it. ("seuil de capitalisation")

Update of asset management policy

4. Every municipality shall prepare its first strategic asset management policy by July 1, 2019 and shall review and, if necessary, update it at least every five years.

ASSET MANAGEMENT PLANS

Asset management plans, current levels of service

5. (1) Every municipality shall prepare an asset management plan in respect of its core municipal infrastructure assets on or before July 1, 2022, and in respect of all of its other municipal infrastructure assets on or before July 1, 2024. O. Reg. 193/21, s. 1.

(2) A municipality's asset management plan must include the following:

1. For each asset category, the current levels of service being provided, determined in accordance with the following qualitative descriptions and technical metrics and based on data from at most the two calendar years prior to the year in which all information required under this section is included in the asset management plan:

i. With respect to core municipal infrastructure assets, the qualitative descriptions set out in Column 2 and the technical metrics set out in Column 3 of Table 1, 2, 3, 4 or 5, as the case may be.

ii. With respect to all other municipal infrastructure assets, the qualitative descriptions and technical metrics established by the municipality.

2. The current performance of each asset category, determined in accordance with the performance measures established by the municipality, such as those that would measure energy usage and operating efficiency, and based on data from at most two calendar years prior to the year in which all information required under this section is included in the asset management plan.

3. For each asset category,

   i. a summary of the assets in the category,

   ii. the replacement cost of the assets in the category,

   iii. the average age of the assets in the category, determined by assessing the average age of the components of the assets,

   iv. the information available on the condition of the assets in the category, and

   v. a description of the municipality's approach to assessing the condition of the assets in the category, based on recognized and generally accepted good engineering practices where appropriate.

4. For each asset category, the lifecycle activities that would need to be undertaken to maintain the current levels of service as described in paragraph 1 for each of the 10 years following the year for which the current levels of service under paragraph 1 are determined and the costs of providing those activities based on an assessment of the following:

   i. The full lifecycle of the assets.

   ii. The options for which lifecycle activities could potentially be undertaken to maintain the current levels of service.

   iii. The risks associated with the options referred to in subparagraph ii.

   iv. The lifecycle activities referred to in subparagraph ii that can be undertaken for the lowest cost to maintain the current levels of service.

5. For municipalities with a population of less than 25,000, as reported by Statistics Canada in the most recent official census, the following:

   i. A description of assumptions regarding future changes in population or economic activity.

   ii. How the assumptions referred to in subparagraph i relate to the information required by paragraph 4.

6. For municipalities with a population of 25,000 or more, as reported by Statistics Canada in the most recent official census, the following:

   i. With respect to municipalities in the Greater Golden Horseshoe growth plan area, if the population and employment forecasts for the municipality are set out in Schedule 3 or 7 to the 2017 Growth Plan, those forecasts.

   ii. With respect to lower-tier municipalities in the Greater Golden Horseshoe growth plan area, if the population and employment forecasts for the municipality are not set out in Schedule 7 to the 2017 Growth Plan, the portion of the forecasts allocated to the lower-tier municipality in the official plan of the upper-tier municipality of which it is a part.

   iii. With respect to upper-tier municipalities or single-tier municipalities outside of the Greater Golden Horseshoe growth plan area, the population and employment forecasts for the municipality that are set out in its official plan.

   iv. With respect to lower-tier municipalities outside of the Greater Golden Horseshoe growth plan area, the population and employment forecasts for the lower-tier municipality that are set out in the official plan of the upper-tier municipality of which it is a part.

   v. If, with respect to any municipality referred to in subparagraph iii or iv, the population and employment forecasts for the municipality cannot be determined as set out in those subparagraphs, a description of assumptions regarding future changes in population or economic activity.

   vi. For each of the 10 years following the year for which the current levels of service under paragraph 1 are determined, the estimated capital expenditures and significant operating costs related to the lifecycle activities required to maintain the current levels of service in order to accommodate projected increases in demand caused by growth, including estimated capital expenditures and significant operating costs related to new construction or to upgrading of existing municipal infrastructure assets. O. Reg. 588/17, s. 5 (2).

(3) Every asset management plan must indicate how all background information and reports upon which the information required by paragraph 3 of subsection (2) is based will be made available to the public. O. Reg. 588/17, s. 5 (3).

(4) In this section,

"2017 Growth Plan" means the Growth Plan for the Greater Golden Horseshoe, 2017 that was approved under subsection 7 (6) of the *Places to Grow Act, 2005* on May 16, 2017 and came into effect on July 1, 2017; ("Plan de croissance de 2017")

"Greater Golden Horseshoe growth plan area" means the area designated by section 2 of Ontario Regulation 416/05 (Growth Plan Areas) made under the *Places to Grow Act, 2005*. ("zone de croissance planifiée de la région élargie du Golden Horseshoe") O. Reg. 588/17, s. 5 (4).

Asset management plans, proposed levels of service

6. (1) Subject to subsection (2), on or before July 1, 2025, every asset management plan prepared under section 5 must include the following additional information:

1. For each asset category, the levels of service that the municipality proposes to provide for each of the 10 years following the year in which all information required under section 5 and this section is included in the asset management plan, determined in accordance with the following qualitative descriptions and technical metrics:
    i. With respect to core municipal infrastructure assets, the qualitative descriptions set out in Column 2 and the technical metrics set out in Column 3 of Table 1, 2, 3, 4 or 5, as the case may be.
    ii. With respect to all other municipal infrastructure assets, the qualitative descriptions and technical metrics established by the municipality.
2. An explanation of why the proposed levels of service under paragraph 1 are appropriate for the municipality, based on an assessment of the following:
    i. The options for the proposed levels of service and the risks associated with those options to the long term sustainability of the municipality.
    ii. How the proposed levels of service differ from the current levels of service set out under paragraph 1 of subsection 5 (2).
    iii. Whether the proposed levels of service are achievable.
    iv. The municipality's ability to afford the proposed levels of service.
3. The proposed performance of each asset category for each year of the 10-year period referred to in paragraph 1, determined in accordance with the performance measures established by the municipality, such as those that would measure energy usage and operating efficiency.
4. A lifecycle management and financial strategy that sets out the following information with respect to the assets in each asset category for the 10-year period referred to in paragraph 1:
    i. An identification of the lifecycle activities that would need to be undertaken to provide the proposed levels of service described in paragraph 1, based on an assessment of the following:
        A. The full lifecycle of the assets.
        B. The options for which lifecycle activities could potentially be undertaken to achieve the proposed levels of service.
        C. The risks associated with the options referred to in sub-subparagraph B.
        D. The lifecycle activities referred to in sub-subparagraph B that can be undertaken for the lowest cost to achieve the proposed levels of service.
    ii. An estimate of the annual costs for each of the 10 years of undertaking the lifecycle activities identified in subparagraph i, separated into capital expenditures and significant operating costs.
    iii. An identification of the annual funding projected to be available to undertake lifecycle activities and an explanation of the options examined by the municipality to maximize the funding projected to be available.
    iv. If, based on the funding projected to be available, the municipality identifies a funding shortfall for the lifecycle activities identified in subparagraph i,
        A. an identification of the lifecycle activities, whether set out in subparagraph i or otherwise, that the municipality will undertake, and
        B. if applicable, an explanation of how the municipality will manage the risks associated with not undertaking any of the lifecycle activities identified in subparagraph i.

5. For municipalities with a population of less than 25,000, as reported by Statistics Canada in the most recent official census, a discussion of how the assumptions regarding future changes in population and economic activity, set out in subparagraph 5 i of subsection 5 (2), informed the preparation of the lifecycle management and financial strategy referred to in paragraph 4 of this subsection.
6. For municipalities with a population of 25,000 or more, as reported by Statistics Canada in the most recent official census,
   i. the estimated capital expenditures and significant operating costs to achieve the proposed levels of service as described in paragraph 1 in order to accommodate projected increases in demand caused by population and employment growth, as set out in the forecasts or assumptions referred to in paragraph 6 of subsection 5 (2), including estimated capital expenditures and significant operating costs related to new construction or to upgrading of existing municipal infrastructure assets,
   ii. the funding projected to be available, by source, as a result of increased population and economic activity, and
   iii. an overview of the risks associated with implementation of the asset management plan and any actions that would be proposed in response to those risks.
7. An explanation of any other key assumptions underlying the plan that have not previously been explained. O. Reg. 588/17, s. 6 (1); O. Reg. 193/21, s. 2 (1).

(2) With respect to an asset management plan prepared under section 5 on or before July 1, 2022, if the additional information required under this section is not included before July 1, 2024, the municipality shall, before including the additional information, update the current levels of service set out under paragraph 1 of subsection 5 (2) and the current performance measures set out under paragraph 2 of subsection 5 (2) based on data from the two most recent calendar years. O. Reg. 193/21, s. 2 (2).

Update of asset management plans

7. (1) Every municipality shall review and update its asset management plan at least five years after the year in which the plan is completed under section 6 and at least every five years thereafter.

(2) The updated asset management plan must comply with the requirements set out under paragraphs 1, 2 and 3 and subparagraphs 5 i and 6 i, ii, iii, iv and v of subsection 5 (2), subsection 5 (3) and paragraphs 1 to 7 of subsection 6 (1).

Endorsement and approval required

8. Every asset management plan prepared under section 5 or 6, or updated under section 7, must be,

(a) endorsed by the executive lead of the municipality; and

(b) approved by a resolution passed by the municipal council.

Annual review of asset management planning progress

9. (1) Every municipal council shall conduct an annual review of its asset management progress on or before July 1 in each year, starting the year after the municipality's asset management plan is completed under section 6.

(2) The annual review must address,

(a) the municipality's progress in implementing its asset management plan;

(b) any factors impeding the municipality's ability to implement its asset management plan; and

(c) a strategy to address the factors described in clause (b).

Public availability

10. Every municipality shall post its current strategic asset management policy and asset management plan on a website that is available to the public, and shall provide a copy of the policy and plan to any person who requests it.

TABLE 1

WATER ASSETS

Column 1 Service attribute	Column 2 Community levels of service (qualitative descriptions)	Column 3 Technical levels of service (technical metrics)
Scope	1. Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal water system. 2. Description, which may include maps, of the user groups or areas of the municipality that have fire flow.	1. Percentage of properties connected to the municipal water system. 2. Percentage of properties where fire flow is available.
Reliability	Description of boil water advisories and service interruptions.	1. The number of connection-days per year where a boil water advisory notice is in place compared to the

		total number of properties connected to the municipal water system. 2. The number of connection-days per year due to water main breaks compared to the total number of properties connected to the municipal water system.

TABLE 2

WASTEWATER ASSETS

Column 1 Service attribute	Column 2 Community levels of service (qualitative descriptions)	Column 3 Technical levels of service (technical metrics)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are connected to the municipal wastewater system.	Percentage of properties connected to the municipal wastewater system.
Reliability	1. Description of how combined sewers in the municipal wastewater system are designed with overflow structures in place which allow overflow during storm events to prevent backups into homes. 2. Description of the frequency and volume of overflows in combined sewers in the municipal wastewater system that occur in habitable areas or beaches. 3. Description of how stormwater can get into sanitary sewers in the municipal wastewater system, causing sewage to overflow into streets or backup into homes. 4. Description of how sanitary sewers in the municipal wastewater system are designed to be resilient to avoid events described in paragraph 3. 5. Description of the effluent that is discharged from sewage treatment plants in the municipal wastewater system.	1. The number of events per year where combined sewer flow in the municipal wastewater system exceeds system capacity compared to the total number of properties connected to the municipal wastewater system. 2. The number of connection-days per year due to wastewater backups compared to the total number of properties connected to the municipal wastewater system. 3. The number of effluent violations per year due to wastewater discharge compared to the total number of properties connected to the municipal wastewater system.

TABLE 3

STORMWATER MANAGEMENT ASSETS

Column 1 Service attribute	Column 2 Community levels of service (qualitative descriptions)	Column 3 Technical levels of service (technical metrics)
Scope	Description, which may include maps, of the user groups or areas of the municipality that are protected from flooding, including the extent of the protection provided by the municipal stormwater management system.	1. Percentage of properties in municipality resilient to a 100-year storm. 2. Percentage of the municipal stormwater management system resilient to a 5-year storm.

TABLE 4

ROADS

Column 1 Service attribute	Column 2 Community levels of service (qualitative descriptions)	Column 3 Technical levels of service (technical metrics)
Scope	Description, which may include maps, of the road network in the municipality and its level of connectivity.	Number of lane-kilometres of each of arterial roads, collector roads and local roads as a proportion of square kilometres of land area of the municipality.
Quality	Description or images that illustrate the different levels of road class pavement condition.	1. For paved roads in the municipality, the average pavement condition index value. 2. For unpaved roads in the municipality, the average surface condition (e.g. excellent, good, fair or poor).

TABLE 5

BRIDGES AND CULVERTS

Column 1 Service attribute	Column 2 Community levels of service (qualitative descriptions)	Column 3 Technical levels of service (technical metrics)
Scope	Description of the traffic that is supported by municipal bridges (e.g., heavy transport vehicles, motor vehicles, emergency vehicles, pedestrians, cyclists).	Percentage of bridges in the municipality with loading or dimensional restrictions.
Quality	1. Description or images of the condition of bridges and how this would affect use of the bridges. 2. Description or images of the condition of culverts and how this would affect use of the culverts.	1. For bridges in the municipality, the average bridge condition index value. 2. For structural culverts in the municipality, the average bridge condition index value.

11. OMITTED (PROVIDES FOR COMING INTO FORCE OF PROVISIONS OF THIS REGULATION).

Français

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