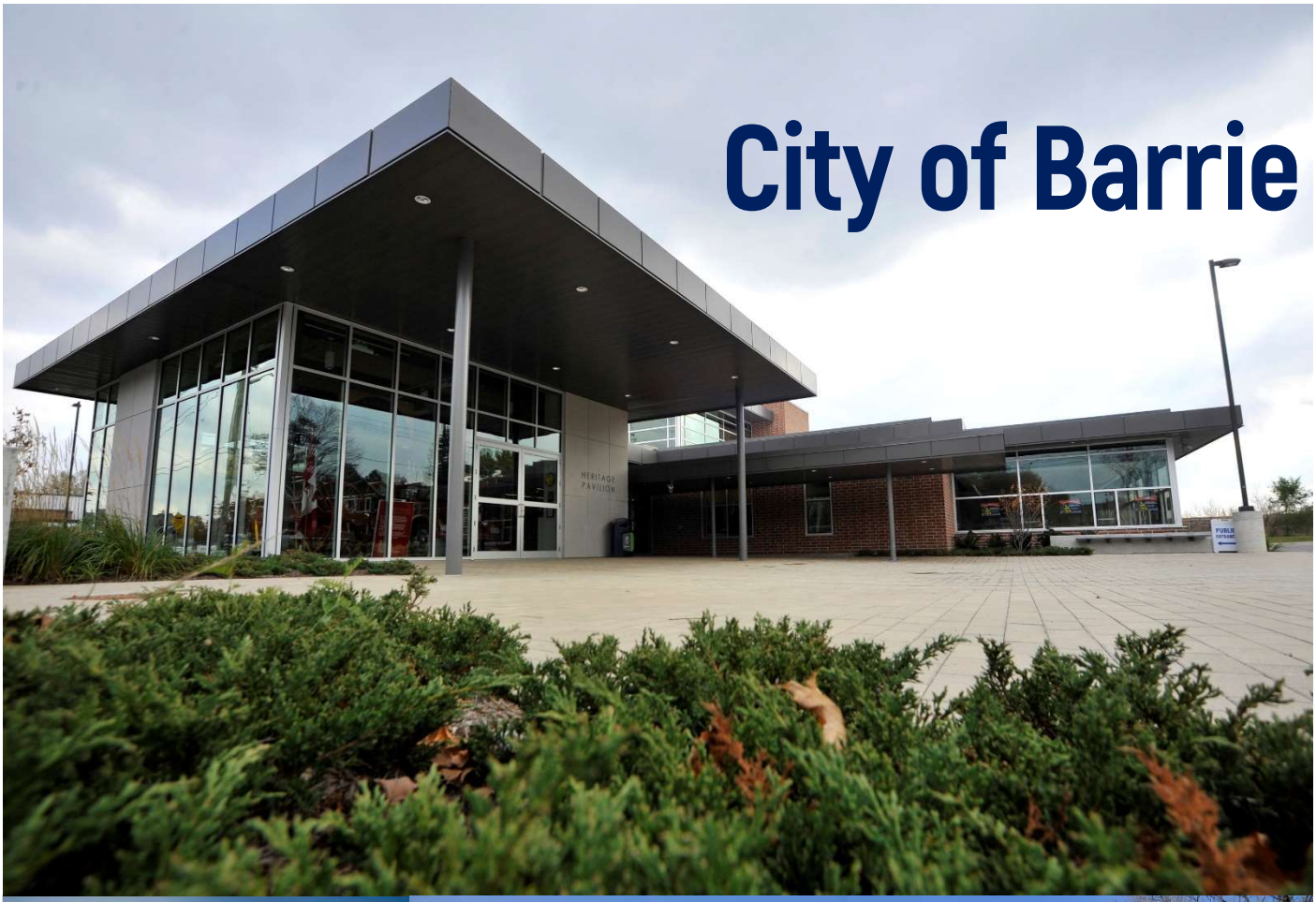
ASSET MANAGEMENT PLAN

For Facilities, Parks, and Outdoor Recreation



City of Barrie

May 2023

Version 1

Prepared By: SLBC Inc.
May 2023, Version 1

Executive Summary

Introduction

The Asset Management (AM) Plan describes the actions required for the City to manage its parks, outdoor recreation, and facilities in a way that supports current service levels while managing risks and costs. The City of Barrie has been one of Canada's fastest growing municipalities for the past several decades. Ensuring that this level of growth is managed in a sustainable, efficient, and financially responsible manner, while also taking care of the City's existing assets is central to the long-term health, prosperity, and well-being of the City and its residents.

The AM Plan supports the City's strategic priorities for responsible governance by establishing transparency and financial stewardship of the City's limited resources to deliver services. The City's priorities and goals of transparency and financial accountability while delivering services align with Ontario Regulation (O.Reg.) 588/17 Asset Management Planning for Municipal Infrastructure. The regulation requires municipalities to demonstrate financial sustainability through the AM Plan by identifying the forecasted expenditures to maintain current services levels. This AM Plan fulfils year 2024 regulation requirements for parks, outdoor recreation, and facility assets. Facility and natural assets that are covered by other City AM Plans such as Water, Wastewater, Transit, and Stormwater are excluded from this AM Plan.

State of the Infrastructure

The City's first step in developing the AM Plan is understanding the assets that it owns. As shown in Table ES-1, the estimated replacement value of the City's parks, outdoor recreation, and facility assets is $1.53 billion.

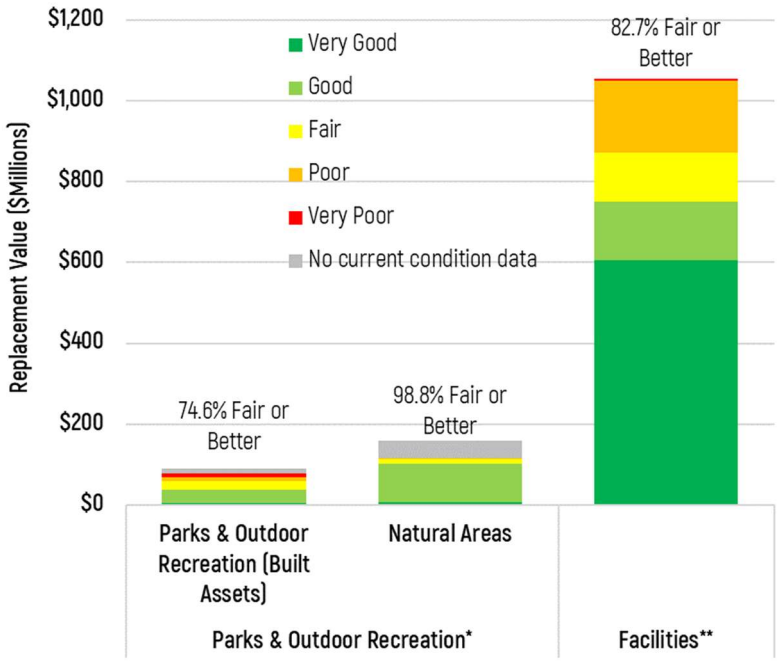
Table ES-1: Replacement Value of City Assets ($M)

Service	Service	Replacement Value
Parks & Outdoor Recreation	Parks & Outdoor Recreation Built Assets	$124.2
	Maintained Parkland	$27.7
	Natural Areas	$158.5
Facilities		$1,219.8
Total		$1,530.3

The condition of the City's facilities, parks, and outdoor recreation assets is summarized in Figure ES-1. Overall, the parks & outdoor recreation built assets are on average in fair condition and City street and park trees are generally in good condition. Maintained parkland and other assets not currently assessed for condition such as fencing and dirt trails are not included in Figure ES-1. Turf accounts for most of the maintained parkland at the City and is maintained on a regular basis. Like other municipalities, most natural assets, aside from street and park trees, are not currently assessed for condition. The City is improving its understanding of asset condition by completing Forest Health Assessments for some of the City owned woodlots using a risk-based approach and focusing on critical areas susceptible to Emerald Ash Borer and human impacts.

The condition for facilities is based on the Facility Condition Index, a condition grade evaluated for each facility. In general, the facilities are in good condition except for Park facilities, as well some facilities such as the old Police Headquarters (29 Sperling Drive) and the Operations Centre.

Figure ES-1: Condition Overview by Service Area



*Excludes park bridges, stairs, fencing, utility lines, dirt trails, shoreline protection, and maintained parkland
**Excludes site assets

Levels of Service

The City is home to an extensive network of parks, outdoor recreation assets, and natural areas. These amenities provide a wealth of opportunities for recreational and social activities while also preserving and protecting the natural assets that play a crucial role in mitigating the urban heat island effect, enhancing water quality, and fostering biodiversity.

The City's facilities play a role in ensuring the smooth functioning and delivery of essential services to the community. These facilities encompass a diverse array of spaces, such as offices for City staff in Infrastructure, Planning, Building services, and others, as well as critical operations facilities that oversee environmental services, landfill operations, stormwater, roads, and parks operations. The City's recreation and culture facilities enrich the lives of residents and foster community engagement. Emergency services depend on the use of police and fire facilities to safeguard the City and its people. Libraries and parks facilities contribute to the community's wellbeing and quality of life. The City's facilities are therefore critical in supporting delivery of every service provided by the City.

A key focus of this AM Plan is to establish the current levels of service the City's assets deliver to the community. The lifecycle strategy and financial analysis are based on the activities needed to maintain the current levels of service over the next 10 years. The need for new or expanded assets are driven by capacity measures such as the number of sports fields and facilities in relation to the City's population and facility utilization rates. Asset upgrades are planned by the City to meet functional service levels such as energy conservation and reduction. Renewal and maintenance of assets are performed to maintain assets in a state of good repair.

Risk Management Strategy

A risk analysis was conducted to understand the risk exposure across the asset portfolio and prioritize work across asset classes and service areas. $1.8 million of the City's Parks & Outdoor Recreation Built assets are currently estimated to be in the Very High-risk category. These Very High-risk assets consists of Queen's Skate Park and

Heritage Park Splash Pad, which are due for replacement based on their age and are considered critical assets. For natural assets, a hazards-based risk assessment approach is recommended to identify areas within the City that are most susceptible to hazards such as flooding and invasive species.

Based on the facility-level risk assessment, the Operations Centre is considered very high risk due to its condition and higher criticality. The Operations Centre redevelopment is already underway, and additional work on the facility is planned over the next 10 years in the City's Capital Plan.

Lifecycle Management Strategy

Asset lifecycle management strategies are the planned activities that enable assets to provide service levels in a sustainable way, while managing risks. As summarized in Table ES-2, over the next 10 years, the total average growth and expansion cost to maintain current capacity service levels is estimated at $6.4 million per year for Parks & Outdoor Recreation Built assets and $40.8 million per year for facilities, including assets to be constructed in the Salem and Hewitt Secondary Plan Areas. The renewal and upgrade forecasted needs in Table ES-2 would enable the City to renew assets such that current service levels are maintained through to 2032. Renewal needs for Parks & Outdoor recreation assets are focused on replacements of aging assets such as a skate park, splash pad, various softball and baseball diamonds, and playgrounds. For facilities, in addition to the Operations Centre, significant immediate renewal needs were identified for City Hall and various park washroom facilities.

Table ES-2 Summary of Forecasted Needs to Maintain Service Levels ($M)

Service	Parks & Outdoor Recreation	Facilities
Growth	Average $6.4M/yr	Average $40.8M/yr
Renewal & Upgrade	Average $6.0M/yr	Average $26.7M/yr
Operations & Maintenance	$7.8M in 2023 with 2.7% annual increase	$25.4M in 2023 with 2.9% annual increase

Financial Analysis

The City's AM Plan informs responsible decision-making and aligns with O.Reg. 588/17, which requires municipalities to demonstrate financial sustainability through the AM Plan. Table ES-3 summarizes the financial sustainability and affordability for growth, renewal, upgrade, and O&M activities to maintain current service levels by comparing the recommended lifecycle strategy costs to the City's Capital Plan. For Parks and Recreation assets, the current Capital Plan will result in a potential reduction in capacity-related service levels in terms of the number of active outdoor facilities available per resident; however, the City expects to mitigate some of this impact through increased utilization of existing facilities. For reliability and functional service levels related to park asset condition and upgrades, there is an estimated $3.3 million average annual funding shortfall. For facilities, service levels are expected to be maintained based on the currently planned funding for capital growth and renewal activities in the City's 10-year Capital Plan.

Increases to the operating budgets for parks, outdoor recreation, and facilities will be required to accommodate the planned growth in the asset portfolios for these service areas and maintain current levels of service over the next 10 years. The estimated increases in Table ES-3 do **not** consider inflation or improvements to current service levels which may have further impacts on the City's budget requirements. It is expected that future service levels will need to improve for activities related to operations and maintenance for assets such as park lighting, park structures, and trails, as well as to compensate for the additional assets and increased material and contracted services costs that have not been reflected in the budget over the past few years. For natural assets, additional expenditures are expected to be required for activities such as invasive species management.

Table ES-3: Summary of 10-Year Financial Sustainability and Affordability of Current Service Levels

Asset Lifecycle	Forecast Needs	Planned Funding	Gap	Impacts
Parks & Outdoor Recreation				
Capital Growth	$6.4 M/yr*	$3.8 M/yr*	$2.6 M/yr*	Reduction in service levels, potentially mitigated by increasing utilization at existing facilities
Capital Renewal & Upgrade	$6.0 M/yr*	$2.7 M/yr*	$3.3 M/yr*	Reduction in service levels, increased risks (in addition to risks from existing renewal backlog)
Operations and Maintenance	$7.8 M in 2023 to $9.9 M in 2032; 2.7% annual average increase	$7.8 M in 2023	2.7% annual average increase	Failure to increase resources to operate and maintain new assets will result in reduced service levels and increased risks
Facilities				
Capital Growth	$40.8 M/yr*	$40.8 M/yr*	No shortfall over 10-year forecast	New and expanded facilities are expected to maintain current service levels
Capital Renewal & Upgrade	$26.7 M/yr*	$26.7 M/yr*	No shortfall over 10-year forecast	Planned renewal expenditures are expected to maintain current service levels; risks remain due to existing renewal backlog
Operations and Maintenance	$25.4 M in 2023 to $33.7 M in 2032; 2.9% annual average increase	$25.4 M in 2023	2.9% annual average increase	Failure to increase resources to operate and maintain new assets will result in reduced service levels and increased risks

*average annual needs/funding/gap over 10-year forecast

Development of AM Plans is an iterative process that includes improving data, processes, systems, staff skills, and organizational culture over time. The last chapter of the AM Plan highlights improvement initiatives that will continue to support the City's commitment to responsible decision-making in alignment with O.Reg. 588/17.

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1 Introduction

1.1 Purpose of the Plan

Meeting Regulatory Requirements

This Facilities, Parks, and Outdoor Recreation Asset Management Plan (AM Plan) aligns with the City's Corporate Asset Management Policy and current levels of service requirements of Ontario Regulation 588/17 Asset Management Planning for Municipal Infrastructure (O.Reg. 588/17) made under the Infrastructure for Jobs and Prosperity Act.

Figure 1-1 shows the required sections of the AM Plan down the left side. The columns to the right summarize O.Reg. 588/17 requirements for current levels of service by 2024 and proposed levels of service by 2025. This AM Plan meets O.Reg. 588/17 year 2024 requirements for current levels of service for Parks, Outdoor Recreation, and Facilities.

Figure 1-1: Ontario Regulation 588/17 Requirements

	Current Levels of Service AMP July 2022 (core), 2024 (non-core)	**Proposed Levels of Service AMP** July 2025 (core, non-core)
State of Infrastructure (asset register)	• Inventory of assets, by category • Replacement cost of assets • Average age of assets • Condition of assets • Approach to assessing condition	• Inventory of assets, by category • Replacement cost of assets • Average age of assets • Condition of assets • Approach to assessing condition
Levels of Service (performance)	• Current LOS (performance) provided: - To community (qualitative metrics) - By assets (quantitative metrics) • For core assets as per Tables 1 to 5 in O.Reg. 588/17 (as minimum), and as established by City for other assets	• Proposed LOS (performance) for the next 10 years - For community (qualitative metrics) - By assets (quantitative metrics) • And why appropriate based on risk and affordability assessment
Lifecycle Management Strategy	• Population and employment forecasts per 2019 Growth Plan • Lifecycle activities needed for each of the next 10 years to: - Meet demand caused by growth or upgrade of existing assets - Maintain the current LOS at least cost and acceptable level of risk	• Population and employment forecasts per 2019 Growth Plan • Lifecycle activities needed for each of the next 10 years to: - Meet demand caused by growth or upgrade of existing assets - Provide proposed LOS at least cost and acceptable level of risk
Financing Strategy	• Cost of lifecycle activities needed for each of the next 10 years to: - Meet demand caused by growth or upgrade of existing assets - Maintain the current LOS	• Cost of lifecycle activities needed for each of the next 10 years to: - Meet demand caused by growth or upgrade of existing assets - Provide proposed LOS • Funding projected to be available to undertake needed lifecycle activities • For funding shortfalls which activities will not be funded and associated risks
Implementation and Key Assumptions	• Statement on how all State of Infrastructure background information and reports will be made available to the public	• The risks and mitigation strategies associated with implementing the AM Plan • Explanation of key assumptions underlying the AM Plan that have not previously been explained

Meeting Corporate Requirements

The City of Barrie is responsible for a broad portfolio of assets. The management of those assets is described through this Asset Management Plan (AM Plan) to support the City's strategic priorities and goals. These goals from the 2022 to 2026 Strategic Priorities include:

- Foster growth in arts and culture
- Expand and maximize access to parks and recreation opportunities
- Update and improve infrastructure
- Support active transportation and pedestrian connections
- Implement climate action plans
- Support the services the community needs while keeping tax increases low
- Financial stewardship which includes finding efficiencies and innovation
- Ensure accountability and transparency

This AM Plan is a medium to long range planning document that is used to support the City's goals by providing a rational strategy for proactively and effectively managing the City's parks, outdoor recreation, and facility assets. It provides a guide to understanding key items such as:

- The size, replacement value, and condition of the City's asset portfolio
- The current levels of service and performance
- The assets that will be needed in the future to support service delivery
- The planned activities to sustain current and future assets throughout their lifecycles at minimal cost, while managing risks
- The funding sources for planned lifecycle activities
- The steps to improve future iterations of the AM Plan.

This AM Plan is intended to improve the City of Barrie's ability to achieve its corporate goals and objectives in a way that best serves its customers. It provides a rational framework that enables systematic and repeatable processes to manage costs, risks, and levels of service for the City's parks, outdoor recreation, and facility asset portfolio.

1.2 Relationship with Other City Activities and Planning Documents

The AM Plan is a key tactical (medium-term) planning document that relies on input from strategic planning activities and informs shorter-term decision-making. The AM Plan provides a framework to validate the City's budgeting processes and assist in prioritizing work activities, including capital projects, based on risk. It also discusses levels of service that support goals in the 2022 to 2026 Council Strategic Plan and lifecycle management strategies intended to reduce the overall cost of asset ownership.

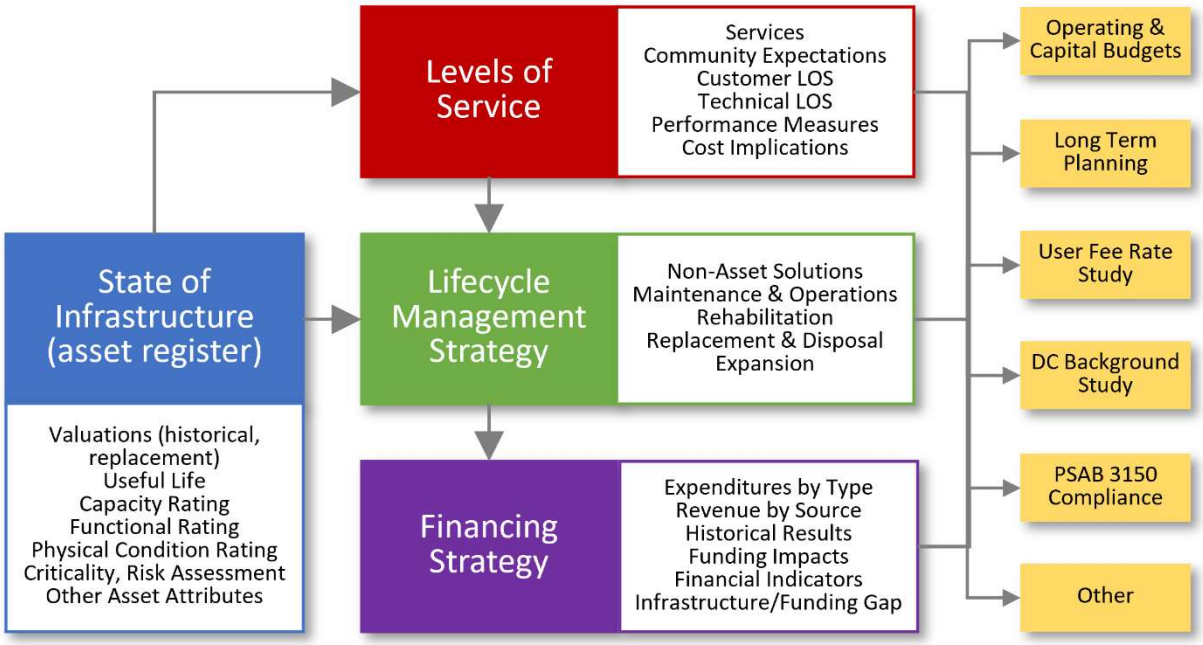
The AM Plan is aligned other City planning documents such as the corporate Strategic Asset Management Policy, Asset Management Strategy and the following documents:

- Council's 2022 to 2026 Strategic Plan
- Official Plan
- Climate Change Adaptation Strategy
- Long-term Master Plans
- Long Range Financial Plan and Financial Policies Framework
- Finance Policies Framework

- Operating and Capital Budgets
- Development Charge Background Study
- PSAB 3150 Compliance Process.

The relationship of the AM Plan with other City documents is shown below, summarized from the Municipal Finance Officers' Association of Ontario (MFOA) AM Framework.

Figure 1-2: Relationship of AM Plan to Other City Documents



1.3 Scope of the AM Plan

1.3.1 Assets Included in AM Plan

This AM Plan covers facilities owned by the City except those described in Section 1.3.2. In addition to City-owned facilities, this AM Plan considers any applicable lifecycle needs related to leased facilities. The City's corporate facilities are operated and maintained by the Corporate Facilities department. All components of these facilities will be included in this AMP. Many of the City's other facilities are jointly operated and maintained by the Corporate Facilities department and other City departments or service partners (including, but not limited to police, and libraries). In these cases, the Corporate Facilities department is responsible for the operation, maintenance, renewal, expansion, and upgrade of the facility structural components, building systems, site works, and utility services including main electrical services, distribution, emergency generators, and uninterruptible power supply (UPS) systems; the department or service partner manages the remaining facility components including, but not limited to, processes, equipment, and service operation. For these facilities, this AM Plan will only focus on the assets that are operated and maintained by the Corporate Facilities department. Process/service area assets are excluded.

The City's recreation and culture facilities are operated and maintained by the Recreation & Culture department. Capital planning for these facilities is a joint function between staff in the Corporate Facilities and Recreation & Culture departments. Capital projects related to these facilities are led by Corporate Facilities and supported by Recreation & Culture. All building components of these facilities will be included in this AMP.

Parks and Outdoor Recreation assets include all sports fields, playgrounds, trails, trees, and other natural areas. The natural areas around stormwater management facilities are included. Watercourses, stormwater ponds, and related

stormwater infrastructure are covered in the City's Stormwater Asset Management Plan and are not covered in this AM Plan.

1.3.2 Excluded Assets

Water and wastewater facilities and the Transit Garage and the Downtown Transit Terminal are covered in the City's other AM Plans and are not included in this AM Plan. Leased facilities are not included in the State of Infrastructure, as they are not owned by the City. However, the City has certain obligations for both capital and operational needs at leased facilities, and these expenditures will be considered in the Lifecycle and Financial Strategy sections of the AM Plan. Short-term/transitional rental properties that are related to development activity (such as 17 McKay Road) are also not included in this AM Plan. The City also has a few vacant and commercial properties, some with temporary leases. Some of these facilities will eventually be demolished and the land will be used for yet to be determined future uses. These facilities and properties were deemed of low criticality and are not included in the quantitative analyses in this AM Plan.

Other excluded assets include lower value assets such as concrete planters and indent plantings that fall below the City's tangible capital asset threshold and are also lower critical assets which do not warrant detailed data tracking and lifecycle management.

1.4 AM Plan Framework and General Methodology

The information presented in the AM Plan is based on O.Reg. 588/17 requirements, the Guide for Municipal Asset Management Plans, originally issued by the Ontario Ministry of Infrastructure, and best in class asset management practices. Costs and replacement values in this AM Plan are estimated in 2022 dollars.

The AM Plan was developed by SLBC Inc. in collaboration with City staff through:

- Review of background materials available on the City's web site and provided by the City's project team including asset inventories, planning documents, and budgets
- Workshops with internal stakeholders
- Other interim meetings with the City's project team
- Numerous data and information transfers
- Review of interim outputs by the City's project team and other stakeholders, and incorporation of comments into the final AM Plan

1.5 Key Stakeholders

Key stakeholders of this AM Plan include:

- The City of Barrie community
- Internal Stakeholders
  - City Council
  - Senior City staff
  - Departmental staff from Parks Planning, Parks Forestry and Operations, Recreation Facilities, Corporate Facilities, Corporate Asset Management, GIS, and Finance.

2 State of the Infrastructure

2.1 Overview

Understanding the value, age, and condition of its assets is the starting point for a municipality to develop a plan for managing them. The replacement value of an asset represents the expected cost to replace an asset to the same functional standard with a 'like for like' new version based on current market conditions and construction standards. Replacement value estimates assume that replacements are conducted as part of planned and bundled capital projects where applicable, rather than as individual unplanned replacements, which would typically be more costly. The total relacement value for the City's Facilities and Parks & Outdoor Recreation assets is esimated to be $1.53 billion. Table 2-1 provides a breakdown of the replacement value of assets by service.

Table 2-1: Replacement Value of City Assets ($M)

Service	Service	Replacement Value
Parks & Outdoor Recreation	Parks & Outdoor Recreation Built Assets	$124.2
	Maintained Parkland	$27.7
	Natural Areas	$158.5
Facilities		$1,219.8
Total		$1,530.3

Understanding an asset's remaining life and current condition informs the timing of required lifecycle activities to maintain quality and reliability-related service levels. Using observed asset condition through inspection programs provides a higher degree of confidence in the state of the assets, more than what is provided in a strictly age-based analysis. Observed conditions are used in this AM Plan where such data is available. When observed condition data is not availabe, the remaining life is determined by estimating a useful life for each asset and comparing this value to its age (if construciton of installaiton year data is available). The observed condition, or age-based condition, is then expressed on a Very Good to Very Poor rating scale as defined in Table 2-2, aligned with the International Infrastructure Management Manual's (IIMM) 5-point condition scale.

Table 2-2: Condition Grading Criteria

Condition	Condition Criteria
Very Good	Asset is physically sound and is performing its function as originally intended. Required maintenance costs are well within standards and norms. Typically, asset is new or recently rehabilitated.
Good	Asset is physically sound and is performing its function as originally intended. Required maintenance costs are within acceptable standards and norms but are increasing. Typically, asset has been used for some time but is within mid-stage of its expected life.
Fair	Asset is showing signs of deterioration and is performing at a lower level than originally intended. Some components of the asset are becoming physically deficient. Required maintenance costs exceed acceptable standards and norms and are increasing. Typically, asset has been used for a long time and is within the later stage of its expected life.
Poor	Asset is showing significant signs of deterioration and is performing to a much lower level than originally intended. A major portion of the asset is physically deficient. Required maintenance costs significantly exceed acceptable standards and norms. Typically, asset is approaching the end of its expected life.
Very Poor	Asset is physically unsound and/or not performing as originally intended. Asset has higher likelihood of failure or failure is imminent. Maintenance costs are unacceptable, and rehabilitation is not cost effective. Replacement / major refurbishment is required.

For this AM plan, observed condition data was incorporated where available, specifically for:

- Park parking lots, electric service panels, trails, and park structures based on the City's 2019 Parks Condition Assessment and City Staff input
- Street and Park trees
- Facilities, based on updates to the 2016 and 2021 facility condition assessments

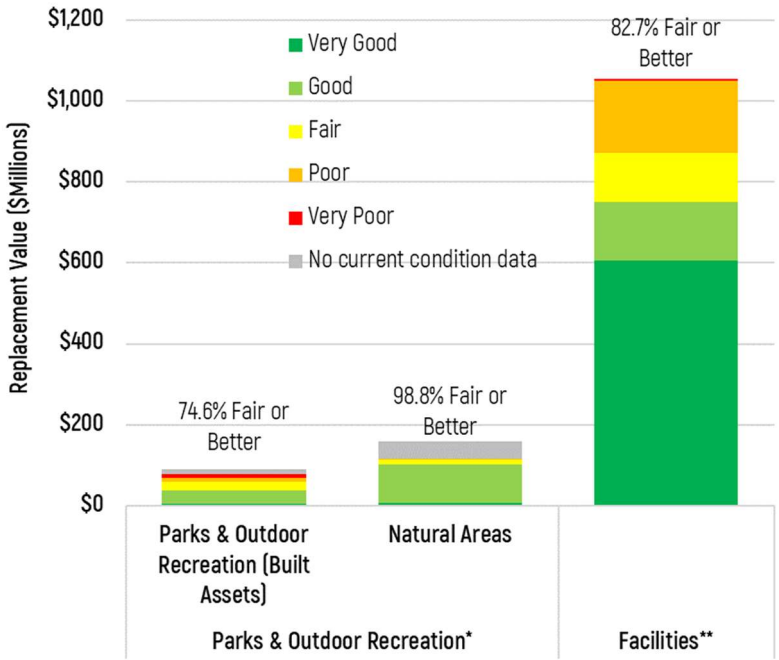
For assets without observed condition but available construction year data, condition was estimated based on age and estimated service life. Table 2-3 summarizes how the five-point scores from Very Good to Very Poor were determined for the age-based assessment. Additional details about observed conditions such as Facility Condition Index (FCI) and how they are mapped using the five-point scale, are discussed in further in Section 2.4.

Table 2-3: Conversion Table for Age-Based Condition

Condition Grade	% Remaining Service Life
Very Good	>75 – 100%
Good	>50 – 75%
Fair	>25 – 50%
Poor	>0 – 25%
Very Poor	<= 0%

The condition distribution of the City's Facilities, Parks, and Outdoor Recreation assets is shown in Figure 2-1. Overall, the Parks & Outdoor Recreation Built Assets are on average in fair condition and street and park trees are generally in good condition. Maintained parkland and other assets that are not currently assessed for condition such as fencing and dirt trails are not included in Figure ES-1. The collection of additional data for critical assets is identified in Section 7 as a future improvement initiative. Like other municipalities, most natural assets, aside from street and park trees, are not typically assessed for condition. The City is improving its understanding of asset condition by completing Forest Health Assessments for some of the City owned woodlots using a risk-based approach that focuses on critical areas susceptible to Emerald Ash Borer and human impacts.

Figure 2-1: Condition Overview by Services



*Excludes park bridges, stairs, fencing, utility lines, dirt trails, shoreline protection, and maintained parkland
**Excludes site assets

2.2 Parks & Outdoor Recreation (Built Assets)

Parks & Outdoor Recreation Built Assets include active recreation facilities, park vehicular and pedestrian network assets, and other assets such as utility lines, fencing, and shoreline protection. Table 2-4 below shows a detailed breakdown of the quantity and estimated replacement value of each asset type within the $124.2 million asset portfolio.

The replacement values are based on approximate unit construction costs where possible, determined from recent tenders as outlined in Table 2-4 and Table 2-5. Splash pads, skate parks, and boat launch replacement values are estimated based on their construction cost in the City's Tangible Capital Asset (TCA) Register, inflated to 2022 dollars. Park furniture, which is also based on the TCA Register, is grouped by purchase year and valued based on inflated TCA Register costs to 2022 dollars. Lighting and bleachers are included in the unit construction costs used for active recreation facilities. For trails, assumptions on surface material and width were made to refine the replacement value and forecast. Primary trails were assumed to be asphalt where material was not specified in the inventory. Where trail width data was not available, asphalt, concrete, and paving stone trails were assumed to be 3 meters in width.

Table 2-4: Inventory of Parks & Outdoor Recreation Built Assets

Service	Asset Category	Quantity	Unit	Replacement Value ($M)	Unit Cost
Active Recreation Facilities	Tennis	14	sites	$5.0	$170,000 (lighted), $110,000 (unlit)
	Basketball	28	sites	$2.4	$60,000 (Half), $100,000 (Full)
	Baseball	4	fields	$3.3	$900,000 (lighted), $600,000 (unlit)
	Softball	30	fields	$16.0	$900,000 (major), $250,000 otherwise
	Soccer	55	fields	$3.5	$55,000 per field; $300,000 (Eastview lighted fields)
	Outdoor Rink	2	sites	$2.4	$1,200,000 per rink
	Beach Volleyball	4	sites	$0.1	$10,000 per court
	Cricket	1	field	$0.7	$700,000
	Rugby	1	field	$0.7	$700,000
	Pickleball	2	sites	$0.5	$85,000 per court
	Football	1	field	$0.7	$700,000
	Skate Park	2	sites	$1.2	Unique to location
	Splash Pad	2	sites	$1.6	Unique to location
	Playground	173	sites	$23.0	Refer to Table 2-5
Sub-Total				$61.1	
Park Vehicular and Pedestrian Network	Bridges	8	assets	$2.5	Refer to Table 2-5
	Stairs	637.0	sq.m.	$1.7	Refer to Table 2-5
	Trails	139,192	m	$21.8	Refer to Table 2-5
	Hard Surfaces	10,065	sq.m.	$1.9	
	Park Parking Lots	56,413	sq.m.	$5.6	$100/m^2
	Dock	2486	sq.m.	$2.8	$974 to $1460/sq.m.
	EV Stations	50	assets	$0.4	$8,500
Sub-Total				$36.8	
Other	Park Structure	18	assets	$2.1	Asset specific
	Fencing	141,692	m	$14.2	$100/m
	Utility Lines	8,906	m	$1.8	$200/m
	Electric Panels	50	assets	$1.7	Asset specific
	Scoreboard	2	assets	$0.1	$50,000 per asset
	Boat Launch	2	assets	$0.2	TCA Register
	Park Furniture	Various	assets	$0.6	TCA Register
	Shoreline Protection	9,134	m	$4.4	$188/m (riprap); $2500/m (sheet piling / concrete)
	WW System	Various	-	$1.4	Asset specific
Sub-Total				$26.4	
Total				$124.2	

Table 2-5: Detailed Unit Costs: Parks & Outdoor Recreation Built Assets

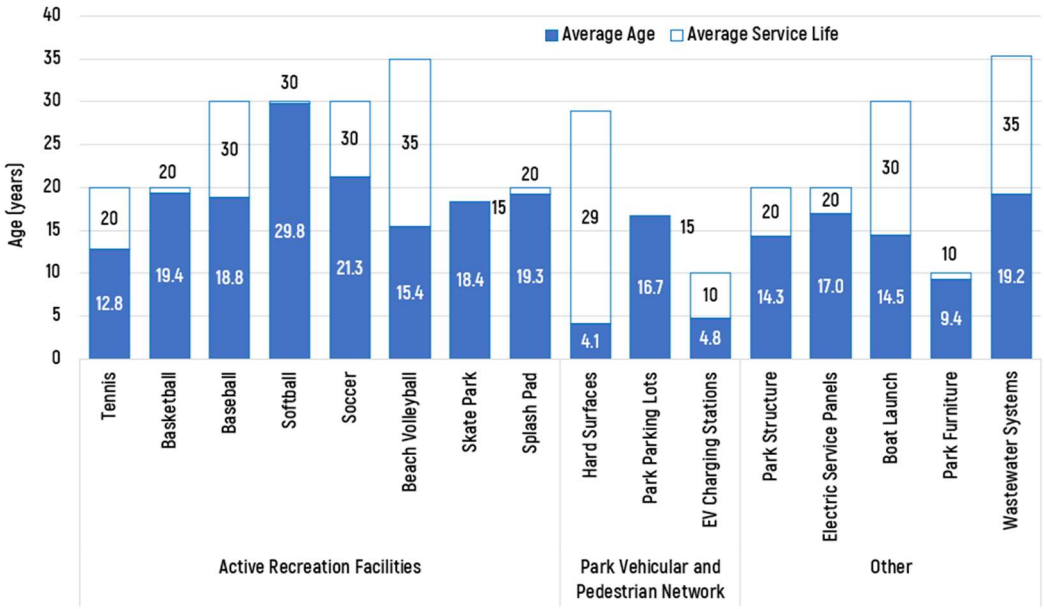
Asset Category	Unit Cost
Playground	Open Space: $100,000 Neighbourhood: $175,000 Community: $600,000 (Accessible playgrounds) Exercise equipment: $30,000
Bridges	Wood: $625/$m^2$ Steel: $4,800/$m^2$ Concrete: $7,150/$m^2$
Stairs	Wood: $2182/$m^2$ Concrete/Paving Stone/Granite: $2,573/$m^2$ Metal/Galvanized Steel/Other: $3148/$m^2$
Pathways	Asphalt: $100/$m^2$ Dirt/Gravel/Woodchips/Other: $60/$m^2$ Paving Stone: $227/$m^2$ Concrete: $150/$m^2$
Hard Surfaces	Asphalt: $100/m2 Dirt/Gravel/Other: $60/m2 Paving Stone: $227/m2 Meridian Square Concrete: $184/$m^2$ Meridian Square Seating: $1,117/$m^2$ Meridian Square Stairs: $2106/$m^2$

2.2.1 Asset Age

The average age and estimated service life of the City's Parks & Outdoor Recreation Built Assets, weighted by replacement value, is summarized in Figure 2-2. Softball diamonds, skate parks, splash pads, park structures, basketball courts, park furniture, and electric service panels are, on average, nearing or at end of life based on age. Assets without installation year data are not included in Figure 2-2. Tracking playground installation year data will be recommended as a future improvement initiative, as installation year data is not currently tracked in GIS and the TCA Register only reports playgrounds as grouped assets, and not the installation year of each playground.

The age of most park vehicular and pedestrian network and other park assets (fencing, utility lines, shoreline protection, etc.) also do not have installation year data. The boat launch and park furniture ages are based on the installation date indicated in the TCA Register, and electric service panels have their installation year documented in the 2019 Parks Condition Assessment.

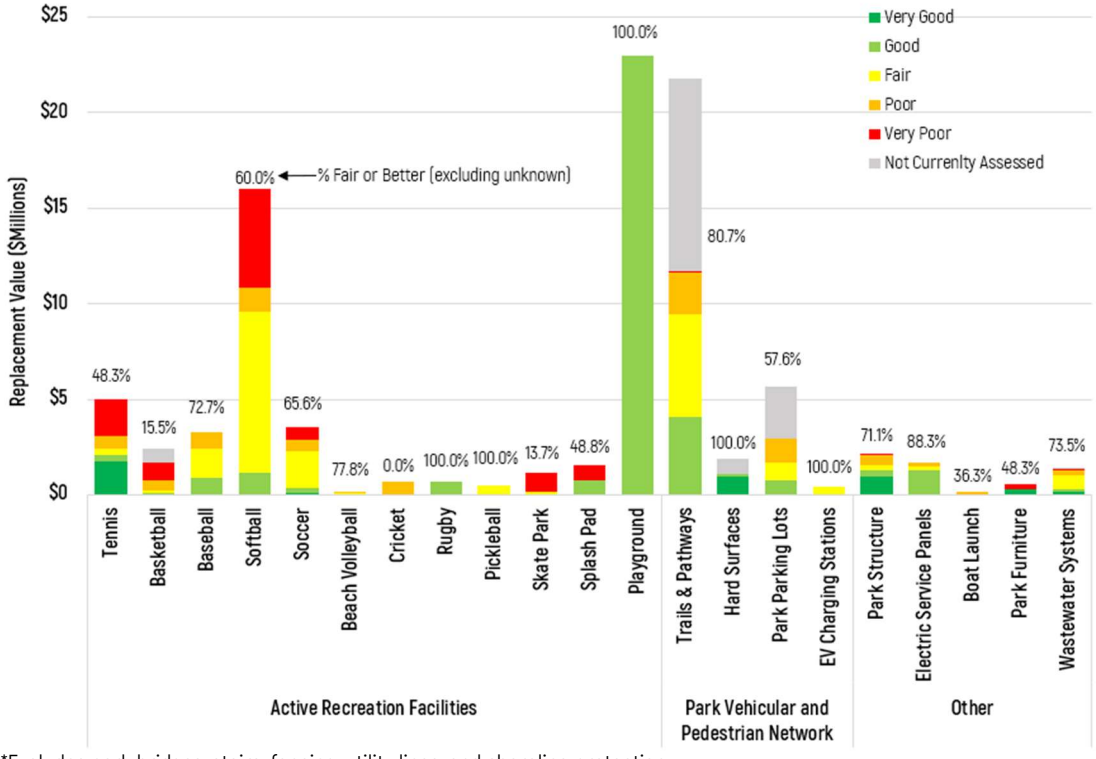
Figure 2-2: Average Age – Parks & Outdoor Recreation Built Assets



2.2.2 Asset Condition

The condition distribution of the City's Parks & Outdoor Recreation Built Assets is summarized in Figure 2-3 for those asset types with at least part of the inventory assessed for condition. The figure shows the relative replacement value by asset type, and the proportion of assets by condition grade. Overall, the Parks & Outdoor Recreation Built Assets are on average in fair condition. For assets for which condition was estimated, 74.6% of assets are estimated to be in fair or better condition.

Figure 2-3: Condition Overview by Replacement Value – Parks & Outdoor Recreation Built Assets*



*Excludes park bridges, stairs, fencing, utility lines, and shoreline protection

The detailed value of assets in each condition rating, including those assets not assessed for condition, is provided in tabular format in Table 2-6.

Table 2-6: Condition Overview by Replacement Value (Table Format) – Parks & Outdoor Recreation Built Assets*

Service	Asset Type	Very Good	Good	Fair	Poor	Very Poor	Not Currently Assessed	Total
Active Recreation Facilities	Tennis	$1.8	$0.3	$0.3	$0.7	$1.9	$0.0	$5.0
	Basketball	$0.0	$0.1	$0.2	$0.5	$0.9	$0.7	$2.4
	Baseball	$0.0	$0.9	$1.5	$0.9	$0.0	$0.0	$3.3
	Softball	$0.0	$1.2	$8.5	$1.3	$5.2	$0.0	$16.0
	Soccer	$0.1	$0.2	$2.0	$0.6	$0.6	$0.0	$3.5
	Outdoor Rink	$0.0	$0.0	$0.0	$0.0	$0.0	$2.4	$2.4
	Beach Volleyball	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1
	Cricket	$0.0	$0.0	$0.0	$0.7	$0.0	$0.0	$0.7
	Rugby	$0.0	$0.7	$0.0	$0.0	$0.0	$0.0	$0.7
	Pickleball	$0.0	$0.0	$0.5	$0.0	$0.0	$0.0	$0.5
	Football	$0.0	$0.0	$0.0	$0.0	$0.0	$0.7	$0.7
	Skate Park	$0.0	$0.0	$0.2	$0.0	$1.0	$0.0	$1.2
	Splash Pad	$0.0	$0.8	$0.0	$0.0	$0.8	$0.0	$1.6
	Playground	$0.0	$23.0	$0.0	$0.0	$0.0	$0.0	$23.0
Sub-Total		$1.9	$27.2	$13.1	$4.7	$10.4	$3.8	$61.1
Park Vehicular and Pedestrian Network	Bridges	$0.0	$0.0	$0.0	$0.0	$0.0	$2.5	$2.5
	Stairs	$0.0	$0.0	$0.0	$0.0	$0.0	$1.7	$1.7
	Trails & Pathways	$0.0	$4.1	$5.4	$2.2	$0.0	$10.1	$21.8
	Hard Surfaces	$0.9	$0.1	$0.0	$0.0	$0.0	$0.8	$1.9
	Park Parking Lots	$0.0	$0.8	$0.9	$1.2	$0.0	$2.7	$5.6
	Dock	$0.0	$0.0	$0.0	$0.0	$0.0	$2.8	$2.8
	EV Charging Stations	$0.0	$0.0	$0.4	$0.0	$0.0	$0.0	$0.4
Sub-Total		$1.0	$4.9	$6.7	$3.5	$0.0	$20.7	$36.8
Other	Park Structure	$1.0	$0.3	$0.2	$0.5	$0.1	$0.0	$2.1
	Fencing	$0.0	$0.0	$0.0	$0.0	$0.0	$14.2	$14.2
	Utility Lines	$0.0	$0.0	$0.0	$0.0	$0.0	$1.8	$1.8
	Electric Service Panels	$0.0	$1.3	$0.2	$0.2	$0.0	$0.0	$1.7
	Scoreboard	$0.0	$0.0	$0.0	$0.0	$0.0	$0.1	$0.1
	Boat Launch	$0.1	$0.0	$0.0	$0.1	$0.0	$0.0	$0.2
	Park Furniture	$0.3	$0.0	$0.0	$0.0	$0.3	$0.0	$0.6
	Shoreline Protection	$0.0	$0.0	$0.0	$0.0	$0.0	$4.4	$4.4
	Wastewater Systems	$0.2	$0.1	$0.7	$0.3	$0.1	$0.0	$1.4
Sub-Total		$1.5	$1.7	$1.1	$1.1	$0.4	$20.5	$26.4
Total		$4.4	$33.8	$20.9	$9.3	$10.8	$45.0	$124.2

*Totals may not add up due to rounding

2.3 Parks & Outdoor Recreation – Natural Areas and Maintained Parkland

Natural Areas and Maintained Parkland assets include green infrastructure assets such as woodlots, trees, open space, and ponds. As detailed in Table 2-7, the estimated replacement value of the City's Natural Area and Maintained Parkland assets is $186.2 million. The inventory for Natural Areas and Maintained Parkland is based on the City's Park Polygon layer. A future improvement initiative is to review opensource files (e.g., wetlands / woodland) and other more detailed ecological based mapping (e.g., ecological land classification), which may provide a more accurate representation of natural assets, based on visual inspection with satellite imagery. Incorporating this spatial information into the Park Polygon GIS layer could improve the accuracy of these datasets and therefore the state of infrastructure analysis.

For woodlands and wetlands, the replacement costs are established based on estimated restoration costs published in the Ecological Offsetting Policy by Lake Simcoe Region Conservation Authority (July 2021). Artificial and natural ponds are assumed to have the same costs as wetlands. The ecological offsetting values align within the ranges of estimated costs published by Credit Valley Conservation (Life Cycle Costing of Restoration and Environmental Management Actions: Costing Natural Assets in Peel Region (Dec 2020)). For natural asset types not covered by the Ecological Offsetting Policy, unit costs are based on ranges of costs provided in the Credit Valley Conservation report. These evaluations are restoration costs and do not include intangible service value benefits such as carbon sequestration.

The City's inventory of park trees consists of 6,679 trees. A future improvement initiative is included in Section 7 to improve this inventory, including adding the Arboretum and the new waterfront trees that were planted when the City revitalized the waterfront and Military Heritage Park. Tree replacement value is estimated using the City's Tree Appraisal methodology per the Tree Protection Manual (2019), which applies unit costing per basal area for deciduous trees ($30.6 per cm^2 based on $100/cm DBH for a 50cm tree) and per meter height ($160/m) for conifers. Replacement value is adjusted by factors based on species type, location, and condition. This appraisal method is a peer reviewed method that is often used for insurance claims and tax deduction purposes. In comparison, a one-for-one replacement cost approach using a standard tree replacement of $1350 per tree, irrespective of the size of the tree being replaced, would result in a street and park tree valuation of $56.1 million (44% of the appraisal per the City's Tree Protection Manual in Table 2-7).

Table 2-7: Inventory of Natural Areas and Maintained Parkland Assets

Service	Asset Type		Quantity	Unit	Replacement Value ($M)*	Unit Cost
Maintained Parkland	Turf		189.1	hectares	$25.9	$137,000/ha***
	Gores		2.4	hectares	$0.3	$137,000/ha***
	Gardens	Reverse Lot Frontages	8.3	hectares	$1.1	$137,000/ha***
		Landscape Features	1.8	hectares	$0.3	$137,000/ha***
	Beach		1.0	hectares	$0.04	$34,100/ha
	Artificial Ponds		0.4	hectares	$0.04	$95,000/ha**
Sub-Total					$27.7	
Natural Areas	Urban Forest	Street Trees	34,900	Street Tree	$79.5	Per Tree Protection Manual
		Park Trees	6,679	Park Tree	$28.6	Per Tree Protection Manual
	Woodlot		797.7	hectares	$39.9	$50,000/ha**
	Wetlands and Natural Ponds		62.8	hectares	$6.0	$95,000/ha**
	Open Space		256.8	hectares	$4.6	$18,000/ha***
Sub-Total					$158.5	
Total					$186.2	

*Totals may not add up due to rounding

**Ecological Offsetting Policy (Lake Simcoe Region Conservation Authority)

***Credit Valley Conservation

2.3.1 Age

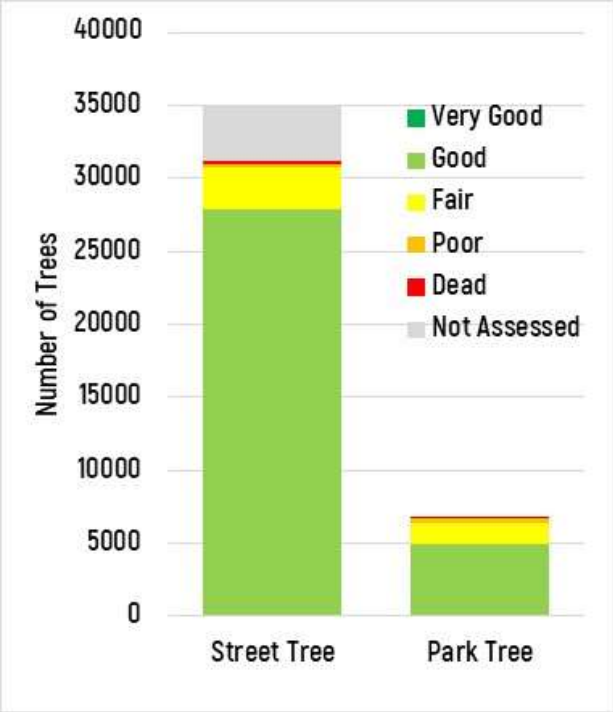
The age of most natural assets is not applicable as there is no construction or installation date. The only assets with an age assessment are street and park trees, which are assessed as young, mature, or over-mature in the GIS datasets. The replacement value of the City's street and park trees is summarized by tree age class in Figure 2-4. The replacement value of street trees is relatively balanced between young and mature trees, while the majority of park tree replacement value is associated with mature trees.

Figure 2-4: Replacement Value by Tree Age Class – Street and Park Trees

2.3.2 Condition

Street and park trees are assessed on a Very Good, Good, Fair, Poor, and Dead rating scale. As shown in Figure 2-5, street and park trees are almost all in fair or better condition. Figure 2-5 shows the street and park tree by number of trees.

Figure 2-5: Condition Distribution – Street and Park Trees (by Number of Trees)



Aside from trees, condition data is not maintained for most natural assets and maintained parkland. The City has completed Forest Health Assessments for some of the City owned woodlots using a risk-based approach by focusing on critical areas susceptible to Emerald Ash Borer and human impacts. These assessments provide a rating on a three-point scale: (1) Healthy, (2) Moderately healthy, and (3) Health is affected by obvious forest health issues. This work represents best practices and it is recommended that the City continue these assessments using a risk-based approach. Most of the woodlots assessed are in healthy (Very Good) condition.

The detailed value of assets in each condition rating, including those assets not assessed for condition, is provided in tabular format in Table 2-8. A different condition profile for trees by replacement value versus by the number of trees is the result of larger trees being weighted higher when analysed by value. Also, trees not assessed for condition are not assigned a replacement value based on the appraisal method (a condition adjustment factor is not assigned) and therefore, the 'not assessed' trees are only represented when summarized by number of trees.

Table 2-8: Condition Overview by Replacement Value (Table Format) – Natural Areas and Maintained Parkland ($M)*

Service	Asset Type		Very Good	Good	Fair	Poor	Very Poor	Not Assessed	Total
Maintained Parkland	Turf		$0.0	$0.0	$0.0	$0.0	$0.0	$25.9	$25.9
	Gores		$0.0	$0.0	$0.0	$0.0	$0.0	$0.3	$0.3
	Gardens	Reverse Lot Frontages	$0.0	$0.0	$0.0	$0.0	$0.0	$1.1	$1.1
		Landscape Features	$0.0	$0.0	$0.0	$0.0	$0.0	$0.3	$0.3
	Beach		$0.0	$0.0	$0.0	$0.0	$0.0	$0.04	$0.04
	Artificial Ponds		$0.0	$0.0	$0.0	$0.0	$0.0	$0.04	$0.04
Sub-Total			$0.0	$0.0	$0.0	$0.0	$0.0	$27.7	$27.7
Natural Areas	Urban Forest	Street Trees	$0.2	$72.0	$6.5	$0.7	$0.1	$0.0	$79.5
		Park Trees	$0.0	$23.7	$4.3	$0.5	$0.0	$0.0	$28.6
	Woodlot		$6.3	$0.0	$1.2	$0.0	$0.0	$32.4	$39.9
	Wetlands and Natural Ponds		$0.0	$0.0	$0.0	$0.0	$0.0	$6.0	$6.0
	Open Space		$0.0	$0.0	$0.0	$0.0	$0.0	$4.6	$4.6
Sub-Total			$6.5	$95.7	$12.0	$1.2	$0.1	$42.9	$158.5
Total			$6.5	$95.7	$12.0	$1.2	$0.1	$70.6	$186.2

*Totals may not add up due to rounding

2.4 Facilities

This section covers buildings across City Service Areas including Recreation & Culture, Corporate, Emergency, Library, Environmental, and Parks. Table 2-9 summarizes the $1.22 billion estimated replacement value of the City's facilities and includes a breakdown of the inventory by Service Area. The value of each facility is based on unit costs per building area as shown in Table 2-9. Similar unit construction costs were generally applied to similar types of facilities, with some modifications based on 2016 building condition assessments that provided information on facility differences.

Sitework costs are also considered in the overall facility replacement value based on typical unit costs. Site costs typically range from $26 to $43/sq.ft., but lower site unit costs were applied to some facility sites such as the operations facilities, Barrie Sports Complex, and Sadlon Arena. A $90/sq.ft. site cost was applied to the City Hall Ice Rink and for parks facilities, sitework was assumed to cost 10% of the facility replacement value. Additional review of unit construction costs and modifying costs by individual facility is recommended for future updates to the replacement values. For ease of reporting purposes, ice rink equipment (valued at $420,000) which is managed by the Recreation and Culture Department, is captured as part of the City Hall Ice Rink under Corporate Facilities in this State of Infrastructure summary.

Table 2-9: Inventory of Facilities

Service Area	Quantity	Unit	Replacement Value ($M)	Facility Unit Cost
Recreation & Culture Facilities	12	**Facilities**	$570.3	$734-$821/sq.ft.
Corporate Facilities	7**	**Facilities**	$240.3	$778-$959/sq.ft. 56 Mulcaster: $622/sq.ft. Collier St Parkade: $389/sq.ft.
Emergency Facilities	7	**Facilities**	$184.7	Fire, Barrie-Simcoe Emergency Services: $821/sq.ft. Police Training: $351/sq.ft.
Operations Facilities	2	**Facilities**	$147.7	Landfill: $475/sq.ft Operations Centre: $389/sq.ft.
Library Facilities	2	**Facilities**	$60.0	$864/sq.ft.
Parks Facilities	15	**Facilities**	$16.7	$778/sq.ft.
Total	**44**		$1,219.8*	

*Totals may not add up due to rounding

**City Hall and City Hall Rink building are counted as one facility

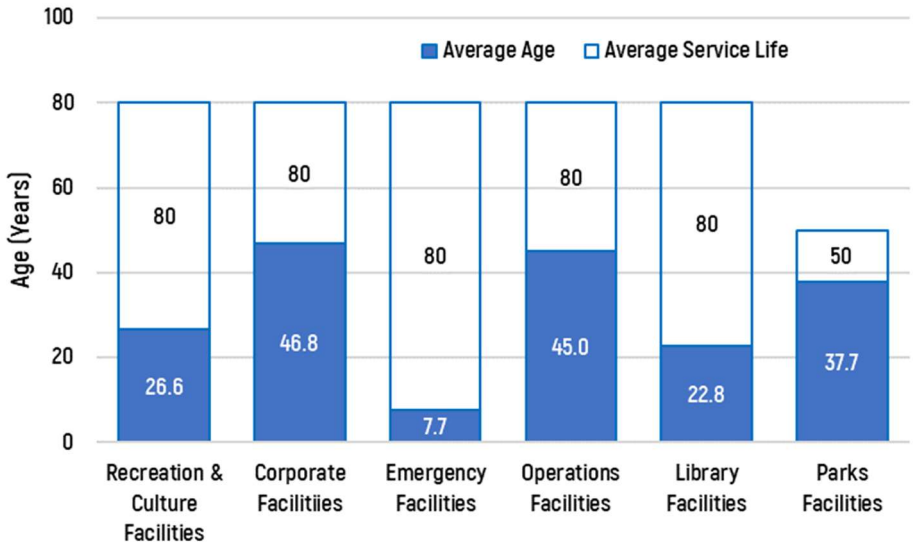
Leased facilities are not included in the $1.22 billion valuation of 44 facilities summarized in Table 2-9. Leased facilities may still require work under City responsibility and these renewal requirements are included in the Lifecycle and Financial Strategy sections of the AM Plan. Leased facilities include:

- MLPS / Court
- POA
- POA - Orillia Branch
- Fire Station # 5

2.4.1 Age

The average age of the City's Facilities, weighted by replacement value, is summarized in Figure 2-6. This analysis is based on the age of each overall facility rather than age of the individual assets within each facility. Corporate facilities are on average the oldest City facilities.

Figure 2-6: Average Age – Facilities



2.4.2 Condition

The condition for facilities is based on the Facility Condition Index, a condition grade evaluated for each facility as a whole (rather than asset-by-asset), and is calculated based on the following formula:

$$\text{FCI} = \left[\frac{\text{Current Need + (Planning Years 1 + 2 Need)}}{\text{Current Replacement Value of Facility}} \right]$$

Where: **Current Need:** Deferred maintenance and repair/renewal requirements within current fiscal year (based on Facility Condition Assessment (FCA) forecast, inflated to 2022 dollars and increased for soft costs)

Planning Years 1 and 2 Need: Maintenance and repair/renewal requirements in the next two Planning Years (based on FCA forecast, inflated to 2022 dollars and increased for soft costs)

Current Replacement Value: Overall facility replacement cost (like-for-like)

The Current Need and Planning Years 1 and 2 Need are based on the forecasted renewal needs from:

- Recreation facilities: RFAM (Useful Date)
- Corporate, Emergency, Environmental, and Library: 2016 FCAs for building envelope/site assets and Archibus for equipment assets. The value of projects completed since 2016 were taken into account to reduce the forecasted needs.
- Park facilities: 2016 FCAs. The value of projects completed since 2016 were taken into account to reduce the forecasted needs.

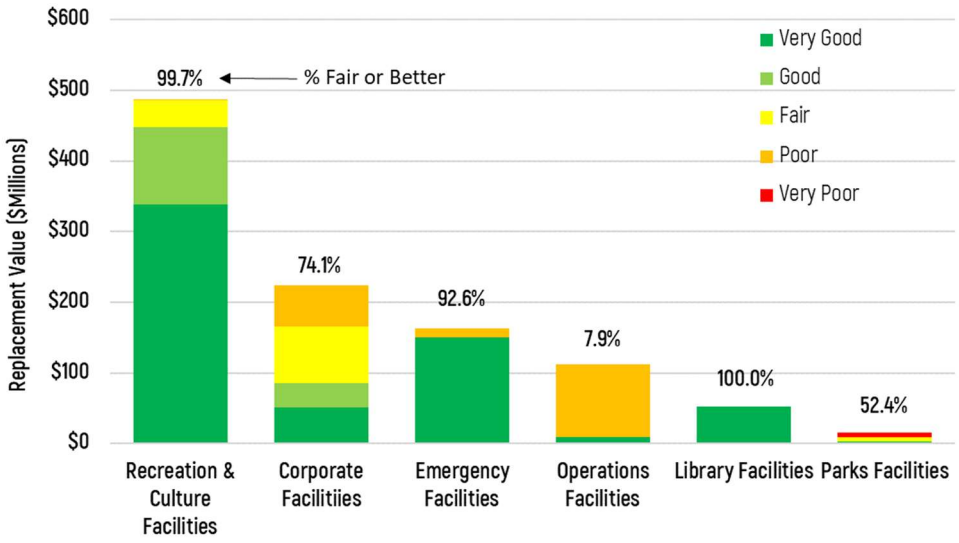
The FCI is converted to a Very Good to Very Poor condition rating based on the following conversion table:

Table 2-10: Conversion Table for Condition Grades and Facility Condition Index

Condition Grade	Facility Condition Index
Very Good	0 to 5%
Good	6 to 10%
Fair	11 to 15%
Poor	16 to 30%
Very Poor	>30%

The condition distribution of the City's Facilities based on FCI is summarized in Figure 2-7. In general, the facilities are in good condition except for Park and Operations facilities, which have a higher proportion of assets in Poor and Very Poor condition based on FCI.

Figure 2-7: Condition Distribution – Facility Assets*



*Excludes site assets, which are not included in FCI calculation

To supplement Figure 2-7, the FCI for each facility is provided in Table 2-11.

Table 2-11: Facility Condition Index

Service	Facility	FCI	Condition
Recreation & Culture	Theatre - Mady Community	0.6%	Very Good
	Allandale Rec-Centre	8.0%	Good
	Barrie Molson Centre	4.0%	Very Good
	Barrie Sports Complex (Midhurst)	10.8%	Fair
	Dorian Parker Community Centre	11.1%	Fair
	East Bayfield Rec-Centre	4.9%	Very Good
	Eastview Arena	3.0%	Very Good
	Holly Rec Centre	1.9%	Very Good
	Lampman Lane Community Centre	7.8%	Good
	Parkview Seniors-Facility	11.2%	Fair
	South Shore Community Centre	10.5%	Fair

Service	Facility	FCI	Condition
	Sports Dome (building)	25.6%	Poor
Corporate Facilities	Allandale Station	22.2%	Poor
	Armouries Building	14.5%	Fair
	City Hall	10.3%	Fair
	City Hall - 56 Mulcaster	7.9%	Good
	Collier Street Parkade	0.0%	Very Good
	City Hall - Rink	6.9%	Good
	Maclaren Art Centre	8.1%	Good
	29 Sperling Drive	17.0%	Poor
Emergency Facilities	Barrie Police - Training & Storage	20.7%	Poor
	Fire Station # 1 - HQ	0.6%	Very Good
	Fire Station # 2	18.8%	Poor
	Fire Station # 3	1.7%	Very Good
	Fire Station # 4	4.1%	Very Good
	Barrie-Simcoe Emergency Services Campus	2.6%	Very Good
Operations Facilities	Environmental Centre - Landfill	3.5%	Very Good
	Operations Centre	15.3%	Poor
Library Facilities	Library - Main	3.2%	Very Good
	Library - Painswick Satellite	0.0%	Very Good
Parks Facilities	Bayfield Dock	10.6%	Fair
	Centennial Beach Concession	52.9%	Very Poor
	Centennial Beach Washroom	10.9%	Fair
	Heritage	24.7%	Poor
	Johnson Beach	94.9%	Very Poor
	Macmorrison	118.0%	Very Poor
	Marina	0.5%	Very Good
	Minets Point	46.2%	Very Poor
	Queens Park	2.3%	Very Good
	Sea Cadets Building	33.5%	Very Poor
	Shear	131.6%	Very Poor
	St. Vincent	0.0%	Very Good
	Sunnidale Park	28.4%	Poor
	Tiffin Boat Launch	133.8%	Very Poor
	Tyndale	11.2%	Fair

3 Understanding Levels of Service

In the State of Infrastructure Section, the value, age, and condition of the City's infrastructure assets were discussed. The Levels of Service (LOS) chapter builds on the State of Infrastructure by defining the performance the City's assets are intended to deliver over their service lives. For example, the City's active recreation facilities are expected to be maintained in a state of good repair such that residents can access suitable facilities and participate in various sports activities.

LOS are statements that describe the outputs and objectives the City intends to deliver to its residents, businesses, and other stakeholders.

In general, LOS are guided by a combination of customer expectations, legislative requirements, internal policies and procedures, and affordability. Effective asset management requires that LOS be formalized and supported through a framework of performance measures, performance levels, and timeframes to achieve performance levels, such that the costs to deliver the documented LOS can be understood.

A key goal is to ensure accountability and transparency to support responsible governance as part of the City's 2022 to 2026 Strategic Plan. Developing, monitoring, and reporting on LOS are all integral parts of an overall performance management program which aims to continue to improve service delivery and demonstrate financial accountability to the City's stakeholders.

3.1 Levels of Service and Line of Sight

Figure 3-1 shows the LOS framework and line of sight from high-level Corporate initiatives to detailed asset-specific Technical LOS. Corporate commitments, along with legislated LOS guide Community LOS that describe the services that the assets need to deliver to the City's residents and businesses. Community LOS can typically be categorized to one of the following service attributes:

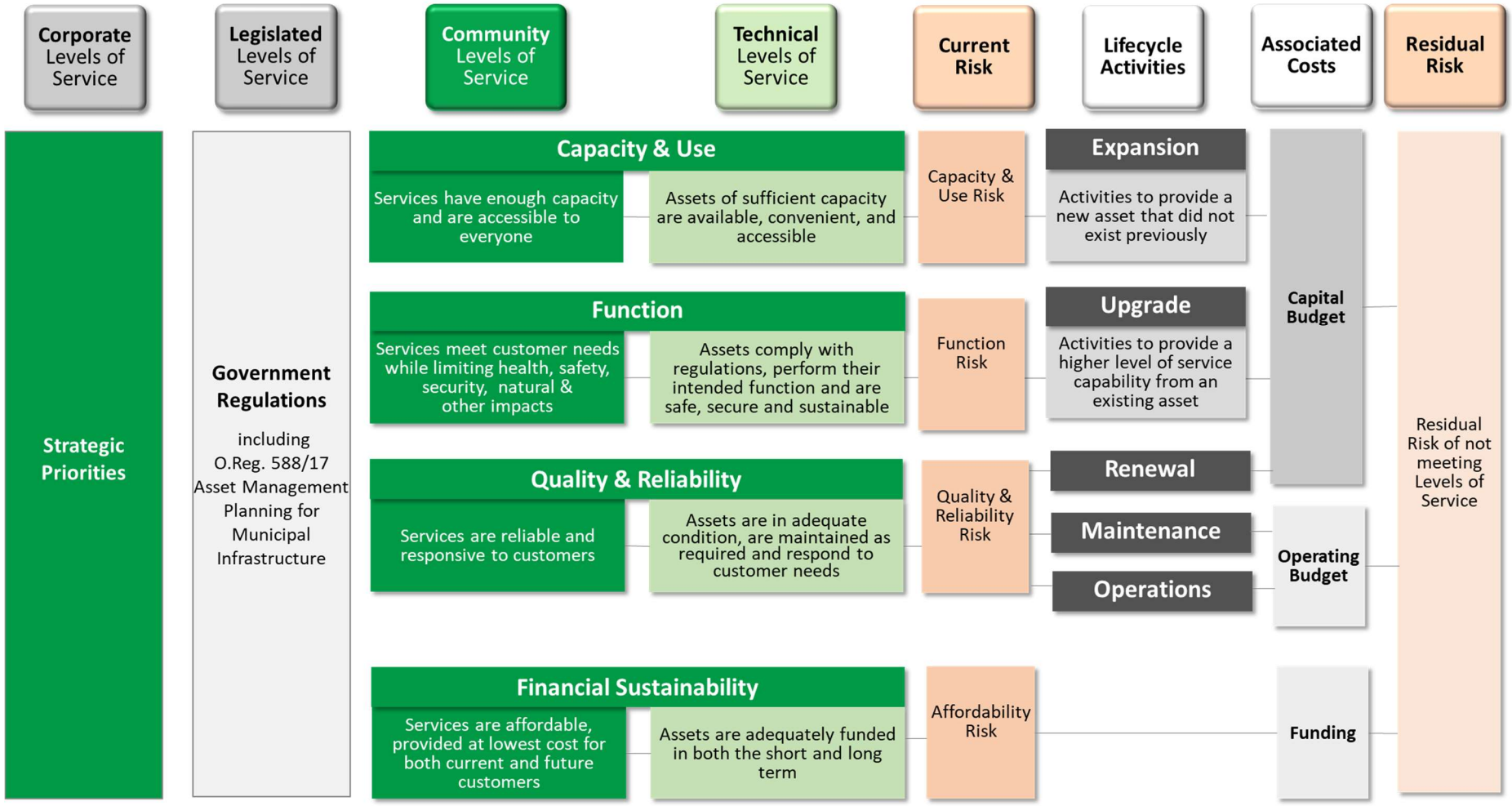
- **Capacity & Use:** Services have enough capacity and are accessible to the customers
- **Function:** Services meet customer needs while limiting health, safety, security, natural and heritage impacts
- **Quality & Reliability:** Services are reliable and responsive to customers
- **Financial Sustainability:** Services are affordable and provided at the lowest cost for both current and future customers

Community LOS are translated into Technical LOS that define asset performance levels, which in turn define asset needs and drive the required lifecycle activities and funding to mitigate risk. As shown in Figure 3-1:

- Capacity & Use LOS informs **Growth** needs
- Function LOS informs **Upgrade** needs
- Quality & Reliability LOS informs **Renewal, Operations and Maintenance** needs
- Financial Sustainability LOS informs **Funding** needs

Lifecycle management activities balance the cost of service with the risk to meeting service levels. This Line of Sight establishes the connection of how the day-to-day management of City assets contributes to the success of achieving corporate strategic priorities.

Figure 3-1: Levels of Service Framework



3.2 Corporate Levels of Service

The Corporate, or Strategic LOS establish service levels that describe the main vision or objective of service delivery at the City. The City's 2022-2026 strategic priorities and supporting goals were adopted in December 2022. The following are key supporting goals that provide strategic direction on the City's facilities, parks, and outdoor recreation assets:

Strategic Priority	Supporting Goals
Affordable Place to Live	• Encourage a range of housing options to make housing attainable • Open for business environment to help encourage job creation
Community Safety	• Support neighborhood safety and crime prevention • Work with our partners to implement community safety and well-being plan
Thriving Community	• Champion equity, diversity, and inclusion • Create and foster programs and opportunities to support community wellness • Foster growth in arts and culture • Expand and maximize access to parks and recreation opportunities • Continue to support a vibrant downtown
Infrastructure Investments	• Make it easier to move around the city • Update and improve infrastructure • Support active transportation and pedestrian connections • Implement climate action plans
Responsible Governance	• Support the services our community needs while keeping tax increases low • Maintain focus on city core services • Financial stewardship which includes finding efficiencies and innovation • Advocating to other levels of government for support • Ensure accountability and transparency

These priorities set a framework for the required actions that enable the City to provide relevant and high quality services to the community. The priorities are supported by other City planning goals including the following:

Climate Change Adaptation Strategy

- Goal 3: Strengthen infrastructure resilience
- Goal 5: Protect biodiversity and enhance ecosystem functions

Parks and Recreation Master Plan

- Goal 6: To protect and enhance the physical assets that allows for full community participation in parks, recreation and leisure pursuit
- Goal 7: To protect and sustain the environment through parkland acquisition and development, greening strategies and stewardship efforts

Tourism Master Plan (2020)

- Recommendation 3.1: Fully leverage Sadlon Arena as a catalyst venue for sport event attraction through a long-term event attraction plan that includes mid-size concerts, ice sports as core (hockey, figure skating, curling and ringette) and valuation of secondary sport and entertainment options.

- Recommendation 3.4: Invest in Barrie's outdoor natural parks and water assets, which offer high value to visitors seeking trails, cycling paths, lakeside beaches, angling, and pleasure boating amenities
- Recommendation 3.5: Invest in the development and support of live entertainment venues, ensuring that destination marketing & promotion efforts continue to highlight the City's live entertainment asset.
- Recommendation 3.6 Explore and evaluate the redevelopment of City lands to build a City-owned arts and conference centre.

Legislated requirements define the standards according to which the City is legally obligated to provide services to the community, and these standards typically relate to asset safety, reliability, or function. For example, public agencies such as municipalities are required to report their energy consumption and greenhouse gas (GHG) emissions as part of an Energy Conservation and Demand Management Plan under O.Reg. 507/18.

3.3 Services Overview

3.3.1 Parks & Outdoor Recreation

The City is home to an extensive network of parks, outdoor recreation assets, and natural areas including over 300 hectares of park space, 800 hectares of forests, 250 hectares of open spaces, 62 hectares of wetlands and natural ponds, and 88 km of public trails as well as 104 playgrounds, 2 skate parks, 2 splash pads, and a multitude of sports facilities for activities like baseball, soccer, tennis, pickleball, beach volleyball, rugby, cricket, skating, and basketball. These amenities provide a wealth of opportunities for recreational and social activities while also preserving and protecting the natural assets that play a crucial role in mitigating the urban heat island effect, enhancing water quality, and fostering biodiversity.

The Ardagh Bluffs Recreational Trail System, North Shore Trail, Waterfront Heritage Trail, among others, as well as access to the Trans Canada Trail and the Nine Mile Portage Trail offer diverse recreational experiences, connecting residents to the area's rich history and Indigenous culture. The City's environmental stewardship and community engagement are further showcased through initiatives such as the City's Bee City designation, community gardens, seed boxes, naturalization projects within parks, and the first and only Blue Flag-designated marina on Lake Simcoe. The City has also earned recognition for its commitment to civic pride, environmental responsibility, and community beautification through its consistent Five Bloom ranking and multiple awards from Communities in Bloom. Additionally, the City provides electric vehicle charging stations across multiple locations to enable and promote more sustainable choices by its citizens and visitors.

By prioritizing the maintenance and development of its parks, outdoor recreational amenities, and natural areas, the City provides excellent services to support the health, well-being, and enjoyment of its citizens while preserving and enhancing the natural environment.

3.3.2 Facilities

The City's facilities play a role in ensuring the smooth functioning and delivery of essential services to the community. These facilities encompass a diverse array of spaces, such as offices for City staff in Infrastructure, Planning, Building services, and others, as well as critical operations facilities that oversee environmental services, landfill operations, stormwater, roads, and parks operations. The City's recreation and culture facilities, including recreation centres, event spaces, and theatres, enrich the lives of residents and foster community engagement. Emergency services, including the police and fire departments, depend on these facilities to safeguard the City and its people. Finally, libraries and parks facilities, including parks washrooms, contribute to the community's wellbeing and quality of life. In essence, the City's facilities are the backbone of every service provided by the City of Barrie.

3.4 Community and Technical Levels of Service

The Community and Technical LOS discussed in this AM Plan are focused on measures developed to support achievement of the City's higher level strategic priorities. This AM Plan summarizes performance on the current measures for 2021, unless otherwise noted. The City will be completing key planning documents, such as the Parks Strategic Plan that will investigate setting targets, aligned with O.Reg.588/17 requirements for Proposed LOS in 2025.

3.4.1 Parks & Outdoor Recreation (Built Assets)

The Community and Technical LOS discussed in this AM Plan are focused on measures developed to support achievement of the City's higher level strategic priorities. This AM Plan summarizes the performance on the measures for 2021, or a more appropriate year depending on the effects of the Covid pandemic. The City will determine targets (proposed service levels) per O.Reg.588/17 requirements for Proposed LOS by 2025 and will align service levels with information in other planning documents when determining these targets.

Capacity & Use Levels of Service

Table 3-1 summarizes Community and Technical Capacity-related LOS related to Parks & Outdoor Recreation Built assets which ensure that services have enough capacity and are accessible to the community. Considering the City's growing population, evolving demographics, recreation trends, and changes to facility inventories, the City maintains a suitable number of active recreation facilities per resident to ensure that the City's portfolio is aligned with current and future needs. For some active recreation facilities, the number of residents is adjusted to the number of target users, such as pickleball which focuses on the number of courts for the 55 years and older population and playgrounds/splash pads for children up to 9 years old. A comparison of the number of facilities to population ratios versus other Ontario municipalities is provided in Table 3-1 based on the 2019 Outdoor Recreation Facility Study which included a summary of sports facilities for seven Ontario municipalities. The City of Barrie generally provides more facilities per population for all facility types except splash pads. The City also tracks utilization rates to further understand capacity issues related to active recreation facilities such as baseball, softball, soccer, tennis, and beach volleyball. Consideration of additional drop-in play that does not require permits further increases the currently reported utilization numbers. Usage at active recreation facilities such as outdoor rinks, basketball courts, and the cricket pitch are generally based on drop-in play and therefore not formally tracked for utilization.

The City currently maintains 77km of primary and secondary trails, and a total of approximately 140km including tertiary (mainly dirt) trails. This inventory has increased significantly over the past years with the addition of the annexed lands.

Table 3-1: Parks & Outdoor Recreation Built Assets Levels of Service – Capacity & Use

<table>
<tr><th>Community Service Measures</th><th>Technical Levels of Service</th><th colspan="3">2021 Performance</th></tr>
<tr><td rowspan="14">An adequate provision of Parks & Outdoor Recreation facilities is available to the community. Trails provide year-round recreational opportunities for residents and visitors to access and enjoy public greenspace through a comprehensive and connected citywide system.</td><td rowspan="10">Number of residents (or target population) per facility</td><td>Outdoor Facility</td><td>City of Barrie</td><td>Other Municipalities*</td></tr>
<tr><td>Tennis</td><td>1 : 4224 (Full Population)</td><td>1 : 5097</td></tr>
<tr><td>Basketball</td><td>1 : 604 (10 to 19 years)</td><td>1 : 1003</td></tr>
<tr><td>Baseball / Softball</td><td>1 : 3520 (Full Population)</td><td>1 : 3637</td></tr>
<tr><td>Soccer (incl football, rugby)</td><td>1 : 2527 (Full Population)</td><td>1 : 2955</td></tr>
<tr><td>Outdoor Rink</td><td>1 : 3995 (Full Population)</td><td>1 : 48,387</td></tr>
<tr><td>Beach Volleyball</td><td>1 : 16,425 (Full Population)</td><td>1 : 28,765</td></tr>
<tr><td>Cricket</td><td>1 : 147,829 (Full Population)</td><td>1 : 155,600</td></tr>
<tr><td>Pickleball</td><td>1 : 7201 (55+years)</td><td>1 : 34,976</td></tr>
<tr><td>Skate Park</td><td>1 : 9053 (10 to 19 years)</td><td>1 : 14,260</td></tr>
<tr><td>Splash Pad</td><td>1 : 7865 (0 to 9 years)</td><td>1 : 3807</td></tr>
<tr><td>Playground</td><td>1 : 146 (0 to 9 years)</td><td>1 : 182</td></tr>
<tr><td rowspan="5">Utilization Rate (Peak Monthly)</td><td>Outdoor Facility</td><td colspan="2">City of Barrie</td></tr>
<tr><td>Tennis</td><td colspan="2">10.7% (2019)</td></tr>
<tr><td>Baseball / Softball</td><td colspan="2">Minor: 69.2% (peak hours, 2019)
Major: 52.3% (peak hours, 2019)</td></tr>
<tr><td>Soccer (incl football, rugby)</td><td colspan="2">Minor: 29.9% (peak hours, 2019)
Major: 23.3% (peak hours, 2019)</td></tr>
<tr><td>Beach Volleyball</td><td colspan="2">6.7% (2019)</td></tr>
<tr><td># of EV Charging Stations (City-owned) / Utilization Rate</td><td colspan="3">48 City-owned / 107,990 kWh Utilization Rate</td></tr>
</table>

*Based on City's 2019 Outdoor Recreation Facility Study (average performance of 7 Ontario municipalities)

Functional Levels of Service

Table 3-2 summarizes Community and Technical Functional-related LOS related to Parks & Outdoor Recreation Built assets. These measures relate to providing services that meet customer needs while limiting impacts to health, safety, security, and the environment. One of the customer needs is the increasing need for lighted facilities, as there is a growing trend of play times later into the evenings. Currently, the City does not have many lighted basketball or soccer facilities.

In terms of providing a safe environment for the community, playgrounds are regularly inspected to ensure safety compliance with CSA standards. Any deficiencies that pose an immediate hazard are reported immediately to the Playground Technician, clearly identified, and, if necessary, barricaded to prevent use and potential injury. Corrective work orders are initiated and completed to maintain expected service levels. The City completed 100% of CSA playground inspections on-time in 2022.

Shoreline protection provides safety and security to the City from flooding events, and the City currently has 11.4 km of the shoreline protected with metal sheet piling (with riprap), riprap only, or concrete.

Table 3-2: Parks & Outdoor Recreation Built Assets Levels of Service – Functional

Community Service Measures	Technical Levels of Service	2021 Performance**	
Playgrounds meet regulated requirements	**% of CSA mandated playground inspections completed on-time**	100% (2022)	
Active recreation facilities are provided with adequate features	**% of active recreation facilities that are lighted**	Tennis	77.1%
		Basketball	30.0%
		Baseball, Softball	47.1%
		Soccer (incl football, rugby)	5.3%
		Outdoor Rink*	100.0%
		Beach Volleyball	0.0%
		Cricket	0.0%
		Pickleball	0.0%
Community is resilient to climate change impacts	**km of shoreline protected**	11.4 km: -Riprap: 10.60 km -Metal Sheet Piling with riprap: 0.63 km -Concrete: 0.16 km	

*The City's two owned outdoor rinks are lighted; other outdoor rinks in the Community not owned by City are not considered.
**unless otherwise noted

Quality & Reliability Levels of Service

Table 3-3 summarizes Community and Technical Quality and Reliability-related LOS which ensure services are reliable and responsive to the community. 56.1% of active recreation facilities are estimated to be in fair or better condition in 2022 based on their age. The detailed condition profile for each asset type was presented in Section 2 and is summarized in Table 3-3 for those active recreation facilities for which condition was estimated.

The City implements various Standard Operating Procedures for maintaining its parks. Grass cutting procedures, which are typically on a 7-day frequency, improves the turf and provides a natural environment in the parks for the community to enjoy a variety of recreational activities. The City has also adopted the practice of mulching leaves within its parks to improve turf health and beautification of the parks. High-profile turf areas such as turf on the waterfront and community parks are fertilized four times a year to maintain high functional and aesthetic standards. A measure for future consideration by the City is the reporting of operating costs per hectare (unit area) for different park classes (neighbourhood vs community, etc.).

Table 3-3: Parks & Outdoor Recreation Built Assets Levels of Service – Quality & Reliability

Community Service Measures	Technical Levels of Service	2022 Performance	
Parks & Outdoor Recreation assets are in a state of good repair to provide reliable services to the community.	**Percentage in Fair or Better Condition (Active Recreation Facilities) – by asset value**	Tennis	48.3%
		Basketball	15.5%
		Baseball	72.7%
		Softball	60.0%
		Soccer	65.6%
		Beach Volleyball	77.8%
		Cricket	0%
		Rugby	100%
		Pickleball	100%
		Skate Park	13.7%
		Splash Pad	48.8%
		Overall	56.1%

3.4.2 Parks & Outdoor Recreation – Natural Areas and Maintained Parkland

Natural assets and maintained parklands provide a wide array of services to a community. These services are generated from the functioning of ecosystems. For instance, natural areas and other maintained parkland (i.e. urban greenspace) have pervious surfaces and subsurface soil structure that supports the infiltration of water and can significantly reduce and slow the speed of surface runoff. Many of these ecosystem functions can be linked to community service measures relevant to asset management. In the surface runoff example, the existence of natural areas and maintained parkland can significantly contribute to a community's stormwater management related service provision.

One of the advantages of natural assets is that a single asset can provide multiple benefits and services to a community. By comparison, built infrastructure assets are typically designed to serve one main purpose. While such benefit stacking helps make natural assets a compelling solution for community service delivery, it presents some challenges in how to fit them into an AM Plan. The City is currently developing a natural assets report to build conceptual groundwork and provide a framework for the City to continue its progress toward incorporating natural assets into asset management planning. As a starting point, this AM Plan identifies a selection of community service measures and associated technical level of service indicators for capacity, functional, and reliability levels of service.

Capacity & Use Levels of Service

Table 3-4 summarizes Community and Technical Capacity-related LOS related to natural areas and maintained parkland, which ensure that services have enough capacity and are accessible to the community. For capacity, the defined measure relates to the combined natural assets owned and managed by the City. The capacity level of service is intended to ensure the City maintains an adequate provision of parkland and natural heritage lands for the purpose of supporting community wellbeing, outdoor recreation, and ecological resilience. The 2010 parks and recreation master plan used the area of parkland per 1000 residents as a service level measure, which was reported to be 8.6 hectares of parkland (owned and leased) per 1000 residents. Based on updated population estimates and spatial data on City owned and managed natural assets, this performance measure was estimated to be 8.8 hectares per 1000 residents in 2021. This metric provides an overall sense of the accessibility to, and human pressure on, natural assets. However, additional technical levels of services will need to be developed to provide a more robust measure of accessibility and ecological resilience for natural assets. Future considerations in determining appropriate service levels include the City's initiatives to increase the number of visitors to the City as well as the appropriate balance between tourism and associated impacts on natural assets.

Table 3-4: Natural Areas and Maintained Parkland Levels of Service – Capacity & Use

Community Service Measures	Technical Levels of Service	2021 Performance
An adequate provision of parkland & natural heritage lands is available to the community, contributing to outdoor recreation, general wellbeing, and ecological resilience.	**# of hectares parkland / natural heritage lands per 1000 residents**	**8.8 hectares per 1000 residents (based on the area of City owned and managed woodlots, open space, turf, beach, ponds)**

Functional Levels of Service

Table 3-5 summarizes Community and Technical Functional-related LOS related to natural areas and maintained parkland assets. Functional measures relate to providing services that meet customer needs while limiting impacts to health, safety, security, and the environment. For natural assets, there are a wide range of functional levels of service including the provision of water supply and filtration, support for climate change mitigation through carbon sequestration, or reduced heat stress from the provision of shade. In this AM Plan, percent canopy cover is used as

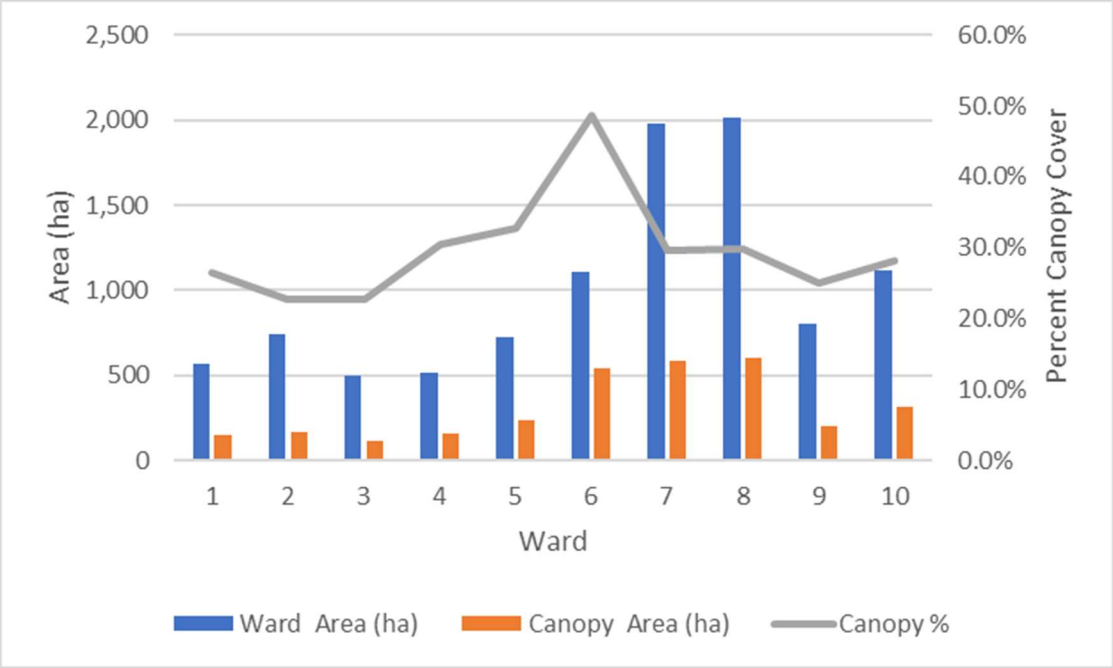
proxy measure for local temperature reduction (the technical level of service) associated with the community service measure of contributing to public health through the provision of shade to reduce heat stress.

Table 3-5: Natural Areas and Maintained Parkland Levels of Service – Functional

Community Service Measures	Technical Levels of Service	2021 Performance
Natural assets contribute to public health by reducing heat stress through provision of shade	Local temperature reduction as measured by percent canopy cover	As of 2018, 30.5% canopy cover across the City of Barrie

Canopy cover information can also be broken down by wards to help assess the spatial distribution and relative access to the provision of shade across the City. As shown in Figure 3-2, ward 6 has the greatest percent of canopy cover (49%). By comparison wards 2 and 3 have the lowest canopy cover with only 23% each.

Figure 3-2: Canopy cover by Ward



Other measures that will be considered in future iterations of this AM Plan include natural asset connectivity and the health of the canopy cover.

- For connectivity, the City's natural heritage policy has identified levels of natural heritage and their classification system. For Secondary Planning Areas, the City has more details on a 'greening strategy' related to closing of the connectivity gaps.
- For health of canopy cover, the City has performed Forest Health Assessments for some areas to assess possible areas where ecological function has declined.

Quality & Reliability Levels of Service

Table 3-6 summarizes Community and Technical Reliability-related LOS related to Natural Areas and Maintained Parkland assets. As a first step toward incorporating natural assets into asset management planning, reliability levels of service have been developed for street and park trees. Two technical levels of service indicators are defined related to ensuring the assets are in a good state of repair. The technical levels of service are to (i) meet the best management practice (BMP) for tree pruning frequency, and (ii) achieve an even-aged age distribution for street and

park trees. Maintaining regular tree pruning cycles are necessary to support the healthy condition and lifecycle management of street and park tree assets. In some years, the City has underperformed with regard to inspections and pruning suggesting that greater attention may be required. Regarding tree age, an even-aged age class distribution of trees within parks and on boulevards is important as it reduces issues of peak year declines due to natural mortality resulting in a more stable management cycle. Given the available information, this measure is based on the distribution of young, mature, and over-mature trees in the inventory. The City intends to update this information every 5 years, which aligns with AM Plan reporting requirements.

Table 3-6: Natural Areas and Maintained Parkland Levels of Service – Quality & Reliability

<table>
<tr><th>Community Service Measures</th><th>Technical Levels of Service</th><th colspan="3">2022 Performance</th></tr>
<tr><td rowspan="6">Parks & street tree assets are in a state of good repair to provide reliable services to the community.</td><td>Average Pruning Cycle for Street Trees (Based on Five-Year Rolling Annual Average)</td><td colspan="3">Average 7.2 year cycle (Average 4874 street trees pruned annually from 2018 to 2022)</td></tr>
<tr><td>Percentage of trees in fair or better condition</td><td colspan="3">98.8% (based on replacement value)</td></tr>
<tr><td rowspan="5">An even-aged age class distribution of trees within parks and on boulevards reduces issues of peak year declines due to natural mortality</td><td></td><td>Street Trees</td><td>Park Trees</td></tr>
<tr><td>Young</td><td>77.4%</td><td>31.5%</td></tr>
<tr><td>Mature</td><td>10.4%</td><td>67.6%</td></tr>
<tr><td>Over-Mature</td><td>0.3%</td><td>0.9%</td></tr>
<tr><td>Unknown</td><td>11.9%</td><td>0.0%</td></tr>
<tr><td></td><td>100.0%</td><td>100.0%</td></tr>
</table>

3.4.3 Facilities

The Community and Technical LOS discussed in this AM Plan are focused on measures developed to support achievement of the City's higher level strategic priorities. This AM Plan summarizes the performance on the measures for 2021, or a more appropriate year depending on the effects of the Covid pandemic. The City will determine targets (proposed service levels) per O.Reg.588/17 requirements for Proposed LOS by 2025 and will align service levels with information in other planning documents when determining these targets.

Capacity & Use Levels of Service

Table 3-7 summarizes Community and Technical Capacity-related LOS related to Facilities assets which ensure that services have enough capacity and are accessible to the community. In light of the City's growing population, evolving demographics, and recreation trends, the City maintains a suitable number of facilities per resident to ensure that the City's portfolio is aligned with current and future needs. The variance in capacity and use across facilities is normalized by adjusting to 'equivalent' units. For example, the rink at Sadlon Arena is considered equivalent to 0.25 units, as it is a special event venue. Lampman Lane Community Centre's smaller gymnasium is counted as a half gym equivalent. Utilization rates are also tracked and used to further understand capacity issues related to facility spaces. The City will consider future capacity and utilization-related measures for police and other corporate facilities.

Service levels related to programming revenues and expenditures are also tracked by the City, such as the number of registrants and total discounts offered to seniors. These measures are not directly related to the lifecycle activities of the facilities but do provide the City with strategic information on how investments into the infrastructure will be funded. As the City develops its Levels of Service framework through future updates of this AM Plan, some of these programming and revenue related measures may be included in the AM Plan to help communicate funding and revenue areas of concern.

Table 3-7: Facilities Levels of Service – Capacity & Use

Community Service Measures	Technical Levels of Service		2021* Performance
An adequate provision of facilities provides services that meet the changing demands of the community.	Number of residents per facility type	Rinks	1 : 20390 (7.25 equivalent units)
		Indoor Aquatic Centres	1 : 49276 (3 equivalent units)
		Gymnasiums	1 : 59132 (2.5 equivalent units)
		Fitness Space	1 : 49276 (3 equivalent units)
	Area (sq.ft.) of library space per capita	Library	0.41 sq.ft. per capita
	Number of theatre seats as percentage of population	Theatre	0.42%
	Utilization Rate	Rinks	77.3%**** (2019 Prime rental hours)
		Indoor Aquatic Centres	80%** (2019)
		Gymnasiums	52.5%**** (2019)
		Meeting Rooms and Multi-Purpose Rooms in Recreation Centres	17.4%**** (2019)
		Special Fitness Studio Spaces	32.1%**** (2019)
		Theatre Days of Use	Five Points: 184 days (2019) Georgian Campus Theatre: 117 days (2019)
		Ancillary Facility Rental Usage (Hall Rentals)***	29.4%**** (2019)

*Unless otherwise noted

**Estimated including drop-in usage

**Four halls (Allandale Recreation Centre, Parkview Community Centre, Dorian Parker Community Centre, South Shore Community Centre)

****Utilization based on number of hours booked divided by the total rental time available based on hours of operation (excluding closures due to holidays or maintenance periods)

Functional Levels of Service

Table 3-8 summarizes Community and Technical Functional-related LOS related to Facilities. These measures relate to providing services that meet customer needs while limiting impacts to health, safety, security, and the environment. One of the key initiatives for the City is energy conservation and reduction. Through the City's Energy Conservation & Demand Management Plan (2020-2024), the City Energy Management Branch (EMB) is mandated to optimize the energy performance of all City owned and operated infrastructure with a goal to reduce utility consumption and the corresponding costs. To monitor the City's energy performance, the City measures facility energy intensity, which reports energy usage on a per unit area (sq.ft.) basis. Energy Cost Avoidance provides a direct dollar savings measure demonstrating costs that were not incurred due to specific actions taken by the City to reduce energy usage.

The City also developed a Community Energy and Greenhouse Gas Reduction Plan which aims to reduce overall GHG emissions for the Barrie community with a goal to become net-zero by 2050. The specific goals of City-owned facilities with respect to net-zero requirements are expected to be defined over the next few years for consideration in future updates to this AM Plan. The City is also currently establishing its goals regarding facility accessibility requirements. All new buildings and major renovations are built to accessibility requirements per the Ontario Building Code, and potential accessibility upgrades are also considered during capital renewal work. As part of its accessibility initiatives, the City considers going above and beyond legal requirements and pursues individual projects that address resident expectations or that are opportunities for demonstrating industry leading practices. .

Table 3-8: Facilities Levels of Service – Functional

Community Service Measures	Technical Levels of Service	2019 Performance
Energy performance of City infrastructure is optimized with a goal to reduce utility consumption and support climate change priorities.	Facility Energy Intensity (ekWh/ft2)	30.1 ekWh/ft2 (2019)
	Energy Cost Avoidance/yr	$241,435 (2019)

Quality & Reliability Levels of Service

Table 3-3 summarizes Community and Technical Reliability-related LOS which ensure services are reliable and responsive to the community. The City also tracks the ratio of scheduled to unscheduled work as an indication of effective lifecycle management of its facility assets. In general, a higher scheduled work ratio indicates that the City has effective preventive maintenance plans in place that reduce unplanned failures resulting in lower lifecycle costs and improved service reliability. In 2021, the City had 43.6% of total hours spent on scheduled work. This performance is expected to increase in future years as facility operations return to a more typical operating environment after the Covid pandemic.

Table 3-9: Facilities Levels of Service – Quality & Reliability

Community Service Measures	Technical Levels of Service	2022* Performance
Facilities assets are maintained in a state of good repair to provide reliable services to the community.	Average Facility Condition Index (weighted by replacement value)	7.0% (Good condition)
	Percentage of Facilities in Fair or Better Condition	82.5%
	Ratio of Scheduled to Unscheduled Maintenance Work (by hours)**	43.6% (2021)

*unless otherwise noted

**for Corporate, Operational, Emergency, Park, and Library facilities

Facilities are maintained in a state of good repair, with an average Facility Condition Index of 7.0% (Good condition). As indicated in the State of Infrastructure, FCI is calculated by:

$$\text{FCI} = \left[\frac{\text{Current Need + (Planning Years 1 + 2 Need)}}{\text{Current Replacement Value of Facility}} \right]$$

Both the needs in the current and planning years, as well as the replacement value of the facility have been increased by the same percentage of soft costs (soft construction costs, project soft costs, and contingency). Table 3-10 summarizes the FCI in more detail by Service in 2022, with park facilities in poorer average condition than other areas.

Table 3-10: Facility Condition Index Comparison (by Service Area)

Service	Facility Condition Index	2022 Condition
Recreation & Culture	5.2%	Good
Corporate Facilities	9.6%	Good
Emergency Facilities	3.5%	Very Good
Operations Facilities	14.1%	Fair
Library Facilities	2.4%	Very Good
Parks Facilities	28.4%	Poor
Overall FCI	**7.0%**	**Good**

3.4.4 Financial Sustainability Service Levels

The City's performance on financial sustainability is discussed in Section 6 as part of the Financial Strategy.

3.4.5 External Trends and Issues Affecting Levels of Service

The City's ability to maintain current service levels may be impacted by external trends and factors. Future updates to the AMP will consider such factors as they occur and incorporate them into the reporting and setting of appropriate service levels.

- **Demographic Factors**: Population and employment changes can impact the intensity and frequency of infrastructure use, resulting in the need for additional infrastructure or more frequent asset renewal strategies.
- **Social and Economic Factors**: Increases in environmentally conscious behaviour and attitudes among residents and businesses can lead to infrastructure that lasts longer and is more efficient. From an economic perspective, higher costs due to increases to the cost of materials and energy can reduce the ability to maintain the same level of service. Population and demographic changes, as well as tourism initiatives will also have potential impacts on required service levels.
- **Technological Factors**: Changes in technology or asset construction, operation, or maintenance methods may lead to the replacement of obsolete equipment or materials, helping to achieve higher quality service levels and better cost efficiencies over the asset lifecycle.
- **Regulatory Factors**: The City is subject to various policies, programs, and legislative decisions issued by other levels of government (i.e., federal, provincial, and regional), and such legislative changes can impact the City's strategic direction and demand for services. Specific asset-related legislation can also impact the required performance levels of assets.
- **Environmental Factors**: The City of Barrie recognizes the threat that climate change poses, both to its internal operations and the community. In 2016, the City developed a Climate Change Adaptation Strategy guided by ICLEI Canada's Building Adaptive and Resilient Communities Framework. In 2017, the City developed an Implementation Plan to complement the Adaptation Strategy to take the City from the planning stages of adaptation to on-the-ground implementation of priority actions. Mitigation and adaptation strategies to climate change will continue to be developed and implemented by the City as climate change impacts are better understood.

4 Risk Management

A key asset management objective is to meet service levels while managing risk and minimizing lifecycle costs. The relative importance of the assets to support service delivery, referred to as asset criticality, is a key driver in the selection of the most appropriate asset management strategy for each asset. Critical assets are typically those that are key contributors to providing the required service levels and have the highest impacts upon failure to the City.

Risk events are asset failures in meeting service levels related to capacity, function, or reliability, and therefore may compromise the delivery of the City's strategic priorities. Lifecycle activities are used to manage the risk of failure by reducing the probability of asset failure to acceptable levels.

The City's preliminary risk strategy in the AM Plan estimates the risk exposure of its assets to inform the prioritization of projects across asset classes and service areas. Risk exposure is the multiplication of two factors:

Risk Exposure = Consequence of Failure x Probability of Failure

The criticality or consequence of failure (CoF) is the direct and indirect impact on the City if an asset failure were to occur, and the probability of failure (PoF) is the probability that an asset failure may occur. Different approaches are taken to assess both PoF and CoF depending on the service level failure (capacity, function, or reliability), as discussed in the following sections.

Asset risk may be associated to one or more aspects of failure across the following levels of service attributes:

- **Capacity & Use**: Asset may have failed to provide sufficient capacity in terms of availability, convenience, or accessibility
- **Function**: Asset may have failed to comply with regulations, perform its intended function, or is no longer considered sustainable due to factors such as obsolescence
- **Quality & Reliability**: Asset may have failed due to deteriorated physical condition.

Quality and Reliability risks related to asset condition are assessed in this AM Plan using the PoF and CoF framework in Section 4.1 whereas capacity and function-related projects are to be assessed as part of the City's Capital Planning process using the City's Prioritization Framework (urgency and importance scales) described further in Section 4.2.

4.1 Risks to Service Quality & Reliability

The Reliability Level of Service refers to maintaining City assets in a state of good repair to reduce the incidence of unplanned service interruptions due to poor asset condition while minimizing lifecycle costs. Depending on the asset, unplanned failures can have wide-ranging consequences including service disruption, damage to surrounding infrastructure and property, risks to public safety, and environmental impacts. This AM Plan provides a preliminary assessment of reliability risk based on PoF and CoF for assets for which condition could be estimated based on available data. Assets which were not assessed for condition such as fencing, utility lines, maintained parkland, and natural assets are not included in the assessment. Natural assets also require a slightly different understanding and approach given the unique nature of the assets, as discussed in Section 4.1.2.

Probability of Failure

Probability of Failure (PoF) is estimated based on the condition of the asset from Section 2, as summarized in Table 4-1. Observed condition is used where available, and percentage of remaining life based on age is used as a supporting factor or used when observed condition is not available. For facilities, Facility Condition Index is used to assess the overall facility condition.

Table 4-1: Probability of Failure Ratings for Reliability

PoF Rating	PoF Description	Asset Condition
1	Rare	Very Good
2	Unlikely	Good
3	Moderate	Fair
4	Probable	Poor
5	Very Likely	Very Poor

Consequence of Failure

CoF (or asset criticality) reflects the importance of an asset to the City's delivery of services. The following impacts of a potential asset failure are considered to assess consequence of failure:

- **Service Delivery:** considers the extent (number of people impacted) and length of the service disruption
- **Health and Safety:** the ability to meet health and safety related regulatory requirements, as well as the degree and extent of potential injury, ranging from negligible injuries to loss of life.
- **Environmental:** acknowledges the length and extent of damages to the natural environment.
- **Financial:** damages to City infrastructure or private property, loss of City revenue, and fines.

Table 4-2 summarizes the above listed impacts against an asset criticality rating scale from 1 to 5, with a higher score reflecting a higher consequence of failure. Understanding criticality enables risk to be incorporated into the development of the lifecycle management strategies. More critical assets are prioritized over less critical assets for expansion, inspection, cleaning, maintenance, and renewal, depending on their current and forecasted performance.

Table 4-2: CoF (Asset Criticality) Rating Scale

Criticality	Service Delivery	Health and Safety	Environmental	Financial
Very Low	Small number of customers experiencing disruption / impact (less than 1% of people or up to a few hours)	No obvious potential for injury or affects to health.	Very negligible impact or can be restored within 1 week	Damages, losses (including 3rd party) or fines from $1k to $10k
Low	Localized service disruption / impact (1% to 2.5% of people or up to 1 day)	Potential for minor injury or affects to health of an individual. Full recovery is expected; or minor medical attention may be required.	Minor (within 1 month) very isolated damage / impact to the environment, local importance	Damages, losses (including 3rd party) or fines $10k to $100k
Moderate	Significant localized disruption / impact (2.5% to 10% of people or less than 1 week)	Potential for serious injury or affects to health. May affect many individuals and / or result in short term disability; or Hospitalization may be required for a short period of time.	Significant short term impact (up to 2 months), local importance	Damages, losses (including 3rd party) or fines $100k to $1M
High	Major service disruption / impact (10% to 50% of people or for more than a week)	Potential for serious injury or affects to health of one or more individuals with a possibility of loss of a life and the certainty of long term disability; or Emergency hospitalization required for one or more individuals.	Significant long term impact (up to 1 year), Provincial importance.	Damages, losses (including 3rd party) or fines $1M to $10M
Very High	Wide service disruption / impact (50% to 100% of people or permanent loss of services)	Potential for death or multiple deaths with probable permanent damage; or Emergency and long term hospitalization required for several individuals.	Major long term impact (greater than 1 year), Federal importance.	Damages, losses (including 3rd party) or fines > $10M

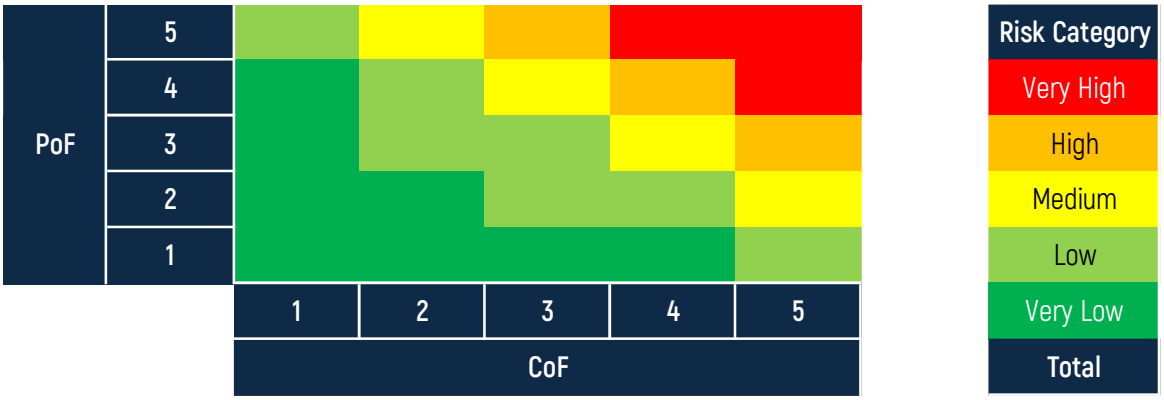
In the following Sections 4.1.1 to 4.1.3, CoF is estimated for each asset type based on the expected impact of an asset failure according to the rating scale provided in Table 4-2. Risk is then assessed where assets have condition estimates from the State of Infrastructure analysis.

Risk Map

As part of the risk strategy, the risk results are plotted on a risk map (example format in Figure 4-1) to show a visual representation of risk exposure across the City's assets. The location of the assets on the map denotes various levels of risk and help to prioritize the City's resources, time, and effort for renewal activities.

- **Very High** risks in the light red zone are significant to the City and therefore should be actively managed and monitored in a more comprehensive and/or immediate manner than other risks (i.e., prioritized).
- **High and Medium** risks in the orange (high) or green (medium) zones should also be actively managed or identified for potential mitigation soon.
- **Low and Very Low** risks that appear in the light blue (low) or grey (very low) zones are acceptable without significant mitigation strategies being implemented, although monitoring may still be beneficial.

Figure 4-1: Reliability Risk Map Format



The risk assessment in the AM Plan is a high-level assessment for understanding the City's risk exposure at a network-level and for demonstrating how the City manages those risks but does not replace the specific project risks assessed as part of Business Case Forms for the annual capital budgeting process. This high-level assessment is discussed in the following Sections 4.1.1 to 4.1.3.

4.1.1 Parks & Outdoor Recreation Built Assets

A summary of the CoF scoring for Parks & Outdoor Recreation Built Assets is provided in Table 4-3. Playground, skate park, and splash pad assets have the highest CoF due to safety impacts as there is a potential for serious injury if these assets have deteriorated and failed due to condition. Shoreline protection assets also have a high COF as failure could result in significant damage to City infrastructure during an extreme weather event. Major sports fields have a moderate CoF, as there would be significant localized service delivery disruption if the facility was not available due to deteriorated condition. Minor fields have lower service delivery impacts compared to the Major fields. The Wastewater systems at Barrie Sports Complex and wastewater laterals at various parks are rated a moderate CoF due to the potential environmental impacts upon asset failure.

The City also manages critical infrastructure not included in Table 4-3 such as water fountains/bottle filling stations that are of lower value and not classified as a capital asset. Despite their lower value, water fountains/bottle filling stations are critical from a health and safety perspective as failure could result in serious health impacts on residents. The City therefore implements a regular inspection and maintenance program for the 11 water fountains/bottle filling stations across its parks.

The CoF ratings in Table 4-3 are estimates and can be further refined in future updates of the AM Plan. CoF scores can be assigned at a more detailed level based on further attribute data collection. More detail should be used where it would provide useful prioritization between assets by enabling an understanding of risk at a more granular level, such as assigning different CoF scores between Major fields based on their size or usage.

The City is also developing additional inventories which may result in the identification of more critical assets, such as the irrigation system for Barrie Sports Complex. This system could result in significant service disruptions to Major fields if the irrigation pumps or other parts of the system were to fail.

Table 4-3: Consequence of failure Ratings for Reliability (Parks & Outdoor Recreation – Built Assets)

Asset		CoF	Main Impact
Active Recreation Facilities			
Tennis		2	Service Disruption
Basketball		2	Service Disruption
Baseball	Major Field	3	Service Disruption
	Minor Field	2	Service Disruption
Softball	Major Field	3	Service Disruption
	Minor Field	2	Service Disruption
Soccer	Major Field & Huronia Fields	3	Service Disruption
	Minor Field (except Huronia)	2	Service Disruption
Outdoor Rink	City Hall	3	Service Disruption
	Centennial	3	Service Disruption
Beach Volleyball		2	Service Disruption
Cricket		2	Service Disruption
Rugby		3	Service Disruption
Pickleball		2	Service Disruption
Football		3	Service Disruption
Skate Park	Lampman Lane	4	Health & Safety
	Queens	4	Health & Safety
Splash Pad	Lampman Lane	4	Health & Safety
	Heritage Park	4	Health & Safety
Playground	Open Space	4	Health & Safety
	Neighbourhood	4	Health & Safety
	Community	4	Health & Safety
Exercise Equipment		4	Health & Safety

Asset		CoF	Main Impact
Park Vehicular and Pedestrian Network			
Bridges	Footbridges	1	
Stairs		3	Health & Safety
Trails & Pathways	Class 2	3	Service Delivery, Financial
	Class 3	3	Service Delivery, Financial
	Class 4	2	Service Delivery
	Class 5	1	
Hard Surfaces		2	Service Delivery
Park Parking Lots		3	Service Delivery
EV Charging Stations		1	
Other			
Park Structure		2	Health & Safety
Dock		3	Service Delivery, Health & Safety
Fencing		2	Health & Safety
Utility Lines		2	Service Delivery
Electric Service Panels	Tennis, General Park	2	Service Delivery
	Baseball / Softball / Soccer	3	Service Delivery
Scoreboard		2	Service Delivery
Boat Launch	Marina	3	Service Delivery, Health & Safety
	Tiffin Boat Launch	2	Service Delivery
Park Furniture		1	
Shoreline Protection		4	Financial (Damages)
Wastewater System	Pumps, Septic tank	3	Environmental
	Dosing Chamber, Leaching Beds, Forcemains	3	Environmental

As shown in Figure 4-2, $1.8 million (2.3%) of the City's Parks & Outdoor Recreation assets are currently estimated to be in the Very High risk category. This assessment considers $79.2 million of assets and does not include assets for which condition has not been assessed, including fencing, dirt trails, and utility lines.

The $1.8 million of Very High risk assets consists of Queen's Skate Park and Heritage Park Splash Pad, which are due for replacement based on their age and are considered critical assets. High risk assets include three major softball fields (two fields at Lampman Lane Park and one field MacMorrison Park) and pump control panels for the wastewater system at Barrie Sports Complex. These assets are considered higher risk based on age-based condition estimates for PoF. Actual observed condition through inspections is recommended to improve the accuracy of the PoF assessment. These inspection programs, particularly for critical assets, are also useful strategies to mitigate risk by identifying potential failures before they occur.

Figure 4-2: Current Reliability Risk (by Replacement Value in $M*)

PoF	CoF 1	CoF 2	CoF 3	CoF 4	CoF 5
5	$0.3	$5.8	$3.0	$1.8	$0.0
4	$0.0	$4.3	$5.0	$0.0	$0.0
3	$0.4	$3.3	$17.1	$0.2	$0.0
2	$0.0	$2.5	$7.6	$23.8	$0.0
1	$0.3	$3.9	$0.2	$0.0	$0.0

Risk Category	Replacement Value ($M)	%
Very High	$1.8	2.3%
High	$3.0	3.7%
Medium	$10.9	13.8%
Low	$56.3	71.1%
Very Low	$7.2	9.1%
Total	$79.2	100.0%

*Totals may not add up due to rounding

4.1.2 Parks & Outdoor Recreation - Natural Assets and Maintained Parkland

The risk assessment approach used for built assets in Section 4.1.1 can also be applied to natural assets and maintained parkland. The context of the application of risk is slightly different given the unique nature of natural assets. These assets are naturally resilient meaning they can withstand a certain amount of stress and in many cases self-repair when damaged. Therefore, degradation or damage to one component of a natural asset may not have a significant impact on the overall level of service (e.g., loss of one tree will have a minor impact on overall forest or canopy cover and the associated services). This resiliency is one of the many reasons natural assets are seen as effective solutions to deal with certain infrastructure and climate change related challenges. However, cumulative effects and exposure to multiple stressors can lead to tipping points that can cause cascading or widespread failure of natural assets. Therefore, a natural asset risk assessment needs to consider the range of hazards to which natural assets are exposed, and the potential those hazards could trigger such tipping points.

Ideally, the condition of natural assets is carefully assessed and monitored at regular intervals. In such a situation, a natural asset's condition can be an excellent measure for probability of asset failure, much in the same way it is used for built assets. Provided the condition assessments are robust, a lower condition rating would imply a lower level of natural resilience, and that a certain level of degradation has occurred such that additional stressors would be more likely to trigger failure. Maintained parkland is mainly turf which is regularly mowed and/or fertilized depending on the park, and is generally in good condition though specific condition varies throughout the year based on use. For natural assets, the condition assessment and regular monitoring of those conditions is limited. However, the City of Barrie has made progress for woodlots through forest health assessments which establish a condition rating. These assessments have been completed for over 150 hectares of City-owned woodlots.

In the absence of comprehensive condition data, an assessment of specific hazards can be used to establish probability of failure. To date, this approach has been applied by other communities to assess risk in the context of natural asset management (e.g., York Region, Guelph). This approach assumes that assets exposed to more hazards are more likely to fail. A proxy for the probability of failure can be determined by the number and extent of hazards across relevant assets. Once the probability of failure has been determined, the consequence of failure can be assessed based on the value of services provided by natural assets. This framework includes consideration of the importance of positive community intangible benefits that are not considered in the typical CoF ratings for built assets.

The City has already made progress on risk management related to natural assets through its Climate Change Adaptation Strategy. Climate change risks pose a significant challenge to managing City assets and maintaining service levels. Climate change events can play a role in increasing the probability of an asset failure, as well as increasing the consequence of failure in terms of financial impacts, service delivery, and damage to the natural environment due to the potential magnitude of an extreme weather event. Therefore, climate change considerations may increase the City's risk exposure and the proportion of assets in the high and very high risk categories that will need to be addressed through various lifecycle strategies.

As part of the City's Climate Change Adaptation Strategy, a risk and vulnerability assessment has been completed using an approach similar to what is done for asset management by applying a probability of impact and a consequence of impact rating. The assessment focused on specific climate change related impact statements (e.g., damage to public property from erosion as a result of more runoff from increased rainfall intensity). The narrow impact focus for the risk assessment means that the results cannot be directly translated to the asset management context. However, a few impact statements have important implications for natural assets and inform actions recommended to mitigate the risks of climate change. For example, the impact statement "enhanced urban heat island effect (hotter temperatures, stress on air quality) from warmer summer temperatures" can be mitigated by increasing canopy cover. Similarly, Action 5.3 recommends to "develop an Urban Forest Management Plan with specific greening strategies for areas of the City where tree canopy/greenspace is low." Many of the specific implementation actions identified in the Climate Change Adaptation Strategy call for increased or improved natural assets and therefore establishes several important actions that should be aligned with the lifecycle management strategy for natural assets, discussed further in Section 5.

4.1.3 Facilities

A summary of the CoF scoring for facility assets is provided in Table 4-4. Emergency facilities for Police and Fire Services are critical facilities due to safety impacts as there is a potential for fatalities and serious injury if these facilities are not in operation due to poor building condition. City Hall, Landfill, and the Operations Centre are critical from a service delivery perspective, as closure of these facilities could result in the City-wide disruption of services.

Service delivery is also the main impact considered for the remaining facilities. Allandale Recreation Centre, Sadlon Arena, East Bayfield Recreation Centre, and Peggy Hill Recreation Centre are rated the most critical recreation facilities due to the higher profile programs, services, and events they offer, as well as the larger number of customers served at those facilities. Facilities that are vacant or to be demolished are not included in this AM Plan and are low criticality.

The criticality and risk in this AM Plan are estimated for facilities at the overall building level. In the future, the City plans to assign asset risk at the more detailed asset-level and preliminary assessments were reviewed during development of this AM Plan based on the Uniformat II hierarchy. Using Uniformat II sets the stage for a consistent data structure for future Building Condition Assessments (BCAs) and subsequent data input to City software.

Table 4-4: Consequence of failure Ratings for Reliability

Facility	CoF	Main Impact
Corporate Facilities		
Allandale Station	1	Service Delivery
Armouries Building	1	Service Delivery
City Hall	5	Service Delivery
City Hall - 56 Mulcaster	2	Service Delivery
Collier Street Parkade	3	Service Delivery, Financial
Maclaren Art Centre	3	Service Delivery, Financial
29 Sperling Drive	3	Service Delivery
MLPS / Court - LEASE	4	Service Delivery
POA - LEASE	4	Service Delivery
POA - Orillia Branch - LEASE	3	Service Delivery
Culture Facilities		
Theatre - Mady Community	3	Service Delivery
Georgian Theatre - LEASE	3	Service Delivery
Emergency Facilities		
Fire Station # 1 - HQ	5	Health & Safety
Fire Station # 2	4	Health & Safety
Fire Station # 3	4	Health & Safety
Fire Station # 4	4	Health & Safety
Barrie-Simcoe Emergency Services Campus	5	Health & Safety
Barrie Police - Training & Storage	4	Service Delivery
Fire Station # 5 - LEASE	4	Health & Safety
Operations Facilities		
Environmental Centre - Landfill	5	Service Delivery
Operations Centre	5	Service Delivery
Library Facilities		
Library - Main	3	Service Delivery
Library - Painswick Satellite	2	Service Delivery
Library - Holly (lease)	2	Service Delivery

Facility	CoF	Main Impact
Marina & Parks Facilities		
Bayfield Dock	2	Service Delivery
Centennial Beach Washroom	2	Service Delivery
Centennial Beach Concession	2	Service Delivery
Heritage Park	2	Service Delivery
Johnson Beach	2	Service Delivery
Macmorrison Park	2	Service Delivery
Marina	2	Service Delivery
Minets Point	2	Service Delivery
Queens Park	2	Service Delivery
Sea Cadets Building	2	Service Delivery
Shear Park	2	Service Delivery
St. Vincent Park	2	Service Delivery
Sunnidale Park	2	Service Delivery
Tiffin Boat Launch	2	Service Delivery
Tyndale Park	2	Service Delivery
Recreation Facilities		
Allandale Rec-Centre	4	Service Delivery
Barrie Molson Centre (Sadlon)	4	Service Delivery
Barrie Sports Complex (Midhurst)	3	Service Delivery
City Hall - Rink	2	Service Delivery
Dorian Parker Community Centre	2	Service Delivery
East Bayfield Rec-Centre	4	Service Delivery
Eastview Arena	3	Service Delivery
Peggy Hill (Holly) Rec Centre	4	Service Delivery
Lampman Lane Community Centre	3	Service Delivery
Parkview Seniors-Facility	3	Service Delivery
South Shore Community Centre	3	Service Delivery
Sports Dome (building)	2	Service Delivery

Based on the facility-level risk assessment, the Operations Centre ($103.7 million) is estimated to be in the Very High risk category (refer to Figure 4-3). This assessment does not include the value of site assets, which were excluded from the Facility Condition Index (FCI) analysis. The Operations Centre redevelopment is already underway and work is planned over the next 10 years in the City's Capital Plan. The FCI-based risk assessment will be improved through continued efforts to maintain a comprehensive and up-to-date forecast of required work on assets within each building.

Figure 4-3: Current Reliability Risk (by Replacement Value in $M*)

PoF						
	5	$0.0	$5.5	$0.0	$0.0	$0.0
	4	$10.5	$3.4	$47.5	$12.1	$103.7
	3	$2.0	$10.2	$31.4	$0.0	$78.1
	2	$0.0	$10.8	$34.3	$99.6	$0.0
	1	$0.0	$16.6	$122.2	$317.1	$149.7
		1	2	3	4	5
		CoF				

Risk Category	Replacement Value ($M)	%
Very High	$103.7	9.8%
High	$90.2	8.5%
Medium	$53.0	5.0%
Low	$328.7	31.2%
Very Low	$479.3	45.4%
Total	$1,054.9	100.0%

*Totals may not add up due to rounding

4.2 Risks to Levels of Service (Capacity and Function)

As part of the City's Capital Planning process, the City uses a Prioritization Framework which is a similar risk rating scale to address the risk related to service capacity and function. For these projects, risk is determined using 'importance' and 'urgency' rating scales, where urgency is closely associated to 'probability' and 'importance' is closely related to 'consequence'. It is recommended that the risk for capacity and function-related service levels continue to be assessed on an individual project basis as part of the Capital planning process as these projects can vary widely in scope. For example, one project could be an upgraded washroom in a recreation facility to meet accessibility requirements, and another project could be an expansion to a library facility to meet additional community demands. The details and scope of each project will greatly influence their 'importance' and 'urgency'.

4.2.1 Risks to Capacity & Use LOS

The City has been one of Canada's fastest growing municipalities for the past several decades. Based on the 2020 Growth Plan, the City's population and employment numbers will continue to increase through to 2051, as summarized in Table 4-5. Ensuring that this level of growth is managed in a sustainable, efficient, and financially responsible manner is central to the long-term health, prosperity, and well-being of the City and its residents.

Table 4-5: City of Barrie Population and Employment Forecasts

Year	Population	Population Compounded Growth Rate	Employment
2016	145,800	-	73,800
2021	167,600	2.80%	83,400
2031	210,000	2.30%	101,000
2041	253,000	1.90%	129,000
2051	298,000	1.70%	150,000

The City mitigates capacity-related risks by assessing the need for additional infrastructure and planning for the additional infrastructure that will be assumed by the City through development. Projects to address known capacity issues are currently scheduled in the City's Capital Budget, such as the new Fire Station #6. The timing and costs of projects such as Fire Station #6 that address capacity service levels are discussed further in Section 5.

4.2.2 Risks to Functional LOS

The City also plans for service improvements to functional service levels while balancing these risks against capacity and reliability-related needs. Function-related improvements on assets, such as upgrades due to changes to legislation or strategic objectives can also be rated on the 'importance' and 'urgency' scales as part of the Capital Planning process.

Functional enhancements currently planned over the next 10 years include solar panel installations to improve facility energy efficiency and accessibility improvements as part of renewal work at facilities and playgrounds. The timing and costs of upgrade projects are discussed further in Section 5.

5 Lifecycle Strategy

To achieve its program objectives and maintain service levels, the City builds new infrastructure assets to meet capacity needs, upgrades assets to meet functional needs, and manages existing assets to meet reliability needs – all with limited funds. Asset lifecycle management strategies are planned activities that enable assets to provide the service levels while managing risk at the lowest lifecycle cost based on current data and knowledge. Asset lifecycle management strategies are typically organized into the categories listed in Table 5-1, and are driven by the levels of services defined in Section 3 and the need to manage the associated levels of risk discussed in Section 4.

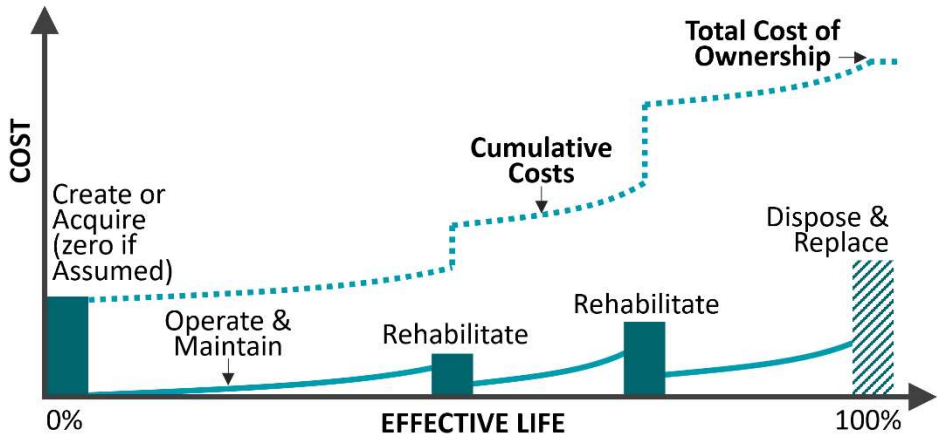
Table 5-1: Asset Lifecycle Management Categories

Lifecycle Management Category	Description	Examples of Associated Activities
Operate	Regular activities to provide services	inspections, cleaning, grass mowing
Maintain	Activities to retain asset condition to enable it to provide service for its planned life	Minor repairs, component replacements within a playground, tree pruning
Renew	Activities that return the original service capability of an asset	minor or major asset rehabilitations, asset replacements
Upgrade	Activities to provide a higher level of service capability from an existing asset to achieve better fit for purpose or meet regulatory requirements	Upgrades for HVAC energy efficiency, upgrades to meet playground or washroom accessibility requirements
Expand/Grow	Activities to provide a new asset that did not exist previously or an expansion to an existing asset	new or expanded asset construction such as an expansion to a facility or new baseball diamond

In addition to the above asset strategies, non-asset solutions are also considered which are actions or policies that can lower costs, lower demands, or also extend asset life. For example, integrated infrastructure planning such as bundling roof repairs across multiple facilities under one contract may enable cost savings by grouping work into one project.

The City reviews the costs of potential lifecycle activities to determine the lowest lifecycle cost strategy while still meeting service levels. The total cost of ownership is the sum of lifecycle activity costs to sustain an asset over its lifecycle. (See Figure 5-1 for a conceptual lifecycle cost model). Sufficient investment in the right type of asset intervention at the right time minimizes the total cost of ownership for each asset and mitigates other potential risks such as interruption to service delivery or failure that causes damage to other nearby infrastructure. Operations, maintenance, and renewal activities are timed to reduce the risk of service failure from deterioration in asset condition and all contribute to the total cost of ownership.

Figure 5-1: Conceptual Lifecycle Cost Model



5.1 Lifecycle Management Needs

The City uses its understanding of risks associated with different service levels to inform the timing and level of investments needed in infrastructure assets. This section of the AM Plan outlines the City's expansion and upgrade strategies to support capacity and functional service levels, and the operations, maintenance, and renewal activities to support reliability service levels. The lifecycle needs for Parks and Outdoor Recreation assets (including natural assets), and Facilities are discussed in the following sections, with each asset area covering the following lifecycle needs:

- **Capital Growth Needs**: Growth and expansion projects based on the community's growing population and changing needs.
- **Capital Renewal Needs**: Renewal efforts focus on rehabilitation and replacement activities to enable the City to meet its service levels related to asset reliability. Rehabilitation activities extend the life of an asset and reduce its likelihood of failure. At a certain point in an asset's lifecycle, it is no longer cost-effective to rehabilitate the asset, and replacement is required. Upgrade activities, such as accessibility for AODA requirements or installing more energy efficient equipment, are typically included as part of renewal work unless a particular strategic objective or legislation needs to be met.
- **Operations & Maintenance Needs:** The City also supports asset reliability service levels through operations and maintenance (O&M) work. The distinction between renewals (capital programs) and operations and maintenance (operating expenses) is defined by the City's accounting policies and standard operating procedures. O&M activities ensure the asset continues to deliver defined levels of services, while renewal activities discussed above extend the service life of the asset. Renewals and O&M are integral activities that influence the overall lifecycle management of an asset. O&M strategies can be used to delay the need for renewals, and if renewals are deferred, O&M expenditures will often have to increase.

The City also pursues non-infrastructure solutions to help maintain service levels such as designating Environmentally Protected areas for natural assets, integrating energy conservation considerations within the capital planning and review process, and training facility staff on optimization and best practice operations for recreational facilities, particularly pool and rink spaces.

Disposals are performed when assets are replaced as part of capital renewal projects. As discussed in Section 1.3.2, the City also has a few vacant and commercial properties, some with temporary leases. Some of these facilities will eventually be demolished. The land is expected to be used for purposes that are still to be determined, and

therefore demolition costs and any potential growth costs associated to these properties have not been included in this AM Plan.

5.2 Parks & Outdoor Recreation

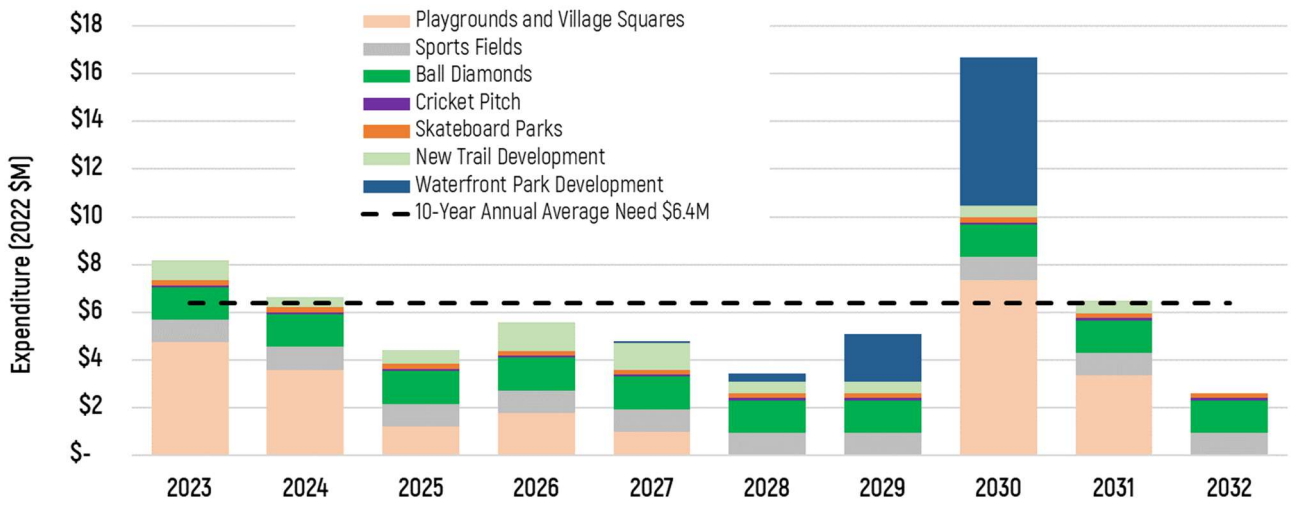
5.2.1 Capital Growth Needs

Growth and expansion project needs for playgrounds and trails are identified from the 10-Year Capital Plan through funding associated with development charges. The growth portion of planned projects for these assets is estimated to cost a total of $37.9 million over the next 10 years (average $3.8 million per year). The primary growth projects include new playgrounds and village squares as part of new park developments in the Secondary Plan areas. New trails are also planned in the Secondary Plan areas, as well as in Bear Creek Eco-Park and Sunnidale Park.

The need for additional rectangular sports fields, ball diamonds, sand volleyball courts, and skateboard parks were identified in the City's 2019 Outdoor Recreation Facility Study. Updated to 2022 dollars, these growth needs add an additional $26.0 million in new assets required over the next 10 years. As the specific timing of these new active recreation facilities were not provided in the 2019 Study, it is assumed that the costs are spread out evenly over the 10 years ($2.6 million per year).

The total growth needs for Parks & Outdoor Recreation Built assets are estimated at an average of $6.4 million per year, as shown in Figure 5-2. Assets assumed through development are not estimated in this AM Plan. The City is also developing a Waterfront Strategic Plan that may add additional growth needs for Parks & Outdoor Recreation assets.

Figure 5-2: Growth Needs (Parks & Outdoor Recreation Assets) – 2022 to 2031



For natural assets, the City does not have any active plans for natural asset growth. However, several actions outlined in the Climate Change Adaptation Strategy provide the basis for new capital growth projects. In additional, City Council recently approved the strategic plan for the next four years which includes a goal to "implement climate action plans," suggesting future capital growth projects are likely, although no specific costing or timeframes have been developed. The specific climate actions identified that have direct implications for the City's natural asset capital growth needs include the following:

- Increase natural and forested areas within sub-watersheds with high surcharge and runoff
- Develop municipal by-laws, standards, and permitting processes to advocate/enhance green space, green roofs, and tree canopy on private and public properties.

- Develop an Urban Forest Management Plan with specific greening strategies for areas of the City where tree canopy/greenspace is low.
- Promote the planting of native vegetation along lakes, creeks and ravines to reduce erosion risk, maintenance needs, and enhance local biodiversity.
- Create naturalized and edible landscapes on City land using existing resources.

For Maintained Parkland assets, the Climate Change Adaptation Strategy establishes action plans for possible capital growth assets. The specific climate actions identified that have potential implication for Barrie's maintained parkland asset capital growth needs are:

- Develop municipal by-laws, standards, and permitting processes to advocate/enhance green space, green roofs, and tree canopy on private and public properties.
- Create naturalized and edible landscapes on City land using existing resources.

5.2.2 Capital Renewal and Upgrade Needs

To estimate the forecasted renewal needs for its Parks & Outdoor Recreation Built assets, the City has identified estimated service lives for each of its assets, summarized in Table 5-2. The estimated service lives consider the appropriate expected life over which an asset can still provide the required service levels. The timing of renewal activities in the forecast incorporates the asset's current condition or age and forecasts the need for replacement based on the estimated service lives. Over time, as the City refines the asset management strategies through tracking of treatment activity timing, as well as associated benefits and costs, the City will improve its understanding of the deterioration rates and the optimal renewal frequency associated with the lowest lifecycle cost for each asset type.

Opportunities to upgrade assets such as adding ramps and changing playground surface materials for accessibility are typically considered as part of renewal projects.

Table 5-2: Typical Estimated Service Lives (Parks & Outdoor Recreation Built Assets)

Asset		Estimated Service Life (Years)
Active Recreation Facilities		
Tennis		20
Basketball		20
Baseball	Major Field	30
	Minor Field	30
Softball	Major Field	30
	Minor Field	30
Soccer	Major Field	30
	Minor Field	30
Outdoor Rink	City Hall	20
	Centennial	20

Asset	Estimated Service Life (Years)
Park Vehicular and Pedestrian Network	
Bridges	25
Stairs	Concrete: 30 Wood: 20 Other: 20
Trails & Pathways	Asphalt: 20 Concrete: 30 Paving Stone: 20
Hard Surfaces	Concrete: 30 Paving Stone: 20 Asphalt: 20
Park Parking Lots	15
EV Charging Stations	10

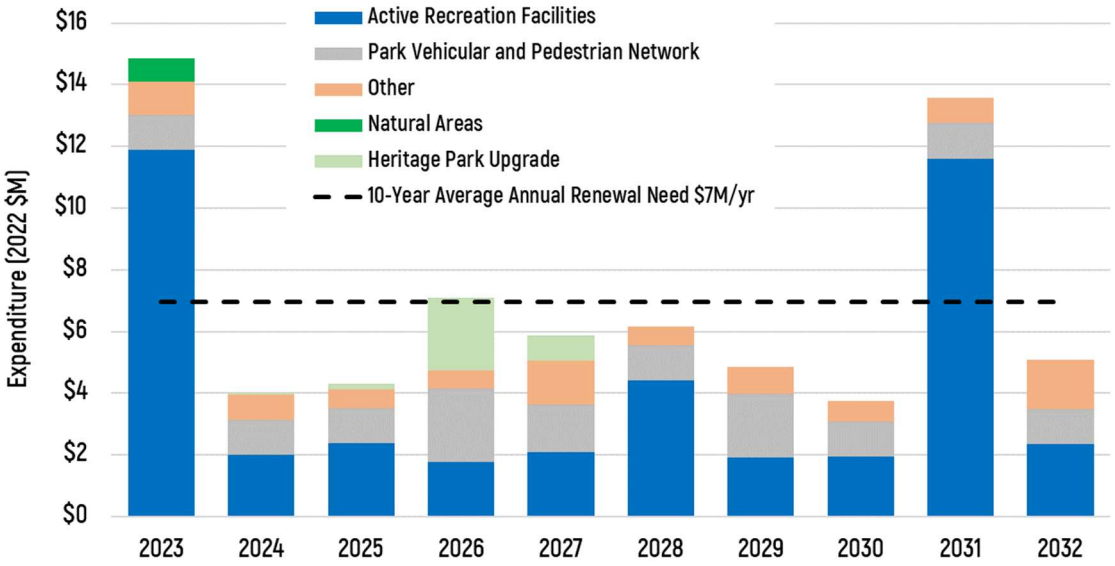
Asset		Estimated Service Life (Years)
Active Recreation Facilities (continued)		
Beach Volleyball		35
Cricket		25
Rugby		30
Pickleball		25
Football		30
Skate Park	Lampman Lane	15
	Queens	15
Splash Pad	Lampman Lane	20
	Heritage Park	20
Playground	Open Space	20
	Neighbourhood	15
	Community	10
Exercise Equipment		10

Asset		Estimated Service Life (Years)
Other Park Assets		
Park Structure		20
Dock		25
Fencing		Galvanized Steel: 30 Vinyl: 30 Other: 30
Utility Lines		30
Electric Service Panels		20
Scoreboard		15
Boat Launch		25
Park Furniture		10
Shoreline Protection		30
Wastewater System	Pumps	25 (15 for controls)
	Septic Tank	85
	Dosing Chamber	25 (15 for controls)
	Leaching Beds	25
	Forcemains	30

Figure 5-3 summarizes the unconstrained renewal and upgrade needs over the next 10 years for the City's Parks & Outdoor Recreation built assets. The unconstrained scenario represents the expenditures required to replace every asset per the estimated service lives such that there is no backlog of work and no assets over the next 10-year forecast reach Very Poor condition. In this case, the average renewal and upgrade need is estimated at $7.0 million per year for the period 2023-2032. For assets that were not estimated for condition, an average annual investment rate was determined based on the value of the asset and the estimated service life.

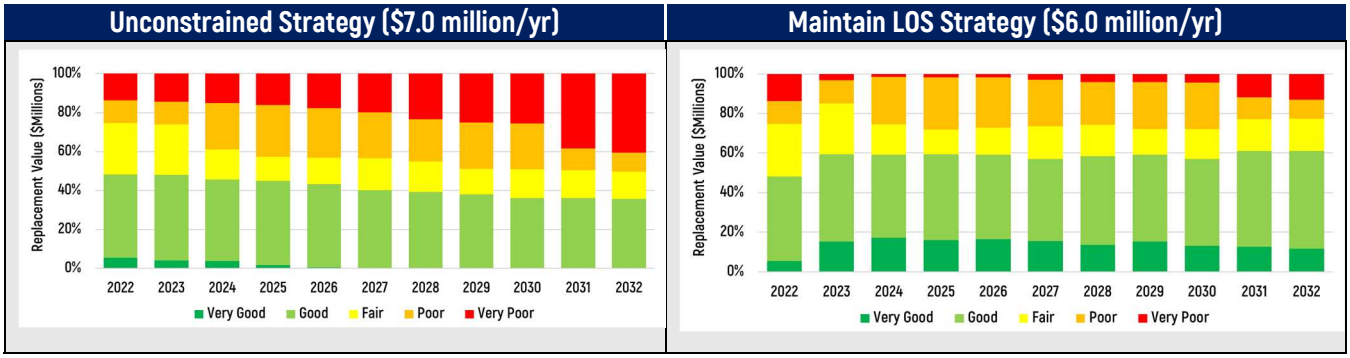
In the unconstrained forecast, the expenditure in the first year (2023) includes the expenditures required to clear the backlog of assets that are past their estimated end-of-life. A significant portion of the backlog is due to various softball fields, tennis courts, and Queen's Park Skate Park. The peak in expenditures expected in 2031 is to replace multiple baseball and softball fields reaching 30 years of age.

Figure 5-3: 10-Year Capital Renewal & Upgrade Needs Forecast – Parks & Outdoor Recreation Built Assets (Unconstrained)



Per O.Reg. 588/17, the AM Plan investigates the expenditures required to maintain current service levels. If the City maintains current reliability service levels and a $10 million backlog of needs (Very Poor assets) through to the end of the 10-year forecast by deferring renewal on some assets, the average annual renewal need is reduced to $6.0 million per year. A comparison of the condition profile (percentage of assets in each condition category) for the unconstrained strategy and the maintain LOS strategy is summarized in Figure 5-4. The affordability of these strategies is discussed in Section 6.

Figure 5-4: Condition Forecast – Parks & Outdoor Recreation Built Assets (Unconstrained versus Maintain LOS Strategy)



In comparison to built assets, natural assets in an undisturbed state typically do not require renewal at a projected 'end-of-life'. They can provide a perpetual level of service at no cost. However, for natural assets exposed to human disturbances, regular monitoring and periodic maintenance interventions geared towards avoiding or repairing degraded natural assets is required. This situation is common for natural assets within a municipal context given the proximity of natural assets to humans and the built environment. Within this context, renewal approaches can be applied to natural assets as well.

One challenge in applying lifecycle management strategies to natural assets is establishing an appropriate time frame for natural asset lifecycle management. The time required for natural assets to establish themselves, become self-sustaining and reach stability varies depending on the natural asset type, local conditions, and context. Once

self-sustaining, natural assets can provide services for many decades. A perpetual lifecycle is recommended for natural assets, and a 50-year lifecycle for trees, as summarized below:

- Individual trees (e.g., street and park trees)
  - A 50-year lifecycle, assuming removal and replacement at the end of the lifecycle.
- All other natural assets and maintained parkland (i.e., wetlands, woodlots, gardens):
  - If these assets are reasonably well-established and managed, they can be sustained perpetually without removal and replacement.
  - Instead of assuming removal and replacement after a fixed lifecycle, for these assets an iterative lifecycle focused on long-term monitoring and management is assumed.

The above activities for natural assets and maintained parkland fall under the scope of the Operating budget and are discussed in Section 5.2.3.

5.2.3 Operations and Maintenance Needs

The City supports asset reliability service levels through operations and maintenance (O&M) work. Table 5-3 summarizes the City's main asset-related O&M activities for Parks & Outdoor Recreation Built Assets.

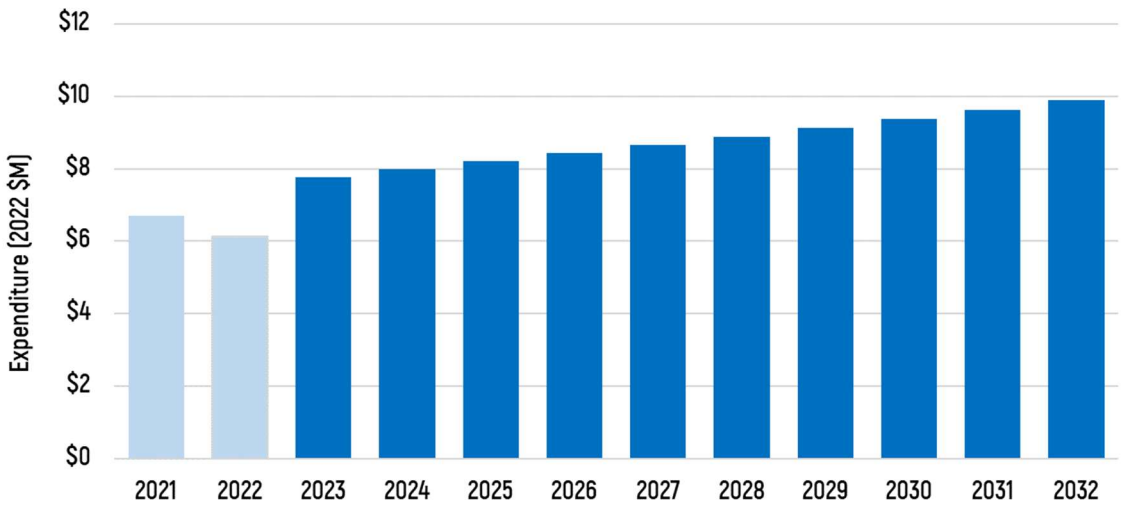
Table 5-3: Main Operations and Maintenance Activities for Parks & Outdoor Recreation Built Assets

Operating Account	Operations & Maintenance Activities
Active Recreation Facilities	-Playground inspections -Sports field grass cutting -Replacement of components: components within playgrounds, ice rinks, and sports fields -Court surface repairs such as crack sealing/repairs (tennis, pickleball, basketball) -Ice skating surface repairs
Park Vehicular and Pedestrian Network	-Asphalt and concrete patch repairs/sealing to parking lots, hard surfaces -Repairs to bridges and stairs -Stair rail repairs/replacements -Trail and bridge inspections -Trail maintenance and renewal, including surface grading/grooming, vegetation trimming/tree removals, removing trip hazards, grass cutting
Other Park Assets	-Replacement of components: inground garbage cans, picnic tables, shelters, power equipment, irrigation system components, and trailers -Contracted repair work including inspection, maintenance, and repairs of hydrants, irrigation systems, electrical components, fences. -Contracted services for specialty work such as welding -Replacement of signs; wood for new signs; bolts, fasteners, repair of equipment -Fence repairs -Painting of park assets such as park structures and pavilions -Water fountain inspections
General Parks Built Assets	-Contracted services for specialty work such as welding and inspections -Removal of graffiti or replacement of graffiti damaged items

Operating Account	Operations & Maintenance Activities
Maintained Parkland	-Cover and condition monitoring of vegetation -Aerating for turf -Mowing
Natural Assets	-Trees: inspections, pruning, and removals & replacements -Woodlots: forest health assessments, manual and herbicide control of invasive species, enhanced underplanting, hazard tree removals -Wetlands: invasive and undesirable plant control, replanting of degraded areas with suitable native species -Open Space: woody vegetation removal / intermittent mowing, invasive plant species control, targeted planting of suitable native species

Figure 5-5 summarizes the forecasted operating budget related to Parks & Outdoor Recreation over the period 2023-2032, based on the City's current 2023 budget of $7.8 million. This budget covers salaries, insurance, utilities, and other non-asset related accounts in addition to the specific asset activities listed in Table 5-3. The annual increase is estimated at 2.7% based on the estimated planned growth in the asset portfolio of built assets, which was estimated at an additional $38 million in asset value by 2032 (see Section 5.2.1) compared to the existing portfolio value of $124.2 million. The operating budget does not reflect inflation or additional expenditures required to improve service levels. It also does not reflect the 4.2% growth required if the City were to also build additional outdoor recreation facilities to maintain capacity service levels discussed in Section 5.2.1.

Figure 5-5: Operating Budget Forecast ($M) – Parks & Outdoor Recreation



The operating budget presented in Figure 5-5 has two main issues in meeting future expected service levels:

i) The City's ability to perform the required inspection and maintenance activities has been at risk over the past few years as the operating budget has not been sufficiently funded to align with recent growth in the asset portfolio as well as the increased costs of materials and contracted services
ii) Additional O&M activities are required to meet future expected service levels related to assets such as trails and natural assets

These operating budget shortfalls are discussed in more detail in Section 6.2.1.

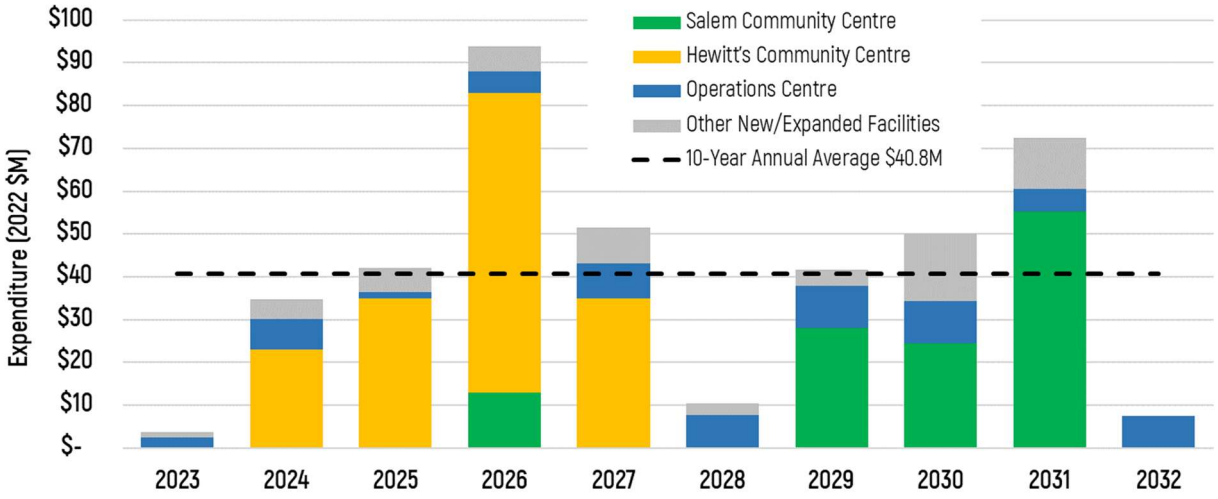
5.3 Facilities

5.3.1 Capital Growth Needs

For facilities, growth needs are identified from the Capital Budget through funding associated with development charges. The growth portion of planned projects is estimated to cost a total of $408 million over the next 10 years (average $40.8 million per year). Compared to the current $1.22 billion portfolio, the additional value in facility assets translates into an average compounded increase of 2.9% annually. Higher growth is planned for Recreation Facilities (4.2% average annual increase) compared to other facilities (1.6%).

A significant portion of the $408 million is for three facilities: the new Salem Community Centre, the new Hewitt Community Centre, and the expanded Operations Centre. Other new facilities planned over the next 10 years include Salem and Hewitt Library Branches, Secondary Plan Area Municipal Campus, Fire Station 6, Allandale Recreation Centre expansion, and Phase 2 of the Barrie-Simcoe Emergency Services Campus. The total growth and expansion needs for facility assets are shown in Figure 5-6. This growth does not include previously approved funding (prior to 2023) and does not include the renewal or upgrade portion of expansion projects which are funded through non-DC sources. Renewal and upgrade needs are considered under Section 5.3.2. The growth and expansion projects also exclude facilities covered under other AM Plans such as water, wastewater, and transit facilities.

Figure 5-6: Growth Needs – 2022 to 2031 (Facilities)



5.3.2 Capital Renewal and Upgrade Needs

For facility assets, the renewal forecast is based on the recommended activities from the building condition assessments as well as the associated data maintained and updated in the City's RFAM and Archibus systems. The estimated service lives assumed in the forecasts considers the appropriate expected life over which an asset can still provide the required service levels before needing replacement. These typical estimated service lives are summarized in Table 5-4. The timing of renewal activities in the forecast is determined based on the asset's current condition or age and estimated service life from the facility condition assessment. The lifecycle analysis is based on extending the building envelope as long as possible to minimize lifecycle costs while maintaining the required service levels. This approach does not account for eventual replacement of the whole building, which may be decided for strategic reasons or changes in functional requirements in addition to, or separate from state of good repair needs.

Table 5-4: Typical Estimated Service Lives (Facility Assets) and Repair Frequencies

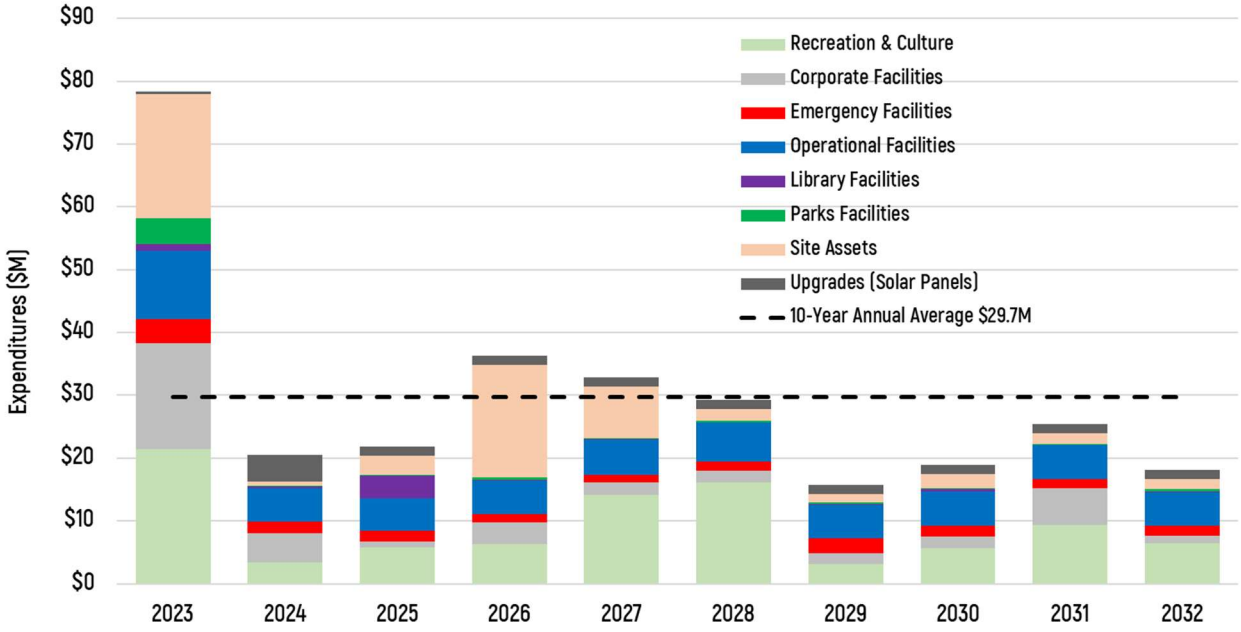
Asset Type	Estimated Service Life (Years)	Major Repairs (Years)
2.1 Concrete	100	15 to 25
2.2 Masonry	100	25
2.3 Metals (Steel Framed Structure)	100	25
2.4 Wood (Wood framing)	100	25
3.1 Thermal & Moisture Protection		
Built-up Roof, Modified Bitumen Roof, TPO Membrane	20 to 30	
Brick, Veneer, Concrete Block Wall repairs		20 to 30
EIFS Wall System	40	20
Metal Sloped Roof	40	
3.2 Openings (Doors, Windows)	20 to 40	
4.1 Finishes		
Carpet	12	
Acoustic Tile Ceiling	25 to 30	15
Ceramic Floor	30	15
Gypsum board	30 to 40	15
Vinyl Tile	20 to 25	15
Laminate Partitions	20	10
Masonry Block Partitions	100	50
4.2 Specialties		
Water Type Fire Extinguishers	15	
Flammable Liquid Storage Cabinets	25	
4.6 Conveying Equipment		
Traction Elevator	30 to 35	15 to 20
Hydraulic Elevators	25 to 30	15 to 20
5.1 Fire Suppression (Sprinkler System)	35 to 45	
5.2 Mechanical Plumbing (Fixtures and Piping)	20 to 40	
5.3 HVAC	20 to 30	
5.4 Integrated Automation & Controls	20 to 25	
5.5 Electrical	20 to 40	
5.7 Safety & Security (Card Access Control, Cameras)	15	
1.3 Exterior Improvements		
Asphalt, Parking	20	10 to 12
Concrete sidewalks, curbs	25 to 30	10 to 12
Retaining Walls	40	20
Fencing	30	15

Upgrade work includes energy efficiency improvements and projects to meet accessibility requirements. Much of this work is considered and incorporated during the capital renewal work. The requirement for dedicated projects for accessibility are considered on a project by project basis as specific opportunities are pursued by the City. These potential projects are not forecasted in this AM Plan.

Figure 5-7 summarizes the unconstrained renewal and upgrade needs over the next 10 years for the City's facility assets. The unconstrained scenario represents the expenditures required to replace every asset per the recommended condition assessment and forecasts in RFAM and Archibus such that there is no backlog of work. In this case, the average renewal and upgrade need is estimated at $29.7 million per year for the period 2023-2032. Barrie-Simcoe Emergency Services Campus (Phase 1) is a new facility without a building condition assessment, and it was therefore assumed that a 1% reinvestment rate into the facility will be required in each of the next 10 years. The renewal work for the Operations Centre was determined from the Capital Plan as this facility is planned for an overhaul and the needs are more accurately reflected in the Capital Plan expenditures.

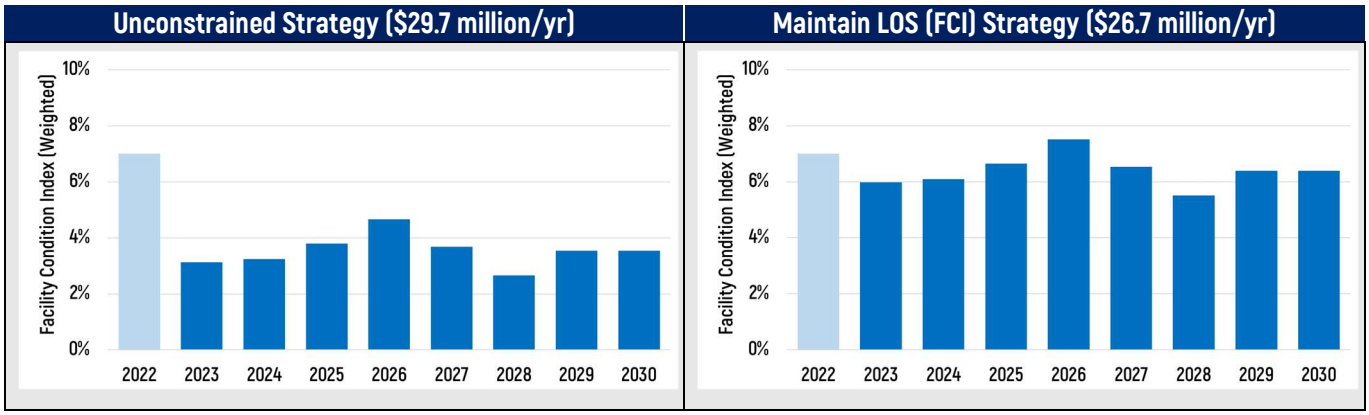
In the unconstrained forecast, the expenditure in the first year (2023) includes the expenditures required to clear the backlog of major repairs and replacements. The backlog portion of the 2023 expenditure is estimated at $57.8 million. A significant portion of the backlog is due to work required on recreation facilities, City Hall, and the previous Barrie Police Headquarters (29 Sperling Drive). Projects that are currently in-progress and already previously funded are not included in the backlog or forecasted needs.

Figure 5-7: 10-Year Capital Renewal & Upgrade Needs Forecast - Facilities (Unconstrained)



Per O.Reg. 588/17, the AM Plan investigates the expenditures required to maintain current service levels. If the City maintains its Facility Condition Index (FCI) at approximately 7% (weighted by facility replacement value), a $30 million backlog of needs can be maintained through each year to the end of the forecast by deferring renewal on some assets. In this constrained scenario, the estimated average annual renewal need is reduced by the remaining backlog amount ($3 million per year) to $26.7 million per year. A comparison of the FCI over the next 10 years for the unconstrained strategy and the maintain LOS strategy is summarized in Figure 5-8. The affordability of these strategies will be discussed in Section 6. As the City continues to improve the forecasts from the building condition assessments and in RFAM and Archibus, the accuracy of the estimated forecast of FCI over time will also improve.

Figure 5-8: Facility Condition Index Forecast (Unconstrained versus Maintain LOS Strategy)*



*For facilities, the FCI is based on the next two-year forecast of needs; as the forecast is limited to 10 years, the FCI is not calculated beyond 2030

5.3.3 Operations and Maintenance Needs

The City supports asset reliability service levels through operations and maintenance (O&M) work. Table 5-5 summarizes the City's main asset-related O&M activities for facility assets.

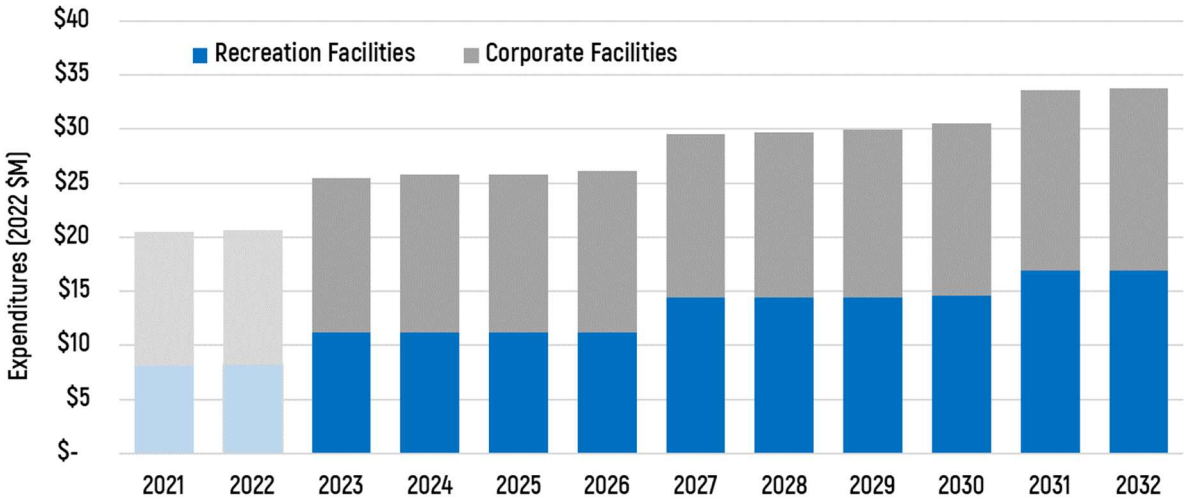
Table 5-5: Main Operations and Maintenance Activities for Facility Assets

Asset	Operations & Maintenance Activities
Overall Facility	· Utilities: Gas, hydro, water · Cleaning · Re-painting · Conduct Building Condition Assessments
Elevators, Life Safety Devices	· Inspections and testing per regulations · Maintenance/repair as needed · Other repairs per building condition assessment recommendations
HVAC, Plumbing, Electrical	· HVAC component replacements and repairs · Piping and valve repairs · Generator testing · Emergency light testing · Other repairs per building condition assessment recommendations
Site	· Snow clearing · General grounds maintenance · Parking lot asphalt repairs, crack sealing · Sidewalk and walkway repairs · Concrete stair repairs · Guard and handrail repairs/replacements · Other repairs per building condition assessment recommendations
Structural / Architectural	· Foundation wall/waterproofing repairs · Brick and Masonry block repairs · Interior wall and ceiling finish repairs · Roof repairs · Other investigations and repairs per building condition assessment recommendations

Figure 5-9 summarizes the forecasted operating budget related to facilities over the period 2023-2032, based on the City's current 2023 budget of $25.4 million. Budgets from 2021 and 2022 were impacted by COVID with lower expenditures in those years. The average annual increase beyond 2023 is estimated at 2.9% based on the estimated growth in the asset portfolio of facility assets, which was estimated at an additional $408 million in asset value by 2032 (see Section 5.3.1) compared to the existing portfolio value of $1.22 billion. As a significant portion of the new assets is for Recreation facilities, the operating budget for Recreation Facilities is required to increase at an average annual increase of 4.2%. The forecast in Figure 5-9 accounts for the specific timing of expected increases in the budget per planned capital growth in the City's 10-Year Capital Plan.

The operating budget covers 'Recreation Facilities' and 'Corporate Facilities' departments from the Operating Budget which includes salaries, insurance, and other non-asset related accounts in addition to the specific asset activities listed in Table 5-5. Figure 5-9 does not include accounts under Energy Management, Facilities Administration, Facility Planning & Development, Client Services, Recreation Programs, or Recreation Administration & Business Services.

Figure 5-9: Operating Budget Forecast – Facilities ($M)



Both corporate and recreation facilities utilize a Minor Capital account that is subject to potential underfunding. For example, a pump that needs replacement may cost under $8000, which doesn't meet the capital threshold. If a few pumps unexpectedly need to be replaced, the expenditures under Minor Capital add up quickly. Capital renewal and Minor Capital requirements need to be balanced with one another to ensure an overall lowest lifecycle approach for facility assets. For example, based on a proactive approach, a Capital project would be planned for replacing all windows at a facility that would ensure less reliance on Minor Capital within the Operating Budget for replacing individual windows.

Variance in certain accounts of the Operating Budget occur each year as certain events or emergencies unexpectedly occur. Previous expenditures that needed to be covered under Repairs & Maintenance accounts include the installation of generators (including rental of a standby generator) at Fire Headquarters and City Hall to meet TSSA inspection requirements. Expenditures such as those based on legislative changes cannot always be predicted.

6 Financial Analysis

The financial analysis is informed by the preceding sections of the Asset Management Plan: the value and condition of the assets, the current levels of service, the risks to service delivery, and the lifecycle activities needed to reduce the risks to acceptable levels. The financial strategy considers the affordability of the recommended asset management actions to maintain current service levels.

A key challenge to financial sustainability is aligning level of service decisions and affordability. Additional challenges include changes in the cost of infrastructure investments and unforeseen impacts to funding. In advance of the 2025 O.Reg. 588/17 requirements, this section of the AM Plan reviews the annual funding projected to be available and compares the funding to the needs forecasted in the Lifecycle Strategy to provide preliminary funding shortfall estimates. Forecast and funding gap analysis limitations are discussed in Section 6.4.

6.1 Funding Sources

Through the City's budgeting process, capital project and operating activity expenditure information is gathered from each service area, including investment needs, trends, and priorities, to enable preparation of the capital and annual operating budget plans. A 10-year Capital Plan is presented to Council, and the first year is reviewed for approval on an annual basis. The Operating Budget is also approved annually and includes a three-year operating forecast. The investments are proposed with careful line-of-sight to financial sustainability and affordability for residents and businesses. Once the expenditure plans are finalized, a financing plan is developed which includes several key sources of funding as outlined in the table below.

Table 6-1: Key Sources of Funding and Financing

Funding Source	Description
Development Charges (DC)	Reserves (from current and prior years' development charges collections in accordance with the DC Act)
Front Ending Agreements / Development Contributions	Reserves (from current and prior years' developer front ending agreements and developer contributions outside the DC Act)
Debt	Long term borrowing, to be paid for by future taxpayers; unless DC debt, which is paid by DC reserves and development charges
Canada Community-Building Fund	Funding available for eligible projects (formerly the Federal Gas Tax Fund)
Reserves	Reserves from current and prior years' contributions from City revenues such as Property Tax and facility-related revenues such as recreation programming and ticket sales
Grants	Project specific grants / subsidies (other than the Canada Community-Building Fund)

Development Charges (DCs) are collected by the City from developers under the City's DC Bylaw. DCs are held in designated DC reserve funds and used to fund a portion of growth-related infrastructure as prescribed by the City's DC Bylaw. Projections relating to DC revenues are based on DC rates and the projected growth in developments.

Capital upgrade and renewal work is funded by reserves, with some federal Canada Community-Building funding, as well as grant and debt funding. Grants from the Provincial or Federal governments, including Canada Community-Building Fund grants, are also used to finance the capital program. However, many grants are a result of stimulus or other one-time funding that may be more difficult to forecast. Grants are not included in the budget forecast until confirmed.

Capital reserves are established as a source of pay-as-you-go funding for the City's capital program. Funding for these reserves is obtained annually through contributions from property tax. The annual reserve contributions are based on forecasted financing requirements and provisions required to sustain reserve balances at appropriate levels to address infrastructure replacement costs in the future and inherent uncertainties in capital funding needs. Reserve contributions are evaluated annually to ensure adequate funds are raised to meet future capital requirements and to smooth out the impact on the annual operating budget.

The Financial Strategy section compares the planned capital funding available in the City's Capital Budget against the forecast needs for the recommended capital lifecycle activities to determine if there is a funding shortfall in the Capital Budget to maintain current service levels.

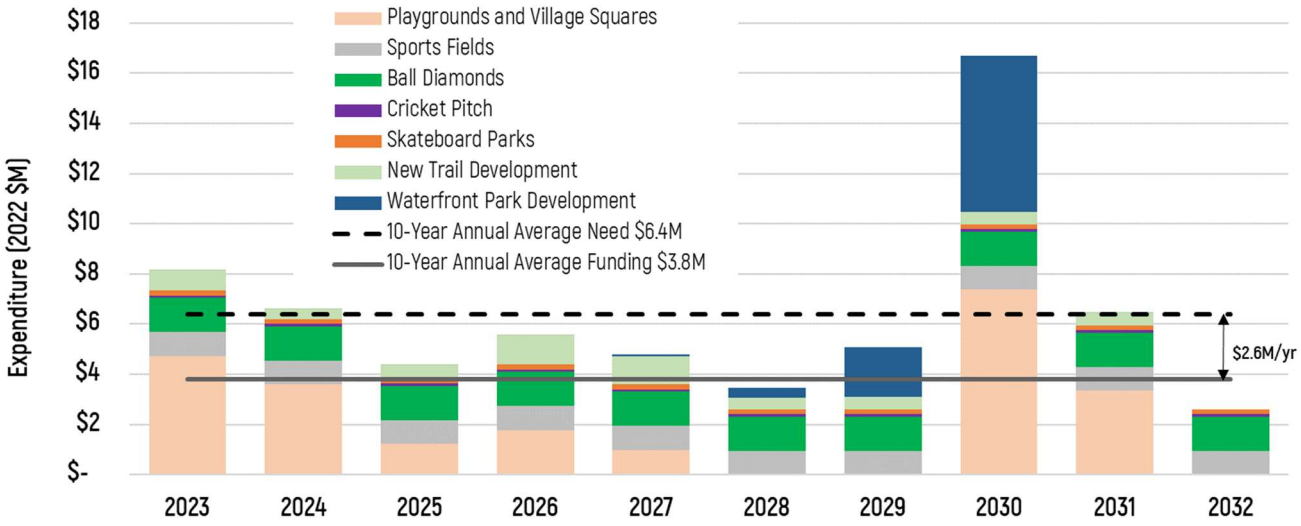
6.2 Financial Sustainability

6.2.1 Parks & Outdoor Recreation

6.2.1.1 Capital Growth

As discussed in Section 5, the total growth needs for Parks & Outdoor Recreation Built assets are estimated at an average of $6.4 million per year, as shown in Figure 5-2. Playgrounds, village squares, new trail development, and waterfront park development are included and funded in the City's 10-Year Capital Budget costing a total of 38 million. New sports fields, ball diamonds, cricket pitches, and skateboard parks that were identified in the City's 2019 Outdoor Recreation Facility Study are not currently planned or funded by the City. This shortfall of $26 million in new assets (or average of $2.6 million/year) will result in a reduced service level in terms of the number of outdoor recreation facilities available per resident. However, for some types of sports facilities, there is still available booking capacity that may mitigate the service level impacts experienced by users. Further explanation of the projected needs for outdoor recreational facilities can be found in the City's 2019 Outdoor Recreational Facility Study.

Figure 6-1: Growth Needs versus Funding – 2023 to 2032 (Parks & Outdoor Recreation Assets)

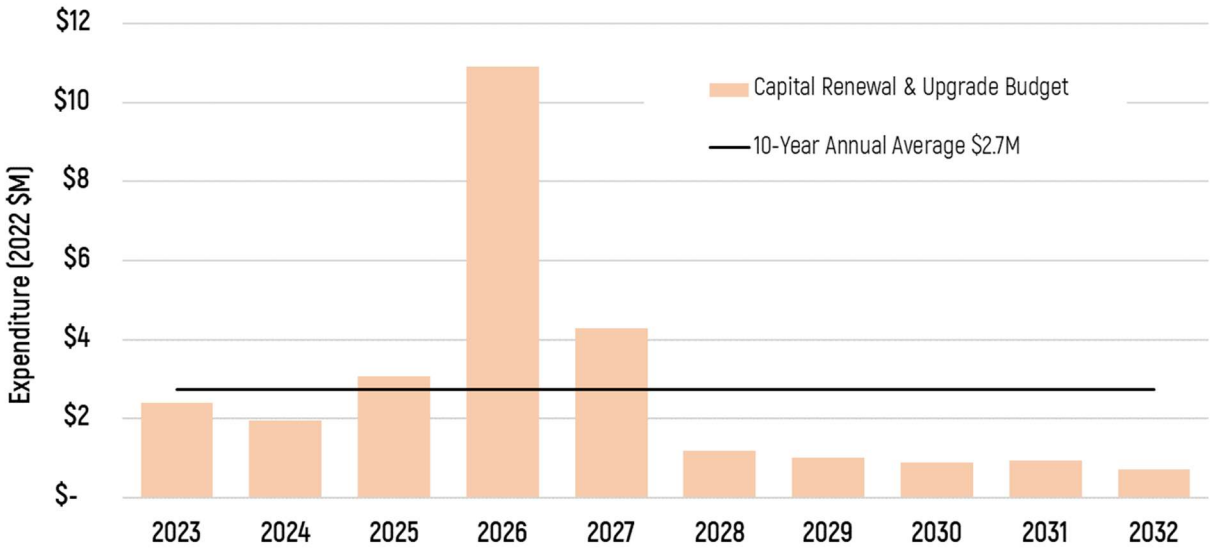


As discussed in Section 5, for maintained parkland and natural assets, several actions outlined in the City's Climate Change Adaptation Strategy provide the basis for new capital growth projects, although no specific costing or timeframes have been developed and are not considered in this AM Plan. Future additional growth needs may include projects such as increasing natural and forested areas in high surcharge and runoff areas, increasing tree canopy cover, and planting of more vegetation along watercourses to reduce erosion risk.

6.2.1.2 Capital Renewal and Upgrade

The estimated amount of funding available over the next 10 years for Parks and Outdoor Recreation assets is based on the non-DC funding available in the City's 10-Year Capital Budget. The funding available for renewal and upgrade is estimated to be an average of $2.7 million per year over the next 10 years, as shown in Figure 6-2.

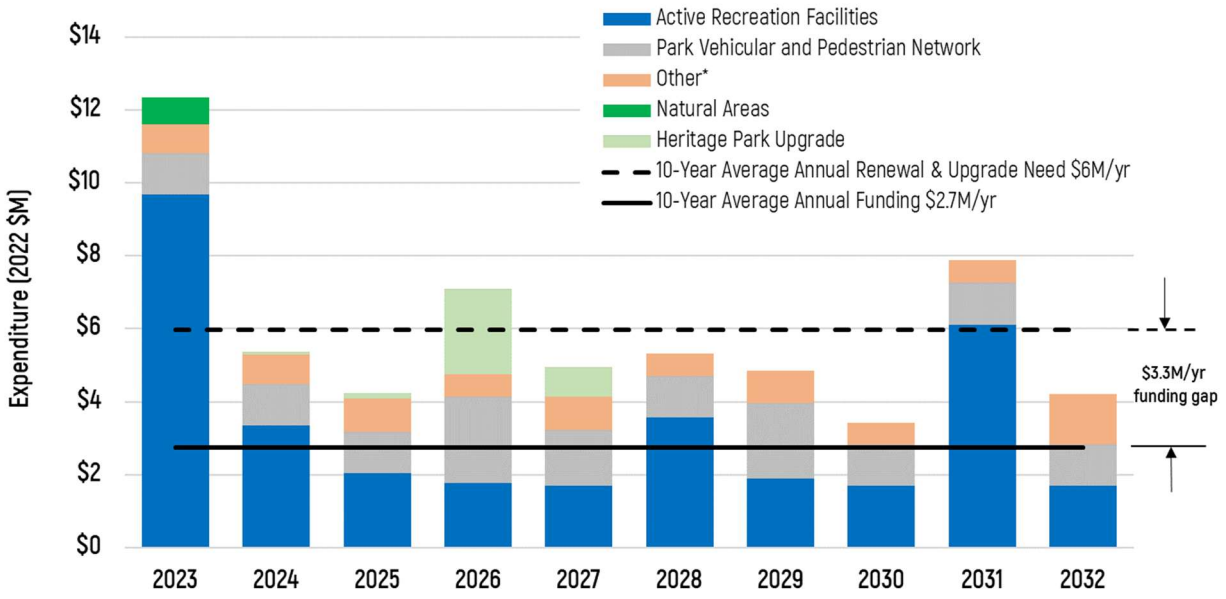
Figure 6-2: 10-Year Capital Renewal & Upgrade Funding Available ($M) – Parks & Outdoor Recreation



As discussed in Section 5.2.2, the average annual renewal and upgrade need is $6.0 million per year to maintain current service levels.

Figure 6-3 shows the forecasted average annual need to maintain service levels of $6.0 million per year (dashed black line) compared to the average annual funding of $2.7 million per year (solid black line). This results in an estimated average annual funding gap of $3.3 million per year over the next ten years and indicates that the renewal and upgrade for Parks and Outdoor Recreation assets is approximately 45% funded. This analysis assumes that 30% of the Heritage Park Development are upgrade needs and the other 70% is funding available for the renewal of existing assets.

Figure 6-3: Capital Renewal and Upgrade Funding Gap – Parks & Outdoor Recreation



*Other includes park structures (e.g. pavilions), fencing, utility lines, electric service panels, scoreboards, boat launch, shoreline protection, park furniture (e.g. benches), and wastewater infrastructure.

6.2.1.3 Operations and Maintenance

As discussed in Section 5.2.3, the City's current 2023 budget is $7.8 million and is estimated to need to increase annually at an average of 2.7% based on the currently planned growth in the asset portfolio of built assets, which was estimated at an additional $38 million in asset value by 2032 (see Section 6.2.1.1) compared to the existing portfolio value of $124.2 million. The 2.7% annual increase is currently assumed to also apply to maintained parkland and natural assets. The operating budget increases do not reflect inflation.

As indicated in Section 5.2.3, the operating budget has two main challenges in meeting future expected service levels: i) challenges due to asset growth and inflation; and ii) service level improvements to address existing gaps.

Challenges due to Asset Growth and Inflation

The City's ability to perform the required inspection and maintenance activities has been at risk over the past few years as the operating budget has not been sufficiently funded to align with recent growth in the asset portfolio as well as the increased costs of materials and contracted services. Examples of cost increases in several services from 2018 to 2022 are provided in Table 6-2.

Table 6-2: Service Cost Increases from 2018 to 2022

Service	2018	2022	4-Year % Cost Increase
Vegetation Maintenance	$22,500	$198,000	780%
Fertilizer (average cost/kg)	$0.25	$0.85	240%
Pruning (average cost/tree)	$25	$38	52%
Tree Removals (average cost /tree)	$383	$499	30%
Inground Garbage Receptacles (average cost per unit)	$875	$1,327	52%

Service Level Improvements to Address Existing Gaps

The City expects that current service levels will need to be improved to meet expected service levels for the community and more efficiently manage the lifecycle of some assets. As indicated in Section 5.2.3, additional O&M funding to meet proposed service levels is expected to be required for park lighting, pickleball, park structures, bridges, stairs, trails, and natural assets. This AM Plan provides a preliminary discussion on the costs to meet some of the expected service levels, which will be considered in future AM Plan updates to address the proposed service level O.Reg. 588/17 requirements for 2025.

For Parks & Outdoor Recreation Built assets, the following activities are estimated to be underfunded for future proposed service levels:

- Trail inspection and maintenance: The North Shore Trail O&M cost is approximately $15,000/km. The rest of the natural trails in the city are currently budgeted under $1,000/km but may require up to $4000/km annually for Class 2 trails and up to $1,500/km for Class 3 trails per the City's 2019 Trails Master Plan. Additional expenditures are therefore required to meet the service levels outlined in the Trails Master Plan.
- Park Lighting: Many parks have old lighting systems and fixtures that are overdue or will need replacement soon. It is recommended that the City develop an inventory and condition assessment of park lighting to estimate future maintenance and replacement needs.
- Pickleball: The significant increase in the number of pickleball courts has not been supported with additional operating resources or budget to maintain them. Within a few years, it is expected that the City will not be able to keep up with the anticipated acrylic surface repairs. Growing demand and utilization has also required additional maintenance time for staff to inspect and maintain these assets.
- Park Structures: It is recommended that the City complete formal inspections at least every five years on park structures. These inspections will help form a long-range maintenance and capital plan for park pavilions.
- Bridges, Stairs, Pathways: Repairs are not currently budgeted, and are taken out of general operating accounts such as the Repairs & Maintenance General account, or Minor Capital.
- Natural Assets: Additional expenditures are anticipated for activities such as managing and controlling invasive species.

For trails as an example, it is estimated that $249,348 would be required annually to meet the service levels outlined in the City's Trails Master Plan for the existing network (see Table 6-3). These costs do not consider the winter snow removal costs that would be expected on Type 2 Multi-Use Trails.

Table 6-3: Estimated Annual Operations and Maintenance Costs for Pathways and Trails

Trail Type	Total Existing Trails (km)	Unit Maintenance Cost ($/km/yr)	Annual Maintenance Cost ($/yr)
Type 2: Multi-Use Trail	46	$3,250	$149,500
Type 3: Connector Trail	16.1	$1,325	$21,333
Type 4: Natural Trail (including 58.7km tertiary trails from AMP)	86.4	$875	$75,600
Type 5: Stormwater Management Facility Access	2.2	$1,325	$2,915
Total (Excluding Waterfront Trail)	**150.7***		**$249,348**

*Existing trail inventory is based on Trails Master Plan and differs slightly from updated GIS inventory used in AM Plan

For Maintained Parkland and Natural Assets, O&M work enables the City to ensure natural assets provide the expected service levels. As part of the Climate Change Adaptation Strategy, several specific actions speak to the need for and importance of improved natural assets O&M activities. Specifically, the strategy calls for:

- Collecting data on the urban canopy to develop baseline information and direction for a future Urban Forest Management Plan.
- Supporting the identification and mapping of invasive species as part of the Urban Forest Strategy.
- Develop strategies to reduce wind pressure (e.g., tree planting, pedestrian sheltering, etc.) especially around the marina and on north/south roads.
- Increase preventative maintenance and inspection of trees on public property (e.g., tree pruning, removal of diseased/hazardous trees, proactive planting) to reduce damage caused by extreme weather events to the urban forest.

In addition to the strategic importance of improved O&M for climate change adaptation, such actions are also needed to ensure that other impacts and hazards to natural assets are properly monitored and mitigated. Typical and assumed O&M activities used to establish an average lifecycle management cost for maintained parkland and natural assets are summarized in Table 6-4. For natural assets, these costs are associated to preliminary proposed service levels that are not fully funded in the operating forecast in Figure 5-5, and will be considered in the next AM Plan per O.Reg. 588/17 requirements.

As noted in Section 5.2.2, most natural assets do not require a renewal phase as they do not typically have a formal end-of-life. However, street and park trees, managed as individual trees do have a natural end-of-life that requires renewal planning. The current age information within the tree inventory does not provide a specific number of years so it is not possible to strictly apply the assumed 50-year lifecycle for trees. Tree age is recorded as young, mature, or over-mature. To determine the number of trees estimated for replacement, it was assumed that over the next 10 years, all "over-mature" trees will need to be replaced. Further, it was also assumed that over the next 10 years, any tree with a condition rating of "poor" or "dead" will need to be replaced. Based on the tree inventory data, 337 park trees and 493 street trees meet these conditions. To establish the inspection and pruning costs for street and park trees, the average inspection and pruning costs were estimated by tree size using tree DBH (diameter at breast height). Pruning and inspection costs for trees vary by tree size from a low of $16 per tree for DBH less than 10cm to a high of $457 per tree for DBH greater than 100cm. These costs are based on actual historical pruning and inspection costs for the City of Barrie. Tree replacement costs are $1350 per tree, which includes removal and planting costs.

For other natural assets, unit costs per hectare were based on values published by Credit Valley Conservation that were used to estimate the costing of natural assets in Peel Region (Life Cycle Costing of Restoration and Environmental Management Actions: Costing Natural Assets in Peel Region (Dec 2020)). Lifecycle activities and frequencies were adjusted as required to reflect planned practices for the City of Barrie, summarized in Table 6-4.

Table 6-4: Estimated Annual O&M Needs for Maintained Parkland and Natural Assets

Asset Type	Operations & Maintenance Assumptions	Average Annual Need
Natural Assets		**$2,457,520**
Street Trees	• Pruning and inspection Costs, once every 7 years • Costs vary by age of tree • Replace over-mature trees and trees with condition "dead" or "poor" within next 10 years	$135,972 $66,555
Park Trees	• Pruning and inspection Costs, once every 7 years • Costs vary by age of tree • Replace over-mature trees and trees with condition "dead" or "poor" within next 10 years	$46,305 $45,495

Asset Type	Operations & Maintenance Assumptions	Average Annual Need
Woodlot	• Forest Health Assessments completed once every 10 years • Periodic control of invasive species, assuming a 20-year cycle to treat all woodlot areas • Enhanced underplanting, 10% of area every 10 years • Hazard tree removal, 10% of basal area every 10 years	$1,415,297
Wetlands	• Monitoring program that assesses wetland health once every 10 years • Periodic control of invasive species, assuming a 20-year cycle to treat all wetland areas • Assumed replanting of degraded areas, 10% of area every 10 years	$205,653
Open Space	• Monitoring program that assesses open space health once every 10 years • Woody vegetation removal and / or intermitting mowing, 25% of site area - every 4 years • Targeted seeding and planting, 10% of area every 10 years	$542,242

Of the $2.45 million of estimated annual O&M costs for natural assets, approximately half ($1.2 million) is associated with managing and controlling invasive species. and it is expected that a significant increase in invasive species management budget will be required to effectively address anticipated issues for natural assets. The estimate in Table 6-4 may need to be further supplemented by specific actions outlined in the Climate Change Adaptation Study to ensure that climate-related impacts and hazards to natural assets are also properly monitored and mitigated.

6.2.2 Facilities

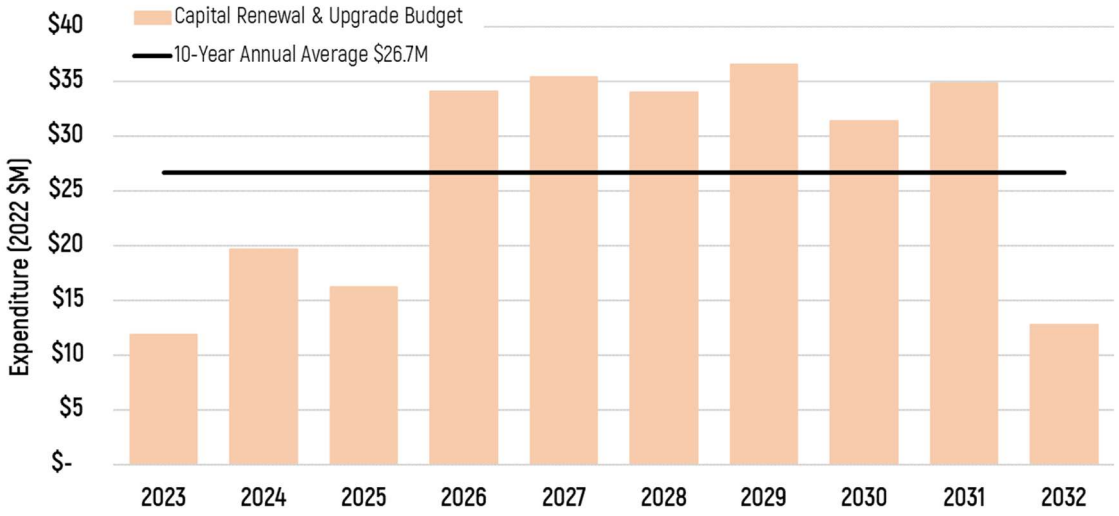
6.2.2.1 Capital Growth

As discussed in Section 5.3.1, the total growth in City facilities is estimated to cost a total of $408 million over the next 10 years (average $40.8 million per year). These include new and expanded facilities to maintain growth-related service levels that accommodate the City's increasing population and Secondary Plan areas. These projects are planned to maintain current service levels and are fully funded through development charge funding. Compared to the current $1.22 billion portfolio, the additional value in facility assets translates into an average compounded increase of 2.9% annually (4.2% for recreation facilities and 1.6% for other facilities).

6.2.2.2 Capital Renewal and Upgrade Needs

The funding available for renewal and upgrade of facility assets is estimated to be an average of $26.7 million per year over the next 10 years based on the City's Capital Budget, as shown in Figure 6-4. The current Capital Budget shows significantly increased levels of funding for renewal and upgrade after 2023.

Figure 6-4: 10-Year Capital Renewal & Upgrade Funding Available ($M) – Facilities*

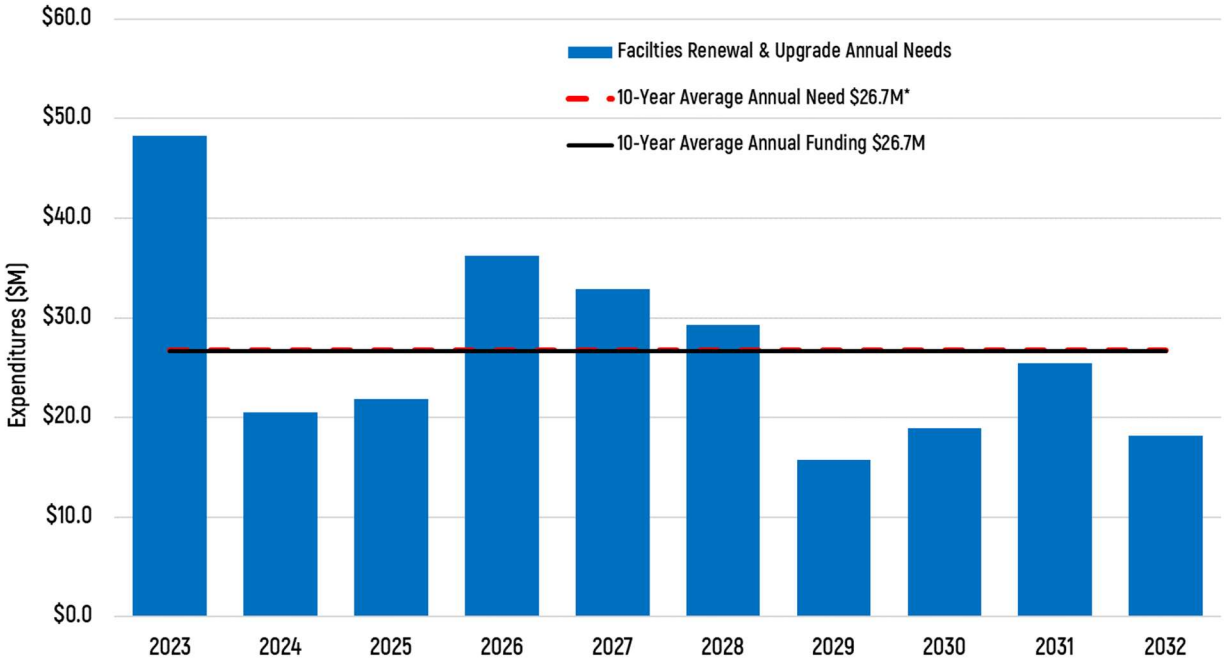


*Facilities are typically multi-year projects. Previously approved funding (prior to 2023) is not included.

As discussed in Section 5.3.2, the estimated average annual renewal need is $26.7 million per year to maintain current service levels. Figure 6-5 shows the forecasted average annual need to maintain service levels of $26.7 million per year (dashed red line) which aligns with the average annual funding of $26.7 million per year (solid black line), indicating that the funding for renewal and upgrade of facility assets is adequate to maintain current service levels provided that the City's 10-Year Capital Budget is funded as currently planned, and that the City has the resources to carry out the projects as currently planned.

The analysis does not consider additional accessibility projects that the City may decide to carry out in the future. All new buildings and major renovations are built to accessibility requirements per the Ontario Building Code, and potential accessibility upgrades are also considered during capital renewal work. As discussed in Section 5.3.2, as part of its accessibility initiatives, the City considers going above and beyond legal requirements and pursues individual projects that address resident expectations or projects that are opportunities for demonstrating industry leading practices. In such cases, the City minimizes the funding needs and impacts on the taxpayer by seeking out additional grants dedicated for accessibility improvements. It is recommended that the City integrate accessibility needs into future BCAs such that both renewal and accessibility needs are considered in developing optimal project recommendations that balance the benefits and costs of completing accessibility upgrades at the same time as renewal work.

Figure 6-5: Capital Renewal and Upgrade Needs versus Funding - Facilities



*Additional accessibility improvements beyond those already in Capital Plan as part of renewal projects are not included

As discussed in Section 5, the forecast estimate will be further improved by ensuring data in both Archibus and RFAM systems are kept up-to-date with asset condition and recommended action timing and costs.

6.2.2.3 Operations and Maintenance

The operating budget for City facilities in 2023 is $25.4 million, as summarized in Section 5.3.3. The average annual increase beyond 2023 is estimated at 2.9% based on the estimated growth in the asset portfolio of facility assets, with 4.2% estimated for recreation facilities and 1.6% for other facilities. The estimated increases account for growth in the asset portfolio to maintain current service levels over the next 10 years. They do not consider inflation and do not include additional expenditures required to improve service levels.

In terms of current service levels, funding in the Minor Capital account may sometimes be underfunded. Funds can be quickly depleted with component replacements that are under the capital threshold but amount to significant costs when multiple components need to be replaced at a time. It is recommended that the City continue to monitor spending in this account to determine if additional funding will be required in future reviews of the Operating Budget.

6.3 Affordability of Current Service Levels

Table 6-5 summarizes the financial sustainability and affordability for growth, renewal and upgrade, and O&M activities based on the discussions in Sections 6.2.1 and 6.2.2. For Parks and Outdoor Recreation assets, the current Capital Budget will result in reduced capacity-related service levels in terms of the number of active outdoor facilities available per resident. The City will seek to mitigate the service level impacts by considering available booking capacity at existing facilities. In terms of maintaining reliability and functional service levels, there is an estimated $3.3 million average annual funding shortfall related to park asset renewal and upgrades. For facilities, service levels are expected to be maintained based on the currently planned funding for capital growth and renewal activities in the City's 10-year Capital Budget.

Increases to the operating budgets for parks, outdoor recreation, and facilities will be required to accommodate the planned growth in the asset portfolios for these service areas and maintain current levels of service over the next 10 years. For Parks and Outdoor Recreation, the operating budget has had challenges to align with recent growth in the asset portfolio as well as the increased costs of materials and contracted services. The estimated operating budget increases in Table 6-5 do not consider inflation or improvements to current service levels which may have further impacts on the City's budget requirements.

Table 6-5: Summary of 10-Year Financial Sustainability and Affordability of Current Service Levels

Asset Lifecycle	Forecast Needs	Planned Funding	Gap	Impacts
Parks & Outdoor Recreation				
Capital Growth	$6.4 M/yr*	$3.8 M/yr*	$2.6 M/yr*	Reduction in service levels, potentially mitigated by increasing utilization at existing facilities
Capital Renewal & Upgrade	$6.0 M/yr*	$2.7 M/yr*	$3.3 M/yr*	Reduction in service levels, increased risks (in addition to risks from existing renewal backlog)
Operations and Maintenance	$7.8 M in 2023 to $9.9 M in 2032; 2.7% annual increase over next 10 years	$7.8 M in 2023	2.7% annual average increase	Failure to increase resources to operate and maintain new assets will result in reduced service levels and increased risks
Facilities				
Capital Growth	$40.8 M/yr*	$40.8 M/yr*	No shortfall over 10-year forecast	New and expanded facilities are expected to maintain current service levels
Capital Renewal & Upgrade	$26.7 M/yr*	$26.7 M/yr*	No shortfall over 10-year forecast	Planned renewal expenditures are expected to maintain current service levels; risks remain due to existing renewal backlog
Operations and Maintenance	$25.4 M in 2023 to $33.7 M in 2032; 2.9% annual increase over next 10 years	$25.4 M in 2023	2.9% annual average increase	Failure to increase resources to operate and maintain new assets will result in reduced service levels and increased risks

*average annual needs/funding/gap over 10-year forecast

The City's AM Plan informs responsible decision-making and aligns with O.Reg. 588/17, which requires municipalities to demonstrate financial sustainability through the AM Plan. This AM Plan is proactive in setting the stage for meeting O.Reg. 588/17 requirements for year 2025 by identifying potential funding shortfalls in Table 6-5. This proactive approach enables the City to start the needed discussions on the affordability of current service levels such that it will be able to determine the appropriate service levels for the City by year 2025 that effectively balances the costs of services and associated risks.

6.4 Forecast and Funding Gap Limitations

The forecasts and funding gap estimates in this AM Plan are based on currently available data. The City has made significant achievements in building its park asset GIS inventory and carrying out facility condition assessments. As the City continues to implement additional condition assessment protocols, the confidence in forecasts and funding gap estimates will improve.

As discussed in Section 2, for Parks & Outdoor Recreation assets, construction year and condition assessments are not available for a significant portion of assets such as fencing, shoreline protection, and trails. For the forecast, these assets are assumed to require a regular reinvestment each year in the 10-year forecast. Timing of lifecycle activities can therefore be improved by investment in data collection or condition assessment programs, particularly with a focus on the more costly and more critical assets. As noted in Section 5.2.3, a park lighting inventory needs to be developed to help understand the long-term needs for these assets. Park structures such as pavilions should also be inspected as part of a condition assessment program to determine a long-term needs forecast.

For natural assets, the City has made progress by identifying capital and O&M activities through the Climate Change Adaptation Strategy. These actions should be prioritized and costed with timeframes put in place. This AM Plan provides typical lifecycle strategy costs for each natural asset type that should be reviewed and aligned with the climate change actions. As the City completes a more formal risk assessment of its natural assets based on a hazards assessment approach, the understanding of which areas are of highest risk will help inform the target areas for the City to prioritize capital and O&M activities.

For facilities, a comprehensive inventory and forecast is recommended to be maintained in the software systems for all critical assets identified in the building condition assessments such that one source can be utilized for a given facility. The current Archibus system does not capture building condition assessment data for park facilities and does not include building envelope assets. A cost-benefit analysis is recommended to assess which assets should be added to the Archibus system. The data in Archibus and RFAM systems should be kept up-to-date with current condition data, replacement costs, and recommended timing of needed rehabilitations or replacement.

In general, for both parks and facility assets, as the City refines the asset management strategies through tracking of treatment activity timing and associated benefits and costs, the City will improve its understanding of the deterioration rates and be able to refine the optimal renewal frequency associated with each asset type. Overall recommendations for the City to improve the AM Plan and general AM practices are summarized in Section 7.

6.5 Funding Strategy and Legislation Impacts

By 2025, O.Reg. 588/17 requires municipalities to identify the annual funding projected to be available to undertake lifecycle activities and provide an explanation of the options examined by the municipality to maximize this available funding. For any funding shortfalls to meet proposed service levels, the City is required to discuss how it will manage the risks of deferring or not carrying out activities due to the shortfall. This AM Plan provides a preliminary assessment of the funding shortfall to maintain current service levels. In the future, as the City investigates the options to manage shortfalls through various funding options, recent legislation impacts will also need to be considered.

On November 28, 2022, Bill 23, the More Homes Built Faster Act, received Royal Assent. The Bill is intended to take action to advance the province's plan to address the housing crisis by encouraging the building of 1.5 million homes over the next 10 years. The Bill intends to increase housing supply and provide attainable housing options by providing incentives such as:

- Reducing and exempting fees and development charges for building rental, attainable, affordable, and non-profit housing

- Making services provided by the City such as Social Housing as well as costs for growth related studies and some future land needs ineligible for development charges funding
- Reducing parkland dedication and/or cash in-lieu contributions

The magnitude of the impacts of these changes are unclear and still to be reviewed in detail. Preliminary estimates indicate that it is possible that growth-related revenues for the City could be reduced annually between 5 to 10%. The City collected $100 million in Development Charges in each of 2021 and 2022. Reductions to the funding of municipal services through any legislation are transferred to the existing tax rate/tax base. Therefore, without financial support from other levels of government, the changes will shift significant growth costs onto existing tax payers. The City will continue to review the legislation and monitor policy framework changes initiated by the province to fully understand the associated impacts to the City's financial budgets.

7 Recommendations

Development of AM Plans is an iterative process that includes improving data, processes, systems, staff skills, and organizational culture over time. This AM Plan is proactive in setting the stage for meeting O.Reg. 588/17 requirements for year 2025 by identifying potential funding shortfalls and reductions in service levels. This proactive approach enables the City to start the needed discussions on the affordability of current service levels such that it will be able to determine the appropriate service levels for the City by year 2025 that balances the costs of services and associated risks.

7.1 Parks & Outdoor Recreation

Table 7-1 provides an overview of the compliance of this AM Plan with Ontario Regulation 588/17 for current levels of service and recommends improvements to the City's asset management practices.

Table 7-1: Recommended Improvements for Parks & Outdoor Recreation Assets

State of Local Infrastructure
Compliance: For each asset category, the AM Plan provides a summary of the assets, their replacement cost, the average age of the assets, their condition, and the approach to assessing condition.
General Improvements:
-Continue to improve accuracy of unit replacement costs and current condition of assets, with focus on higher criticality assets with unknown condition.
Specific improvements:
-Develop inventory of park lighting and in particular, pathway lighting
-Improve inventory of park structures and develop a condition assessment program
-Improve inventory of sanitary laterals, wastewater systems, and irrigation infrastructure within park portfolio
-Document playground installation year data and consider developing a condition assessment program
-Align condition assessment programs with GIS unique asset IDs such that condition data can be mapped to inventory data
-Document the installation year of bridges, stairs, trails and pathways, hard surfaces, fencing, lighting, and shoreline protection. Focus on more critical assets, as benefits of data should be balanced against effort to collect data.
-Develop standard project close-out procedures such that the City receives the required inventory, asset IDs, operating procedures, and as-built drawings as part of turn-over of developments.
-Improve inventory of park trees, including addition of the Arboretum and the new waterfront trees that were planted when the City re-did the waterfront and Military Heritage Park.
-Develop a comprehensive inventory of natural heritage assets within the City, with clear indication of ownership. Though not required per O.Reg. 588/17, a comprehensive inventory regardless of ownership is beneficial where natural assets outside of City ownership support and contribute to meeting City service levels.
-Continue to complete forest health assessments for higher risk areas
-Improve structure of GIS data and asset type classifications to align with AM Plan reporting hierarchy to eliminate the need to divide and join separate GIS layers to develop a complete inventory for each asset type. High priority examples include trails (and walkways and pathways), bridges, and hard surfaces.

Levels of Service

Compliance: For each asset category, the AM Plan reports qualitative community descriptions and the current Levels of Service (LOS) performance for technical metrics.

General Improvements:

-For 2025 O.Reg. 588/17, develop Proposed LOS (target performance for each measure over each of the next 10 years), in alignment with the City's future Parks Strategic Plan and other corporate strategies such as those related to tourism

Specific improvements:

-Natural assets service levels in this AM Plan are focused on trees and canopy cover. Future development of additional service levels should account for the wide range of tangible and intangible benefits such as biodiversity, erosion risk reduction, and the contribution to community physical and mental health. Performance on service levels can be estimated based on geospatial analyses and criteria such as the extent of natural areas accessible within walking distance of residential properties.

-Consider additional measures that may be useful for asset decision-making and reporting, such as utilization rate of trails, the duration of playground closures, and operating costs per hectare (unit area) for different park classes (neighbourhood vs community, etc.).

Risk and Lifecycle Management Strategies

Compliance: The AM Plan provides the population and employment forecasts as set out in the City's Official Plan. For each asset category, the AM Plan provides the lifecycle activities that would need to be undertaken to maintain the current LOS for each of the next 10 years, based on an assessment of risks and lowest lifecycle cost options.

General Improvements:

-Once condition estimates are developed for assets that have not been assessed in this AM Plan due to lack of age or condition data, complete asset risk assessment (probability and consequence of failure scores)

-Continue to optimize the lifecycle activities by considering various operations, maintenance, and renewal activity options, and then evaluating the benefits over time to determine the lowest lifecycle cost option.

Specific improvements:

-Refine risk scoring as additional attribute data is collected and documented. For example, trails can be assigned updated CoF ratings based on the new classification system once this classification data has been updated for each trail segment in the GIS inventory

-For natural assets, develop a hazards risk assessment based on a geospatial analysis which identifies natural areas that are more likely to fail due to hazards such as invasive species, urban intensification, flooding, and extreme weather events

-Prioritize and develop costs for actions from the Climate Change Adaptation Strategy and align these actions with outcomes of the hazards risk assessment

-Improve understanding of growth and upgrade needs by incorporating recommendations from future studies, such as the Waterfront Strategic Plan

-Improved inventory and condition data on assets such as trails, park lighting and structures, as recommended for the State of Infrastructure section, will enable a more robust forecasting of lifecycle renewal needs for these assets

Financial Strategy
Compliance: The AM Plan provides the estimated 10-year capital expenditures and significant operating costs required to maintain the current levels of service and accommodate projected increases in demand caused by growth. For each asset category, the AM Plan provides the costs of providing the lifecycle activities that would need to be undertaken to maintain the current LOS for each of the next 10 years.
General Improvements:
-Update operating budget forecast as impact of on-going pressures, such as the increasing costs in the current economic and political environment are better understood. Also monitor stresses on the budget indicated in the Financial Strategy and review need for additional funding to meet proposed service levels, such as for trails maintenance and invasive species management. -Prepare 10-year operating and capital plans as required by O.Reg. 588/17 for AM Plans for Proposed LOS (due by July 1, 2025), and evaluate the funding shortfall to the Proposed LOS -Review and incorporate funding impacts related to new legislation such as Bill 23 -Align funding shortfall analyses in AM Plan with the City's long-term financial strategies

7.2 Facilities

Table 7-2 provides an overview of the compliance of this AM Plan with Ontario Regulation 588/17 for current levels of service and recommends improvements to the City's asset management practices.

Table 7-2: Recommended Improvements for Facilities

State of Local Infrastructure
Compliance: For each asset category, the AM Plan provides a summary of the assets, their replacement cost, the average age of the assets, their condition, and the approach to assessing condition.
General Improvements:
-Continue to improve accuracy of facility replacement costs. Similar unit construction costs were generally applied to similar types of facilities, with some modifications based on 2016 building condition assessments that provided information on differences between some facilities. Additional review of unit construction costs and modifying costs by individual facility is recommended in future updates of replacement value. -Maintain up-to-date condition of assets and recommended replacement/renewal year in Archibus and RFAM systems -Consider updating future Facility Condition Assessments (and RFAM/Archibus inventory data) to Uniformat II Standard and use consistent hierarchy between the two software systems
Facilities
-Consider developing a master inventory of parking lots including both park and facility parking lots. Currently, facility parking lots are covered within RFAM and building condition assessment data, and park parking lots are based on GIS inventory Archibus: -Determine the cost-benefit of adding the missing assets into Archibus (building envelope assets as well as all assets for parks facilities). It may be beneficial to only add critical assets such as the roof for each facility. Focusing on critical assets ensures that high-risk assets are not missed during capital/maintenance planning, while not wasting resources on maintaining data on less critical assets.

-Include the forecasted asset replacement year in Archibus
-Add field for indicating the currency (year) of condition data

RFAM
-Add field for indicating the currency (year) of condition data
-Track asset installation year data in RFAM

Levels of Service

Compliance: For each asset category, the AM Plan reports qualitative community descriptions and the current LOS performance for technical metrics.

General Improvements:

-For 2025 O.Reg. 588/17, develop Proposed LOS (target performance for each measure over each of the next 10 years)

Specific improvements:

-Consider adding service levels regarding facility accessibility depending on future City policies and initiatives

-Align targets for GHG emission reduction with the City's Community Energy and Greenhouse Gas Reduction Plan

Risk and Lifecycle Management Strategies

Compliance: The AM Plan provides the population and employment forecasts as set out in the City's Official Plan. For each asset category, the AM Plan provides the lifecycle activities that would need to be undertaken to maintain the current LOS for each of the next 10 years, based on an assessment of risks and lowest lifecycle cost options.

General Improvements:

-Continue to optimize the lifecycle activities from building condition assessments by considering various operations, maintenance, and renewal activity options, and then evaluating the benefits over time to determine the lowest lifecycle cost option.

Specific improvements:

-Apply risk at the building component level with CoF ratings and up-to-date condition ratings to better understand the level of risk across asset types (such as roofs, HVAC, and electrical components)

-Ensuring a complete inventory and maintaining up-to-date condition data and renewal activity timing in RFAM and Archibus per the State of Infrastructure recommendations will enable a more robust forecasting of lifecycle renewal needs for facilities

Financial Strategy

Compliance: The AM Plan provides the estimated 10-year capital expenditures and significant operating costs required to maintain the current levels of service to accommodate projected increases in demand caused by growth. For each asset category, the AM Plan provides the costs of providing the lifecycle activities that would need to be undertaken to maintain the current LOS for each of the next 10 years.

General Improvements:

-Prepare 10-year operating and capital plans as required by O.Reg. 588/17 for AM Plans for Proposed LOS (due by July 1, 2025), and evaluate the funding shortfall to the Proposed LOS

-Review and incorporate funding impacts related to new legislation such as Bill 23

-Align funding shortfall analyses in AM Plan with the City's long-term financial strategies

7.3 AM Plan Monitoring and Review

The AM Plan will be updated by 2025 for Proposed Levels of Service and at least every five years thereafter to communicate the proposed service levels, asset values, forecasted lifecycle activities, projected expenditures, and associated funding gaps for parks, outdoor recreation, and facility assets.