



Greenspace and Forest Services

Asset Management Plan

May 2024



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Introduction

1.1 Background

Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure requires all municipalities to prepare baseline asset management plans for all their assets. The purpose of this legislation is to have municipalities demonstrate they can maintain their assets, balancing affordability, risk, and service levels to sustain them in their present state, with no change to the service level for the next ten years.

To meet the provincial requirements, the City has created this first version of its Greenspace and Forest Services Asset Management Plan. It reports the current state of the assets, levels of service provided, strategies and activities applied by the City, historical and forecasted financial details, and potential improvement actions. It is a strategic document that provides a snapshot of current conditions and establishes a basis for future asset management planning and decision making. The Asset Management Plan is based on asset data and financial information from 2023.



1.2 Asset Classes and Types

The Greenspace and Forest Services Asset Management Plan includes assets that support the natural environmental features and systems that provide recreation and leisure opportunities for the public, as well as other benefits such as water quality protection, rainwater management, flood protection, habitat, and pollination.

Greenspace and Forest Services Asset Classes and Types

| | | |
|-----------------------------|----------------------------|--------------------|
| Forestry Fleet | | |
| • Fleet | | |
| Greenspace | | |
| • Enhanced Urban Greenspace | • Urban Natural Greenspace | • Rural Greenspace |
| Trees and Forest | | |
| • Forests | • Trees | |

Enhanced urban greenspace includes parklands. However, recreation assets located within parklands, as well as the assets, activities, and financial implications related to parkland maintenance, are captured in the Recreation and Cultural Services Asset Management Plan.



State of Local Infrastructure

2.1 Asset Inventory and Valuation

This Asset Management Plan represents an initial step in better incorporating natural assets into the City’s asset management program by capturing assets that support greenspace and forest services.

The City has not yet established estimated replacement costs for natural assets, except for trees, which are estimated to have a replacement value of approximately \$168 million. In addition, the fleet assets covered by this Asset Management Plan have a replacement cost of approximately \$6 million. Although there are various methods available for estimating replacement costs for other Greenspace and Forest assets, further review is required before the City includes such estimates in the AMP.

Greenspace and Forest Services Asset Inventory and Replacement Cost

| Asset Class | Inventory | Replacement Cost/Value |
|---------------------------|-----------|------------------------|
| Rural Greenspace | 12,559 ha | Not available |
| Enhanced Urban Greenspace | 1,904 ha | Not available |
| Urban Natural Greenspace | 1,694 ha | Not available |
| Forestry Fleet | 51 | \$6 M |
| Trees | 187,757 | \$168 M ¹ |
| Forest | 26,004 ha | Not available |

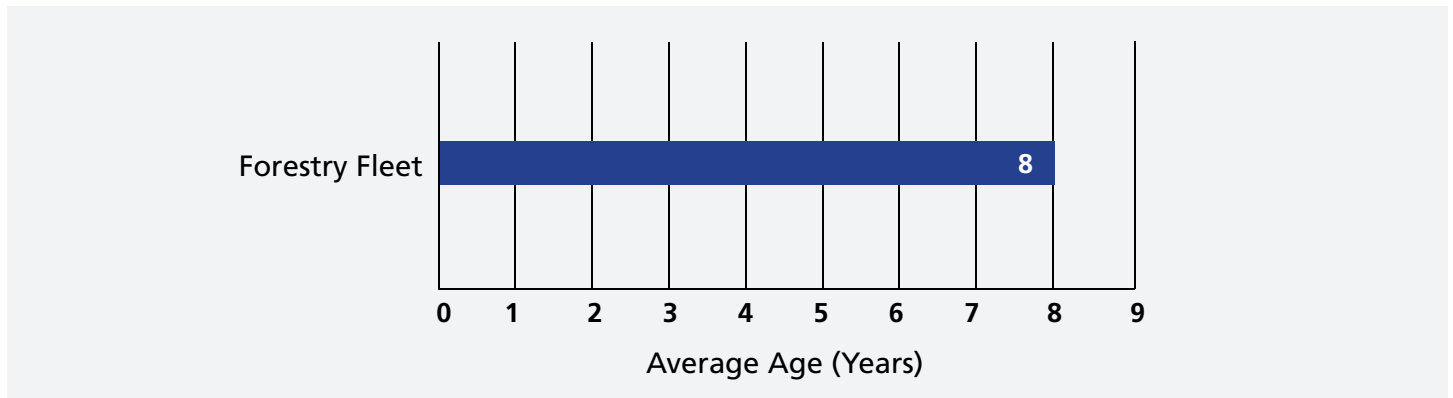
¹ The value shown in the table for Trees is the estimated replacement value (not replacement cost). The replacement value assigns a financial value based on key characteristics of each tree, whereas replacement cost would simply reflect the cost of planting a new tree.



2.2 Age and Condition

For assets like fleet vehicles, the age of an asset gives a sense of how close it is to the end of its service life and what renewal interventions may be appropriate. However, for greenspace, trees and forest assets, age information does not necessarily provide the same insights. Therefore, the Asset Management Plan reports the average age of Forestry Fleet assets only, as shown in the figure below.

Average Age of Forestry Fleet Assets



Condition data is available for Forestry Fleet assets. However, the City does not specifically monitor the condition of individual greenspace assets, and although the City does monitor the condition of trees and forests, comprehensive and reliable condition data for the full inventory is not available.



Based on condition data, supplemented by subject matter expert knowledge and professional judgment, the condition of Forestry Fleet assets is rated on a scale from “Very Good” to “Very Poor” as shown in the table below.

Five-point Scale for Forestry Fleet Asset Condition

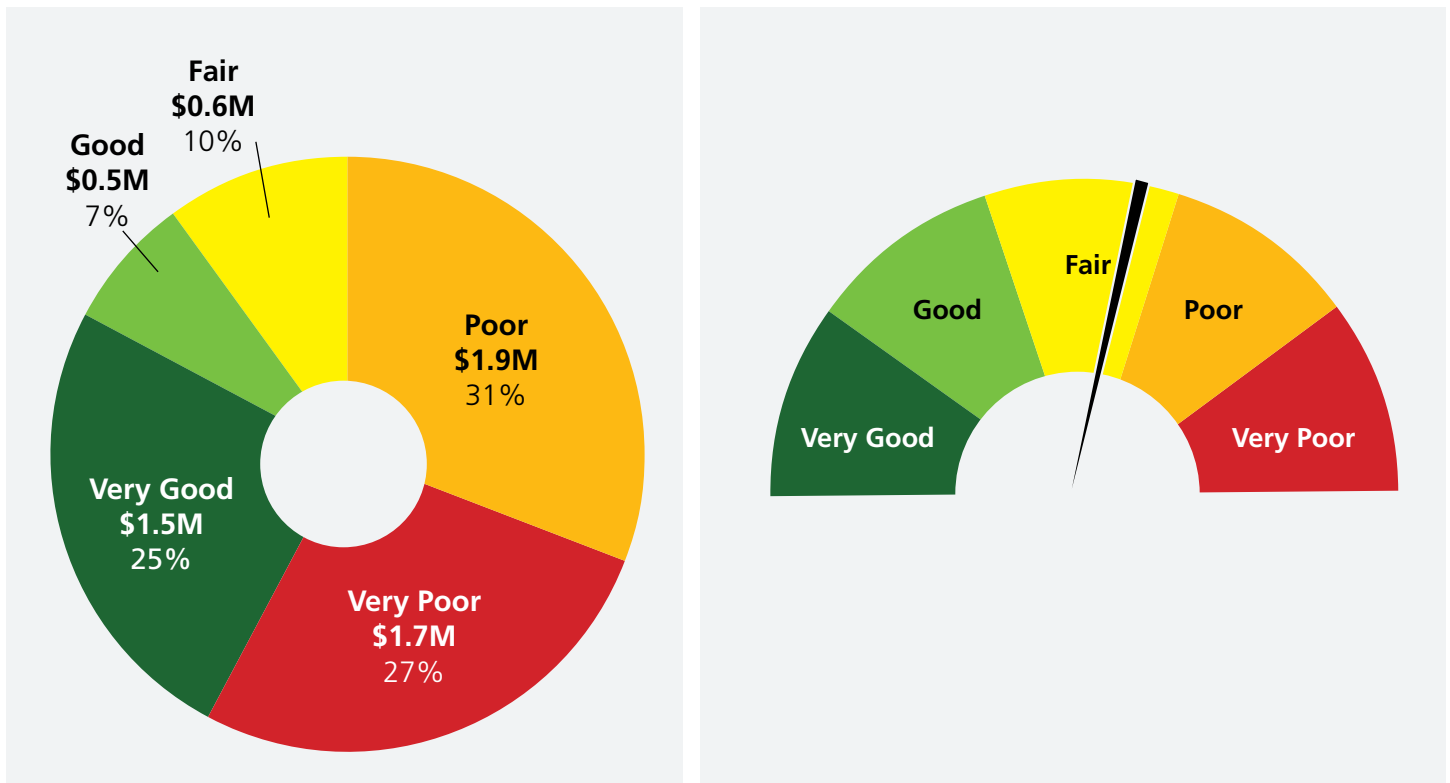
| Rating | Rating Description | Life Remaining |
|-----------|---|-------------------------------|
| | | (Forestry Fleet) |
| Very Good | Sound Physical Condition No short-term failure risk and no work required. | >75% |
| Good | Adequate for Now Acceptable, generally in mid stage of expected service life | 51% - 75% |
| Fair | Requires Attention Signs of deterioration, requires attention, some elements exhibit deficiencies | 26% - 50% |
| Poor | Increasing Potential of Affecting Service Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration | 1% - 25% |
| Very Poor | Unfit for Sustained Service (built infrastructure) / Nearing end of life (fleet) Near or beyond expected service life, widespread signs of advanced deterioration, some built assets may be unusable. | <1% (outside of lifecycle) |



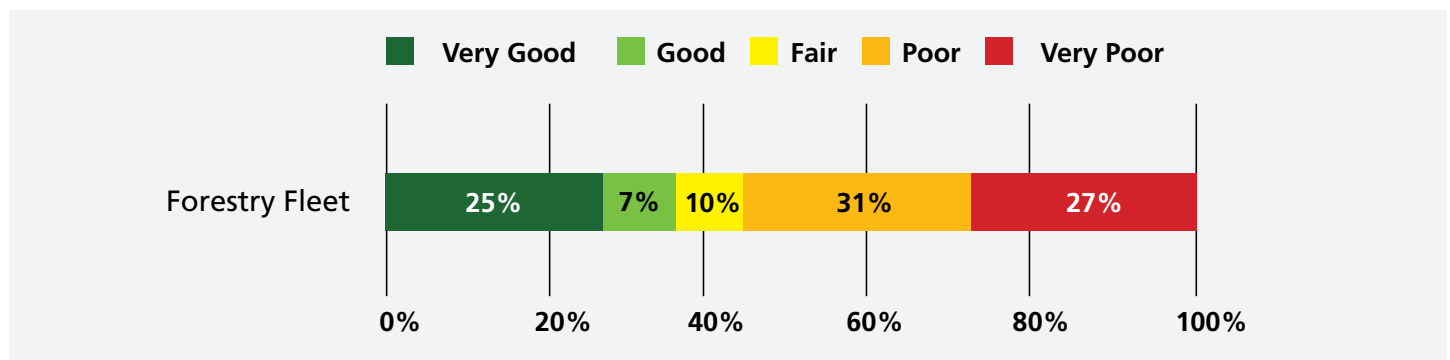
For Forestry Fleet assets, the City collects condition data through inspections and maintenance on a frequency of every six months and based on the original equipment manufacturer’s maintenance schedule.

The overall condition rating for Forestry Fleet assets is “Fair” as shown in figures below.

Overall Condition Profile of Forestry Fleet Assets



Condition Profile of Forestry Fleet Assets



Levels of Service

The City's assets exist to deliver service to customers. Levels of service measure the actual service delivered so that decisions can be made about the assets based on the service that they provide rather than simply on their condition.

The Greenspace and Forest Services Asset Management Plan establishes level of service measures and reports the current levels of service being provided. The measures align with City goals and recognize that greenspace and forest services assets should be managed in a way that:

- Achieves the urban tree canopy targets in the Official Plan and Greenspace Master Plan
- Ensures an adequate supply of green spaces to meet growing community need while maintaining natural systems
- Fosters a resilient, diverse and functional urban forest
- Reduces emissions associated with the City's operations and facilities
- Maintains all publicly owned trees to maximize current and future benefits
- Maintains assets in a state of good repair
- Provides sustainable and affordable services over the long-term



The level of service measures for greenspace and forest services are shown in the table below.

Level of Service Measures for Greenspace and Forest Services

| Service Attribute | Community Level of service | Technical Level of Service | Current Performance |
|-------------------|--|---|---|
| Capacity and Use | Achieve the urban tree canopy targets in the Official Plan and Greenspace Master Plan | Urban tree canopy coverage (percentage) | 31% (2017) |
| | Ensure an adequate supply of green spaces to meet growing community need while maintaining natural systems | Number of hectares of active parkland per 1,000 people | 2.4 ha (2021) |
| Function | Foster a resilient, diverse and functional urban forest | Percent of single species / percent of genus / percent of family of total tree population | <10% any single species; <20% any single genus; <30% any single family (2017) |
| | Reduce emissions associated with the City's operations and facilities | GHG emissions per total fleet | 426 tonnes CO2e (2022) |
| Reliability | All publicly owned trees are maintained to maximize current and future benefits. Tree health and condition ensure maximum longevity and minimizes risk potential | Meet the City's maintenance quality standard for tree inspection and pruning cycles | No (2022) |
| | Maintain assets in a state of good repair ² | Percent of assets in fair or better condition | 39% (2022) |
| Affordability | Provide sustainable and affordable services over the long-term | Asset Renewal Funding Ratio | 40% (2022) |
| | | Average Annual Renewal Investment | \$0.3 M (2022) |

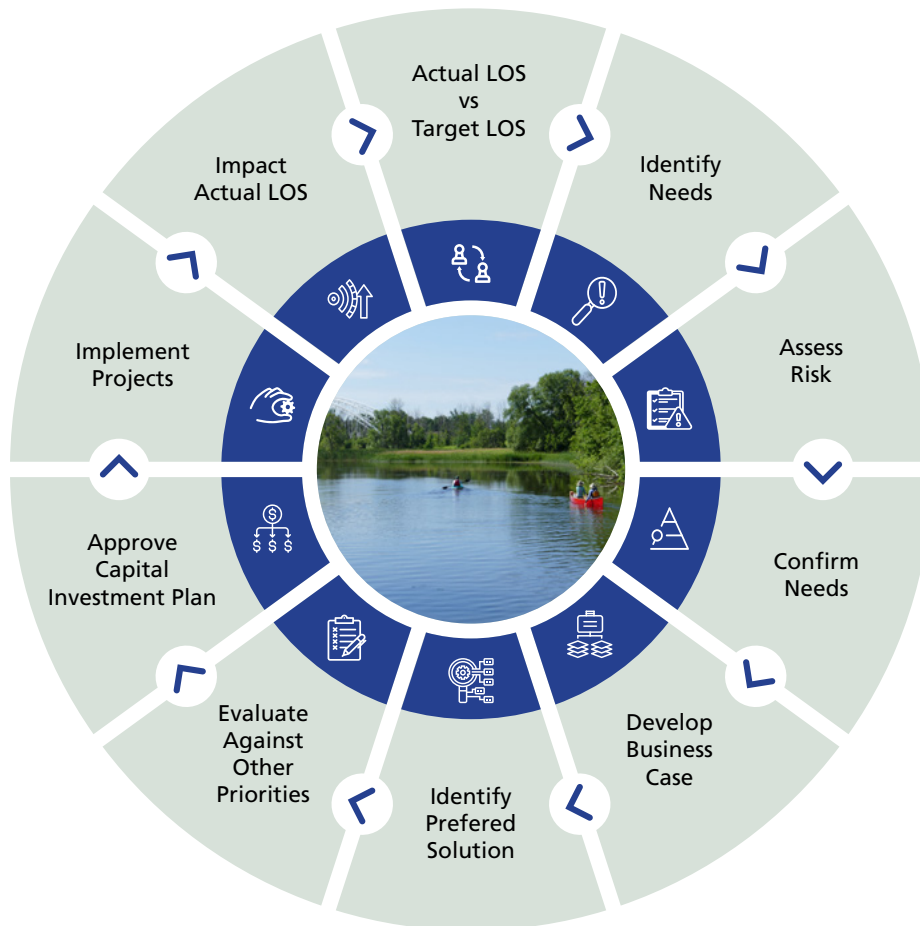
² This version of the Asset Management Plan reports condition only for Fleet assets, so this level of service measure applies only to Fleet assets.



Asset Management Strategy

4.1 Practices, Procedures and Tools

One of the key objectives of asset management is to recognize the objectives of the City and align them with the City's long term financial plans. This will allow Council to make informed decisions and provide clear direction on how the City will balance service levels, risks, and costs. The City has well-established practices to assess the risk of not meeting community and technical level of service standards and to determine the lowest lifecycle cost activities to reduce the risks to acceptable levels and the associated costs of undertaking them. The Asset Management Plan provides the needs forecast associated with maintaining current levels of service and compares it to the planned budget to determine funding gaps or surpluses.



4.2 Future Demand and Service Enhancement

In developing the Greenspace and Forest Services Asset Management Plan, a preliminary estimate was prepared of the cost of maintaining all of the assets that support the City's greenspace and forest services at their current level of service over the next 10 years. The estimate includes new assets to support growth, enhancements to existing assets and renewals based on lifecycle needs.

The strategies and funding requirements to address future demand and service enhancement expectations are based on:

- Growth needs for Enhanced Urban Greenspace ("parks development") based on preliminary estimates compiled for the update of the City's Development Charges Study, required to serve the city's growing population.
- Forecasted lifecycle renewal needs for Fleet, required to maintain assets in a state of good repair.
- Any enhancement needs for Greenspace assets would come from parkland dedication or the Forestry Branch operating budget, therefore no capital needs are identified at this time.
- There are no renewal needs for Greenspace assets and Trees and Forest assets identified at this time (and renewal needs are typically funded out of the operating budget, rather than capital accounts).

Ottawa's population is expected to increase to 1.4 million people by 2046, a significant increase of 40% since 2018, as summarized in the table below. This growth will put pressure on existing assets and services, and may require new or expanded assets to meet growing needs.

City of Ottawa Future Demand Projections for 2046

| | 2046 Projection | Growth Since 2018 |
|--------------------|-----------------|-------------------|
| Population | 1,409,650 | 402,150 |
| Private Households | 590,600 | 194,800 |
| Jobs | 827,000 | 189,500 |

Source: New Official Plan report to Council (ACS2021-PIE-EDP-0036), October 2021



The table below summarizes the future growth, enhancement and renewal needs forecast for greenspace and forest services assets.

Future Demand and Service Enhancement Needs Forecast for Greenspace and Forest Services

| Asset Class | 10-Year Growth Needs (\$ Millions) | 10-Year Enhancement Needs (\$ Millions) | 10-Year Renewal Needs (\$ Millions) | 10-Year Total Needs (\$ Millions) |
|---------------------------|--|--|--|-----------------------------------|
| Rural Greenspace | \$20.3 ³ | None identified at this time or not available | None identified at this time or not available | \$20.3 |
| Enhanced Urban Greenspace | \$156.3 | None identified at this time | None identified at this time or not available | \$156.3 |
| Urban Natural Greenspace | None identified or not applicable ⁴ | None identified at this time or not applicable | None identified at this time or not applicable | Not applicable |
| Forestry Fleet | Not available | Not applicable | \$8.1M | \$8.1 |
| Trees and Forest | None identified or not available | None identified at this time | None identified at this time or not available | Not available |
| Total | \$176.6 | - | \$8.1 | \$184.7 |

³ Growth needs for Rural Greenspace are estimated to be approximately equal to the planned budget.

⁴ Growth needs are not applicable to Urban Natural Greenspace because growth is received through dedication from developers.



Asset management planning also needs to consider the City's Climate Change Master Plan goals for both mitigation strategies to slow climate change impacts, such as reducing greenhouse gas emissions, and adaptation strategies to reduce negative impacts associated with existing and future climate change.

For greenspace and forest services, the Asset Management Plan estimates the increased operations and maintenance costs due to extreme weather events at approximately \$5.9M over the next 10 years. This is a preliminary estimate based on the latest information available, which will be refined over time.

Some climate change costs have been or are expected in future to be at least partially recovered from upper levels of government; these recoveries are not factored into the estimates. Also, the estimates do not capture damage to capital infrastructure due to catastrophic/extreme weather events (e.g., tornadoes); increased capital renewal needs due to accelerated asset deterioration; increased capital renewal costs for assets other than buildings (such as trees & forest, fleet and equipment); and gradual, long-term impacts due to climate hazards other than extreme heat, extreme rainfall, and freeze-thaw cycles (such as drought, ice storms and wildfires).

4.3 Lifecycle Management and Risk

Lifecycle management activities refer to the set of planned activities and actions undertaken to maintain the current levels of service and achieve good economic life of the assets. The activities undertaken range from operations and maintenance activities, including planned and reactive maintenance, renewal activities (such as condition assessments and rehabilitations), disposal activities and non-infrastructure solutions (such as policies and processes that reduce costs, mitigate risks or maintain/enhance service delivery).

The City applies a risk-based approach to prioritizing asset renewals. The risk assessment frameworks and methods vary across the different types of assets, but are generally based on the importance of each asset in terms of service delivery/continuity and the number of users who could be impacted.



Financing Strategy

The City continues to invest responsibly in maintaining infrastructure and has been increasing its capital investments to align with long-range financial plans. Funding targets recommended in the 2017 Comprehensive Asset Management Program were focused on maintaining critical infrastructure in a state of good repair. There will be a need to update the long range financial plans once new service levels are defined to ensure financial sustainability.

5.1 Expenditure History

For information on historical operating and capital expenditures, refer to the City’s historical annual budget documents.

5.2 Expenditure Forecast

Over the next 10 years, the City will continue investing in infrastructure to support operational expenses, respond to renewal needs, serve growth, and provide enhancements. The planned operating budget is based on Financial Planning’s operating budget forecast for Forestry Services, and the planned capital budget is based on Fleet Services’ 2024 forecast (for fleet renewal) and the City’s 2023 10-year capital budget forecast (for all other assets).

Budget Forecast for Greenspace and Forest Services

| Component | Expenditure/Budget Forecast (\$ Millions) | | | | | | | | | |
|----------------------------------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
| Operating Budget ⁵ | \$20.3 | \$21.1 | \$21.8 | \$22.5 | \$23.3 | \$24.1 | \$24.9 | \$25.8 | \$26.7 | \$27.7 |
| Capital Budget – Growth | \$10.4 | \$18.7 | \$16.3 | \$15.8 | \$14.6 | \$12.0 | \$9.5 | \$11.3 | \$3.5 | \$3.5 |
| Capital Budget – Enhancement | - | - | - | - | - | - | - | - | - | - |
| Capital Budget – Renewal (Fleet) | \$0.2 | \$1.0 | \$0.4 | \$0 | \$0.1 | \$0.4 | \$0.1 | \$0.4 | \$0.3 | \$0.3 |

⁵ Values shown are net operating budget requirement after expenditure recoveries and revenues.

The following operating expenditures that support greenspace services are not captured in this analysis:

- Expenditures out of the City’s parks maintenance budget (which support other service areas, such as Recreation (e.g., ball diamond maintenance) and Transportation (boulevard grass cutting), but are 100% captured in the Recreation and Cultural Services AMP).
- The Natural Systems and Rural Affairs Unit within the Planning, Real Estate and Economic Development Department).



5.3 Funding Gap

The funding gap is the difference between the forecasted asset needs and the planned capital budget. Over the next 10 years, the total needs for greenspace and forest services assets is \$184.7 million, while the planned budget is \$118.8 million, leading to a funding gap of \$65.9 million. The forecasted investment needs, planned budgets and funding gaps for greenspace and forest assets are summarized in the table and figure below.

Note that growth needs and planned budgets will be finalized as part of the Development Charges Bylaw Update, which is intended to better align growth needs with planned budgets.

The analysis does not present a complete picture of the funding gap for greenspace and forest services:

- As noted, a number of the forecasted future needs are not available or not identified at this time.
- Needs for trees and forest are currently largely funded out the operating budget, and there was not sufficient financial data available to complete a funding gap analysis for operating expenditures.



Funding Gap for Greenspace and Forest Services

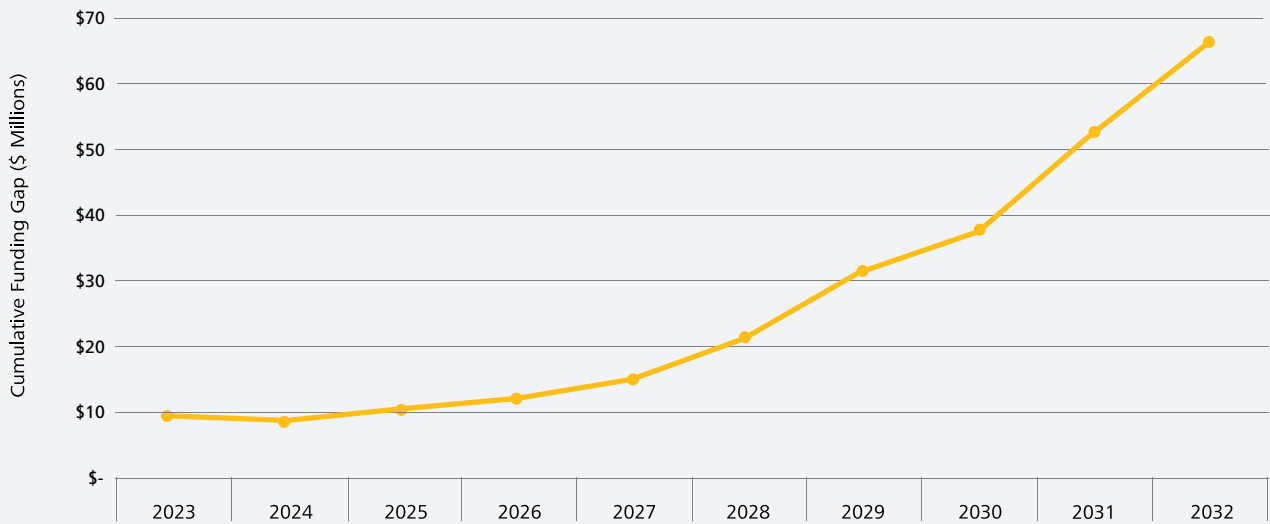
| Asset Class | 10-Year Need (\$ Millions) | 10-Year Funding (\$ Millions) | 10-Year Gap (\$ Millions) |
|---------------------------|------------------------------|---|---------------------------|
| Growth | | | |
| Rural Greenspace | \$20.3 | \$20.3 | \$0.0 |
| Enhanced Urban Greenspace | \$156.3 | \$95.2 | (\$61.1) |
| Urban Natural Greenspace | Not applicable | Not applicable | Not applicable |
| Forestry Fleet | Not available | Not available | - |
| Trees and Forest | Not available | Not available- included in Operating budget | Not available |
| Subtotal | \$176.6 | \$115.5 | (\$61.1) |
| Enhancement | | | |
| Rural Greenspace | None identified at this time | None identified at this time | Not applicable |
| Enhanced Urban Greenspace | None identified at this time | None identified at this time | Not applicable |
| Urban Natural Greenspace | None identified at this time | None identified at this time | Not applicable |
| Forestry Fleet | Not applicable | Not applicable | Not applicable |
| Trees and Forest | None identified at this time | Not available- included in Operating budget | Not available |
| Subtotal | - | - | - |
| Renewal | | | |
| Rural Greenspace | None identified at this time | None identified at this time | Not applicable |
| Enhanced Urban Greenspace | None identified at this time | None identified at this time | Not applicable |
| Urban Natural Greenspace | None identified at this time | None identified at this time | Not applicable |
| Forestry Fleet | \$8.1M | \$3.3 | (\$4.8) |
| Trees and Forest | None identified at this time | Not available included in Operating budget | Not available |
| Subtotal | \$8.1 | \$3.3 | (\$4.8) |
| Total | \$184.7 | \$118.8 | (\$65.9) |



Budget and Needs Forecast for Greenspace and Forest Services



Cumulative Funding Gap for for Greenspace and Forest Services



The City has planned dedicated funding over the next 10 years to address climate change needs. The funding supports not only greenspace and forest services, but various other services provided by the City. The climate change capital funding needs identified for the various City services and the total planned capital funding for climate change initiatives are summarized in the table below. These are preliminary estimates that are being refined through various initiatives, but they give a sense of the order-of-magnitude of future planned budget and potential needs.

Estimated Future Climate Change Capital Budgets and Capital Needs for All City Services*

| Capital Program | 10-Year Total Capital Budget (\$ Millions) | Service/Asset Needs Supported | 10-Year Total Climate Change Capital Needs (\$ Millions) | 10-Year Total Capital Funding Gap/Surplus (\$ Millions) |
|---|--|-------------------------------|--|---|
| Climate Change Master Plan | \$190.0 | All | \$401.9 | (\$179.1) |
| Emergency Reception Lodging Generators | \$4.1 | Buildings | | |
| Energy Management and Investment Strategy | \$28.7 | Buildings | | |
| Total | \$222.8 | | \$401.9 | (\$179.1) |

*Excludes:

- (1) Core assets (refer to Drinking Water, Stormwater, Transportation and Wastewater Asset Management Plans).
- (2) Transit services (all needs and budgets for transit services are covered by the Transit Long Range Financial Plan).



Improvement and Monitoring Plan

Based on the snapshot of current conditions and existing plans presented in the Greenspace and Forest Services Asset Management Plan, areas of potential improvement include:

- Data gaps, data management, and record keeping
- Cost estimating
- Level of service measures and targets
- Inspection, condition assessment, corrective maintenance, and risk assessment
- Climate change resiliency
- Applying an equity and inclusion lens

The Greenspace and Forest Services Asset Management Plan will be reviewed and updated on a regular basis and over time these improvements will be reflected in future versions of the Asset Management Plan.



More Information

For more information about comprehensive asset management, or to learn more about the City's Comprehensive Asset Management Program, please visit Ottawa.ca.

