

MAY 2025

VERSION 2.0

Emergency and Protective Services Asset Management Plan



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Introduction

1.1 BACKGROUND

Ontario Regulation 588/17: Asset Management Planning for Municipal Infrastructure (Sections 5 and 6) requires all municipalities to prepare 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 over the next ten years.

To meet the provincial requirements, the City has created this latest version of its Emergency and Protective Services Asset Management Plan. It reports the current state of the assets, target and expected levels of service, strategies and activities applied by the City, historical and forecasted financial details, risks and non-financial strategies, 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.



1.2 SUPPORT FOR CITY GOALS

The Emergency and Protective Services AMP supports the City’s 2023-2026 City Strategic Plan and the Strategic priorities of *a city that has affordable housing and is more liveable for all (including improving access to supports for mental health and substance use, health and emergency services) and a city that is green and resilient*. Specifically, it aligns with the strategic objectives to:

- Improve emergency response times.
- Reduce emissions associated with the City’s operations and facilities.
- Increase resiliency to extreme weather and changing climate conditions.
- Improve key infrastructure through asset management.

1.3 ASSET CLASSES AND TYPES

The regulation requires that for each asset category a summary of the assets is provided. The Emergency and Protective Services Asset Management Plan includes assets that support the protection of lives, property, and environment for residents and visitors provided by By-law Services, Fire Services and the Paramedic Service.

Emergency and Protective Services Asset Classes and Types

By-law Services	
• By-law Facilities	• By-law Fleet
Fire Services	
• Fire Equipment	• Fire Fleet
• Fire Facilities	
Paramedic Service	
• Paramedic Equipment	• Paramedic Fleet
• Paramedic Facilities	



State of Local Infrastructure

The regulation requires that for each asset category a summary of the replacement costs, average age of the assets, information available on the condition and a description of the municipality's approach to assessing condition is provided. The values in this section are based on asset data from January 2023.

2.1 ASSET INVENTORY AND VALUATION

The total replacement cost of Emergency and Protective Services assets is approximately \$620 million as summarized in the table below.

Emergency and Protective Services Asset Inventory and Replacement Cost

Asset Class	Inventory	Replacement Cost (millions; 2023\$)
By-law Facilities	1	\$16
By-law Fleet	84	\$4
Fire Equipment	362	\$26
Fire Facilities ¹	46	\$323
Fire Fleet	240	\$159
Paramedic Equipment	417	\$10
Paramedic Facilities ^{2,3}	6	\$52
Paramedic Fleet	142	\$31

1: Fire Facilities includes 43 Fire Stations. Two Fire Stations were constructed recently, so they are not captured in this report and will be included in a future update of the Asset Management Plan.

2: There is one Paramedic Administration Building that is leased, and which is not included in this inventory. There are lifecycle cost implications for this building because the City will eventually assume ownership.

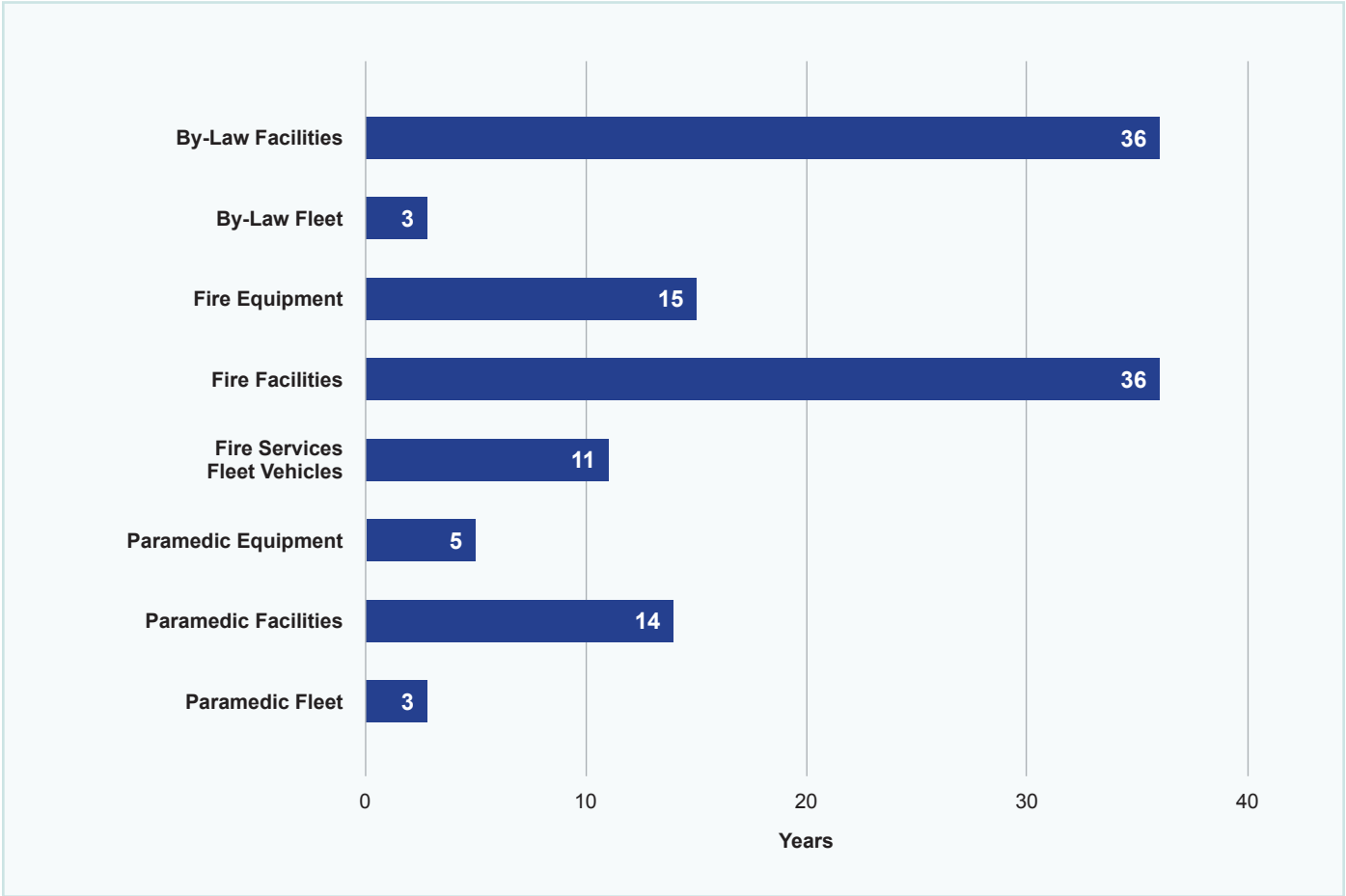
3: There are six additional Paramedic Posts that are leased, and which are not included in this inventory.



2.2 ASSET AGE AND CONDITION

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. The average age of the City’s Emergency and Protective Services assets is shown in the figure below.

Average Age of Emergency and Protective Services Assets



The City uses a range of techniques and solutions to collect and assess condition data, and at various frequencies, which is summarized in the following table.

Condition Data Collection Methods for Emergency and Protective Services Assets

Asset Class	Condition Data Collection Technique	Frequency
By-law Facilities	Building Condition Audit	10 years
By-law Fleet	Inspection and maintenance	6 months and original equipment manufacturer maintenance schedule
Fire Equipment	Calibration and regular preventative maintenance	As required
Fire Facilities	Building Condition Audit	10 years
Fire Services Fleet	Inspection and maintenance	6 months and original equipment manufacturer maintenance schedule
Paramedic Equipment	Calibration and regular preventative maintenance	As required
Paramedic Facilities	Building Condition Audit	10 years
Paramedic Fleet	Inspection and maintenance	6 months and original equipment manufacturer maintenance schedule



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

Five-point Scale for Emergency and Protective Services Asset Condition

Rating	Rating Description	Facility Condition Index (FCI) ⁴	Life Remaining	Life Consumed
		(By-law Facilities, Fire Facilities, Paramedic Facilities)	(By-law Fleet, Fire Fleet, Paramedic Fleet)	(Fire Equipment, Paramedic Equipment)
Very Good	Sound Physical Condition No short-term failure risk and no work required	< 0.02	>75%	< 25%
Good	Adequate for Now Acceptable, generally in mid stage of expected service life	0.02 – 0.05	51% – 75%	26% – 50%
Fair	Requires Attention Signs of deterioration, requires attention, some elements exhibit deficiencies	0.05 – 0.15	26% – 50%	51% – 75%
Poor	Increasing Potential of Affecting Service Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration	0.15 – 0.30	0% – 25%	76% – 100%
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	> 0.30	<0% (outside of lifecycle)	> 100%

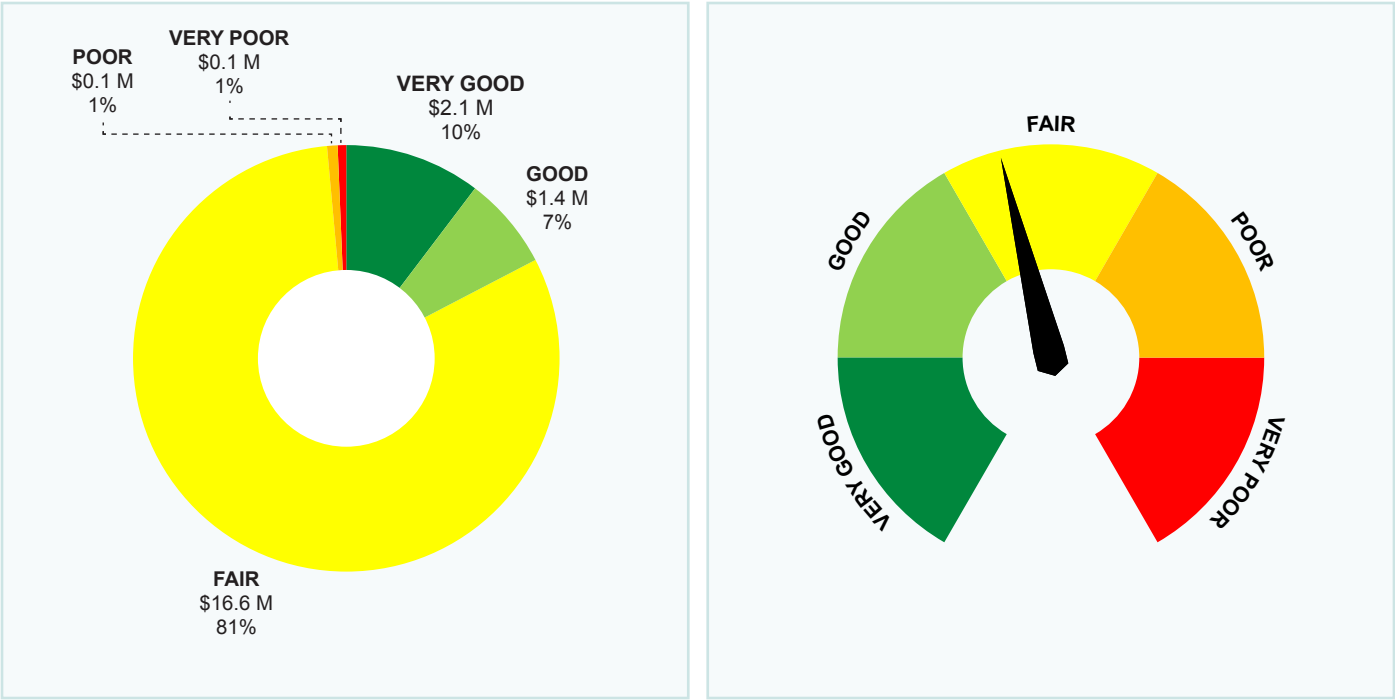
4: Where FCI = 0, or no deferred maintenance is reported, or required maintenance is reported but has not yet been deferred, condition is reported based on typical useful life consumed as follows:

Condition	Very Good	Good	Fair	Poor	Very Poor
Typical Useful Life Consumed	< 40%	40% – 70%	70% – 90%	90% – 100%	≥ 100%

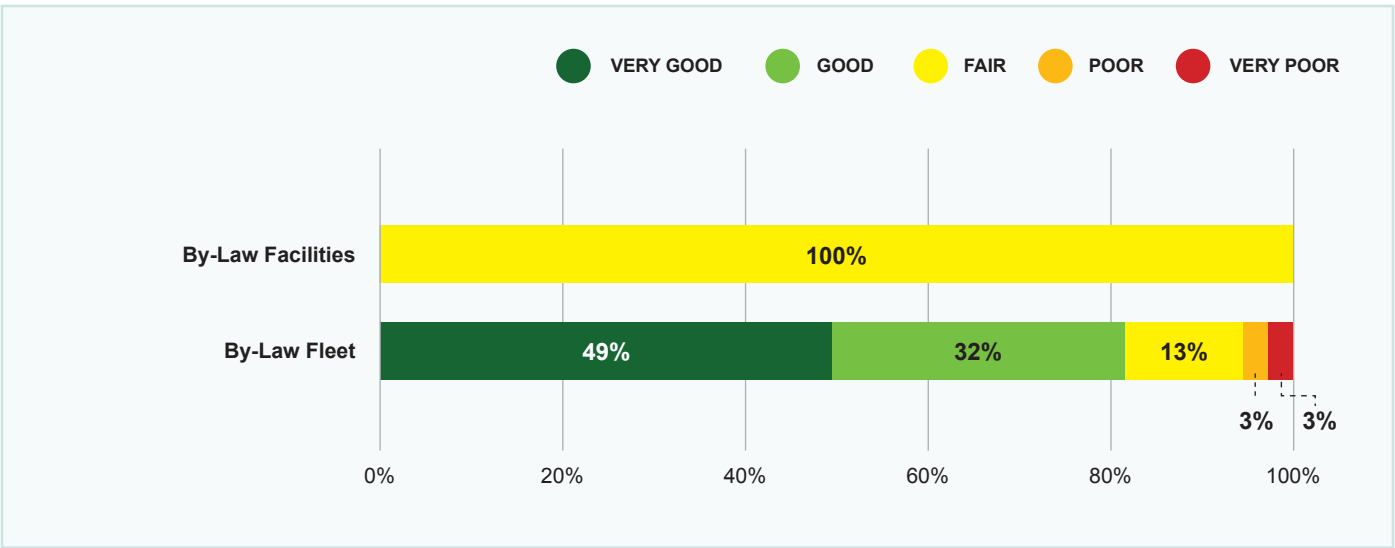


The overall condition rating for Emergency and Protective Services assets is Fair and a breakdown for the various asset classes is shown in the figures below. Condition distribution percentages are weighted based on replacement cost.

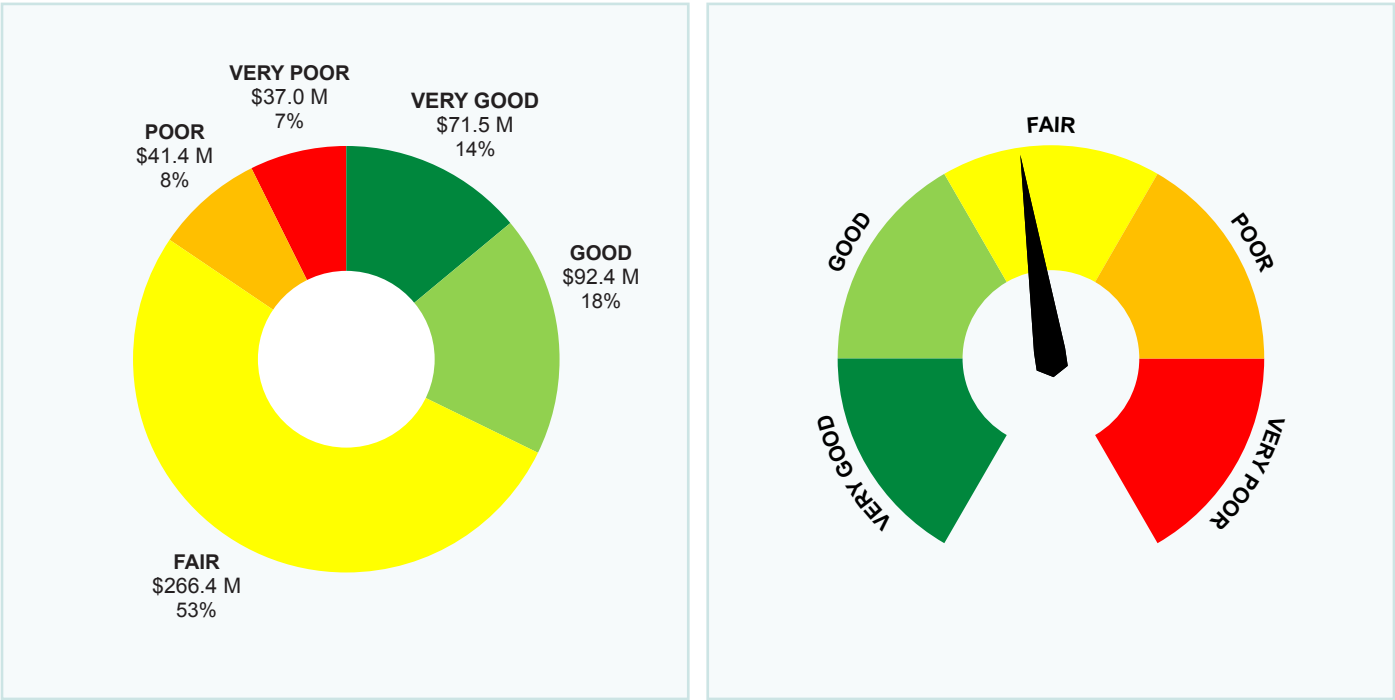
Overall Condition Profile of By-law Services Assets



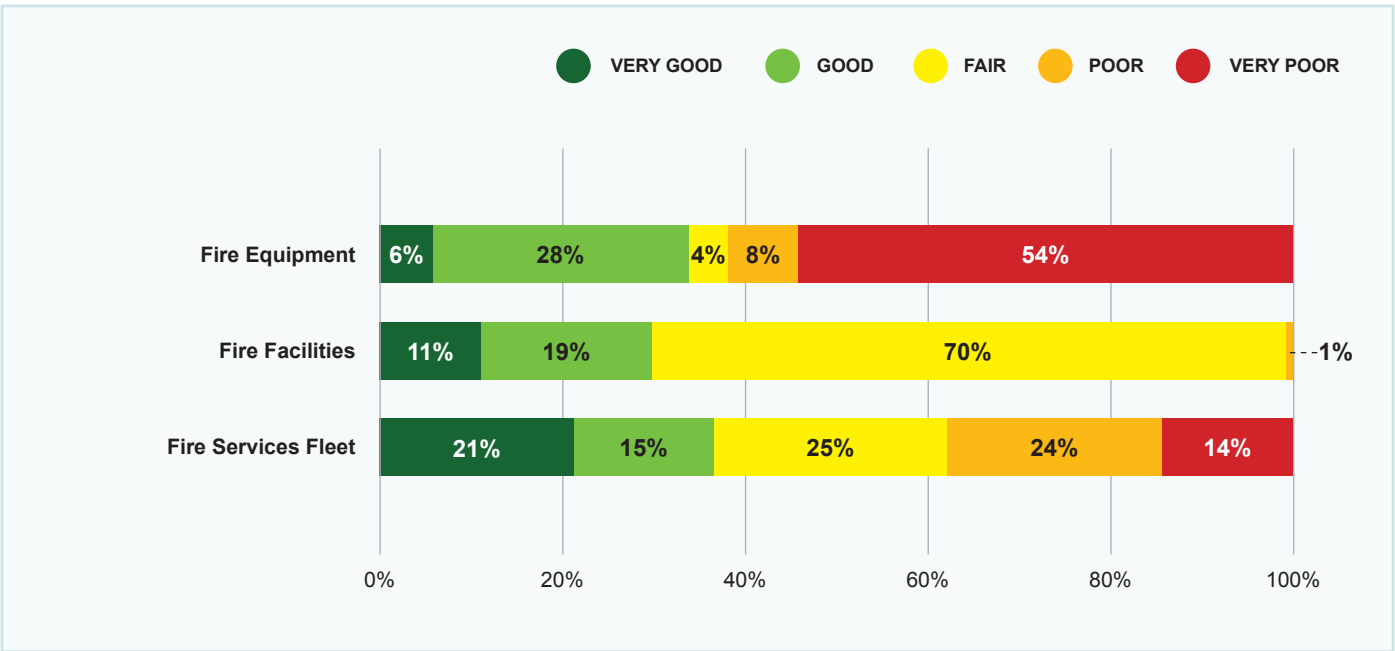
Condition Profile of By-law Services Assets



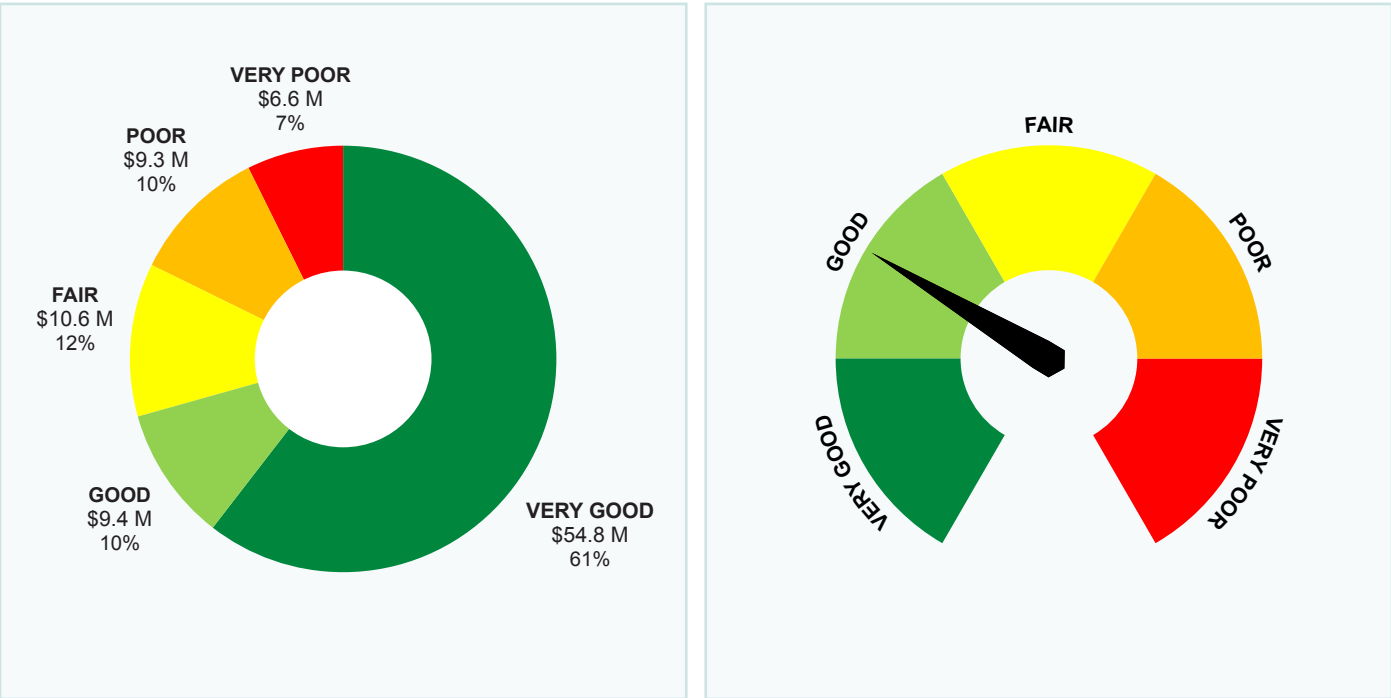
Overall Condition Profile of Fire Services Assets



Condition Profile of Fire Services Assets



Overall Condition Profile of Paramedic Service Assets



Condition Profile of Paramedic Service Assets



Levels of Service

3.1 LEVEL OF SERVICE CONTEXT

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 regulation requires that the Asset Management Plan includes for each asset category the levels of service that the municipality proposes to provide for each of the 10 years following the year in which the plan is published.

The Emergency and Protective 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 Emergency and Protective Services assets should be managed in a way that:

- Provides adequate response times
- Reduces emissions associated with the City's operations and facilities
- Increases resiliency to extreme weather and changing climate conditions
- Provides accessible facilities
- Maintains assets in a state of good repair
- Provides sustainable and affordable services over the long-term

3.2 HISTORICAL AND CURRENT LEVELS OF SERVICE

The levels of service measures for Emergency and Protective Services are shown in the table below. The performance reported includes:

- Historical performance, showing the service levels reported in the previous version of the Asset Management Plan.
- Current performance, showing the service levels being provided by the City based on the latest available information.



Levels of Service for Emergency and Protective Services

Service Attribute	Community Level of Service	Technical Level of Service	Historical Performance (2022)	Current Performance (2023)
Capacity and use	Provide adequate response times	First on Scene total response time (urban, moderate risk) (fire)	06:41 minutes	06:49 minutes
		Effective Response Force total response time (urban, moderate risk) (fire)	11:42 minutes	10:46 minutes
		Canadian Triage Acuity Scale (CTAS) 1 – Life Threatening response time (% responses within 8 Minutes) (paramedic)	61.8%	68.0%
		Canadian Triage Acuity Scale (CTAS) 2 – Urgent response time (% responses within 10 Minutes) (paramedic)	63.2%	68.8%
		Canadian Triage Acuity Scale (CTAS) 3 response time (% responses within 15 Minutes) (paramedic)	76.3%	79.3%
		Canadian Triage Acuity Scale (CTAS) 4 response time (% responses within 20 Minutes) (paramedic)	83.4%	83.5%
		Canadian Triage Acuity Scale (CTAS) 5 response time (% responses within 25 Minutes) (paramedic)	86.7%	86.8%
		Sudden Cardiac Arrest response time (percent of responses within 6 minutes) (paramedic)	48.4%	64.8%
		Hospital Offload Delay Time (minutes; average 90th percentile) (paramedic)	157 minutes	162 minutes
		Percent of service requests responded to within service standard (average or weighted average for Priority 1, 2 and 3 calls) (by-law)	81%	78%
		Average distance to the closest fire station for areas of strong equity concern relative to other areas of the city	Not reported	Strong equity concern: 1.9km Other areas of the city: 2.5km
Function	Reduce emissions associated with the City’s operations and facilities	Annual GHG emissions from Emergency and Protective Services buildings per thousand square feet (tonnes CO ₂ e)	3.3 t/1,000 sq. ft.	3.2 t/1,000 sq. ft.
		Annual GHG emissions from Emergency and Protective Services fleet (tonnes CO ₂ e)	6,642 t	7,442 t
	Increase resiliency to extreme weather and changing climate conditions	Percent of facilities with backup power for critical building systems	76%	72%
		Percent of critical facilities with a completed climate risk assessment	Not reported	0%
	Provide accessible facilities	Percent of facilities with accessibility audit completed	0%	0%
Reliability	Maintain assets in a state of good repair	Percent of equipment assets in fair or better condition	Fire: 37% Paramedic: 65%	Fire: 37% Paramedic: 65%
		Percent of fleet assets in fair or better condition	By-law: 94% Fire: 61% Paramedic: 59%	By-law: 94% Fire: 61% Paramedic: 59%
		Facility Condition Index	By-law: 0.076 Fire: 0.07 Paramedic: 0.019 Overall: 0.064	By-law: 0.076 Fire: 0.068 Paramedic: 0.019 Overall: 0.062
Affordability	Provide sustainable and affordable services over the long-term	Asset renewal funding ratio (renewal funding as a share of replacement cost) for equipment	Not reported	Fire: 11.5% Paramedic: 23.2%
		Asset renewal funding ratio (renewal funding as a share of replacement cost) for facilities	Not reported	By-law: 3.7% Fire: 0.2% Paramedic: 0.2%
		Asset renewal funding ratio (renewal funding as a share of replacement cost) for fleet assets	Not reported	By-law: 9.8% Fire: 6.6% Paramedic: 13.2%



Asset Management Strategy

4.1 PRACTICES, PROCEDURES AND TOOLS

The regulation requires that the Asset Management Plan defines a lifecycle management strategy with respect to the assets in each asset category for the 10-year period. 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 achieving target levels of service and compares it to the planned budget to determine service area gaps or surpluses.

The various lifecycle activities are delivered by different parts of the organization. The asset management process is an opportunity to take a holistic view of the asset lifecycle and identify any assets that would benefit from coordinated implementation of lifecycle strategies. It is important that each type of asset has an appropriate blend of activities across its lifecycle and that staff interacting with the asset understand the interrelations between the various activities and their impact on cost, risk and service level.

4.2 GROWTH, ENHANCEMENT AND RENEWAL

In developing the Emergency and Protective Services Asset Management Plan, a preliminary estimate was prepared of the cost of achieving the target levels of service. The estimates are based on 2024 data and include forecasts of:

- Growth needs based on the Development Charges Background Study (March 2024), required to serve the city's growing population.
- Enhancement needs based on accessibility audits and building condition assessments, and input from subject matter experts, required to improve services, meet new or updated standards, or address accessibility.
- Renewal needs identified for facilities based on building condition audits and forecasted lifecycle renewal needs for fleet and equipment, required to maintain assets in a state of good repair. These activities include major repairs, rehabilitation and replacement.



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 Population 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 Emergency and Protective Services assets.

Growth, Enhancement and Renewal Needs Forecast for Emergency and Protective Services

	10-Year Needs (millions; 2024\$)			
Asset Class	Growth	Enhancement	Renewal	Total
By-law Facilities	\$0	\$0.3	\$8.0	\$8.3
By-law Fleet	\$0.6	Not applicable	\$4.3	\$4.9
Fire Equipment	\$1.5	\$9.4	\$206.3 ^{5 6}	\$357.5
Fire Facilities	\$123.5	\$8.8		
Fire Services Fleet	\$8.0	Not applicable		
Paramedic Equipment	\$0	Not applicable	\$17.3 ⁷	\$17.3
Paramedic Facilities	\$9.0 ⁸	\$1.0	\$11.6	\$21.6
Paramedic Fleet	\$5.0	Not applicable	\$51.2	\$56.2
Total	\$147.6	\$19.5	\$298.7	\$465.8

Totals may not sum exactly due to rounding.

5: Renewal needs for Fire Services assets are aggregated because there is overlap in the needs estimates used for the Asset Management Plan between Equipment, Facilities and Fleet assets.

6: Fire equipment renewal needs are reported in 2023 dollars.

7: Paramedic equipment renewal needs are reported in 2023 dollars.

8: The Ottawa Paramedic Service is exploring possible growth projects/needs (i.e., approximately \$92 million for the West End Deployment Facility plus additional fleet growth needs) that are not captured in the Asset Management Plan.



As per the regulation, 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. The Asset Management Plan estimates the additional future costs due to climate change shown in the table below. These are preliminary estimates based on the latest information available, which will be refined over time.

Estimated Additional Future Costs Due to Climate Change for Emergency and Protective Services

Additional Costs Due to Climate Change	Estimated 10-year Total Additional Cost (millions; 2024\$)		
	By-Law	Fire	Paramedic
Increased operations and maintenance costs due to gradual, long-term impacts of climate change ⁹	\$0.2	\$3.2	\$0.5
Increased capital renewal costs due to gradual, long-term impacts of climate change ¹⁰	\$0.6	\$0.9	\$0.0
Increased operations and maintenance costs due to extreme weather events ¹¹	\$1.4	\$2.3	\$1.8
Increased capital costs to implement climate change mitigation actions including municipal fleet electrification and building retrofits ¹²	\$2.9	\$31.6	\$15.5
Total	\$5.1	\$38.0	\$17.8

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 growth costs to meet climate change requirements; increased capital renewal costs for assets other than buildings (such as fleet and equipment); and gradual, long-term impacts due to climate hazards other than extreme heat, extreme rainfall, and freeze-thaw cycles.

9: Estimated costs due to gradual, long-term impacts of climate change are based on the Financial Accountability Office of Ontario's "[Costing Climate Impacts to Public Infrastructure](#)" study.

10: Ibid.

11: Estimated operations and maintenance costs due to extreme weather events are based on historical City financial data and Task Force on Climate-Related Financial Disclosures (TCFD) reporting for recent significant weather events.

12: Estimated capital costs to implement climate change mitigation actions are based on the Energy Evolution study (2020) and subsequent detailed studies such as the Draft Green Fleet Strategy.



4.3 OPERATIONS AND MAINTENANCE

Operations strategies are developed to deliver the services and involve consumption of resources such as human resources, energy, chemicals and materials. Maintenance strategies are the regular ongoing activities necessary to keep assets operating, including instances where portions of the asset fail and need immediate repair to make the asset operational again.

New assets acquired or constructed by the City due to growth will incur additional future operations and maintenance costs beyond current expenditures. It is crucial for the City to evaluate these prospective costs and their affordability when making decisions regarding new asset acquisition or construction.



Financing Strategy

The regulation requires that the Asset Management Plan defines a financial strategy with respect to the assets in each asset category for the 10-year period. 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. Note that historical budget values function as estimates for expenditures, and actual spending may differ from the budgeted amounts shown.

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 Service's 2024 operating budget forecast for Emergency and Protective Services, and the planned capital budget is based on the City's 2024 10-year capital budget forecast.



Budget Forecast for Emergency and Protective Services – By-Law

Component	Budget Forecast (millions; 2024\$)										
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Operating Budget ¹³	\$0.7	\$1.1	\$1.2	\$1.6	\$1.7	\$1.9	\$2.3	\$2.5	\$2.7	\$3.1	\$18.8
Capital Budget – Growth	\$0.3	\$0.0	\$0.2	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	\$0	\$0.1	\$0.6
Capital Budget – Enhancement	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.01	\$0.1
Capital Budget – Renewal	\$0.6	\$1.4	\$1.2	\$1.3	\$1.4	\$1.4	\$1.9	\$0.9	\$1.4	\$1.7	\$13.3

Totals may not sum exactly due to rounding.

Budget Forecast for Emergency and Protective Services – Fire

Component	Budget Forecast (millions; 2024\$)										
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Operating Budget ¹³	\$193.2	\$204.3	\$213.8	\$219.4	\$229.4	\$239.7	\$246.1	\$252.6	\$259.4	\$266.3	\$2,324.3
Capital Budget – Growth	\$4.2	\$3.5	\$1.0	\$15.5	\$40.0	\$31.0	\$15.3	\$0.5	\$0.5	\$0.5	\$112.2
Capital Budget – Enhancement	\$2.1	\$0.7	\$0.8	\$0.8	\$0.8	\$0.8	\$2.1	\$1.9	\$0.8	\$0.8	\$11.5
Capital Budget – Renewal	\$17.0	\$12.9	\$21.7	\$14.8	\$10.0	\$11.0	\$12.4	\$10.6	\$19.9	\$12.4	\$142.6

Totals may not sum exactly due to rounding.

Budget Forecast for Emergency and Protective Services – Paramedic

Component	Budget Forecast (millions; 2024\$)										
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Operating Budget ¹³	\$65.5	\$71.8	\$76.6	\$78.9	\$82.2	\$85.5	\$89.2	\$93.2	\$97.3	\$101.5	\$841.6
Capital Budget – Growth	\$2.9	\$2.5	\$1.0	\$3.9	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$0.6	\$14.2
Capital Budget – Enhancement	\$0.03	\$0.03	\$0.03	\$0.03	\$0.03	\$0.03	\$0.03	\$0.04	\$0.04	\$0.04	\$0.33
Capital Budget – Renewal	\$6.0	\$3.7	\$2.5	\$3.5	\$7.3	\$9.1	\$5.1	\$11.0	\$6.8	\$8.6	\$63.5

Totals may not sum exactly due to rounding.

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



Funding Analysis

The regulation requires that an identification of the annual funding projected to be available to undertake lifecycle activities is summarized in the Asset Management Plan. If, based on the funding projected to be available, the municipality identifies a service area shortfall for the lifecycle activities identified, the regulation requires an explanation of how the municipality will manage the risks associated with not undertaking any of the lifecycle activities needed.

The future capital funding needs are compared to planned budgets in order to identify potential service area shortfalls (or “gaps”), the risks to service that could result, and possible strategies to mitigate them.



6.1 SERVICE AREA GAP

An Asset Management Plan provides a forecast of where the City will be in 10 years with respect to some service level targets based on historic decisions on how the City invests in and manages assets. The service area gap is the difference between the forecasted capital investment needs and the investment that the City has budgeted. As a result, service area gaps can and will change as a result of future changes to policy, masterplans, population, service delivery, asset inventory, or investment by the City and other orders of government. Over the next 10 years, the total needs for Emergency and Protective Services assets exceeds the planned budget, leading to a service area gap. The forecasted investment needs, planned budgets and service area gaps are summarized in the tables and figures below.

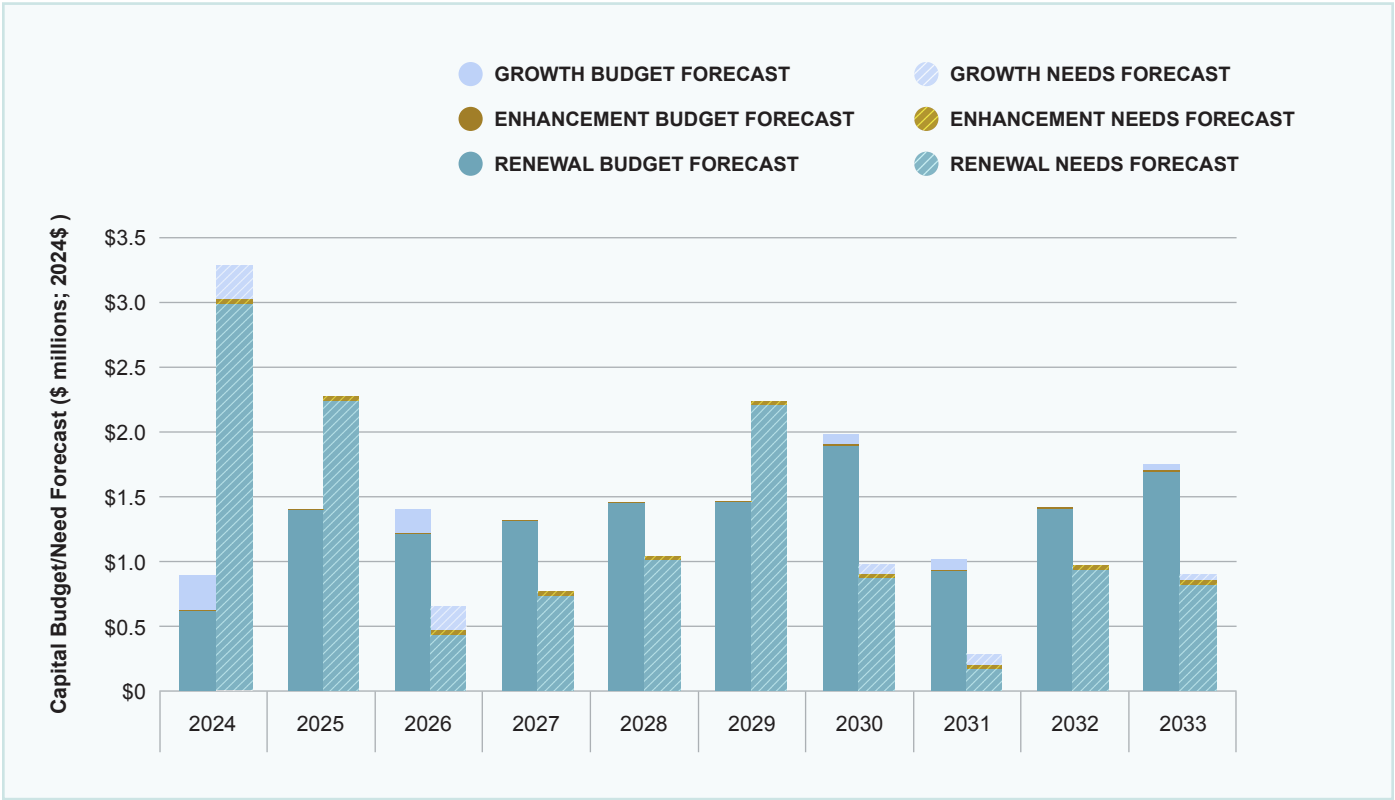
Capital Service Area Gap for Emergency and Protective Services – By-Law

Asset Class	10-Year Need (millions; 2024\$)	10-Year Funding (millions; 2024\$)	10-Year Gap (millions; 2024\$)
Growth			
By-Law Facilities	Not Applicable	\$0.0	-
By-Law Fleet	\$0.6	\$0.6	-
Growth Total	\$0.6	\$0.6	-
Enhancement			
By-Law Facilities	\$0.3	\$0.1	(\$0.2)
By-Law Fleet	Not Applicable	\$0.0	\$0.0
Enhancement Total	\$0.3	\$0.1	(\$0.2)
Renewal			
By-Law Facilities	\$8.0	\$9.0	\$1.0
By-Law Fleet	\$4.3	\$4.3	(\$0.1)
Renewal Total	\$12.3	\$13.3	\$1.0
Grand Total	\$12.7	\$13.4	(\$0.7)

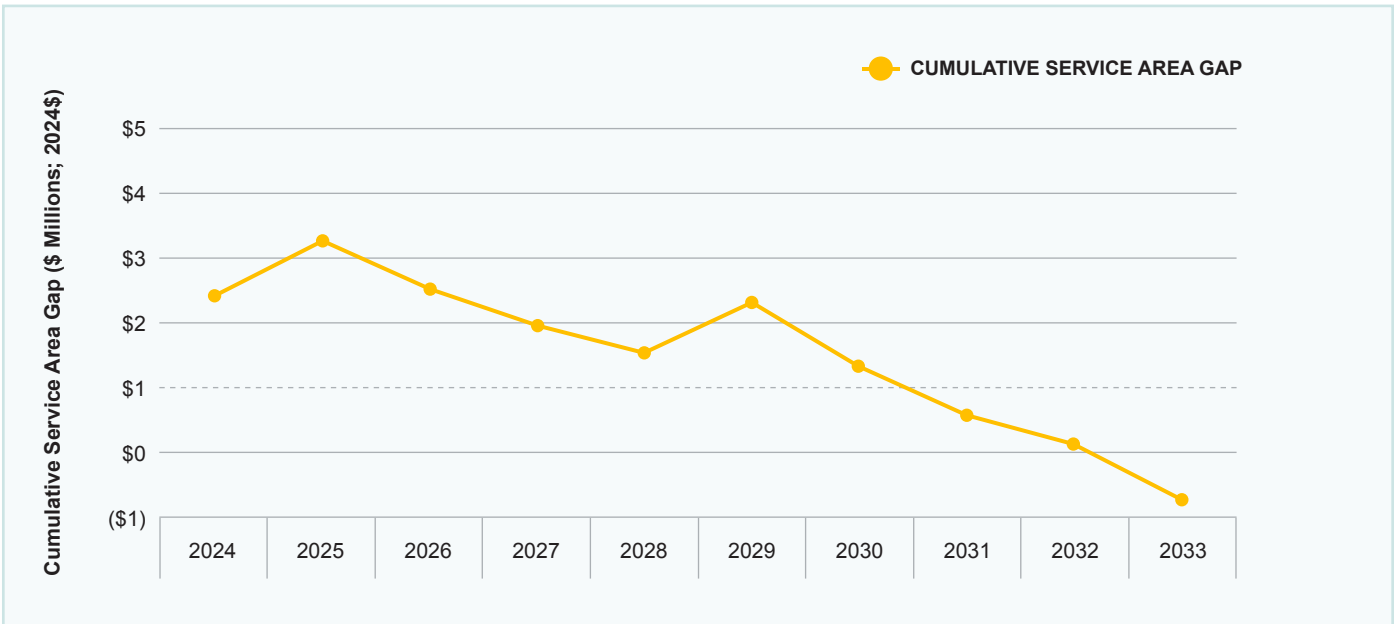
Totals may not sum exactly due to rounding.



Capital Budget and Capital Needs Forecast for Emergency and Protective Services – By-Law



Cumulative Capital Service Area Gap for Emergency and Protective Services – By-Law



Capital Service Area Gap for Emergency and Protective Services – Fire

Asset Class	10-Year Need (millions; 2024\$)	10-Year Funding (millions; 2024\$)	10-Year Gap (millions; 2024\$)
Growth			
Fire Equipment	\$1.5	\$0.1	(\$1.4)
Fire Facilities	\$123.5	\$108.1	(\$15.4)
Fire Fleet	\$8.0	\$4.1	(\$3.9)
Growth Total	\$133.0	\$112.2	(\$20.8)
Enhancement			
Fire Equipment	\$9.4	\$9.4	\$0.0
Fire Facilities	\$8.8	\$2.1	(\$6.7)
Fire Fleet	Not Applicable	\$0.0	\$0.0
Enhancement Total	\$18.1	\$11.5	(\$6.7)
Renewal			
Fire Services ¹⁴	\$206.3 ¹⁵	\$142.6	(\$63.6)
Renewal Total	\$206.3	\$142.6	(\$63.6)
Grand Total	\$357.4	\$266.3	(\$91.1)

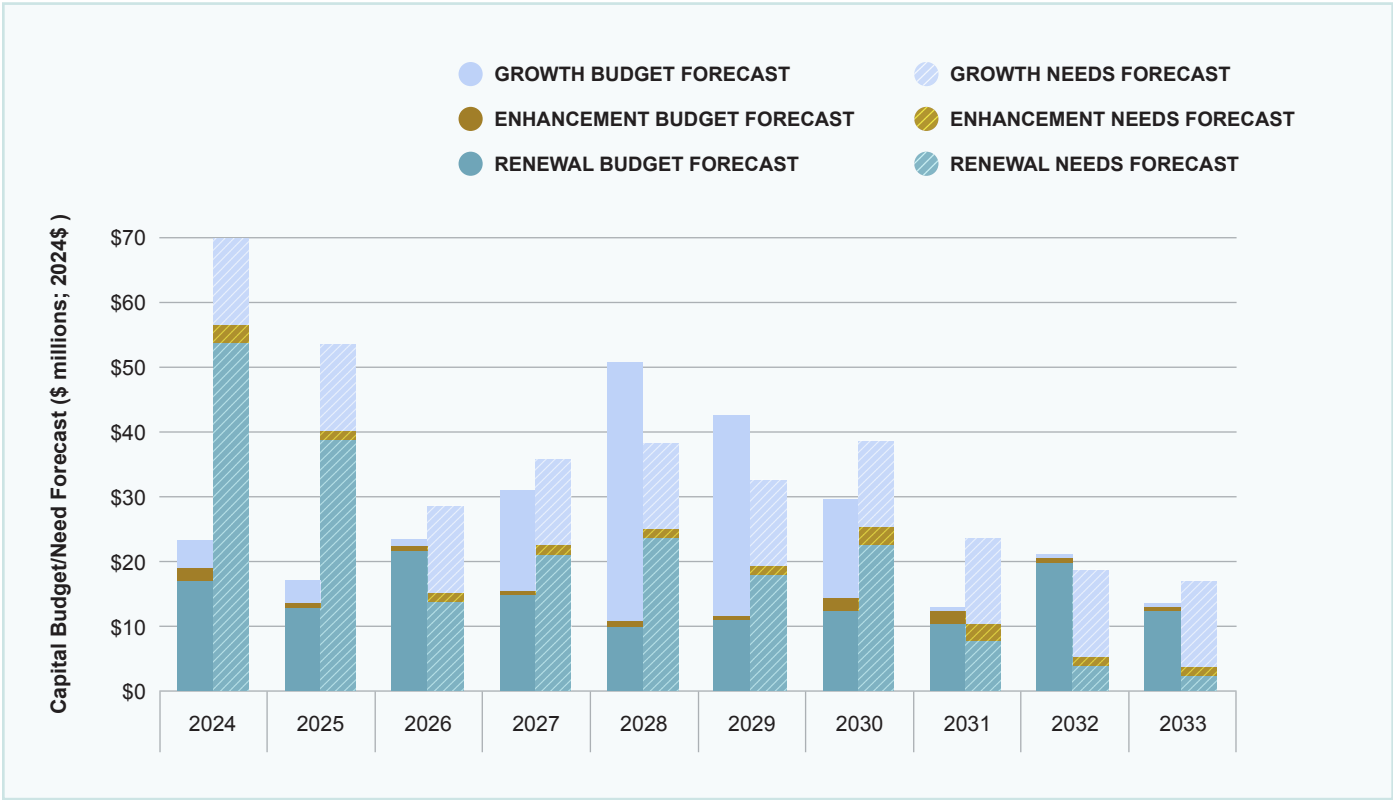
Totals may not sum exactly due to rounding.

14: The financial analysis for renewal for Fire Services assets is aggregated because there is overlap in the needs estimates used for the AMP between Equipment, Facilities and Fleet assets.

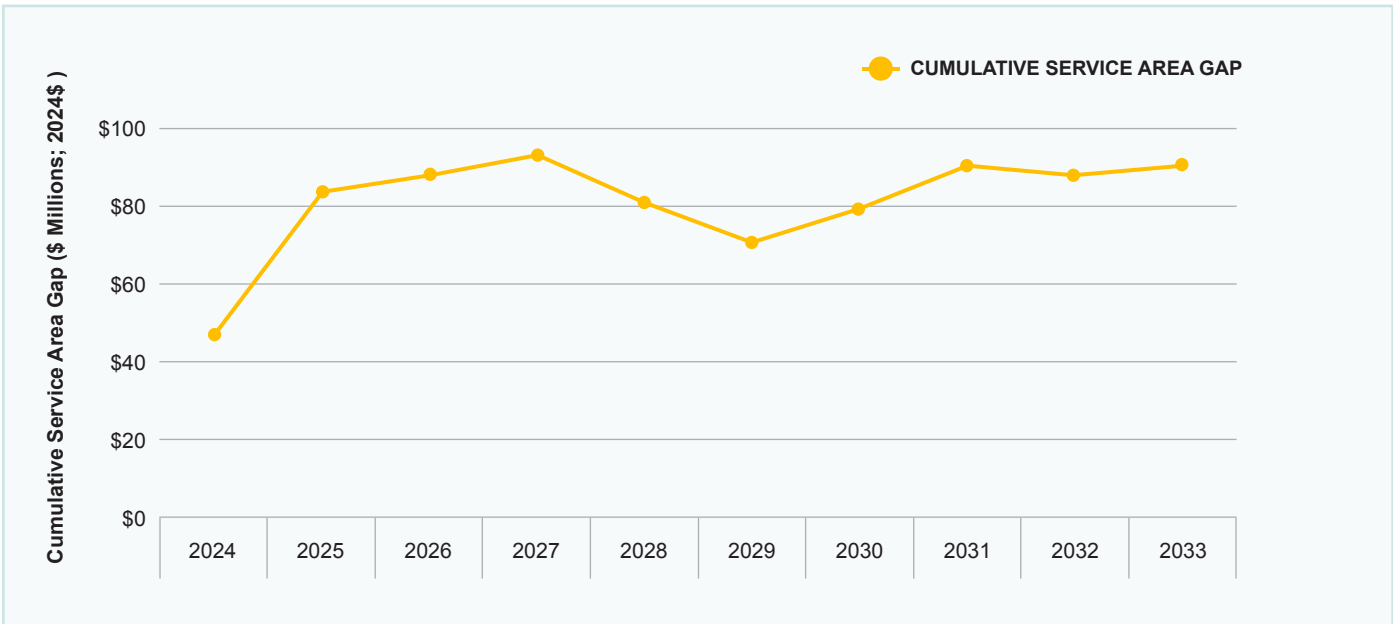
15: Fire equipment renewal needs are reported in 2023 dollars.



Capital Budget and Capital Needs Forecast for Emergency and Protective Services – Fire



Cumulative Capital Service Area Gap for Emergency and Protective Services – Fire



Capital Service Area Gap for Emergency and Protective Services – Paramedic

Asset Class	10-Year Need (millions; 2024\$)	10-Year Funding (millions; 2024\$)	10-Year Gap (millions; 2024\$)
Growth			
Paramedic Equipment	\$0.0	\$0.0	\$0.0
Paramedic Facilities ¹⁶	\$9.0	\$7.9	(\$1.2)
Paramedic Fleet	\$5.0	\$6.3	\$1.3
Growth Total	\$14.0	\$14.2	\$0.1
Enhancement			
Paramedic Equipment	Not Applicable	\$0.0	\$0.0
Paramedic Facilities	\$1.0	\$0.3	(\$0.6)
Paramedic Fleet	Not Applicable	\$0.0	\$0.0
Enhancement Total	\$1.0	\$0.3	(\$0.6)
Renewal			
Paramedic Equipment	\$17.3 ¹⁷	\$22.0	\$4.7
Paramedic Facilities	\$11.6	\$1.2	(\$10.4)
Paramedic Fleet	\$51.2	\$40.3	(\$10.9)
Renewal Total	\$80.1	\$63.5	(\$16.6)
Grand Total	\$95.1	\$78.1	(\$17.1)

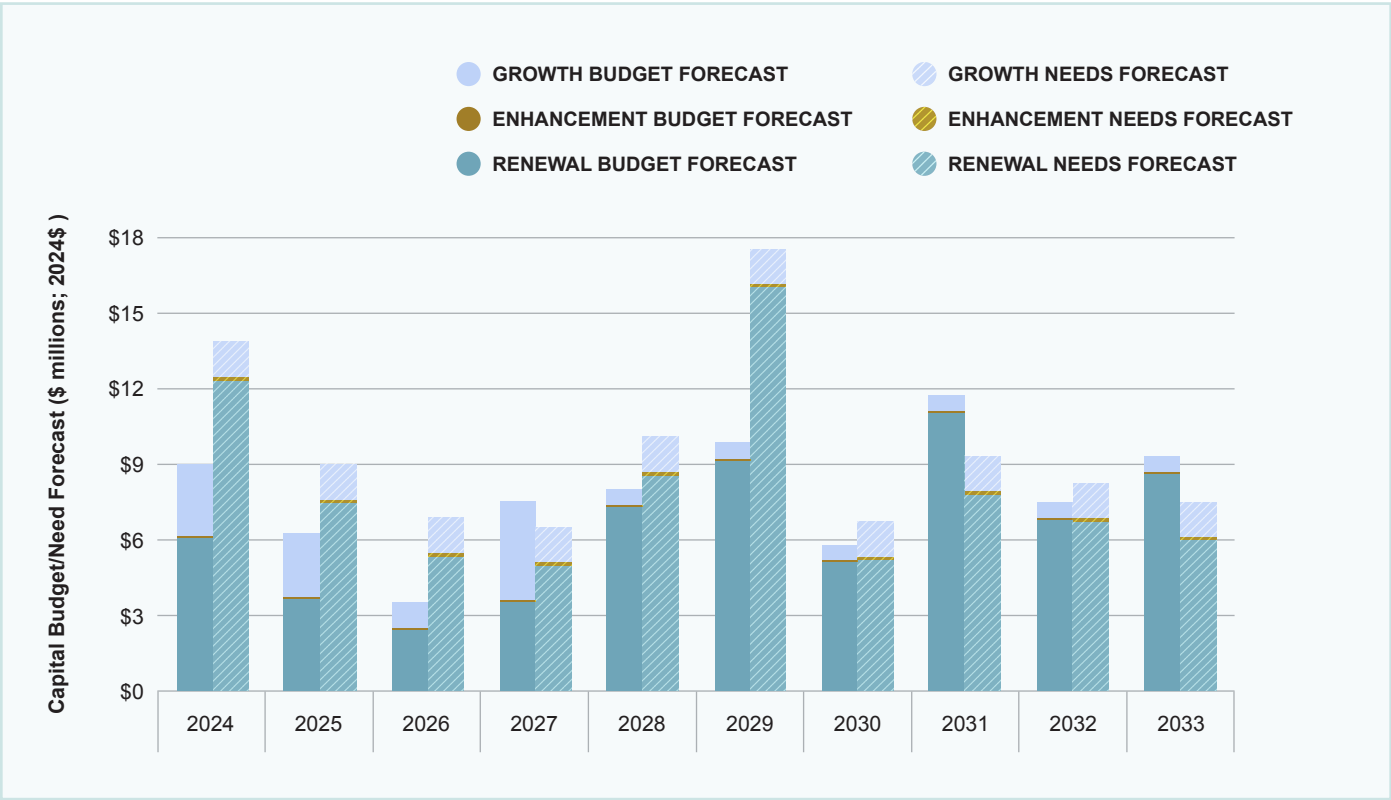
Totals may not sum exactly due to rounding.

16: The Ottawa Paramedic Service is exploring possible growth projects/needs (i.e., approximately \$92 million for the West End Deployment Facility plus additional fleet growth needs) that are not captured in the Asset Management Plan.

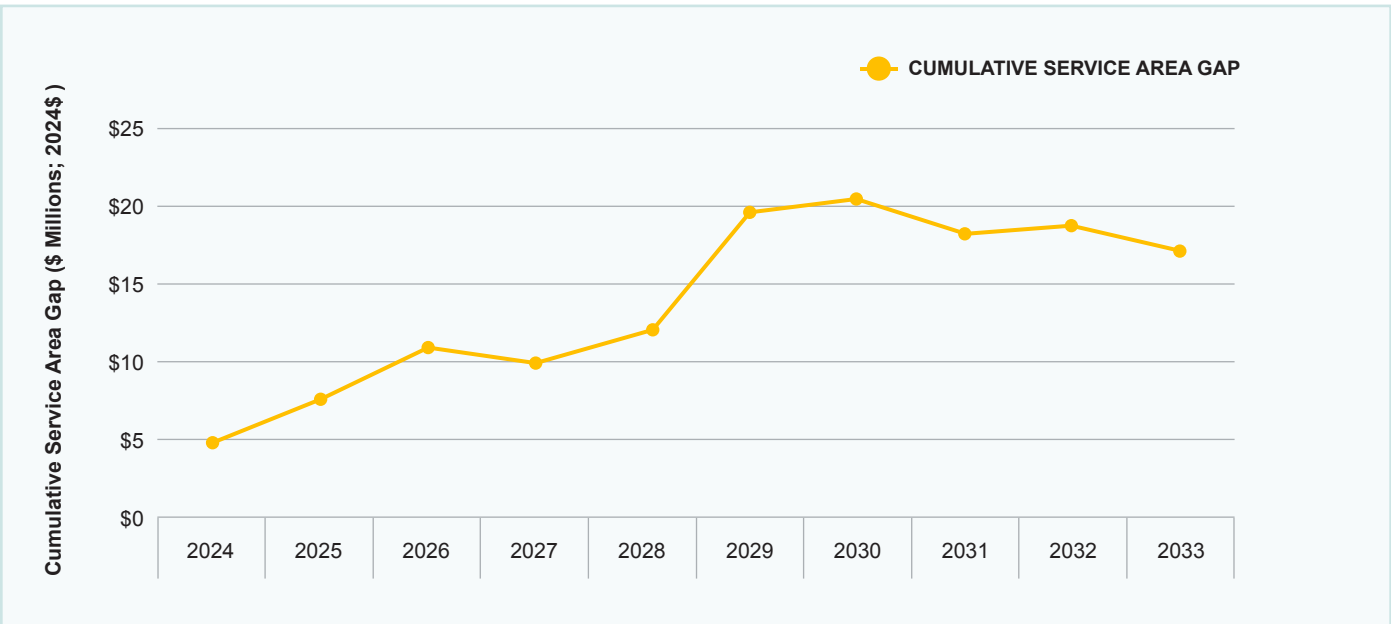
17: Paramedic equipment renewal needs are reported in 2023 dollars.



Capital Budget and Capital Needs Forecast for Emergency and Protective Services – Paramedic



Cumulative Capital Service Area Gap for Emergency and Protective Services – Paramedic



The above capital service area gap does not include the estimated additional future costs due to climate change outlined in Section 4.2. The City has planned dedicated funding over the next 10 years to support climate change needs through the Climate Change Master Plan and annual GHG and Emissions program. The funding supports not only emergency and protective services, but all 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 and prioritized through various initiatives, but they give a sense of the order-of-magnitude of future planned budget and potential needs. These estimates do not include infrastructure repair or replacement costs for extreme weather events such as tornadoes, riverine flooding or ice storms. The analysis does not capture funding from external sources such as other levels of government. Capital funding will need to be integrated across departmental budgets.

The analysis is based on the City’s 2024 ten-year capital budget forecast. It is important to note that the 2024 funding forecast shown is \$155 million higher than the final approved 2025 budget forecast, which allocates \$91.2 million over 10 years (versus \$246.4 million as shown in the table).

Estimated Future Climate Change Capital Budgets and Capital Needs for All City Services¹⁸

	10-Year Need (millions; 2024\$)	10-Year Funding (millions; 2024\$)	10-Year Gap (millions; 2024\$)
Climate Change	\$1,700	\$246.4	(\$1,453.6)

6.2 EXPECTED AND TARGET LEVELS OF SERVICE

For levels of service, the City has established performance targets as well as anticipated performance. These metrics can be compared to assess the alignment between expected and target performance. The table below includes:

- Current performance, showing the service levels being provided by the City based on the latest available information.
- Arrows to show whether the measure is expected to trend upward, downward, or remain relatively stable, with colours to show whether that trend is positive (green) or negative (red) relative to the target level of service.
- Expected performance, showing the service levels expected to be achieved based on the City’s planned budget.
- Target performance, showing the City’s target level of service based on Council direction, City policy, strategy or master plan, or other reference.

18: The estimates exclude Solid Waste and Transit services because all financial analysis for these services is captured in the respective Long Range Financial Plan.



Expected and Target Levels of Service for Emergency and Protective Services

Service Attribute	Community Level of Service	Technical Level of Service	Current Performance (2023)	Trend (2024-2033)	Expected Performance (2033)	Target Performance (2033)	Source for Target
Capacity and use	Provide adequate response times	First on Scene total response time (urban, moderate risk) (fire)	06:49 minutes	➡	Not available	6:53 (2019-2023 Baseline)	Fire Services Annual Report
		Effective Response Force total response time (urban, moderate risk) (fire)	10:46 minutes	➡	Not available	11:29 (2019-2023 Baseline)	Fire Services Annual Report
		Canadian Triage Acuity Scale (CTAS) 1 – Life Threatening response time (% responses within 8 minutes) (paramedic)	68.0%	⬆	Increase	75% (Council-approved Percentile)	Paramedic Service Annual Report
		Canadian Triage Acuity Scale (CTAS) 2 – Urgent response time (% responses within 10 minutes) (paramedic)	68.8%	⬆	Increase	75% (Council-approved Percentile)	Paramedic Service Annual Report
		Canadian Triage Acuity Scale (CTAS) 3 response time (% responses within 15 minutes) (paramedic)	79.3%	⬆	Increase	75% (Council-approved Percentile)	Paramedic Service Annual Report
		Canadian Triage Acuity Scale (CTAS) 4 response time (% responses within 20 minutes) (paramedic)	83.5%	⬆	Increase	75% (Council-approved Percentile)	Paramedic Service Annual Report
		Canadian Triage Acuity Scale (CTAS) 5 response time (% responses within 25 minutes) (paramedic)	86.8%	⬆	Increase	75% (Council-approved Percentile)	Paramedic Service Annual Report
		Sudden Cardiac Arrest response time (percent of responses within 6 minutes) (paramedic)	64.8%	⬆	65%	65% (Council-approved Percentile)	Paramedic Service Annual Report
		Hospital Offload Delay Time (minutes; average 90th percentile) (paramedic)	162 minutes	⬇	Decrease	Decrease	Paramedic Service Annual Report
		Percent of service requests responded to within service standard (average or weighted average for Priority 1, 2 and 3 calls) (by-law)	78%	⬇	Decrease	80%	By-law and Regulatory Services Annual Report
		Average distance to the closest fire station for areas of strong equity concern relative to other areas of the city	Strong equity concern: 1.9km Other areas of the city: 2.5km	Expected performance not available		No set target	
Function	Reduce emissions associated with the City's operations and facilities	Annual GHG emissions from Emergency and Protective Services buildings per thousand square feet (tonnes CO ₂ e)	3.2 t/1,000 sq. ft.	⬇ ¹⁹	Decrease ¹⁹	1.6 t/1,000 sq. ft.	Climate Change Master Plan
		Annual GHG emissions from Emergency and Protective Services fleet (tonnes CO ₂ e)	7,442 t	Refer to Green Fleet Strategy		Refer to Green Fleet Strategy	
	Increase resiliency to extreme weather and changing climate conditions	Percent of facilities with backup power for critical building systems	72%	⬆	Increase	No set target	
		Percent of critical facilities with a completed climate risk assessment	0%	⬆	Increase	No set target	
	Provide accessible facilities	Percent of facilities with accessibility audit completed	0%	⬆	Approximately 20 accessibility audits per year across all services	No set target	

19: Emissions are expected to trend downward, however planned funding levels are not expected to be sufficient to reach 2030 and 2040 GHG emissions reduction targets.



Service Attribute	Community Level of Service	Technical Level of Service	Current Performance (2023)	Trend (2024-2033)	Expected Performance (2033)	Target Performance (2033)	Source for Target
Reliability	Maintain assets in a state of good repair	Percent of equipment assets in fair or better condition	Fire: 37% Paramedic: 65%	⬆️	Fire: 10-year average 77% Paramedic: 10-year average 74%	Fire: 77% Paramedic: 74%	Lifecycle modelling
		Percent of fleet assets in fair or better condition	By-law: 94% Fire: 61% Paramedic: 59%	⬇️	By-law: 76% Fire: 55% Paramedic: 56%	By-law: 82% Fire: 66% Paramedic: 86%	Lifecycle modelling
		Facility Condition Index	By-law: 0.076 Fire: 0.068 Paramedic: 0.019 Overall: 0.062	Varies	By-law: 0.04 Fire: 0.20 Paramedic: 0.23	By-law: 0.002 Fire: 0.002 Paramedic: 0.009 Overall: 0.003	Lifecycle modelling
Affordability	Provide sustainable and affordable services over the long-term	Asset renewal funding ratio (renewal funding as a share of replacement cost) for equipment	Fire: 12.5% Paramedic: 23.2%	Not applicable		Fire: 10.8% Paramedic: 18.2%	Lifecycle modelling
		Asset renewal funding ratio (renewal funding as a share of replacement cost) for facilities	By-law: 3.7% Fire: 0.2% Paramedic: 0.2%	Not applicable		By-law: 3.1% Fire: 2.1% Paramedic: 2.3%	Lifecycle modelling
		Asset renewal funding ratio (renewal funding as a share of replacement cost) for fleet assets	By-law: 11.3% Fire: 6.6% Paramedic: 13.2%	Not applicable		By-law: 10.1% Fire: 7.0% Paramedic: 16.8%	Lifecycle modelling

⬆️ Positive upward trend	⬇️ Negative upward trend	⬆️ Positive downward trend	⬇️ Negative downward trend	➡️ Positive stable trend	➡️ Negative stable trend
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6.3 RISK MANAGEMENT

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.

Ontario Regulation 588/17 requires an analysis of the risks associated with the proposed levels of service and implementation of the Asset Management Plan. These key risks and how the City mitigates the most critical risks are summarized in the tables below.

Key Risks and Risk Mitigation for Levels of Service

Risk Area ²⁰	Potential Impacts	City Response
Funding for Growth	Underfunding may reduce ability to build new infrastructure to support growth in a timely fashion. This could put increased demand on existing infrastructure, reduced redundancy, higher reactive repair costs, and delayed development.	The City regularly updates the master plans and Development Charges By-law that address growth funding needs. Increased growth needs can be incorporated into these updates, and into future updates of the Asset Management Plan.
Lifecycle Renewal Funding	Delays in renewal activities could impact service reliability and increase long-term costs (including operations and maintenance costs).	The City prioritizes capital projects by assessing the condition of infrastructure assets, using a risk-based approach to evaluate the potential impact on service levels, and coordinating with other projects to minimize disruptions. This structured approach prioritizes critical assets and within affordability constraints.
Operations & Maintenance Funding	Underfunding may reduce service reliability and increase emergency repairs.	Operating budget allocations are optimized such that funds are directed towards essential operations, emphasize preventive measures to maintain service levels, and consider public feedback to align with community needs and within affordability constraints.

20: As per section 6 of Ontario Regulation 588/17: the Asset Management Plan shall identify the risks associated with the options for which lifecycle activities could potentially be undertaken to achieve the proposed levels of service as well as the risks associated with those options to the long term sustainability of the municipality.



Risk Area	Potential Impacts	City Response
Climate Change Mitigation & Resilience	Deferral of climate-related initiatives may hinder adaptation, result in service disruptions, increase long-term costs, and put pressure on existing budgets and risk missing emission reduction targets.	The Climate Change Master Plan (CCMP) and its supporting strategies provide direction for prioritizing climate investments in both mitigation and adaptation. The CCMP also identifies the need to apply a climate lens to asset management and capital projects, including through departmental capital planning and prioritization processes. Implementation of the CCMP and its supporting plans is a shared responsibility across all departments. The response to the 2024 CCMP audit will provide further direction on priorities.
Rising Asset Replacement Costs	Higher costs may lead to project delays and increased financial pressure. Less projects could be completed with the same amount of money.	The City uses comprehensive asset management, emphasizing preventive maintenance, and prioritizes investments based on risk and within affordability constraints. It also conducts long-term financial planning and explores innovative solutions to reduce costs and enhance service delivery.
Fleet Maintenance & Electrification	Higher maintenance costs or insufficient electrical infrastructure could affect fleet reliability and emergency response.	The Green Fleet Strategy recommends an approach that ensures the City has adequate infrastructure in place as it moves forward with vehicle electrification. The strategy recommends proactively developing energy supply and refueling infrastructure ahead of electrification as well as initiating building-level upgrades and civil infrastructure upgrades prior to the purchase of electric vehicles.



Risk Area	Potential Impacts	City Response
Extreme Weather Impacts	More frequent events may damage assets, disrupt services, and increase maintenance needs.	<p>Climate Ready Ottawa – the City’s draft climate resiliency strategy – is a long-term strategy and implementation plan that will guide City-wide action and investment to prepare for a much warmer, wetter and unpredictable climate. It includes conducting climate risk assessments for critical infrastructure to prioritize investments and actions.</p> <p>Insurance and City reserves are also available for unplanned costs due to extreme weather.</p>
Operational Pressures from Climate Change	Increased demands on staff and resources may affect other service delivery or increase costs	<p>Climate Ready Ottawa considers future increased operating budget needs due to climate change by guiding long-term action and investment to ensure the city’s resilience by 2050. Implementation of priority Energy Evolution projects may result in increases or decreases to operating budgets. Changes to operating budget pressures are considered annually as part of the budget process for specific projects and programs.</p>
Non-Urgent Regulatory & Equity Needs	Delays may impact inclusivity, accessibility, and workplace suitability.	<p>The City strives to ensure that critical needs are met and within affordability constraints by prioritizing essential needs and services, seeking grants and partnerships, improving efficiency, engaging with the community, and conducting long-term financial planning.</p> <p>Accessibility and equity upgrades will be prioritized based on identified needs and risks.</p>



Key Risks and Risk Mitigation for Asset Management Plan Implementation

Key Risks to Asset Management Plan Implementation	Response
Population forecasts may change.	Changes to population forecasts will impact the growth needs forecasts, which will be reviewed and updated at least every 5 years as part of the Asset Management Plan update. Key issues can be identified as part of the annual review of the City's progress in implementing the asset management plan and in the "Asset Management Implications" section of individual reports to Council.
Future approved budgets may vary from the planned budgets assumed in the Asset Management Plan financial analysis.	<p>The Asset Management Plan will be updated at least every 5 years, including an updated budget analysis. This will allow for a reassessment of future needs, expected levels of service, and risk.</p> <p>Key impacts due to budget changes can be addressed in the annual review of the City's progress in implementing the asset management plan and in the "Asset Management Implications" section of individual reports to Council.</p>
Council may take on more assets than planned in the Asset Management Plan.	Additional assets will most impact the operations and renewal forecast. Key impacts can be addressed annually as part of the review of the City's progress in implementing the Asset Management Plan and in the "Asset Management Implications" section of individual reports to Council.



Key Risks to Asset Management Plan Implementation	Response
<p>Council or changes in legislation/regulation may mandate higher/different target service levels.</p>	<p>Higher or different proposed service levels will impact spending needs which could result in a need to consider alternative approaches to service delivery, increases in revenue to support increased service levels, or a shifting of funding that re-prioritizes service levels and possibly increases risk in other areas. This will be reviewed and updated at least every 5 years as part of the Asset Management Plan update. As indicated above, key impacts can be addressed annually as part of the review of the City's progress in implementing the Asset Management Plan and in the "Asset Management Implications" section of individual reports to Council.</p>
<p>Changes in asset or financial data, which may affect the findings presented in the Asset Management Plan.</p>	<p>Changes in the data used to produce the Asset Management Plan will be reflected in the Asset Management Plan update at least every 5 years. As indicated above, key impacts can be addressed annually as part of the review of the City's progress in implementing the asset management plan and in the "Asset Management Implications" section of individual reports to Council.</p>



6.4 NON-FINANCIAL STRATEGIES

Given that planned budgets are not expected to be sufficient to fully fund all forecasted asset lifecycle needs, alternative methods must be employed to mitigate the risks associated with underfunding. A variety of non-financial strategies exist or can be implemented to address this issue, including:

By-law services

- Generate revenue by implementing inspections with fines and special event permitting for public space rentals, alcohol regulations and movie productions.
- Improve efficiency and optimization by enhancing by-law enforcement with data analytics for resource deployment and using Dynamics 365 CRM to streamline workflows and automate case tracking.
- Utilize social and traditional media to educate the public on by-laws, aiming to reduce service requests and boost voluntary compliance.

Fire Services

- Provide age-specific school and English-as-a-second-language fire safety presentations, fire extinguisher training, fire station tours and fire truck visits.
- 'Wake Up!' Program to ensure smoke and carbon monoxide alarms are functional.
- Online fire prevention resources.
- Strategic deployment of assets based on Fire Services' Community Risk Assessment/Standards of Cover to optimize the distribution and concentration of assets for effective emergency response.
- The Enhanced False Fire Alarm Strategy implemented to reduce responses to nuisance false fire alarms and help protect assets from unnecessary wear and tear.

Paramedic Service

- Standard and emergency first aid, CPR and AED courses.
- Public Access Defibrillator Program that oversees the deployment of the devices and availability for private businesses to have them installed.
- Education on prevention and awareness for schools or communities.
- Community Paramedic programs (early medical intervention out in the community such as regular home visits and patient education) to help reduce emergency calls for service, paramedic transports to the hospital, and unnecessary hospital admissions and readmissions.



Fleet

- Preventive maintenance on critical equipment to extend lifecycle and reduce downtime.
- Continuous review of service offerings, including reducing fleet inventory and adopting re-life programs (re-use in a less critical role) for vehicles to maximize their lifecycle and reduce maintenance costs.
- Moving from hardware procurement to renting/leasing models to reduce capital costs and ensure up-to-date equipment.
- Initiatives from the Fleet Service Review.

Any new strategies may have impacts on residents and services and should be subject to further study prior to being pursued.



Improvement Plan

The regulation requires that the Asset Management Plan demonstrate the municipality's approach to continuous improvement and adoption of appropriate practices regarding asset management planning. Based on the snapshot of current conditions and existing plans presented in this Asset Management Plan, areas of potential improvement include:

- Continue to address data gaps, data management, and record keeping
- Update cost estimates
- Review, track and report levels of service
- Improve and expand needs forecasts, financial forecasts and funding analysis
- Continue populating expected level of service projections
- Further integrate climate change mitigation and adaptation
- Expand the application of an equity and inclusion lens

The 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 Plan.



MORE INFORMATION

For more information about the Asset Management Plan, and the background information and reports upon which it is based, please visit [Ottawa.ca](https://ottawa.ca) or contact the City of Ottawa Asset Management Service.

