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TTY/ATS 613-580-2401

MAY 2025

VERSION 2.0

Transit
Asset Management Plan

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 Transit 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 Asset Management Plan supports the City's 2023-2026 City Strategic Plan and the strategic priority of a *city that is more connected with reliable, safe and accessible mobility options and a city that is green and resilient*. Specifically, it aligns with the strategic objectives to:

- Improve transit reliability.
- Deliver transit and roads to support growth.
- Support sustainable transportation for residents with accessibility needs.
- 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 Transit Asset Management Plan includes assets that support bus, O-Train, and Para Transpo services that provide public transit travel options to residents and visitors.

For the City's light rail assets, this report:

- Includes O-Train Line 1 assets that are owned by the City.
- Excludes transit assets that are or will be impacted by Stage 2 LRT implementation, such as transitway infrastructure located along the future Stage 2 LRT alignment and O-Train Lines 2 and 4.
- Excludes transit assets that are part of the Stage 2 LRT contract. These assets will be incorporated into a future version of the Asset Management Plan.

Transit Asset Classes and Types

Transit Facilities	
• Bus Stops and Shelters	• General Garage Equipment
• Park & Ride Lots	• Transit Buildings and Facilities

Transit Fleet	
• Buses	• Para Transpo Vehicles
• Operational Support Vehicles	

Transit Linear Assets
• Transitway and Dedicated Lanes

Transit Structures	
• Transit Road Bridges	• Transit Road Culverts
• Transit Road Bridge-Culverts	• Other Transit Structures

Other Transit Assets
• Transit Streetlights

O Train Line 1 Assets	
• O-Train Line 1 Bridges	• O-Train Line 1 Vehicles
• O-Train Line 1 Culverts	• Non-Revenue Rail Vehicles
• O-Train Line 1 Facilities and Maintenance	• Tracks and Rail Infrastructure
• O-Train Line 1 Stations	• Other O-Train Line 1 Structures
• O-Train Line 1 Tunnels	

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 (unless noted otherwise).

2.1 ASSET INVENTORY AND VALUATION

The total replacement cost of Transit assets is approximately $4.4 billion as summarized in the table below.

Transit Asset Inventory and Replacement Cost

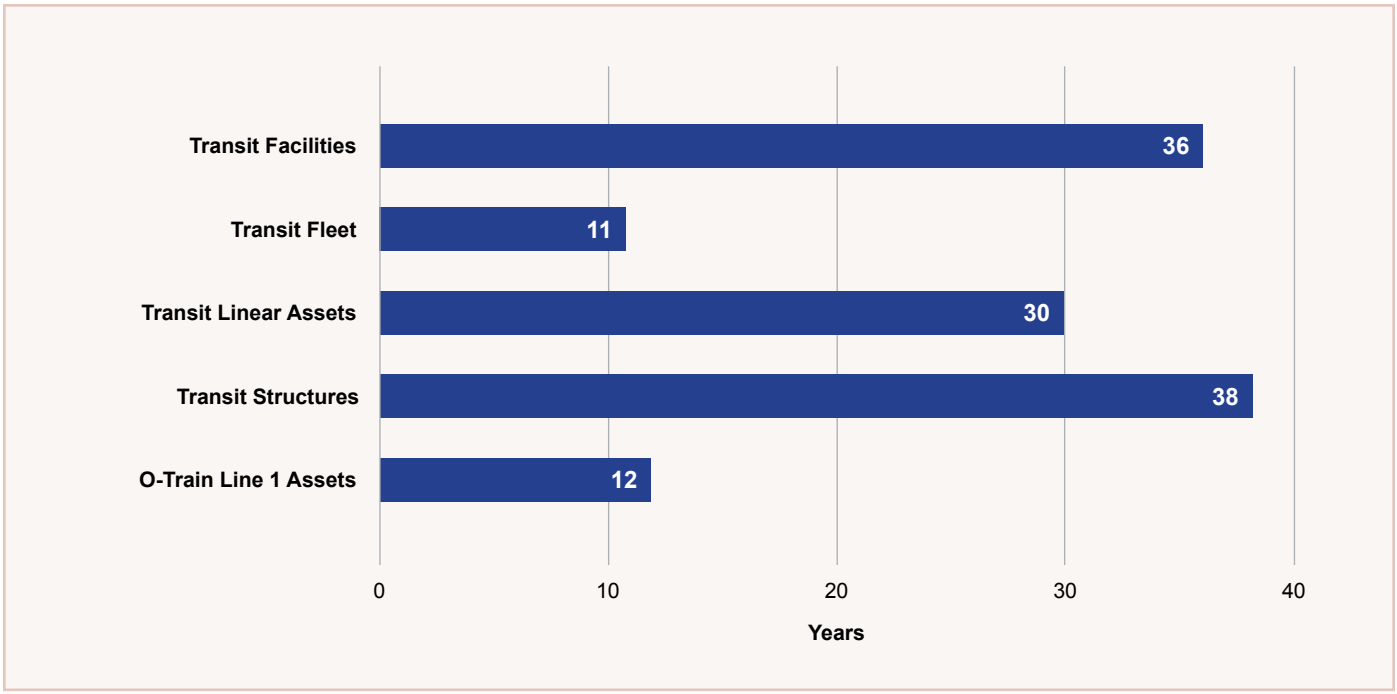
Asset Class	Inventory	Replacement Cost (millions; 2023$)
Transit Facilities	1,923	$810
Transit Fleet[1]	950	$944
Transit Linear Assets	82 km	$168
Transit Structures	209	$896
Other Transit Assets	2,100	$14
O-Train Line 1 Assets	88 28 km	$1,584

1: Subsequent to the data collection undertaken for this report, the inventory of transit fleet has significantly reduced. Values reported in this Asset Management Plan reflect May 2024 data.

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 Transit assets is shown in the figure below.

Average Age of Transit Assets[2]



2: Age data was unavailable or incomplete for Other Transit 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 Transit Assets

Asset Type	Condition Data Collection Technique	Frequency
Bus Stops and Shelters	Inspection and maintenance	Stops: 3 months
		Shelters: Lifecycle-Annually Cleaning-2 Weeks
General Garage Equipment	Age-based	Annually
Park and Ride Lots	Automatic Road Analyser	2 years
Transit Buildings and Facilities	Building Condition Audits	10 years
Buses	Inspection and maintenance	Time- and/or mileage-based (varies depending on original equipment manufacturer requirements)
Operational Support Vehicles		
Para Transpo Vehicles	Inspection and maintenance	6 months (plus preventative maintenance every 90 days or 12,000km)
Transitway and Dedicated Lanes	Automatic Road Analyser	2 years
Transit Road Bridges	In compliance with Ontario Structure Inspection Manual (OSIM)	2 years (up to 4 years for Bridge Culverts with 3 to 6 metre span)
Transit Road Bridge-Culverts		
Transit Road Culverts	Inspection	Varies
Other Transit Structures	Inspection	Varies
Transit Streetlights	Not applicable	Not applicable
O-Train Line 1 Facilities and Maintenance	Inspection and maintenance	Maintenance performed regularly; structural inspections conducted every two years (Maintenance and Storage Facility)

Asset Type	Condition Data Collection Technique	Frequency
O-Train Line 1 Culverts	Inspection and maintenance	All condition data collection and reporting on an annual basis (PREP9 - Other Asset Classes Condition Data). Inspections conducted every two years
O-Train Line 1 Bridges	In compliance with Ontario Structural Inspection Manual (OSIM)	Inspections conducted every two years
O-Train Line 1 Stations	Inspection and maintenance	Maintenance and cleaning performed regularly. Structural inspections conducted every two years
O-Train Line 1 Tunnels	In compliance with Ontario Structural Inspection Manual (OSIM)	All condition data collection and reporting on an annual basis (PREP5 - Tunnel Condition Data)
O-Train Line 1 Vehicles	Inspection and maintenance	Regular maintenance and inspections completed at pre-determined intervals by mileage
Non-revenue Rail Vehicles	Inspection and maintenance	Daily (Vehicle Walkaround) Weekly (Hi-Rail Check) Regular maintenance and inspections completed at pre-determined intervals by mileage (Hi-Rail/MOW Vehicles)
Tracks and Rail Infrastructure	Inspection and maintenance	Regular maintenance and inspections at pre-determined intervals, from daily to annual (rail, turnouts/special trackwork, OCS, signals)
Other O-Train Line 1 Structures	In compliance with Ontario Structural Inspection Manual (OSIM)	Inspections conducted every 2 years (retaining walls)

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 Transit Asset Condition

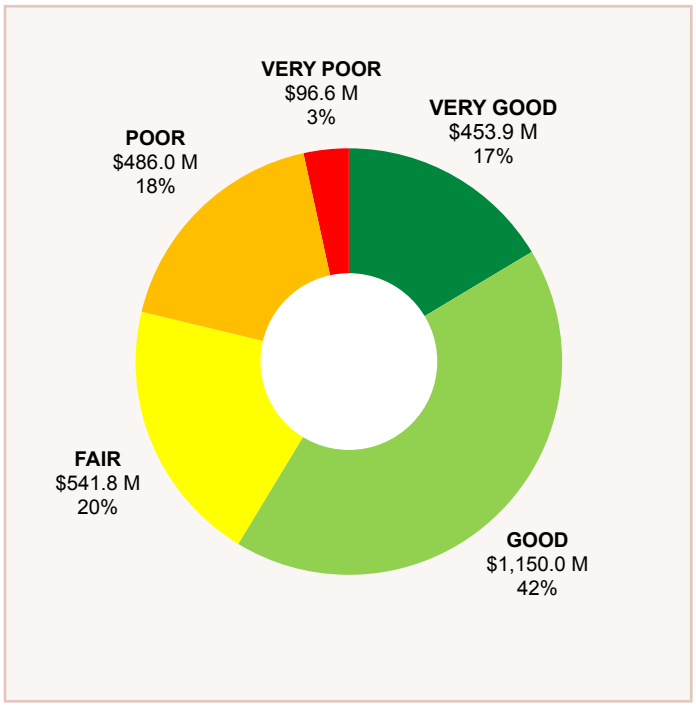
Rating	Rating Description	Subject Matter Expert Opinion (Bus Stops and Shelters)	Pavement Quality Index (Park and Ride Lots, Transitway, Dedicated Lanes)	Facility Condition Index (FCI)[3] (Facilities)	Condition Index (Structures)	Life Consumed (O Train Line 1 Stations)	Life Remaining (Transit Fleet)
Very Good	**Sound Physical Condition** No short-term failure risk and no work required	Subject Matter Expert Opinion	80 – 100	< 0.02	80 – 100	< 25%	Subject Matter Expert Opinion (varies by vehicle type)
Good	**Adequate for Now** Acceptable, generally in mid stage of expected service life		60 – 79	0.02 – 0.05	70 – 79	26 – 50%	
Fair	**Requires Attention** Signs of deterioration, requires attention, some elements exhibit deficiencies		40 – 59	0.05 – 0.15	60 – 69	51 – 75%	
Poor	**Increasing Potential of Affecting Service** Approaching end of service life, condition below standard, large portion of system exhibits significant deterioration		20 – 39	0.15 – 0.30	40 – 59	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 – 19	> 0.30	0 – 39	> 100%	

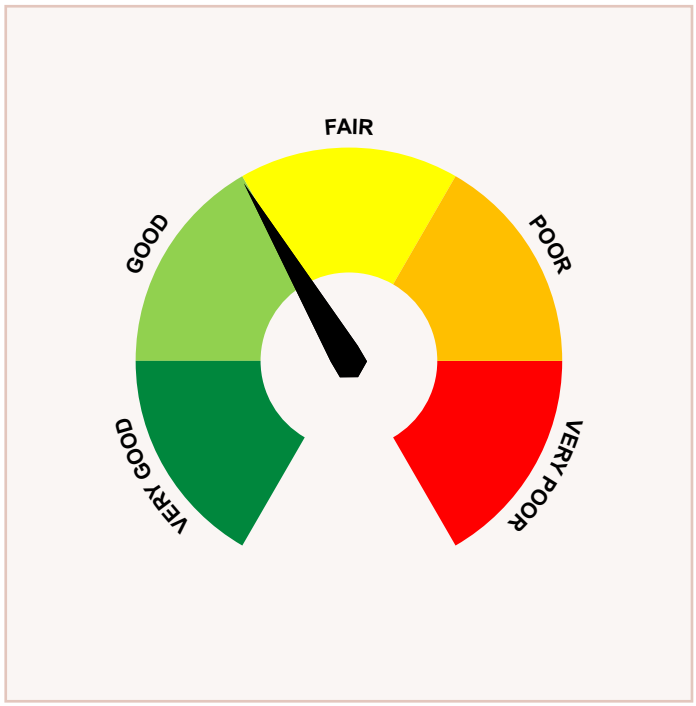
3: Where FCI = 0, or no deferred maintenance is reported, or required maintenance is reported but has not yet been deferred, condition is reported based on typical useful life consumed as follows:

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 Transit Services assets is Good to Fair and a breakdown for the various asset classes is shown in the figures below. Condition distribution percentages are weighted based on replacement cost.

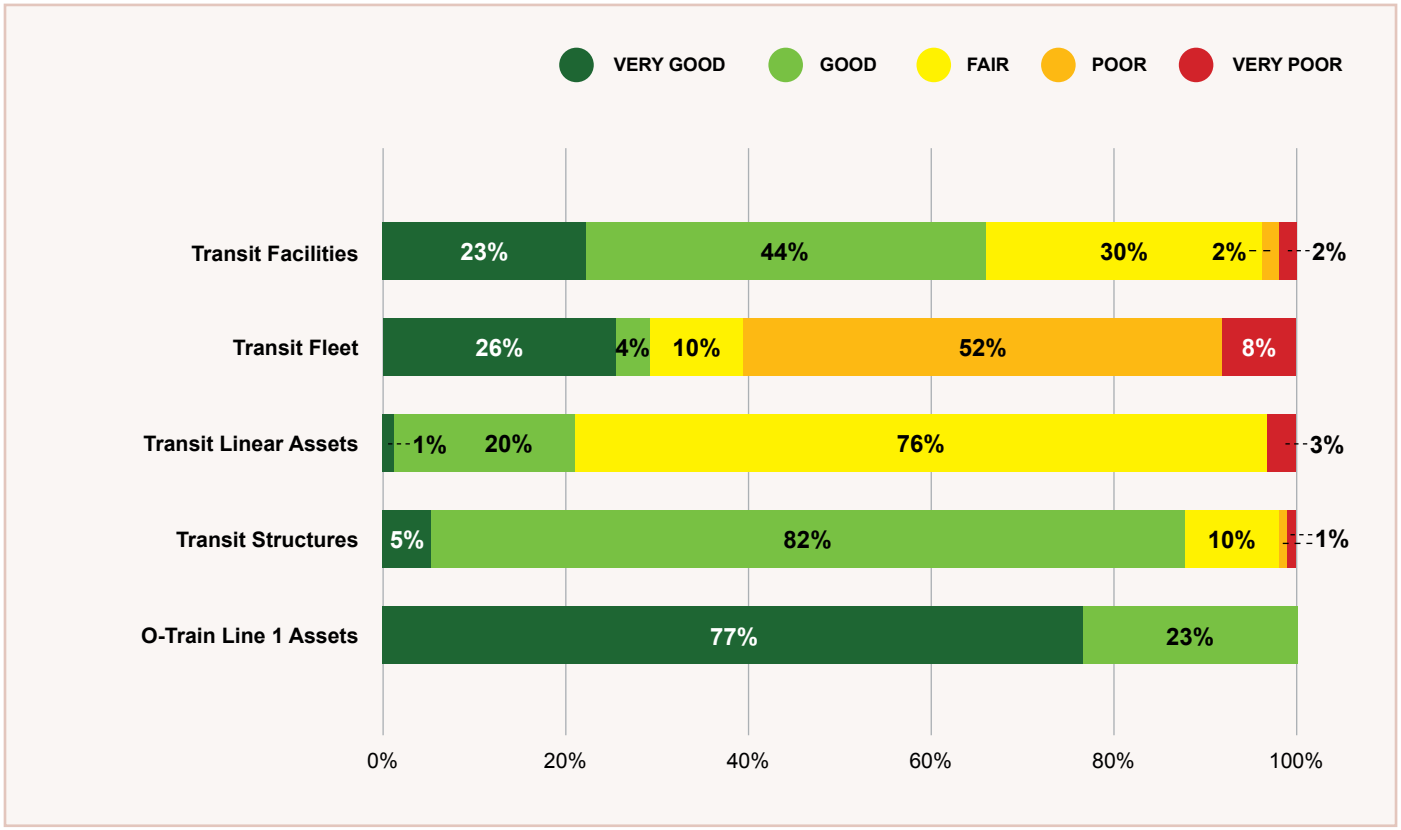
Overall Condition Profile of Transit Assets[4]





4: Overall condition profile excludes O-Train Line 1 Assets because condition data was not sufficiently detailed to include in the aggregated results.

Condition Profile of Transit Assets[5, 6, 7]



5: Condition data was unavailable or incomplete for Other Transit Assets.
6: Subsequent to the data collection undertaken for this report, the condition of transit fleet has significantly deteriorated. Values reported in this Asset Management Plan reflect May 2024 data.
7: It should be noted that the oldest buses in the transit fleet will always be in the poorest condition as they approach their planned end of life; they remain safe and fit for use until they are retired.

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 Transit 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 Transit assets should be managed in a way that:

- Increases transit ridership.
- Provides a safe and secure public transit system.
- Reduces emissions associated with the City's operations and facilities.
- Increases resiliency to extreme weather and changing climate conditions.
- Provides service when scheduled.
- 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 Transit 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.

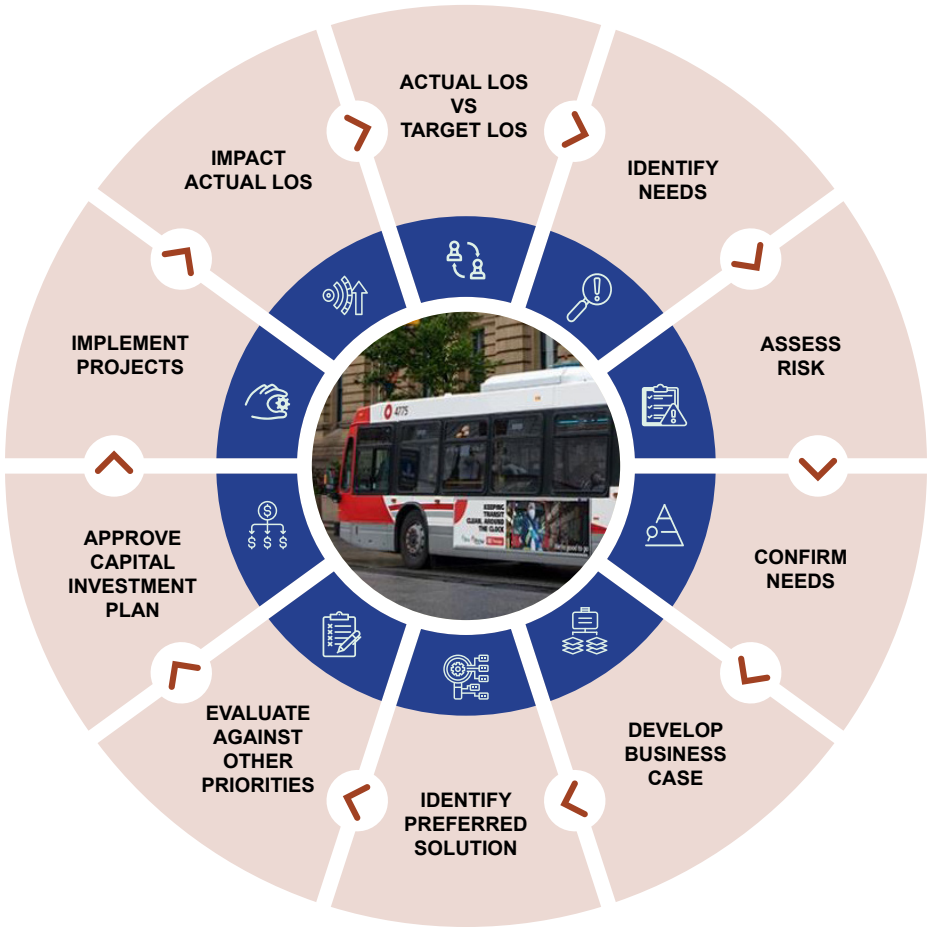
Levels of Service for Transit

Service Attribute	Community Level of Service	Technical Level of Service	Historical Performance (2022)	Current Performance (2023)
Capacity and use	Increase transit ridership	Total annual linked trips on bus and O-Train across the OC Transpo network (millions)	50.2	64.2
		Annual Para Transpo ridership (thousands)	572	771
	Provide equitable access to transit services	Average distance to the closest Rapid Network bus stop for areas of strong equity concern relative to other areas of the city within the Greenbelt	Not reported	Strong equity concern: 2.1km Other areas of the city: 2.1km
Function	Provide a safe and secure public transit system	Collision rate (collisions per 100,000 vehicle kilometres driven)	1.87	2.45
		Customer injury rate (injuries per million trips)	1.27	1.06
	Reduce emissions associated with the City's operations and facilities	Annual GHG emissions from Transit buildings per thousand square feet (tonnes CO_2e)	8.6 t/1,000 sq. ft.	7.7 t/1,000 sq. ft.
		Annual GHG emissions from Transit fleet (tonnes CO_2e)	91,124 t	91,625 t
	Increase resiliency to extreme weather and changing climate conditions	Percent of transit stops with a shelter (provides shade and protection from inclement weather)	24%	24%
		Percent of priority OC Transpo (non-LRT) facilities that have a generator for backup power	Not reported	60%
Reliability	Provide service when scheduled	Percent of scheduled hours of service that were delivered (bus)	96.6%	97.8%
		Percent of scheduled hours of service that were delivered (O-Train Line 1)	98.1%	97.1%
	Maintain assets in a state of good repair	Percent of Transit Facilities in fair or better condition	97%	97%
		Percent of Transit Fleet assets in fair or better condition	39%	39%
		Percent of Transit Linear Assets in fair or better condition	100%	97%
		Percent of Transit Structures in fair or better condition	97%	97%
		Percent of O-Train Line 1 Assets in fair or better condition	100%	100%
Affordability	Provide sustainable and affordable services over the long-term	Asset renewal funding ratio (renewal funding as a share of replacement cost) for Transit assets	Not reported	Not reported

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 Transit Asset Management Plan, a preliminary estimate of the financial needs for transit services over the next 10 years was prepared based on the financial analysis conducted for the Transit Long Range Financial Plan Update (September 2023). The estimate includes new assets to support growth, enhancements to existing assets and renewals based on lifecycle needs.

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 2023 Transit Long Range Financial Plan Update provides a list of initiatives and cost forecasts from 2023 to 2048. Each initiative was apportioned between growth and other needs (enhancement, renewal, unfunded from prior years and debt servicing), and summed for the 10-year forecast of this Asset Management Plan.[8]

Growth and Other Needs Forecast for Transit

	10 Year Needs (millions; inflated$)		
Asset Class	**Growth[9]**	**Other Needs (Enhancement, Renewal, etc.)**	**Total**
Transit Assets	$12,276.7	$2,435.5	$14,712.1
Total	**$12,276.7**	**$2,435.5**	**$14,712.1**

Totals may not sum exactly due to rounding.

8: O-Train Line 1 assets are subject to a 30-year maintenance agreement and detailed requirements for handing over to the City at the end of the contract.
9: Growth needs presented in the Transit Asset Management Plan are based on the Transit Long Range Financial Plan Update (September 2023), which provides an investment forecast that is limited by financial constraints. The Transportation Master Plan (June 2025) also identifies an unconstrained, "needs-based" network to address growth-related mobility needs and support the City's mobility objectives. The needs-based network involves significant additional investment in transportation infrastructure, not expressed in the Transit Asset Management Plan (June 2025). This will be reflected in the next update of the Transit 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 2023 Transit Long Range Financial Plan Update considers actions to reduce greenhouse gas emissions, such as implementing transit network expansions identified in the Transportation Master Plan, and the costs for these actions are included in the needs reported in
the Asset Management Plan.

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 strategy for transit assets is detailed in the 2023 Transit Long Range Financial Plan Update, which outlines the operating requirements and capital investments needed to ensure sustainable transit services amidst evolving economic conditions.

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 revenue forecast for transit is based on the Transit Long Range Financial Plan Update (September 2023).

Revenue Forecast for Transit

Component	Revenue Forecast (millions; inflated$)										
	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Operating Revenue	$509.3	$556.7	$578.9	$601.7	$625.1	$649.6	$674.8	$704.9	$732.9	$762.3	**$6,396.4**
Capital Revenue – Growth	$139.3	$219.0	$271.0	$380.5	$1,805.3	$1,703.4	$1,725.8	$1,837.6	$1,908.8	$1,930.0	**$11,920.6**
Capital Revenue – Other (Renewal, Enhancements, etc.)	$171.3	$160.3	$180.2	$154.8	$158.7	$167.1	$199.4	$192.4	$180.5	$220.4	**$1,785.0**

Totals may not sum exactly due to rounding.

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

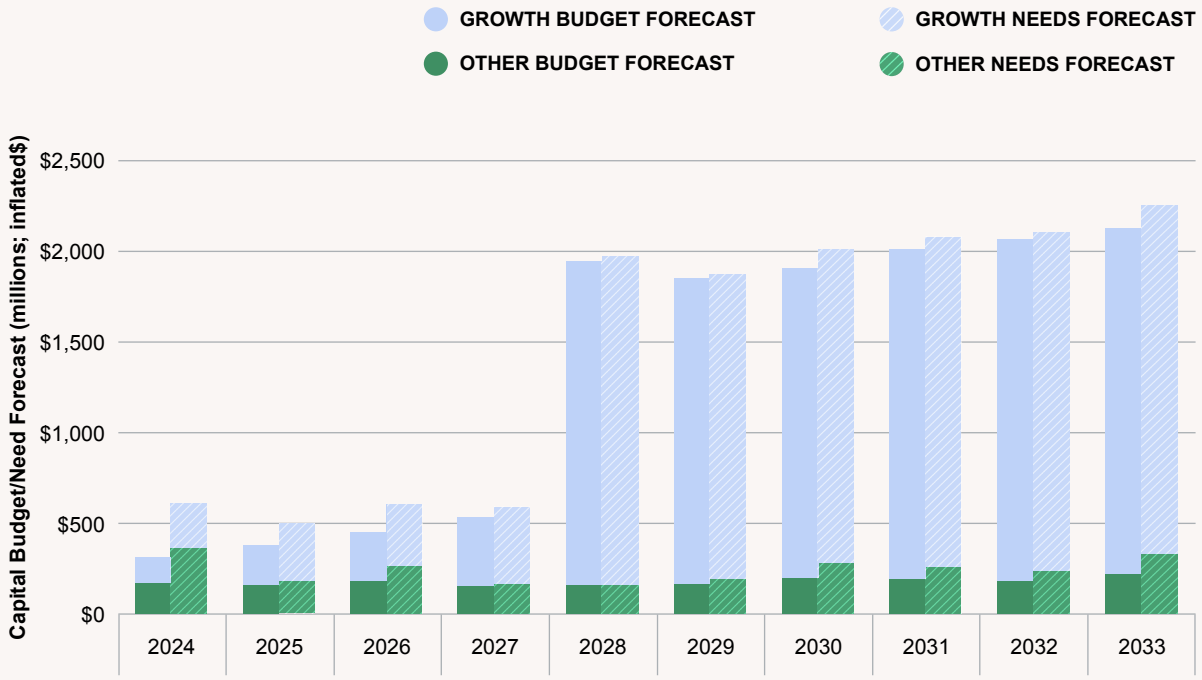
An Asset Management Plan provides a forecast of where the City will be in 10 years with respect to some service level targets based on historic decisions on how the City invests in and manages assets. The service area gap is the difference between the forecasted capital investment needs and the investment 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 transit assets is $14.7 billion, while the planned budget is $13.7 billion, leading to a service area gap of $1.0 billion. The forecasted investment need, anticipated revenue and service area gap for transit assets are summarized in the table and figure below.

Capital Service Area Gap for Transit

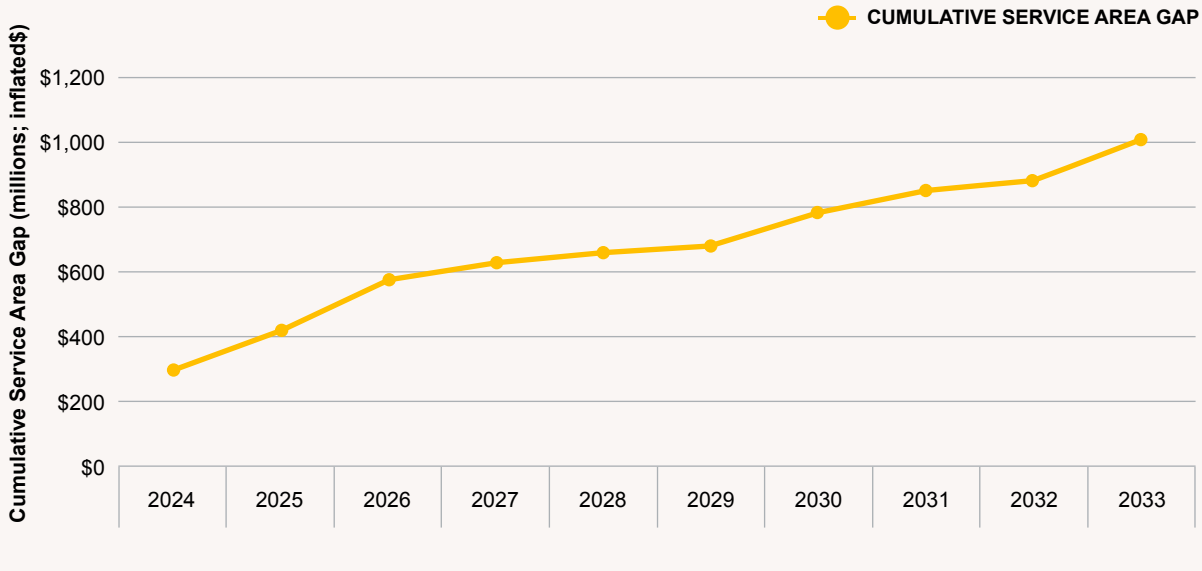
Component	10 Year Need (millions; inflated$)	10 Year Revenue (millions; inflated$)	10 Year Gap (millions; inflated$)
Growth	$12,276.7	$11,920.6	($356.0)
Other (Renewal, Enhancements, etc.)	$2,435.5	$1,785.0	($650.5)
Grand Total	**$14,712.1**	**$13,705.6**	**($1,006.5)**

Totals may not sum exactly due to rounding.

Capital Budget and Capital Needs Forecast for Transit



Cumulative Capital Service Area Gap for Transit



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.

Expected and Target Levels of Service for Transit

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	Increase transit ridership	Total annual linked trips on bus and O-Train across the OC Transpo network (millions)	64.2	Expected performance not available		102.5 (by 2033)	Transit Long Range Financial Plan Update (Sept. 2023)
		Annual Para Transpo ridership (thousands)	771	Expected performance not available		945 (by 2033)	Transit Long Range Financial Plan Update (Sept. 2023)
	Provide equitable access to transit services	Average distance to the closest Rapid Network bus stop for areas of strong equity concern relative to other areas of the city within the Greenbelt	Strong equity concern: 2.1km Other areas of the city: 2.1km	Expected performance not available		No set target	
Function	Provide a safe and secure public transit system	Collision rate (collisions per 100,000 vehicle kilometres driven)	2.45	Expected performance not available		1.273 or less	OC Transpo Safety Management System update
		Customer injury rate (injuries per million trips)	1.06	Expected performance not available		1.036 or less	OC Transpo Safety Management System update
	Reduce emissions associated with the City's operations and facilities	Annual GHG emissions from Transit buildings per thousand square feet (tonnes CO_2e)	7.7 t/1,000 sq. ft.	↓[10]	Decrease[10]	2.5 t/1,000 sq. ft.	Climate Change Master Plan
		Annual GHG emissions from Transit fleet (tonnes CO_2e)	91,625 t	↓	Decrease	Zero emissions for conventional bus and Para Transpo fleet (by 2036)	Transit Fleet Plan
	Increase resiliency to extreme weather and changing climate conditions	Percent of transit stops with a shelter (provides shade and protection from inclement weather)	24%	↑	Increase	Increase	Transit Services staff
		Percent of priority OC Transpo (non-LRT) facilities that have a generator for backup power	60%	↑	Increase	No set target	
Reliability	Provide service when scheduled	Percent of scheduled hours of service that were delivered (bus)	97.8%	Expected performance not available		99.5%	Transit Services staff
		Percent of scheduled hours of service that were delivered (O-Train Line 1)	97.1%	Expected performance not available		99.5%	Transit Services staff
	Maintain assets in a state of good repair	Percent of Transit Facilities in fair or better condition	97%	Expected performance not available		As per Transit Long Range Financial Plan Update (Sept. 2023)	
		Percent of Transit Fleet assets in fair or better condition	39%	Expected performance not available		As per Transit Long Range Financial Plan Update (Sept. 2023)	
		Percent of Transit Linear Assets in fair or better condition	97%	Expected performance not available		As per Transit Long Range Financial Plan Update (Sept. 2023)	
		Percent of Transit Structures in fair or better condition	97%	Expected performance not available		As per Transit Long Range Financial Plan Update (Sept. 2023)	
		Percent of O-Train Line 1 Assets in fair or better condition	100%	Expected performance not available		As per Transit Long Range Financial Plan Update (Sept. 2023)[11]	
Affordability	Provide sustainable and affordable services over the long-term	Asset renewal funding ratio (renewal funding as a share of replacement cost) for Transit assets	Not reported	Expected performance not available		As per Transit Long Range Financial Plan Update (Sept. 2023)	

↑ **Positive upward trend**	↑ **Negative upward trend**	↓ **Positive downward trend**	↓ **Negative downward trend**	→ **Positive stable trend**	→ **Negative stable trend**

10: 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.
11: Target service level for state of good repair for O-Train Line 1 assets is based on the Project Agreement, which may vary from expectations for other transit assets.

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[12]	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.

12: 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.	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. Insurance and City reserves are also available for unplanned costs due to extreme weather.
Operational Pressures from Climate Change	Increased demands on staff and resources may affect other service delivery or increase costs	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.
Funding for LRT Structure Maintenance	The City may face challenges meeting renewal and maintenance needs for LRT structures under its responsibility, due to unique standards, access constraints, and public expectations. (Some LRT structures remain the responsibility of the maintainer, per the Project Agreement.)	Annual capital planning will consider these pressures. Where funding constraints persist, additional risk mitigation strategies may be explored.
Pavement Impacts from Bus Fleet Electrification	Heavier electric buses may shorten pavement lifespan, leading to more frequent resurfacing and maintenance.	A funding allocation study is underway to better understand these impacts, supporting informed, proactive planning.

Risk Area	Potential Impacts	City Response
Non-Urgent Regulatory & Equity Needs	Delays may impact inclusivity, accessibility, and workplace suitability. Workforce pressures may impact staff retention and morale, which can affect continuity and capacity for emergency response.	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. Accessibility and equity upgrades will be prioritized based on identified needs and risks.

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.	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. 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.

Key Risks to Asset Management Plan Implementation	Response
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.
Council or changes in legislation/regulation may mandate higher/different target service levels.	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.
Changes in asset or financial data, which may affect the findings presented in the Asset Management Plan.	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.

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:

- Adjust bus routes and frequencies, defer nonessential projects, phase in transit projects, optimize underutilized services, and repurpose existing infrastructure.
- Provide real-time information to customers and improve ridership by adjusting routes and improving reliability.
- Prioritize maintenance of high-traffic and critical assets, build government partnerships for funding, and explore cost-effective materials for infrastructure projects.
- Evaluate opportunities to dispose of Park and Rides.

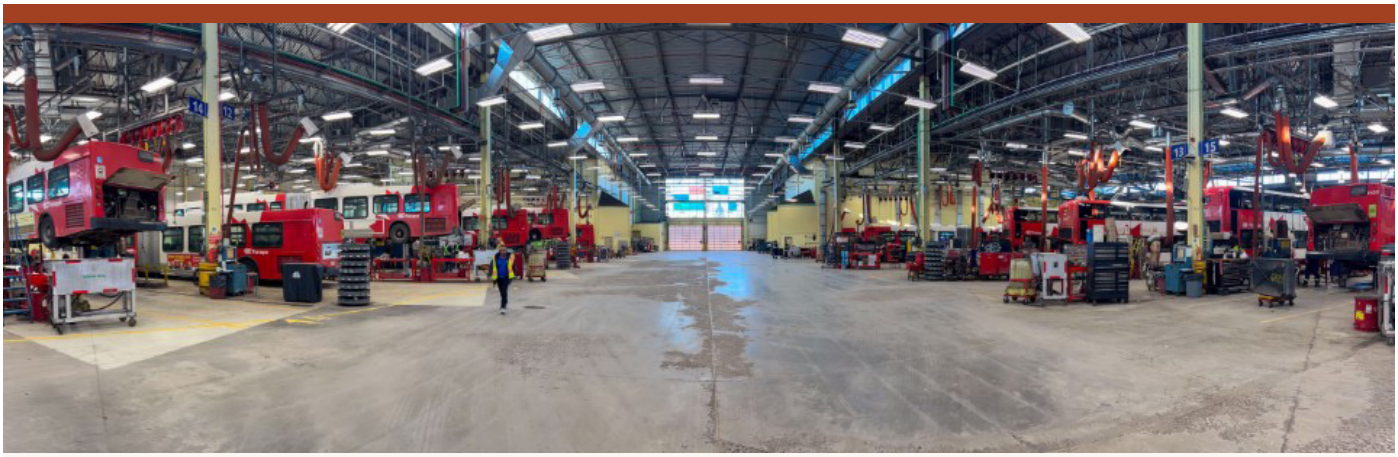
Any new strategies may have impacts on residents and services and should be subject to further study prior to being pursued.

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 or contact the City of Ottawa Asset Management Service.