Office of the
Auditor General
City of Ottawa

Audit of Bus Service Planning and Scheduling



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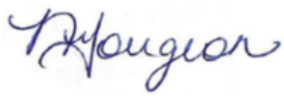
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Acknowledgement

The audit was conducted by Cory Richardson and Anna Koldewey, and an independent transit planning and scheduling subject matter expert from Leading Mobility (external consultant) under the supervision of Joanne Gorenstein, Deputy Auditor General and my direction. My colleagues and I would like to thank those who contributed to this project.

Respectfully,



Nathalie Gougeon, CPA, CA, CIA, CRMA, B. Comm
Auditor General

Introduction

The Audit of Bus Service Planning and Scheduling was included in the 2024-2025 Audit Work Plan of the Office of the Auditor General (OAG), approved by City Council on December 6, 2023.

Background/Context

A convenient and reliable transit system is a vital public good that is essential for the functioning of a city[1]. The City of Ottawa's (City) Transit Services Department provides public transit services under the name OC Transpo, operating a multi-modal service that includes rail (O-Train), conventional bus, and Para Transpo services. Operating 24 hours a day, 7 days a week, OC Transpo connects urban and suburban communities across Ottawa and extending into downtown Gatineau. The O-Train currently consists of two main lines (Lines 1 and 2) with an additional airport line (Line 4), while the bus network has more than 100 bus routes across the city. Stage 2 extensions to O-Train Line 1 are underway and will connect more residents to rail service, with the east extension expected to be completed in 2026 and the west extension in 2027.

Bus routes are organized into four main service types:

- Frequent routes operate every 15 minutes or less during weekday peak hours;
- Connexion routes provide rush hour service connecting suburban residential areas to O-Train stations;
- Local routes provide coverage to areas not served by frequent routes; and
- School routes routes provide service to high schools and middle schools through 600-series routes and additional trips on regular routes.

For 2026, OC Transpo's total budgeted operating expenditures amounted to $905 million (17% of the City's total operating budget). Of this total, $419 million[2] is allocated to bus operations, OC Transpo's largest operating expenditure (refer to **Figure 1**).

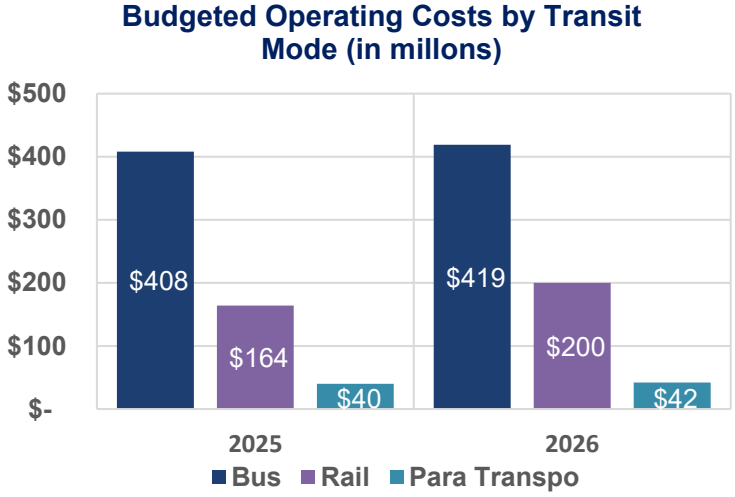


Figure 1: OC Transpo operating budget by mode[2]. Source: OC Transpo

[1] Transportation Master Plan April 2023 (pg. 94)
[2] Operating budget figures exclude fixed capital formation costs.

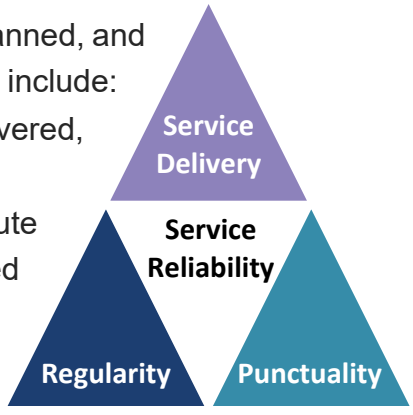
Bus Service Planning and Scheduling Processes

Bus network design, planning and scheduling are core processes that determine how a transit agency delivers its service. These processes are guided by service standards and guidelines that define the criteria, decision rules, and performance expectations for planning, monitoring, and regularly evaluating transit service. The Transit Customer Systems and Planning (TCSP) service area of the City's Transit Services Department, leads these processes for OC Transpo, including route design, service changes, and schedule creation. At the planning stage, routes are designed using customer travel patterns, ridership data from multiple sources (e.g. Automatic Passenger Counting systems), budgetary allotments and transit service standards and guidelines (based on Council policies) such as service frequency, operating hours, and walking distances.

Service changes occur quarterly to address seasonal demand and community growth. These changes aim to align capacity with demand on routes and expand coverage when funding allows, all in accordance with service standards and guidelines. The scheduling stage incorporates these changes, such as route modifications, service level adjustments, and special event requirements, to produce schedules for each route. Different schedules are produced for weekdays, weekends, holidays, special weeks with reduced service such as March Break, severe storm service, and special events (e.g., Canada Day). These processes are expected to adhere to City Council policy directions (e.g. equity and inclusion lens), remain within the approved budget and comply with collective agreements.

Bus Service Performance and Challenges

OC Transpo monitors service reliability using key performance indicators (KPIs), which measure whether the service is being delivered as planned, and if it meets on-time performance targets. The primary reliability KPIs include:



- **Service Delivery:** Degree to which scheduled trips are delivered, with a target of 99.5%[3].
- **Regularity:** Measures whether frequent route trips (15-minute or less) are evenly spaced (within 40% of the next scheduled bus on the same route), with a target of 85%.
- **Punctuality**: Percentage of less frequent route trips (run every 16 minutes or more) which arrive within the acceptable window (no more than 1 minute early or 5 minutes late), with a target of 85%.

[3] The service delivery rate reflects the proportion of in-service hours delivered relative to the number of scheduled hours, regardless of whether the trip is on schedule.

In recent years, OC Transpo has not consistently achieved bus reliability targets as demonstrated in **Figure 2** below. Fleet shortages, aging buses, maintenance constraints, staff recruitment challenges, regulatory changes and increases in traffic congestion have placed significant pressure on service reliability.

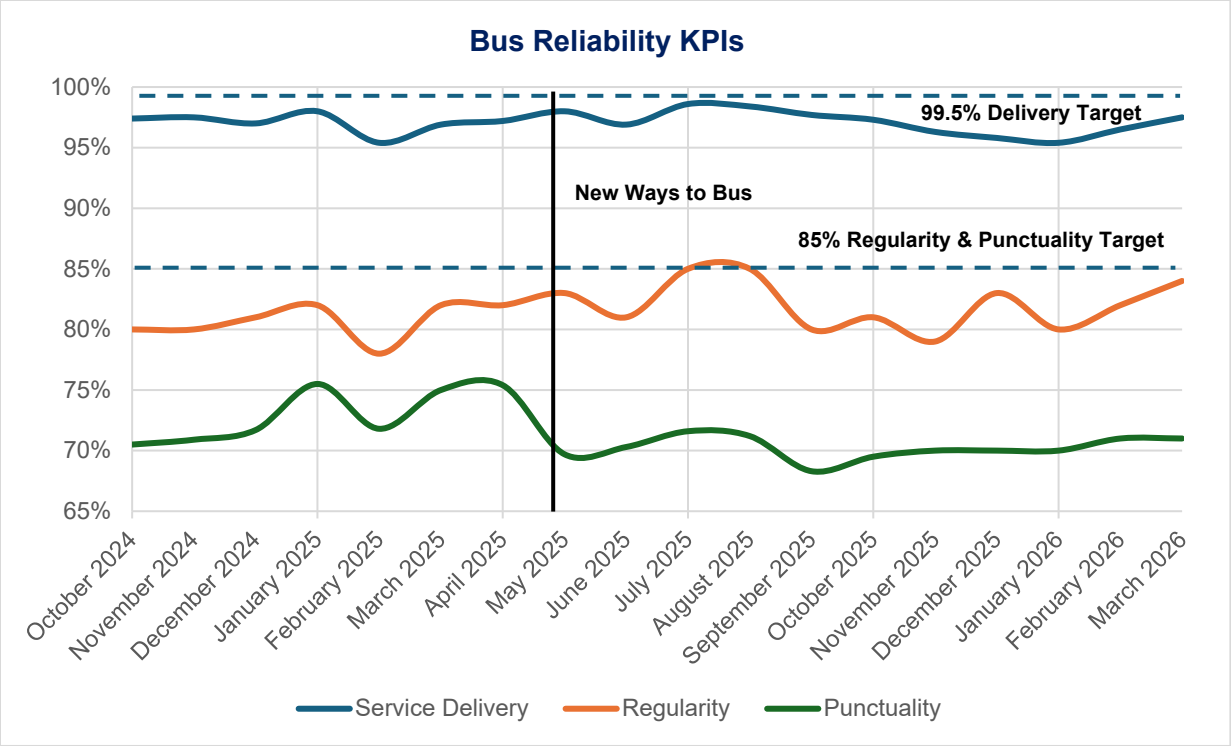


Figure 2: Trends in conventional bus reliability targets from October 2024 to March 2026. Source: OC Transpo

Over half of the current fleet is at or beyond its typical lifespan of 15 years, leading to more frequent breakdowns and longer maintenance requirements. A shortage of licensed mechanics has compounded the maintenance backlog, increasing service cancellations. While the transition to zero-emission buses (ZEBs) is underway to replace the aging buses, manufacturing delays and operational limitations have slowed the pace of fleet renewal. Additionally, reduced access to dedicated bus lanes, partly due to Stage 2 O-Train construction, has contributed to trip delays.

In addition to reliability challenges, transit ridership has not returned to pre-pandemic levels, and travel patterns have changed. In 2025, average ridership reached 72% of 2019 levels (refer to **Figure 3**). The 2026 budget assumes 82% of pre-pandemic ridership, reflecting the gradual increase in riders in recent years.

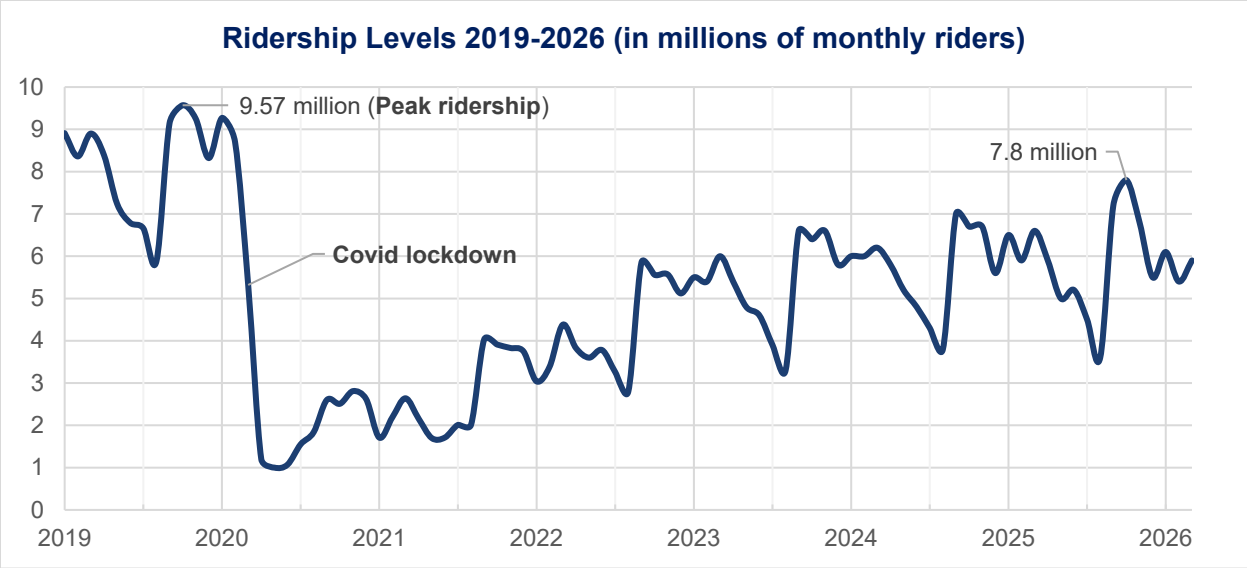


Figure 3: Monthly ridership for conventional bus and rail from January 2019 to March 2026. Source: OC Transpo

To address these challenges, OC Transpo presented the Transit Services Five-Year Roadmap to Transit Commission in June 2023 which outlines OC Transpo's five foundational pillars (People, Customers, Services, Assets, and Finance), along with associated strategic initiatives, milestones and success measures to guide and assess progress over the next five years.

As part of this roadmap, the 2023 Bus Route Review and the resulting bus route network changes, known as New Ways to Bus, represented a major network redesign intended to reflect post-pandemic customer travel patterns and prepare for expanded O-Train service. Launched on April 27, 2025, the redesign removed 45 routes, introduced 18 new routes, and modified 63 existing routes. As described in the Five-Year Roadmap, the review was expected to confirm transit service planning principles, use recent customer travel pattern surveys, and align with the City's Official Plan, the Transportation Master Plan, and the equity and inclusion lens.

Audit Objective and Scope

The objective of this audit was to assess the efficiency and effectiveness of OC Transpo's bus route planning and scheduling process.

The audit included bus planning and scheduling activities related to the implementation of New Ways to Bus (effective April 27, 2025) and beyond, though older periods were reviewed for context. The audit evaluated governance and operational processes for conventional bus route planning and scheduling. Except as they relate to inputs into planning and scheduling, the audit did not examine the activities of the Transit Operations

Control Centre[4], the process for operators selecting/booking their shifts, bus maintenance activities, recruitment, or capital investments. These topics will be considered for future audit(s).

It is important to note that given the current bus operating environment, our audit included specific relevant but tangential areas which support the audit objective, including future fleet planning for the achievement of service expectations.

Refer to Appendix 1 for additional details on the objective, criteria, and approach to the audit. This audit was conducted in conformance with the Institute of Internal Auditors' *Global Internal Audit Standards (2024)*.

Conclusion

Given current operational realities, OC Transpo has not been able to reliably deliver its scheduled bus service. While weekend and off-peak service has been approaching reliability targets, weekday peak service has been consistently under-performing. The evolving transit patterns in a post-pandemic landscape, delays in both LRT line openings and delivery of the ZEBs, as well as reduced fleet availability have added complexity to planning and scheduling processes. Management is taking steps to respond to the existing operational constraints.

Although short, mid, and long-term strategies to improve performance trends are underway through the Five-Year Roadmap, the audit identified several areas where historical decisions have impacted effective bus planning and scheduling processes in support of OC Transpo meeting its service delivery targets. Current run times (i.e. the time it takes to complete individual bus trips), initially developed in 2023 as part of New Ways to Bus, in many cases have become inaccurate due to increased road congestion and other factors, impacting on-time performance. Bus fleet health has also limited the availability of buses and has contributed to cancelled service.

New Ways to Bus was an opportunity to reset the bus network; however, specific foundational pieces were missing; specifically, the establishment of a clear order of priorities given that the network would not be able to address all needs, as well as updated service standards to articulate specific expectations for service levels going forward. Given the upcoming LRT Line 1 extension openings expected in the near term, OC Transpo has an opportunity to establish clear priorities, both short-term and longer term, develop and consolidate realistic service standards and consistently measure performance against those standards.

[4] The Transit Operations Control Centre provides real-time 24/7 monitoring of on-street service, including bus operations and O-Train Line 1.

Each finding in this report has been assigned a rating that prioritizes the associated remediation. Rating definitions are provided in Appendix 2.

Value of Audit: This audit report provides specific short-term and longer-term recommendations to improve the planning of bus service, highlighting that trade-offs may be required for OC Transpo to deliver a reliable and efficient bus network given existing resource constraints.

Audit Findings and Recommendations

1. Bus Scheduling

OC Transpo's scheduling process is designed to balance customer service needs with budget limits, available buses and operators, and labour requirements (as outlined in the applicable collective agreements). Scheduling is continuous and cyclical, repeating four times a year for the winter, spring, summer, and fall service bookings. Because of the size and complexity of Ottawa's transit system, schedule changes require six months of lead time before they can be implemented for customers.

To better understand a day in the life of an OC Transpo bus, see definitions and **Figure 4** below:

- **Route**: A numbered service that follows a specific path around the city.
- **Trip**: One instance of a route, i.e. a series of stops and rides between locations.
- **Block**: A full day's work for a bus, made up of several trips (and deadheads) done by the same vehicle.
- **Deadheading**: When a bus travels without passengers, to or from the garage or between trips or routes.
- **Recovery Time**: Extra scheduled time at the end of a trip to absorb delays and keep the bus on time. Also known as a layover.
- **Interlining**: When a bus serves more than one route in a block.

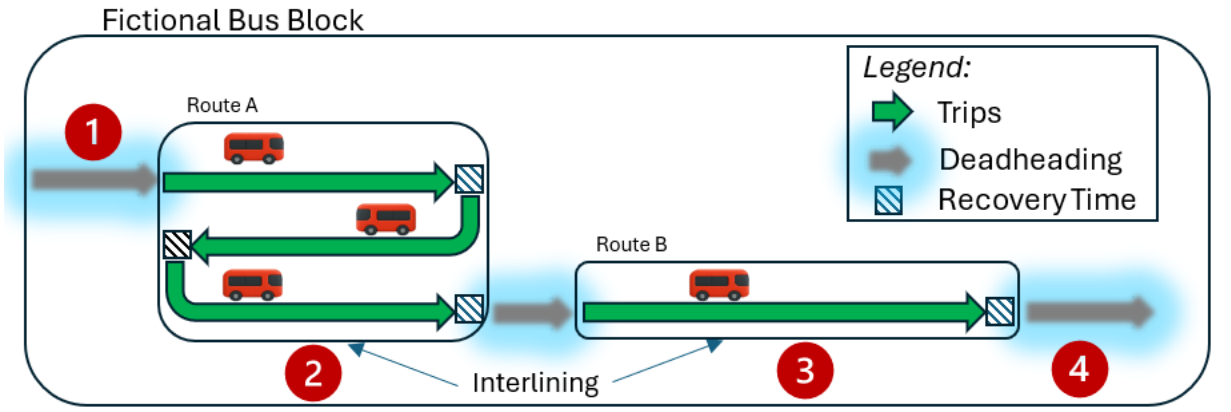


Figure 4: Diagram of a fictional block. From Point 1, the bus pulls-out of the garage, deadheading towards its first trip. The bus then starts an in-service trip on Route A, and after a recovery time, serves the route in the opposite direction, and finally once more after another recovery (Point 2). The bus then deadheads towards the start of Route B, this process is known as interlining and services a trip (Point 3). After a trip on this route, it pulls into the garage at Point 4.

1.1 Scheduled run times do not reflect actual travel times and are not consistently adjusted.

Priority Rating: High

Run Times

When developing the bus schedule, each trip is assigned a "run time". A scheduled run time is the expected time a bus will take to complete its in-service trip based on estimates, baselined at the 85th percentile (i.e. would be on-time 85% of trips).

OC Transpo's run times were last holistically updated for implementation of New Ways to Bus, based on data collected in 2023. Due to delays in launching New Ways to Bus in April 2025, run times became inaccurate because of evolving traffic patterns throughout the city. In reviewing the results of the fall 2025 service booking, for the weekday routes of 30 minutes or greater[5] in duration, 29% had scheduled run times that varied by 10% or more than actual run times, on average. Of these routes flagged, 86% did not have enough scheduled time and 14% had too much (refer to **Figure 5**).

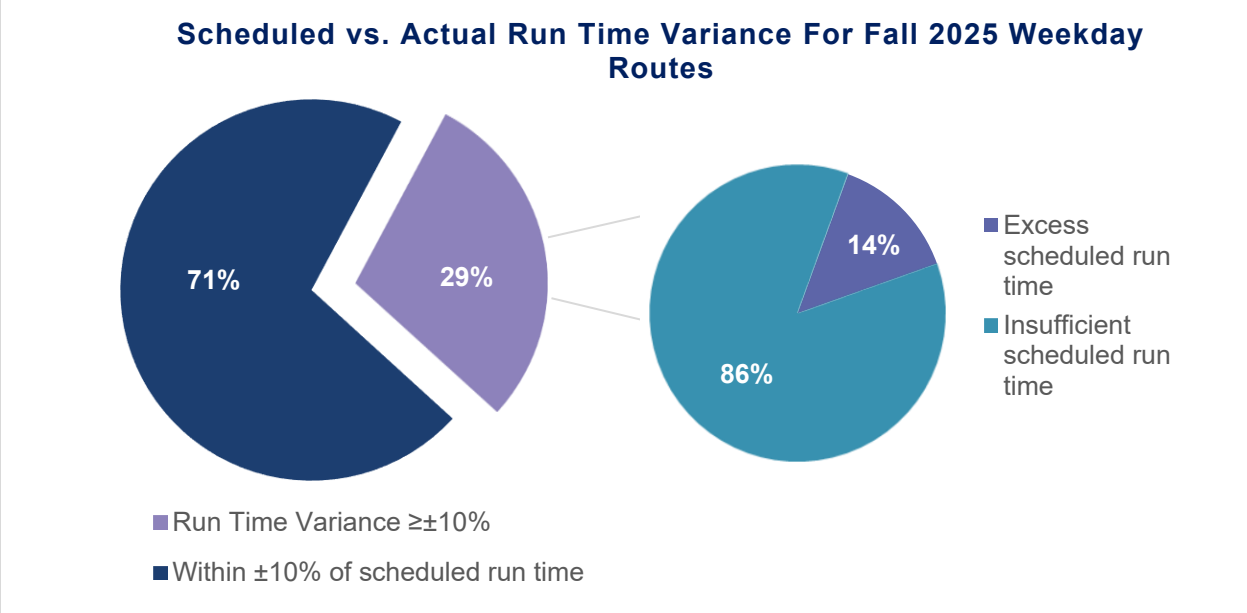


Figure 5: Variation between actual and scheduled run times for weekday routes of 30 minutes or greater

Since the spring of 2025, some routes with trips with high deviations from their scheduled run times have been flagged by operators through "Service Improvement Requests". This system provides operators a feedback mechanism that is reviewed and analyzed by the Service Planning team. Additionally, run time issues are identified by staff who perform ongoing in-depth analyses of impacted routes and trips. However, operational resources

[5] Trips under 30 minutes were removed so short trips would not skew data if they were a high percentage off the scheduled run time. A 10% threshold was used as outside this any recovery time is less likely to absorb the variance. Route directions were analyzed independently.

have placed constraints on the number and type of adjustments that can be made. For the winter 2026 service booking, two routes had their run times adjusted. For the spring 2026 service booking, run time adjustments were made for seven routes, many of which were among the most inaccurate from their scheduled times. However, 35 routes[6] remain with deviations of over 10% from their run times.

Further complexity is added to the run time challenges because of factors such as deadheading, recovery time, and interlining within a block.

Deadheading

Because of the geography of Ottawa, deadheading over long distances can occur. Based on analysis of a sample of scheduled deadhead times compared to online map route times, some deadheads may not have appropriate schedule time to reach their destination. If delays occur when deadheading, this can impact the next trip; further impacting reliability. We understand that updates to the deadhead times are ongoing.

Recovery Time

Recovery time is built into the schedule between trips, to act as a buffer for unforeseen circumstances to keep buses on schedule. Transit agencies typically build in 10-20% of recovery time into the schedule. Recovery time is also helpful to stabilize highly variable run times that are not strong candidates for run time adjustment (e.g. not on time but not consistently late or early).

For the spring 2026 service booking, 84 (1%) weekday trips have under 5% of in-service recovery time - which is the minimum requirement, as per the collective agreement with the bus operators. Further, 14% of blocks do not have 10% in-service recovery time over the block, which the collective agreement stipulates that OC Transpo should endeavour to provide. Conversely, 33% of blocks have recovery time of over 30% of in-service time. Insufficient recovery time can impact start times of the next trip on the block of work; potentially impacting reliability. Conversely, excessive recoveries impact efficiency.

Interlining

Interlining occurs when multiple routes are serviced on the same block. For the spring 2026 service booking, 90% of blocks had interlining. Of those, 48% of blocks interlined three (3) or more routes and 11% of blocks interlined six (6) or more routes. Interlining itself does not impact run times and is a strategy to efficiently manage limited resources. However, the more interlining is embedded within a block of work, the greater the risk to on-time performance across routes. For instance, if a bus is running late on one route, that delay can negatively affect downstream trips on other routes. Block-level

[6] This does not include school routes with run time inaccuracies.

performance data that may detect impacts of interlining is not regularly analyzed by OC Transpo.

Overall, the above scheduling challenges have resulted in reliability issues, especially during weekday service. These issues are reflected in key performance measures, including:

Start times – During afternoon peak times, routes started late on 19% of trips between August and November 2025. In January 2026, start times were late 37% of the time, with 24% starting over 10 minutes late.

Regularity – For the 25 frequent routes tracked for regularity, five routes (20%) met the 85% target on average from September 2025 to the end of January 2026 weekday service. The remaining 80% did not meet the reliability target.

Punctuality – For the 78 non-frequent, non-school routes, 3 routes (4%) met the 85% target on average from September 2025 to the end of January 2026 weekday service. The remaining 96% did not meet the reliability target. Of the 73 school routes, none met the punctuality target.

Service Delivery – For all service days from August 2025 to March 2026, service delivery, as a percentage of scheduled hours, was 97.6% as compared to the 99.5% target.

Consistent run time gaps have impacted the ability for OC Transpo to deliver consistent and reliable service at target levels, especially during peak periods which has ultimately impacted riders' trust in the system.

RECOMMENDATION 1 – RUN-TIME ADJUSTMENTS

The General Manager, Transit Services should develop a methodology to risk rank, monitor and update run times in a systematic manner to support the reliable delivery of the bus schedule.

Further, trips with highly variable run times that are not strong candidates for run time adjustment (e.g. not on time but not consistently late or early) should be prioritized for other potential transit priority measures to support reliability.

MANAGEMENT RESPONSE 1

Management agrees with the recommendation. As part of the work to achieve the four pillars of OC Transpo's Customer-First Action Plan, OC Transpo staff will formalize a methodology to assess, monitor and update run times to increase bus reliability. As part

of this process, trips with highly variable run times will be prioritized. Estimated completion by Q1 2027.

Out of the total of 104 regular routes in the OC Transpo system, 28 routes will have run times revised during 2026 to match current operating conditions. Additional routes will be analyzed and revised in each quarterly service change in 2027 and beyond.

The work to revise the run times on the highest-priority routes is expected to be completed by Q3 2027, and all routes will be continuously reviewed and corrected. Staff will advise Council of any budget requirements for additional operating resources to complete this work.

RECOMMENDATION 2 – DEADHEAD TRAVEL TIMES

The General Manager, Transit Services should update deadhead travel times on a risk-basis, with committed timelines, to support reliability of bus schedules.

MANAGEMENT RESPONSE 2

Management agrees with the recommendation. The reviews and improvements to bus run times that are occurring as part of the Customer-First Action Plan will include a review and assessment of deadhead travel times. Estimated completion by Q2 2027.

RECOMMENDATION 3 – RECOVERY TIME

The General Manager, Transit Services should review and rebalance recovery times to meet requirements and industry practices to align with terms of the collective agreement and in support of reliability.

MANAGEMENT RESPONSE 3

Management agrees with the recommendation. The reviews and improvements to bus run times that are occurring as part of the Customer-First Action Plan will include a review of recovery times for adherence with Collective Agreement requirements, industry best practices and increasing predictable adherence to schedules. Estimated completion by Q3 2027.

2. Operational Constraints

As noted earlier, there is a quarterly process to adjust service and schedule trips based on data analysis as well as other recent feedback (e.g. customer complaints and operator comments). Any identified adjustments to routes or specific trips are input into the scheduling software to determine the minimum number of buses required to deliver the planned service. The Service Planning team meets with the Fleet Maintenance team to review the minimum number of buses required against the number of buses expected to be available.

A key operational constraint relates to the availability of operators to drive the buses. Operator scheduling was further complicated in April 2022 when the collective agreement with bus operators mandated Canada Labour Code (CLC) breaks after five (5) hours of service. When a bus operator is taking a CLC-mandated break, they must be given an opportunity to take the entire allocated break and cannot be assigned work during that time. Therefore, if a trip runs sufficiently late, it could necessitate a CLC break and further delay or cancel the start of the subsequent trip.

2.1 Peak weekday service requirements have not been consistently met due to insufficient buses and operators.

Priority Rating: Moderate

In planning New Ways to Bus, the base scheduled number of buses required to deliver the peak afternoon service was 540 buses. The audit found that fleet availability was not considered a primary constraint in the planning of New Ways to Bus. The redesign did not directly assess whether sufficient resources would be available to operate the redesigned network as management expected there to be sufficient bus resources at the time. In the spring 2025 booking, bus shortages led to a decision to remove trips from the schedule to reduce the number of required buses to 524.

OC Transpo fleet data shows that for November 2025 through March 2026, the available number of buses was consistently less than the required buses per the schedule until mid-March 2026. In January 2026, the number of required buses was further reduced to 500 and additional trips were removed from the schedule. From January to March 31, 2026, only 29 of 62 weekdays (47%) had sufficient buses to deliver peak afternoon service, after the removed trips. After mid-March 2026, there has been an improvement in availability, consistently seeing figures above 500.

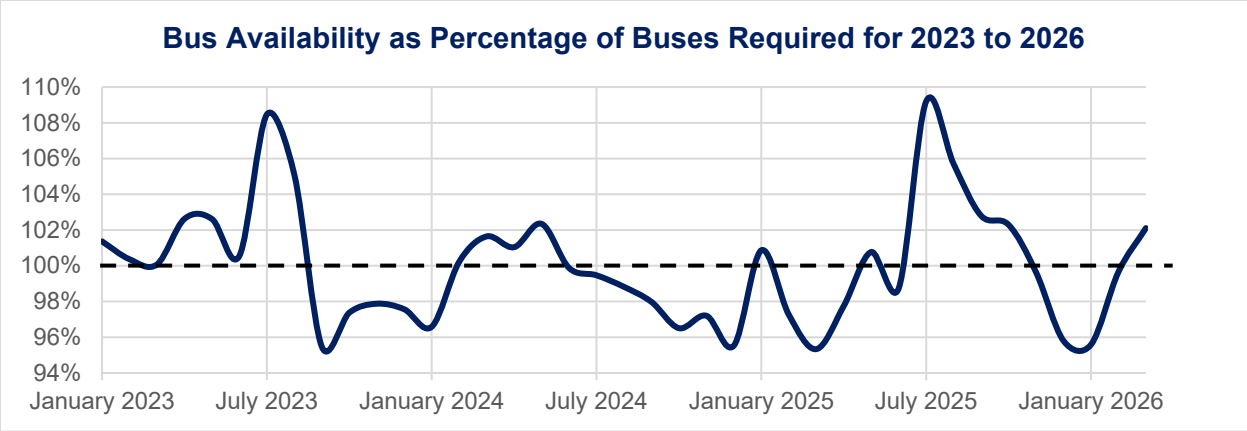


Figure 6: Ratio of available buses to required weekday afternoon peak buses from January 2023 to March 2026. Source: OC Transpo

Ratio of Available Buses to Required Buses

While the issues currently being experienced with delays receiving and onboarding the ZEBs were unexpected, fleet data from 2023 through March 2026 (see Figure 6) shows there has been an ongoing shortage of bus availability in seasons of higher demand (i.e. spring, fall, winter). As a comparator, the Toronto Transit Commission (TTC) has maintained bus asset availability averaging 110% consistently for several years for weekday service; that is, 11 buses are available for every 10 required to meet service demand. While the OC Transpo average was 100% for January 2023 to March 2026, the availability was highly variable, and requirements were not met on 46% of days during this period.

Ratio of Available Buses to Total Fleet of Buses

A healthy fleet typically has 80% of the total number of buses owned available for use; that is, for every 10 buses in the fleet, 8 are available for service on a given day. For January and February 2026, the bus fleet assets were 67% available on average, though the availability was not uniformly distributed across vehicle types. The Double Decker and ZEB availability to fleet ratio is particularly low for 2026 at 53% and 40%, respectively. Certain bus models are more appropriate for certain blocks, which can further impact service delivery when they are not available. As the new ZEBs are put into service, management expects availability to improve.

Additionally, operation of school routes during peak periods has required 81 buses (approximately 15% of total scheduled buses), as of 2025, most of which are high-capacity vehicles. School routes are treated with the highest priority for addressing trip cancellations, meaning buses may be reassigned from other routes to ensure these trips are delivered. While this approach supports service delivery for school travel, it can come at the expense of other routes during unplanned service disruptions. These buses can be

available for other service during summer months, as demonstrated by the peaks in summer from **Figure 6** above.

Operator Availability

Based on OC Transpo data and resource projections, there is a current bus operator gap that is not expected to be resolved until January 2027. The most significant shortage, to date, was experienced in January 2026, shown in **Figure 7** below.

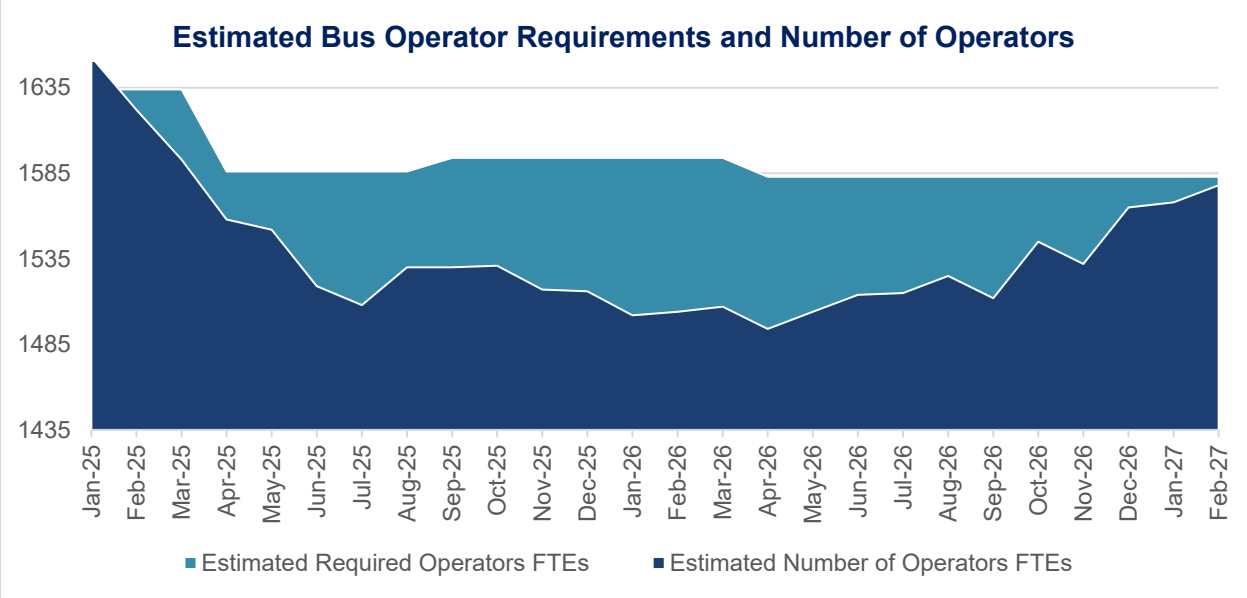


Figure 7: Estimated bus operator requirements and compared to the estimated number of operators at the end of each month from January 2025 to February 2027

Using OC Transpo figures, for January 4 to March 1, 2026, 28% of cancellations were due to operator availability. This aligns to the largest gap between estimated and required operators. It should be noted that cancellations flagged as operator availability could mean that they were not available because of a previous trip being late or needing a CLC break. A lack of available bus operators may result in delays or cancelled trips.

Overall, based on the priorities and targets established, the bus schedule that has been developed cannot be achieved consistently with existing resources. Given the shortage of buses and operators, there are often insufficient resources to fully deliver peak bus service as scheduled, leading to cancellations and ultimately, resulting in OC Transpo not meeting service expectations.

RECOMMENDATION 4 – BUSES AND OPERATORS

The General Manager, Transit Services should establish a more conservative approach to allocating bus and operator resources used in planning and scheduling bus service to improve reliability of service. This could include establishing a buffer of buses and operators to account for a high variability in bus availability.

MANAGEMENT RESPONSE 4

Management agrees with the recommendation. As part of its renewed focus on improving the customer experience for transit riders, OC Transpo will incorporate a more conservative approach to bus and operator resource allocation going forward. The General Manager of Transit Services has already implemented changes to recruitment and training to prioritize filling of vacancies, has launched an initiative to reduce overtime by reviewing staffing numbers and is advancing work to establish a long-term fleet plan to ensure there are enough buses and trained staff to provide more consistently reliable service. Estimated completion by Q3 2026.

2.2 There are opportunities to enhance key elements of OC Transpo's bus fleet plan to better support long-term decision-making.

Priority Rating: Moderate

The bus fleet plan is a long-term strategy that guides how OC Transpo procures and replaces its buses over time to support current and future service delivery. A fleet plan usually includes the fleet profile, describing the vehicle types, size, and age, as well as future fleet requirements based on service and demand assumptions, and timelines for replacing and retiring vehicles. A strong fleet plan is needed to ensure there are sufficient buses to meet current and future service levels.

Although continuous improvements have been made to refine OC Transpo's bus fleet plan, such as reflecting delays in estimated delivery timelines and deployment of ZEBs, the audit found that the current bus fleet plan could benefit from enhanced transparency and formalization in some key areas.

Embedded in the fleet plan is an assumed average spare ratio of 20% for the entire fleet. A spare ratio is the percentage of vehicles a transit agency maintains beyond the number required for daily service to ensure reliable operations, maintenance flexibility, and service continuity. The fleet plan; however, does not establish a more specific spare ratio by fleet type (i.e. 40 foot, articulated and ZEB buses). Given that different fleets are at varying ages, establishing a spare ratio per fleet type could ensure the target number of buses (by type) are consistently available.

Current planning assumes that the incoming 354 ZEBs will replace 354 existing diesel buses (i.e. assumed 1:1 ratio). While we understand that 57% of blocks on weekdays are compatible with ZEBs, there remains a risk that a replacement ratio greater than 1:1 may ultimately be required given the range limitations of ZEBs to operate on a single electric charge. Other transit agencies reviewed as part of our audit who also are transitioning from diesel to ZEB fleets have adopted higher replacement ratios ranging from a 5% to 15% contingency fleet to address range limitations, as well as garage maintenance and storage impacts associated with zero-emission fleets.

In review of the fleet plan, we noted there is limited connection to other constraints, such as whether there will be sufficient garage and maintenance capacity to support the planned bus fleet. Strengthening these elements would provide visibility into the assumptions used to develop the fleet plan, support more informed decision-making, and better align fleet planning with operational realities.

OC Transpo has provided Transit Committee details on bus fleet delivery schedules and has outlined the shift in the long-term fleet plan toward a phased, continuous approach to replacement bus procurement. However, OC Transpo does not currently report to Transit Committee its long-term fleet plan, including key assumptions, risks, and contingency requirements, although budgetary and related information is provided. Given the current challenges with the bus fleet, providing this information would support more effective oversight and decision-making for this significant capital item (replacement value of the transit fleet was estimated at $944 million based on May 2024 data[7]).

RECOMMENDATION 5 – BUS FLEET PLAN

The General Manager, Transit Services should review and update the bus fleet plan to establish an appropriate spare ratio for each vehicle type and a formalized replacement ratio specific to zero-emission buses, informed by industry practices and vehicle performance data to date. This would support planning an appropriate number of available buses to maintain service levels.

Additionally, elements of the fleet plan should be presented annually to the Transit Committee to transparently communicate key assumptions, risks and mitigation strategies, particularly those related to spare ratio assumptions, zero-emission bus deployment, and vehicle delivery timelines.

[7] Transit - Asset Management Plan

MANAGEMENT RESPONSE 5

Management agrees with the recommendation. The General Manager of Transit Services has directed staff to finalize a long-term bus fleet plan. Part of this work includes an analysis of replacement ratios for zero-emission buses and maintenance data, including mean distance between failure. Staff presented on this work at the June Transit Committee meeting and will continue to bring regular updates on fleet performance and procurement to the Transit Committee.

Estimated completion by Q2 2027.

3. Service Planning

Transit agencies operate with limited resources and must balance competing priorities such as frequency, coverage, reliability, equity, and efficiency. There is no one best model. Different cities choose different balances depending on demographics, land-use patterns, policy goals, funding, and stakeholder input. A strong strategic plan or priority document provides a vision for transit service which can help clarify priorities, guide resource allocation, and serve as the foundation for developing service standards.

Given current challenges in delivering bus service, as outlined in the sections above, effective service planning is needed to allocate limited resources and achieve key transit priorities. Transit service planning determines the type of transit service to provide, how much, and when. Within this process, service standards are a critical tool in service planning informed by the transit agency's vision and goals. When multiple priorities must be balanced within operating constraints, clear service standards provide a clear technical rationale for service changes and adjustments. Service standards typically cover network and route design guidelines, the quality of service that customers can expect, performance targets to assess the effectiveness and efficiency of the service provided, and the criteria for adding, modifying, or removing services. For instance, bus stop spacing standards define the typical distance between bus stops and are meant to balance the competing objectives of passenger convenience, operating efficiency, and safety and community impacts.

Once established, transit agencies are expected to evaluate services using defined performance measures and must understand what data is required and how to collect this data in order to assess compliance with their service standards. This supports the development of solutions for targeted service improvements. **Figure 8** outlines at a high level how service standards are developed, applied, and evaluated.

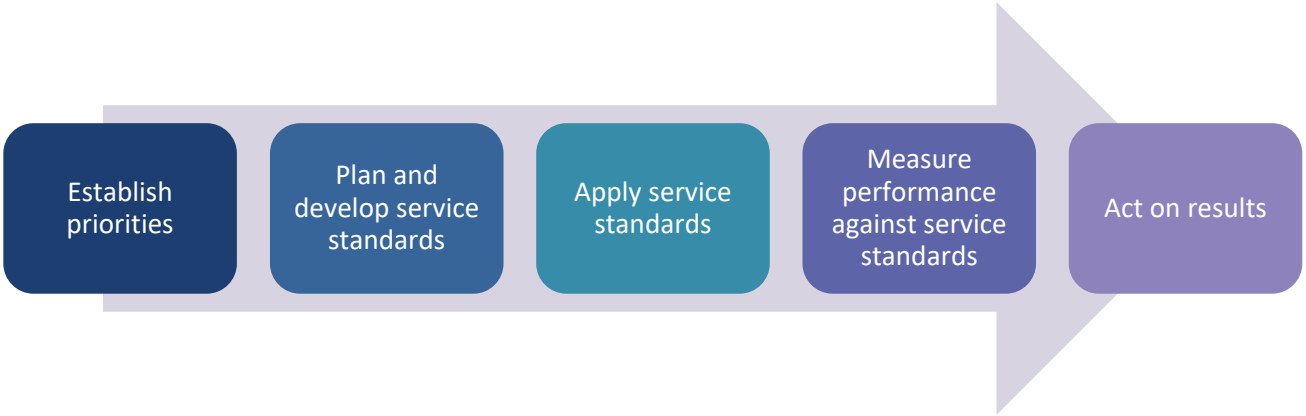


Figure 8: Five Phases of Service Standard Management

3.1 Service standards and policies that guide transit service planning are outdated and unrealistic.

Priority Rating: High

Clear Priorities to Guide Trade-Off Decisions

While strategic documents such as OC Transpo's Five-Year Roadmap outline specific corporate strategic projects and initiatives, such as stabilizing service delivery and increasing reliability, there is no clear definition of what the priorities and trade-offs should be in the design and delivery of the transit network based on current budget direction. In addressing service reliability, management acknowledged this challenge in the September 2025 report to Transit Committee by stating "staff do not have policy direction from Council on whether to favour reliability over service levels, nor is there a mechanism to ensure that budgeted funding is increased to maintain or improve service reliability as auto traffic congestion increases with the growth of the city".

Without clearly defined service-planning priorities to guide service standard development and the network redesign, planning decisions may not be aligned with overall strategic goals and funding constraints. This can also result in service levels that cannot be reliably delivered when operating under significant resource constraints, impacting OC Transpo's ability to consistently meet targets.

Service Standards and Policies

Based on industry practice, service standards should be reviewed and updated every 5-10 years. OC Transpo's primary documents outlining its transit planning standards are the **Transit Service and Fare Policy Manual** and the **Transit System Management Policies**. Although some of the foundational principles remain relevant, both these documents were published in 2005 and are no longer publicly accessible. Since then, the City and the transit network have undergone significant changes including new policy

directions, updates to route types, the introduction of new O-Train lines, increased population growth, and shifting ridership patterns.

While some adjustments to the 2005 standards have been made through subsequent reports to Council and internally developed documents, these updates have not been consolidated into one authoritative document to guide planning decisions. The 2023 Transportation Master Plan indicated that the City would update its transit service planning policies. Similarly, the Five-Year Roadmap called for reviewing and recommending adjustments to the policies and service standards as part of the bus network redesign; however, at the time of our audit, this had not been completed.

Although management noted that the service standards were considered operationally achievable and aligned with the resources and ridership demands in 2005, some service standards are no longer realistic within existing resource constraints. For instance:

- The 2005 service standards require 95% of residents in the base route network[8] to live within 800 metres of all-day service and 400 metres for peak-period transit service. However, management confirmed that the last fulsome analysis of walking distances was completed in 2014, at which time the target was already not being met and was likely never feasible.
- The transit system-wide revenue-cost ratio target[9] defined in the 2005 standards that 55% of operating costs to be covered by customers' fares (remaining 45% by the tax base), with a long-term target of 65% once the full LRT transit network was completed. As provided by management, the revenue-cost ratio used for 2026 budget was 33%.
- More recently, OC Transpo introduced more formal service standards related to on-time performance in line with the Five-Year Roadmap action to "establish realistic performance targets based on Council-approved service levels and budget and on North American best practices". On-time performance is measured through regularity and punctuality targets; both set at 85%. However, these targets have not yet been met. In February 2026, the 12-month average for regularity was 82%, approaching the target, and punctuality was 71%.

As a result, the existing service standards may not be realistic in the current environment nor be reflective of the current service priorities, contributing to inconsistent service delivery and unmet customer expectations.

[8] The base network is defined in the 2005 standards, with expansion into new residential areas when specific criteria are met.
[9] This is defined as the proportion of operating costs covered by customers' fares.

Industry Practices – Service Standards

While service standards and policy objectives vary across transit agencies, the audit identified areas where OC Transpo could better align with common industry practice. For example, other transit agencies tailor some of their service standards by service type (e.g. local route and school routes) to ensure services are planned and evaluated using appropriate criteria. Although OC Transpo already applies this approach to frequency standards, similar differentiation could be extended to service standards for walking distances, stop spacing, and route productivity targets[10].

In addition, unlike other transit agencies, the audit found that the service standards do not clearly define when corrective action should be taken. For example, vehicle crowding standards lack clear triggers, such as how close ridership levels must come to established thresholds or how long conditions must persist before action is required (for example, crowding consistently exceeding 95% of the standard for a period of six months).

Impact on New Ways to Bus

While some service improvements were implemented in New Ways to Bus, interviews with management indicate that decisions were mainly driven by budget considerations. The redesign focused on achieving an annual bus operating cost reduction of approximately $10 million, equivalent to a reduction of 70,000 bus service hours annually. As a result, the redesign prioritized minimizing service impacts for as many existing customers as possible, with particular attention to equity-seeking groups.

However, because service standards had not been updated and network design priorities were unclear, the redesign lacked a current, consistent framework to assess trade-offs within existing funding constraints and priorities. For example, the consultant who supported the redesign activities recommended removing certain route deviations (e.g. detouring into a shopping mall) on frequent routes where nearby stops were available, to improve travel time and provide more direct service. In some cases, OC Transpo chose to retain these deviations based on ridership levels at those stops and equity considerations. Ideally, such trade-off would be assessed after updated service standards and network design priorities were confirmed to ensure consistency in decision-making.

Network redesigns typically involve extensive public and stakeholder engagement to test options and understand community priorities. While some engagement was carried out in Spring 2023, there were limited opportunities for meaningful public input after the Bus Route Review was presented in November 2023. Management indicated that all major changes needed to be finalized within a short timeframe to meet the planned April 2024

[10] Route productivity targets can include boardings per revenue hour or km, capacity utilization, and passenger turnover.

launch, due to the six-month scheduling window, although consultations with Councillors were ongoing. Without sufficient public engagement to inform key decisions, the resulting redesign may not have achieved optimal outcomes and may erode public trust.

RECOMMENDATION 6 – PRIORITIZE TRANSIT OBJECTIVES

The General Manager, Transit Services should formalize the prioritization of transit service objectives in order to drive decision making, given resource constraints. This should include stakeholder feedback and be presented for approval by Council.

MANAGEMENT RESPONSE 6

Management agrees with this recommendation. As part of the work being planned for the Customer-First Action Plan, consultations with customers on a broad variety of transit-related topics are being planned. Staff will develop a report for the Transit Committee with proposed guidelines to assist staff in prioritizing transit service objectives, which, if approved by the Transit Committee, would rise to Council for approval.

Estimated completion by Q1 2028.

RECOMMENDATION 7 – UPDATE AND CONSOLIDATE SERVICE STANDARDS

The General Manager, Transit Services should update and consolidate bus service standards. These standards should be realistic, and reflective of current priorities and operating conditions, including available resources. Applicable practices used by peer transit agencies should be leveraged as part of this update.

A formal review cycle should be established (e.g., every 5–10 years) to update the service standards, with mandatory updates prior to any major network redesign.

MANAGEMENT RESPONSE 7

Management agrees with the recommendation. Staff will update and consolidate existing service standards and conduct a review to align with fleet and workforce planning, feedback from community partners, as well as industry best practices. Once complete, staff will commit to conducting a formal review of the service standards and making recommendations to the Transit Committee and Council at least once every ten years. Estimated completion by Q3 2028.

RECOMMENDATION 8: ALIGN ROUTES WITH UPDATED STANDARDS

Leveraging the updated service standards, and in preparation for changes to the bus network associated with the full opening of Stage 2 LRT, the General Manager, Transit Services, should identify and adjust routes that no longer align with the revised standards.

MANAGEMENT RESPONSE 8

Management agrees with the recommendation. Work to adapt the bus network to the post-Stage 2 rail system will be conducted in line with the updated service standards and will include adjustments to routes which are no longer in alignment with those standards. Estimated completion by Q4 2028.

3.2 There are gaps in monitoring and reporting on bus performance.

Priority Rating: Moderate

Monitoring Performance Against Service Standards

OC Transpo monitors some service standards such as crowding through review of ridership data to make bus type adjustments during quarterly service changes. However, the standards related to the proportion of residents that live within walking distance to transit services are not regularly tracked. In addition, key evaluation processes such as the Annual Financial Performance Review and the Annual Transplan Consultation Process outlined in the 2005 service standards are no longer occurring.

Under the Annual Financial Performance Review, all routes are expected to be analyzed annually, and changes are expected to be made to attract riders or reduce costs when performance falls below the defined minimum thresholds. The Annual Transplan Consultation Process requires major service changes to be reviewed after one year to confirm that expected financial outcomes are being achieved. Interviews with management indicate that financial reviews were deprioritized because major system-wide service reductions, most recently conducted in 2011, 2016, and 2025, were expected to address any low performing routes. In contrast, other agencies reviewed as part of the audit undertake annual route-level performance assessments against multiple productivity metrics. Without monitoring against all service standards, it is unclear whether all routes deliver the most effective service, in line with service standards.

Reporting Performance Against Service Standards

OC Transpo regularly reports on performance measures, including through the annual 5-Year Road Map scorecard and KPI reporting to Transit Committee. However, service standards, such as walking distances to transit service, crowding on buses, and financial

performance, are not reported. As a result, existing reporting processes do not present a complete picture of performance against all existing service standards or clearly identify where gaps may exist. In addition, reported performance against standards is often based on system-wide averages, rather than at the route or service level used by some transit agencies. This can limit transparency of route-specific performance. Lastly, where performance falls short of established service expectations, such as reliability targets, management has confirmed that no analysis has been conducted to determine the level of funding, resources, or service hours needed to fully meet these service expectations. Without this, management cannot provide a clear picture of the resource requirements needed to meet the service standards.

Outcomes of New Ways to Bus

Although rider surveys and feedback are being collected to assess the impact of New Ways to Bus, not all performance measures identified in the Five-Year Roadmap for the Bus Route Review are being systematically tracked or reported following implementation. Examples of such measures include, the proportion of available bus capacity that is used by customers, as well as overall travel time relative to distance travelled. In addition, the only performance target publicly associated with New Ways to Bus was the achievement of 99.5% service delivery.

Our audit further noted that major network redesigns typically include a formal post-implementation review to assess outcomes and capture lessons learned. Based on our discussions, this type of review has not been conducted and does not appear to be planned for the near term. Although, as mentioned above, there are key indicators that are being measured and reported on, such as bus service reliability. OC Transpo is not currently measuring the extent to which the redesign is impacting access, travel time and efficiency outcomes it committed to assessing in the Five-Year Roadmap. Without this information, it is unclear whether the redesign delivered the intended benefits.

RECOMMENDATION 9 – MONITOR AND REPORT AGAINST ALL SERVICE STANDARDS

Once the service standards are updated (as outlined in Recommendation #7), the General Manager, Transit Services should establish a system-wide process to monitor performance against all service standards, highlighting where standards are not being met and the actions being taken to address these gaps. A defined level of reporting against the service standards should be provided regularly to Transit Committee.

As part of the reporting, where gaps in meeting service standards exist, information should be provided in terms of the resources needed (e.g., service hours, staffing, fleet, and budgetary impact) to achieve the established service standards.

MANAGEMENT RESPONSE 9

Management agrees with this recommendation. The work on the service standards described in Management's response to recommendation #7 will include regular performance monitoring. Staff are currently working to finalize new performance indicators to continue to promote transparent oversight of system performance, which will be brought to Transit Committee for discussion. As part of these discussions, Management will ensure the Transit Committee is aware of any additional resources needed to achieve recommended service standards. Estimated completion by Q2 2027.

3.3 Not all operational decisions are driven by technical, priority-based analysis.

Priority Rating: Moderate

Interviews with management and a review of recent service changes indicate that service planning decisions are not always guided by clear planning principles and technical analysis.

Evaluation of Major Service Change Proposals

Route 105 from St. Laurent to the airport was introduced in the fall 2025 service change, despite the recent opening of rail service Line 2/4 which provides rail services to the airport. The introduction of this route added approximately $3.7 million in annual operating costs and requires buses during peak service hours from an already constrained bus fleet. While this route provides benefits to some riders, we learned through interviews, this change would not have been the top priority for service improvement. Management also confirmed that no analysis was completed prior to introducing the route, such as estimated customer benefits, financial performance assessments, and ridership forecasting.

The audit also found that the E1 route, which operates parallel to the LRT Line 1 from Blair to Lyon station during specific periods, was not discontinued after the introduction of New Ways to Bus. This route serves as a supplemental rail alternative and was implemented in response to ongoing rail line issues, in addition to the ad hoc R1 service used during unexpected rail disruptions. Interviews with management indicated that the decision to retain the E1 route was made to support riders until trust in the LRT was reestablished. However, this route is inconsistent with the approach stated in the Bus Route Review that informed New Ways to Bus, which emphasized taking advantage of the LRT network. The estimated annual operating cost of this route is $1.3 million and requires buses during peak service hours. Overall, without analysis of these proposed service changes against others, we are unable to confirm if they represent the best use of limited resources.

Other transit agencies reviewed as part of the audit have established annual processes to transparently evaluate major service change proposals. These proposals typically arise from a combination of internal service planning analysis, customer requests, operator feedback, and input from political decision-makers. This includes documenting the rationale for major service changes, as well as explaining why certain proposals are not pursued (e.g. due to resource constraints or conflict with established service standards or guidelines). As described in the 2005 service standards, proposed major service changes were expected to be evaluated to calculate their projected financial performance, with new services introduced only if they met minimum financial performance requirements, delivered measurable customer benefits, and could be supported within the existing budget. As noted earlier, the Annual Transplan Consultation Process on Major Route Changes is no longer in place. As such, OC Transpo no longer has a public facing mechanism to holistically evaluate, and transparently report on, major service changes. Without a transparent approach to evaluating major service change proposals, OC Transpo risks allocating currently constrained operating funds inefficiently.

Operational Delegated Authorities

Section 4(1) of the City's Delegation of Authority (By-law No. 2025-69), gives the General Manager, Transit Services authority to:

> "Make service adjustments to bus and O-Train service in response to operational needs and requirements, including changes to individual O-Train lines and bus routes schedules and bus stops, provided such changes are in compliance with applicable City by-laws and in accordance with the policies of Transit Commission and Council."

Despite the delegated authority, the audit noted that operational decisions such as adjusting bus stop placement or consolidating stops, with the aim of improving transit reliability or travel times, in practice, will not proceed until endorsement from the ward Councillor is obtained. We understand that Councillors have an essential role in determining community priorities and impacts. However, this can create challenges when making decisions towards meeting service standards. For example, our audit learned of an example where OC Transpo proposed rerouting a bus route to reduce the number of stops along the route, shorten travel distance, and replace an unsignalized left turn with a more reliable signalized intersection, in an effort to improve travel time and reliability for customers. According to OC Transpo's survey results, the proposal received broad support from customers and the community. Despite the public consultation, we understand that the project did not proceed as it was not supported by the ward Councillor.

While we appreciate the need for Councillors to be informed and consulted, requiring ward Councillor endorsement for actions already within City staff's delegated authority has the potential to delay or halt the implementation of improvements to address reliability. Further, if these decisions are made without the necessary analysis, it becomes challenging to demonstrate value for money.

RECOMMENDATION 10: SERVICE CHANGE EVALUATION

The General Manager, Transit Services, should establish a set of criteria to consistently and transparently evaluate proposed service changes (e.g. route additions) with appropriate supporting documentation to ensure decisions are supported by proper analysis and demonstrate value for money.

MANAGEMENT RESPONSE 10

Management agrees with the recommendation. As part of the work to update service standards and establish guidelines described in the preceding management responses, staff will formalize criteria and a process for the evaluation of service changes, which will include a requirement that analysis be documented and include a cost-benefit analysis. Estimated completion by Q3 2028.

Appendix 1 – About the Audit

Audit Objective and Criteria

The objective of the audit was to assess the efficiency and effectiveness of OC Transpo's bus route planning and scheduling process.

Criteria listed below have been developed from our assessment of key risks and input from an industry subject matter expert.

1. Governance, Strategic Alignment, and Monitoring	
1.1	Service standards, guidelines, policies and goals that govern bus planning and scheduling activities are aligned to strategic priorities as well as industry best practices.
1.2	There is a transparent process to evaluate and balance service standards with available resources, assessing the extent to which they are achievable within budgetary limits.
1.3	Costing methodologies for bus routes are established, validated regularly and are aligned to industry best practices.
1.4	Key Performance Indicators (KPI) for bus service are defined, tracked, and are based on industry best practices. Results against KPIs are reported to enable timely decision making.
2. Route Planning and Scheduling	
2.1	Bus route design and planning incorporates appropriate data inputs including ridership demand, demographics, traffic patterns, customer feedback, and multimodal integration, in order to align bus service to service standards/goals and industry best practices.
2.2	Bus route scheduling decisions (including quarterly service changes) integrate operational inputs including available workforce (including regulatory requirements) and bus fleet resources (including limitations of zero-emission buses), while aligning to service standards and budgetary constraints.
2.3	Bus route schedules are regularly validated against realistic run times, to ensure accuracy and align to industry best practices.

Audit Approach and Methodology

Audit staff performed the following procedures to complete this audit:

- Reviewed relevant documents;
- Interviewed and performed walkthroughs with key City personnel;
- Performed data analysis;
- Utilized subject matter expertise in transit planning and scheduling; and
- Benchmarked with other Canadian transit agencies (Toronto Transit Commission, TransLink, Edmonton Transit System), where relevant.

Appendix 2 – Rating Scale for Audit Findings

The following rating definitions were used to assign priority to the findings associated with this audit.

Priority Rating	Description
Critical	The finding represents a severe control deficiency, non-compliance or strategic risk/opportunity and requires an immediate remedy. If left uncorrected, this could have a catastrophic impact on the achievement of the City's strategic priorities, its ongoing business operations, including the risk of loss, asset misappropriation, data compromise or interruption, fines and penalties, increased regulatory scrutiny, or reputation damage.
High	The finding represents a significant control deficiency, non-compliance or strategic risk/opportunity and requires prompt attention. If left uncorrected, this could have a significant impact on the achievement of the City's strategic priorities, its ongoing business operations, including the risk of loss, asset misappropriation, data compromise or interruption, fines and penalties, increased regulatory scrutiny, or reputation damage.
Moderate	The finding represents a moderate internal control deficiency, non-compliance or is a risk/opportunity to business operations that should be addressed timely. If left uncorrected, this could have a partial impact on business operations, resulting in loss or misappropriation of organizational assets, compromise of data, fines and penalties, or increased regulatory scrutiny. Typically, these issues should be resolved after any high-priority findings.
Low	The finding should be addressed to meet leading practice or efficiency objectives. Remediation should occur as time and resources permit. While it is not considered to represent a significant or immediate risk, repeated oversights without corrective action or compensating controls could lead to increased exposure or scrutiny.