



O-Train Line 1 Service Update

April 9, 2026

Transit Committee



Background – January to now

- A Safety Order was issued on January 21 after Rideau Transit Group (RTG) and Alstom identified spalling on the Cartridge Bearing Assemblies (CBAs) on O-Train Line 1 vehicles
- OC Transpo required RTG and Alstom to implement further mitigation measures, new detection methods, and an enhanced inspection regime to continue safe operations
- An action plan to safely restore Line 1 capacity was implemented
- Recent technical analysis showed additional damage on vehicles that required RTG and Alstom to implement further interim mitigation measures for continued safe Line 1 operations
- At the same time, OC Transpo worked on contingency plans should Line 1 be impacted while RTG and Alstom provided information to verify the fleet is safe with existing and enhanced mitigations
- RTG and Alstom are aligned with the City and have committed to the path forward to safely restore Line 1 capacity
- RTG as the maintainer of the system is responsible for resolution of the issue



Action plan

- Since January we have been building toward a robust containment plan with RTG and Alstom
- Actions to date include:
 - 100,000 kilometre mileage limit for bearings on CBAs
 - Acoustic monitoring of trains
 - Technical analysis of CBA damage
 - Review of methods for early detection and commitments for their implementation
- Incremental progress has been made on finalizing the containment plan, and focus is on working with RTG and Alstom to produce verified and validated containment measures, including:
 - Vibration monitoring at the train yard
 - Input from independent bearing expert
 - Information from the bearing manufacturer
 - Revised risk assessment
 - Bearing condition monitoring
 - Further data on existing interim containment and mitigation measures

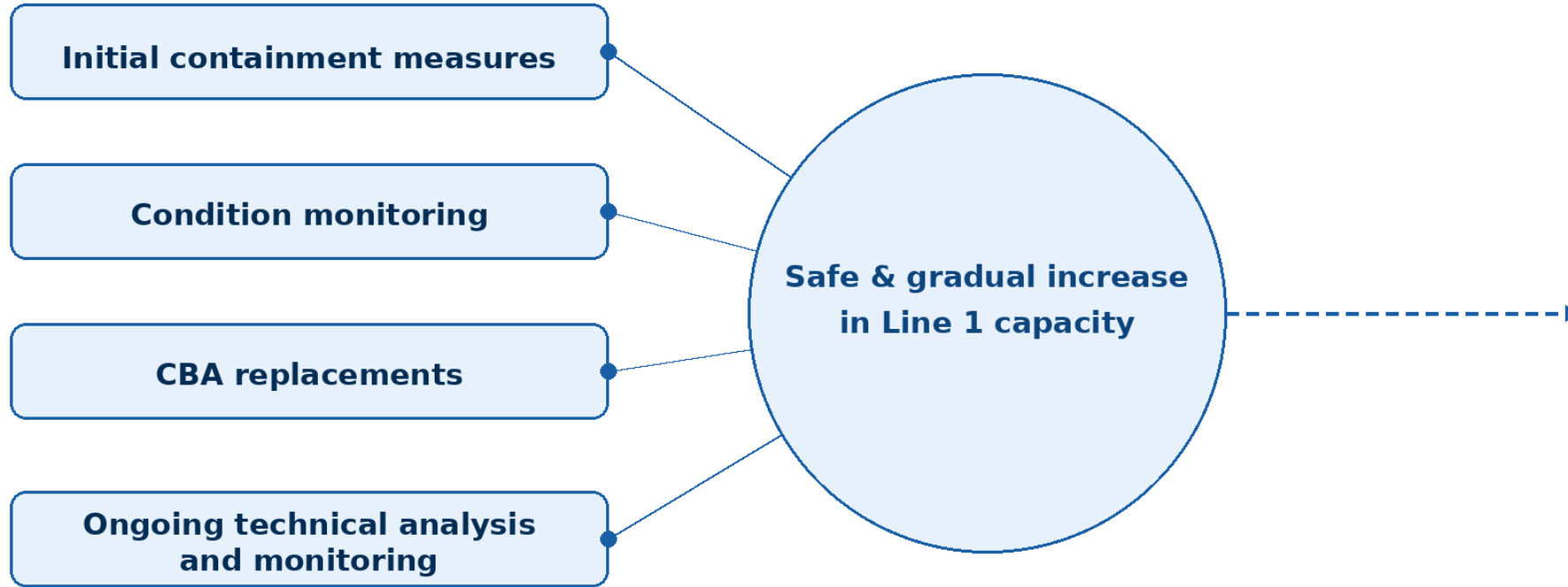


Action plan continued

- Technical analysis identified new damage, which changed the containment plan requirements and required additional interim measures to ensure safe fleet operations
- In an effort to advance plans and explore all options, OC Transpo has brought in additional independent experts to review data and technical analysis, and further progress to safely restore Line 1 capacity
- RTG and Alstom have committed to the path forward and say they understand the need to safely restore the service that Ottawa residents deserve and expect
- The City's independent experts remain engaged on the plan to safely restore Line 1 capacity



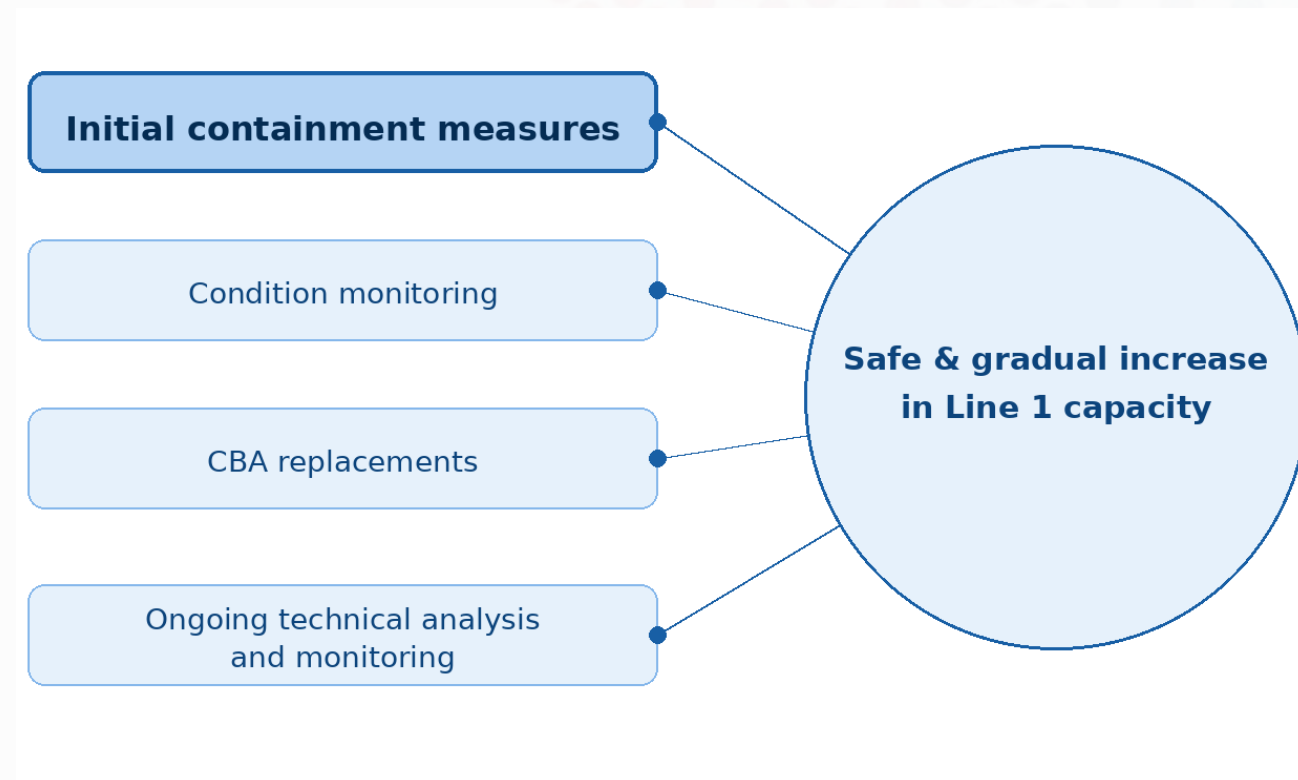
Plan to safely restore Line 1 capacity



Root cause analysis underway

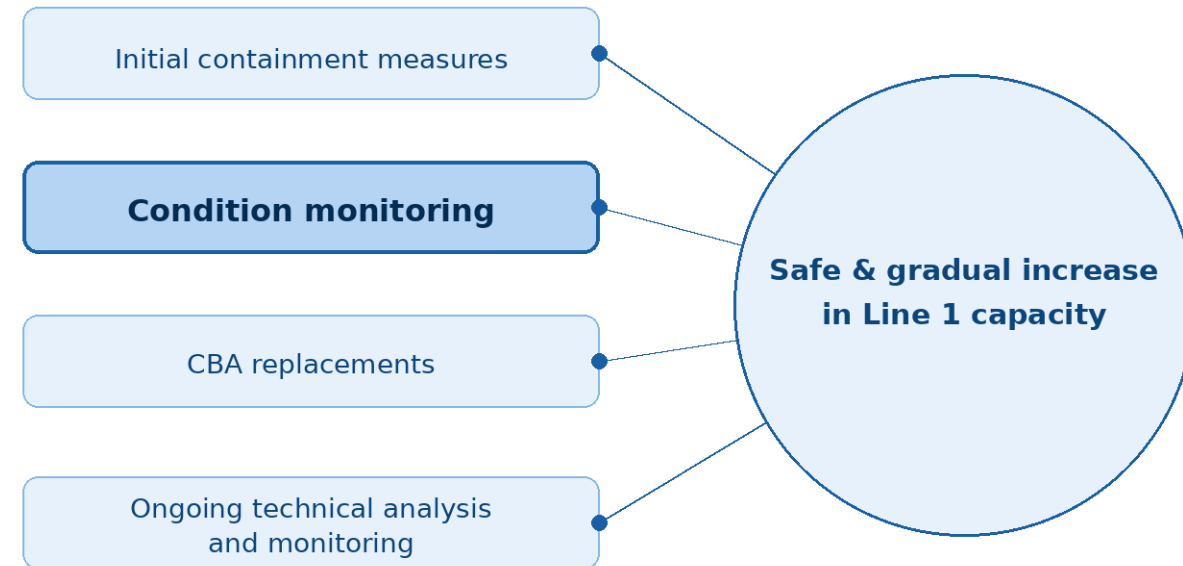
Initial containment measures

- The initial containment measures continue to be part of the actions to ensure Line 1 is safe:
 - Limit CBAs to 100,000 kilometres of mileage
 - Acoustic monitoring
 - Technical analysis (teardowns)
 - Risk assessment
 - Implement vibration monitoring of trains in the train yard
- Additional technical information has been provided on these measures and reviewed by the City's independent experts



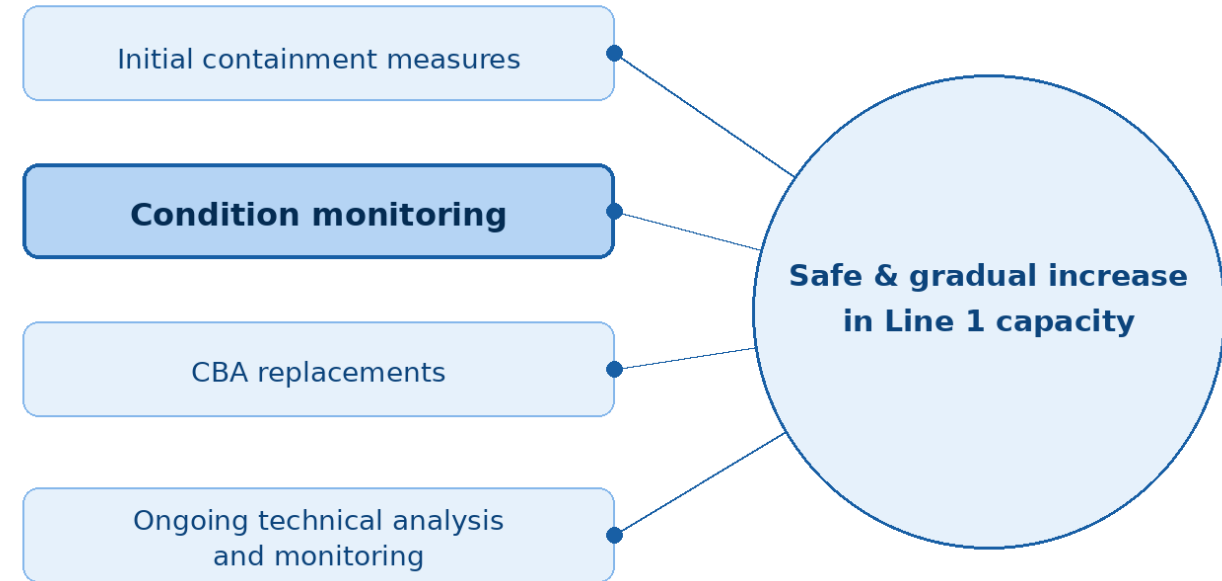
Bearing condition monitoring

- Condition monitoring: a system that monitors for abnormal vibration on trains in almost real-time
- The City has been investigating different types of bearing condition monitoring systems
- One proven method is to use sensors that pick-up vibrations while the train is in operation to provide early indications of anomalies
- This is a proven method of detection used in systems around the world
- An initial supply of vibration sensors is being procured by RTG to test and validate them on some vehicles through a pilot program
- This measure is in alignment with the Transportation Safety Board Rail Safety Advisory Letter (2023) regarding condition monitoring for safety critical components
- Other condition monitoring systems are being explored by RTG in parallel



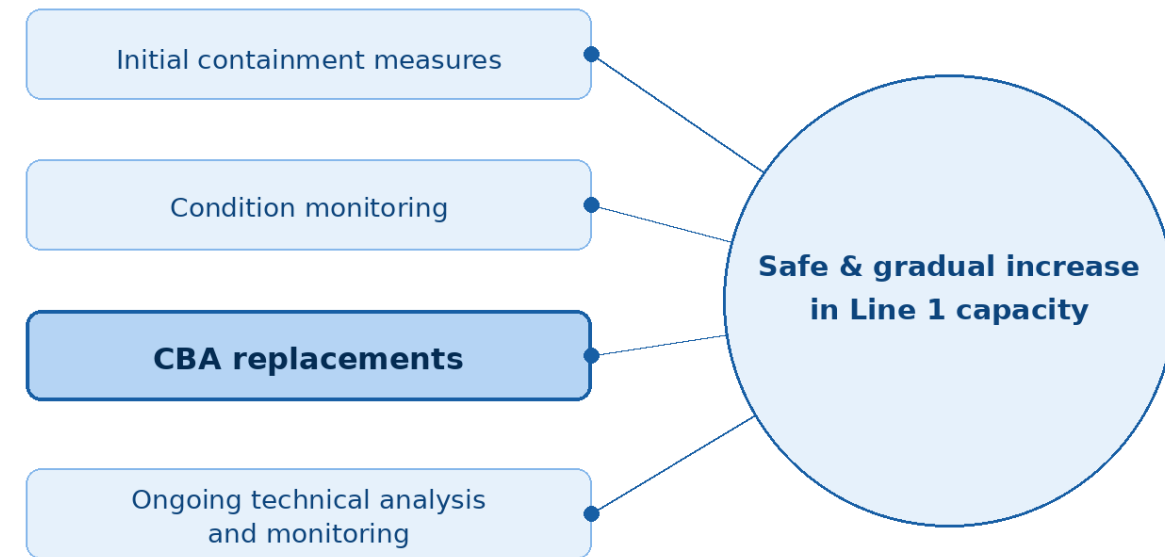
Implementing condition monitoring

- Timelines for the initial pilot phase will be determined based on supply, installation and testing
- Based on current information, it is anticipated that it could take six to eight weeks for in-service vehicles to begin to increase
- Service capacity on Line 1 will increase incrementally
- Working to confirm a schedule for full fleet deployment. Given current information this could take two to five months



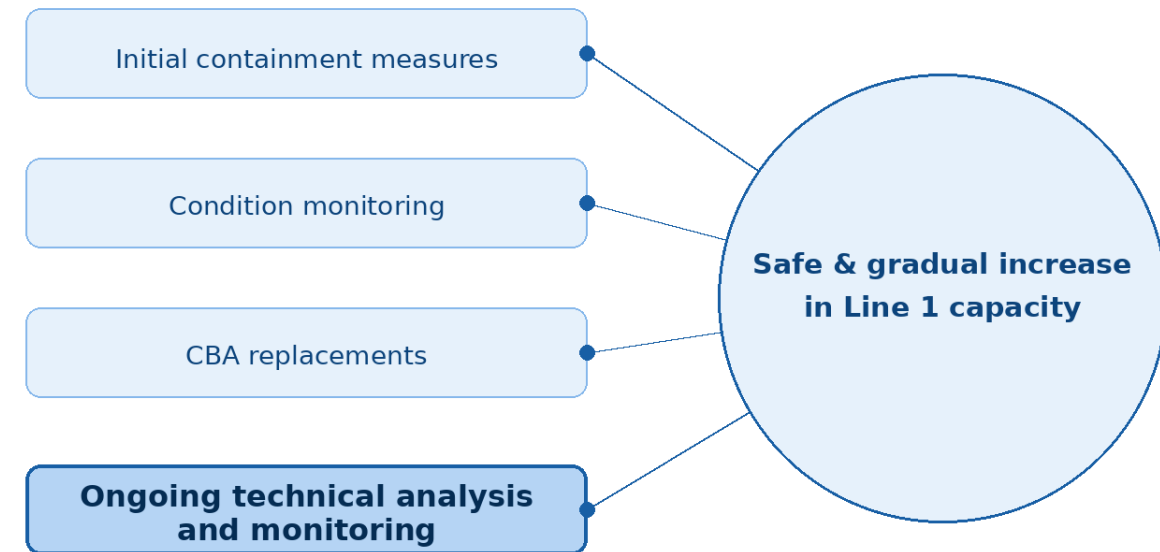
CBA replacement

- The City has directed RTG to ensure an adequate supply of CBAs are in Ottawa for replacements
- RTG and Alstom have confirmed ongoing supply of CBAs is in place
- Replacement of existing CBAs in combination with condition monitoring will allow for the gradual increase in Line 1 capacity
- Mileage limit for CBAs will remain at 100,000 kilometres given additional damage found
- Mileage limit will be re-evaluated as progress is made on the condition monitoring system or new information from technical analysis becomes available

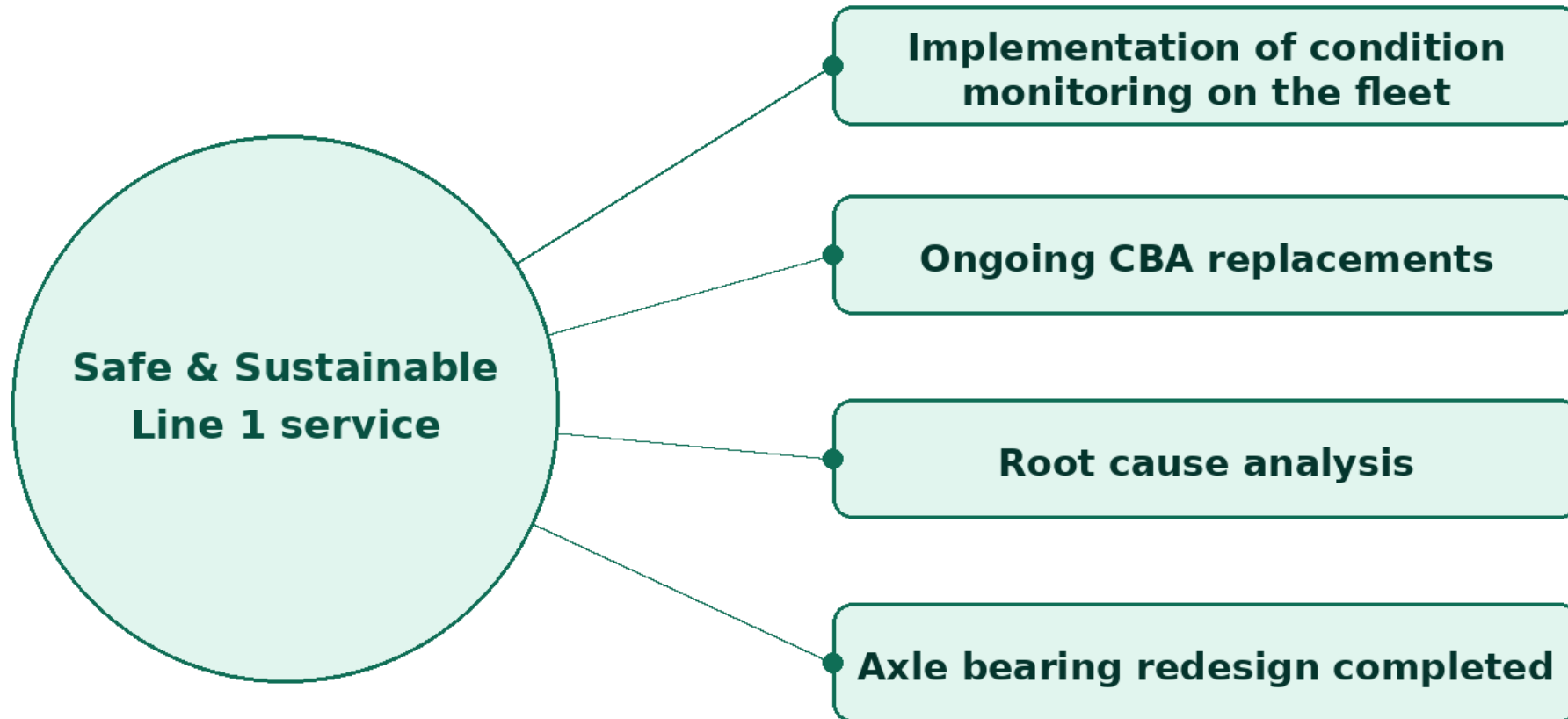


Ongoing technical analysis

- Root cause investigation is ongoing but it is expected it will take time
- RTG and Alstom to continue CBA investigations (teardowns) to provide more information to support the root cause analysis
- Ongoing monitoring, sampling, and additional independent lab analysis from CBA investigations is required to continue to inform our understanding of the issue
- City continues to be supported by independent experts



Safe and sustainable Line 1 service



Timelines

- Every effort is being made to accelerate this work, and timelines are based on currently available information
- **Now to six weeks:**
 - Single car service continues
 - CBA replacements and installation of condition monitoring begins
 - Gradual increase of available Line 1 vehicles depending on results from CBA technical analysis and replacements
- **Minimum six to eight weeks:**
 - Ongoing gradual increase of available Line 1 vehicles depending on results from condition monitoring pilot program
 - First phase of condition monitoring installed and tested
 - Anticipate CBA replacements may make it possible for full Line 1 capacity to be restored by the end of May
- **Minimum two to five months:**
 - Condition monitoring installed on all Line 1 vehicles
- East Extension timing is continuously being evaluated based on increasing vehicle availability



Ongoing supports for customers

- All communication channels will continue to be used to keep customers informed
- Our people are here to help customers get where they need to go
- Over the coming weeks and months there will be gradual capacity improvements on O-Train Line 1, alongside increasing numbers of zero-emission buses to improve service and overall transit reliability
- Deferring the decommissioning of buses to further support bus availability and service delivery
- Focused on ensuring O-Train Line 1 capacity increases to support large summer events and return to office for federal employees

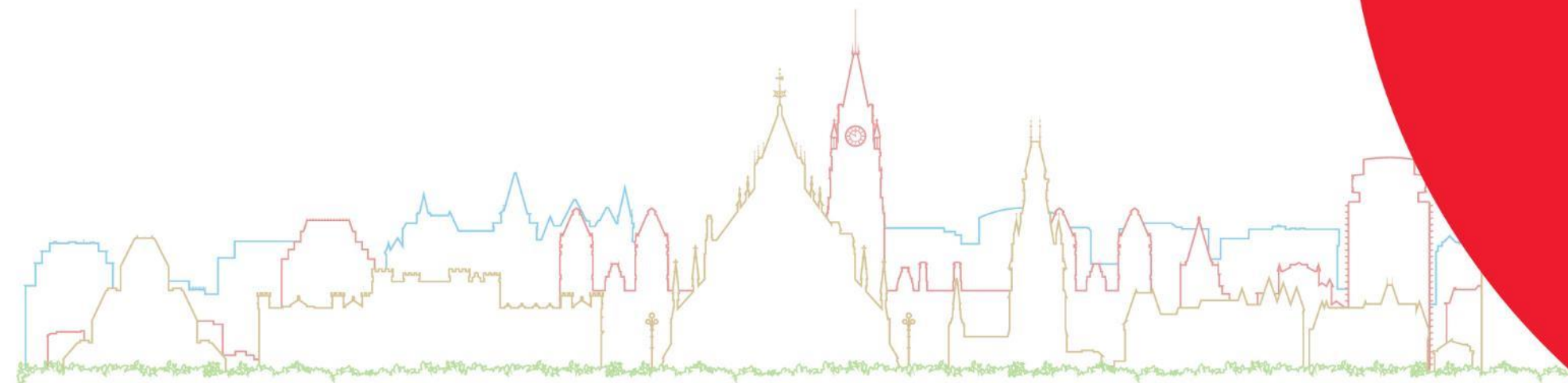


Next Steps

- Continue to make incremental progress in increasing Line 1 capacity to the required service levels
- Work with RTG to implement necessary containment measures to all of the Line 1 fleet
- Continue working towards an axle bearing redesign
- Committed to accelerating work wherever possible and providing frequent updates on progress
- Ongoing root cause analysis to inform current plan and axle bearing redesign
- Continue to learn new information through investigations and analysis and will provide updates as we learn more
- Weekly updates will continue to be shared on the progress to restore Line 1 capacity
- Monthly updates at Transit Committee will continue until full Line 1 vehicle availability is achieved



Questions?



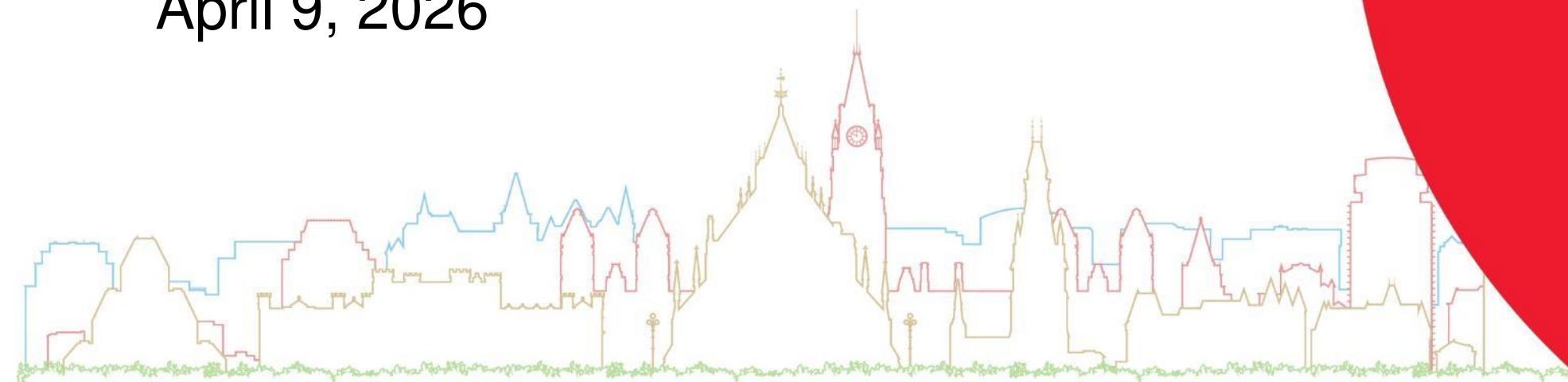


OC Transpo Update

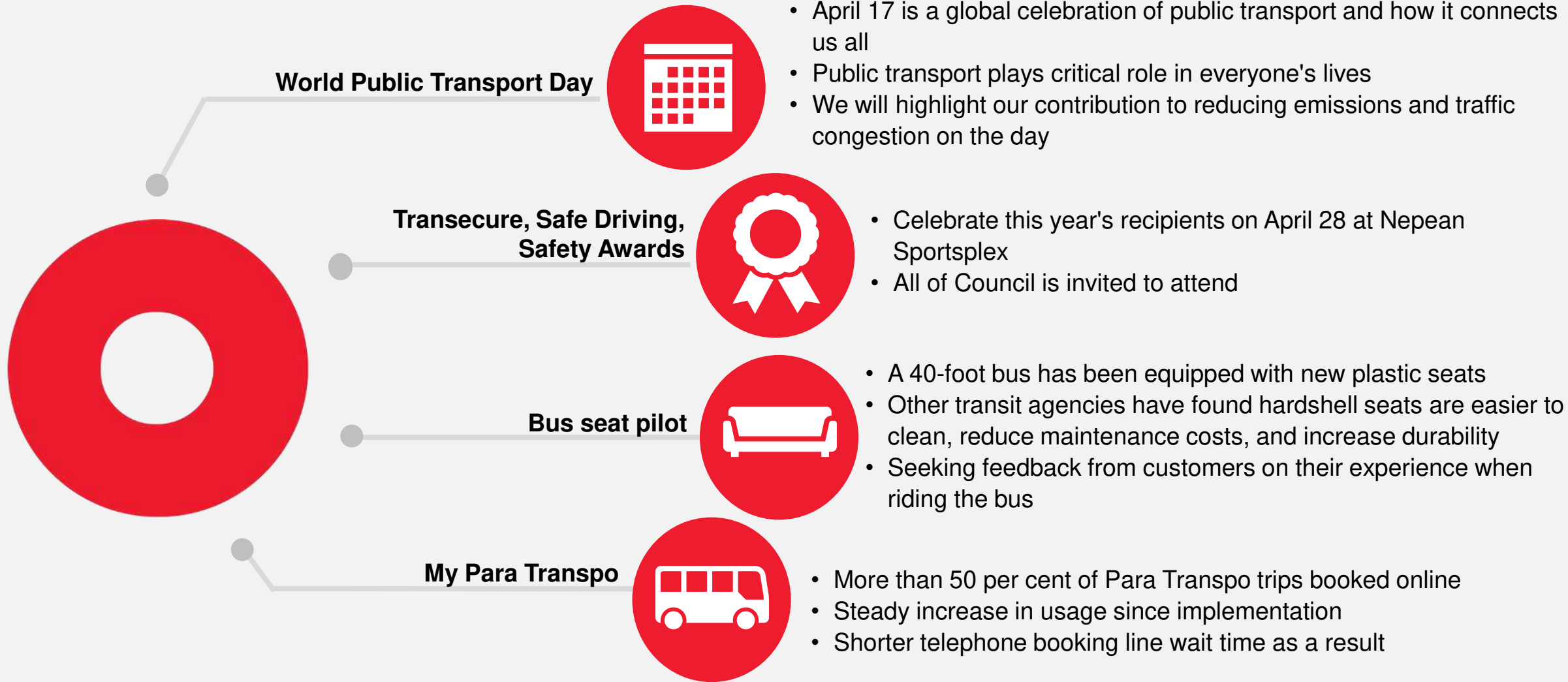
Para Transpo, Rail and Bus

Transit Committee

April 9, 2026



GM updates



Update on O-Train Line 1 disruption due to freezing rain

- On March 11, despite de-icing prior to the rainfall, ice built up quickly on the overhead catenary system (OCS) near Lees Station and immobilized two trains
- This winter, freezing rain has impacted OCS in other cities resulting in closures, including Montréal, Kitchener-Waterloo, New Jersey, Philadelphia, among other locations
- Comprehensive operational debriefs were conducted with all partners
- Actions being implemented:
 - Updates to severe weather plan based on forecasted freezing rain
 - Additional guidelines provided to electric rail operators, controllers, and rail operations managers to identify and react to early warning signs of serious arcing to avoid OCS damage
 - RTM to develop added procedures to keep Belfast Yard, critical tracks, and OCS clear during ice events
 - Discussions in progress between OC Transpo and RTM on improving OCS resiliency to freezing rain in key areas of concern



Update on O-Train Line 1 washrooms

- There has been an increase in vandalism and needle use in washrooms across O-Train Line 1 stations
- In response to an incident on February 20 at Bayview Station, all O-Train Line 1 washrooms were closed
- The washroom on O-Train Line 2 (Limebank Station) remains open
- An internal risk assessment has been completed; staff are assessing both short- and long-term mitigation measures, their timelines and associated costs as options
- The Special Constable Unit continues to focus on maintaining a safe transit system while also supporting vulnerable individuals. Customers are encouraged to report any concerns, as timely reporting helps us respond quickly and mitigate risks.
- OC Transpo recognizes the inconvenience caused to customers when the washrooms are closed and we will continue to keep everyone informed as we work to restore access



Electric buses: Where we are now?

Deliveries



- 109 total buses in Ottawa
- 85 buses commissioned

Charging equipment



- 68 chargers available for operation
- 36 chargers currently in commissioning

Kilometres



- More than 2,000,000 km accumulated

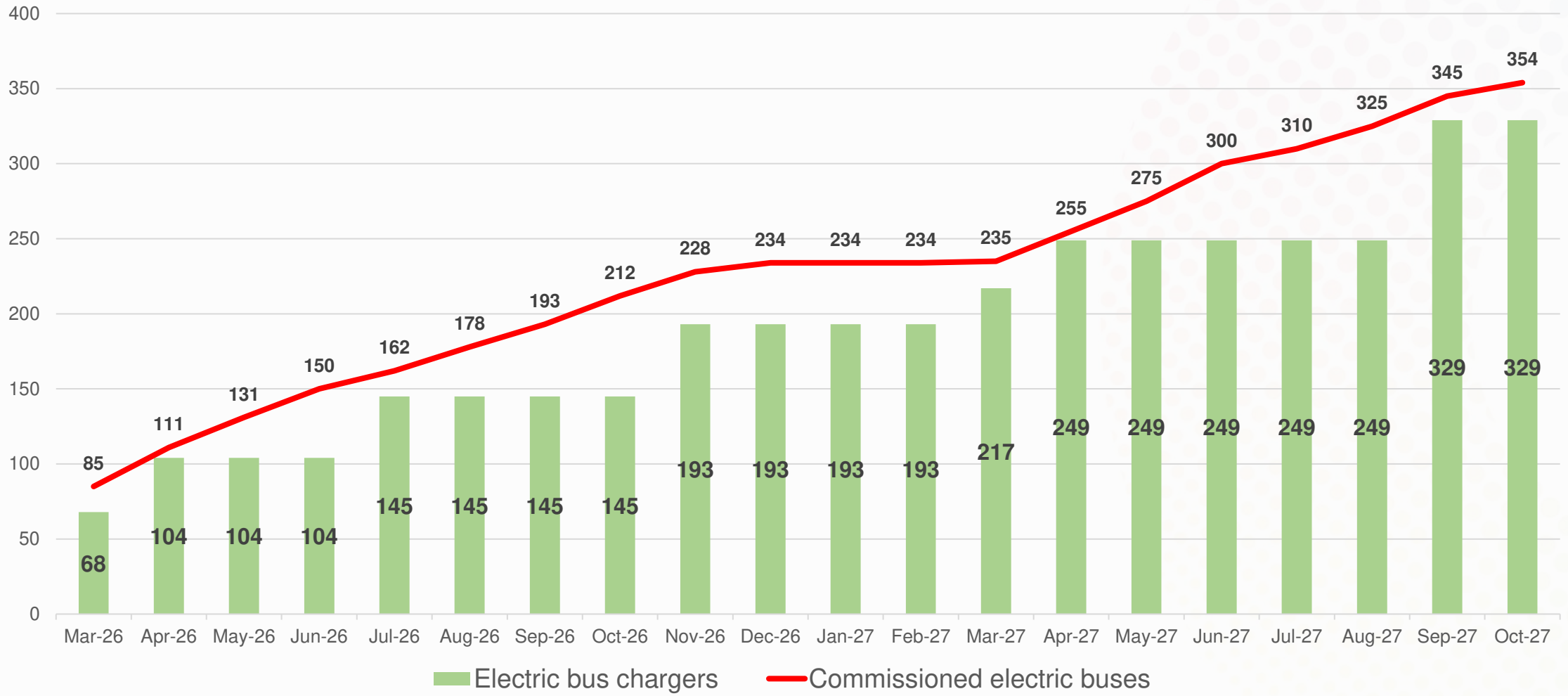
Program benefits



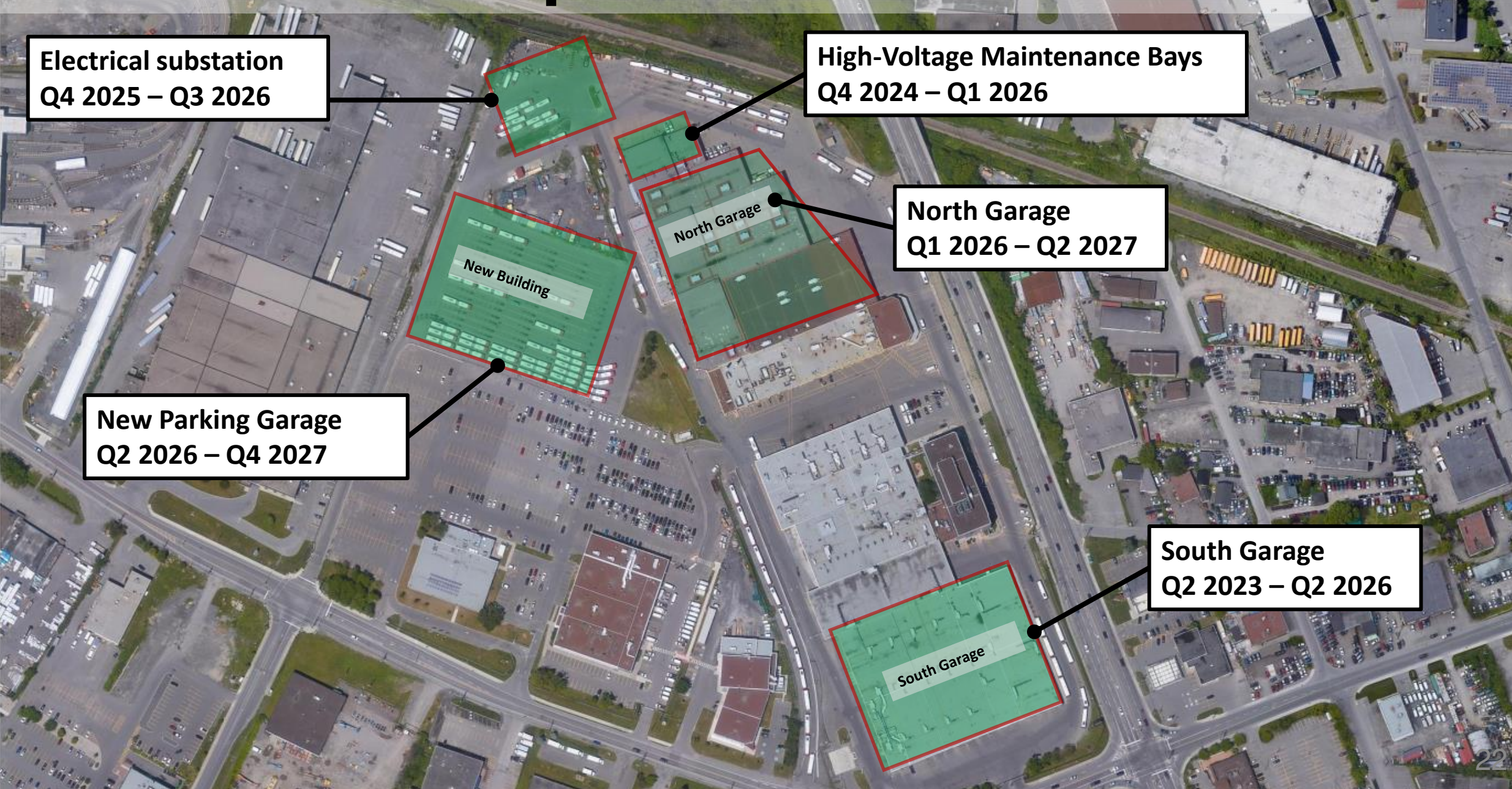
- Savings of 930,000 litres of diesel fuel and 2,360 tonnes of CO2 emissions
- Reduced noise pollution from electric motor
- Aligning with Council's Climate Change Master Plan



Bus and charger onboarding schedule



Infrastructure update



Electrical substation
Q4 2025 – Q3 2026

High-Voltage Maintenance Bays
Q4 2024 – Q1 2026

North Garage
Q1 2026 – Q2 2027

New Parking Garage
Q2 2026 – Q4 2027

South Garage
Q2 2023 – Q2 2026

New Building

North Garage

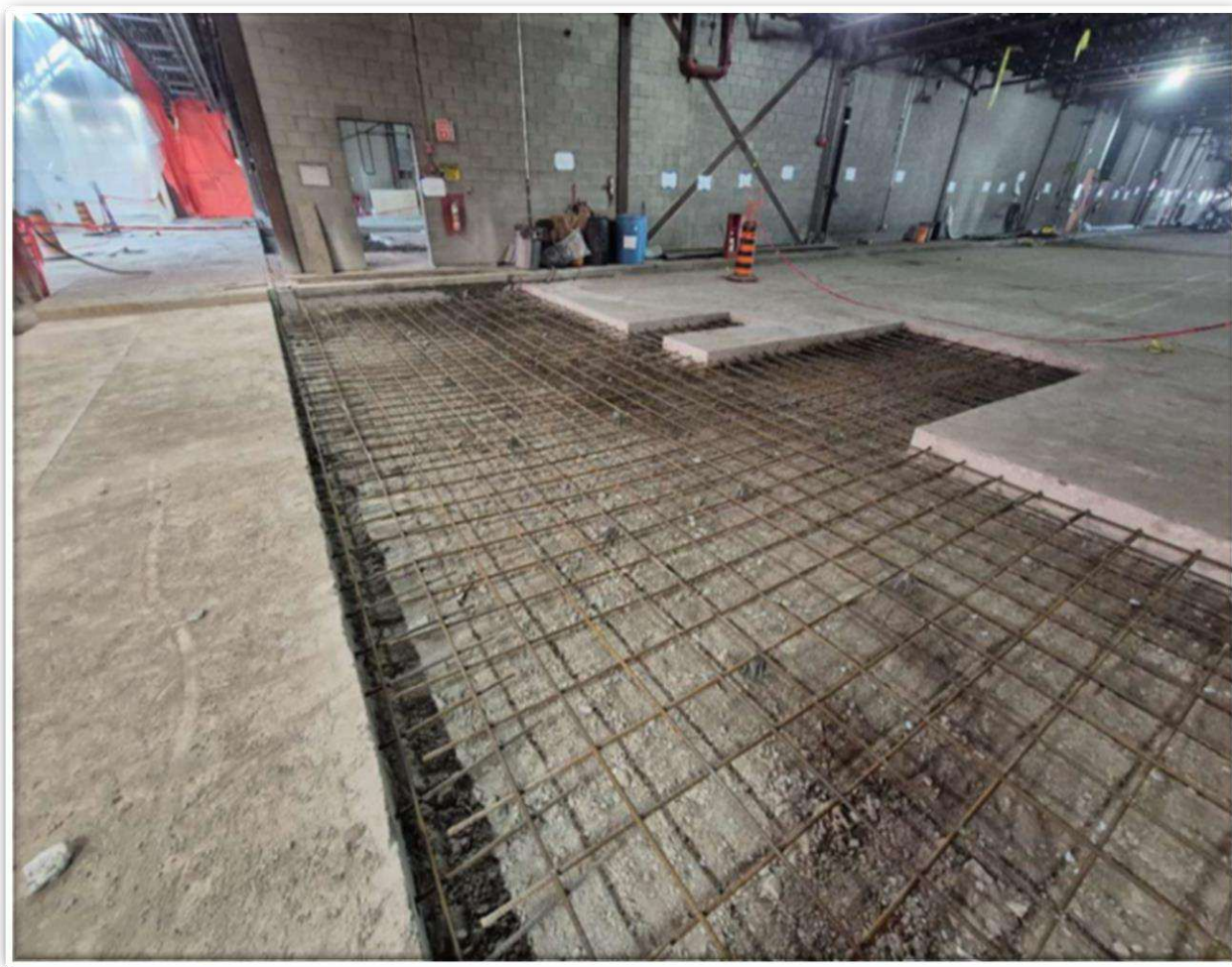
South Garage

Infrastructure update – South Garage

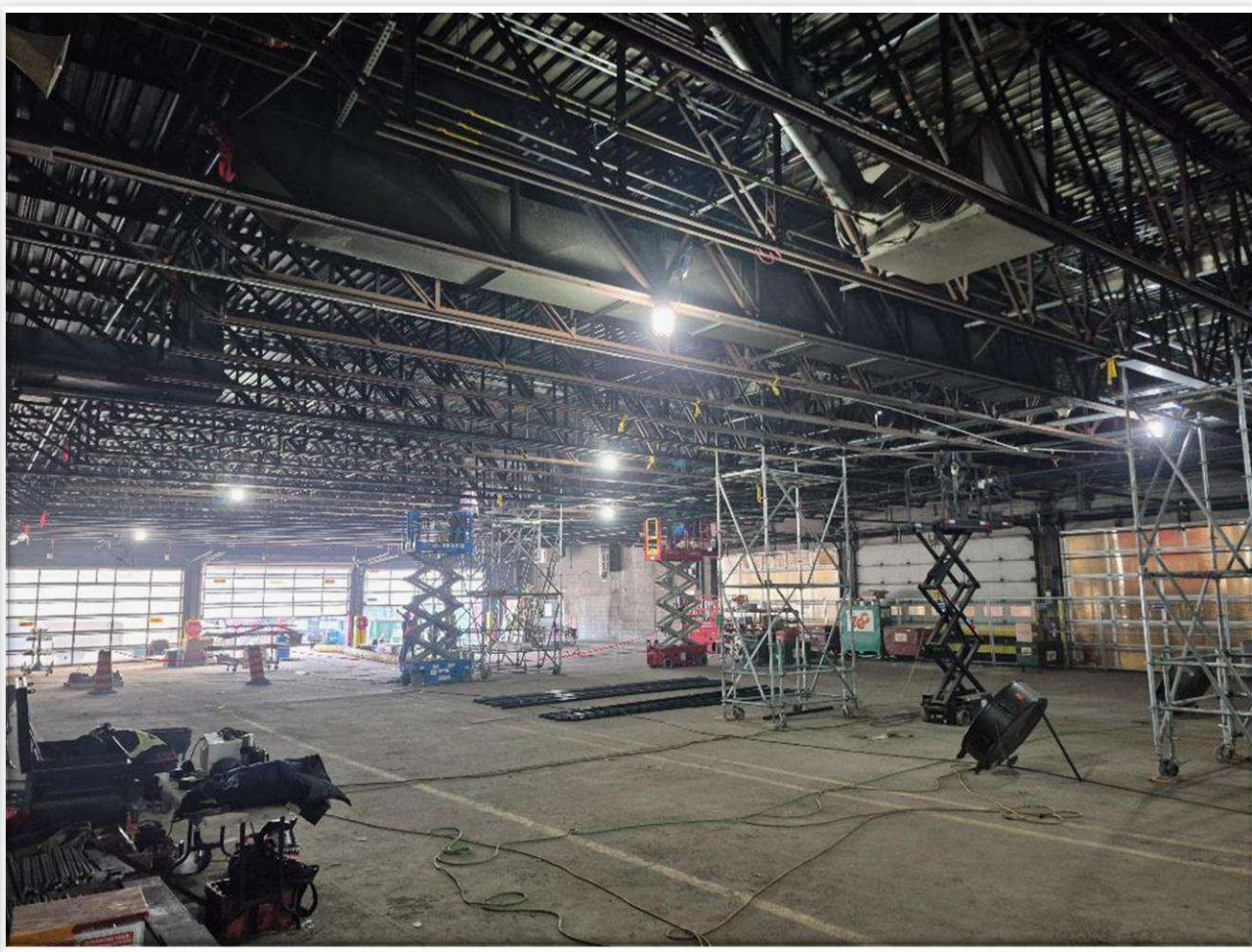


Electric buses beneath pantograph chargers

Infrastructure update – North Garage



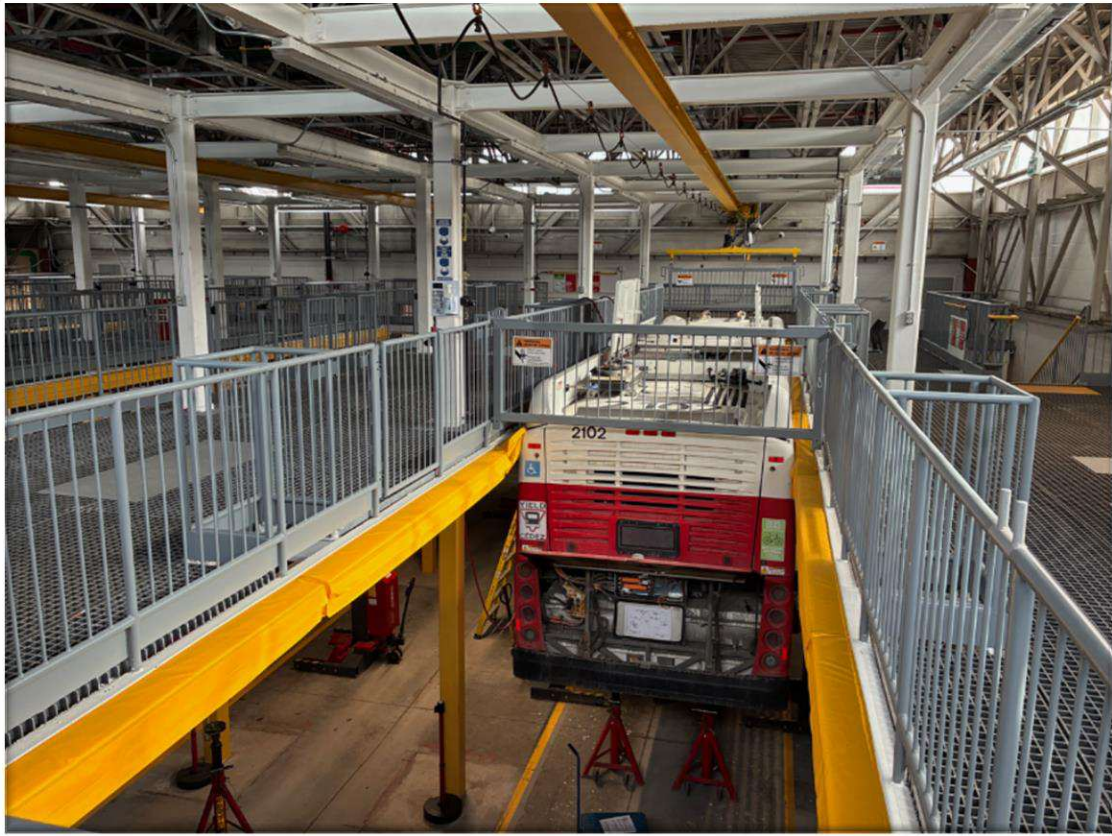
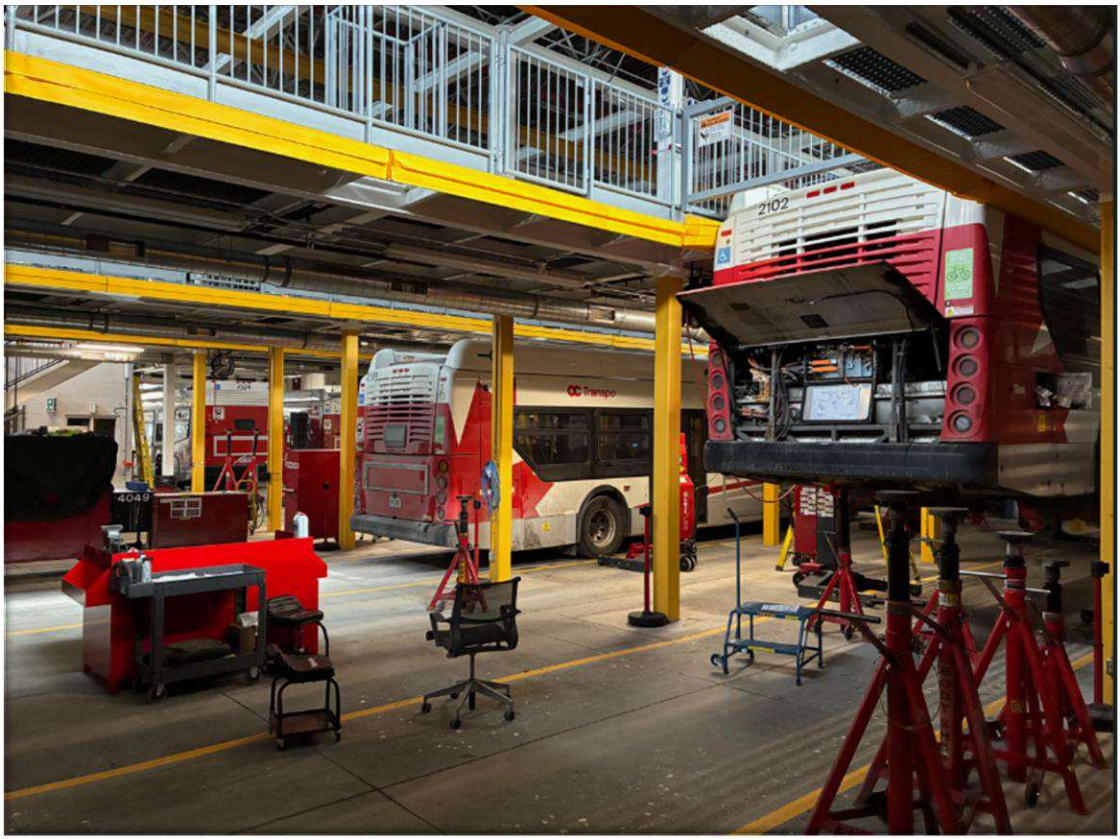
Precast wall and floor removal



Roof structure reinforcement

Infrastructure update

High-voltage maintenance bays



Electric buses being maintained in high voltage repair bays

Infrastructure update – electrical substation



Electrical equipment foundation



Electrical power distribution equipment

Electric bus operations

Changes to status quo

- The Zero-Emission Bus Program is a complex transition that includes vehicles, garages, charging systems, extensive training, and new technical expertise
- The program requires major infrastructure work across the St-Laurent campus, including high-voltage systems, a substation, charging equipment, and staff to service these systems

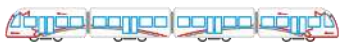
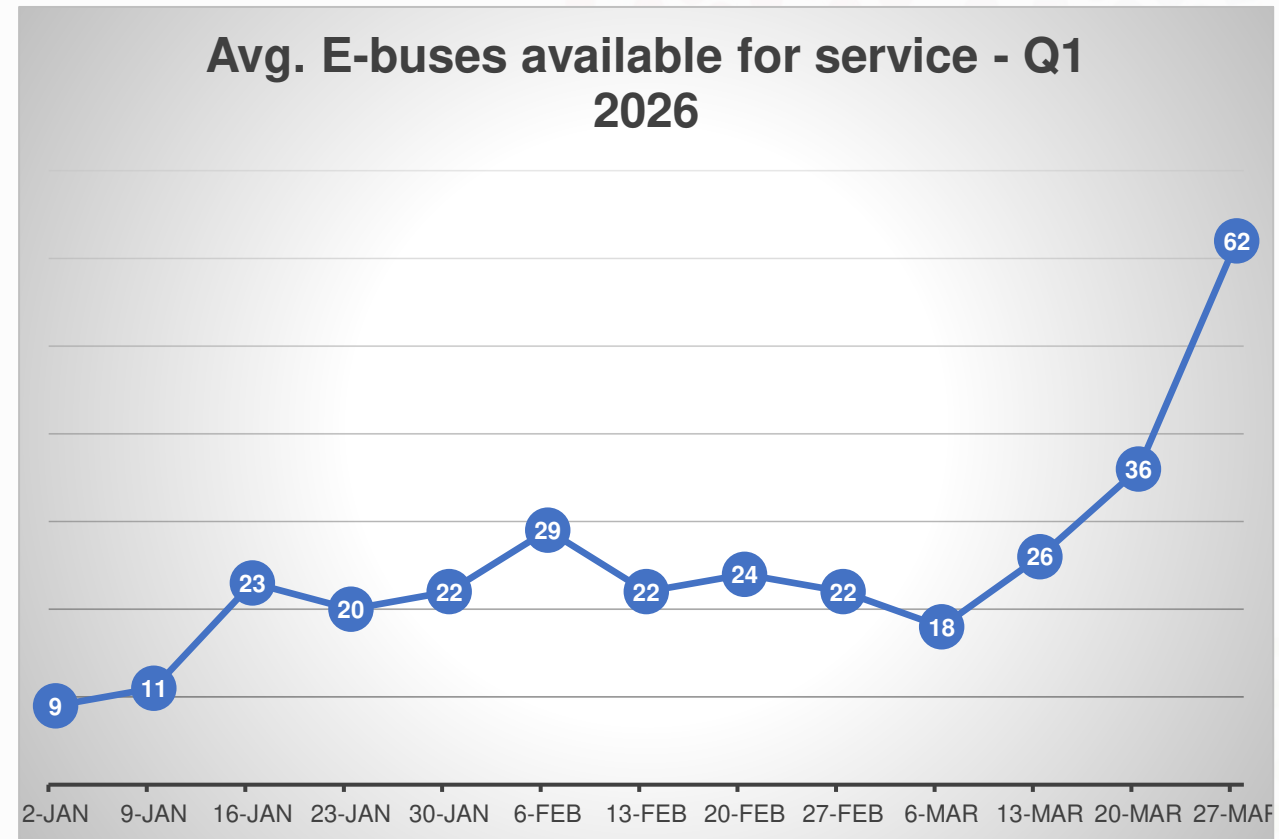
March 2026 update

- Overall, implementation is progressing well. Internal processes are now established, more hoists are being allocated to e-buses, and the number of e-buses in service is steadily increasing
- St-Laurent's parking capacity, availability of hoists, training of staff, charger readiness, and daily requirements for current operations all affect how quickly more e-buses can regularly go into service



Electric bus performance

- For a project of this size and complexity, it is progressing as expected.
- The buses are performing well, and the number of buses in service is steadily increasing. We continue to work with the vendor to address remaining gaps and ensure the fleet meets our full performance expectations.
- We are applying lessons learned from the diesel fleet and adapting maintenance schedules to fit the operating needs of the new electric buses.
- Staff are delaying the decommissioning of some diesel buses to build resiliency during this transition phase. The expanded refurbishment of older 60-foot buses will build standby capacity for major weather events or disruptions.



Electric bus training

Bus Operator Training

Provides operators with training on new vehicle features, safety procedures, and safe charging.

Level 1 – Non-High-Voltage Systems

Equips technicians to safely perform routine maintenance without high-voltage access, including inspections, mechanical systems, and basic electrical diagnostics.

Level 2 – High-Voltage Systems

Prepares mechanics to work safely on high-voltage systems, including power electronics, charging infrastructure, and energy storage components.

Training targets and timeline:

Training and Development will train 100 mechanics to Level 2 by Q3 2027.

Bus Operator Training (% complete)

Nova	64%
New Flyer	82%

Level 1 Technician Training (% complete)

Garage attendants	14%
Mechanics	14%
Body repairers	29%
Supervisors	5%

Level 2 Mechanic Training (% complete)

Nova	5%
New Flyer	11%

Performance Indicators



Update on key performance indicators

- Part of our continued commitment to transparency and accountability
- Refreshed KPIs include context discussed at Transit Committee
- Adapting KPIs to report on current bus and train operational issues
- Ensuring consistent design for recurring KPIs
- Adjustment and refining of KPIs is a continuous process



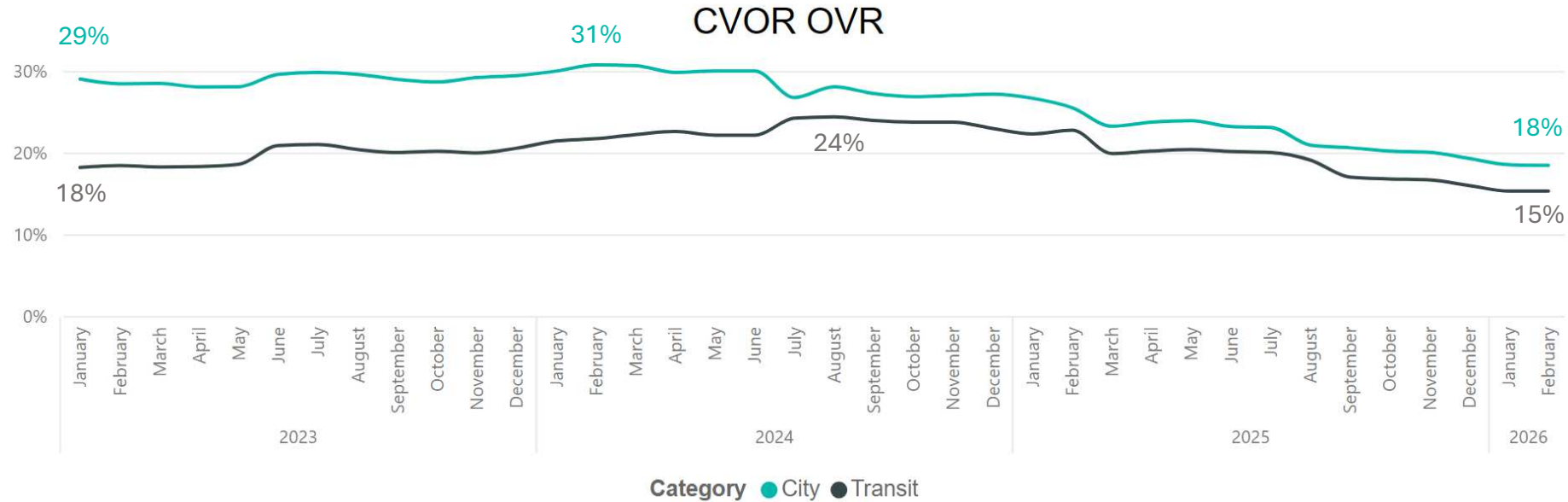
Collisions and CVOR

Commercial Vehicle Operator's Registration (CVOR)

Overall Violation Rate (OVR)

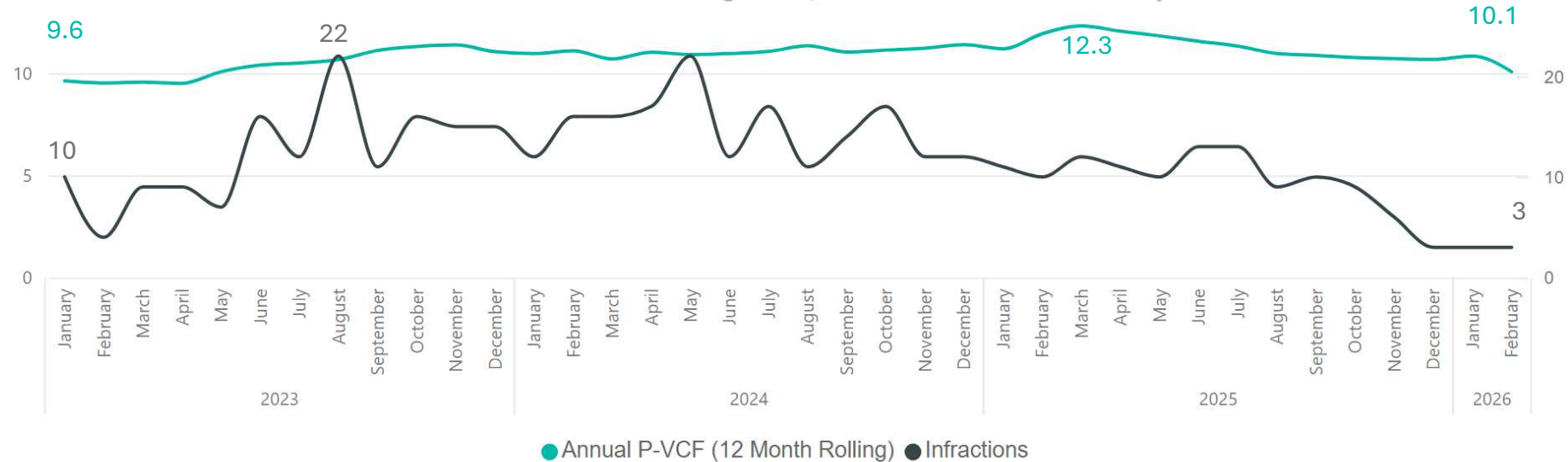
15%

*Internally Calculated



Safety Performance Trends: Annual P-VCF and Infractions

P-VCF shown as 12-month rolling value; infractions shown as monthly count



Preventable Collision Frequency (P-VCF)

Year to Date

1.13

SMS Target: 0.69 (+64%)
Number of preventable collisions per 100,000 Km Driven

Reported Injuries

Customer Injury Rate

Year to Date

0.43

SMS Target: 1.04 (-58%)
Customer injuries per 1M passenger trips

Monthly Customer Injury Rate



Employee Injuries

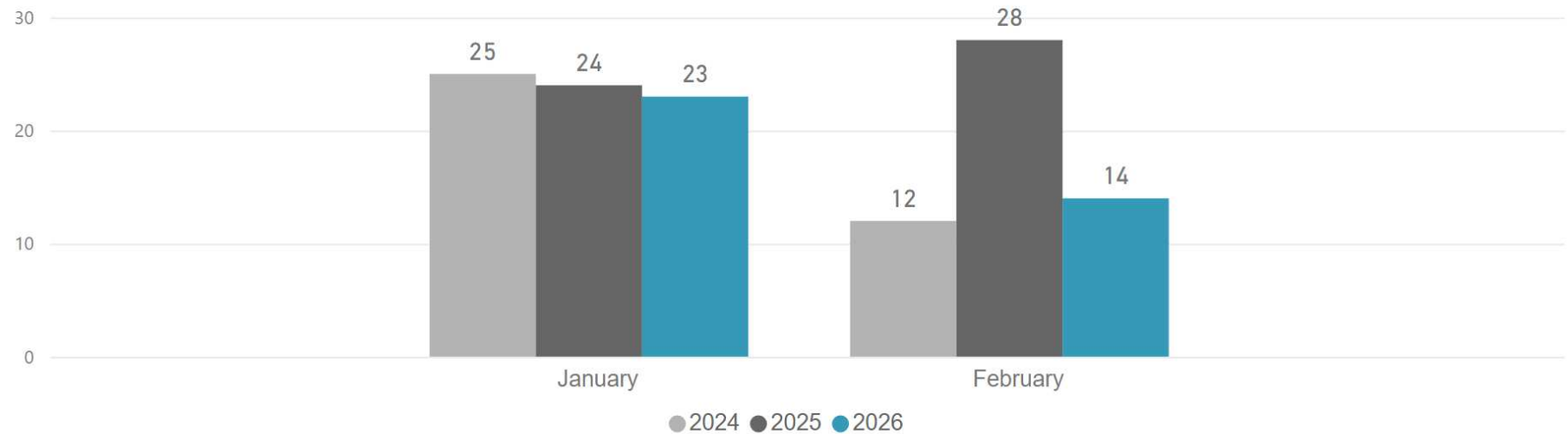
Lost Time Reported

37

Previous Year: 52 (-29%)
%Change in number of reported Occurrences from previous year

Reported Employee Injuries

Lost Time Reported



Security

Violence Against Transit Employees

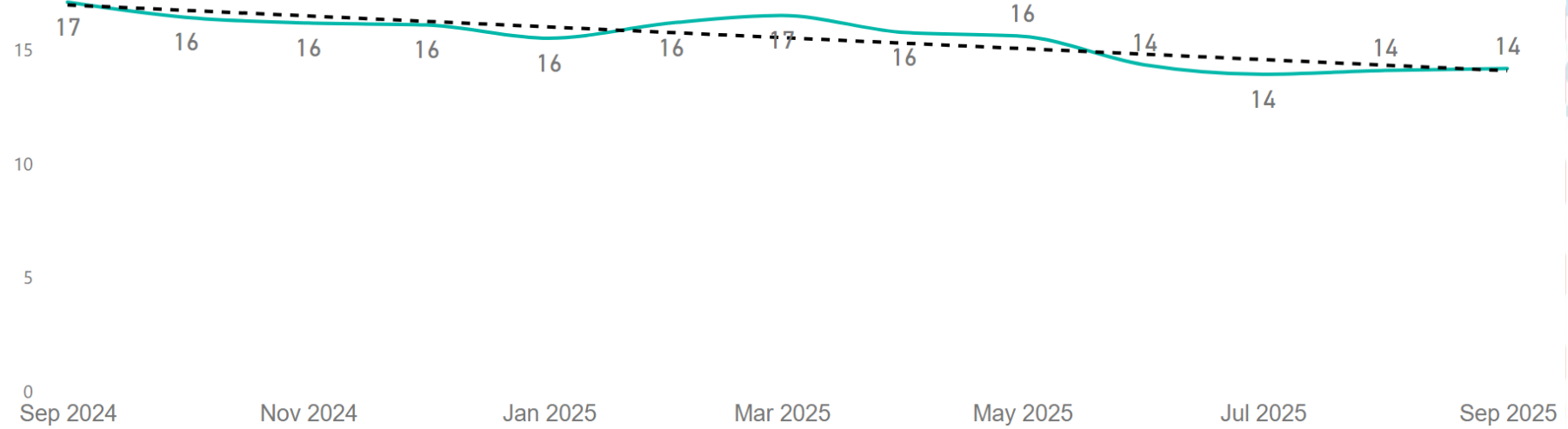
12 Month Rolling Average

14

Same Period Last Year: 17 (+17%)

Violence Against Transit Employees

12 Month Rolling Average



Violence Offences Per Ridership

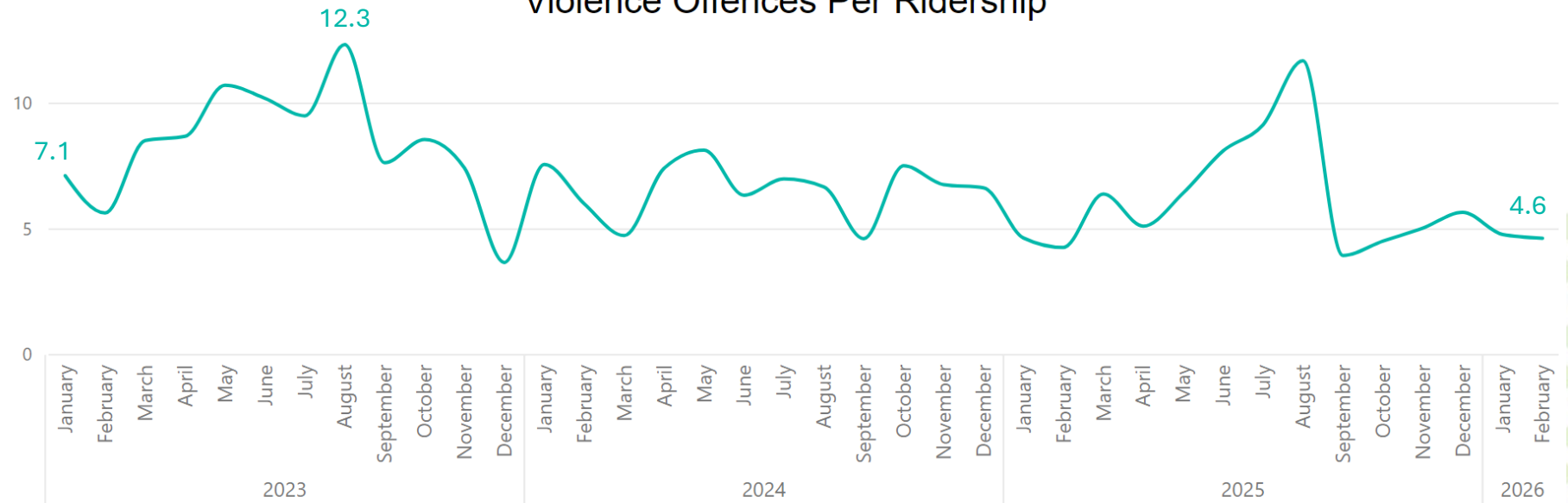
Violent Offence Rate

Violent Offences per 1M Riders

4.7

Same Period Last Year: 5.1 (+8%)

Current YTD



Ridership

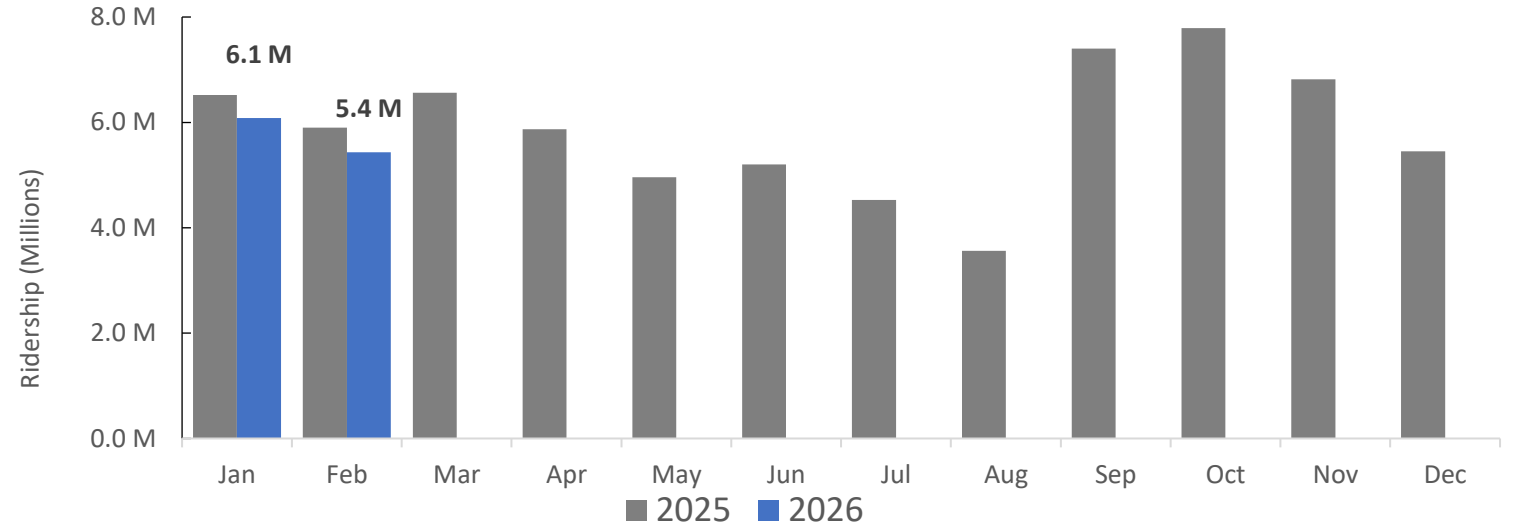


12-month total ridership

69.7 M

0.7% lower than previous month

1.9% higher than previous year



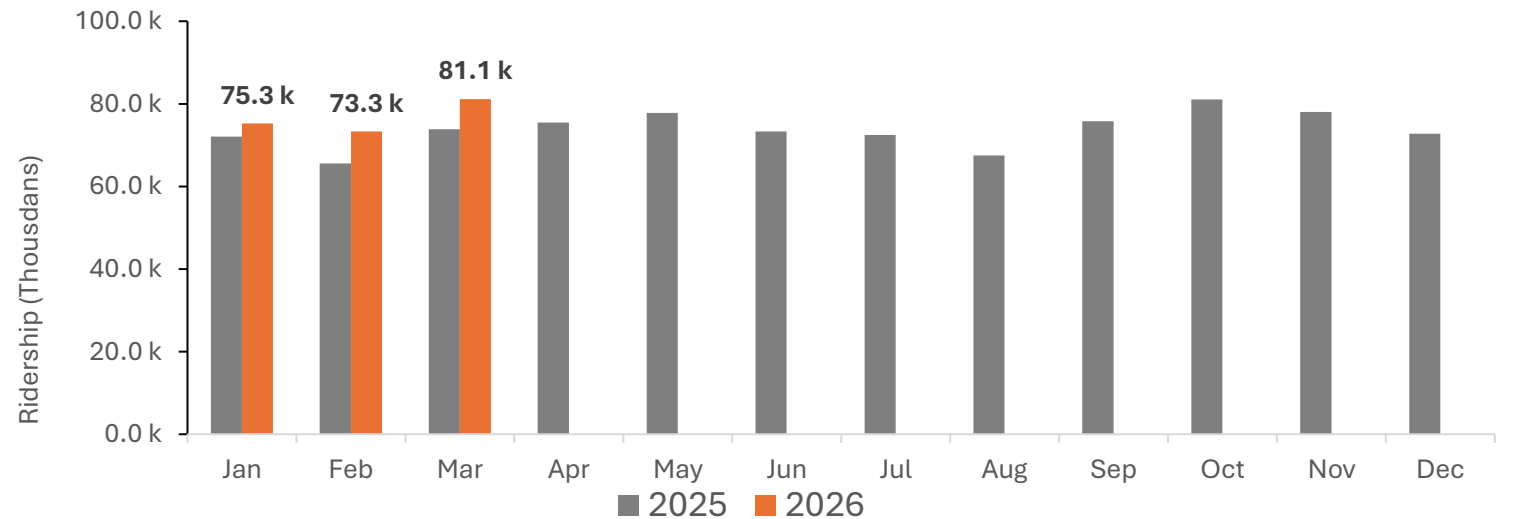
**Para
Transpo**

12-month total ridership

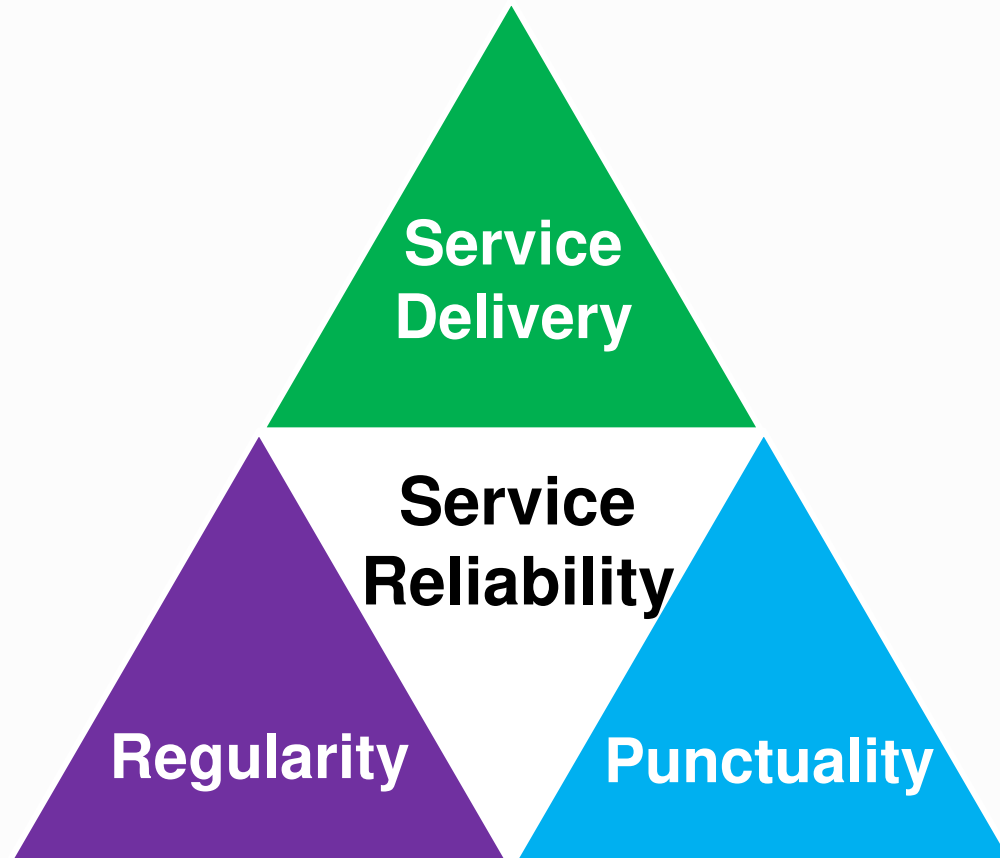
903.9k

0.8% higher than previous month

4.9% higher than previous year



Service reliability



Service Delivery

Degree to which planned trips are delivered
Target 99.5%

Regularity

For frequent routes, measures whether trips are evenly spaced
target 85%

Punctuality

For less frequent routes, measures whether the trips arrive at the stop no more than 1 minute early or 5 minutes late
target 85%

Bus service delivery



% of service delivered vs. planned

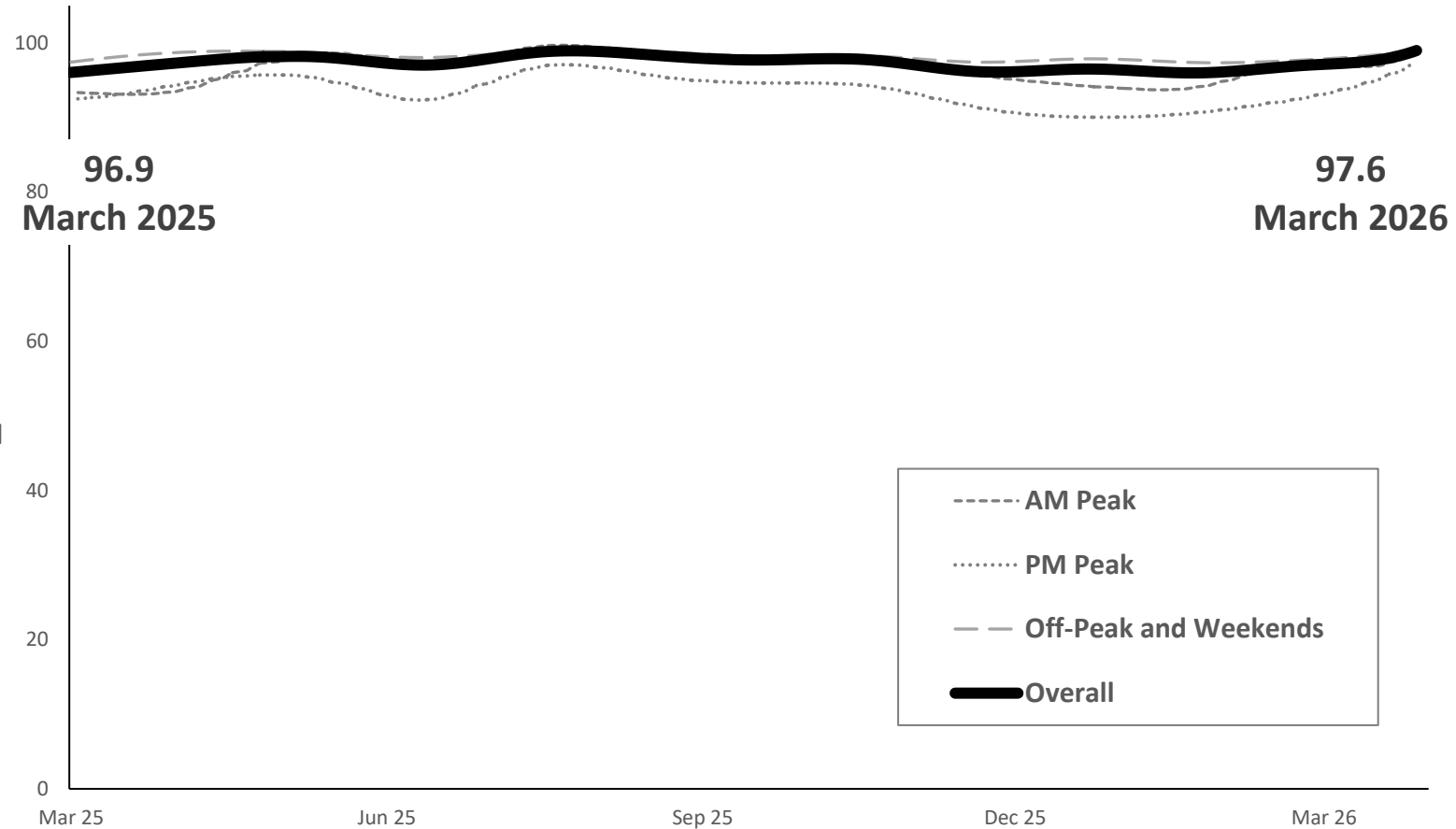
12-month average service delivery

97.2%

2.3% lower than target

0.1% higher than previous month

% Service
Delivered
as Planned



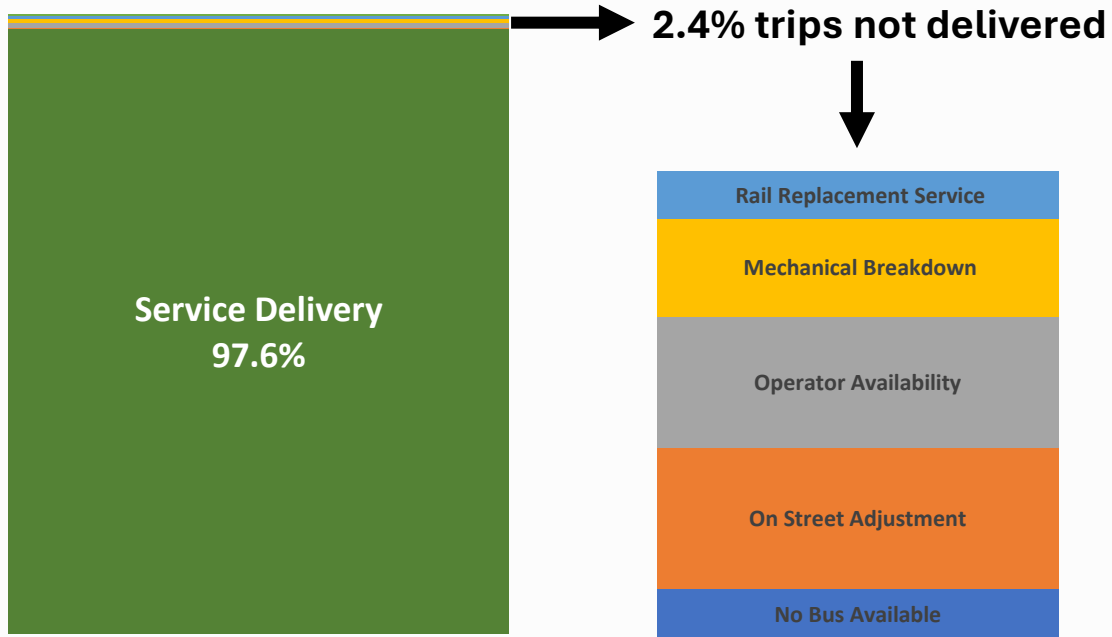
**Service
Delivery**

Degree to which planned trips are delivered
Target 99.5%

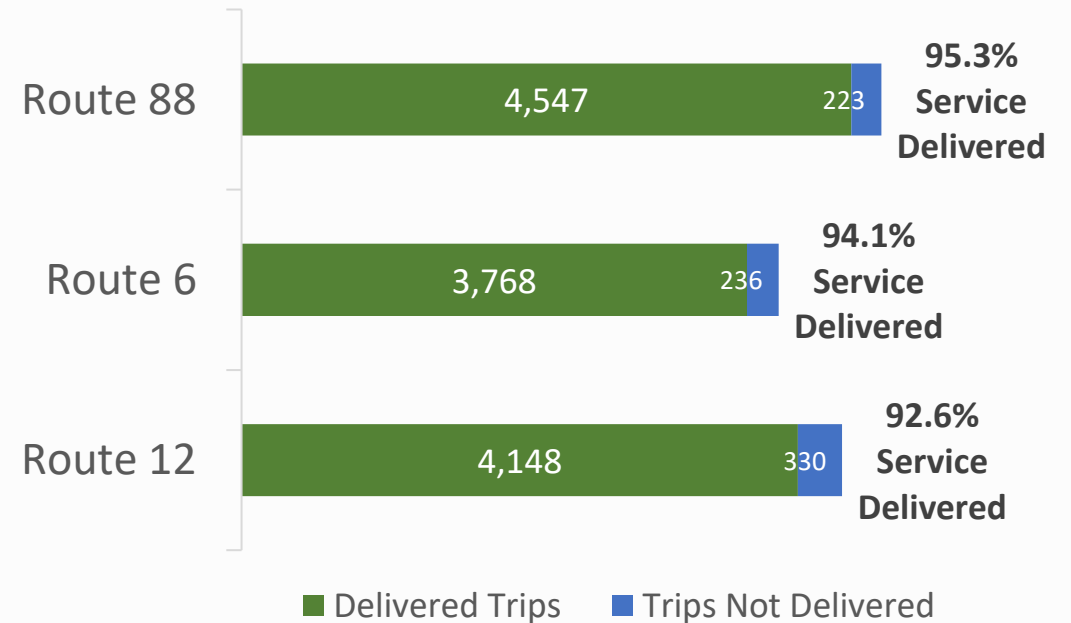
Bus service delivery



% of service delivered vs. planned details



Routes with most trips not delivered



March 2026

Reasons why trips were not delivered, as proportions of all scheduled trips



Bus regularity

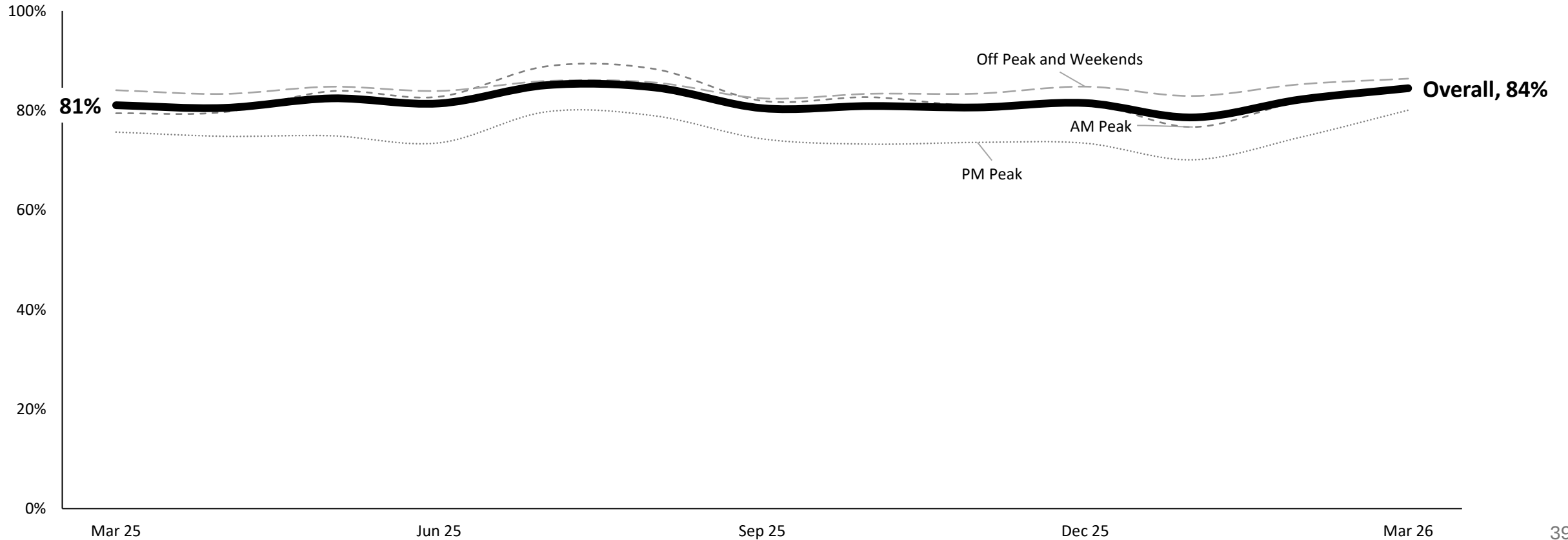
Regularity

For frequent routes, measures whether trips are evenly spaced
target 85%

12-month average
Regularity for frequent routes

82%

3% lower than target
Same as previous month



Bus punctuality

Punctuality

For less frequent routes, measures whether the trips arrive at the stop no more than 1 minute early or 5 minutes late target 85%

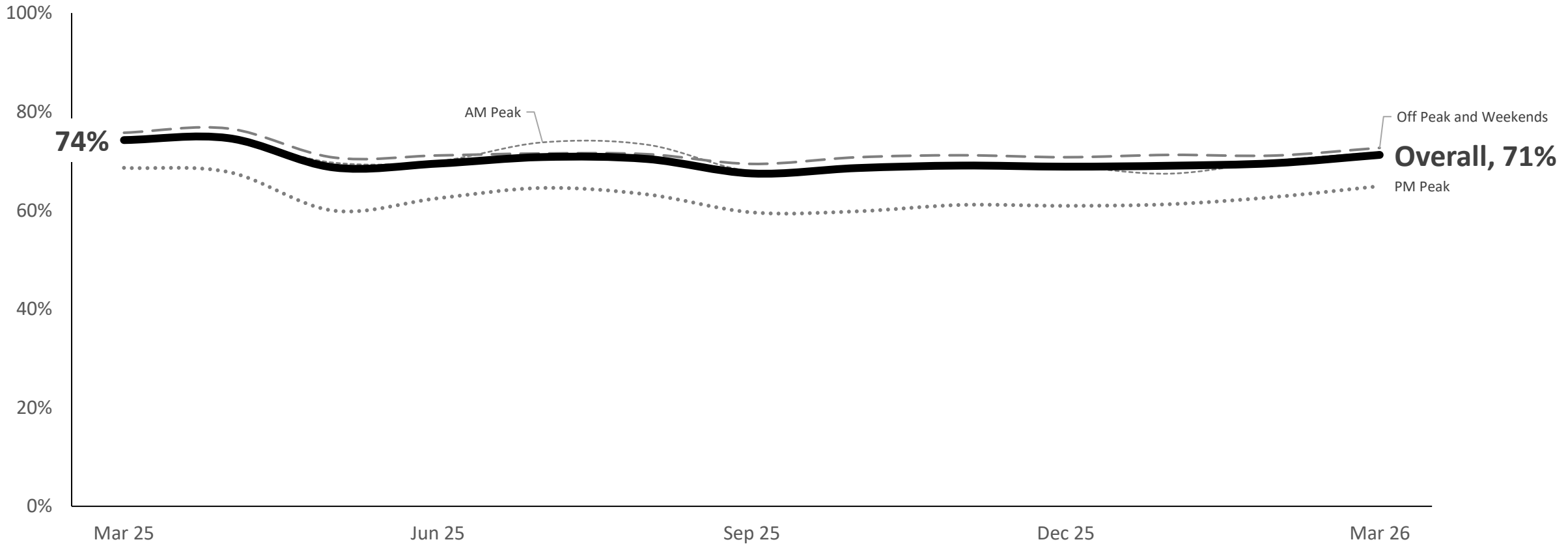
12-month average
Punctuality for less frequent routes

70%

15% lower than target
1% lower than previous month

14% of trips arrived more than 1 minute **early**, on less frequent routes

16% of trips arrived more than 5 minutes **late**, on less frequent routes

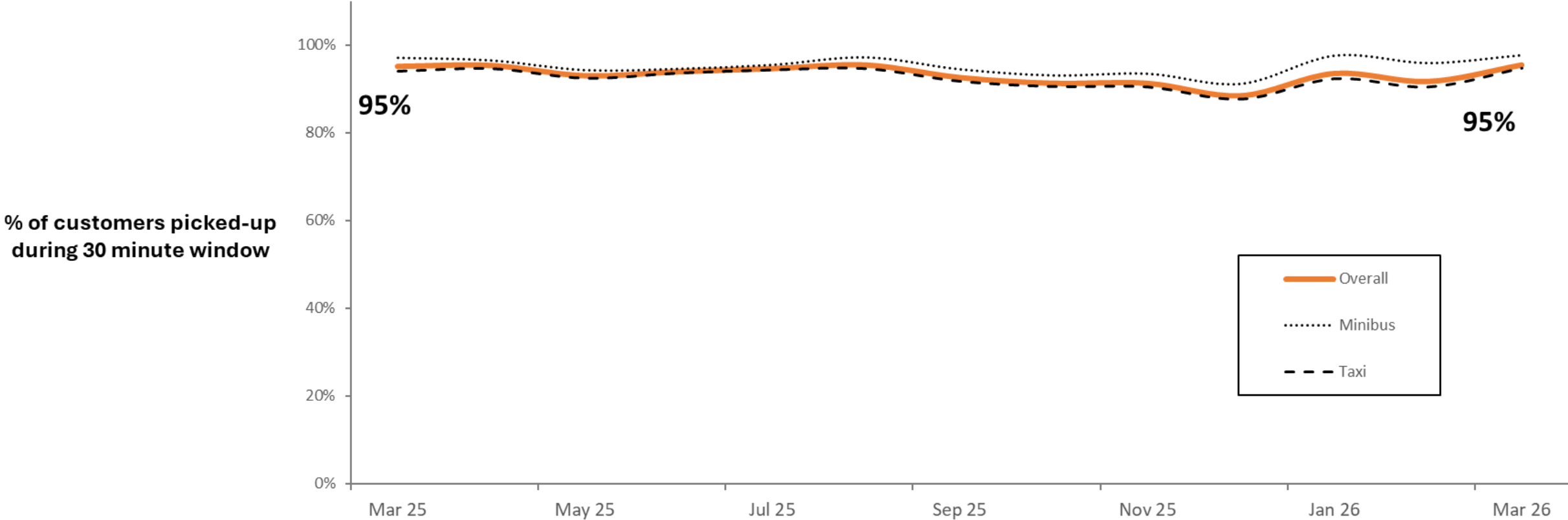


Para Transpo On-Time Performance



On Time Performance
A measure of how many trips arrived to pickup customers within their planned 30 minute window

12-month average
On-time performance
94%
Same as previous month



O-Train service reliability



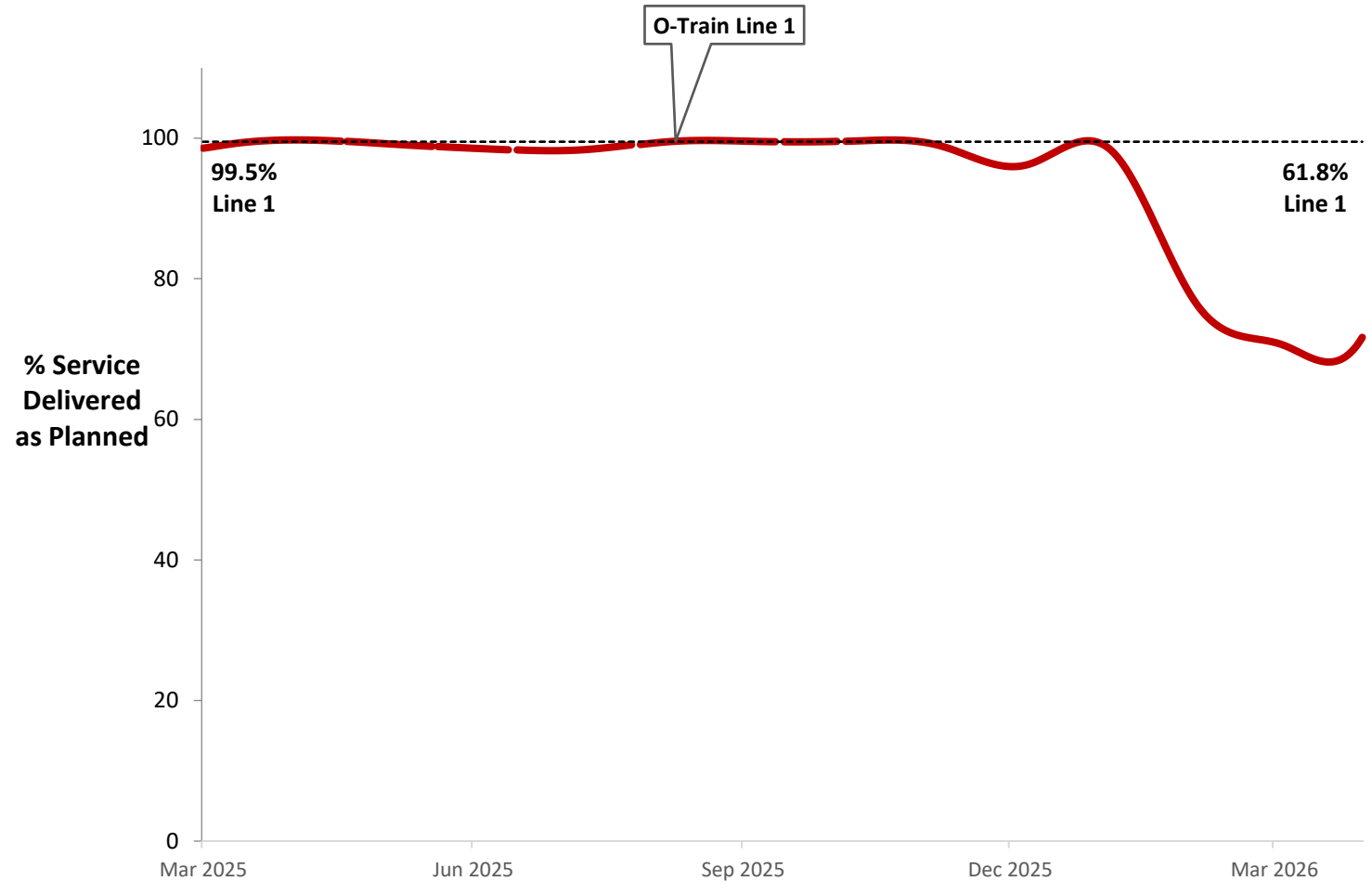
O-Train Line



12-month average service delivery
Line 1

92.9%

6.6% lower than target
2.9% lower than previous month



O-Train service reliability

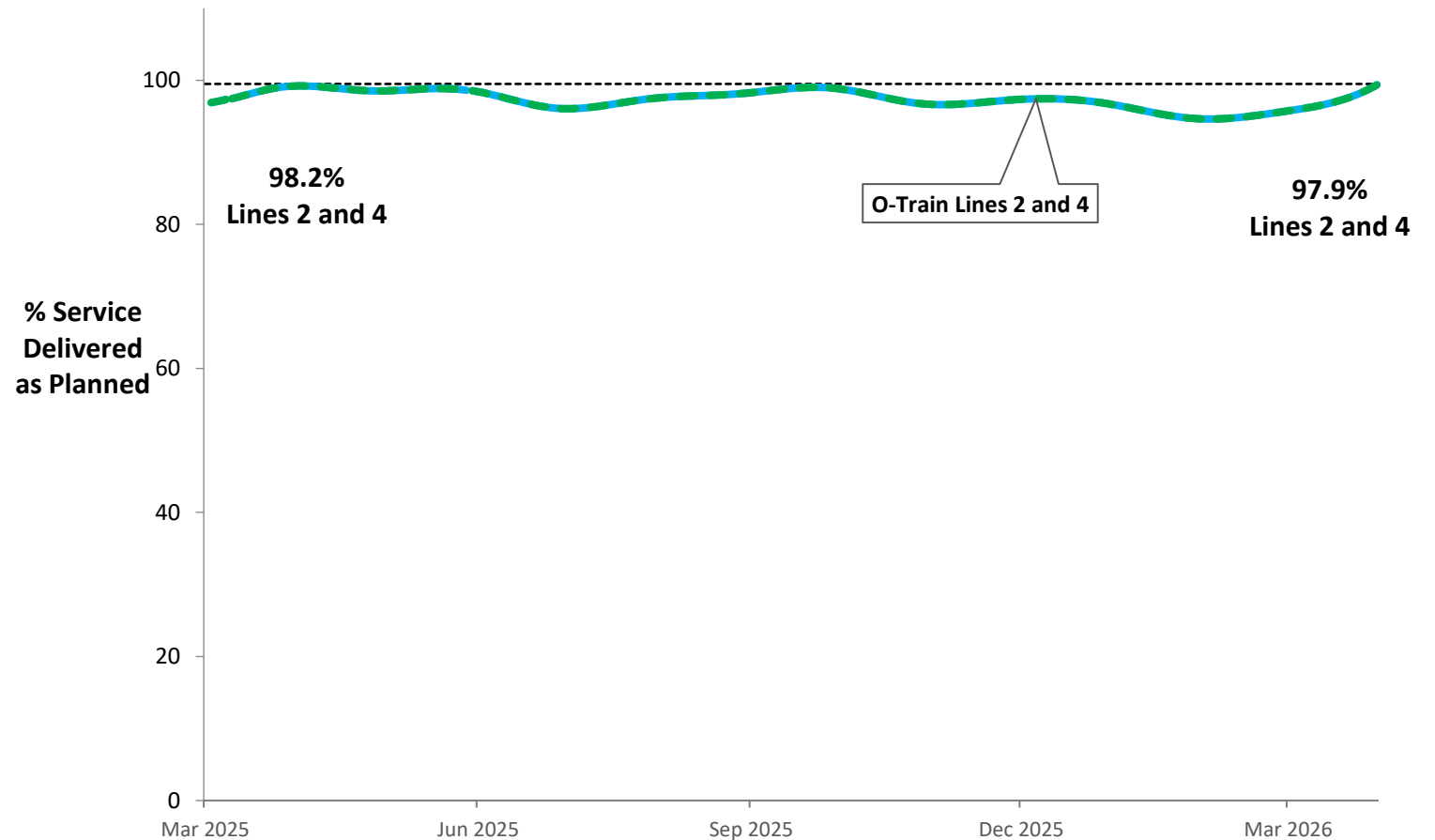


O-Train Lines 2 4

12-month average service delivery
Lines 2 and 4

97.3%

2.2% lower than target
Same as previous month



Questions?

