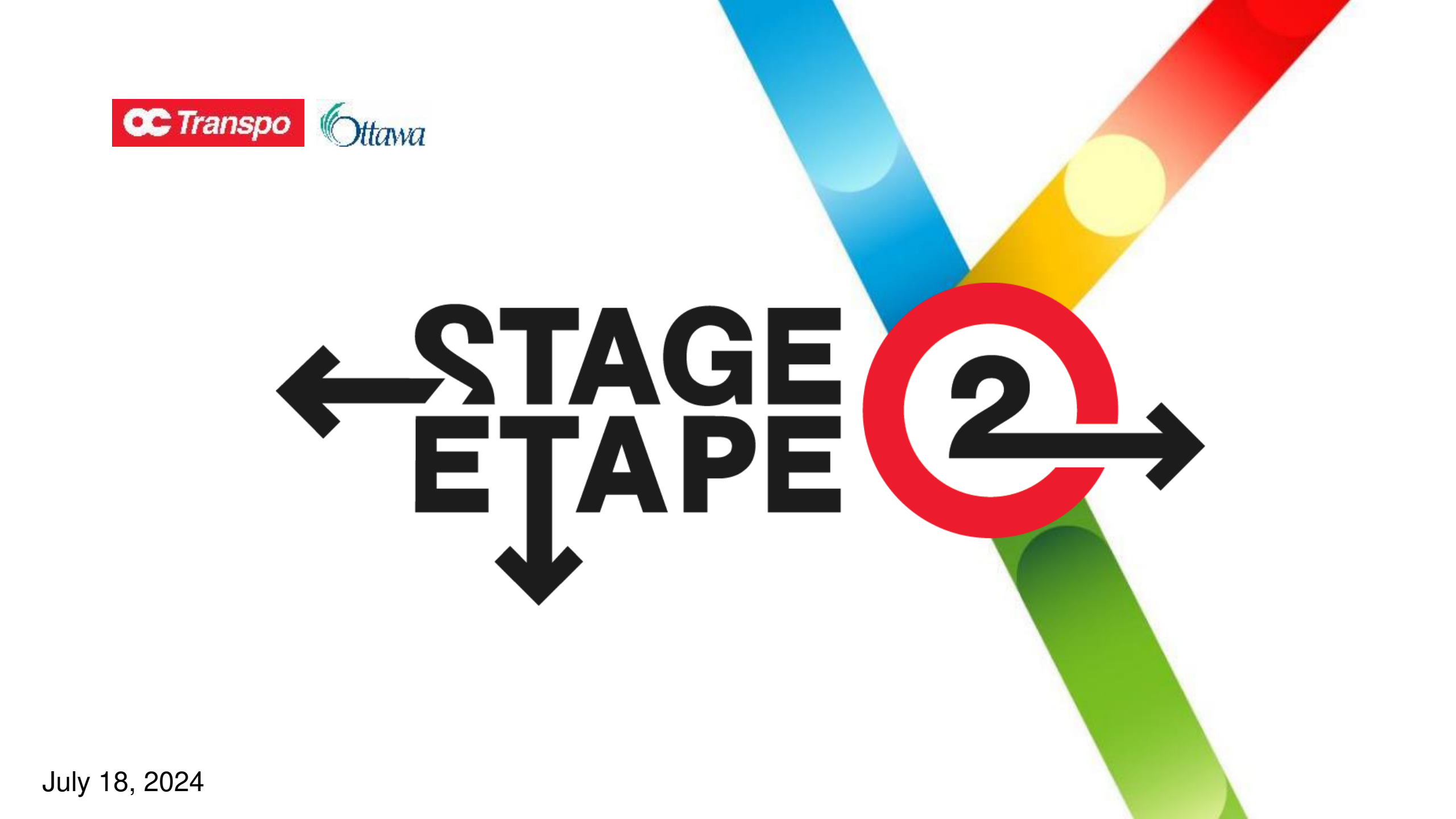


July 18, 2024

Rideau River Pedestrian Bridge Opening

Airport Station

Leitrim Station

Corso Italia Station

O-Train South Line Project Handover

1. Trial Running Prerequisites
2. Testing and Commissioning
3. Station Occupancy
4. Operations & Maintenance Training
5. System Reliability & Performance
6. Trial Running Requirements
7. Path to Opening

1. Trial Running - Prerequisites

i. The integrated System Infrastructure has been tested.

ii. The complete fleet is fully tested and ready for passenger service.

iii. The complete signaling and train control system is fully tested and ready for service.

iv. There are no outstanding defects affecting rail systems (track, signals, and comms).

v. There are no major defects, safety defects, or incomplete vehicle modification programs.

vi. All stations are substantially complete with only minor deficiencies remaining.

vii. TNEXT is fully mobilized, fully trained and ready to commence maintenance.

viii. TNEXT has submitted the Maintenance Verification & Validation Matrix.

ix. The City is fully mobilized, trained and ready to operate the System.

1. Trial Running - Non-Essential Scope

- For transparency, not all project elements are required for Trial Running and Substantial Completion to be achieved. The following works are expected to be completed later this year as part of Substantial Completion and final closeout of the works:
  - Final intersection work at Limebank and Earl Armstrong (required for service)
  - Additional work at Leitrim Park & Ride / Bus Loop Activation (required for service)
  - Completion of the stone dust pathway between Hunt Club and Earl Armstrong including the pedestrian crossings at Lester, Leitrim, and Earl Armstrong.
  - A damaged turnout (manganese frog) at Bayview to be replaced later in the year.
  - Completion of cross rides and configuration of traffic signals on Hunt Club Road.
  - Final stone facing on the underside of the Rideau River Pedestrian Bridge.
  - Final landscaping activities are expected to continue through October.
  - Other deficiencies / minor items.

2. Testing & Commissioning

A. System Integration Testing / Overall Performance: Demonstration of key integration work, required headways, and Trial Running performance testing

B. Train Control: Verification of Control of Rail Network, Integration with Vehicles, Control Centre, Safety Functionality, Schedule Regulation, Other

C. Fire Life Safety: Verification of Tunnel Ventilation Systems, Station Fire Alarms Systems, Fire Telephones, Emergency Standpipes, Other

D. Vehicle Systems: Verification of Integration with Train Control Systems, Tests to Demonstrate Transport Canada Compliance, Braking, Control Systems, Station Announcements, Other

E. Communication Systems: Verification of Emergency Telephones, Platform Countdown Signs, Public Address Announcements, Radio Systems, CCTV Cameras, Intrusion Access Detection, Building Control Systems, Other

F. Station Operations: Verification of Elevators, Mechanical/Electrical Systems, and Buildings

G. Maintenance Facilities: Verification of Cranes, Wheel Lathe, Car Wash, Fueling Systems, Vehicle Jacks, Repair Stations, Generators, and Building Facilities

2. Testing & Commissioning (continued)

A. System Integration Testing / Overall Performance: Preparing for Trial Running.

B. Train Control: Deficiency close out, monitoring, reliability and closing open issues:
   i. Schedule Optimization / Headway Regulation mode to tackle diversions/service disruptions
   ii. Train arrival prediction (countdown messages) accuracy.
   iii. Integration with performance reporting system.

C. Fire Life Safety: Close out of final approvals by Ottawa Fire Services.

D. Vehicle Systems: Close out of final test reports and monitoring of reliability/performance.

E. Communication Systems: Deficiency clean up (98% of devices connected to Transit Operations Control Centre), final testing of remaining devices in progress, and final close out of final test reports. Additional work to reduce spurious alarms/alerts to control monitoring system.

F. Station Operations: Elevator approvals in place; 7/13 Build Occupancy Permits issued

G. Maintenance Facilities: Completion of yard expansion variation and close out of final test reports.

3. Station Occupancy / Elevators

- TSSA Approvals for all elevators is now in place.
- Occupancy permit has been received for the following locations:
  - Maintenance Storage Facility
  - Bus Operator Buildings
  - Stations:
    1. Mooney's Bay
    2. Greenboro
    3. Walkley
    4. South Keys
    5. Carleton
    6. Bayview
    7. Bowesville

4. Operations & Maintenance Training

- Training and development is a continuous activity over the life of the system and the initial round of critical safety is required to be complete for Trial Running.

  A. Diesel Rail Operators: Total of 55 required; 47 complete now; 10 in progress

  B. Diesel Rail Controllers: Total of 12 required; 12 complete now; 1 in progress

  C. Maintenance Team: Refresher on rules training completed.

  D. Emergency Responder: Completed

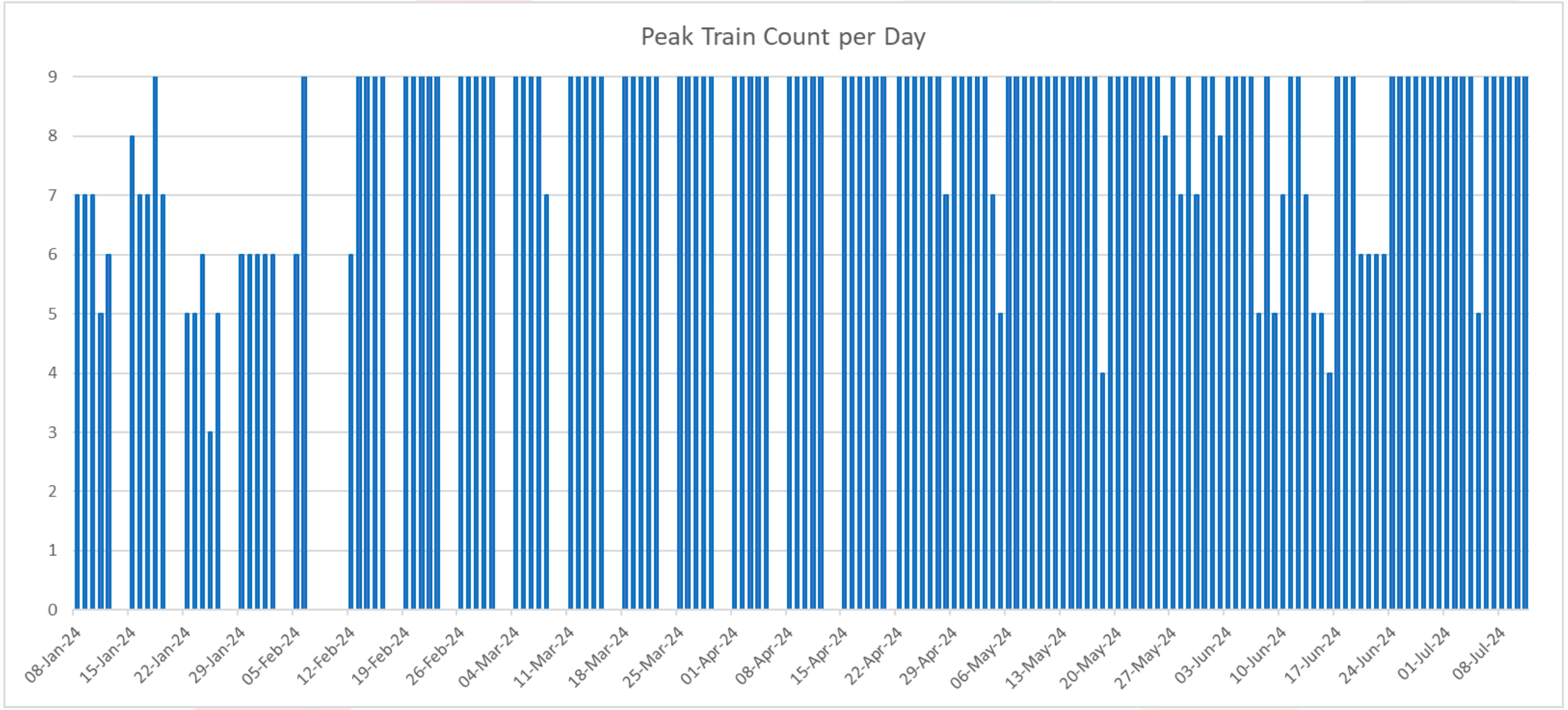
5. Performance & Reliability Growth

- Service Plan Demonstration
- Train Hours (January to July)
- Train Running Hours (January to July)
- Current Performance
    - Track & Guideway
    - System Infrastructure
    - Vehicle Performance

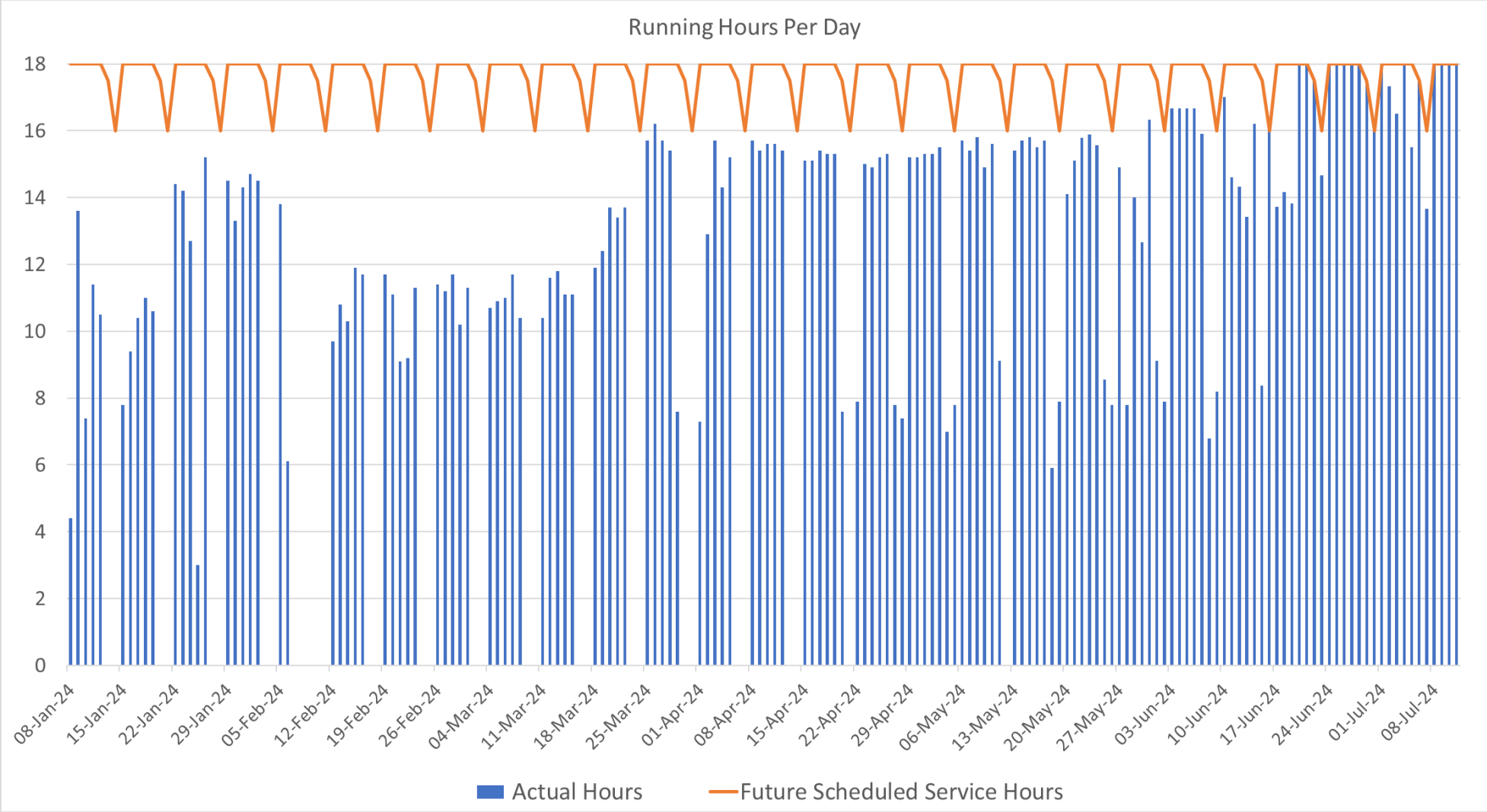
5. Service Plan Demonstration

- The objective to increase the running hours to match the final service plan started last week (July 8). Full operator coverage of Sunday schedule is still in progress.
- Running the complete service plan creates the required conditions for staff to fully practice and become proficient at the following:
    i. Delivering maintenance services including infrastructure inspections and vehicle cleaning, inspections, and refueling during the shortened maintenance windows.
    ii. Demonstrating operations (controller and operator functions) for the full-service period including across all Operator/Controller shifts and service patterns.
    iii. Monitoring and measuring reliability and performance objectives to provide assurance around future service.
- Ideally, the system will be operated in the final configuration for a period of 8 to 10 weeks before final opening. This period will include Trial Running and Substantial completion.

5. Train Running Hours (January – July)

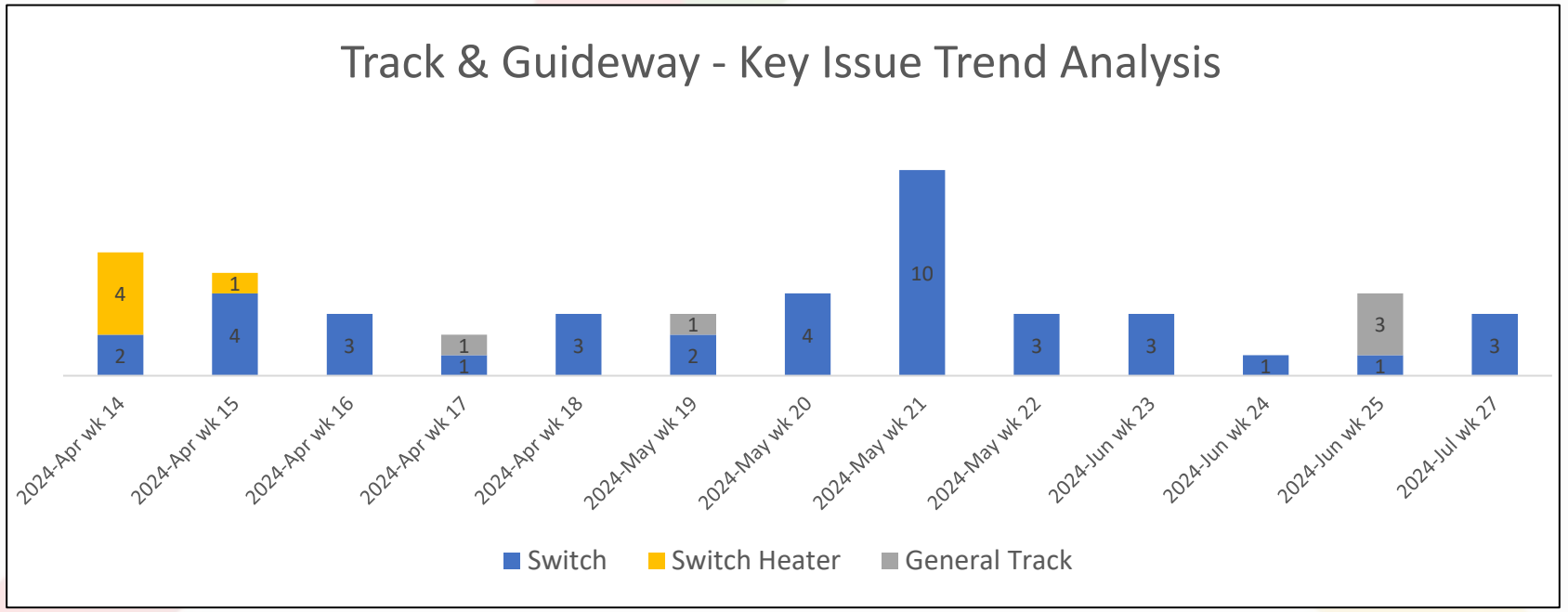


5. Train Running Hours (January – July)



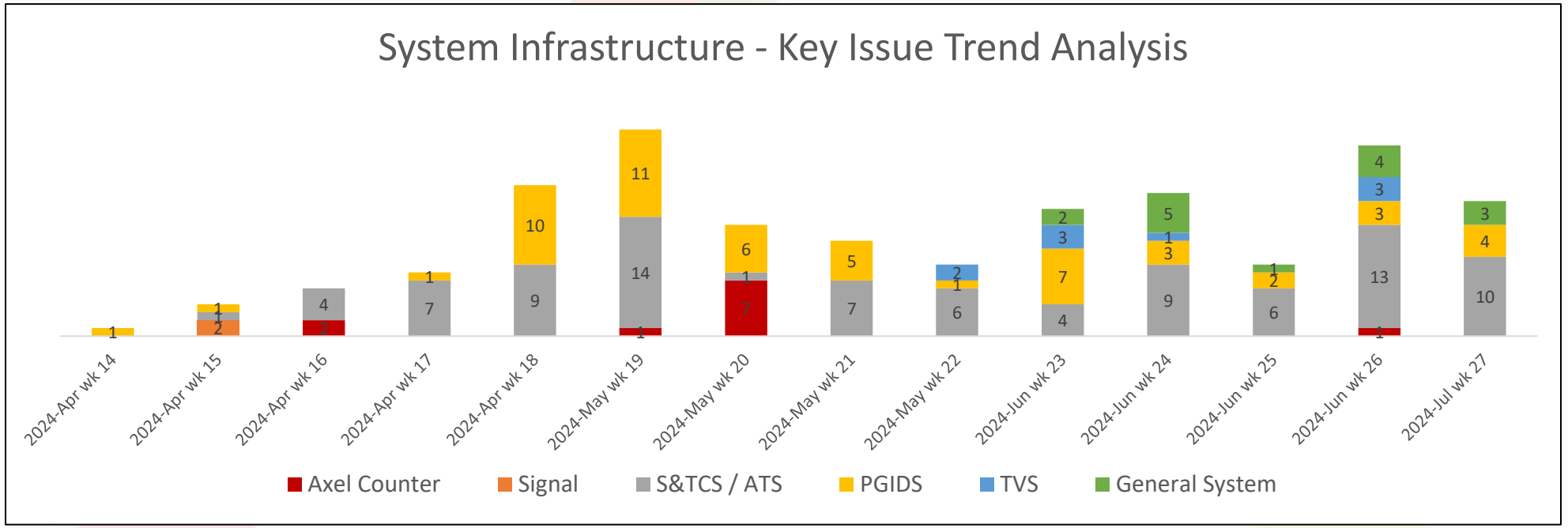
5. Current Reliability – Track & Guideway

- Snapshot of events below (counts only; no measure of criticality) provides a cursory review of performance in order to identify areas that require attention. The single track/double track network will require a high level of vigilance with switch performance.
- Running of trains to the service schedule will be used to measure criticality of events



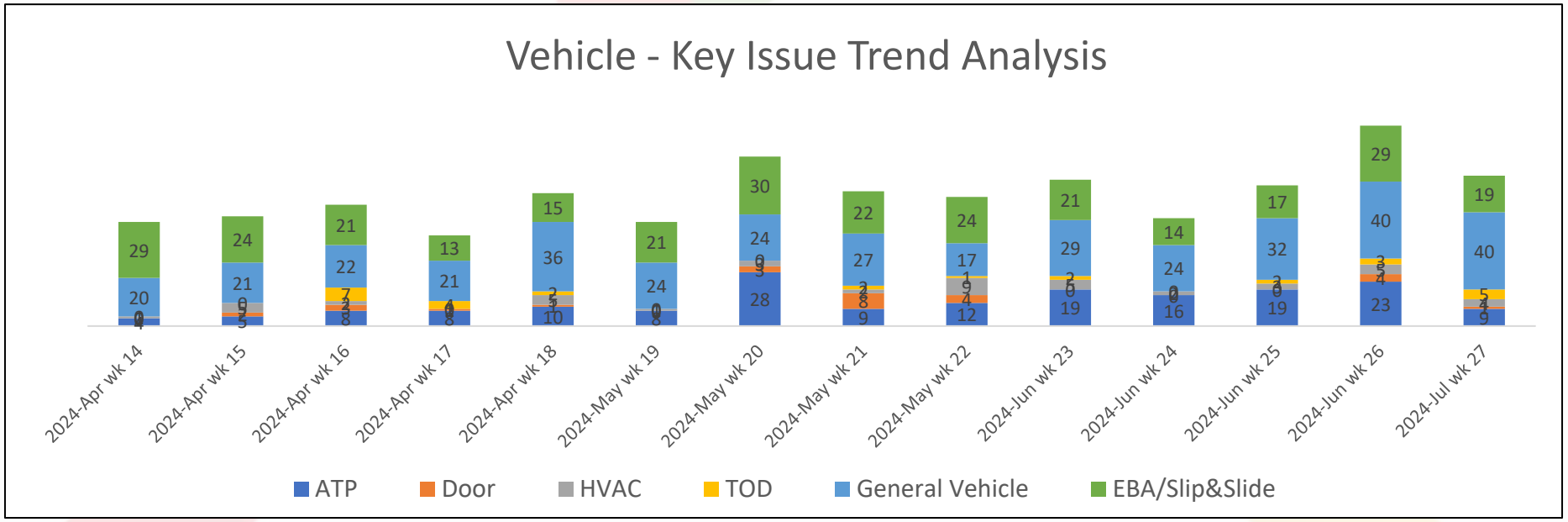
5. Current Reliability – System Infrastructure

- Snapshot of events below (counts only; no measure of criticality) provides a cursory review of performance in order to identify areas that require attention.
- Additional running time has been useful in identifying and surfacing reliability issues with the train control system, e.g., software error reported at previous LRSC (corrected) and error with ATP screen at end of line (final testing in process).



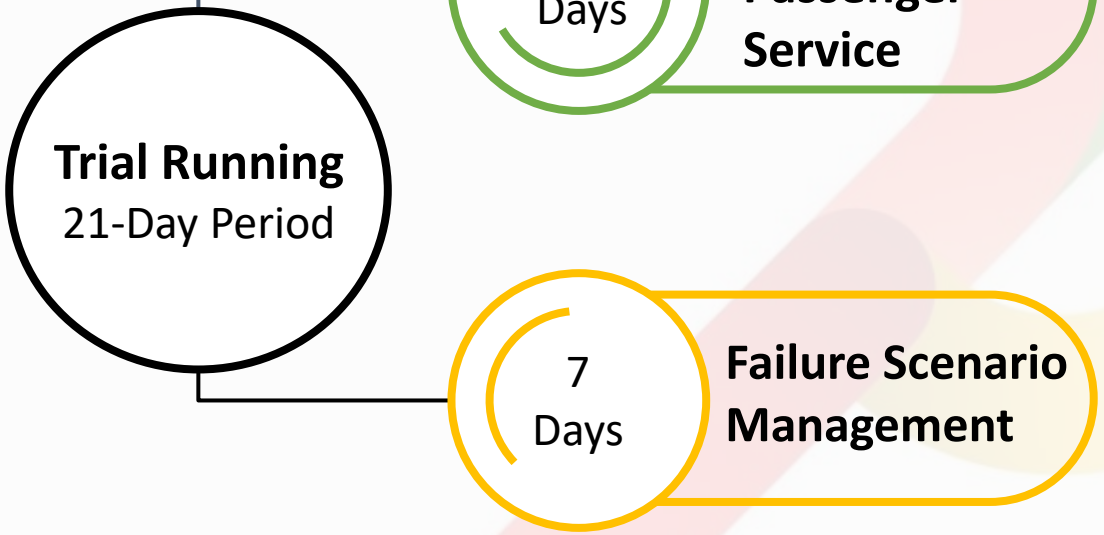
5. Current Reliability – Vehicles

- Snapshot of events below (counts only; no measure of criticality) provides a cursory review of performance in order to identify areas that require attention.
- Additional running time has been useful in identifying and surfacing technical reliability issues, areas for operator performance improvement, and for identifying areas where additional maintenance/monitoring is required.



6. Trial Running - Overview

The objective is to exercise the complete integrated System Infrastructure, including all subsystems, operating personnel and operating procedures, to confirm readiness for Revenue Service.



Performance Criteria

A **Service Reliability Standard**

Maintain a minimum on-time performance of 98.5 % over a 14-day rolling average.

B **System Infrastructure Performance**

Maintainer to respond to any reliability events that arise during the test period.

5. Trial Running – Overview (continued)

- Trial Running is a contractual requirement for the contractor and there are specific performance criteria in the contract that must be achieved.
- Similar to performance during normal service, the contractor will receive relief for any “Non-Project Co Causes” that otherwise deteriorate or degrade the performance. Examples include the following:
  - Delays or issues caused by the City, e.g., reliability issues with the headend equipment, operational or staffing issues, or delays due to City activity.
  - Delays or issues caused by third-parties, e.g., impacts from adjacent construction activities, long term power outages, road closures, or other matters.
- The final performance calculations will be adjusted for any Non-Project Co Causes.

6. Trial Running - Maintenance Management & Performance Reporting System (MMPRS)

- MMPRS Status for Trial Running:
  - Simulated Passenger Service (14 Days): Prepared
  - Failure Scenario Management (7 Days): Plan B (Additional Data Source) in progress

6. Trial Running - Daily Memorandum

- Once Trial Running begins, a daily memorandum will be shared with Council to provide full transparency on the progress of Trial Running.
- Key components of this summary will include:
    i. Service Reliability Standard
    ii. System Infrastructure Performance
    iii. Identified Issues: Any critical issues discovered during the trial, along with brief description and corresponding action plans.
- Ricardo Rail has been appointed to provide an independent third-party assessment regarding the completion of Trial Running.
- At the conclusion of Trial Running, a formal meeting will be held to summarize the outcomes of the process.

6. Trial Running - Daily Memorandum

DAILY OPERATING Summary Scorecard
[Insert Calendar Date]

Day X of Trial Running – Summary:
[This section will indicate whether this day was used for performance testing of simulated service or for failure management scenarios.]

A. Service Reliability Standard:

	Date	Total Number of Planned Runs	Total Number of On-Time Departures	On-Time Performance (%)
Day 1				
Day 2				
Day 3				
Day 4				
Day 5				
Day …				
Day …				
Day …				
Day …				
Day …				
Day …				
Day …				
Day …				
Day …[1]			**Rolling Average[2]:**	

On-Time Performance Criteria Achieved[3]: Yes: [X] No: [ ]

1. To meet the on-time performance criteria of the 98.5% rolling average over 14 days, additional days may required dependent on the daily on-time performance results and their influence on the rolling average.
2. Only the most recent 14 days will be incorporated into this value.
3. The on-time performance criteria of the 98.5% rolling average over the most recent 14 days

3

B. System Infrastructure Performance:

Daily System Infrastructure Performance[4]: Pass: [X] Fail: [ ]

	Date	System Infrastructure Performance Issues	Pass/Fail
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			
Day …			
Day …			
Day …			
Day …			
Day …			
Day …			
Day …			
Day …			
Day …			

Issues Identified:
[This section will highlight any operational or performance issues with the system including a corrective actions that are required to improve performance.]

4. TransitNEXT is required to demonstrate that the integrated system (vehicles, stations, and infrastructure) perform reliably through the Trial Running period such that the performance criteria for Trial Running are achieved and that would otherwise lead to zero performance deductions during the Maintenance Period.

4

7. Path to Opening

- Following the conclusion of Trial Running, the following contractual steps are required to close out the construction term and begin the maintenance period:
  - Receipt of the Systems Integration Verifier's report on Trial Running;
  - Completion and submission by TNEXT of the final Engineering and Safety Assurance Case (ESAC) otherwise known as the safety case;
  - Final review of the TNEXT safety case by the City's Independent Safety Auditor (SENER);
  - Certification of Substantial Completion by the Independent Certifier including confirmation of the Minor Deficiency List and verification of handover for New Municipal Infrastructure (NMI);
  - Issuance of a Certificate of Fitness by the Canadian Transportation Agency; and,
  - Confirm of a Notice of Change in Operations to Transport Canada followed by the issuance of a Railway Operating Certificate by Transport Canada.

7. Path to Opening (continued)

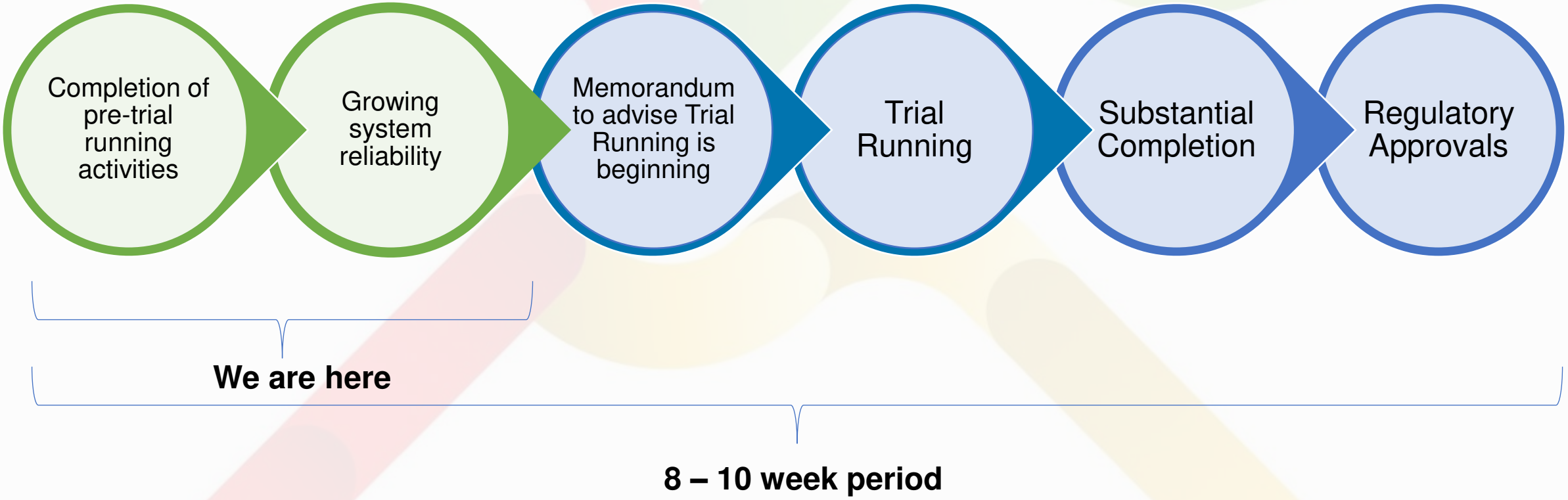
- Once the construction contractor has achieved Substantial Completion and with the required regulatory approvals in place, staff would rely on the following supporting evidence to place the system into service:
    i. The overall system had been thoroughly exercised with extensive running of nine train operations between January 2024 through July 2024;
    ii. The system had been operated and maintained at the final service levels and in the final system configuration for a recommended period of eight to ten weeks after completion of training; and,
    iii. No new or emergent safety or reliability defects arose during the final running period that require additional repair or rectification time before opening the system to the public.
- Assuming all elements noted above have been achieved, the City of Ottawa would be in a position to advise on an opening date to the Light Rail Subcommittee.

Trial Running Communications

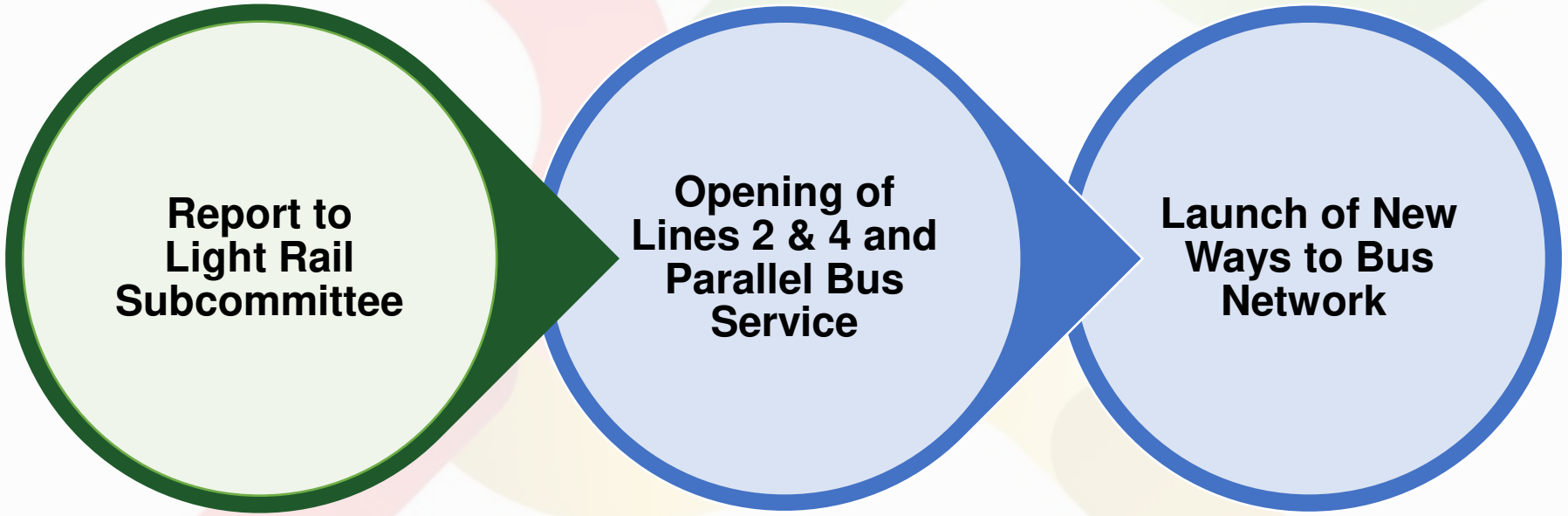
Through trial running, transparent updates will be shared through:

- ✓ Technical briefing
- Council/media kit
- Dedicated webpage
- Daily Memorandum with performance
- Social media
- Formal meeting

Next Steps


Completion of pre-trial running activities
Growing system reliability
Memorandum to advise Trial Running is beginning
Trial Running
Substantial Completion
Regulatory Approvals
We are here
8 – 10 week period

Path to Passenger Service




Questions?