



O-Train Confederation Line Project Update



Parliament Station



Elements Being Monitored That Are Critical To Revenue Service Availability

1. Fleet availability for service requirements;
2. Station occupancy for all stations need to be completed;
3. Tunnel Ventilation System (TVS) tests;
4. Testing of the train control system;
5. Final tests of monitoring and control systems for transit operations;
6. Final tests of the power system to the alignment and trains completed;
7. RTG's system assurance – sign-off is to be provided on all documents required by the City's Safety Auditor;
8. End-to-End Practice Plan Running demonstrates system capability; and,
9. Winter Operations (new).

ALSTOM Citadis Spirit

Since 1997, 2,600 Citadis LRVs ordered by 60 cities around the world in 23 countries:

- France
- Ireland
- Australia
- Netherlands
- Spain
- Germany
- Tunisia
- Israel
- Algeria
- Turkey
- Morocco
- United Arab Emirates
- United Kingdom
- Ecuador
- Brazil
- Algeria
- Qatar
- Russia
- China
- Taiwan
- Canada (GTA)
- Germany
- Greece

ALSTOM Citadis Spirit Cold Weather Testing

- As part of vehicle testing and commissioning the Ottawa Citadis Spirit was tested at the National Research Council Laboratory
- Cold weather testing was conducted to ensure the vehicle, its system and sub-systems can perform to -40° Celsius



ALSTOM Citadis Spirit Cold Weather Testing (*Cont'd*)



ALSTOM Citadis Spirit Cold Weather Testing (Cont'd)



ALSTOM Citadis Spirit Cold Weather Testing (*Cont'd*)



St. Petersburg and Moscow



Vaulx-en-Velin, La Soie, France



ALSTOM Citadis Spirit

Has been used on Ottawa's system during this severe winter season in all conditions including:

- Snow;
- Ice pellets;
- Freezing rain;
- Rain;
- Extreme Freeze / Thaw temperatures; and,
- Wind storm.

ALSTOM Citadis Spirit

- Both configuration of vehicles single and double have been used for testing.



ALSTOM Citadis Spirit Double Car Testing - Winter



ALSTOM Citadis Spirit Double Car Testing - Summer

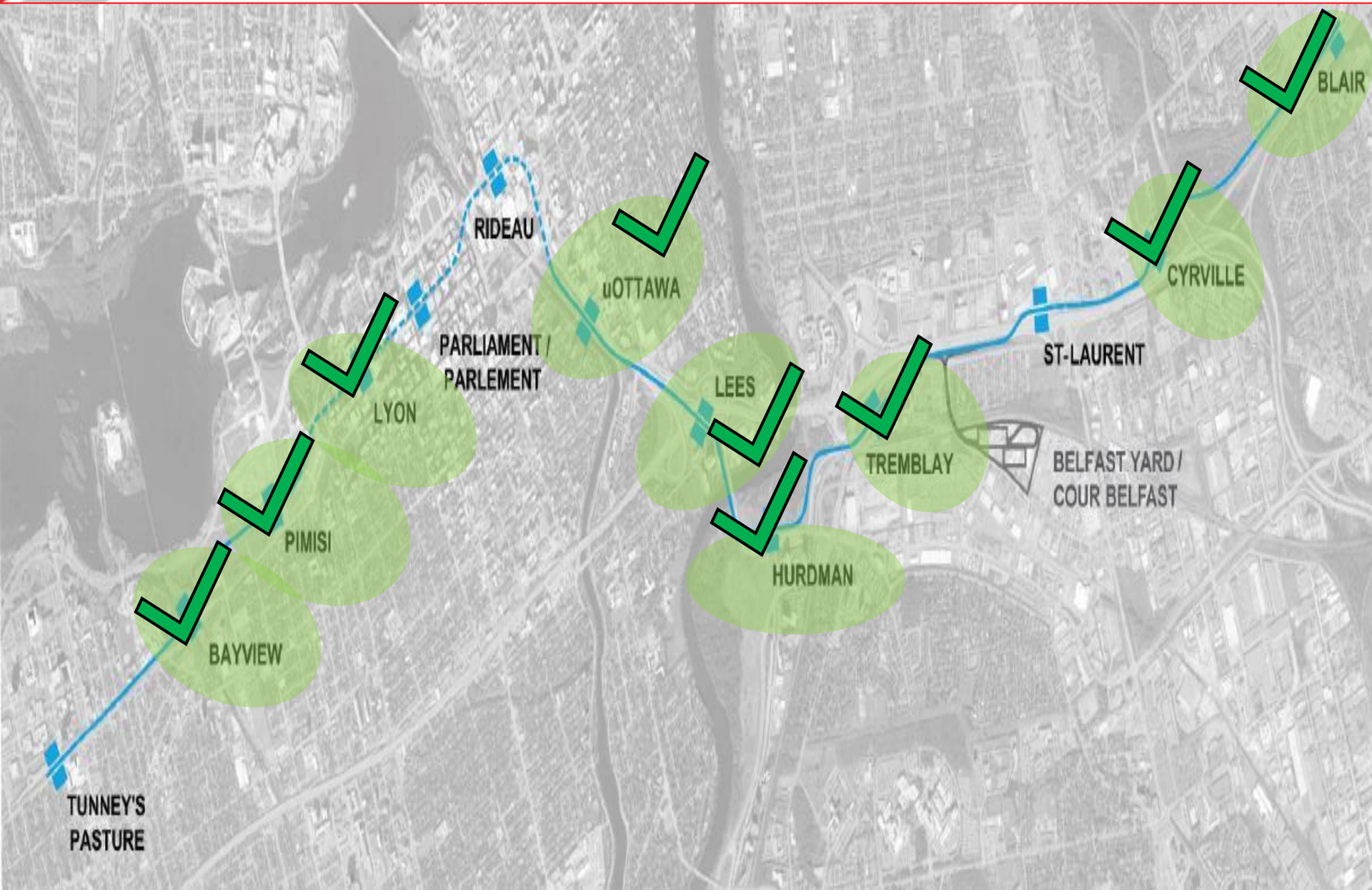


1. Fleet Availability - Major Progress

- Peak service will require 30 vehicles (15 double car trains);
- Up to 4 spare vehicles will be on standby or in maintenance;
- All 34 vehicles are built and are going through final acceptance, troubleshooting and testing;
- As of February 27, 12 single vehicles have been consistently in service for training, testing and commissioning, operating 24 hrs/day; and,
- Over the last 4 days of train operation over 700 hours of running occurred, covering a distance of 17,500 km.

2. Station Occupancies - Major Progress

- Nine stations are ready for occupancy.



3. Tunnel Ventilation System (TVS) – Trending Well

- Final testing and test reports are required for the downtown, St. Laurent tunnel, and yard-mainline connector tunnel; and,
- Status: Final reports are still outstanding with some additional testing planned for early March.

4. Train Control System – Trending Well

- Safety certification of the vehicle onboard train control system by the supplier is required for all vehicles; and,
- Status: Safety certificate for integrated system provided; safety certificate for 24 of 34 vehicles provided; some outstanding items to be resolved.

5. Control Centre/Control System Testing – Trending Well

- Final verification and commissioning of communication and control systems is required for Control Centre completion; and,
- Status: Systems are largely complete with a software upgrade planned for mid-March to address final incomplete elements; some user interface issues and final integration tests to be completed to the satisfaction of the City.

6. Power System Testing – Trending Well

- Final verification of the electrical network (traction power substations and overhead catenary) is required to demonstrate reliability and to demonstrate capacity for service;
- Safety certification of the integrated train control system (vehicles and infrastructure) by the supplier is required;
- Final verification and commissioning of communication and control systems is required for Control Centre completion; and,
- Status: Testing nearly completed; remaining tests require larger fleet to stress test the system.

7. System Assurance – Progressing Well

- RTG to provide completed engineering safety case as part of their final project completion documentation;
- The City's Independent Safety Auditor to validate that safety requirements are met at the time of project handover; and,
- Status: Preliminary safety case to be provided to the City this week to kick start final review process; Safety Auditor is actively involved in reviewing documents.

8. Practice Plan Running – **Vehicle deployment is a major milestone towards achieving the practice plan**

- Practice plan helps demonstrate end-to-end service;
- Plan will simulate system service requirements including start/end of service and peak/off-peak transitions;
- Status: 12 single vehicles were in service for training, testing and commissioning, as of February 27, operating from Tunney's Pasture to Blair Station; and,
- Moving to double train operation is a major step towards this plan, which RTG is transitioning to shortly.

9. NEW: Winter Operations – RTM / RTG is enhancing its capabilities and operational approach

Under practice plan conditions, they are required to demonstrate the following:

- Routine maintenance for the vehicle fleet including the ability to maintain 30 individual vehicles in service;
- Winter maintenance reliability: snow clearing capability, switch heater performance, and general winter procedures; and,
- With multiple vehicles, deployed, this requirement can be thoroughly assessed.

9. NEW: Winter Operations (*Cont'd*)

- RTM did experience challenges during some recent winter events;
- RTG/RTM have modified their winter operating plans and have acquired additional equipment, adding resources, etc.; and,
- City is conducting detailed analysis and is monitoring.

Additional Winter Equipment Deployed



Additional Winter Equipment Deployed (Cont'd)



Handover Requirements

In order to achieve RSA and handover to the City, RTG is required to demonstrate compliance with a series of deliverables including but not limited to the following:

- All systems assurance (safety) documentation;
- All project construction and site work completed;
- All testing and commissioning completed including a Trial Running performance test for 12 consecutive days;
- Compliance with all safety requirements as approved by the City's Safety Auditor; and,
- Operational readiness on all fronts including maintenance.

Revenue Service Availability (RSA)

- RTG has advised the City that they will not be achieving the March 31 RSA;
- RTG has advised the system will be handed over to the City in Q2 2019;
- RTG will be providing a new date;
- Per the Project Agreement, RTG has 60 days to provide this new RSA date, however, they have advised they will not be exercising the full 60 day period;

Revenue Service Availability (Cont'd)

- City has advised RTG that prior to issuing a new RSA, they are to provide details demonstrating how they will achieve this new date;
- The Draft 2019 Budget does not change, nor is it at risk;
- The Fare Freeze for July 1 remains in place; and,
- Stage 2 is not affected.

Next Steps Toward Revenue Service Availability

- Continue to monitor all critical elements;
- Continue OC Transpo's Operational Readiness Program;
- Planning for RSA – schedules, workforce adjustment, route changes, booking logistics, etc.;
- Continue to provide oversight of RTG;
- Ready for Rail campaign; and,
- Review RTG's proposed RSA once they provide the required information.

Project Agreement - Negotiations

- City continues to work through negotiations with RTG using the project agreement;
- No payments have been issued to RTG; and,
- City continues to track all incremental costs which will be deducted from RTG's outstanding payments.



Questions?



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