



MEMO / NOTE DE SERVICE

To / Destinataire	Mayor and Members of Council	File/N° de fichier:
From / Expéditeur	Director, Rail Construction Program Transportation Services Department	
Subject / Objet	O-Train Light Rail Transit Stage 1 and Stage 2 Quarterly Update (Q2 2021)	Date: August 3, 2021

The following memorandum outlines the milestones achieved on the O-Train Stage 1 Confederation Line, Stage 2 Confederation Line and Trillium Line extension projects in Q2 2021 and provides an overview of the planned work for Q3 2021.

The City of Ottawa continues to closely monitor the COVID-19 pandemic in relation to both the maintenance and operation of the Stage 1 Confederation Line and the delivery of the Stage 2 Project. The various maintenance, design, and construction teams working on light rail in Ottawa are adhering to all guidance provided by Ottawa Public Health and the Province of Ontario.

In addition to monitoring the local construction impacts, staff continue to work with Rideau Transit Group to monitor potential impacts on the Alstom manufacturing facility in Brampton, Ontario and with TransitNEXT to monitor potential impacts on the Stadler manufacturing facility in Bussnang, Switzerland. At present, vehicle deliveries from the Brampton facility are continuing and the initial vehicle deliveries from Switzerland are expected to begin later this year, as scheduled.

The Trillium Line team has indicated schedule impacts which are under review by the City. The City is working with TransitNEXT to confirm the extent of the delays and to assess schedule risks and opportunities. As communicated previously, a more detailed analysis of the expected completion timelines will be available at the end of 2021 following an assessment of the productivity levels achieved in the 2021 construction season.

The City continues to work closely with East West Connectors to protect the Confederation Line extension schedule. Additional steps to simplify construction access to the future Moodie LRT Station location and earlier access to some Transitway locations are being included in the project plan to help add resilience to the schedule. The project is still on the original timelines for the east and whilst there are some schedule pressures on the western segment, a plan is underway to resolve these pressures.

Stage 1 Confederation Line

The critical focus on the Stage 1 Confederation Line remains the ongoing implementation of Rideau Transit Group's (RTG) rectification plan in order to improve the performance of the system. As of Q2 2021, much of the rectification work outlined in Rideau Transit Group's (RTG's) plan has been completed. The ongoing third-party independent review will wrap up in Q3 2021 and will inform the City's position on this matter.

Furthermore, RTG and Alstom continued the daily inspection regime of the wheels and replacement of wheels on all vehicles across the fleet throughout Q2 2021. As of the end of the quarter, wheels have been replaced on 32 vehicles. The independent Transportation Safety Board (TSB) investigation continues, and all required parties are engaged, including the Chief Safety Officer, the Rail Monitoring and Compliance Officer (RMCO), wheel and metal experts and Transport Canada.

Finally, there are ongoing activities related to project close-out, including minor deficiency work, final reporting to the funding partners and close-out of project documentation. Stage 1 Confederation Line project close-out activities will continue in Q3 2021.

Stage 2 Project Update

Design Progress

During the last quarter, design work progressed on both the Stage 2 Trillium Line and Confederation Line extensions by the project teams, TransitNEXT and East-West Connectors (EWC).

Trillium Line South Extension Design

In Q2 2021, staff reviewed the issued-for-construction (IFC) drawings for Airport Station and the construction document submissions for the 12 other stations on the Trillium Line. Staff also completed the review of the construction document submission for the Walkley Yard Maintenance and Storage Facility (MSF). For utility works, staff reviewed the construction document submission for utility relocations on the existing portion of the Trillium Line. Staff also reviewed IFC drawings for the Hunt Club Rail Bridge and the final design submissions for the operational modelling of the system, the communication systems design for the Walkley Yard MSF and the retrofit of the existing Alstom LINT vehicles.

In Q3 2021, staff will continue the review of design documents for different elements of the Trillium Line extension, including stations, roads, bridges, track, guideway and utility work. Specifically, staff have received the re-submission of the Dow's Lake Tunnel construction document submission and anticipate receiving the re-submission of the construction document submission for the signaling and train control system. Review is underway of the communication systems

construction document submissions for several stations (Airport, Carleton, South Keys and Corso Italia Stations) and staff expect to receive the communication systems submissions for the remaining stations and the Walkley Yard MSF throughout Q3 2021. The review is also underway of the construction document common elements submissions for architecture, wayfinding and signage and landscaping that are applicable to all stations.

Confederation Line East and West Extensions Design

In Q2 2021, City staff reviewed EWC's designs of specific Confederation Line extension elements, including stations, trackwork, utility expansion works, bridge structures, systems design packages and Highway 417 interchanges. The designs submissions for some stations have reached the issued-for-construction (IFC) stage including portions of Lincoln Fields, Trim, Montréal, Jeanne d'Arc, Place d'Orléans and Algonquin (Baseline) stations. The remaining stations are expected to reach IFC in Q3 or Q4 of 2021.

A large portion of the systems design packages have also reached IFC during Q2 2021. Previously, IFC designs have been issued for several other portions of the project, including the Sir John A. Macdonald Parkway (SJAM), portions of the Parkway tunnel, several bridge structures, Moodie Light MSF, and utilities. At this point, all design packages have been reviewed at the preliminary design stage and are moving through the design process. Overall, the design portion of the Confederation Line is expected to be complete by the end of 2021.

In Q3 2021, staff will also continue the review of design documents for stations, roads, bridges, track, guideway and utility work throughout the east and west Confederation Line alignments. Additional stations nearing design completion include Convent Glenn (Orleans Blvd), Pinecrest stations, Queensview, and Kìchì Sìbì (Dominion).

Construction Progress

Construction continues to progress throughout both Stage 2 alignments by East-West Connectors (EWC) and TransitNEXT.

Trillium Line South Extension Construction

In Q2 2021, the construction of all Trillium Line stations continued, including helical pile installation for the new platform at Bayview Station, shotcrete stabilization of the rock walls at Corso Italia (Gladstone) Station, and the demolition of the existing Dow's Lake (Carling) Station existing platform. Formwork, reinforcement, concrete placement for foundations and underground utilities work have started and are expected to continue in Q3 2021. Additionally, excavation for the Carleton Station foundations has started and is expected to continue into Q3 2021. At Mooney's Bay Station, duct bank installation work is complete, and platform foundation work is in progress. At Walkley Station, construction of foundation walls has started and will continue into Q3 2021.

Further south, Greenboro Station is advancing with platform concrete placement and precast panel installation work ongoing. At South Keys Station, foundation walls construction, waterproofing and backfilling were completed. Structural steel installation is expected to start in Q3 2021. Foundation works and underground duct bank installation started at Leitrim Station and will continue through Q3 2021. Bowesville Station piling and grade beam work was completed, and underground utilities installation and foundation works continued through the quarter. Utilities, structural steel, and staircase works also continued at Limebank Station. Uplands Station is advancing well with structural walls and steel installation, and a portion of Airport Station lands were handed back to allow the Ottawa Macdonald-Cartier International Airport Authority to begin constructing the new station concourse.

At the New Walkley Yard Maintenance and Storage Facility (MSF), the floor slab, glazing, and roofing works were completed in Q2 2021. Mechanical and electrical rough-ins and conduit works are currently underway and will continue in Q3 2021. Formwork, reinforcement, and concrete placement for the train wash and inspection building footings and foundations wall have started and expected to continue into Q3 2021. Trackwork in the yard is expected to start in Q3 2021.

The construction of numerous structures throughout the Trillium Line alignment also continued to approach completion in Q2 2021. Girders and arches were installed on the Limebank Road and Mosquito Creek rail-over-road bridges respectively. Superstructure works progressed on the Leitrim Road and Earl Armstrong Road rail-over-road bridge. Substructure work advanced on the Hunt Club Road and Ellwood elevated guideway bridges. Girder erection has started at the Ellwood elevated guideway and is expected to continue through Q3 2021. Additionally, demolition of the existing Transitway and Sawmill Creek bridges is expected to begin in Q3 2021. Bridge foundation works for the new Rideau River Pedestrian Bridge is expected to start and continue through Q3 2021. Remedial works at the existing Rideau River rail bridge is ongoing. The Airport elevated guideway deck work is also ongoing and is anticipated to be completed in early Q3 2021.

Finally, trackwork and fencing along the alignment is underway and is expected to continue through Q3 2021, and fiber optic relocations is continuing along different sections of the alignment to facilitate station and guideway construction.

Confederation Line East and West Extensions Construction

In the east extension, foundation works for the Montréal Station bridge began in Q2 2021 and will continue through the next quarter. Drainage works, including storm sewer and culvert extensions, are ongoing on the north and south side of OR 174 between Montreal Road and Trim Road, in preparation for the realigned OR 174 lanes. Finally, the construction of drainage, utility work and new parking lots at the Trim Park and Ride started in Q2 2020 and is ongoing. The construction of a new Trim Road intersection started in Q4 2020 and is ongoing.

In the west, the construction of the new Goldenrod Bridge is underway, with work anticipated to be completed in late Q3 2021. This bridge will allow for the removal of the Transitway

embankment road just west of Tunney's Pasture Station in the Transitway rock cut. In addition, this work will enable the westerly extension of track from Tunney's Pasture and accommodate bus access to Scott Street when the Transitway detour is in place. To accommodate the buses on Scott Street, road work on Scott and temporary bridge construction over the Transitway between Roosevelt and Workman Avenue is expected to start in Q3 2021 and finish in Q4 2021.

Work along Richmond Road and Byron Avenue in preparation for the Parkway Tunnel also continued through Q1 2021. This work included storm sewer and watermain construction, and utility relocations. Utility work in the area will be ongoing throughout 2021. The installation of the SOE is expected to continue through 2021 into 2022 throughout the project area. Excavation at New Orchard Station was completed in Q2 2021, and work for the tunnel construction is ongoing.

The construction of the slurry plant and laydown area in Rochester Fields and along the SJAM to support tunnel activities is complete. The installation of guide walls to support the excavation of the tunnel is ongoing and installation of the slurry wall commenced in Q2 2021. Utility work and excavation in preparation for the tunnel near Connaught Park and Queensview Station is underway and expected to continue through Q3 2021. Support of excavation (SOE) installation has started along the Highway 417, at Queensview Station, and a section of Connaught tunnel.

The construction of a storm sewer and watermain in proximity to Lincoln Fields Station near Carling Avenue was completed in Q2 2021. Carling Avenue is currently staged to allow for construction of the new Carling Avenue bridge, for which foundation work is ongoing. Lincoln Fields Station foundation work is underway and expected to continue through Q3 2021.

Rock excavation for sections of the Pinecrest Road trench between the Highway 417 ramps started in Q2 2021, with tunnel construction ongoing. A bridge structure that will carry Pinecrest Road over the future LRT trench was built on the eastern infields and was pushed into place at the end of Q2 2021. The Pinecrest Road south-west on-ramp on the Highway 417 will be closed through Q3 2021 to accommodate construction of the new ramp structure and portion of the Pinecrest Road trench.

The Pinecrest Creek is expected to be realigned in Q3 2021. The realignment of the creek is required in advance of construction of the Iris Street bridge (Q3 2021) and Iris Station (Q2 2022). Foundation work is ongoing for the north and south Algonquin Station foundation and the Algonquin Station bus operator building. Demolition of a section of existing tunnel for the north station was completed in Q2 2021.

A new bridge and ramp at Holly Acres Road is also underway and expected to continue through Q3 2021. Moodie Drive traffic has been shifted over the newly constructed first phase of the new Moodie Drive bridge. The Moodie Drive south-west ramp onto the Highway 417 remains closed through Q3 2021 to accommodate structure construction, currently ongoing. The Moodie Drive north-west ramp is staged to allow for construction of the new bridge currently under construction.

Work is proceeding at the Moodie Light Maintenance and Storage Facility (LMSF), with foundation construction of several of the buildings underway.

Stage 2 Vehicles

As part of the Stage 2 Project, TransitNEXT will supply seven Stadler FLIRT vehicles. These vehicles are being designed and manufactured in Switzerland. Manufacturing has begun and six of the vehicles are currently in production. First Article Inspections (FAI) have been conducted on a number of elements and subsystems, including car shells, car shell painting, Heating Ventilation and Air Conditioning (HVAC), seats, Passenger Information System (PIS), and the bogies. Additionally, serial testing has begun on the first vehicle which represents a major stage leading up to shipment. The delivery of the Stadler vehicles is expected to begin later in 2021.

Rideau Transit Group (RTG) is providing 38 additional Alstom Citadis Spirit light rail vehicles to ensure that the expanded Stage 2 Confederation Line operates as a single, uniform service. The Rail Construction Program is monitoring the production of this expanded fleet with special attention being placed on ensuring that all hardware and software improvements and upgrades resulting from the in-service experience of the Stage 1 fleet are applied to the new vehicles. Despite supply chain impacts related to the COVID-19 pandemic, RTG continues vehicle assembly in Brampton and shipment to Ottawa for reassembly and final testing. Additional vehicles are anticipated to be available in the coming months.

Stage 1 Maintenance Payments

Further to the payments provided in previous updates, the City has made payments for the invoice periods of May 2020 to May 2021, reflecting the system performance of April 2020 to April 2021, less deductions, as required by the Project Agreement.

The City continues to work through an invoice review to ensure that we meet all of our contractual obligations under the Project Agreement. Invoices under review include the period for October 2019 to January 2020, reflecting system performance from September 2019 to December 2019 and February 2020 to April 2020, reflecting the system performance of January 2020 to March 2020.

Stage 1 and Stage 2 Capital Budgets

The LRT Highway 417 Widening account was closed as part of the 2021 Capital Closure. The unspent/uncommitted funds of \$103,340 will be returned to source and are no longer available to be spent.

The Stage 1 Confederation Line Contingency Fund is \$100M. To date, \$92.7M from the total fund has been spent. Remaining funds are earmarked for potential future changes, primarily related to property requirements and transit priorities. When funds are reserved for contract variations,

the upper cost limit for the variation is used and upon completion of the work, unspent monies are returned to the Contingency Fund. For this reason, the funds reserved figure is an estimate that may be higher than the actual amount spent.

In keeping with Council’s approved 2017 Stage 2 Report (ACS2017- TSD-OTP-0001) and 2019 Stage 2 Report (ACS2019-TSD-OTP-0001), approximately \$1.629B has been spent as of June 30, 2021 and relates to the RTG MOU for Belfast Yard and vehicle assembly mobilization (\$368.0M), Confederation Line extension mobilization and construction period payments (\$703.5M), Trillium Line extension construction period payments and financial close for the Revenue Vehicle Supply Contract (\$269.5M), and contingency (\$5.1M). The remaining \$283.2M was spent for planning, procurement, project delivery and City retained scope.

June 30, 2021				
Project Description	Authority	Actual Expenditures	Funds Reserved/Committed	Unspent/ Uncommitted
Stage 1				
Confederation Line Program (DBFM Contract & City Costs)	2,130,000,000	2,127,964,800	2,035,200	-
LRT Highway 417 Widening *CLOSED	224,500,000	224,396,660	-	103,340
Contingency	115,000,000	92,710,244	22,289,756	-
Total Stage 1	2,469,500,000	2,445,071,704	24,324,956	103,340
Stage 2				
Confederation Line Extensions DBF Contract	2,680,832,113	703,520,323	1,977,311,790	-
Trillium Line Extension DBFM Contract	810,159,585	269,465,898	402,171,697	-
Deferred Equity (Maintenance Term Repayment)	-	-	138,521,990	-
RTG Stage 2 MOU (includes 38 Alstom vehicles)	516,184,423	368,044,688	147,699,564	440,171
City Costs (includes project planning, procurement, property acquisitions, City retained scope, and delivery oversight)	497,629,108	283,231,980	55,835,262	158,561,865
Contingency	152,640,000	5,183,244	71,486,263	75,970,493
Total Stage 2	4,657,445,229	1,629,446,133	2,793,026,567	234,972,529

Communications and Stakeholder Relations

On May 18, the Finance and Economic Development Committee received an update on the Stage 2 LRT Construction Progress. There is significant progress being made on all three extensions that residents can see in [this video](#).

New station renderings were launched in May for the O-Train East, West, and South extensions. The renderings feature the most up to date designs, increased representation, and new perspectives. The installation of Stage 2 signage and hoarding has started along the O-Train extensions. Planning for decorative hoarding to be added at more locations is underway.

In Q2 2021, the Stage 2 stakeholder relations and communications team issued:

- 67 public notices;
- 9 e-newsletters;
- 41 social media posts;
- 8 web articles; and,
- 1 educational video.

The Rail Construction Program continues to encourage residents to subscribe to the Stage 2 LRT newsletter to receive monthly progress updates, construction photos and video and area specific notifications regarding upcoming works. Residents can subscribe to the electronic newsletters by visiting ottawa.ca/Stage2Connect.

Should you have any questions about the information provided in this memo, please do not hesitate to contact me at extension 52718.

*Original signed by
Michael Morgan*

c.c. Senior Leadership Team
Transportation Services Departmental Leadership Team
Director, Public Information and Media Relations