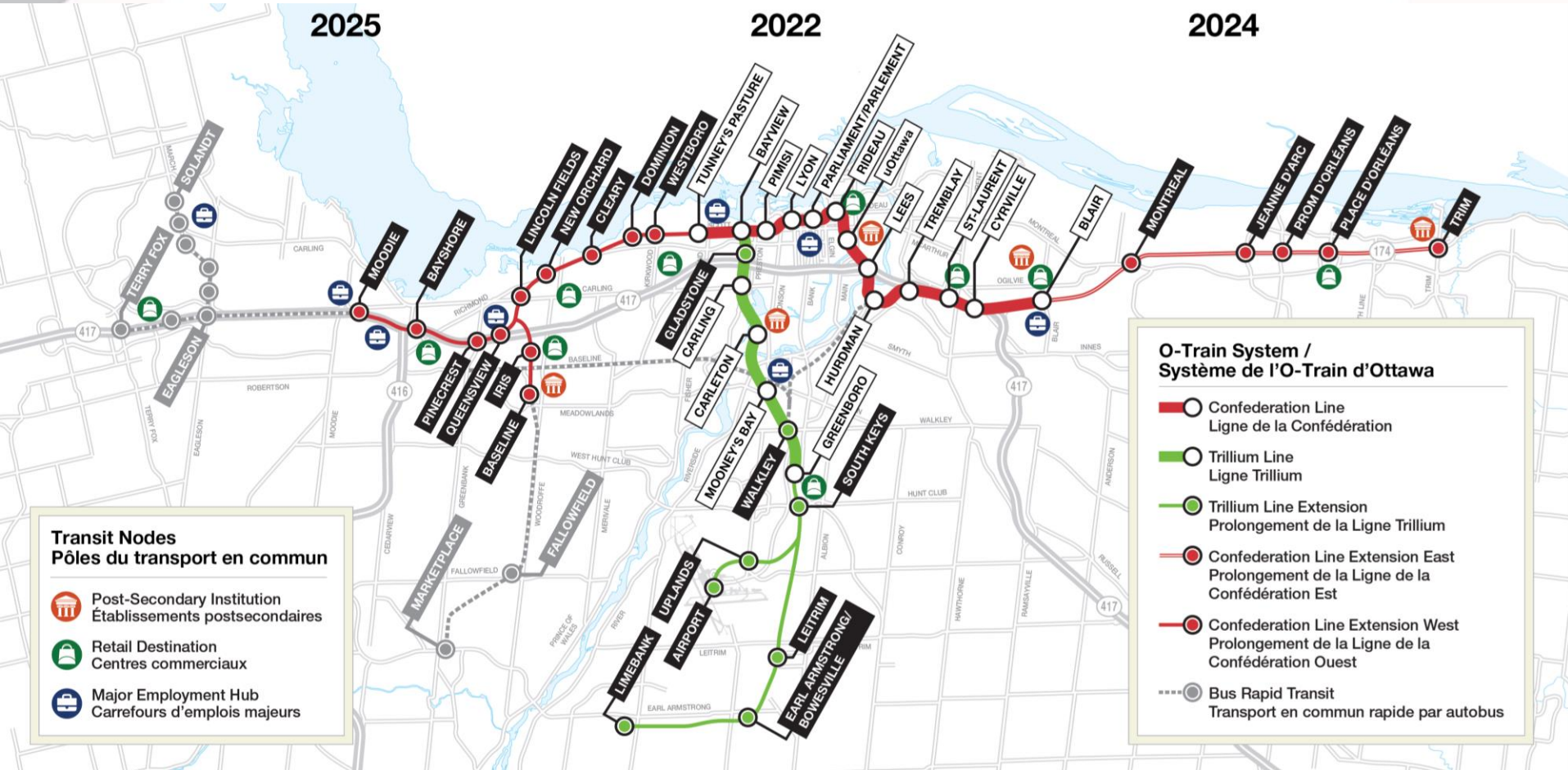




**← STAGE
ETAPE →** 
↓

Q1 2020 Update

Overview



Overview

- Stage 2 includes the creation of:
 - 44 kilometers of new rail;
 - 24 new stations; and,
 - 2 new maintenance and storage facilities;
- Budget: \$4.66 billion;
- Construction will be completed in three stages:
 - The entire Trillium Line South, including the existing upgraded Trillium Line and Airport Link, in 2022;
 - The entire Confederation Line East, from Blair Station to Trim Station, in 2024; and,
 - The entire Confederation Line West, from Tunney's Pasture Station to Baseline Station and Moodie Station, in 2025.

O-Train Evolution

- When Stage 2 is complete, the City's overall O-Train network will include:
 - 64 kilometres of fully grade separated rail;
 - 41 stations;
 - 85 vehicles; and,
 - 3 maintenance and storage facilities.

O-Train Evolution



stations



stations



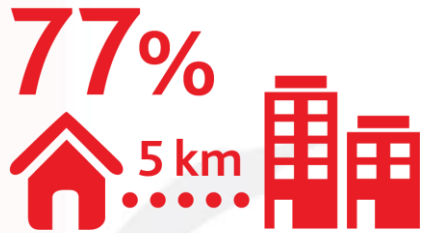
stations

2001

2019

2025

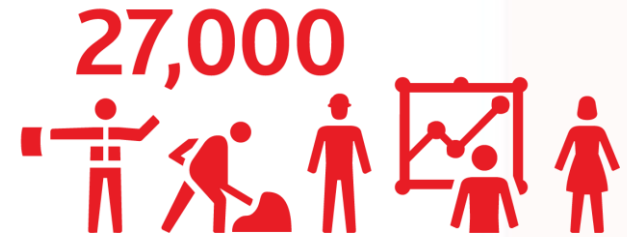
Project Benefits



Ottawa residents
within 5km of new rail



Annual reduction in
Greenhouse Gases and
Critical Air Contaminants



Creation of 27,000 person-
years of employment

Local Economic Benefits

- When combining TransitNEXT and East-West Connectors, there currently more than 700 employees in Ottawa each day across all three Stage 2 extensions;
- Later this year, on site resources will peak at approximately 1600; and,
- To date, approximately \$48 million has been/or will be contributed to the local economy through the use of local vendors.

Budget

Stage 2	Authority	Actual Expenditures	Funds Reserved / Committed	Unspent / Uncommitted
Confederation Line Extensions Design-Build-Finance Contract	2,680,832,113	305,711,216	2,375,120,897	-
Trillium Line Extension Design Build Finance Maintain Contract	810,159,585	34,990,026	636,647,568	-
Deferred Equity (Maintenance Term Repayment)			138,521,991	-
RTG Stage 2 MOU (includes 38 Alstom vehicles)	516,184,423	311,029,992	204,885,985	268,446
City Costs (includes project planning, procurement, property acquisitions, City retained scope, and delivery oversight)	497,629,108	189,659,648	42,570,225	265,399,235
Contingency	152,640,000	-	-	152,640,000
Total Stage 2	4,657,445,229	841,390,882	3,397,746,666	418,307,681



SOUTH EXTENSION
PROLONGEMENT **SUD**

2

O-Train South Design Update

- The City is reviewing **construction drawings** of the following project elements:
 - Airport Station; and,
 - Utility relocation plans for various structures at Leitrim, Earl Armstrong, Lester and High Road.

O-Train South Design Update

- The City is reviewing **final designs** of the following project elements:
 - Mosquito Creek Rail Bridge;
 - Rail Bridge over Uplands Drive;
 - Rail Bridge over Lester Road;
 - Rail Bridge over Earl Armstrong;
 - Elevated guideway structure to Airport Station; and,
 - Airport Link guideway.

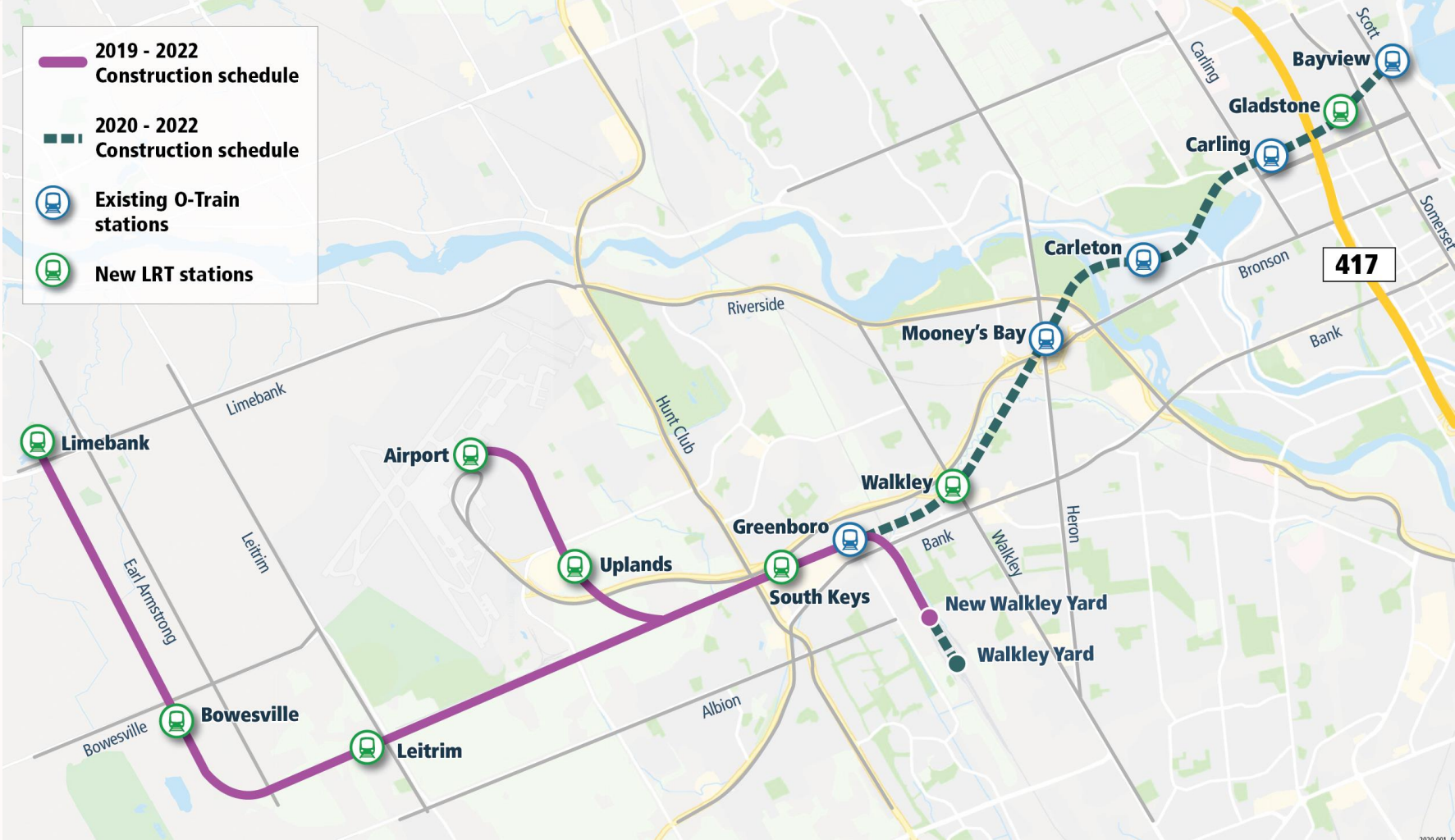
O-Train South Design Update

- The City is reviewing **preliminary designs** for the following project elements:
 - Replacement and widening of North Rail Bridge over MUP at Carleton University; and,
 - Rehabilitation of existing Tunnel System at Carleton;
 - Widening of South MUP underpass at Carleton;
 - Existing Rail Bridge over Hunt Club Road;
 - VIA Grade Separation at the Ellwood Diamond; and,
 - New extension guideway (South of Greenboro to Limebank).

O-Train South Design Update

- The City is reviewing **preliminary designs** for the following project elements:
 - Signage submissions for Bowesville, Leitrim, Limebank and Uplands Stations; and,
 - Communication systems (CCTV, emergency phones, and addresses) for Bowesville, Leitrim, Limebank, South Keys and Uplands Stations.

Construction



Walkley MSF

- Helical piles and their welding caps have been completed;
- Dewatering treatment system set up and running;
- Started underground services' excavation and service pits;
- Started interior sanitary plumbing installation; and,
- Grade beams rebar delivery, and start of installation and concrete works.

Walkley MSF (cont'd)



Completed
weld caps

Walkley MSF (cont'd)



Rail Bridge Construction

- TransitNEXT will be responsible for building or refurbishing a total of 19 bridges.
- Bridge foundation construction is underway at five locations:
 - Airport Parkway;
 - Uplands Drive;
 - Bowesville Road;
 - Earl Armstrong Road; and,
 - Limebank Road.
- All bridges will be constructed as rail over road, which allows construction to proceed with minimal impact to mobility.

Airport Parkway Rail Bridge

- Airport Parkway Rail Bridge will be a new double span bridge that will carry the alignment over Airport Parkway;
- Bridge is being designed to allow for the future widening of Airport Parkway;
- North and south caissons poured and cured;
- Middle caissons poured and cured;
- South columns poured and cured;
- North and middle column construction are underway; and,
- South pier cap is complete.

Airport Parkway Pier Cap

Crews remove casing from cured pier cap



Airport Parkway Pier Cap

Completed
south pier
cap



Airport Parkway Rail Bridge



Uplands Rail Bridge

- Uplands Rail Bridge will be a new single span bridge that will carry the alignment over Uplands Drive;
- Columns poured and cured;
- Pier cap formwork/rebar completed; and,
- Pier cap work ongoing.

Uplands Rail Bridge

Pier cap
construction



Bowesville Rail Bridge

- Bowesville Rail Bridge will be a new single span bridge that will carry the alignment over Bowesville Road; and,
- West and east caissons poured and cured.

Earl Armstrong Rail Bridge

- Earl Armstrong Rail Bridge will be a new single span bridge that will carry the alignment over Earl Armstrong Road;
- Bridge is being designed to allow for the future widening of Earl Armstrong Road;
- Mobilization of caisson subcontractor;
- North caisson construction complete; and,
- South caisson construction is underway.

Earl Armstrong Bridge

Caisson rig
at Earl Armstrong



Limebank Rail Bridge

- Limebank Rail Bridge will be a new 4 span elevated guideway that will carry the alignment over Limebank Road and into the elevated Limebank Station; and,
- Crews are mobilizing in preparation for foundation works.

Limebank Station

Granular base
has been
installed
in preparation
for foundation
works



Guideway



Stripping and capping between Bowesville and Limebank



Stripping and capping between Lester and Leitrim

Upcoming Q2 2020 activities

- Start of rail bridge over Hunt Club Road;
- Start of Hunt Club MUP bridge;
- Start of MUP underpass at Carleton University;
- Start of construction on stations along new extension;
- Guideway construction to continue; and,
- Shut-down of existing Trillium Line on May 3, 2020 to facilitate construction at existing stations, new stations and track widening.

Line 2 Shutdown

- The shutdown will allow for all construction, rehabilitation, testing and commissioning to occur, as well as an orderly transfer of responsibility from the City's current maintenance contractors to TransitNEXT;
- Ministry of Transportation of Ontario (MTO) to complete their Highway 417 rapid bridge replacement at the O-Train Line 2 trench;
- OC Transpo Route R2 will be in service to replace the train service; and,
- Further information on R2 service will be provided by OC Transpo at March 18 Transit Commission meeting.



EAST EXTENSION
PROLONGEMENT **EST**

2

O-Train East Design Update (*cont'd*)

- The City is reviewing **construction drawings** of the following project elements:
 - East Track Alignment and Profile;
 - Montreal Flyover Bridge;
 - Green's Creek Culvert; and,
 - Montreal Road overpass.

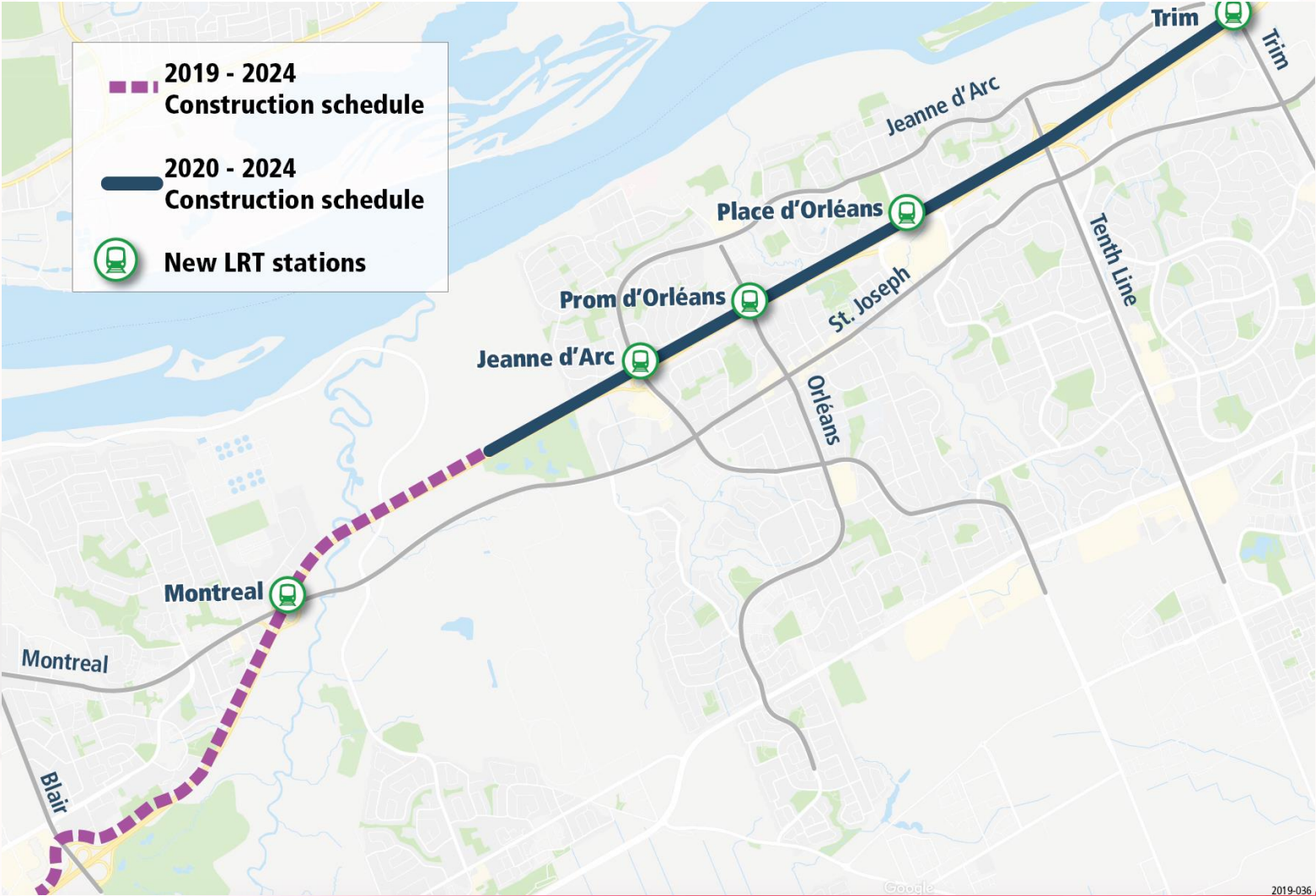
O-Train East Design Update (*cont'd*)

- The City is reviewing **final designs** for the following project elements:
 - Utility East Expansion – Overall Design;
 - Multi-Use Pathway Landscaping;
 - East Variable Message Sign Relocation;
 - Place d'Orleans Station; and,
 - Trim Station.

O-Train East Design Update (*cont'd*)

- The City is reviewing **pre-final designs** of the following project elements:
 - Traction Power Substations – East Alignment;
 - Communications Systemwide;
 - Traction Power – Systemwide; and,
 - Track and Guideway Overall Design.

Construction



2019-036

O-Train East Construction Progress

- Tree and vegetation clearing is approximately 98% complete;
- Commenced support of excavation installation at Montreal Road Interchange;
- Watermain relocation commenced at Shefford and Jeanne d'Arc, and,
- Completed access road to Greens Creek in preparation for culvert works.

Montreal Interchange

← STAGE
ETAPE ↓ 2 →

 **Train** **EAST** EXTENSION
PROLONGEMENT **EST**

Montreal Interchange



Montreal Interchange

Pile installation



Montreal Interchange

Piles have
been driven to
support
excavation



Montreal Interchange



Completed
lagging
installation

Montreal Interchange

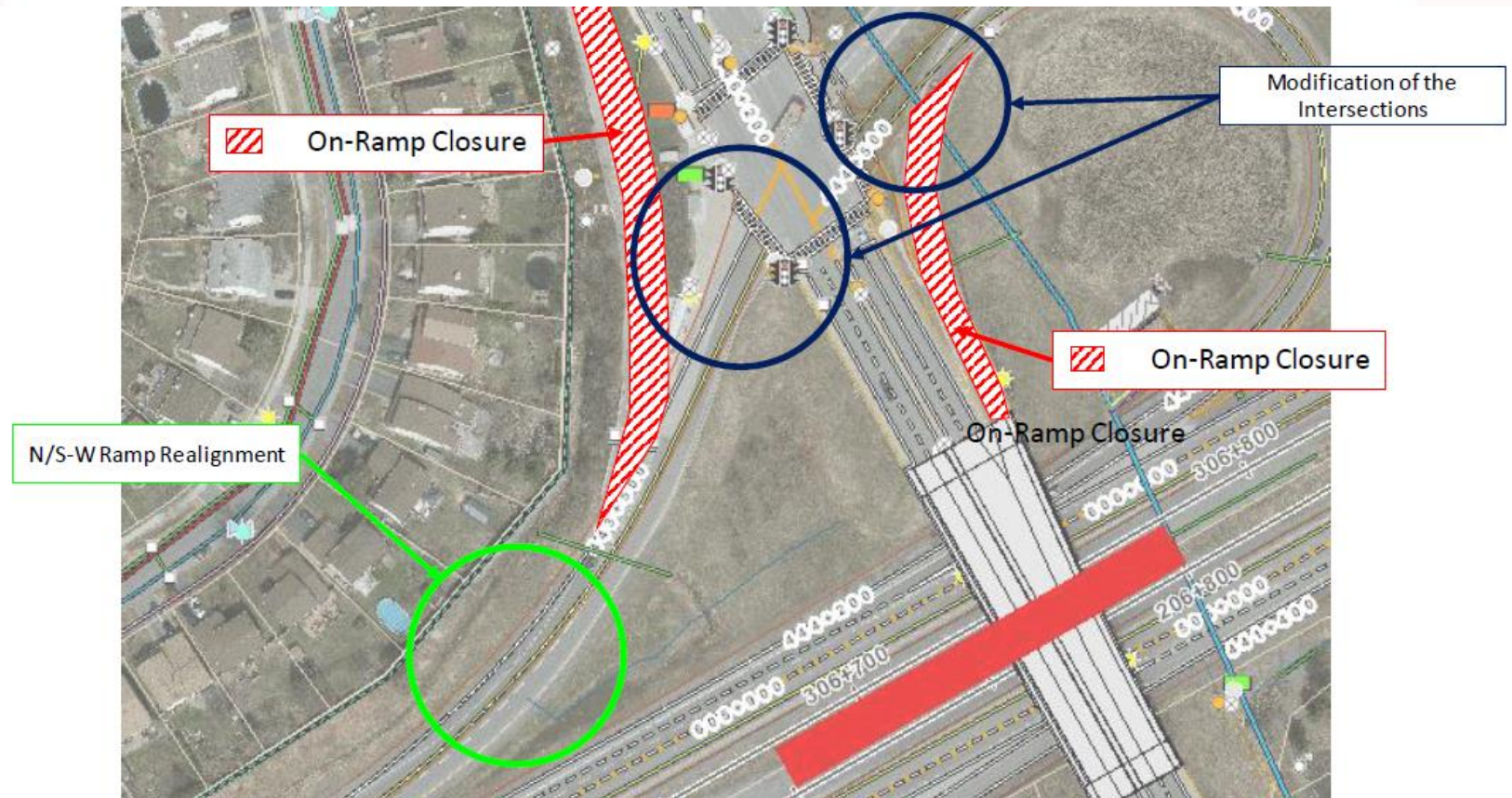
Excavation is underway in preparation for overpass construction



Upcoming Q2 2020 Activities

- Highway 174 widening to commence on south side at Blair Road and progress easterly;
- Montreal flyover preparatory works on Highway 174 between Blair Road and Montreal Road;
- Montreal overpass foundation works to continue;
- Highway 174 overhead signage removal;
- Commence Jeanne d'Arc intersection reconfiguration; and,
- Commence Trim Interchange reconfiguration;

Jeanne d'Arc Intersection Reconfiguration



Mobility

- Montreal Road and St. Joseph Boulevard will be reduced to one lane in each direction beneath Highway 174 from April to July;
- Temporary off-peak lane closures and overnight ramp closures may occur on Highway 174 between Blair Road and Trim Road; and,
- Portable variable message signs (PVMS) will be strategically deployed to advise motorists of changes to traffic patterns and alternative routes.



OTrain

WEST EXTENSION
PROLONGEMENT **OUEST**

2

O-Train West Design Update

- The City is reviewing **Construction Drawings** for the following project elements:
 - West track alignment and profile;
 - Track light maintenance and storage facility – Alignment and Profile;
 - Utility west expansion – Water, wastewater and stormwater work;
 - Sir John A. Macdonald Parkway detour; and,
 - Carleton Avenue & Cleary Avenue pedestrian overpass structures.

O-Train West Design Update (*Cont'd*)

- The City is reviewing **Final Designs** for the following elements:
 - Pinecrest Creek Pond (Woodroffe Stormwater Pond);
 - Churchill Avenue pedestrian overpass & Lanark Avenue pedestrian overpass;
 - Goldenrod bridge; and,
 - Lincoln Fields elevated rail “flyover” structure.

O-Train West Design Update (*Cont'd*)

- The City is reviewing **Preliminary Designs** for the following project elements:
 - Sections of Roadway Drainage;
 - Light Maintenance and Storage Facility Design;
 - Highway 417 Ramps – Pinecrest, Moodie & Richmond/Holly Acres;
 - Lincoln Fields Station;
 - Baseline Station;
 - Queensview Station;
 - Pinecrest Station; and,
 - Moodie Station.

Construction



Tree & Vegetation Clearing

- Vegetation removal and clean-up activities are currently underway at the following locations:
 - Dominion Station;
 - Sir John A. Macdonald Parkway;
 - Carling Avenue (Lincoln Fields);
 - Pinecrest Creek Pond (Woodroffe Stormwater Pond);
 - Connaught Park;
 - Queensview Station;
 - Bayshore Station;
 - Holly Acres Road; and,
 - Moodie Drive.

Lincoln Fields



Iris Station



Iris Station



Future location of Iris Station (facing south)

Pinecrest Creek Pond

- Temporary multi-use pathway construction is complete;
- Root wads from trees that were recently cleared are being stored at Pinecrest Creek Pond; and,
- Local root wads will be used in the construction of the pond bank to prevent loafing and nesting opportunities for geese.

Pinecrest Creek Pond



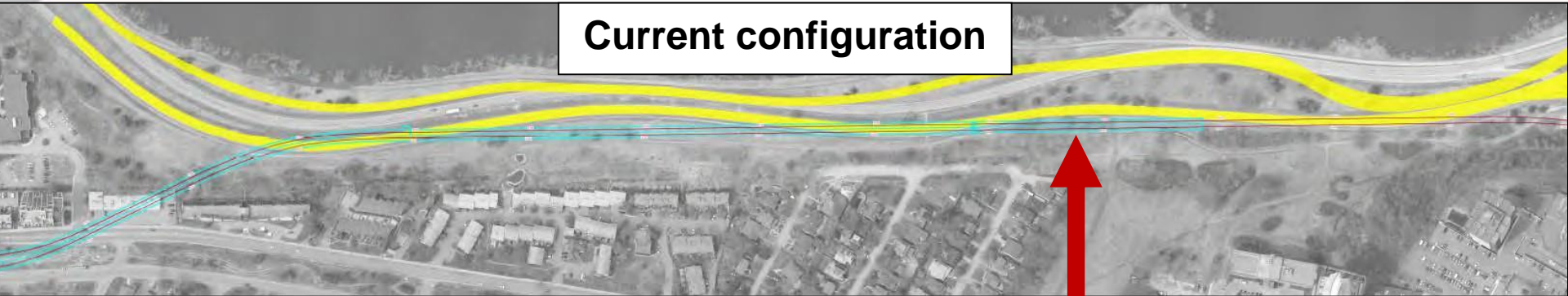
Upcoming Q2 2020 Activities

- Byron Linear Park utility relocation;
- Carling Avenue utility relocations nearby Lincoln Fields Station.
- Pinecrest bridge preparatory works;
- Iris Culvert preparatory work;
- Pinecrest Creek Stormwater Pond construction to begin once Environmental Compliance Approval permit is received;
- Site preparation for the Baseline Station bus operator building;

Upcoming Q2 2020 Activities (cont'd)

- Sir John A Macdonald Parkway temporary eastbound lane construction;
- Cut and cover tunnel construction to commence; and,
- Site preparation Moodie Light Maintenance and Storage Facility construction.

Sir John A Macdonald Eastbound Lane Reconfiguration



Current configuration

Future cut and cover tunnel



Future configuration

Future temporary eastbound lanes

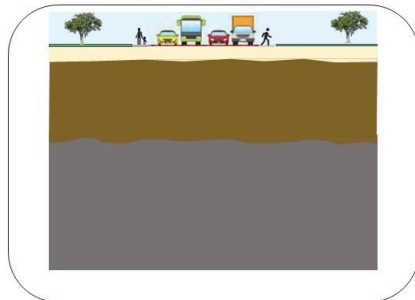
O-Train West Cut and Cover Tunnels



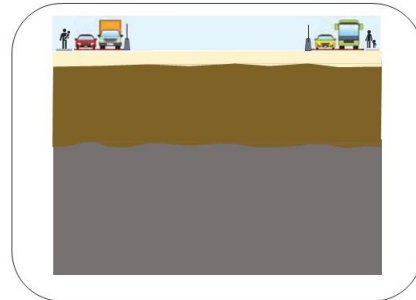
**Parkway
Tunnel**

**Connaught Tunnel &
Pinecrest Trench**

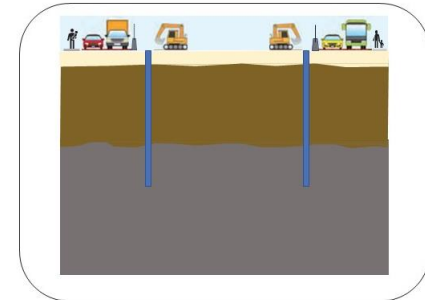
Cut and Cover Tunnel Construction Methodology



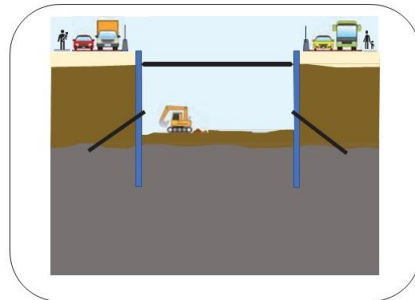
1. Existing Conditions



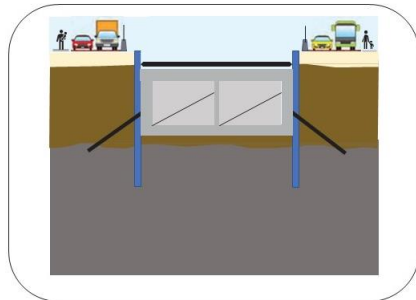
2. Relocate Traffic & Walkways



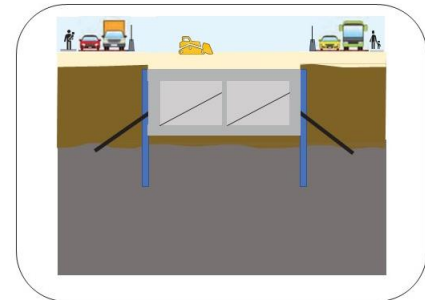
3. Install Support-of-Excavation



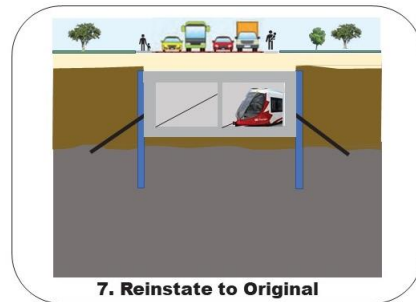
4. Excavate "CUT" and Install additional support



5. Construct Concrete Structure



6. Remove Supports and Install "COVER" to grade

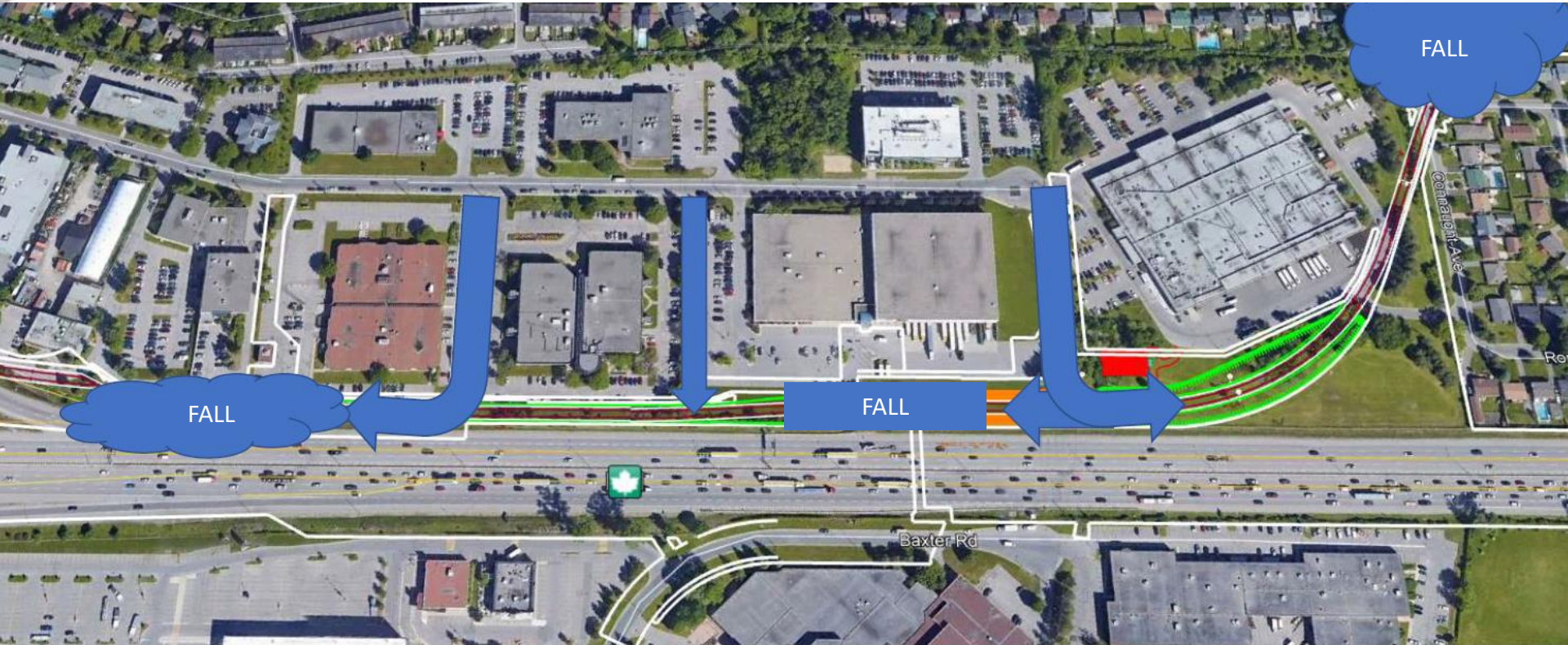


7. Reinstate to Original

Parkway Tunnel



Connaught Tunnel



Pinecrest Trench



Stage 2 Alstom Citadis Vehicle Testing



Stage 2 Alstom Citadis undergoing testing at Blair Station

Status Of Stage 2 Alstom Citadis Vehicles

Of the 38 Stage 2 Alstom Citadis Vehicles:

- 23 vehicles are awaiting production;
- 4 vehicles in production;
- 7 vehicles are undergoing testing; and
- 4 vehicles are in acceptance.



Stakeholder Engagement

- Stage 2 team engaged with more than 1,200 residents across eight drop-in information sessions between Dec 2019 and February 2020;
- The project team engaged with local stakeholders, answered questions and provided an overview of planned works in 2020;
- Future information sessions to occur as designs and construction methodology are confirmed; and,
- Staff continue to engage with Councillors and community stakeholders as work progresses.



Questions?

2