Stage 2 LRT
Confederation Line West
Cleary Alignment Improvement

Public Information Session

April 14, 2016

Agenda

- Background
  - Functional Design & Alignment Improvements
- Confederation Line West Alignment Improvement
  - Overview
  - Benefits
  - Challenges Addressed
  - Construction Overview
  - Mitigation Measures
- Next Steps
- Questions

Background

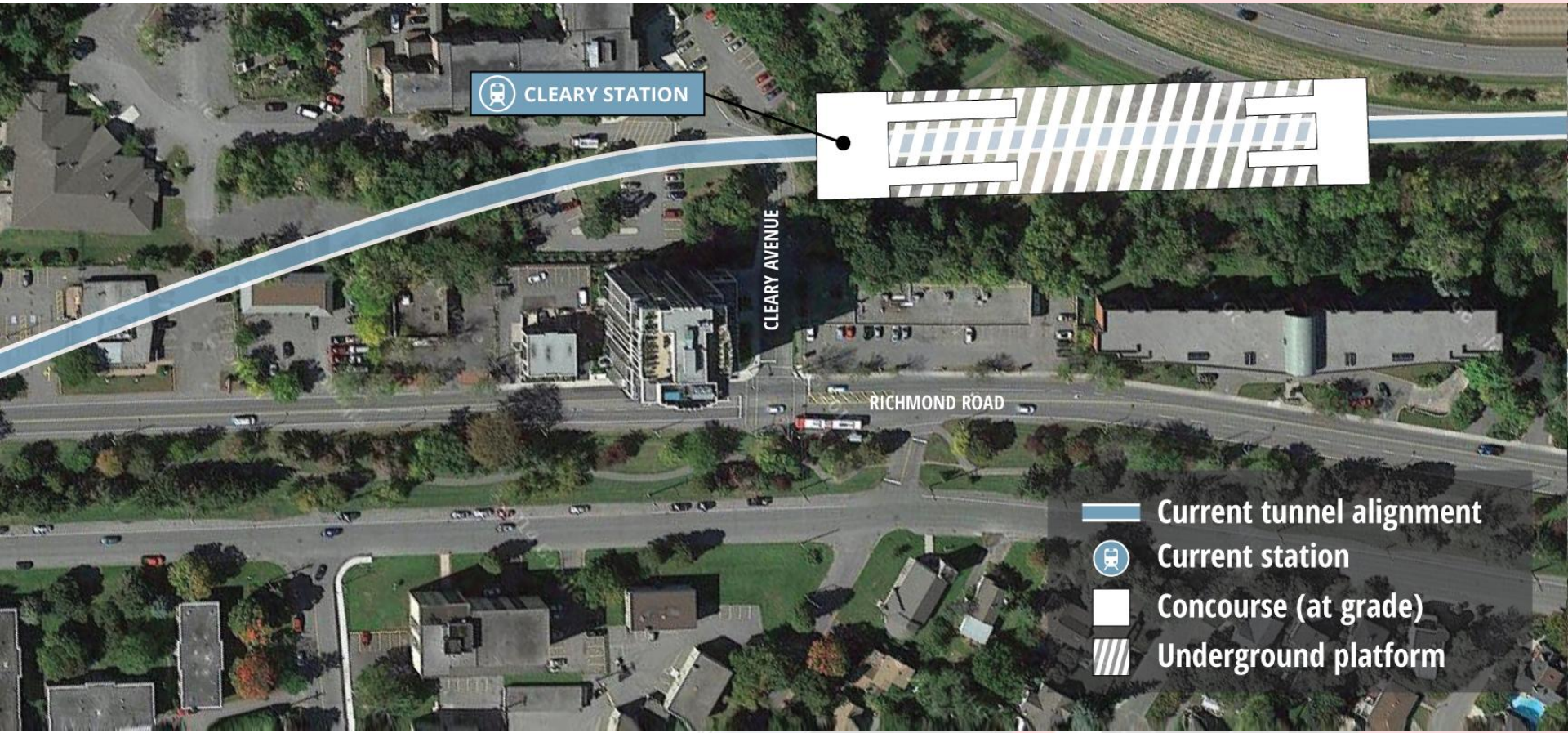
- Functional designs were reviewed in more detail to assess feasibility and to evaluate opportunities to:
  - Minimize construction costs
  - Improve functionality
- Three (3) potential improved alignments have been identified
  - **Confederation Line West Alignment**
    1. **At Cleary and Richmond**
  - Confederation Line East Alignment:
    2. East of Blair Station
    3. West of Montreal Road

Confederation Line West Alignment

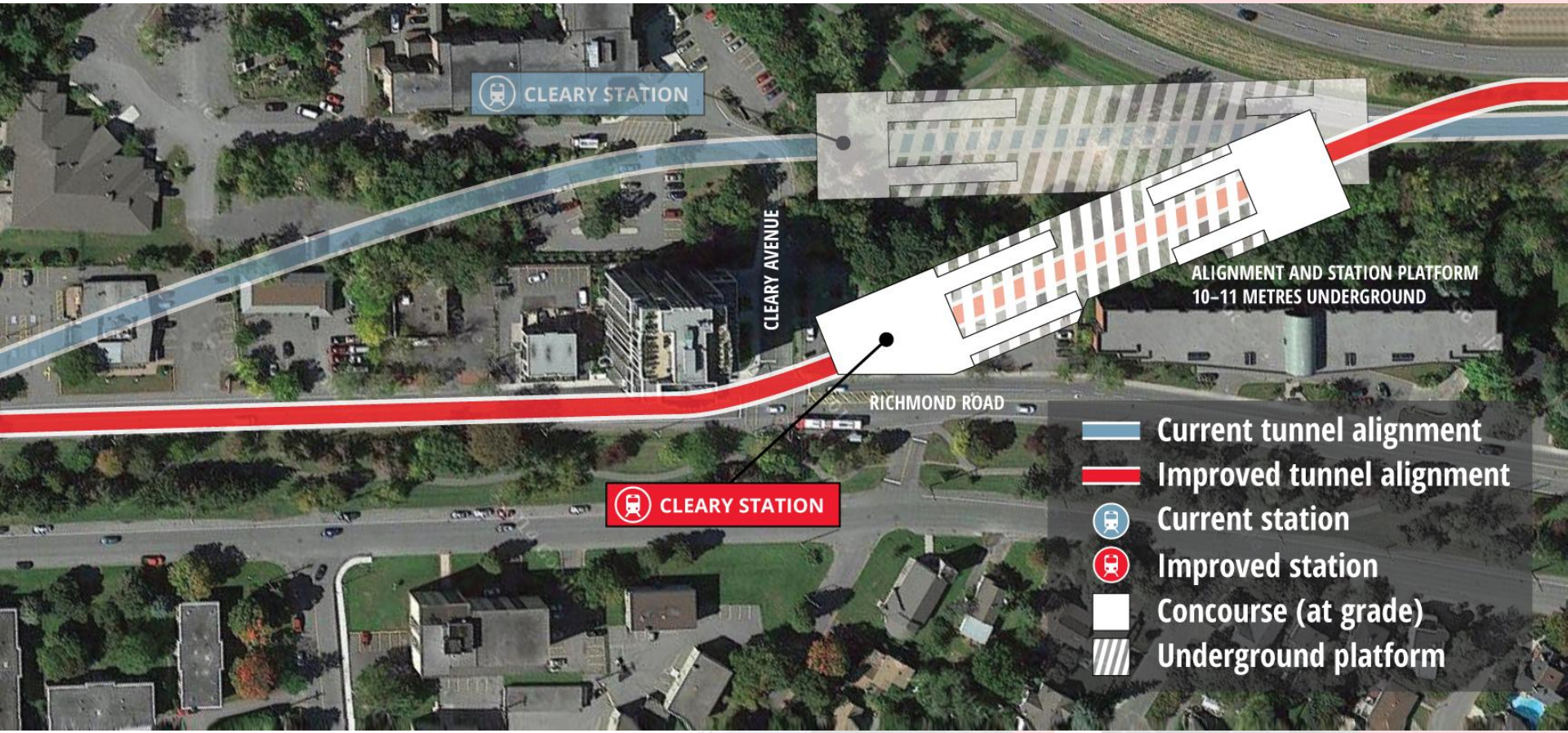
Alignment Improvement at Cleary and Richmond:

- Current functional design/EA alignment:
  - Station entrance off Cleary limits visibility from Richmond Road
  - Location of Cleary station limits connectivity to alternate modes of transportation
- Improved alignment:
  - Shifts Cleary Station along Richmond Road, improving connectivity and station visibility
  - Cost equivalent to the EA alignment

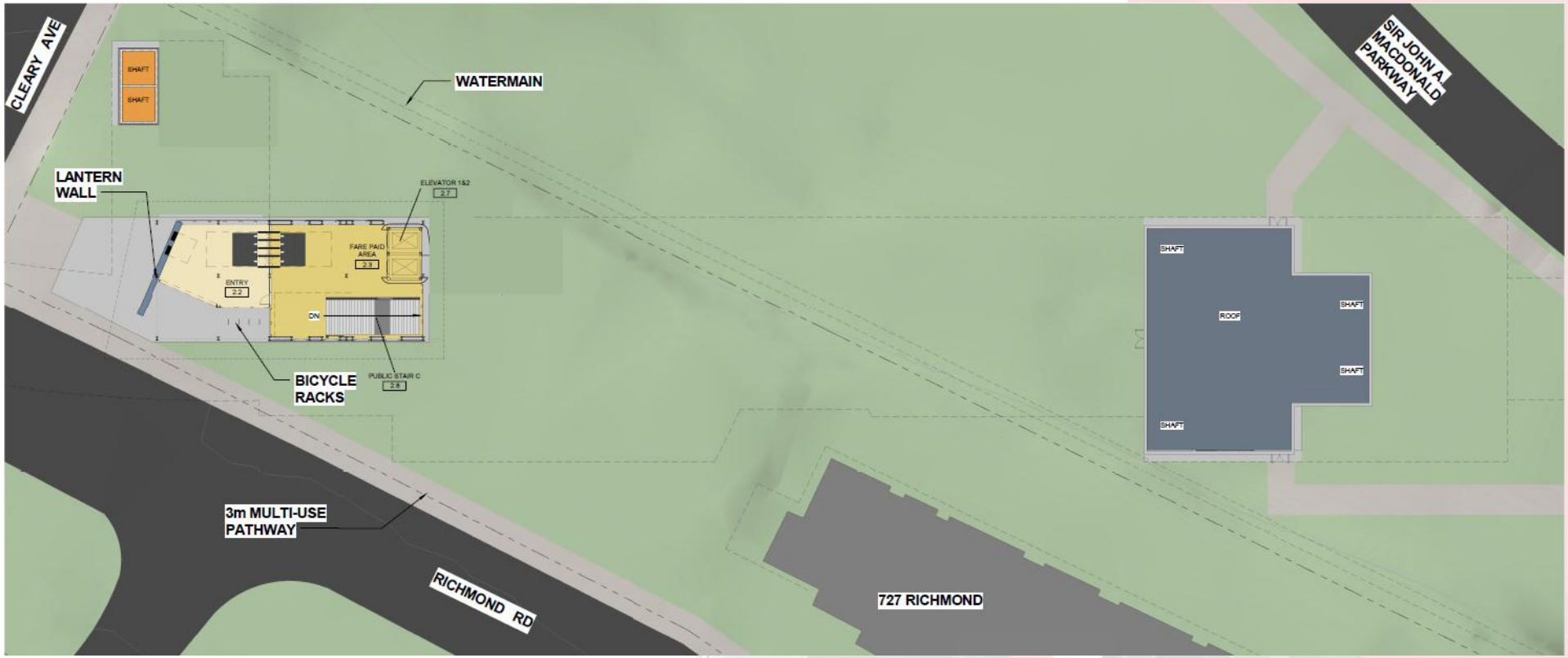
Functional Design Cleary Alignment



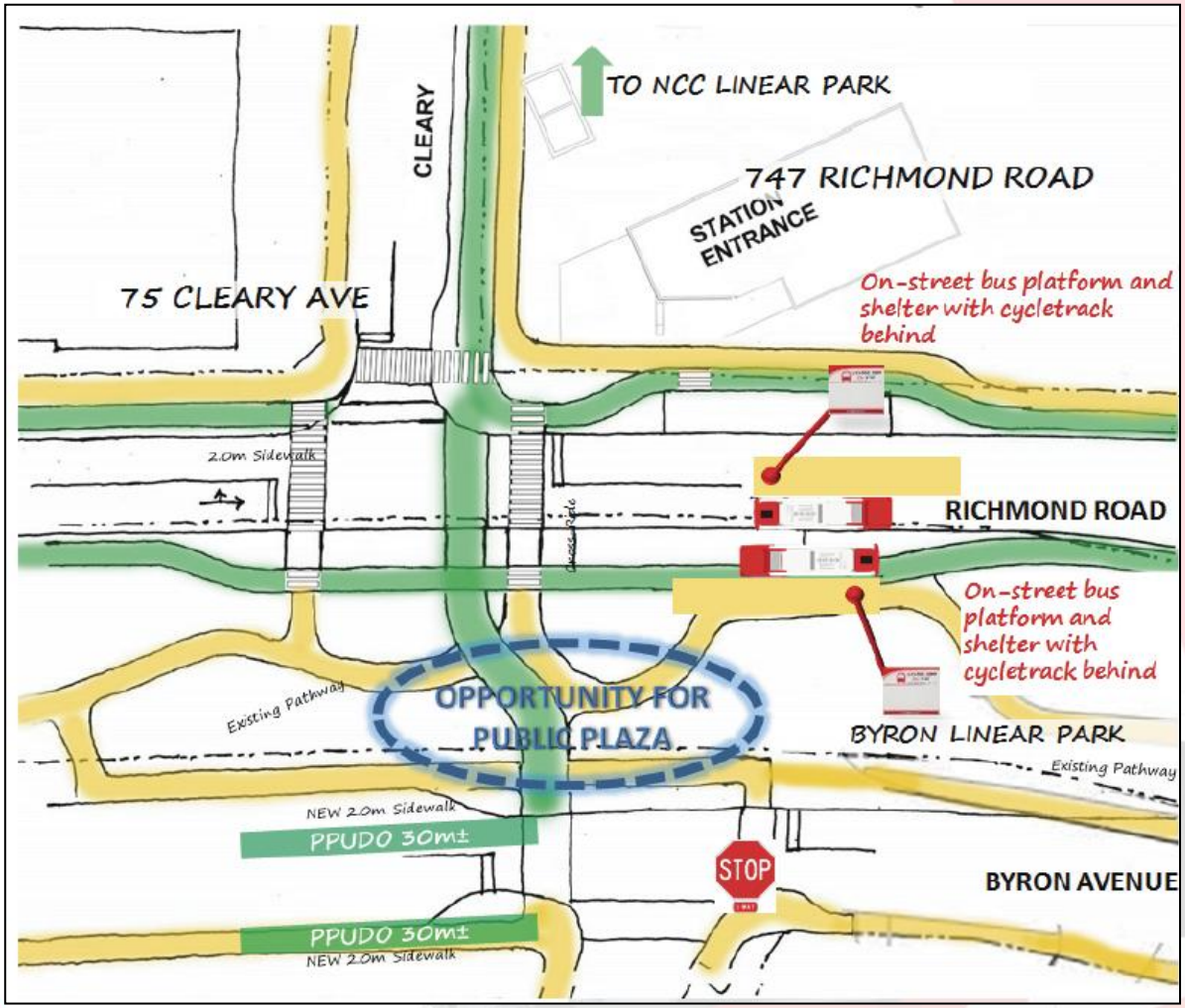
Improved Cleary Alignment



Improved Cleary Alignment
Street Level Plan



Improved Cleary Alignment
Potential Community Connectivity



STAGE 2 ETAPE 2

OC Transpo

OTrain

Improved Cleary Alignment
Cleary Station Surface Elements

- LRT Station entrance to be complimented by:
  - Bus stops
  - Passenger pickup and drop off facility
  - Pedestrian connectivity
  - Bike lanes
  - Urban design treatments
  - Connection to NCC park/grade separated connections under Sir John A. Macdonald Parkway
  - NCC Linear Park
  - Opportunity created by purchase of 747 Richmond Road
  - Richmond Road Complete Streets initiative

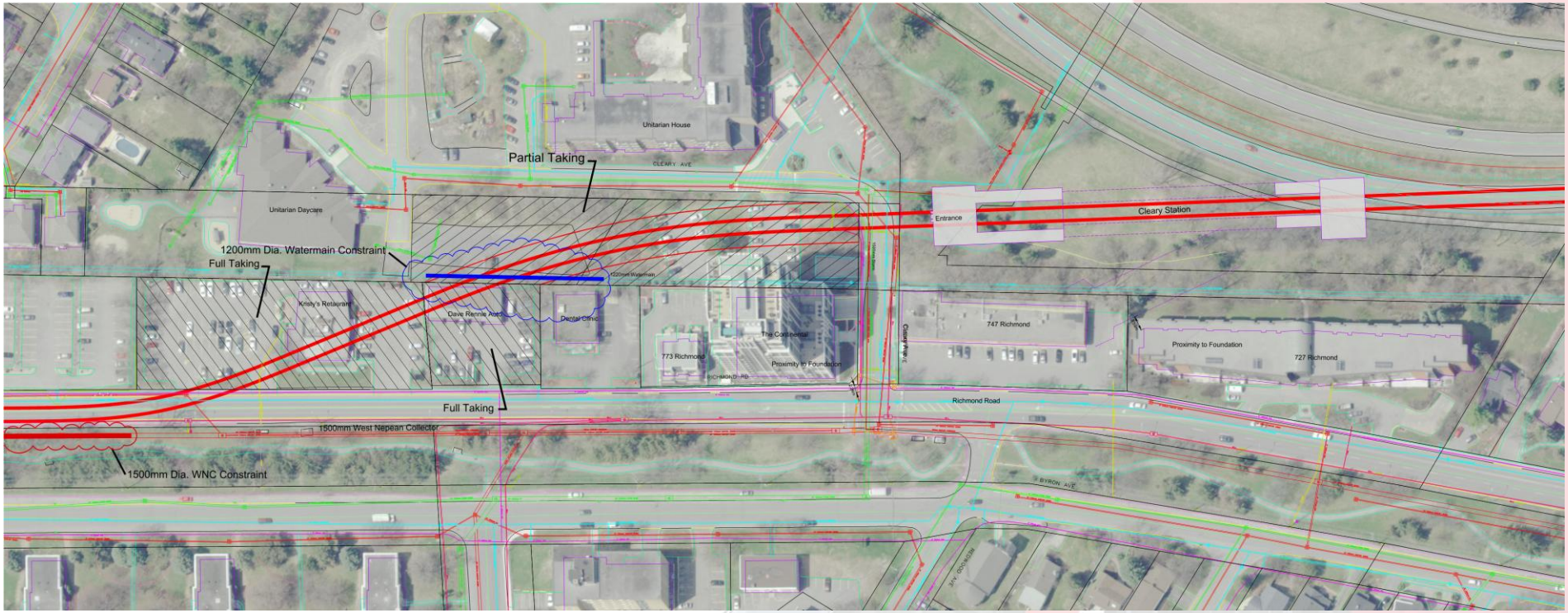
Richmond Road Complete Street

- Public consultation planned for:
  - Richmond Road Complete Street
  - Richmond Road/Byron Linear Park/Byron Road all considered together
  - Pedestrian connectivity
  - Integration with surface station elements
- Preliminary surface station concept developed for discussion/integration with upcoming public consultation
- Concept is not an end but a beginning about what could be possible

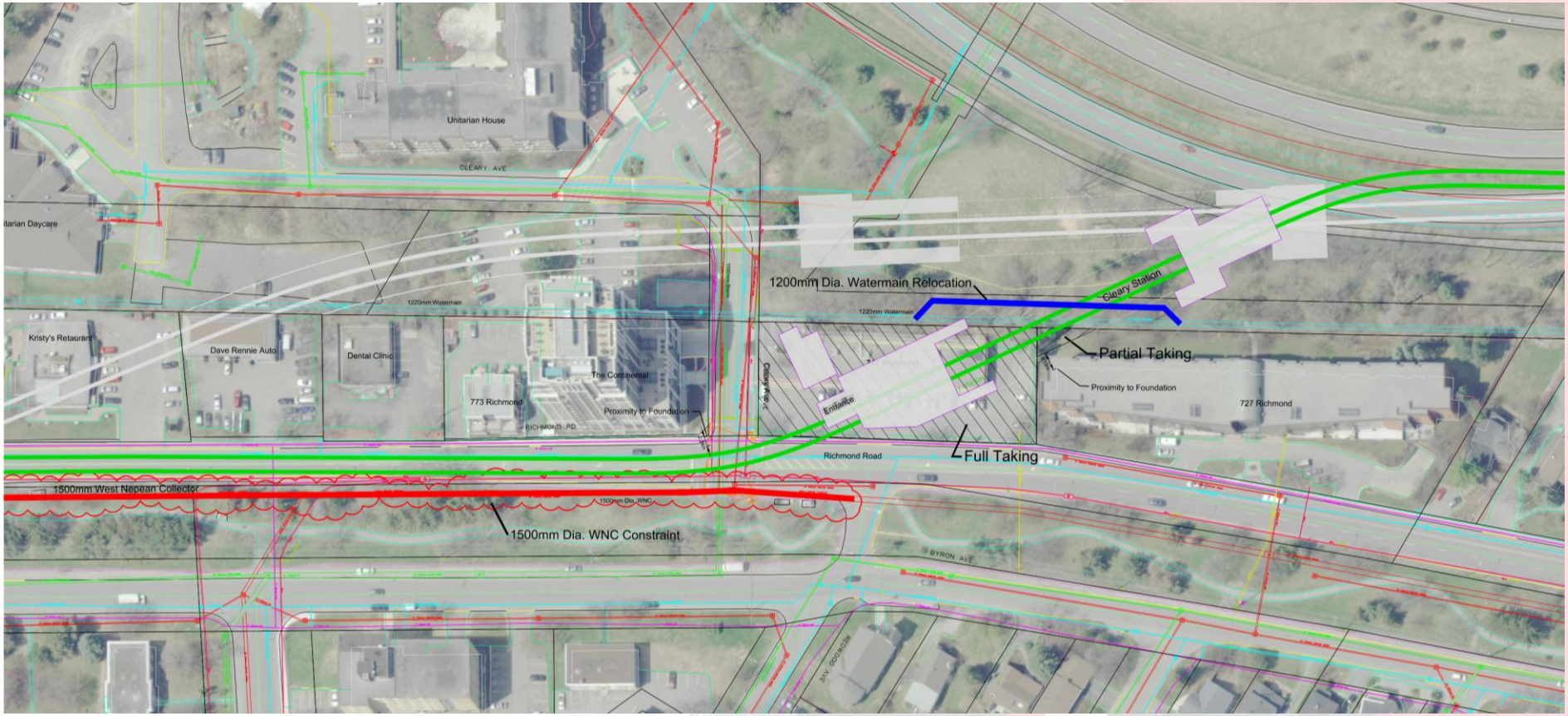
Challenges Addressed

- Initial challenges that have been addressed
  - Utility conflicts – watermain and combined storm and sanitary sewer
  - Insufficient straight track length in between curves to accommodate a station platform
  - Design challenges presented by a diagonal station platform below grade at Richmond Road

Functional Alignment Utility



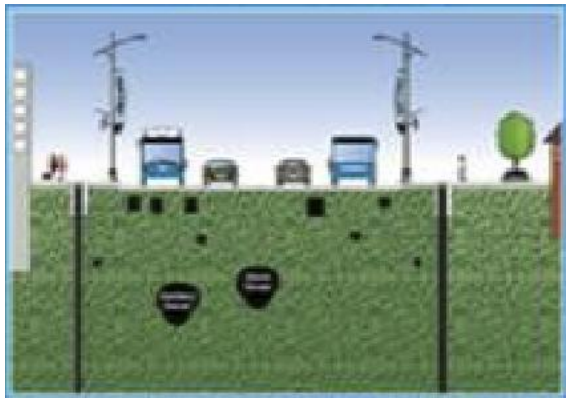
Improved Alignment Utility



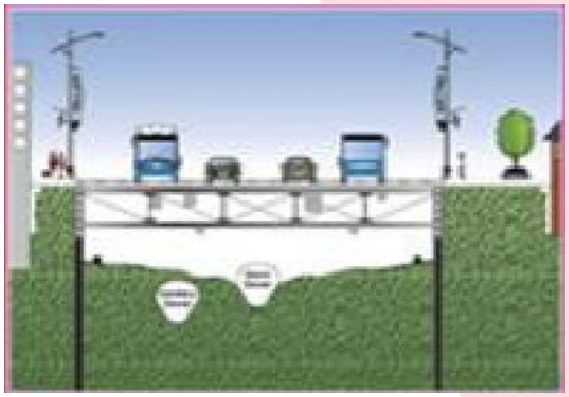
Construction Overview

- Cut and Cover technique for tunnel construction
- Access to all facilities maintained during construction
- Pre and Post construction condition surveys to be conducted
- Limits on noise and vibration during construction and operation
  - City Bylaw and contract requirements
  - Contractor innovation/incentives

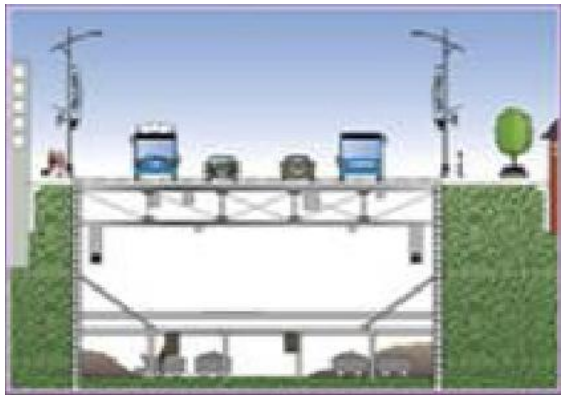
Construction Methodology
Cut and Cover



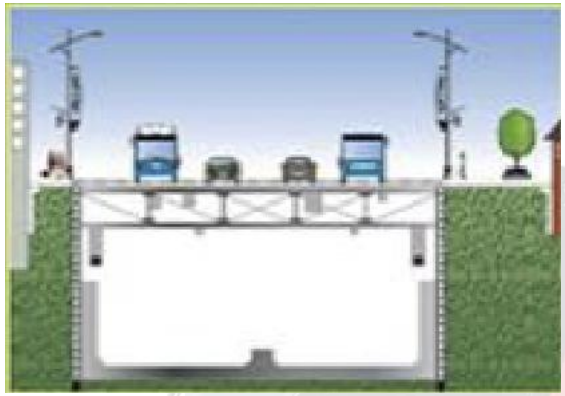
1. Utility location and piling



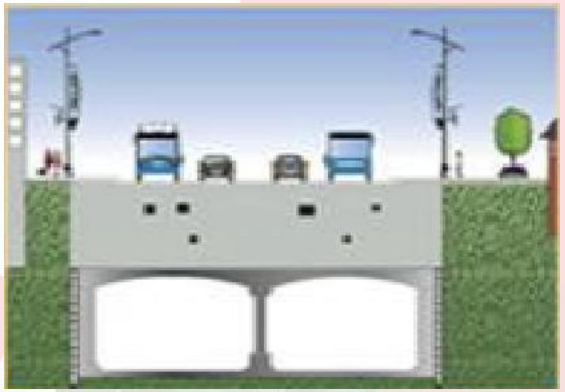
2. Installation of decking



3. Excavation and soil removal



4. Construction of underground structure



5. Removal of decking/ street restoration

Common Mitigation Measures (Construction)

- Communicating scheduled and anticipated works
- Noise mitigation strategies
- Dust mitigation strategies
- Compliance with contract and City Bylaw for work hours
- Activities scheduled to create minimal impacts to traffic

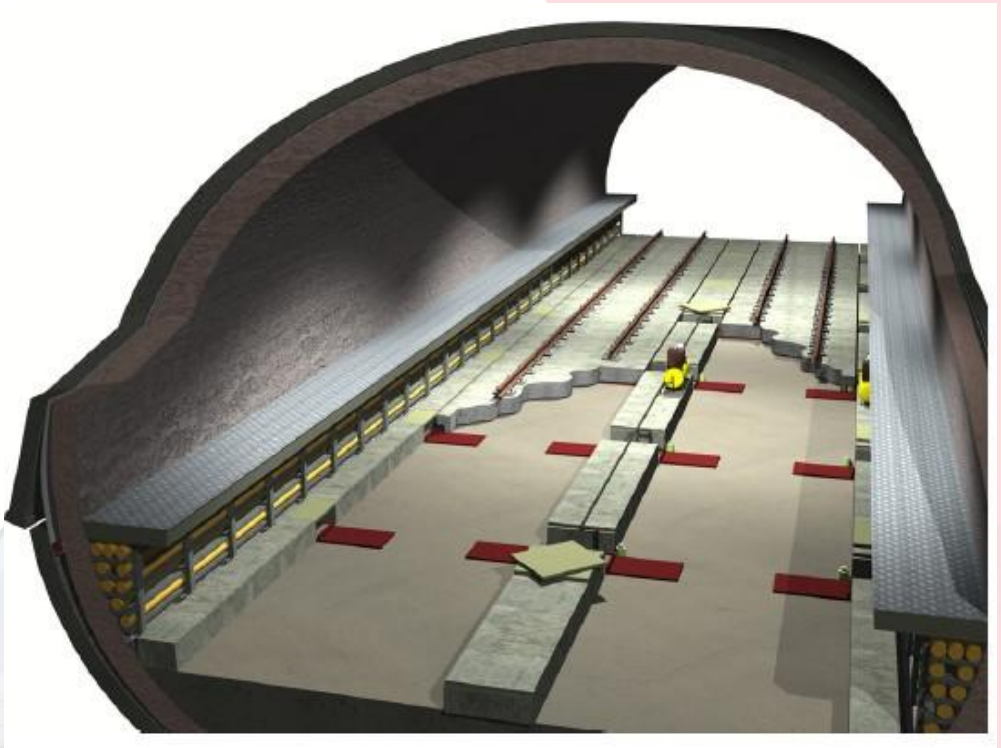
Noise and Vibration Overview

- Wheel/rail noise/vibration a complex issue
- Benefits of Light Rail Train (LRT):
  - Lower weight than “heavy rail” subway cars
  - LRT vehicle is articulated
  - Resilient wheels
  - Equipped with wheel/rail lubrication system
  - Designed for much tighter curves than at Cleary
- Analysis shows that rail noise/vibration can be mitigated to acceptable levels given local conditions/mitigation measures
- Favourable conditions – soft soil, no crossovers, reduced speeds, resilient wheels and continuous weld track

Stage 1 Alignment Comparison Noise and Vibration

- Very tight corridor to implement underground tunnel/stations
- Many buildings are 3-4m away from outside wall of tunnel
- Both sides of tunnel (residential, commercial, hotels, historic buildings)
- Mitigation measures range from:
  - None (direct fixation of track to tunnel floor)
  - Resilient fasteners
  - Floating slab
- Depends on context, age of building, sensitive receiver, etc.

Track Mitigation Options (Noise and Vibration)



Floating Slab
(double tie
isolated trackbed)

Stage 1 – Mitigation Measures

Facility	Separation Between Tunnel/Development	Recommended Mitigation Measure
Christ Church	4 metres	Resilient Fasteners
Marriott Hotel	4 metres	None
Place de Ville	4 metres	None
CBC	4 metres	Floating Slab
World Exchange Plaza	4 metres	None
NAC	35 metres	Floating Slab
Government Conference Centre (historic building)	12 metres	Floating Slab
Chambers Building (historic building)	Tunnel under corner of building	Floating Slab
50 Laurier Apartments	4 metres	Resilient Fasteners

Fan/Vent Shaft Noise

- Fans at each end of Cleary Station used for three purposes:
  - In an emergency (station/tunnel fire)
  - Testing (typically once/month)
  - To cool tunnel on hot summer days(if necessary)
- East ventilation shafts 20m away from 727 Richmond Road
- West end fans across the street from 75 Cleary Avenue
- Fans are slightly closer to buildings than in EA alignment
- Vent shaft noise not expected to be an issue given:
  - Modern construction of adjacent buildings
  - Fan silencers

Improved Alignment Benefits

- Benefits of the improved alignment include:
  - ✓ Improved station accessibility
  - ✓ Improved visibility and community presence
  - ✓ Reduced property costs
  - ✓ Reduction in number of properties with development impacts

Stakeholder Relations & Communications

- Extensive stakeholder engagement:
  - ✓ Dedicated local community liaison
  - ✓ Rapid response to all correspondence
  - ✓ Use of social media/website for notice of upcoming work
  - ✓ Communicate often/well on anticipated works
  - ✓ Stage 1 process has been well received
  - ✓ Applying “lessons learned” from Stage 1

Next Steps

1. Public feedback on improved alignment
2. Opportunity for public input at FEDCO (May 3)
3. Consideration by City Council (May 11)
4. Environmental Project Report(EPR) Notice of Study Commencement (June 2016)
5. Richmond Road Complete Street Town Hall Meeting (June 4)
6. EPR Notice of Study Completion (October)
7. Begin Property Acquisition (Q1 2017)
8. Scheduled construction start (2018)

Questions?