Welcome

Waterfront East LRT Extension Transit Network Update

Nigel Tahair, City of Toronto

Waterfront East LRT Extension Community Consultation

February 17, 2021
7:00 p.m. – 8:30 p.m.

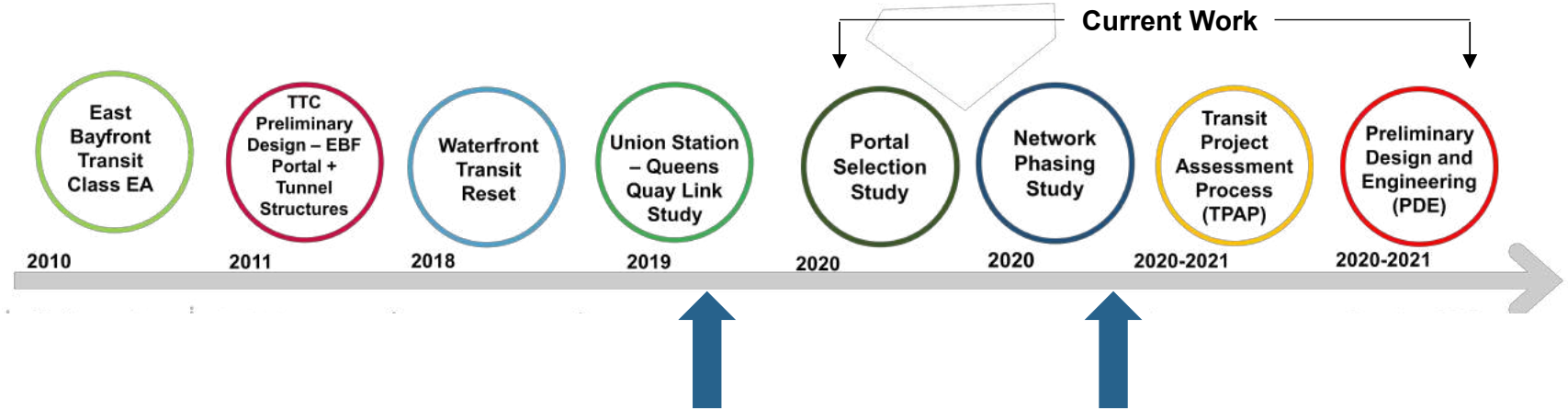
Visit toronto.ca/waterfronttransit to join.

What these videos cover:

1. Waterfront East LRT Extension Project Background & Overview
2. Portal Location
3. Network Phasing
4. Environment Assessments: Introducing the Transit Project Assessment Process (TPAP)
5. Design of Union and Queens Quay-Ferry Docks Stations
6. Queens Quay East Street Design

Overview: Waterfront Transit Network Plan

Waterfront Transit Network Plan:
Council Directions



April 2019 Council Direction
- Start PDE in 2020
- Explore phasing

December 2020 Council Direction
- Complete PDE and Business Case for Fall 2021

Project Overview
April 2019 Report to Council

Item passed by Council in April 2019:

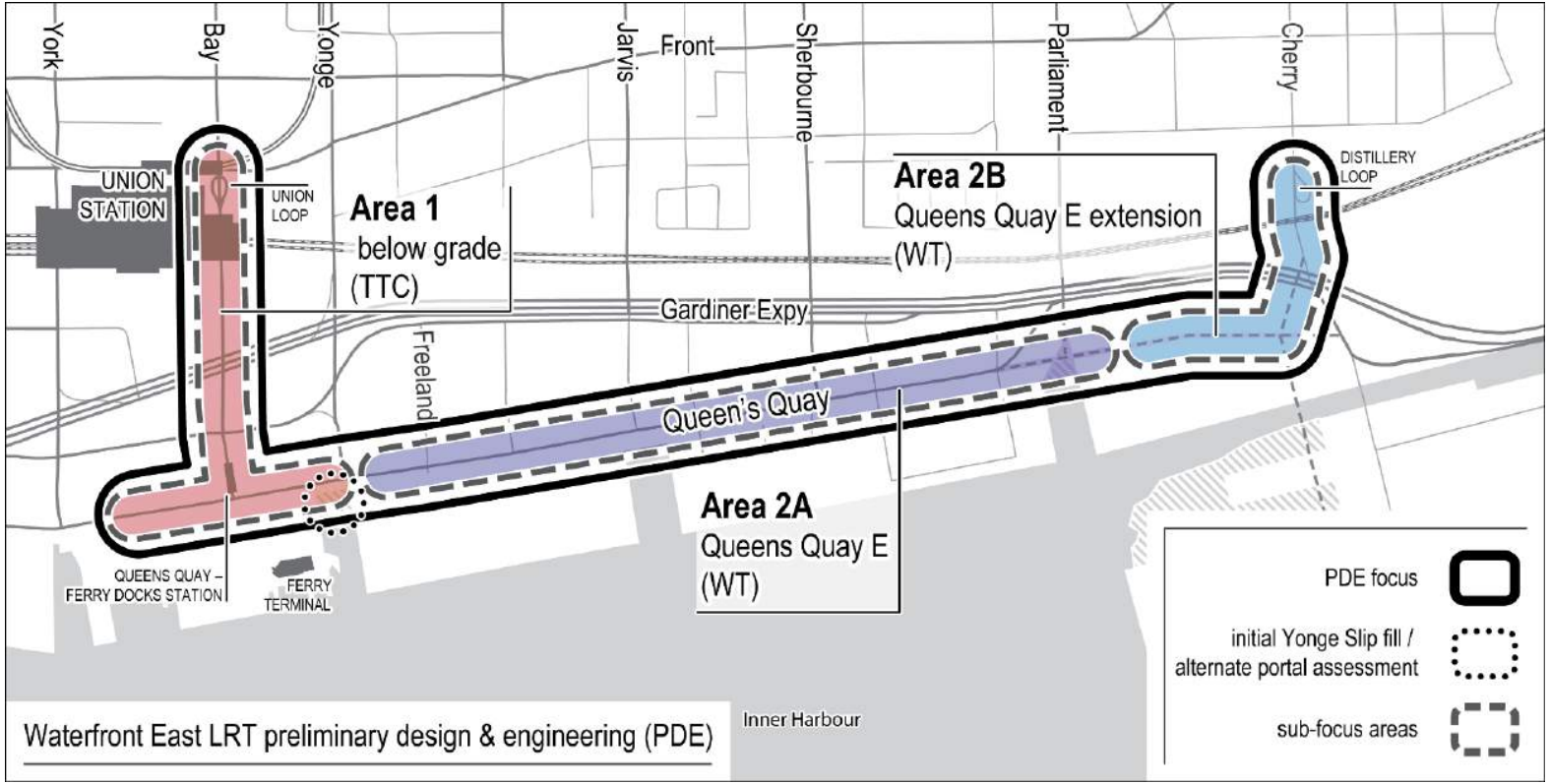
“City Council request the Deputy City Manager, Infrastructure and Development Services, in consultation with the Chief Executive Officer, Toronto Transit Commission, and Waterfront Toronto, to consider in conjunction with the preliminary design and engineering phase of the Union Station-Queen's Quay link and East Bayfront extension, a phasing option that would implement a through streetcar service on Queen's Quay to East Bayfront, in advance of the Union Station construction and implementation phase."

Project Overview
December 2020 Report to Council

Item passed by Executive Committee on December 10, 2020:

"City Council direct the Chief Planner and Executive Director, City Planning and the Executive Director, Transit Expansion Office to report back on the recommended schedule and funding requirements for the Union Station to Queens Quay Link and the East Bayfront Light Rail Transit section of the Waterfront Transit Network, including phasing options and an updated business case, as part of an update on Waterfront Transit Network priorities prior to the 2022 Budget process."

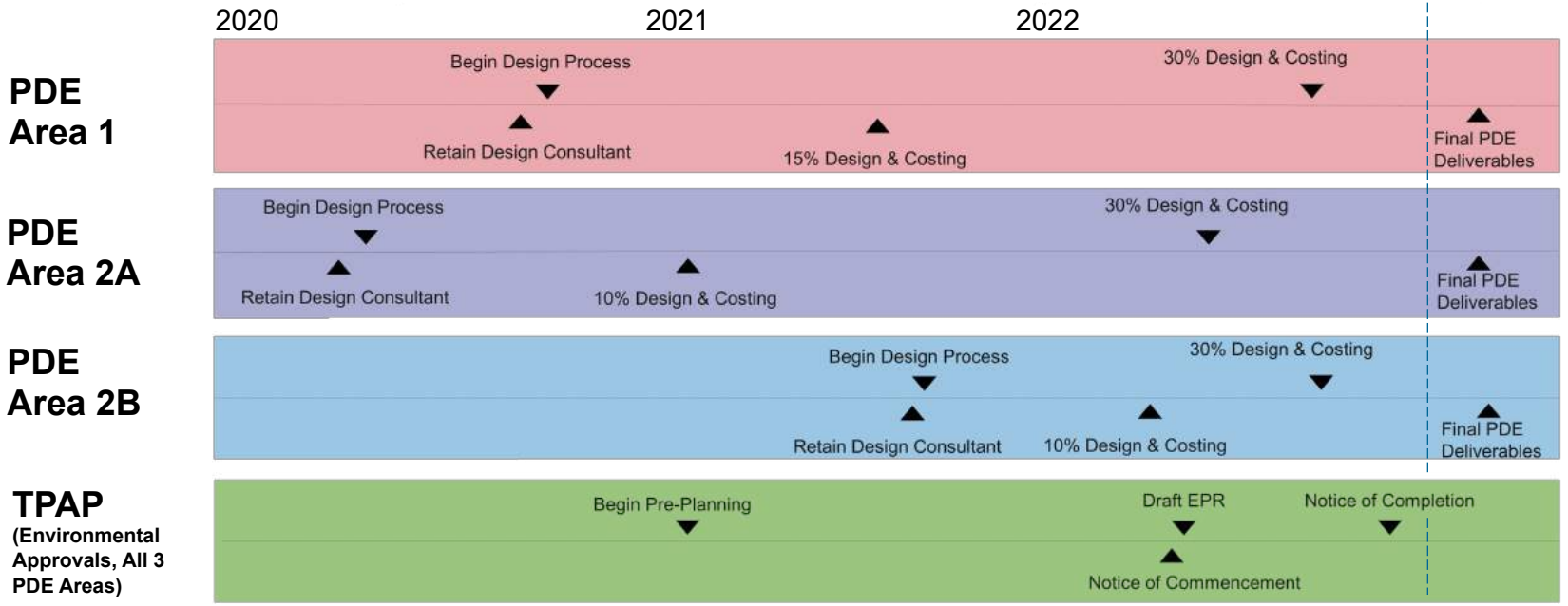
Waterfront East LRT Extension
Preliminary Design & Engineering Focus Areas



Project Schedule

Preliminary Design & Engineering (PDE) and Transit Project Assessment Process (TPAP)

Report to Council with Updated Business Case based on 30% design, costing and phasing



Project Team

WATERFRONToronto

TORONTO

wood.

WEST 8 + dtah

ARUP

WSP

Portal Location Study

Alex Mereu, Waterfront Toronto

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2. **Portal Location**
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6. Street design of Queens Quay

Portal Location Study

What is a Portal?

A streetcar portal is the piece of infrastructure that allows streetcars to transition between an underground and surface alignment, just as they do on Queens Quay West, west of Bay street.

Portal Location Study

Alternative 1: Portal East of Yonge Street

Existing Condition

Proposed (Alternative 1) – Location from previous EA

Portal Location Study

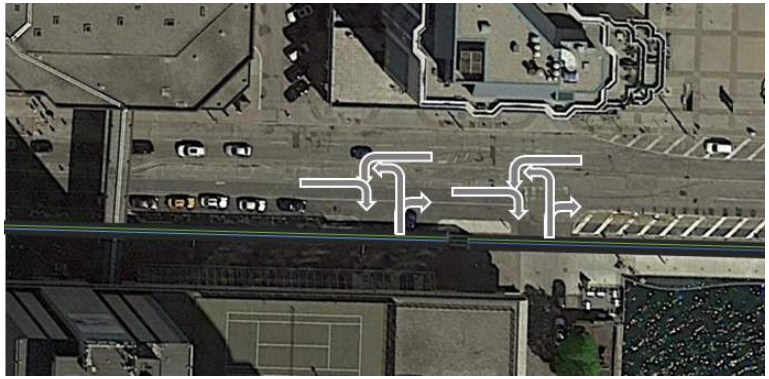
Alternative 2: Portal West of Yonge Street

Existing Condition

Proposed (Alternative 2)

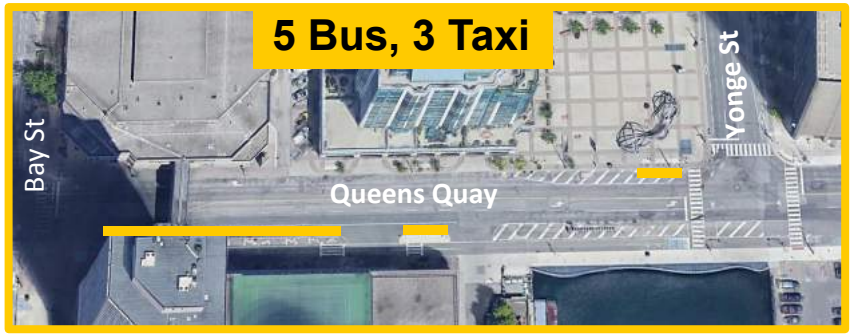
Portal Location Study
Existing Condition (Driveway Access)

- Two unsignalized driveways on the south side of the street between Bay Street and Yonge Street:
- The laneway is used to access the public surface parking spaces beside the slip, service vehicles for the Hotel, and service vehicles for the ferry terminal.
- This is one of the most significant conflict points for vehicles, pedestrians and cyclists on the Waterfront.
- With the portal in place at this location, these driveways would be moved to the signalized intersection at Yonge Street and a partial fill-in of the Yonge Street slip



Portal Location Study
Existing Condition (Buses, taxis)

- 4 of the bus parking spaces are for coaches destined for the Hotel, Ferry Terminal, or other tourist destinations along the Waterfront.
- 1 bus parking space is dedicated to the Hop on Hop Off (HO/HO) Sightseeing Bus
- 3 taxi stands
- This space is often used by other ride hailing services and as a pick-up and drop-off facility for general traffic (not permitted). Bus loading also often conflicts with trail users.



Portal Location Study

Evaluation

Criteria	Alternative 1: Portal east of Yonge Street		Alternative 2: Portal west of Yonge Street	
Planning Policies	No decision relevant factors			
Urban Design	Maintains existing unsignalized driveways and loading zones conflicting with MGT	✗	Opportunity for **additional open space** at base of Yonge Street and to create an **enhanced arrival experience** to the waterfront at the base of Yonge Street Removes unsignalized driveways on MGT, **improving trail conditions**	✓
Transportation	Avoids a signalized intersection for transit at Yonge/ Queens Quay. Maintains a t-intersection at the Yonge/QQ intersection.	=	**Brings bus and taxi loading off street**, which was conflicting with the Martin Goodman Trail and roadway operations. The existing unsignalized driveways to the hotel and JLFT driveway have been identified as a **high-risk area for conflicts between vehicles, trail users, and pedestrians**. This option would consolidate these movements to the signalized intersection	=

Portal Location Study
Evaluation

Criteria	Alternative 1: Portal east of Yonge Street		Alternative 2: Portal west of Yonge Street	
Socio-Economic	Minimal impact to existing businesses	✓	Relocation of vehicular entrance to hotel driveway that is not along the building frontage. **Requires change in hotel's existing operations** and modifications to the hotel's motor court	✗
Natural and Cultural	No decision relevant factors			
Cost and Constructability	Longer tunnel section for Streetcar Requires relocation of combined sewer overflow (CSO) and the construction of a new syphon tunnel $40-50 Million more in project construction cost	✗	Shorter tunnel section for streetcar Extension of the sewer outfall at foot of Yonge to new edge of slip **$40-50 Million less in project construction cost**	✓
Overall:			**Technically Preferred** due to significant cost savings, public realm benefits, and improvements to transportation safety and curb-side operations	✓

Demonstration: View from Yonge Slip

FOR ILLUSTRATIVE PURPOSES ONLY

Demonstration: View from Yonge Street

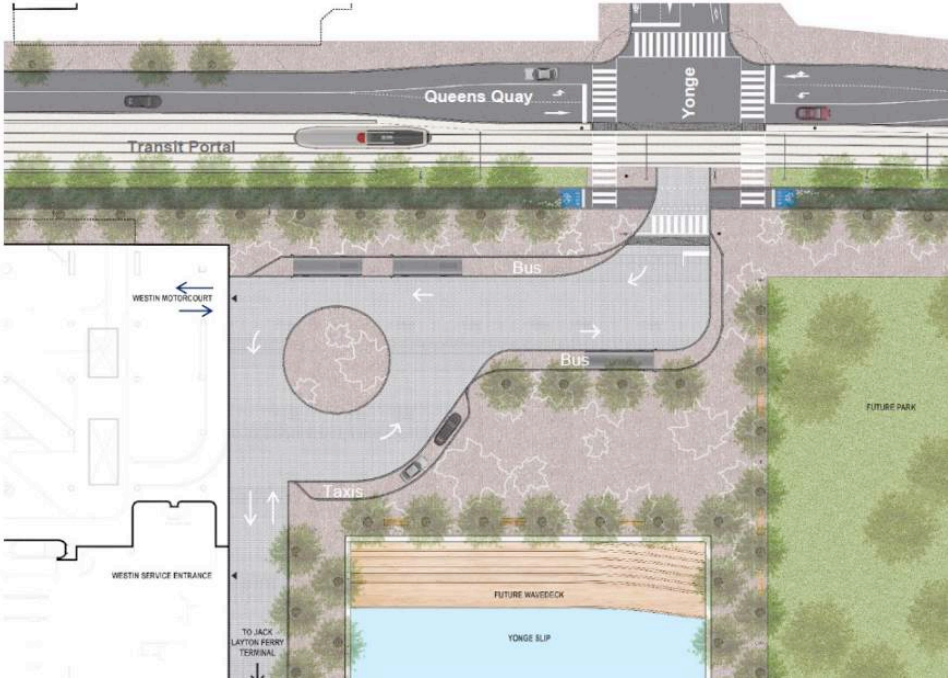
FOR ILLUSTRATIVE PURPOSES ONLY

Portal Location Study

Concept Refinement

Yonge Slip Plaza Concept: Initial Layout

Yonge Slip Plaza Concept: Refined Layout



Portal Location Study
Next Steps

- Continuing discussions with stakeholders
- Continuing discussions with City staff regarding ownership, operations, regulation, and maintenance of the slip fill
- Advancing design work and refine cost estimate

Waterfront East LRT Extension Network Phasing Study

Alex Mereu, Waterfront Toronto

What this video covers:

1. Waterfront East LRT Extension: Project Background & Overview
2. Streetcar Portal Location
3. **Network Phasing**
4. Environment Assessments: Introducing the Transit Project Assessment Process (TPAP)
5. Design of Union and Queens Quay-Ferry Docks Stations
6. Queens Quay East Street Design

Network Phasing Study Scope

The **purpose of the study** is to identify the Phase 1 funding and delivery of the Waterfront Transit Network.

Context Considerations

1. **Ontario Line's impact** on passenger route choice and forecasted passenger demand into the Union to Queens Quay Link (UQQL) and on Queens Quay
2. **Development has advanced considerably in East Bayfront** since 2010 and development of the lower don lands will soon follow upon completion of the Port Lands Flood Protection Project in 2024.
3. **City Council's request for staff** to explore a phasing option that would implement a through streetcar service on Queens Quay to East Bayfront in advance of the Union Station construction and implementation phase.

Network Phasing Study Scope

1. How much expansion work is needed in the Union Station Loop (Area 1) in Phase 1?

The forecasted demand along the Union to Queens Quay Link (UQQL), even considering the impact of the Ontario Line, still has a demand that justifies the full UQQL concept at Union Station as there are 3,000+ passengers per hour estimated in the AM peak hour in the year 2041. The concept for the Queens Quay-Ferry Docks Station is still under review.

There may be opportunities to phase the improvements and build more capacity as demand grows. These phasing opportunities will take into consideration construction impacts, costing savings and operational flexibility.

Please refer to the video on the design of Union and Queens Quay-Ferry Docks Stations for more details.

Network Phasing Study Scope

2. How far east should transit extend to in Phase 1?

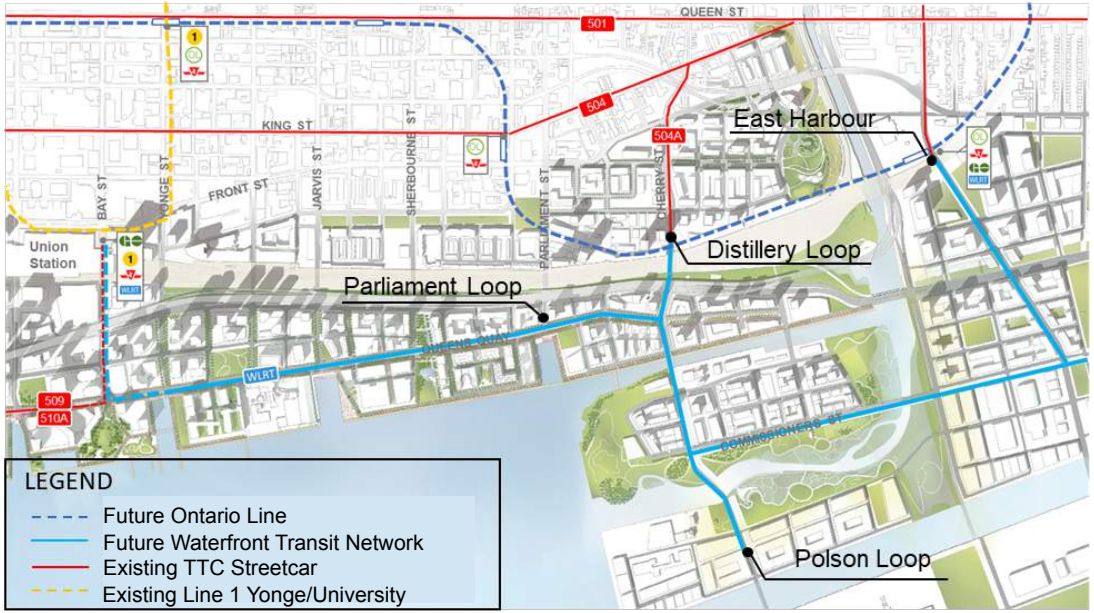
We are exploring these four (4) options:

Parliament Loop
Temporary Loop in the vicinity of Queens Quay and Parliament
Original anticipated terminus for phase 1

Distillery Loop
Completion of Queens Quay East extension to New Cherry Street, with streetcar connecting to the Distillery Loop

Polson Loop
Completion to Distillery Loop (above), plus the extension of the streetcar along New Cherry to the Ship Channel

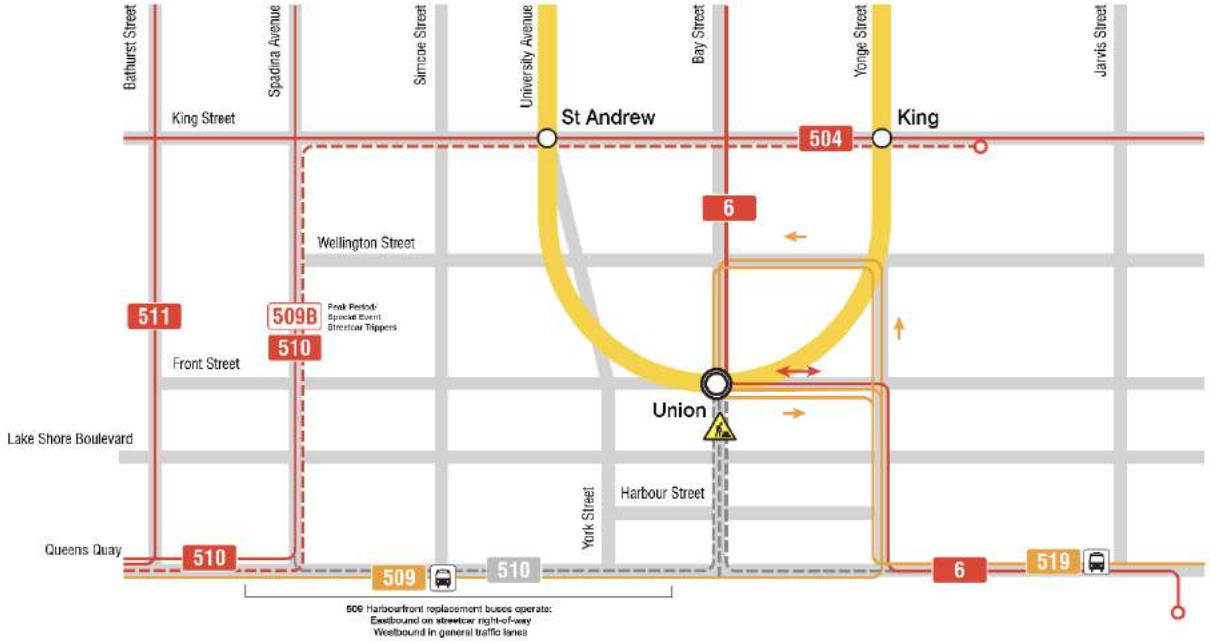
East Harbour
Completion to Distillery Loop (above), plus the extension of the streetcar along New Cherry to Commissioners, across Commissioners and up Broadview Extension



Network Phasing Study Scope

3. Can East Bayfront transit service be expedited prior to the completion of the Union Station Loop?

Option 1: Bus to/from Union Station via Yonge Street



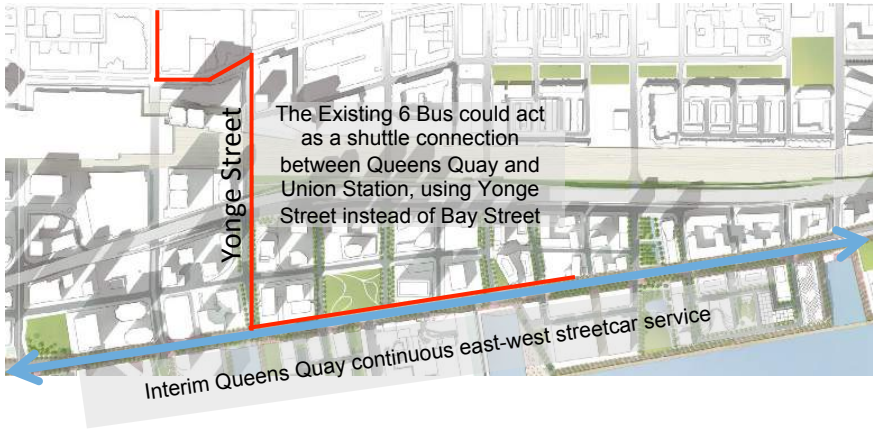
Concept Description:

- Completion of Queens Quay East Surface Works first, then construction on Union Station and Queens Quay – Ferry Dock Station begins.
- While Union Station and Queens Quay Station is under construction, a new 519 Bus Route operates between Union Station and the Eastern Waterfront, using the dedicated streetcar tracks on Queens Quay East
- The existing 6 bus service remains
- A Bus service on Queens Quay replaces the streetcar service east of Spadina Ave, providing a direct connection to Union Station via Yonge Street

Network Phasing Study Scope

3. Can East Bayfront transit service be expedited prior to the completion of the Union Station Loop?

Option 2: Streetcar Through from Queens Quay West

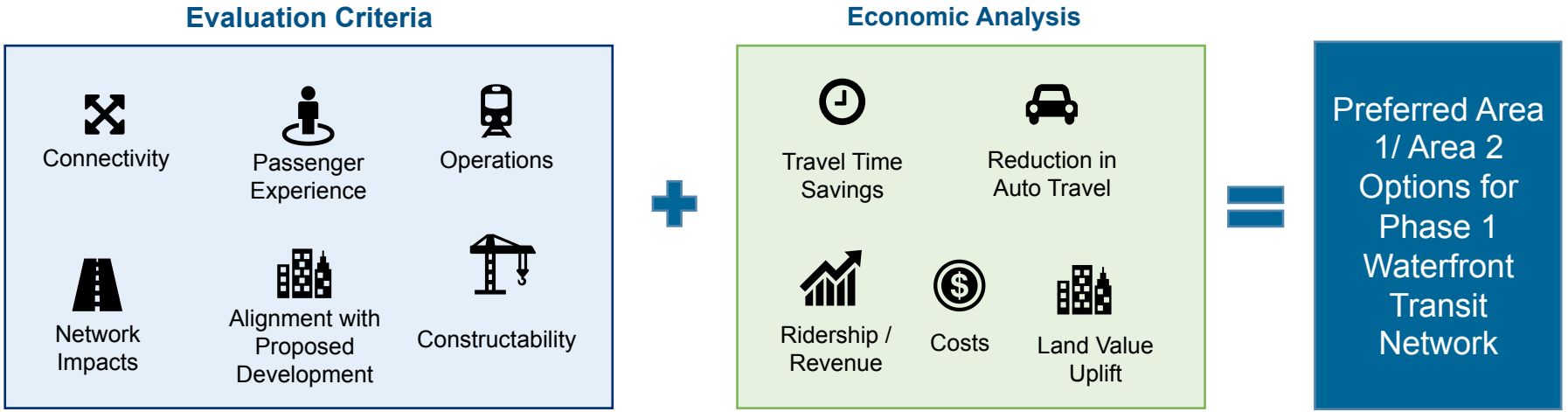


Concept Description

- Completion of Queens Quay East Surface Works first, then construction on Union Station and Queens Quay – Ferry Dock Station begins.
- Streetcar operates in dedicated lanes from Queens Quay West to East once Queens Quay east is completed, by passing Union Station while it is under construction
- Existing 6 Bus would likely act as a shuttle connection between Queens Quay and Union Station, using Yonge Street instead of Bay Street during this interim period

Network Phasing Study: Evaluation

How we are assessing options?
Phasing options are being assessed with a set of evaluation criteria and economic analysis.



Next Steps

- Complete Evaluation/Analysis
- Produce report on study findings and recommendations (End of Q1 2021)

Environment Assessments: Introducing the Transit Project Assessment Process (TPAP)

Alex Mereu, Waterfront Toronto

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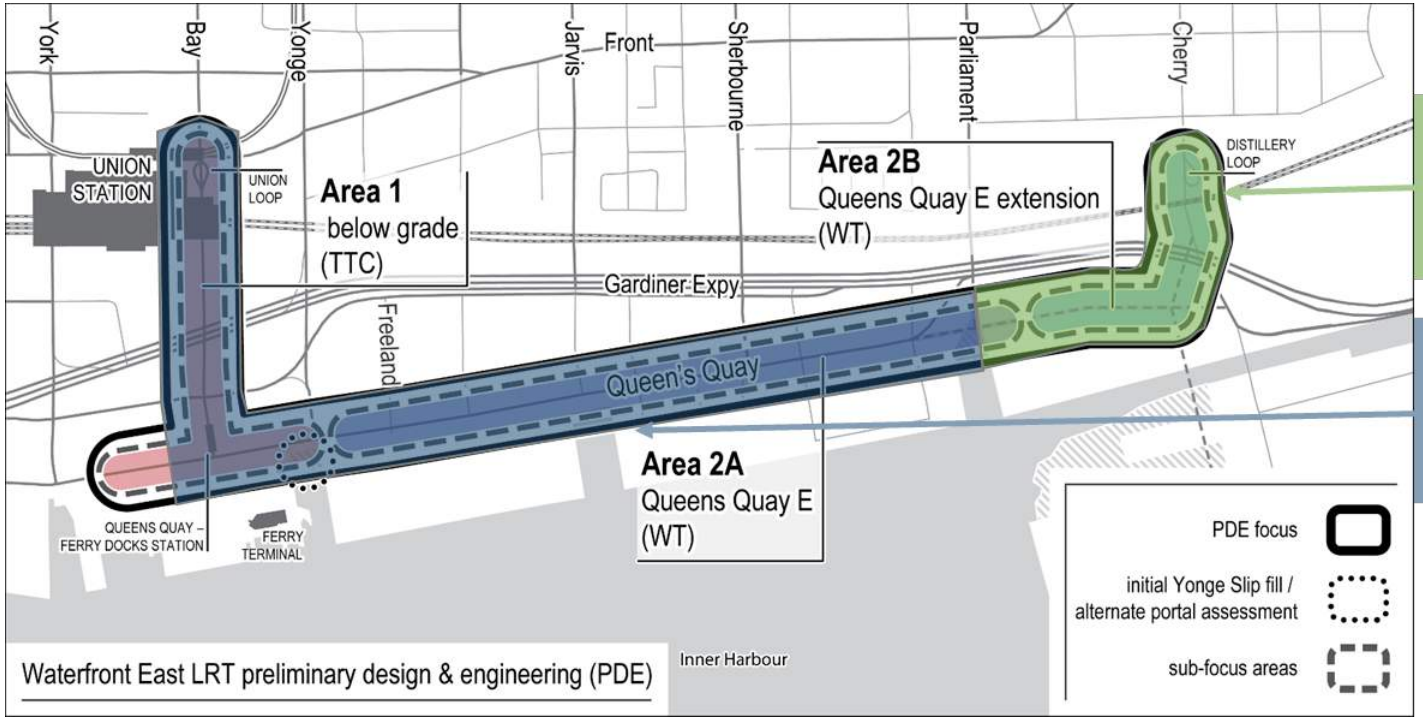
Previous Environment Assessment Scopes



Lower Don Lands Environmental Assessment Master Plan Addendum (2014)

East Bayfront Transit Environmental Assessment (2010)

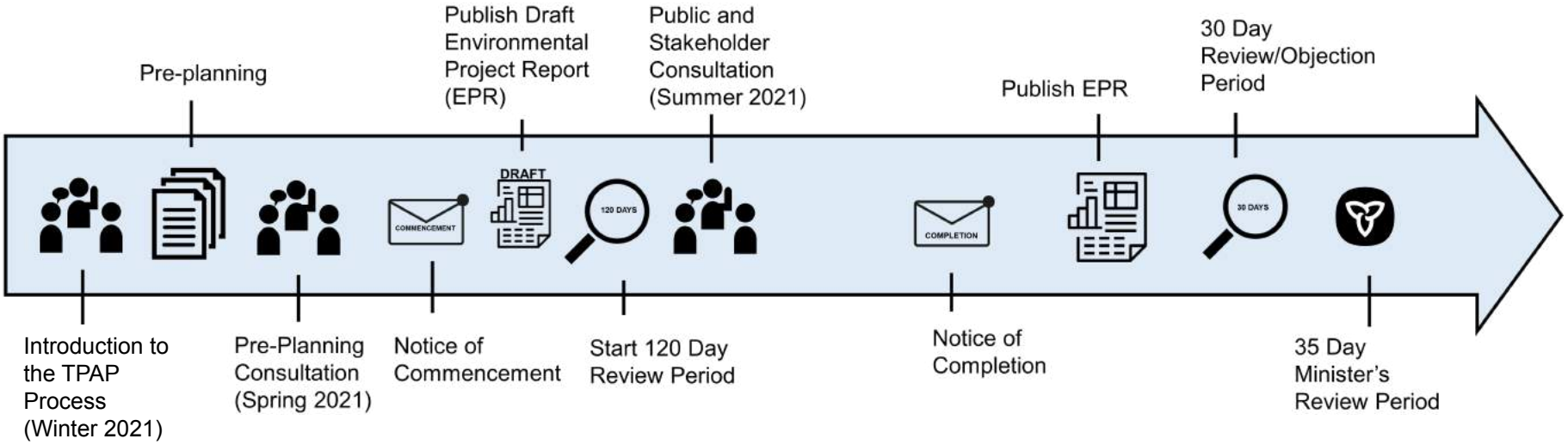
What is a TPAP?

The Transit Project Assessment Process (TPAP) is the environmental assessment process designed specifically to document the environmental impact of proposed transit projects through a public and stakeholder engagement process. The TPAP process puts particular emphasis on matters impacting provincial importance or matters impacting Indigenous treaty rights.

Why a TPAP for this project?

- Consolidates all changes along the corridor, creating an updated transit project to go through the TPAP process rather than filing amendments to multiple Environmental Assessments (EA),
- No impact to Preliminary Design and Engineering (PDE) timelines
- More reliable timelines than the EA addendum process
- Simplified process for future addendums if required through the design process
- Background technical work required is similar to the addendum process
- Considers matters of Provincial importance that relates to the natural environment or cultural heritage and infringement of existing Indigenous Treaty Rights

Transit Project Assessment Process (TPAP)



Environmental Project Report (EPR)

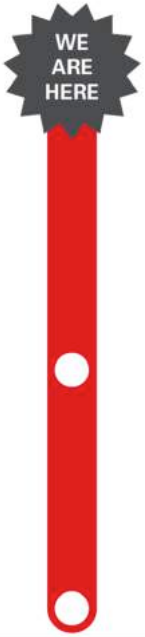
The Environmental Project Report describes the proposed project, including impacts and proposed mitigations, and documents the stakeholder and public engagement process.

At minimum, it will include the following sections:

- Definition of the proposed project including evaluation of alternatives.
- Transportation Analysis (Updated forecast of multi-modal transportation demand in the study area)
- Cultural Heritage Review
- Noise and Vibration Study
- Air Quality Study
- Socio-Economic Analysis
- Natural Environment Impact
- Implementation Plan (Including Construction Schedule)

TPAP Engagement Strategy

Existing and Future Engagement



Round 1 – Current

Round 2 - Spring 2021 Consultation will present key elements of the draft Environmental Project Report (EPR)

Round 3 - Summer 2021 Consultation will present the content of the published draft EPR for review and feedback from the public and stakeholders. The EPR is finalized over a 120-day review period.

Engagement Strategy
Engagement Beyond the Community Consultation

As part of the engagement for the TPAP process, in addition to the public meetings, meetings will be held with:

- Project Stakeholder Advisory Committee (SAC)
- Impacted landowners
- Regulatory agencies
- Indigenous communities

Union & Queens Quay-Ferry Docks Stations: Preliminary Design and Engineering

Vincent Teng, Toronto Transit Commission

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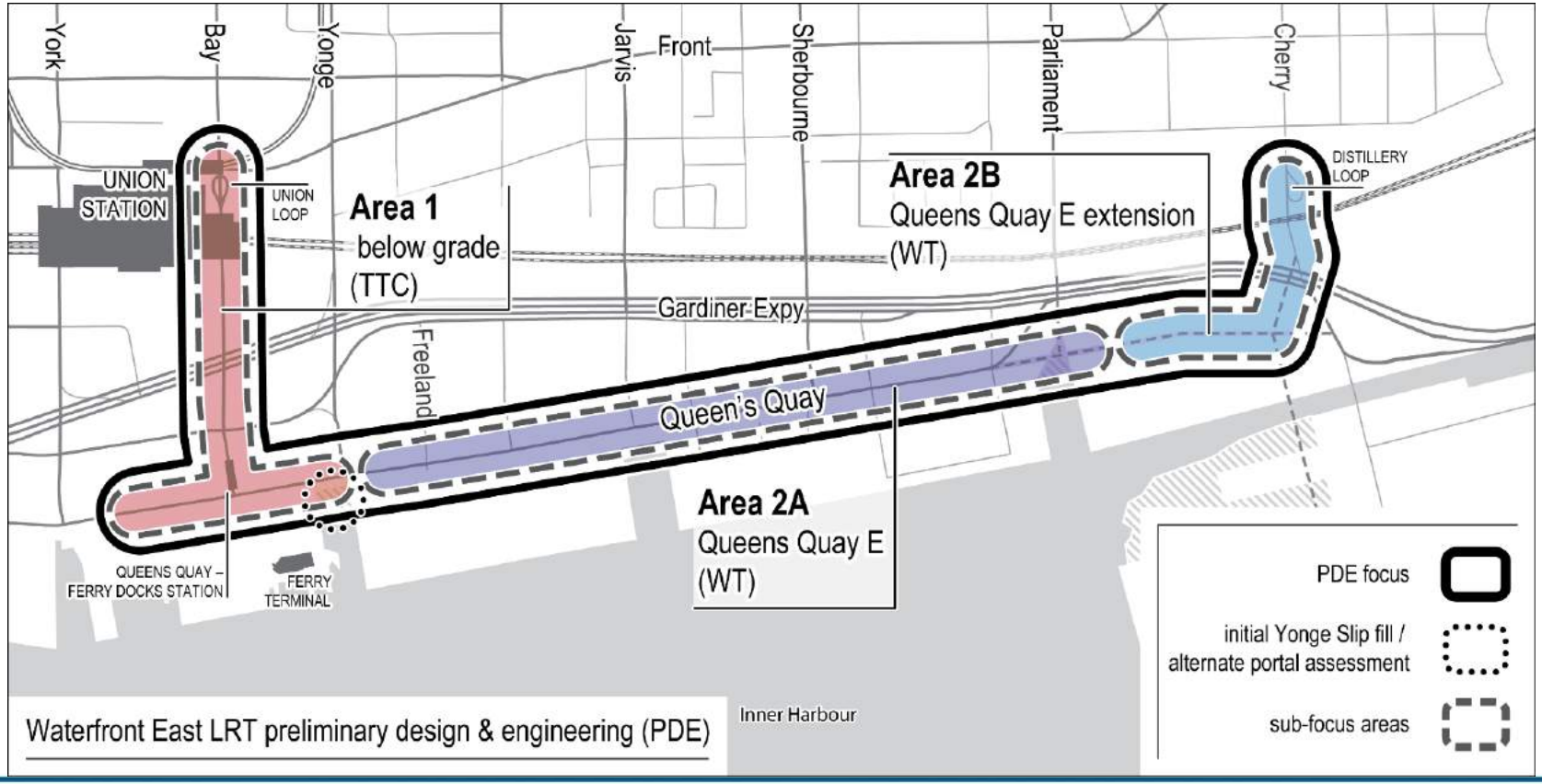
Design Progress: Area 1 (Below-Grade Section)



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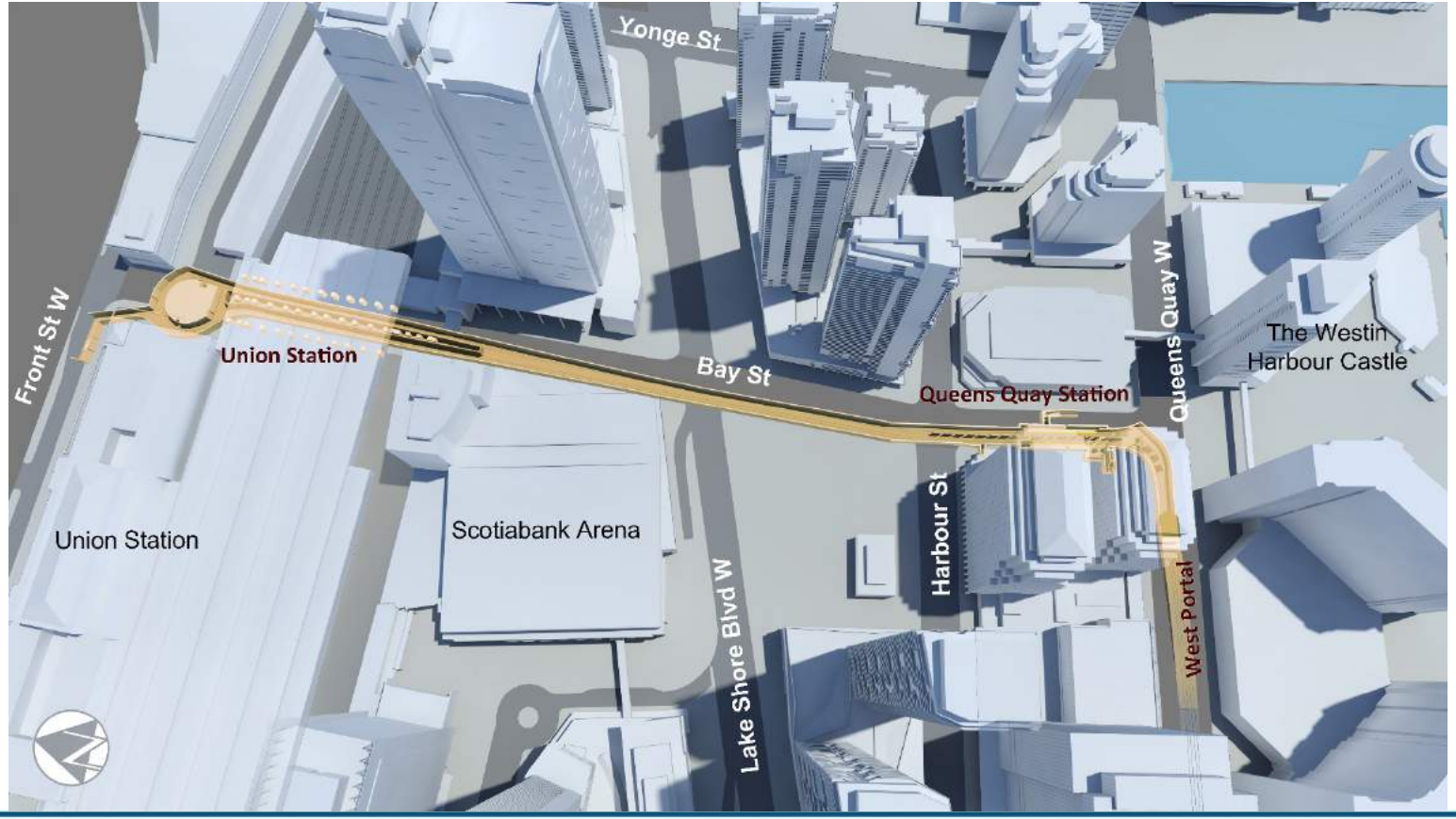
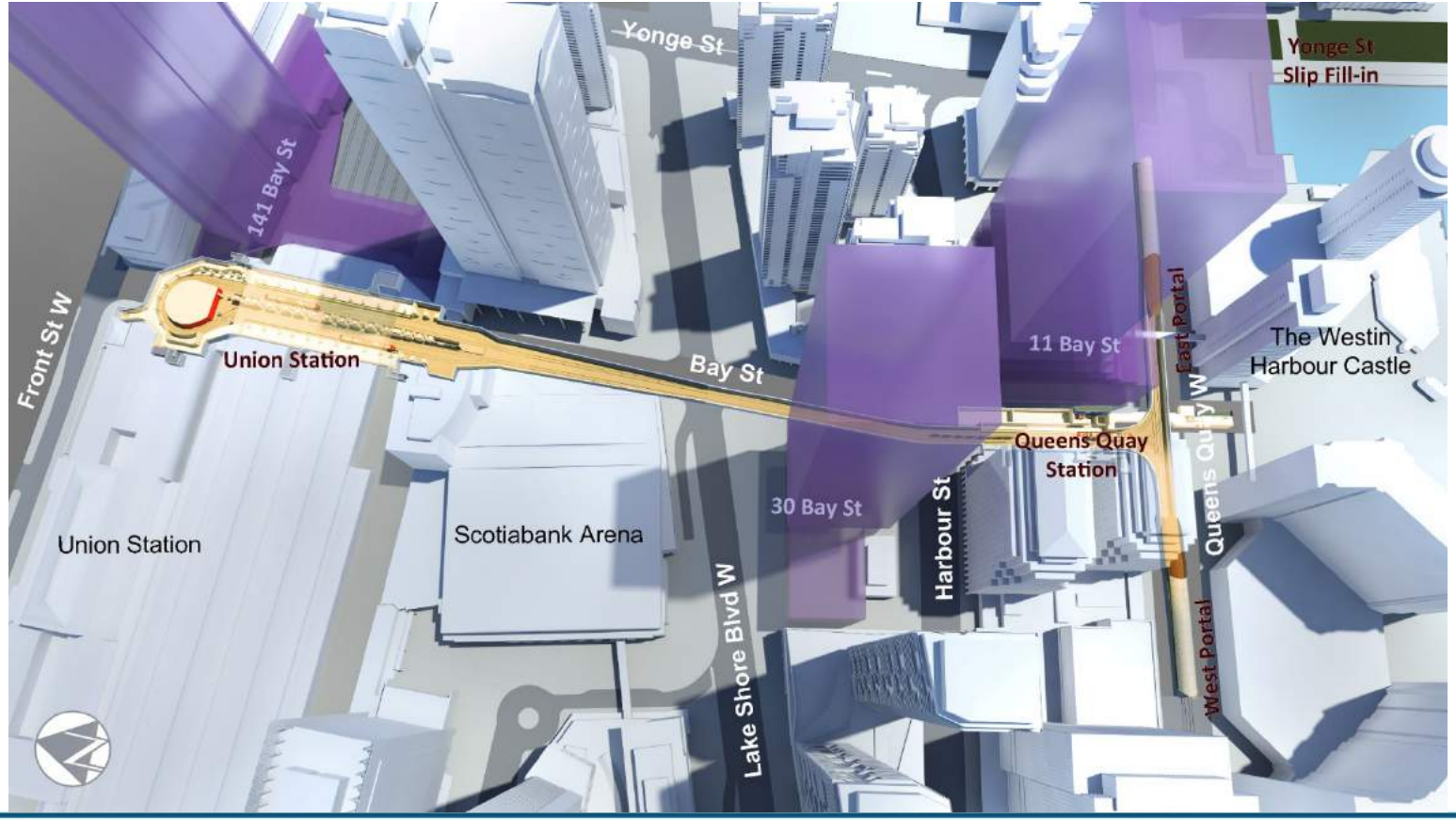


Existing

Design Progress: Area 1 (Below-Grade Section)

Proposed

Design Progress: Area 1 (Below-Grade Section)

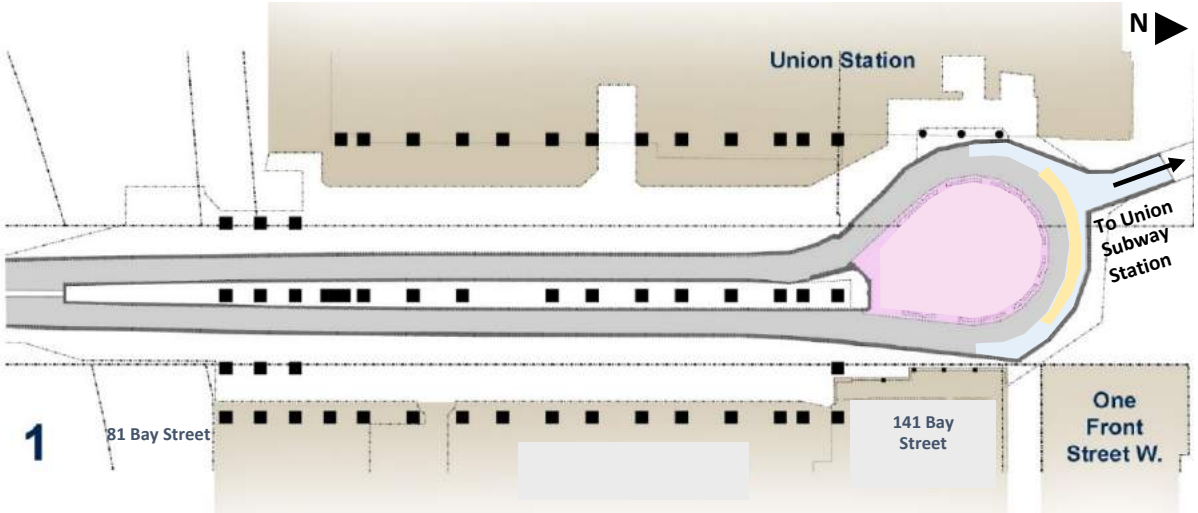


Proposed with active developments

Design Progress: Area 1 (Union Station)

LEGEND

- Passenger Circulation
- Platforms
- Mechanical/Electrical/Service Rooms

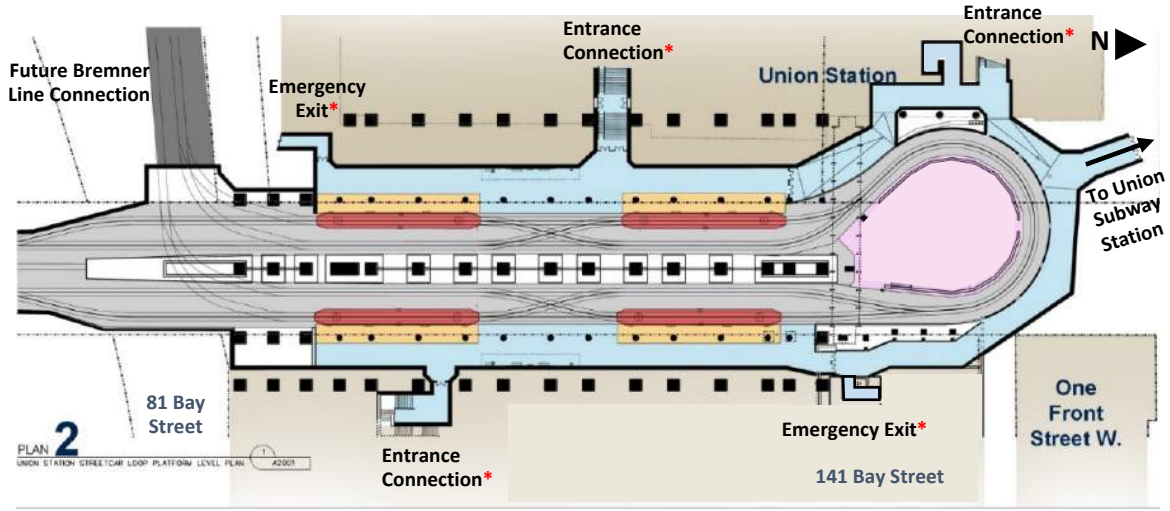


Existing Platform Level

Design Progress: Area 1 (Union Station)

LEGEND

- Passenger Circulation
- Platforms
- Mechanical/Electrical/Service Rooms



Proposed Platform Level

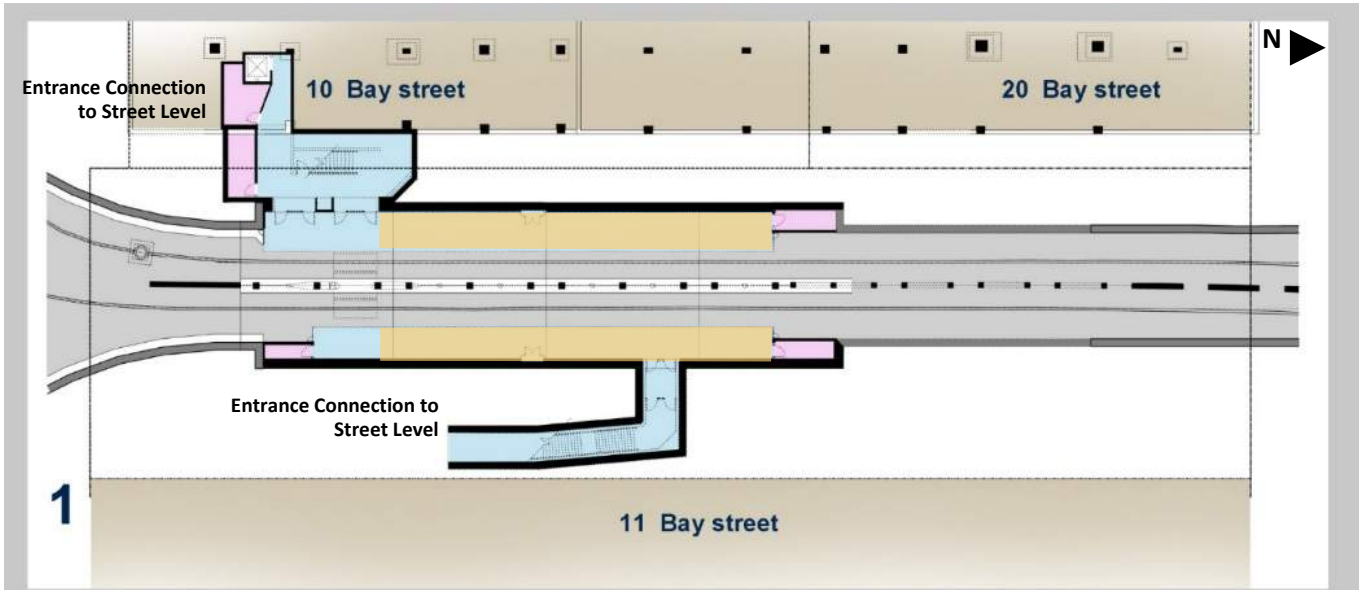
* Full station build-out shown. Design subject to change based on results of Phasing Study.

* All new entrance connections and emergency exits subject to change/refinement based on further coordination/discussion with stakeholders.

Design Progress: Area 1 (Queens Quay-Ferry Docks Station)

LEGEND

- Passenger Circulation
- Platforms
- Mechanical/Electrical/Service Rooms
- Smoke Exhaust
- Fresh Air Intake



Existing Platform Level

Design Progress: Area 1 (Queens Quay-Ferry Docks Station)

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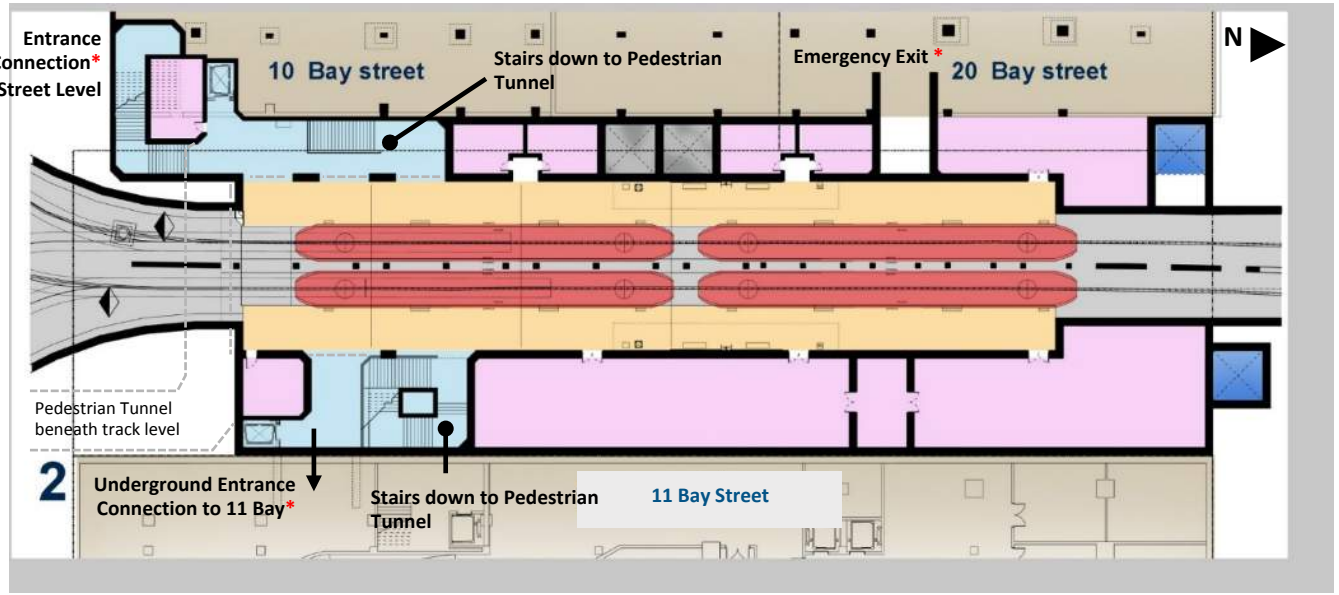

Proposed Platform Level

* Full station build-out shown. Design subject to change based on results of Phasing Study.

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Ongoing Work Status: Area 1 (Below-Grade Section)

Preliminary design starts with a focus on validating and building-on engineering work undertaken to-date.

Coordination of work with adjacent projects (public and private) in project area.

Coordination of design work with key landowners, including those with active development applications.

Started site surveys, including condition assessments, supplementary Geotechnical Site Investigations, topographic and subsurface utility surveys.

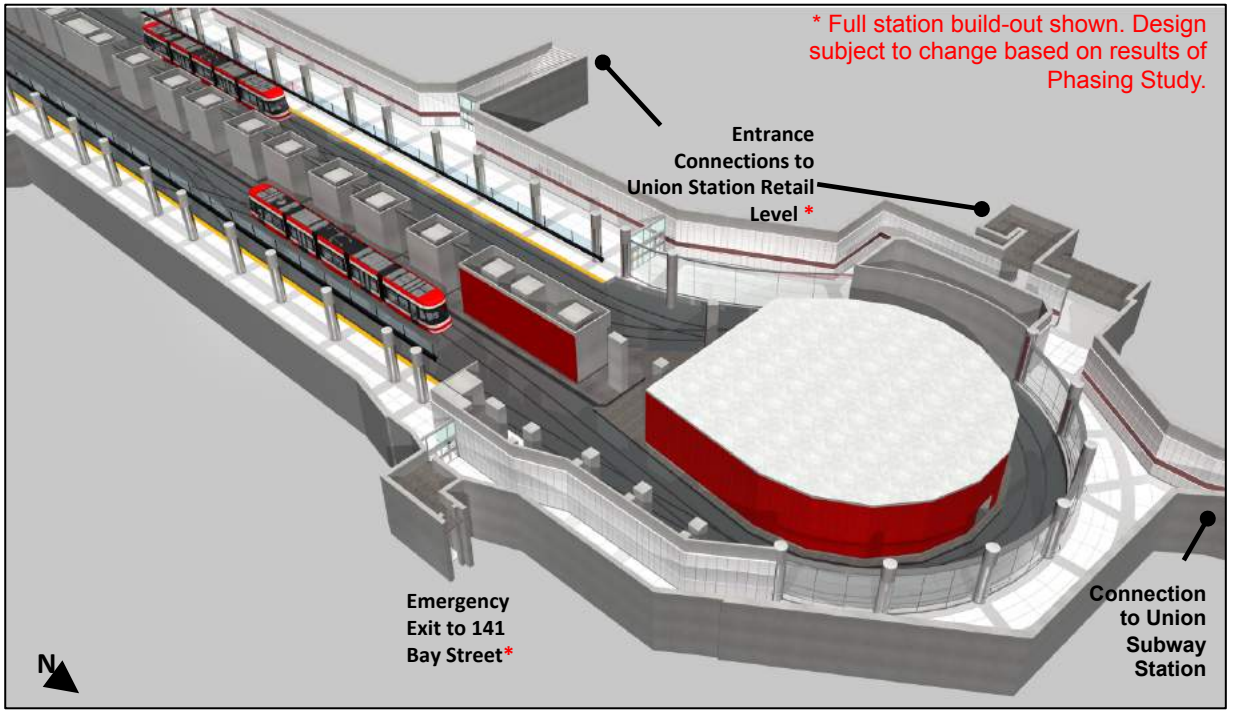
Summer 2020

Design Progress: Area 1 (Below-Grade Section)

Preliminary Union Station Renderings

View looking north from west platform.

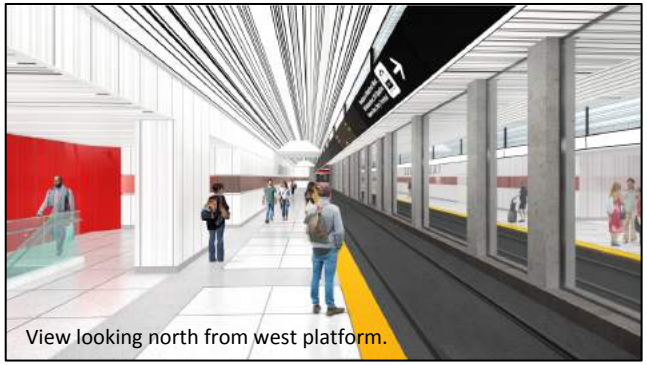
View looking south from Union Subway Station connection.



* All new entrance connections and emergency exits subject to change/refinement based on further coordination/discussion with stakeholders.

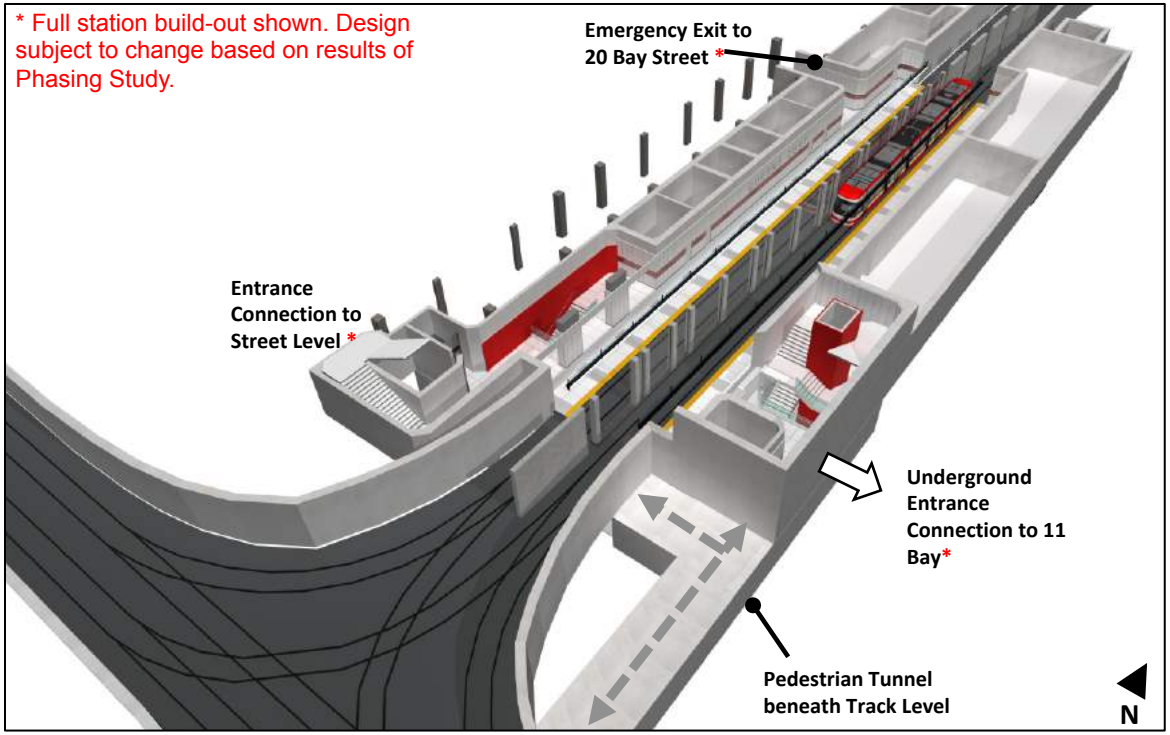
Design Progress: Area 1 (Below-Grade Section)

Preliminary Queens Quay-Ferry Docks Station Renderings



View looking north from west platform.

View looking north from east platform.



* All new entrance connections and emergency exits subject to change/refinement based on further coordination/discussion with stakeholders.

Next Steps

- Finalize concept design by Q1 2021
- Review and implement results of the Phasing Study
- Assess potential for east-west streetcar through-service on Queens Quay
- Continue design coordination with Waterfront Toronto and develop base design (30%)
- Complete draft 30% design and costing to inform the business case and 2022 budget cycle

Queens Quay East Street Design

Sonja Vangjeli, Waterfront Toronto

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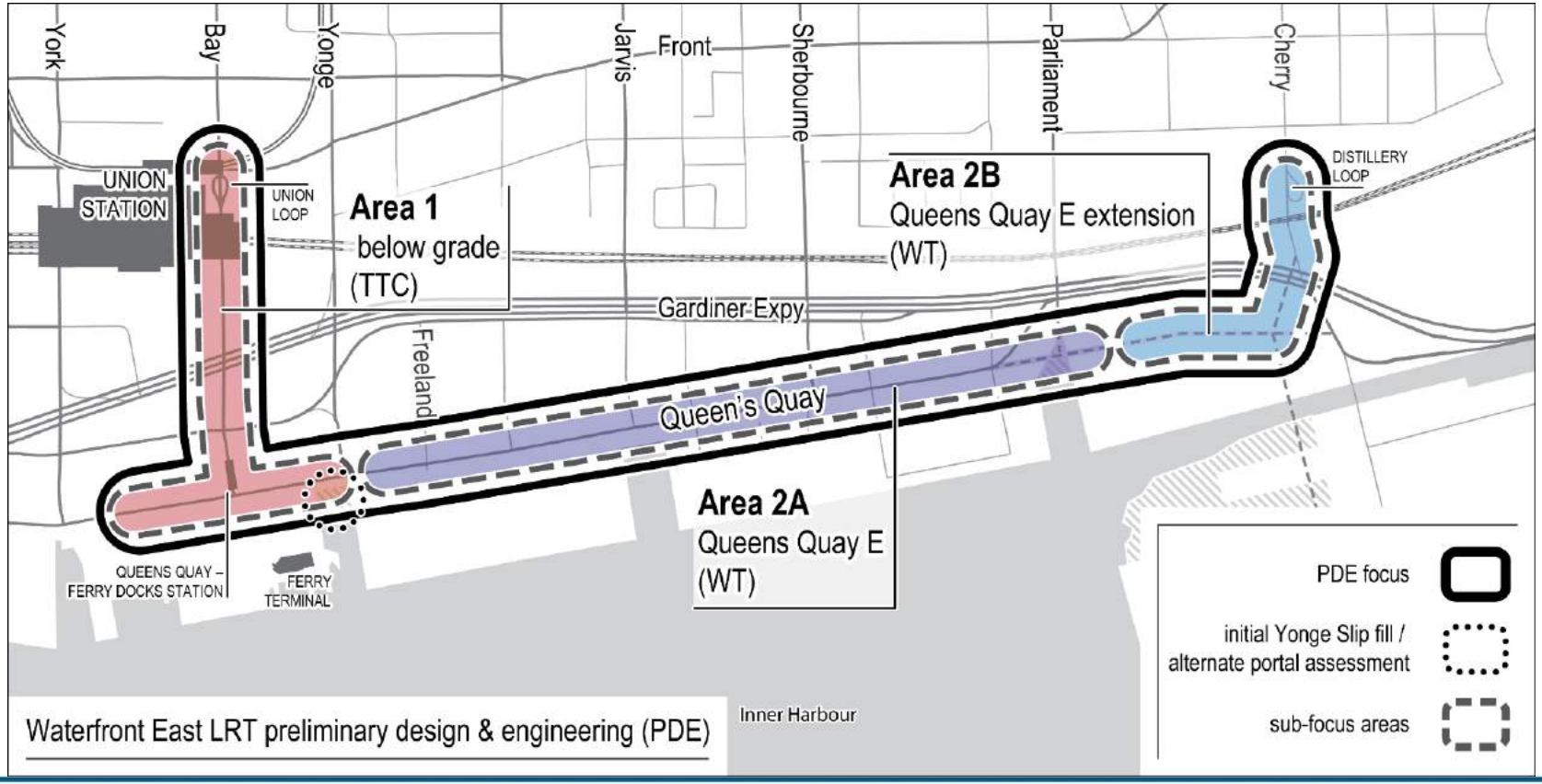
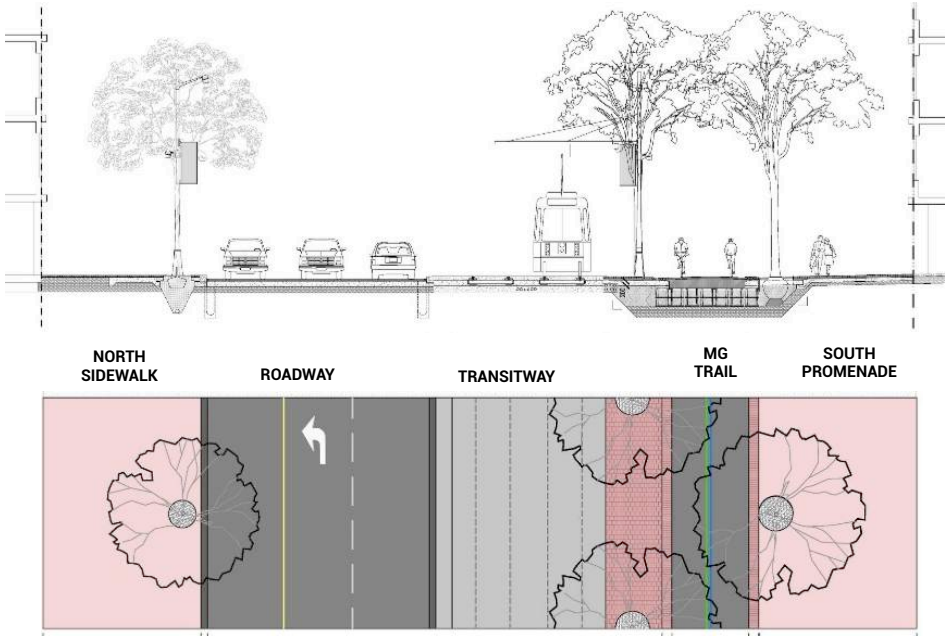
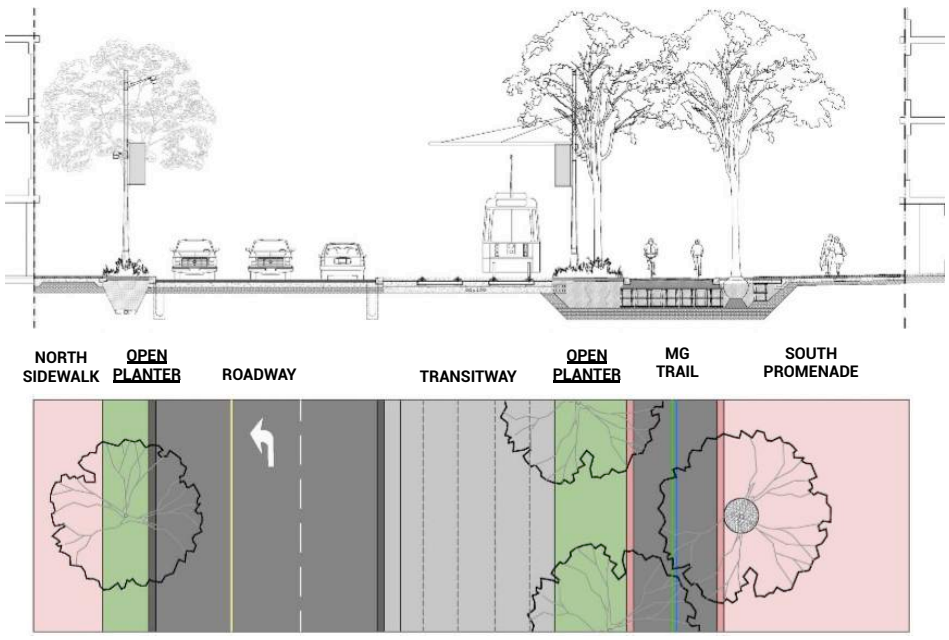
Queens Quay East Street Design for Area 2A



Changes to the Design : Typical Cross Section

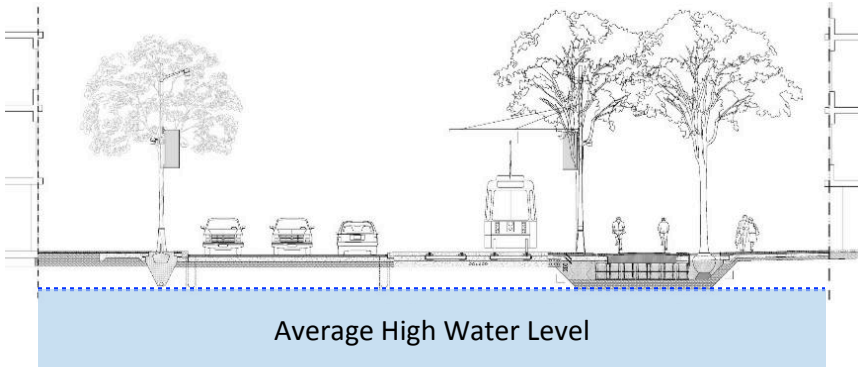


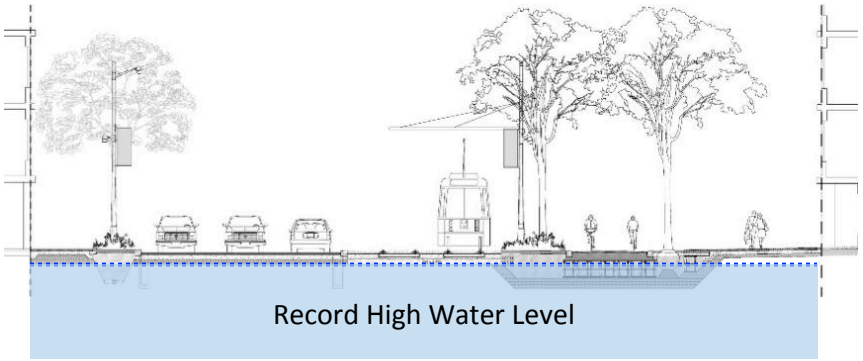
2012 - Typical Cross Section



2020 - Typical Cross Section – Open Planters

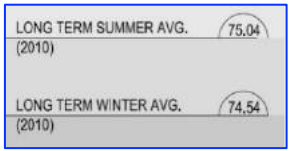
New Considerations: High Groundwater, Stormwater Mgmt.





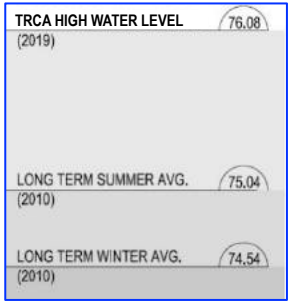
2012 Avg. High Lake Level 75.04

- Passive irrigation for trees on south side
- Overland flow; low points at Yonge and Jarvis head of slips; drainage goes to Lake Ontario



2020 – 100-year High Lake Level 76.08-76.20

- Ensure tree survival and health
- Integrate appropriate Low Impact Development (LID) stormwater management practices in context of high water levels, next to Lake



Tree Planting Design: Species Diversity & Groupings

Clustering trees of similar leaf forms and fall colours for emotional impact - broadleaf at building frontages, and finely textured trees at parks and heads of slips for improved views. Increased diversity of tree species for greater resilience to site challenges.

BROADLEAF TYPOLOGY

Species and cultivars of Maples, Oaks, etc.

FINELY TEXTURED TYPOLOGY

Species and cultivars of Honey Locusts, Elms, etc.

TREE TYPOLOGY Broadleaf Finely textured

ADJACENT CONDITION Slip Open Space

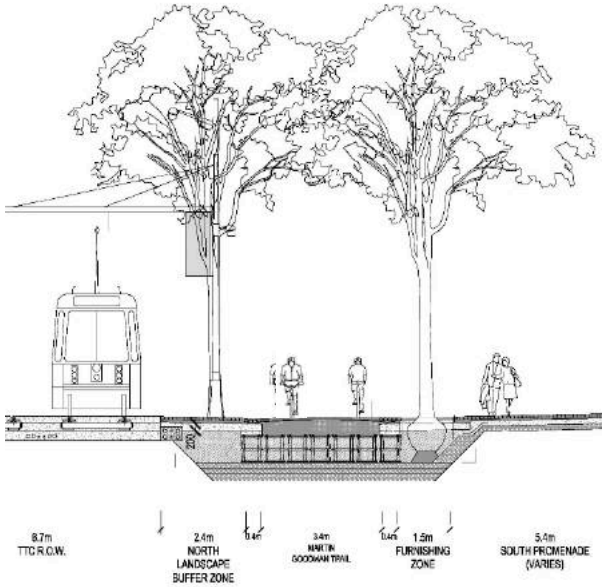
Planting Design: Resilient Groundcover Underplanting

Perennials & Bulbs

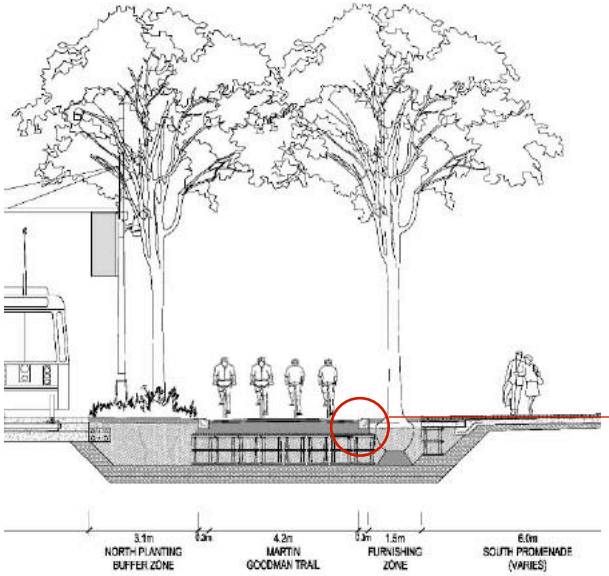
- Attractive flowers and foliage for an enhanced green street character
- No invasive, some exotic species and robust cultivars tolerant of urban stresses (salt, heat, contaminants, dust)
- Gravel mulch groundcover

Balance space between the Trail and Promenade:

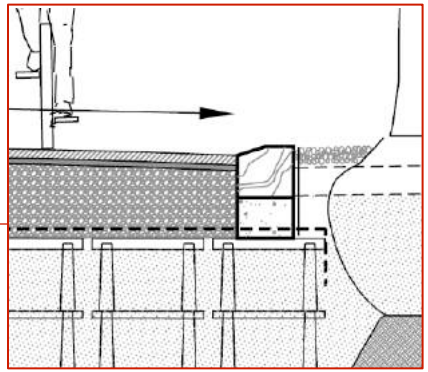
Wider Martin Goodman Trail with 5cm Grade Difference



2012
3.4m asphalt, no grade change

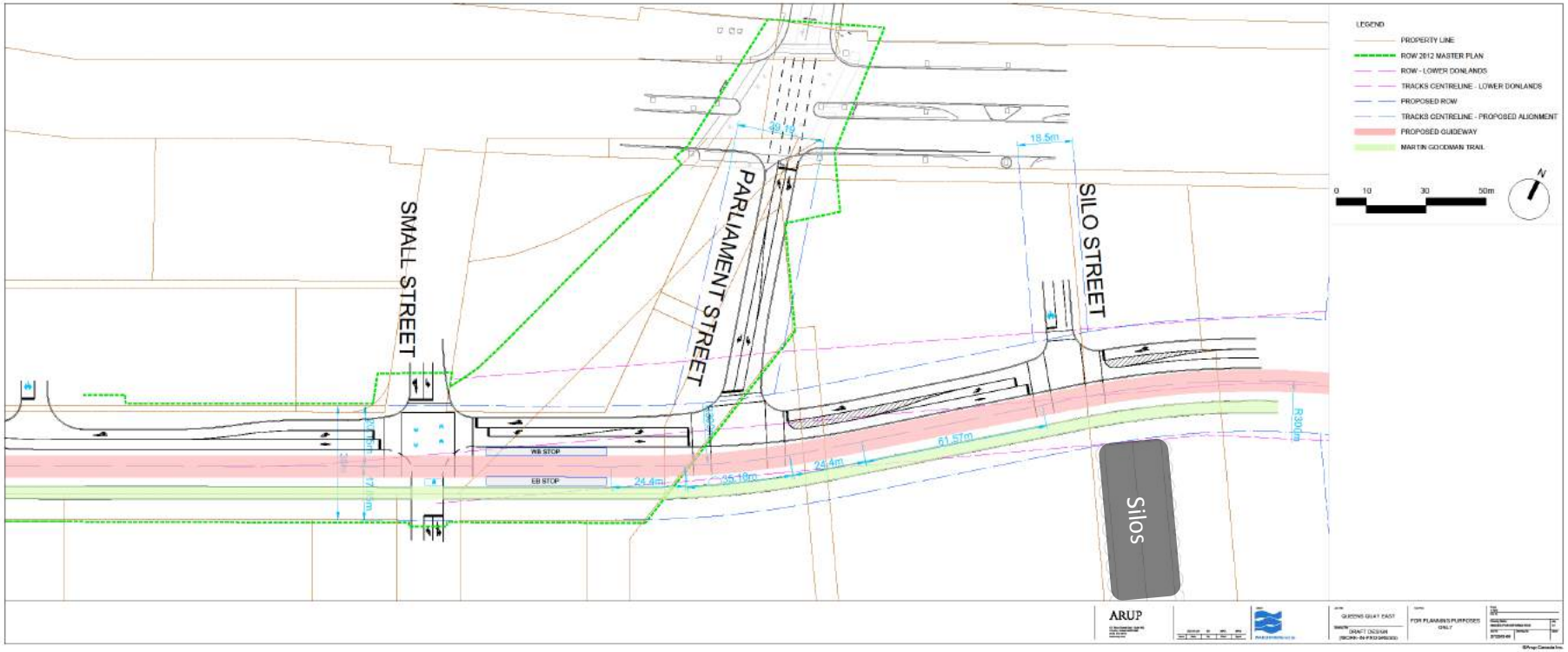


2020
4.2 m asphalt, **5cm** grade change

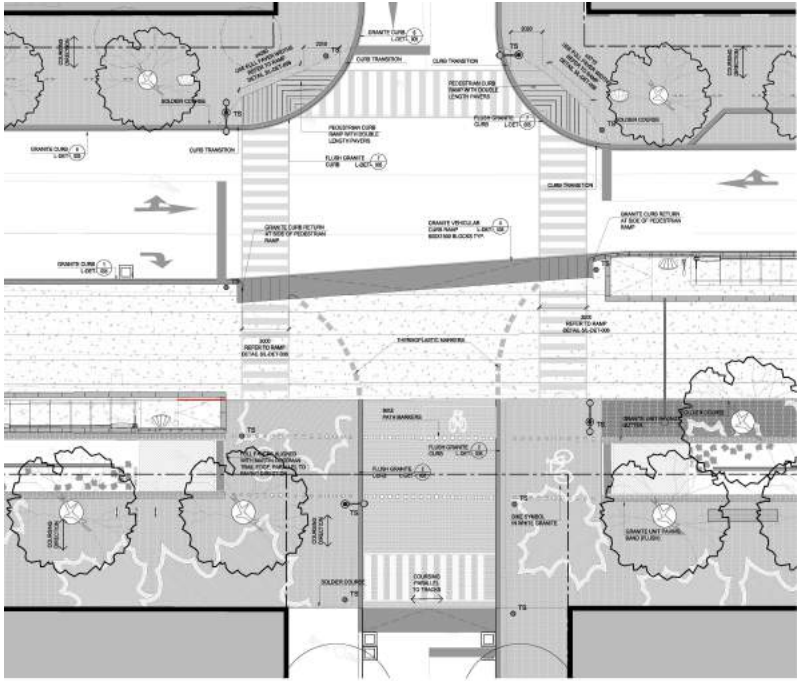


Curb Detail – 5cm grade change

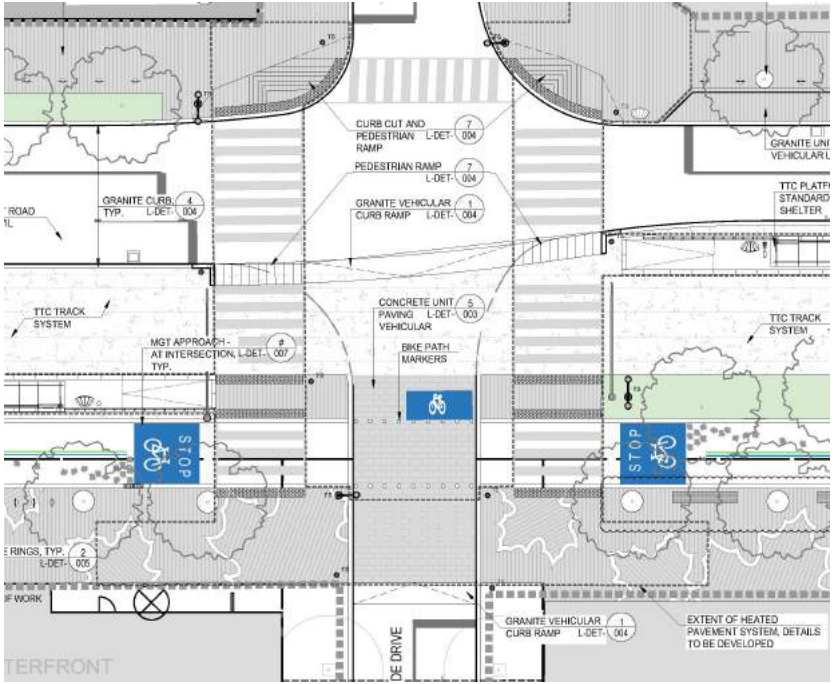
Changes to the Design : Queens Quay Alignment



Changes to the Design: Typical Intersection



2012 Design
Mixing Zone



Draft 2020 Design
Delineation between cyclists and pedestrians

Changes to the Design: Typical Intersection

2012 Design
Mixing Zone

2020 Design
Delineation between cyclists and pedestrians

* IMAGES FOR ILLUSTRATIVE PURPOSES ONLY

Improve the Arrival Experience: Special Plazas

Welcome at Intersections for Sense of Arrival

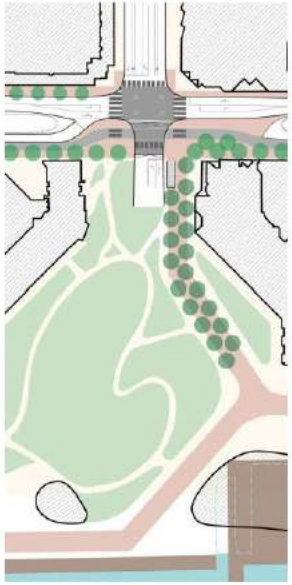
Bay Street
(Union Station, Ferry Terminal)

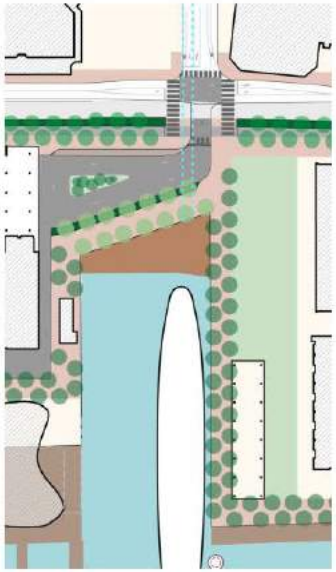
Yonge Slip
(Longest Street in the World)

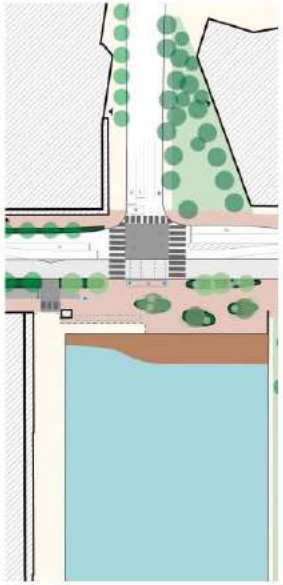
Jarvis Slip
(St. Lawrence Market)

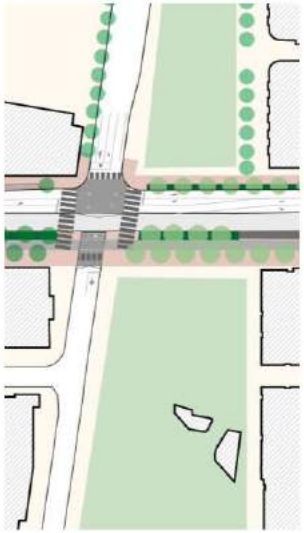
Sherbourne Street
(Important Cycling Connection)

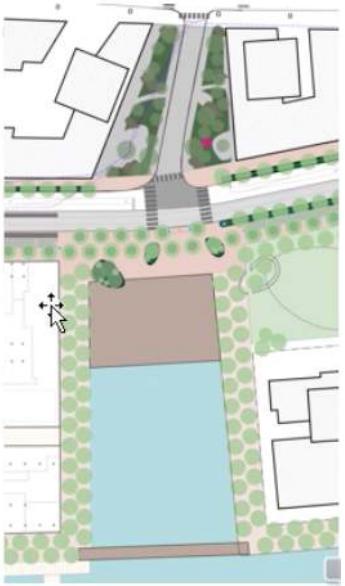
Parliament Slip
(Distillery District)











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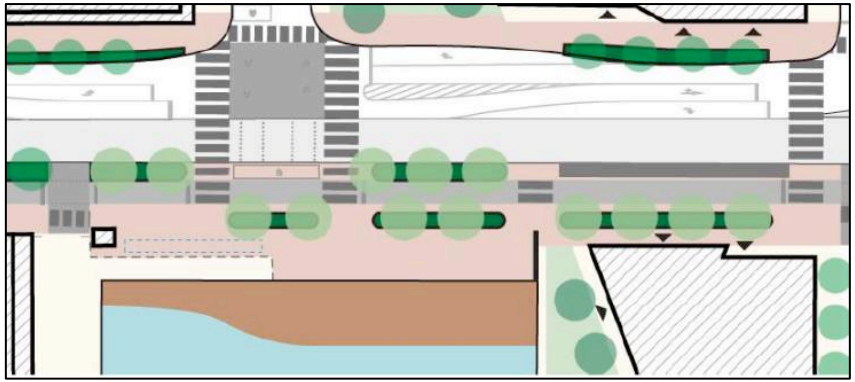
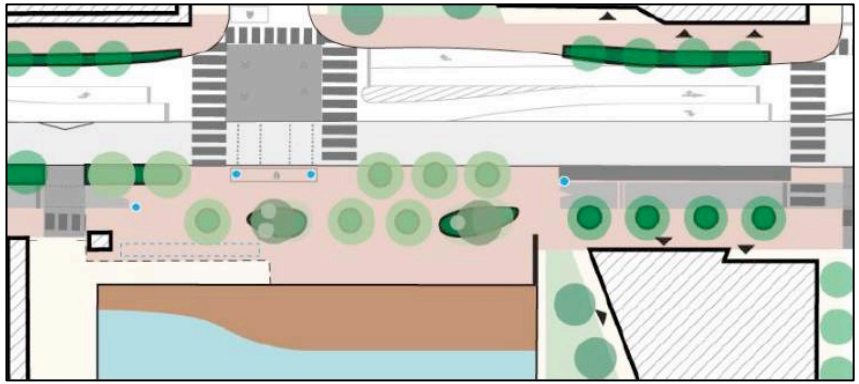
Special Character at Heads of Slips: Arrival Zones



Option 1: Delineate

- Same as “typical intersection” design
- Continuous asphalt MGT through the plaza
- Crosswalks extend south of MGT

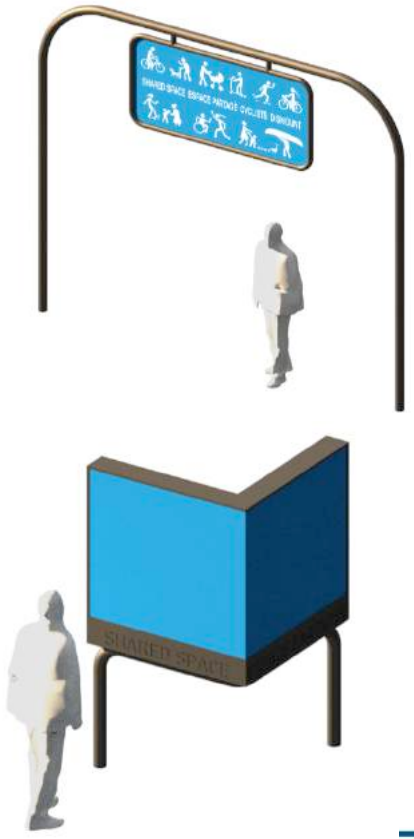


Option 2: Plaza

- Pedestrian focused area
- The MGT pavement stops along with other indicators of trail delineation
- Cyclists must navigate slowly through the space, prompted by new signage concept (next slide).

*IMAGES FOR ILLUSTRATIVE PURPOSES ONLY

Signage Concepts: Dynamic Shared Space Signage



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Digital Wayfinding Beacons Research: Proposal

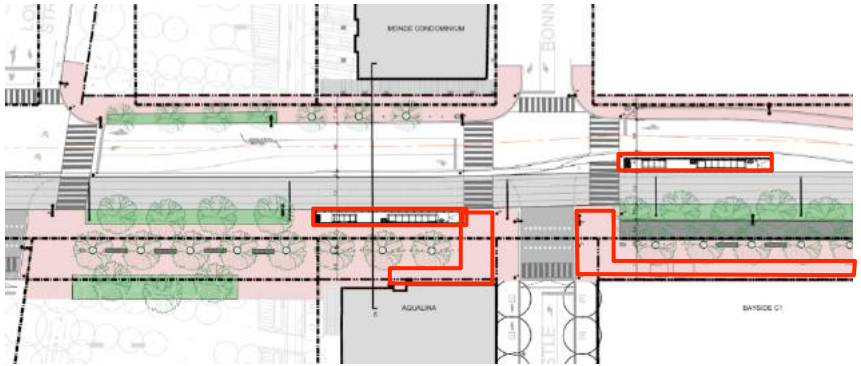
Potential Benefits

- Improve wayfinding in the public and private realm for people that are blind or partially sighted
- Improve access to transit, public space and cultural attractions
- Currently piloted by the TTC at St. Clair Subway Station

Considerations:

- Costs
- Ownership

Heated Paving Research: Proposal



Between TTC Stops and Building Entrances; TTC Platforms

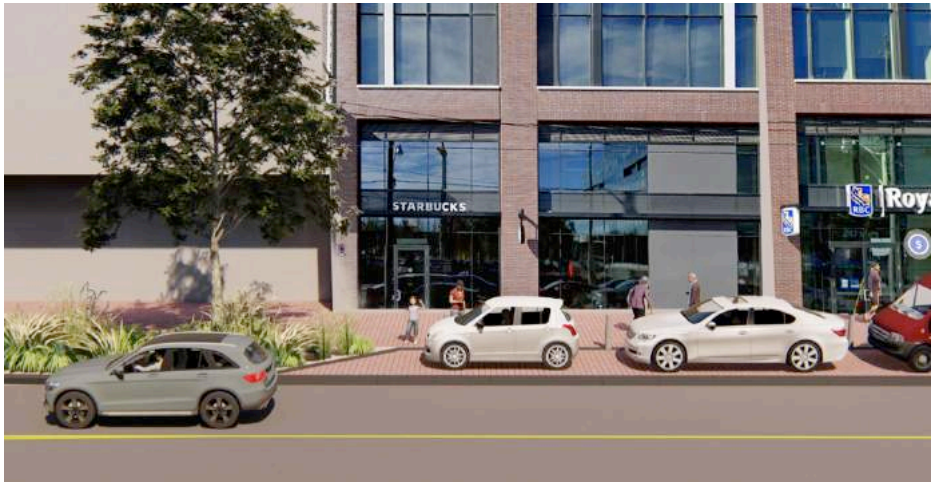
Potential Benefits

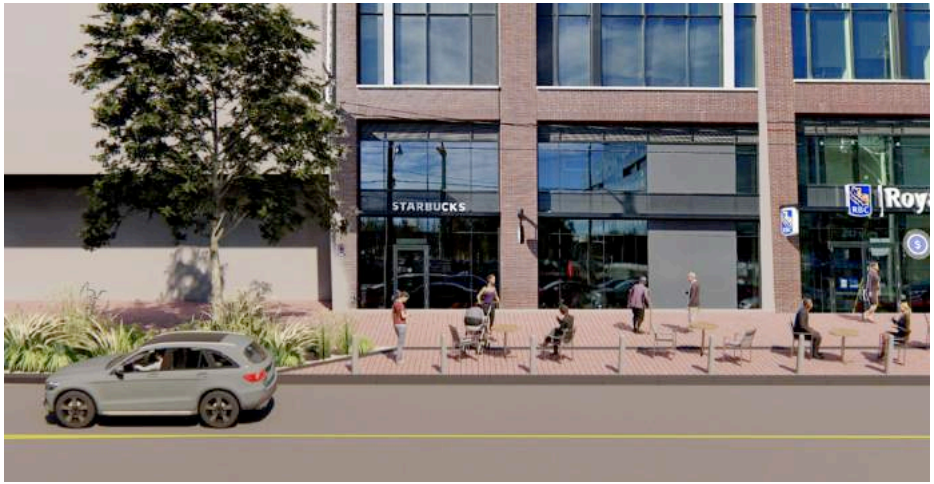
- Improved access to transit during winter months
- Reduce salt use and improve efficiency of maintenance

Considerations:

- Cost to install and operate vs. typical snow clearing practices
- Ease or ability to repair or maintain where melted snow runs off to, will freeze again. Study drainage.
- Effect of heating adjacent to plant roots. May require insulation detail
- *Case Studies: Montreal City Hall, Ste Catherine Street, Holland, Michigan, TTC pilot in Toronto*

Flexible Layby Design: Concept





Use as layby for vehicles

- Pedestrians protected by bollards.
- Row of trees north of layby can be provided where space allows.

Market Street - Winter

Manual Closure of Layby through moveable bollards for expanded Public Space, Patios

- Market Street example in Toronto.
- Depends on nature of adjacent ground floor uses.

Market Street - Summer

Next Steps

- Refine design of intersections and arrival plazas
- Monitor groundwater fluctuations this year to further develop planting design and relevant Low Impact Development (LID) strategies for stormwater management and passive irrigation
- Continue to coordinate with adjacent projects, parks, and developments
- Area 2A 30% design and costing by Summer 2021, coordinated with Area 1 & 2B by Fall 2021

Waterfront East LRT Extension Community Consultation

February 17, 2021
7:00 p.m. – 8:30 p.m.

Visit toronto.ca/waterfronttransit to join.