



East Waterfront LRT – Area 1 : Union to Queens Quay Link

Schematic Design

Sept. 22, 2021

East Waterfront LRT Project

Union to QQ Link

Proponent: TTC

Design Team: WOOD, SAI, PMA

Review Stage: Schematic Design

Scope Areas

Area 1 Underground Link

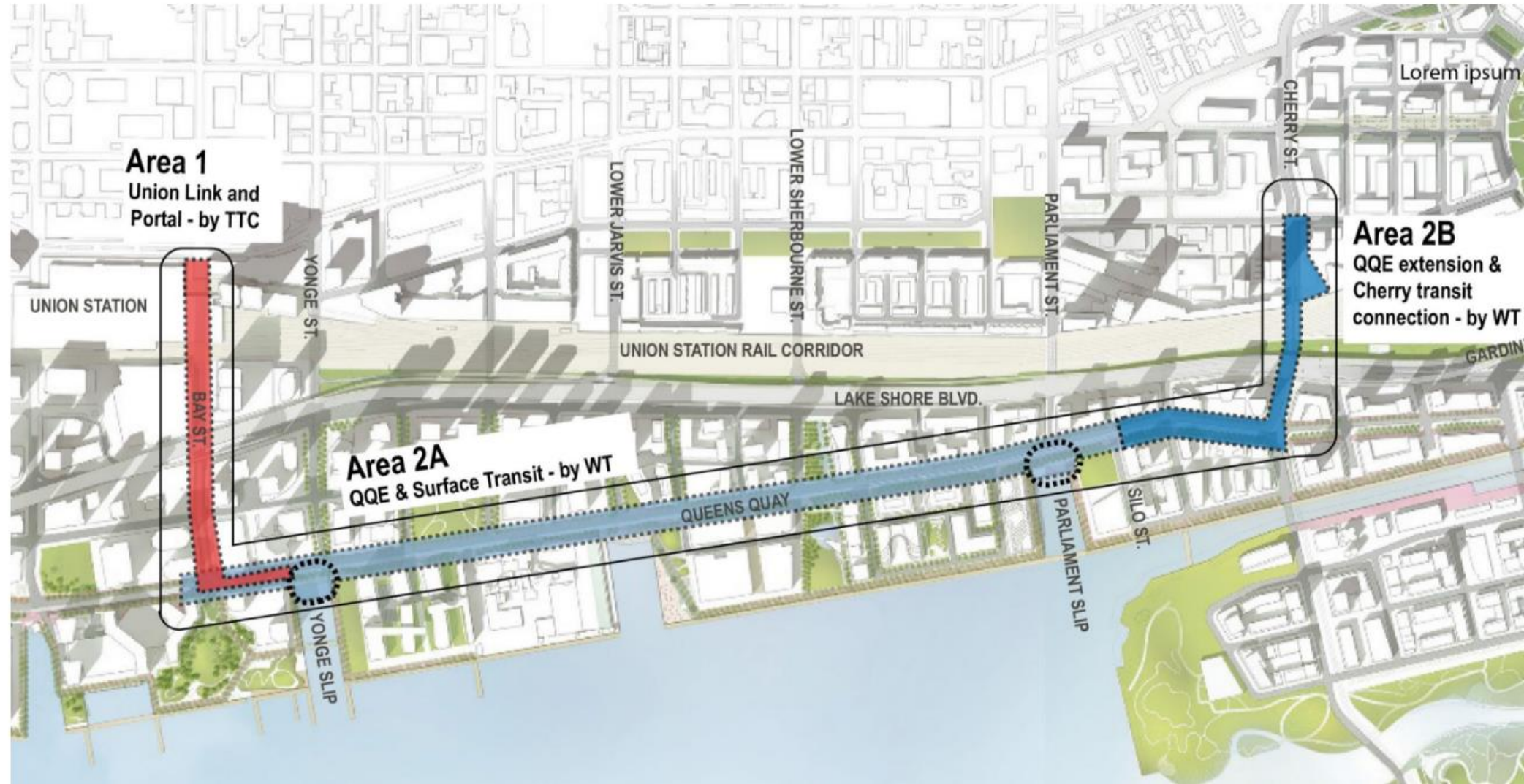
Union Station Loop expansion, tunnel, Queens Quay Station expansion and East and West Portals. (Managed by TTC)

Area 2A Surface Transit

Queens Quay East between Bay St. and the Silos including slip fill at Yonge and Parliament. (Managed by Waterfront Toronto)

Area 2B Surface Transit

Queens Quay East extension to New Cherry Street and LRT connection along New Cherry Street, from Queens Quay to the Distillery Loop. (Managed by Waterfront Toronto)



DRP Stream 2: Public land

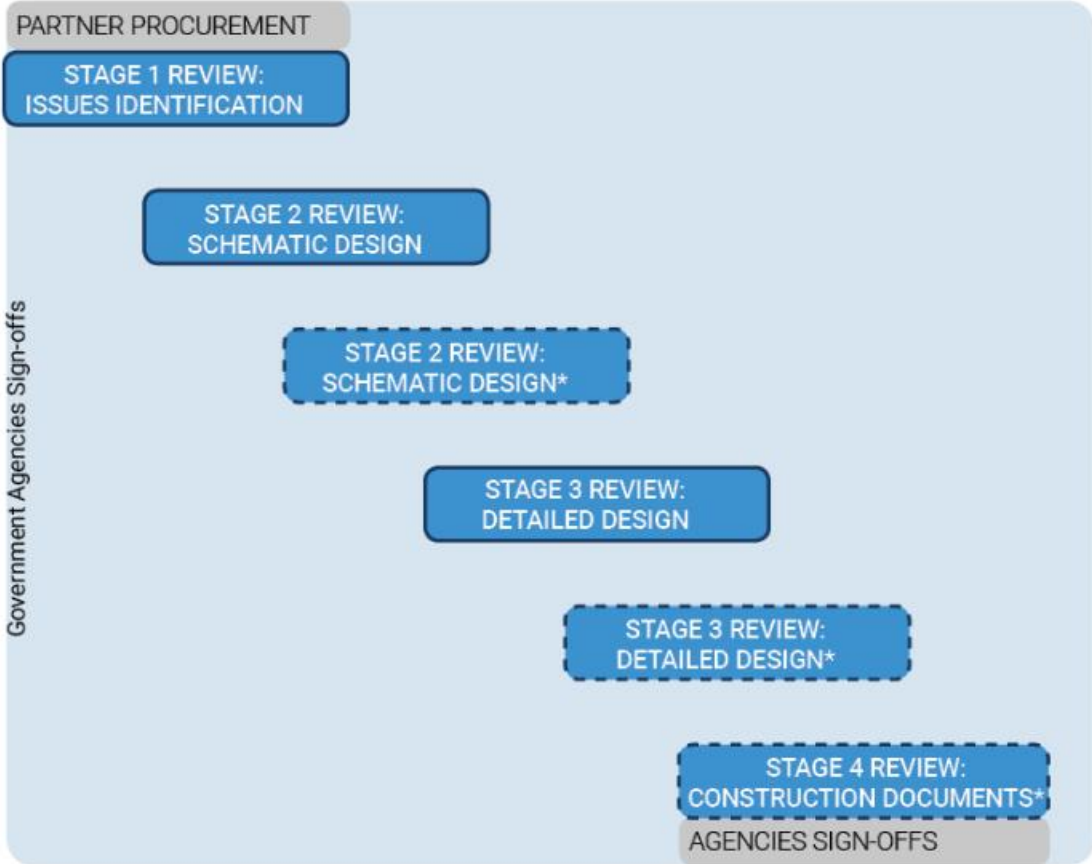
Project Approval Stage

Union to QQ Link
Proponent: TTC
Design Team: WOOD, SAI, PMA
Review Stage: Schematic Design

Bay St. Visioning
September 2021
Stage One review

Area 1 Union to QQ Link
March 2021
Stage One review

September 2021
Stage Two review



Recap from March 2021

Waterfront LRT Area 1 – Issues Identification Consensus Comments

Union to QQ Link

Proponent: TTC

Design Team: WOOD, SAI, PMA

Review Stage: Schematic Design

General

- Appreciated the complexity of the project, this is a once in a lifetime opportunity for Toronto –important for the team to **be bold and strive for big ideas**.
- Important to identify and prioritize the **user experience of the design**.
- Consider the **design of the public realm as one continuous experience** as it extends from the **surface to the underground**.

Station Design

- **Reconsider the Queens Quay pedestrian connection to the Ferry Terminal**. Not supportive of the proposed design as it is not a great experience and impedes at grade public realm. With the enormous traffic going both ways, the current proposed pedestrian elevator/stair enclosure structure at the Ferry Terminal constrains the at grade experience. Consider the alternative of supporting a well-integrated, at grade connection.
- Recommended to **avoid pinch points** by maximizing circulation and platform widths.
- The Panel does not support the station's connection to the PATH network through the above grade bridge on Bay.

Bay Street

- Given the “cut and cover” work required, the project is a once in a hundred-year opportunity for a cohesive re-envisioning of the entire Bay Street. Consider developing a **master plan strategy** to provide an opportunity to **capture all modes of traffic in the area**.

Portal Design

The portal designs require further development, consider the following:

- The glass canopy helps to offset rain from the portal to adjacent landscape, but the reflectivity and cleaning are concerns.
- Consider the **identity of an open, transparent gateway**, and explore **an alternative with no glass enclosure**.
- The portal will frame the important future Yonge Slip public realm. It is important to consider this context in developing a **strong identity for the portal designs**.
- Consider the feasibility and design of an **exposed timber structure** as it may require less maintenance over time and lower the embodied carbon of the project.

Sustainability

- This is an opportunity for an infrastructure project to set precedent for sustainability performance, **consider strategies of reducing overall embodied carbon of the project**.
- Consider **renewable energy opportunities**.

Areas for Panel Consideration

Waterfront Toronto

Union to QQ Link

Proponent: TTC

Design Team: WOOD, SAI, PMA

Review Stage: Schematic Design

Does the Panel support the design of the stations, entrances and circulation in creating a comfortable user experience arriving to the waterfront? Are they well integrated with the context?

- Station configuration and street interface with the waterfront context
- A continuous underground to surface experience (circulation, character, materiality)
- Current and anticipated future pedestrian movement
- Queens Quay pedestrian connection to Ferry Terminal enclosure (design, integration with adjacent public realm)

Do the surface structures adequately signify the transit connections and support the Bay St arrival at the Waterfront? Are the wayfinding and signage strategies adequate?

Does the updated portal design provide an iconic gateway to the waterfront and integrate well with the character and identity of Queens Quay and the central waterfront?

Are there additional opportunities for integration of the underground stations design with the future Bay St. streetscape that the team should consider in the next stage of design?

- i.e. Opportunities for bringing natural light into station

Project Overview

Area 1 Union to Queens Quay Link

Union to QQ Link

Proponent: TTC

Design Team: WOOD, SAI, PMA

Review Stage: Schematic Design

Scope Area

Expansion of stations and underground link between Union and Queens Quay under Bay St. with new platforms to serve East LRT extension

Road reconstruction and public realm enhancement on Bay St. from Front St. to Queens Quay

New portal structures and canopies on Queens Quay east and west of Bay St.



Project Overview

Project Engineering Design Status



Estimated Construction Timeline:*

- Construction Commencement – Estimated Q2 2025
- Construction Completion – Estimated Q2 2031

*Construction timeline is based on design-bid-build project delivery approach, does not consider early works and is subject to change based on further project approval and design development .

Project Context – Existing Conditions



Project Context – Existing Conditions



Project Context – Existing Conditions



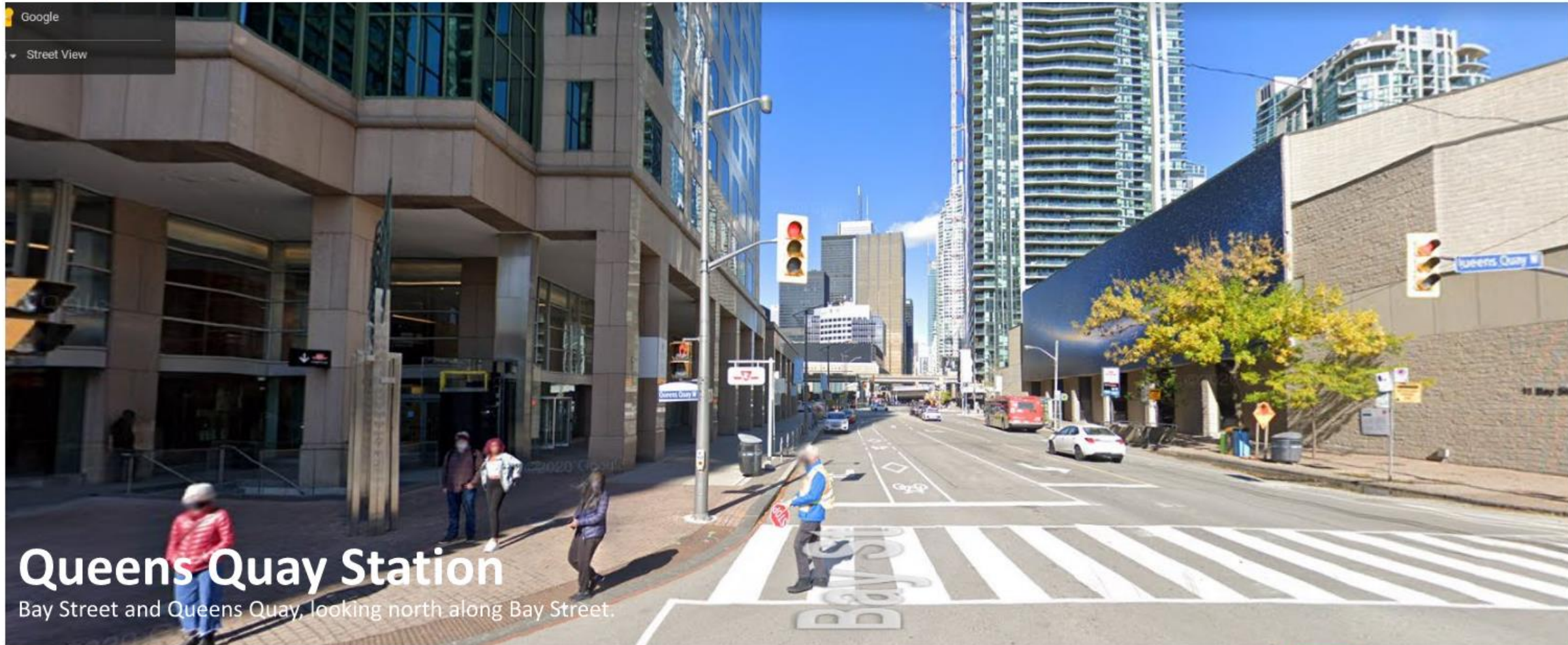
Union Station

Existing Curved Platform (view looking east).

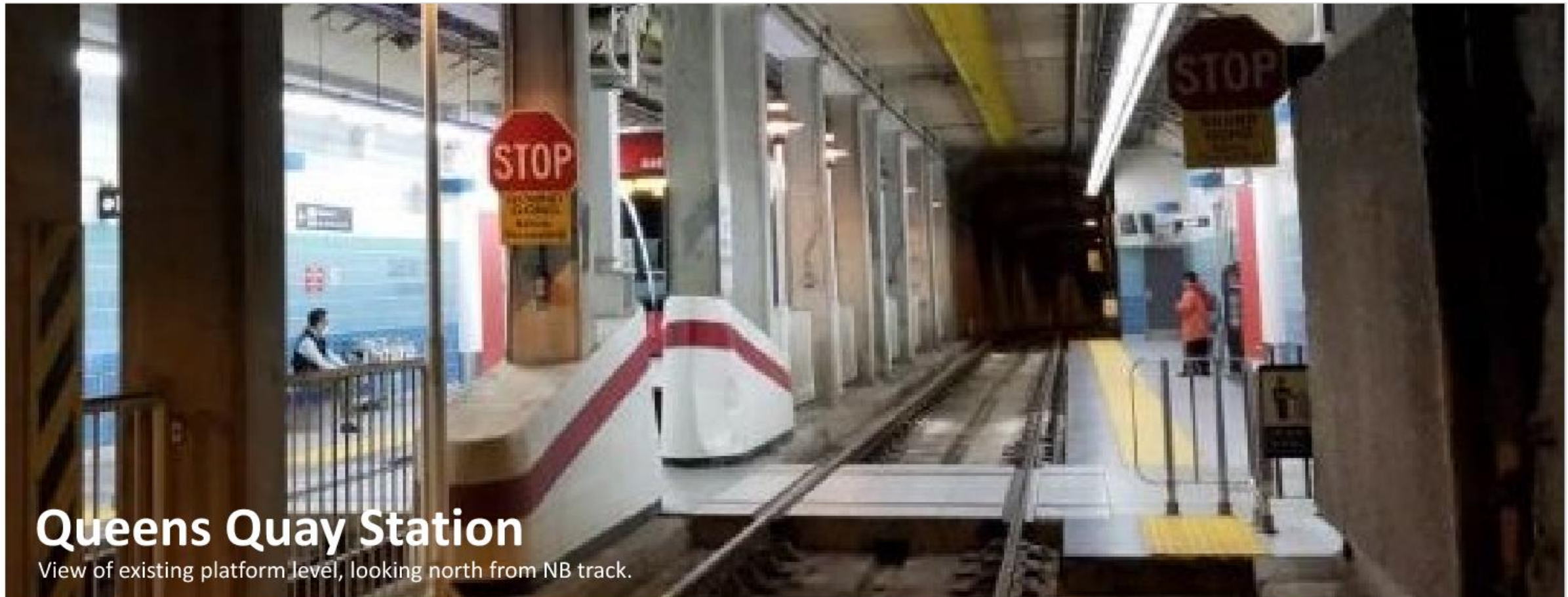


Existing Tunnel Pathway to Streetcar Platform from Union
Subway Station Eastbound Platform (view looking south).

Project Context – Existing Conditions



Project Context – Existing Conditions

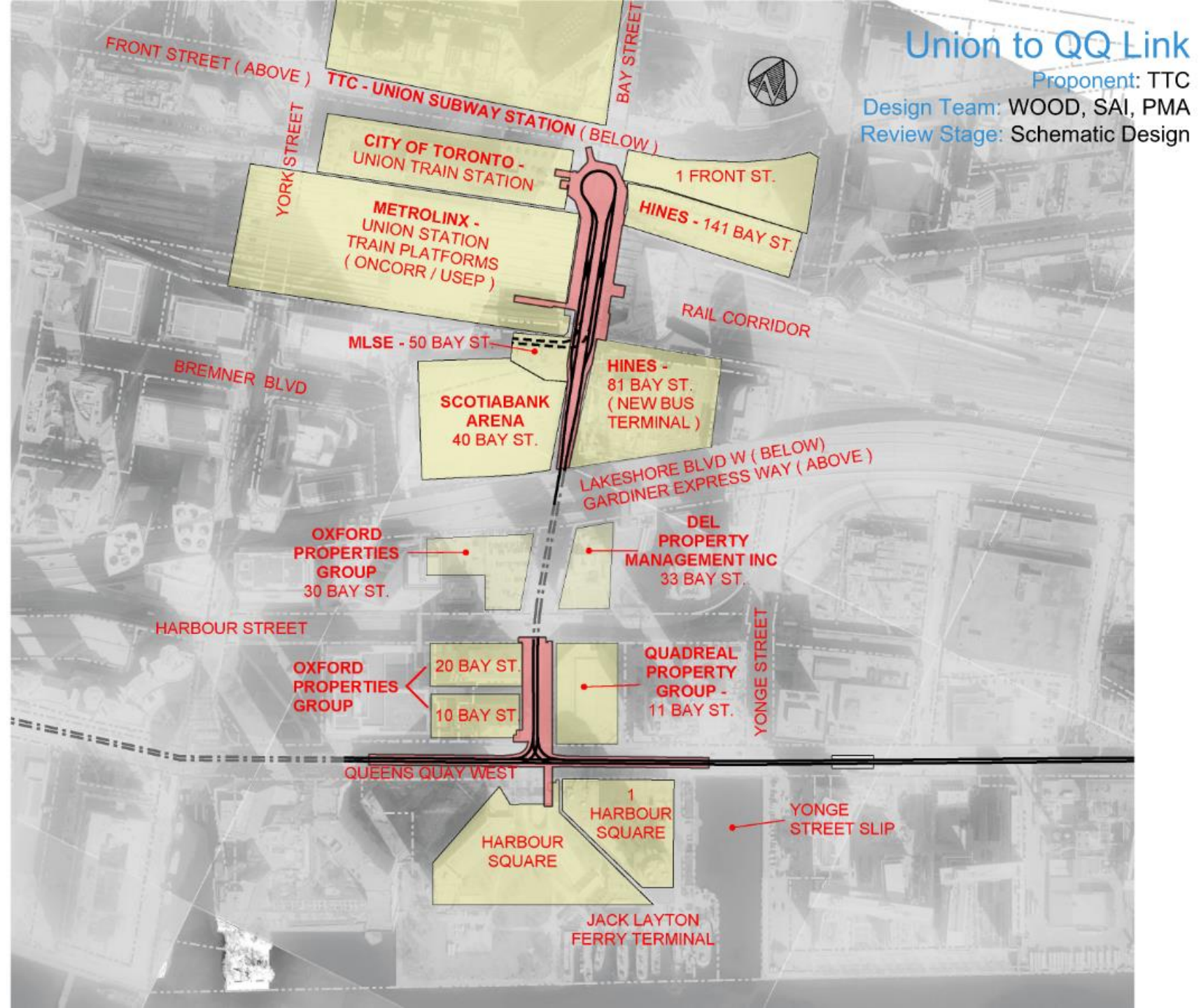


Project Context – Existing Conditions



Project Context

Integration with Adjacent Projects



Project Context

45 - 141 Bay (CIBC Square) – Station Entrance Integration in Teamway

Union to QQ Link

Proponent: TTC

Design Team: WOOD, SAI, PMA

Review Stage: Schematic Design

- 45-81 & 141 Bay Development (CIBC Square) - East Teamway at rail underpass and public realm improvements



Rendering showing East Teamway entrance at 141 Bay.



Recently completed pedestrian bridge and East Teamway under construction, view from south of railway corridor looking north.

Project Context

11 Bay Development – Station Entrance Integration

- 11 Bay Development - proposed public realm improvements on east side between Harbor and Queens Quay
- Station entrance integration
- Design currently on hold



Union to QQ Link

Proponent: TTC

Design Team: WOOD, SAI, PMA

Review Stage: Schematic Design



Project Context

Portal Design Integration with Yonge Slip & Queens Quay EAsT

Union to QQ Link

Proponent: TTC

Design Team: WOOD, SAI, PMA

Review Stage: Schematic Design



Project Context

Station Exit Integration with Jack Layton Ferry Terminal and Harbour Square Park Master Plan

Union to QQ Link

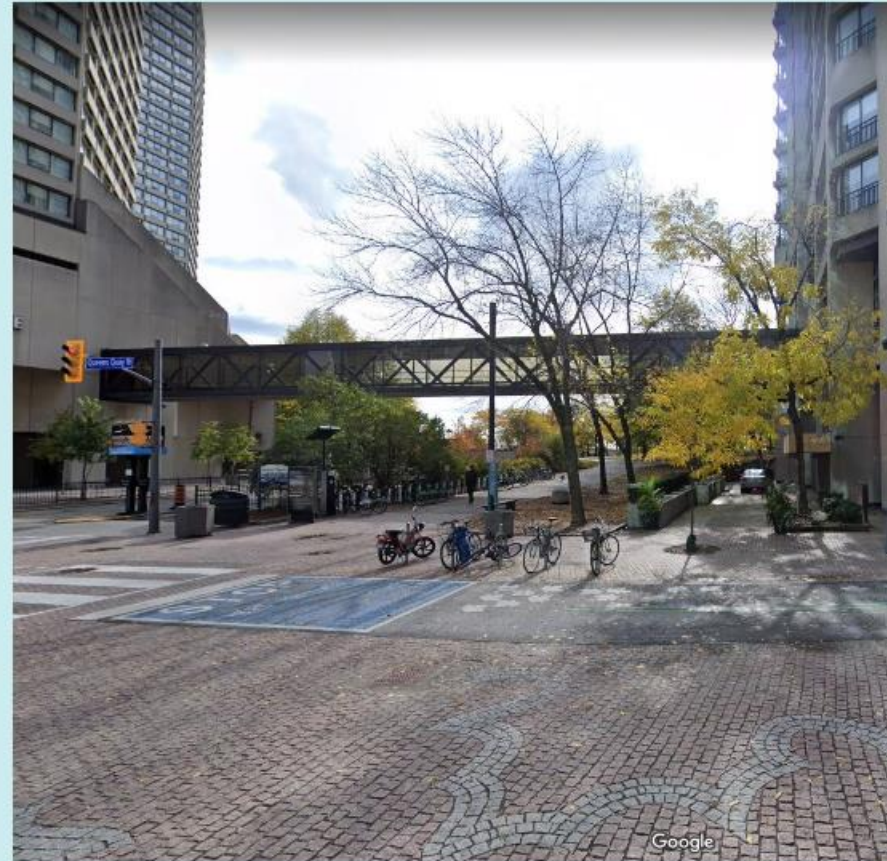
Proponent: TTC

Design Team: WOOD, SAI, PMA

Review Stage: Schematic Design



East promenade to Ferry Terminal



West entrance to Harbour Square Park



Project Context

Future Integration with Bay Street Visioning

Union to QQ Link

Proponent: TTC

Design Team: WOOD, SAI, PMA

Review Stage: Schematic Design



Center median "La Rambla" concept



West Side Bioscape concept



Waterfront Toronto Design Review Panel (DRP) Stage 2 – Schematic Design

TTC: Waterfront East LRT
OISO52004

September 22, 2021





Union Station



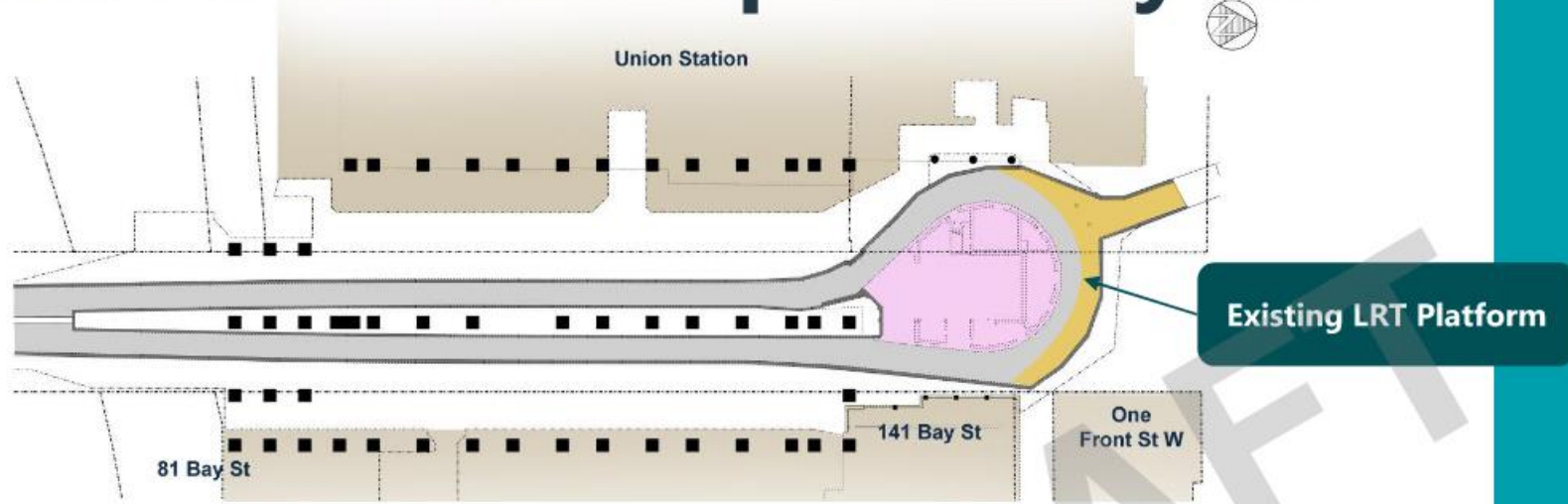
Passenger Experience

- Circulation
- Wayfinding
- Accessibility
- Materials & Finishes
- Atmosphere & Interest

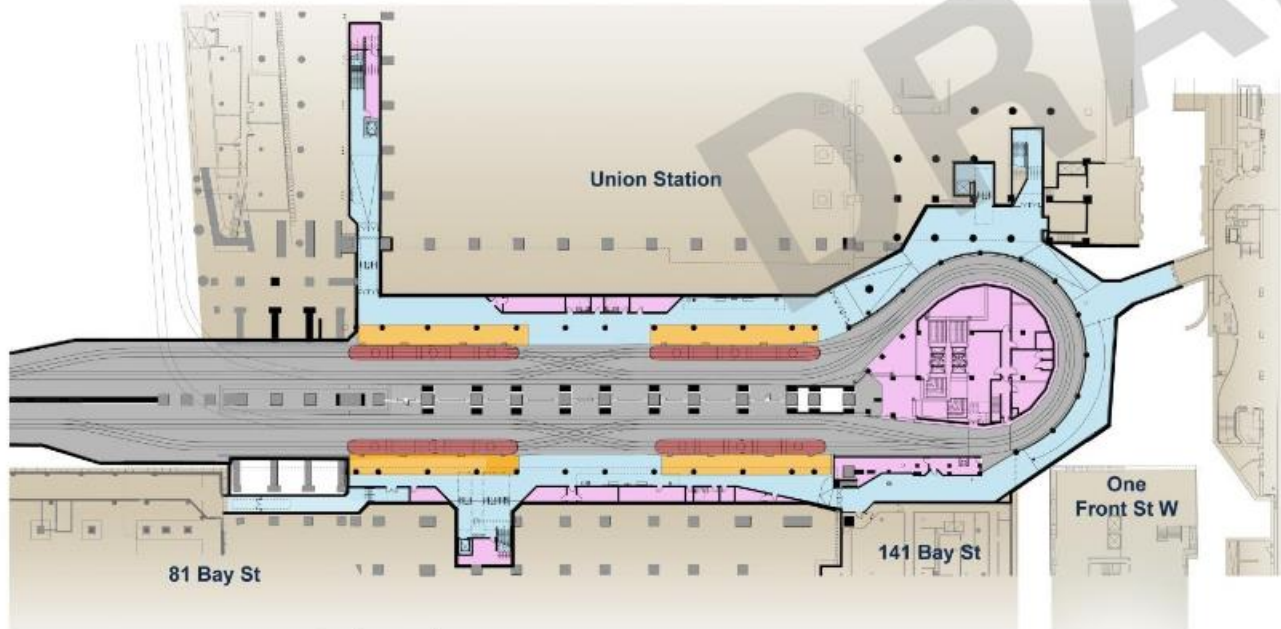


Union Station: Proposed Layout

1.



2.



1. Existing Plan

2. Proposed Plan

LEGEND



Passenger Circulation

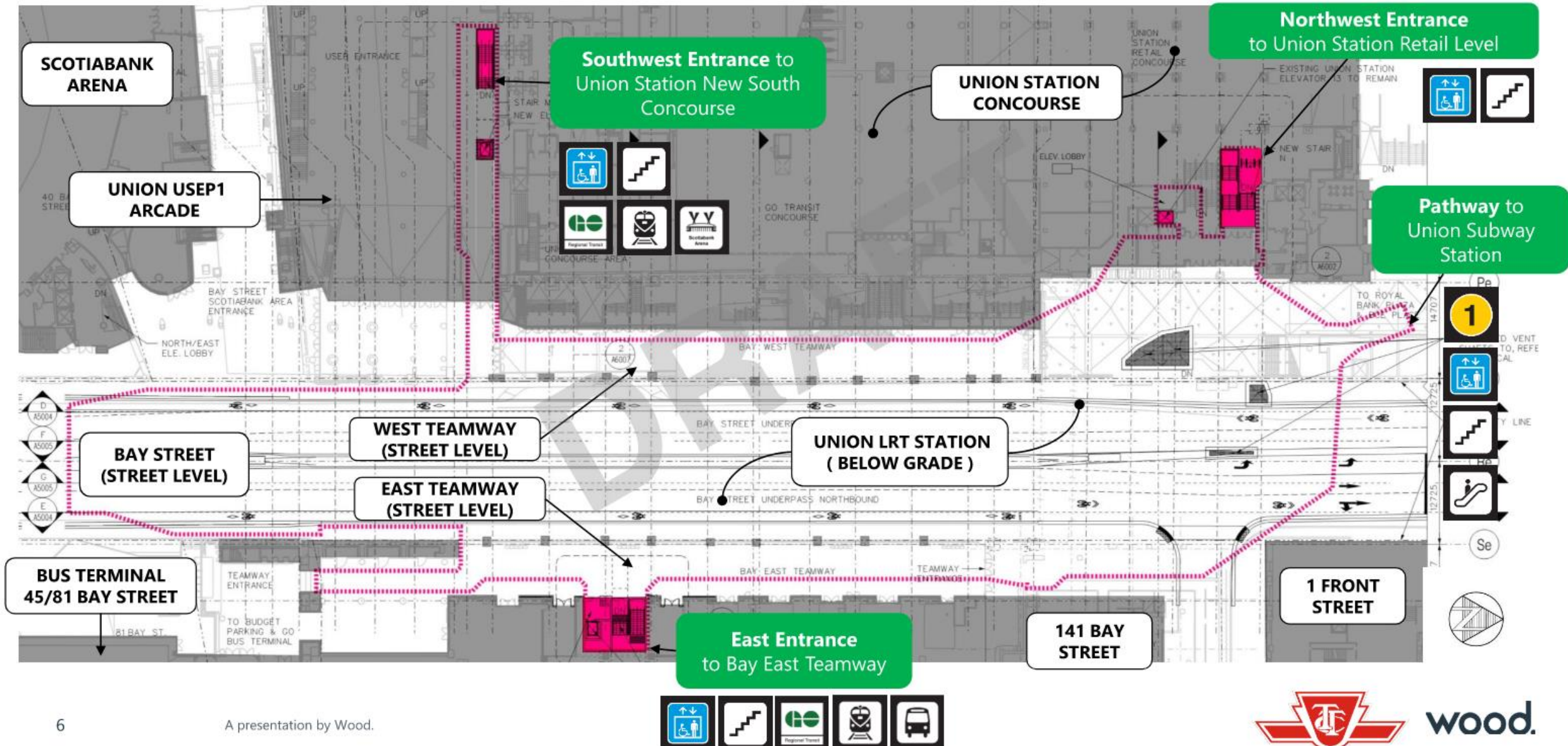


Platforms



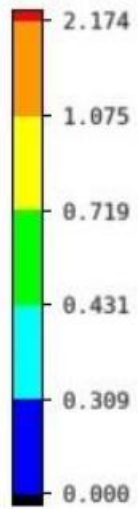
Mechanical/Electrical/Service Rooms

Union Station: Street Level Circulation Plan

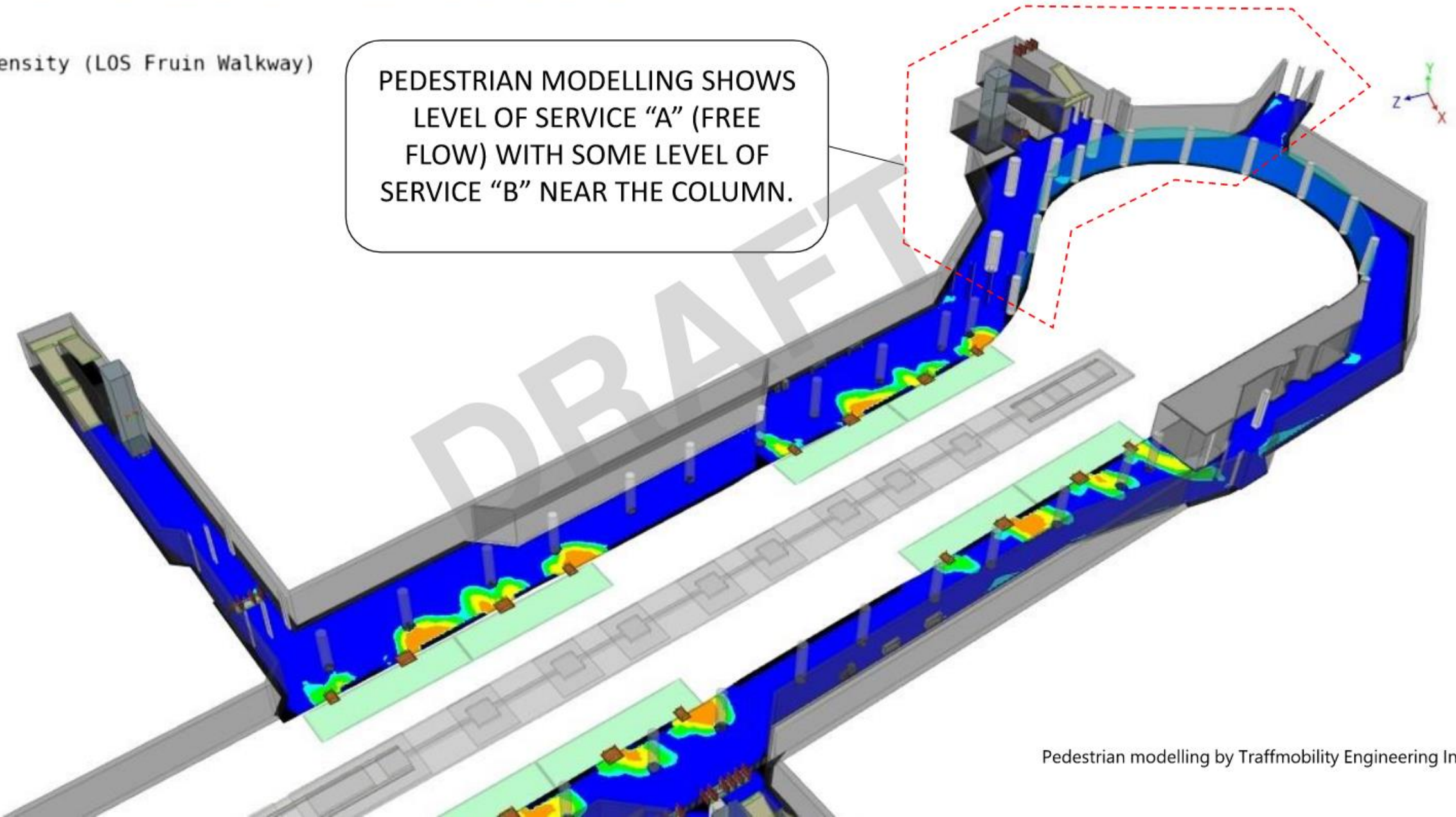


Union Station: Circulation

Average Density (LOS Fruin Walkway)



PEDESTRIAN MODELLING SHOWS
LEVEL OF SERVICE "A" (FREE
FLOW) WITH SOME LEVEL OF
SERVICE "B" NEAR THE COLUMN.



Artwork



Sky's the Limit by Michael Hayden
O'Hare International Airport, Chicago

Union Station: Cross Section

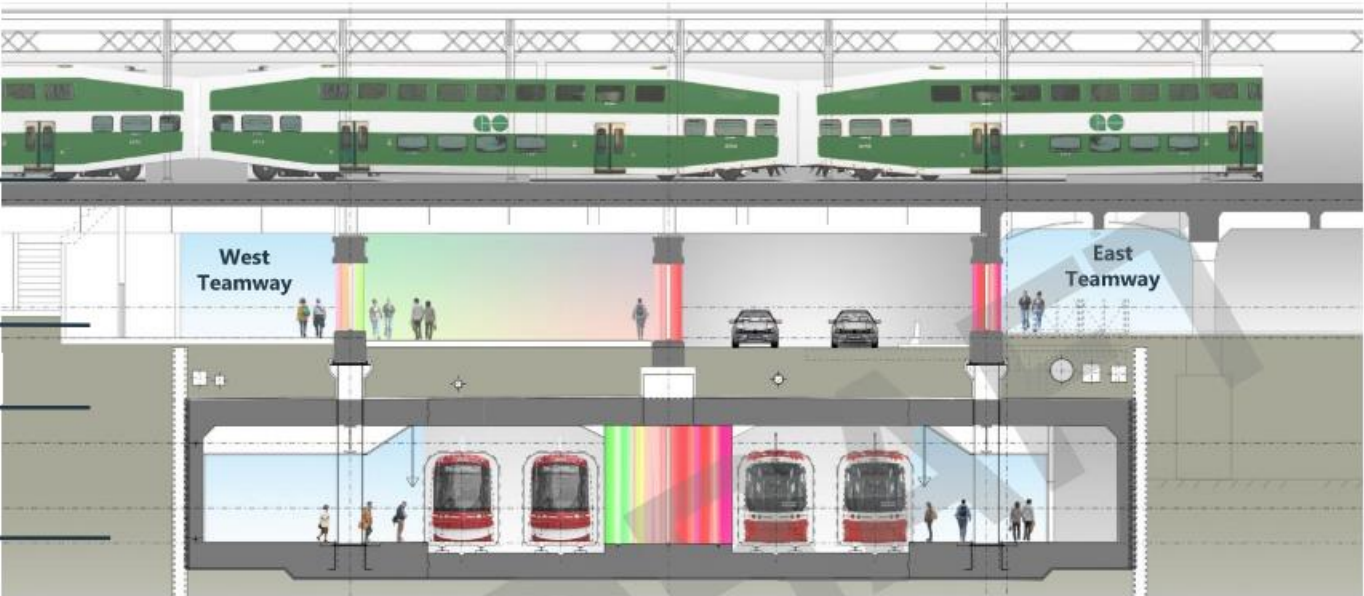
1.

GO Platform Level

Teamway Level

Retail Concourse Level

Platform Level



2.

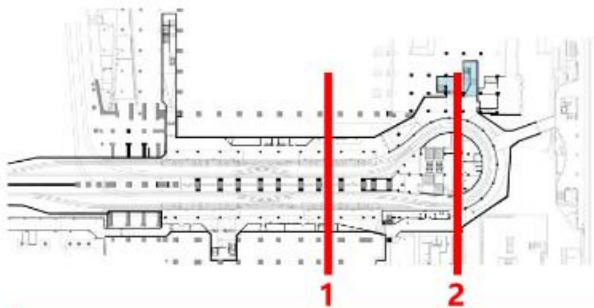
Retail Concourse Level

Platform Level

Service Room Level



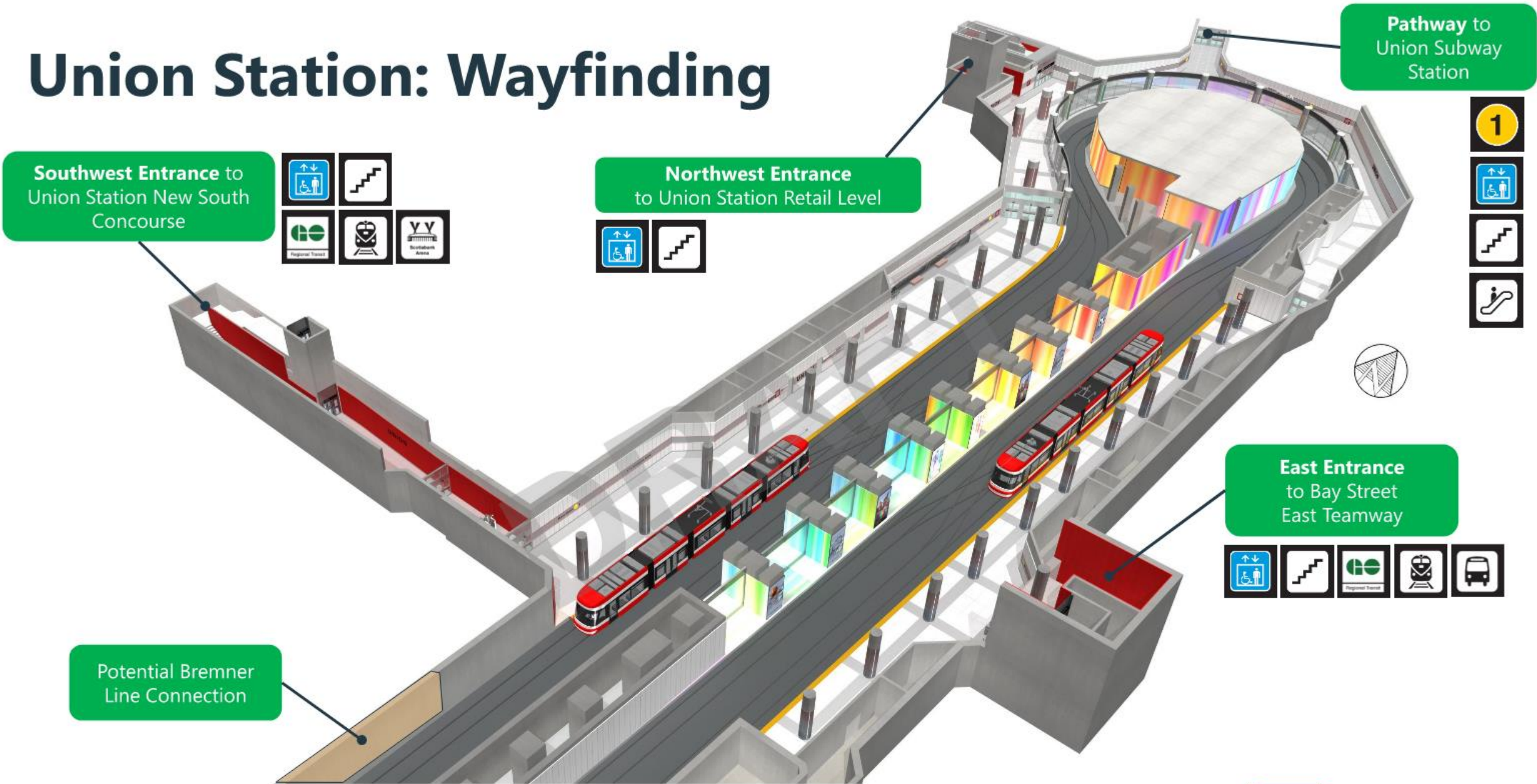
1. Cross Section A
2. Cross Section B



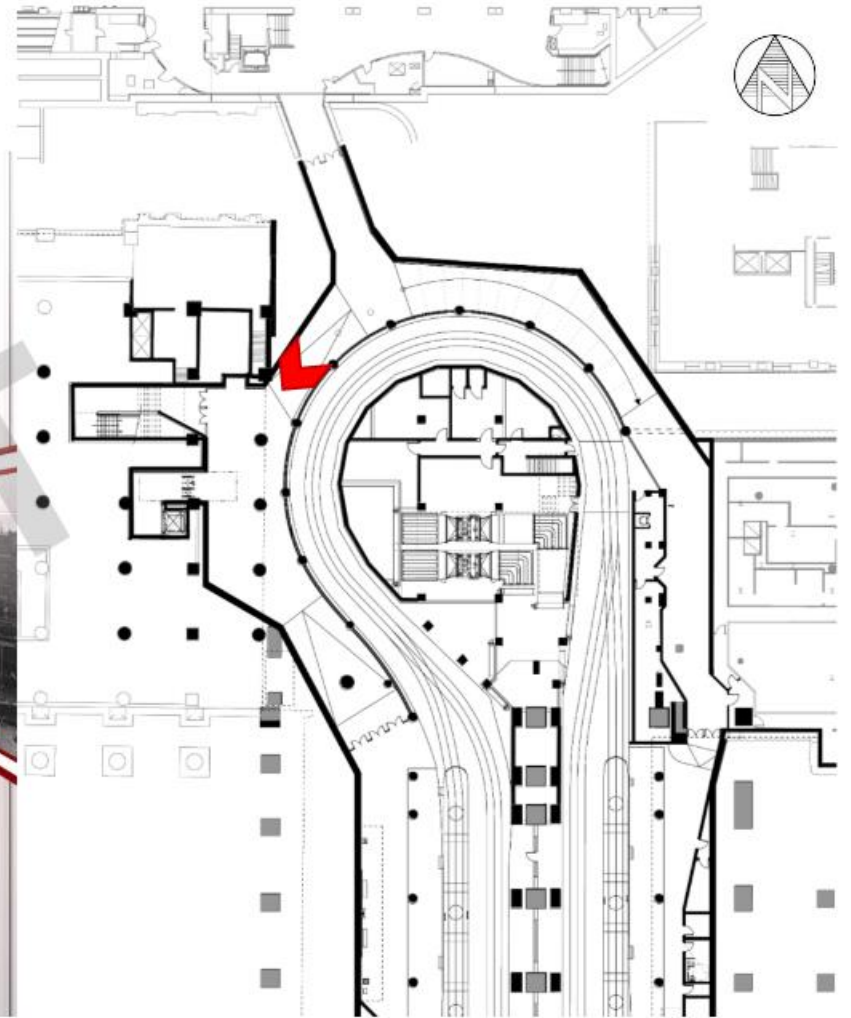
LEGEND

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

Union Station: Wayfinding

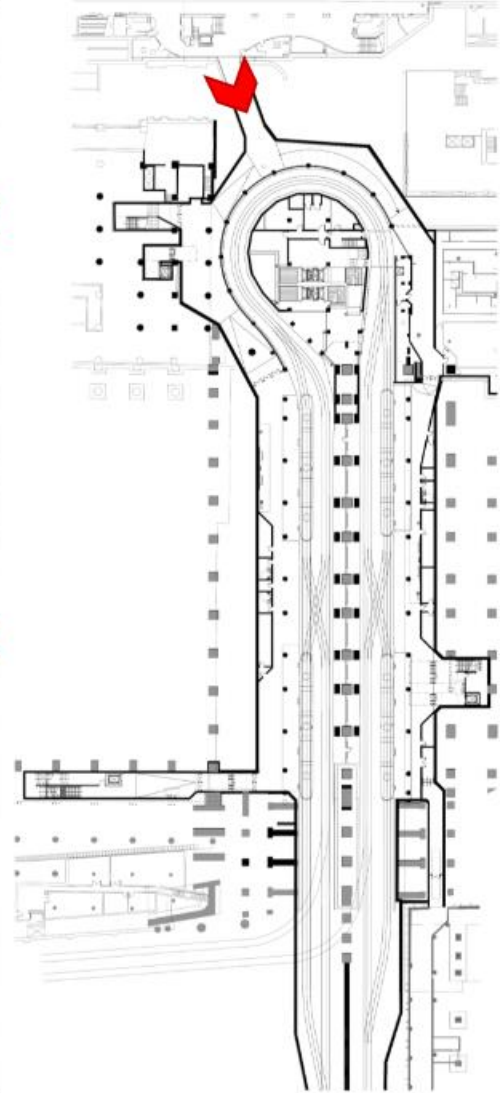


Union Station: Wayfinding



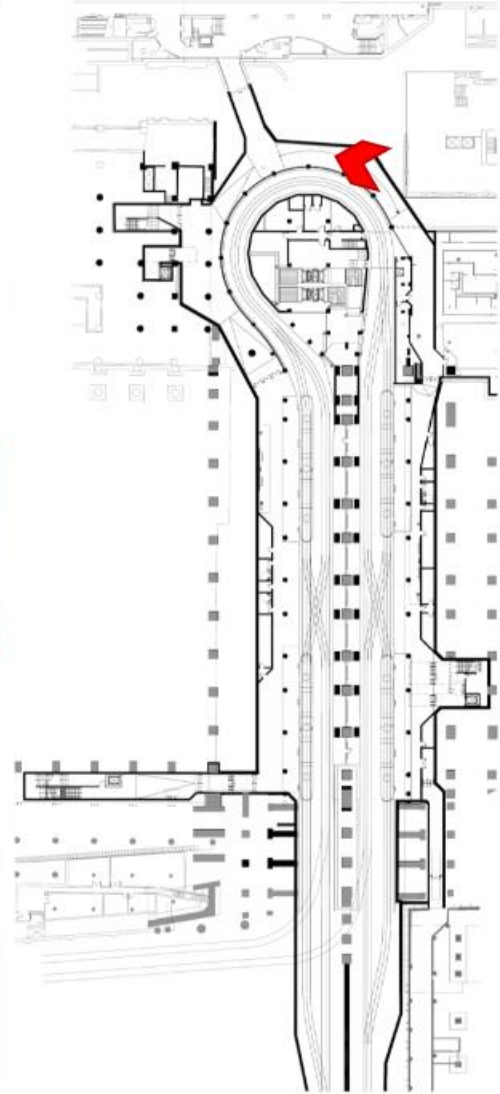
Pathway toward West Platform

Union Station: Wayfinding



Pathway from Union Subway Station

Union Station: Wayfinding

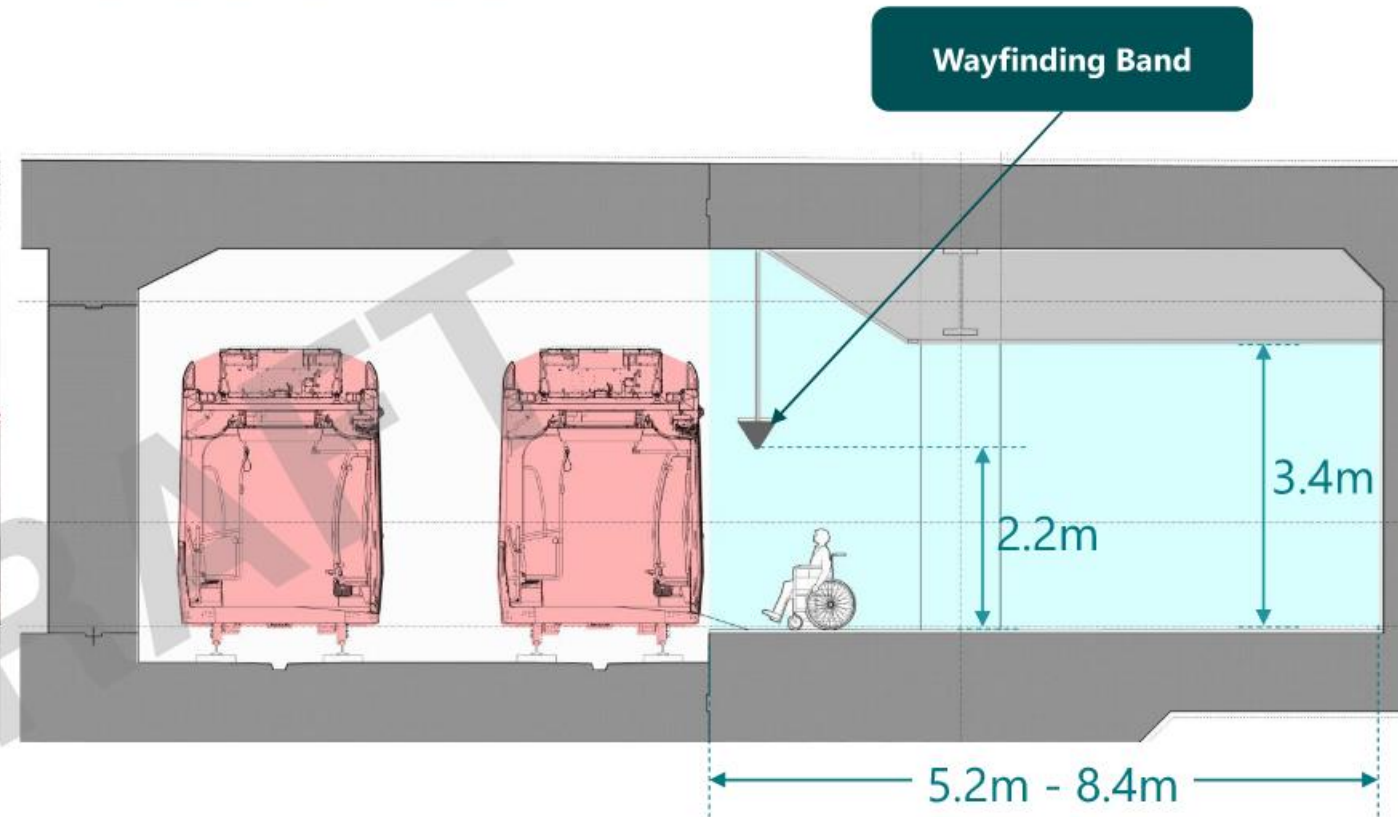


Eastern Approach to Union Subway Station Pathway

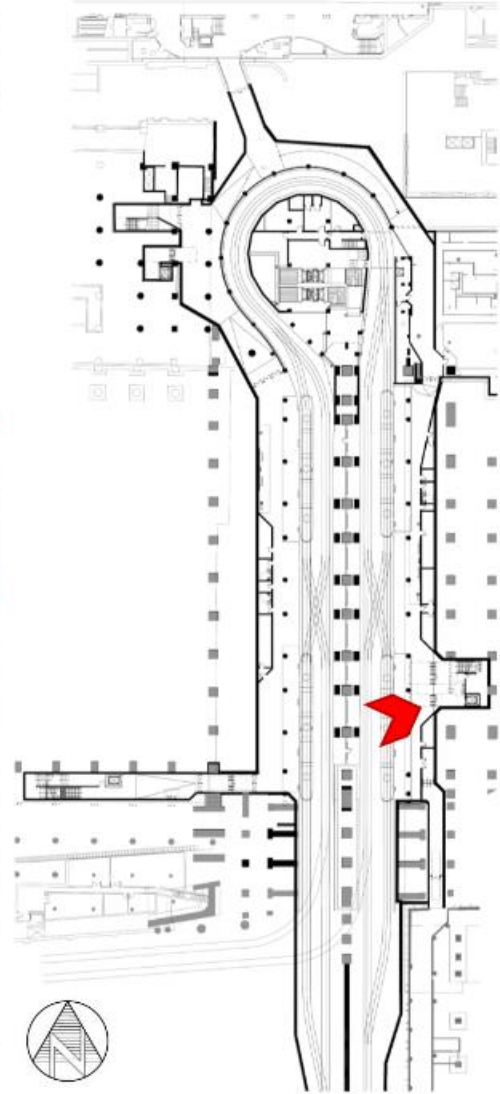
Union Station: Platform Clearance



Union LRT Station West Platform



Union Station: Wayfinding



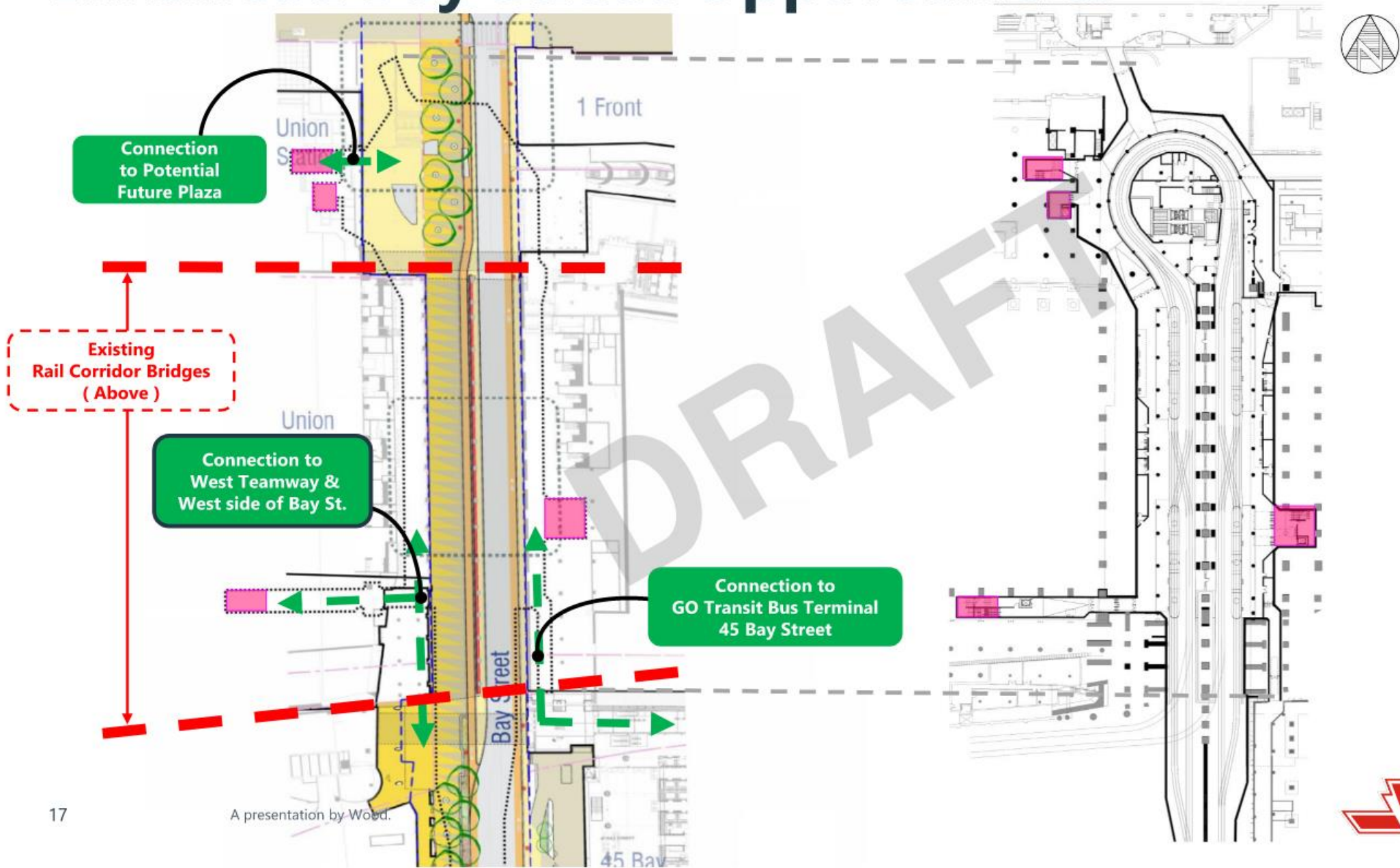
East Entrance to Bay Street East Teamway

Union Station: Materials & Finishes

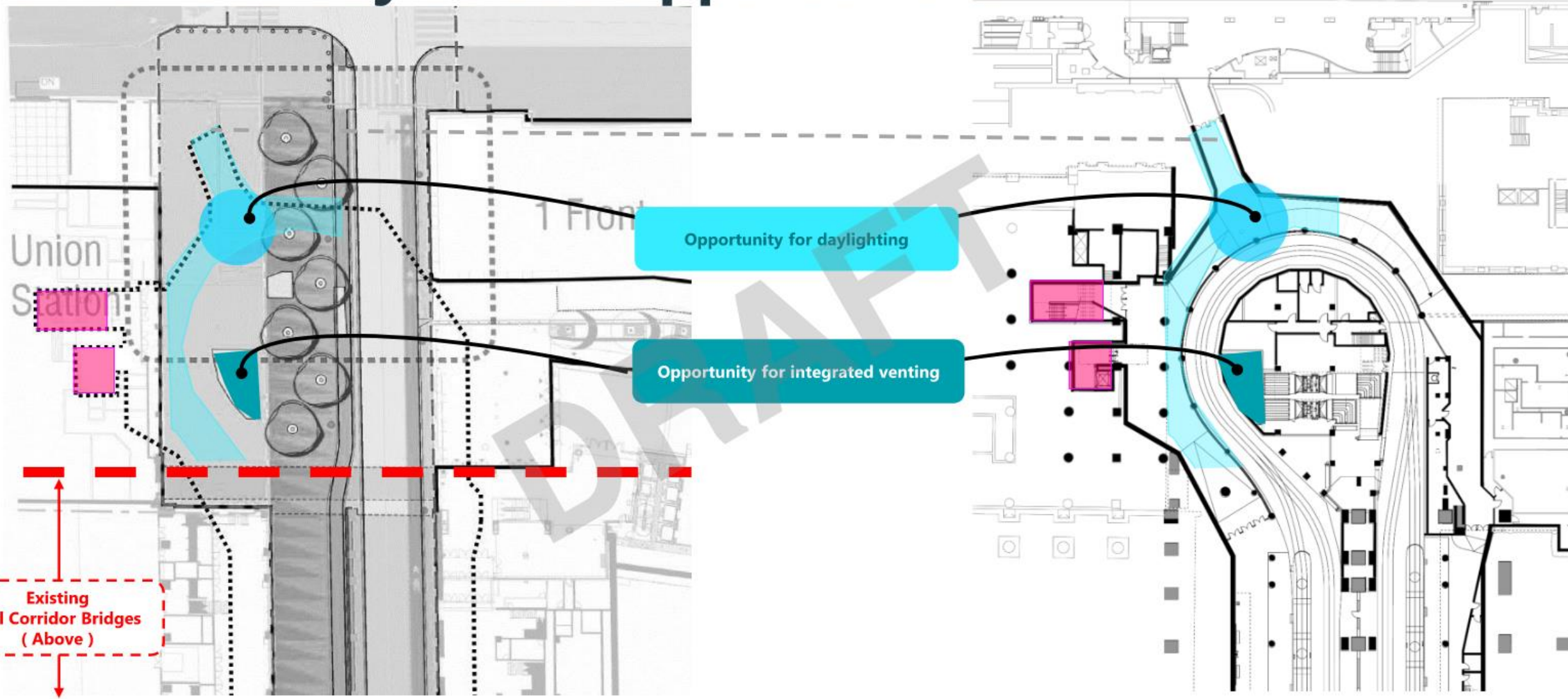


East Entrance to Bay Street East Teamway

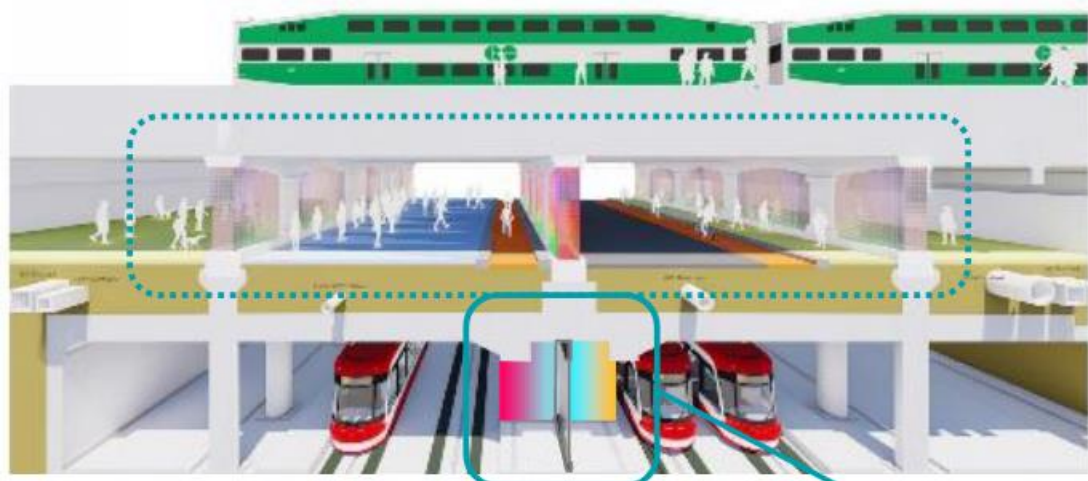
Enhanced Bay Street Opportunities



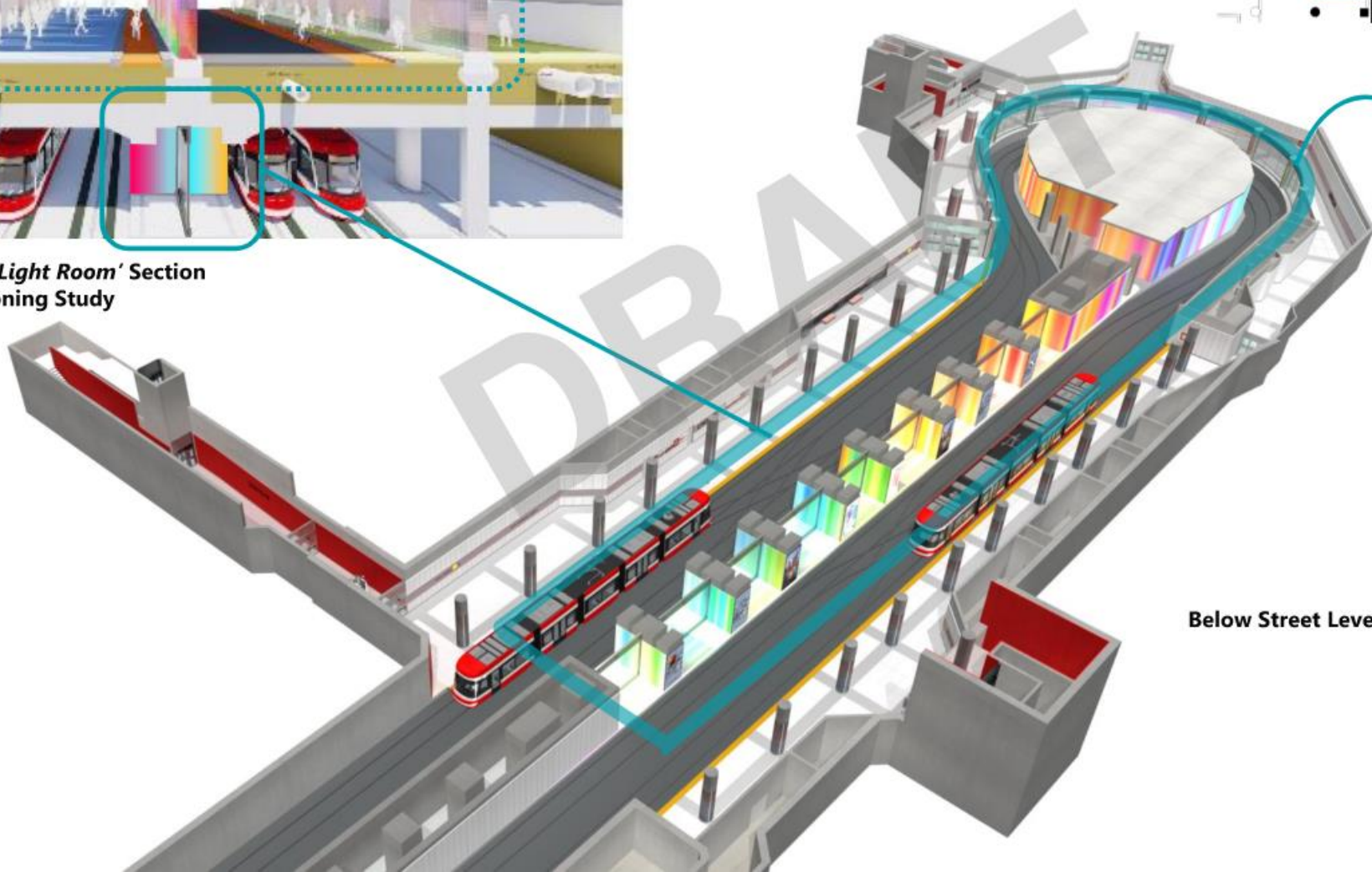
Enhanced Bay Street Opportunities



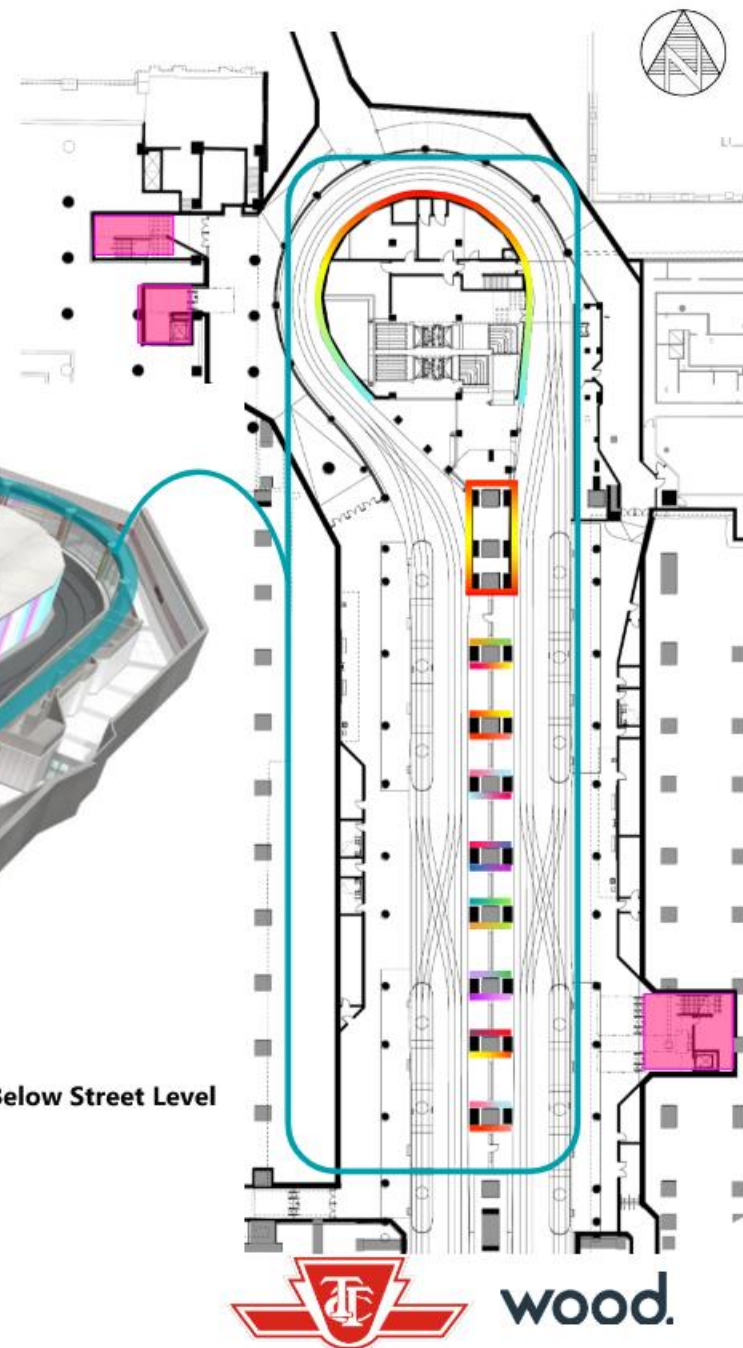
Enhanced Bay Street Opportunities



Waterfront Toronto 'The Light Room' Section
as part of Bay Street Visioning Study

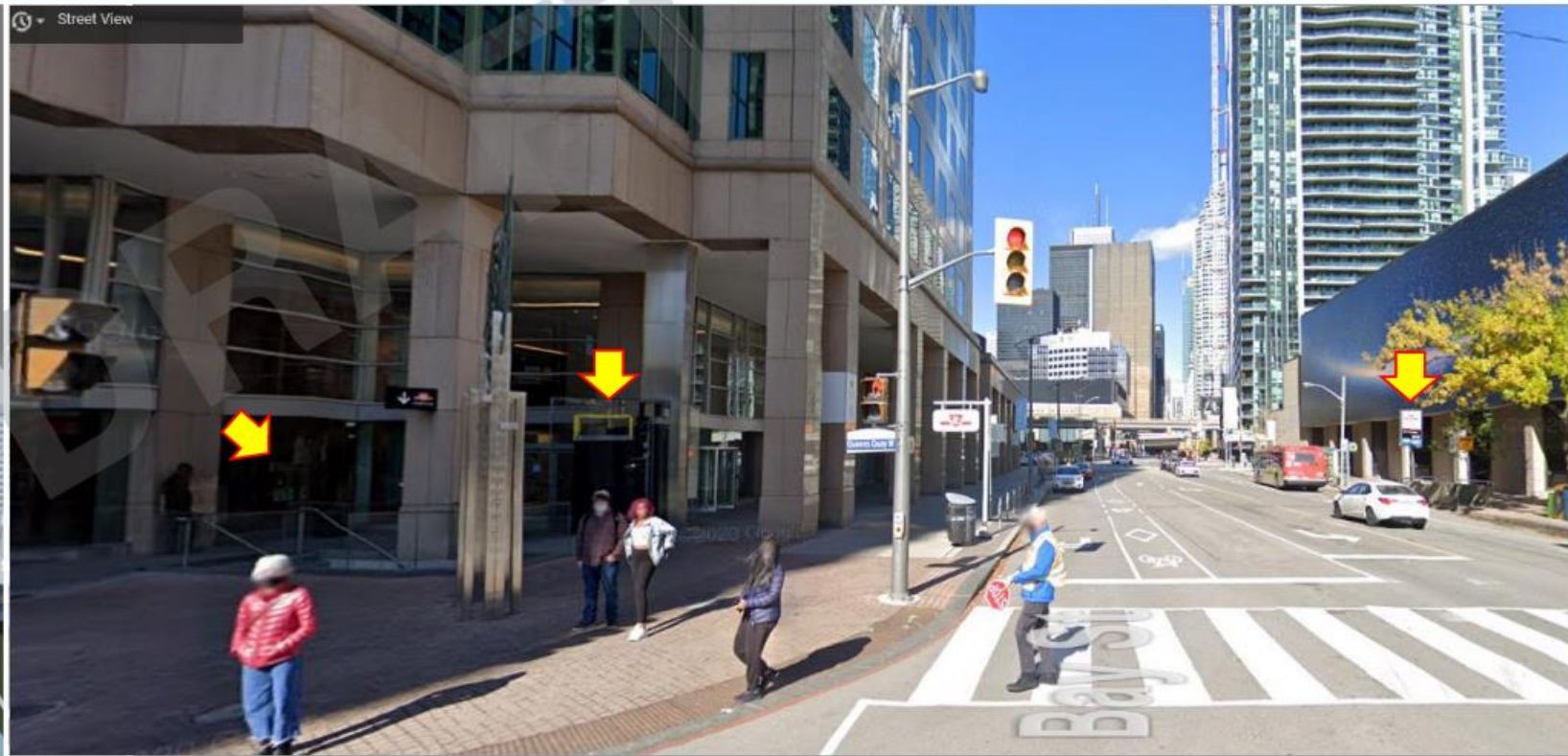
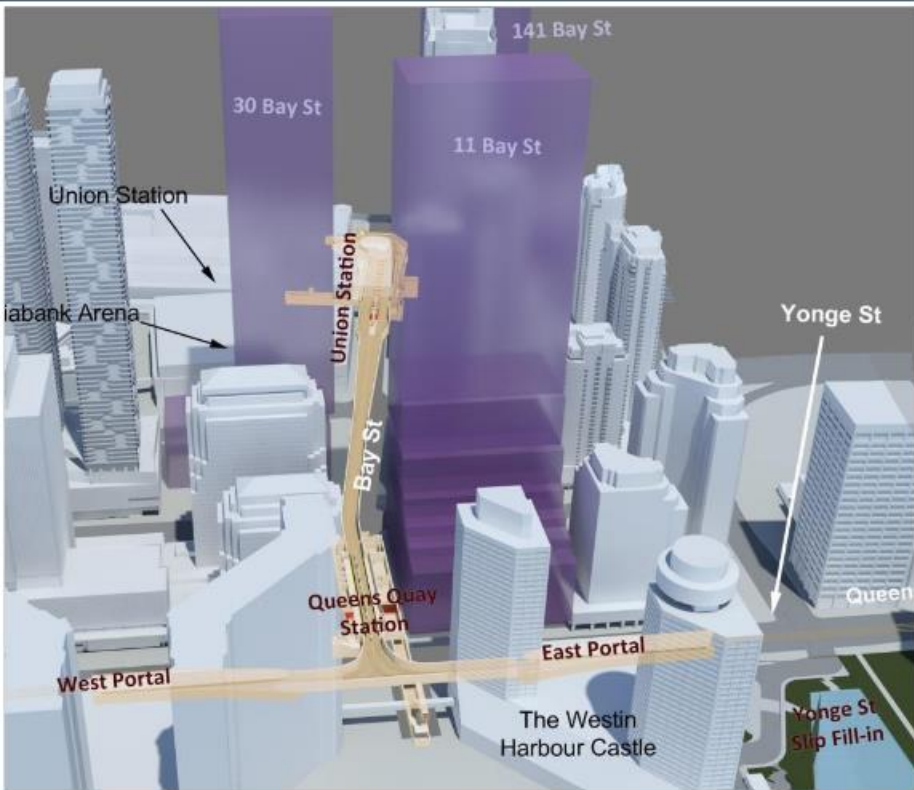


Below Street Level

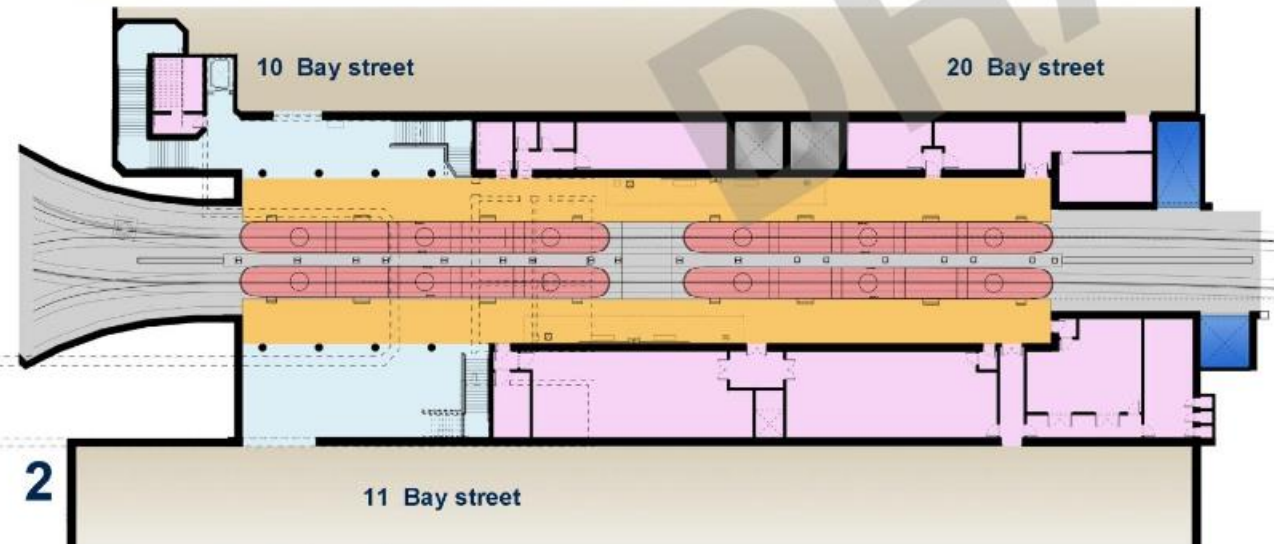
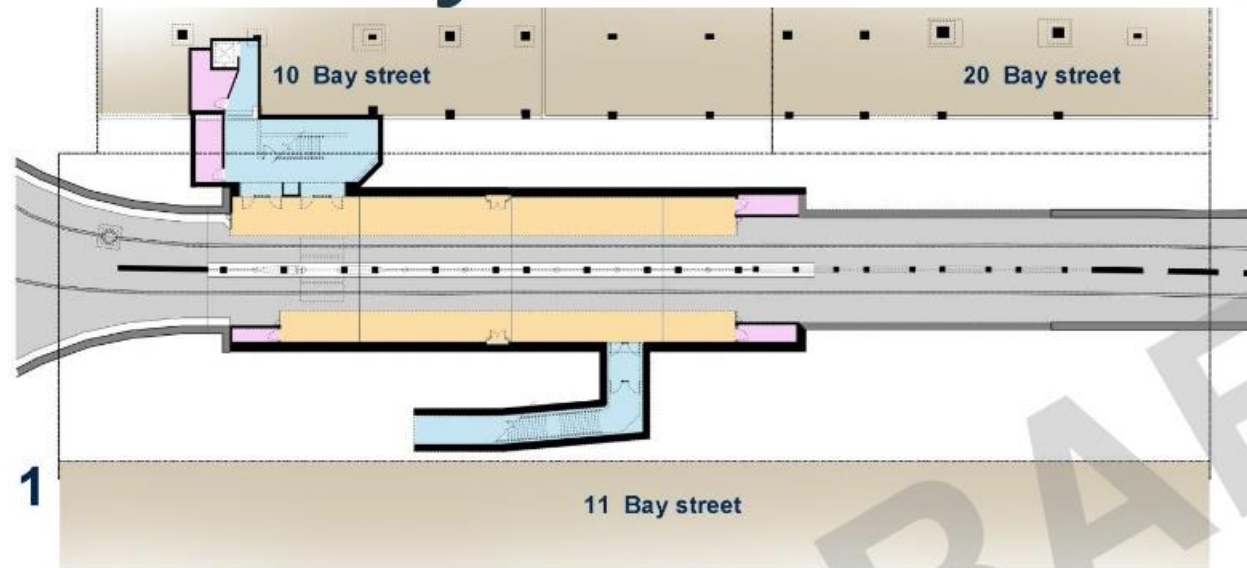




Queens Quay Station and Portal








Queens Quay Station



- Platform Level
1. Existing Plan
 2. Proposed Plan

LEGEND

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

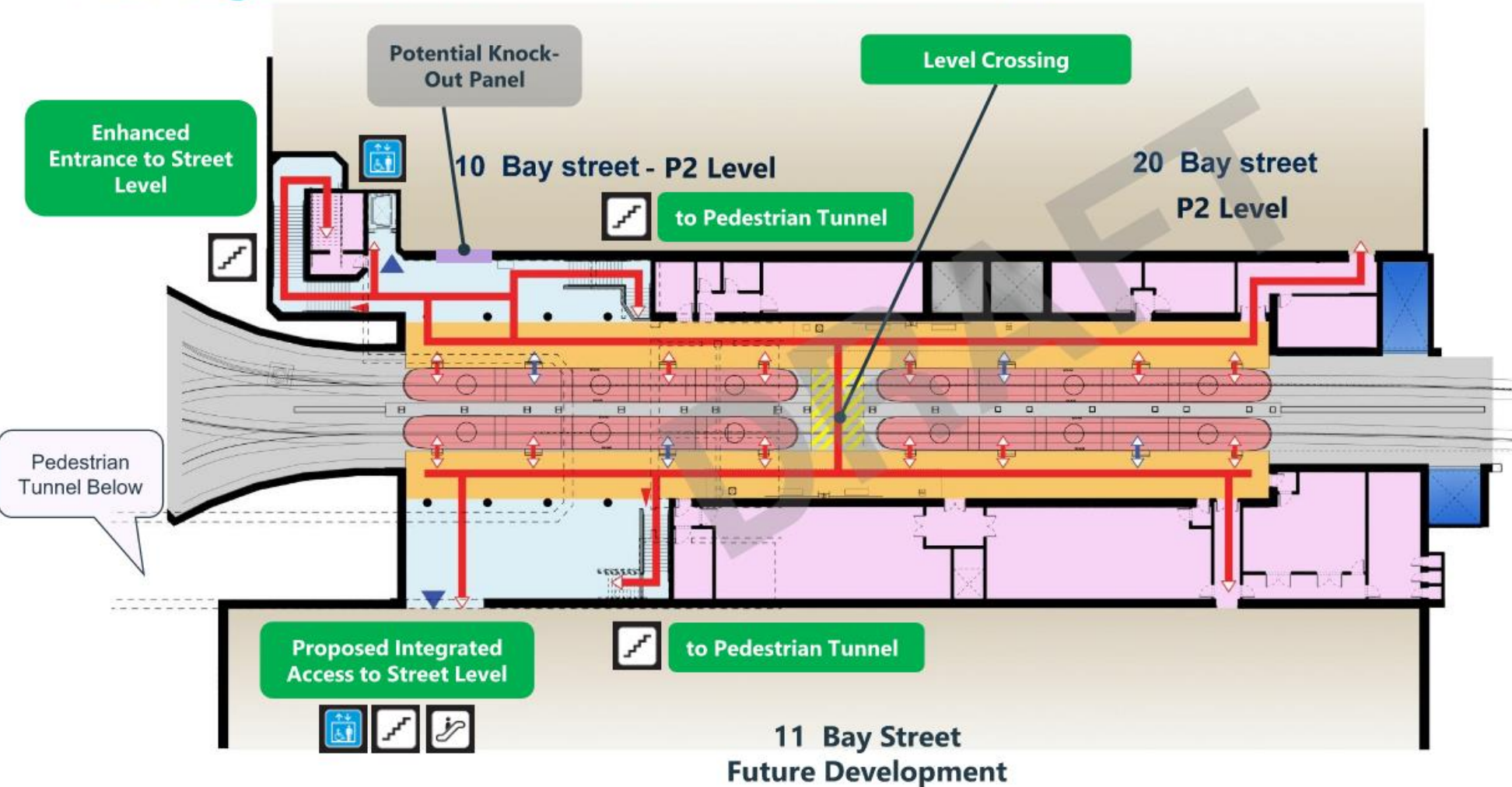
Queens Quay Station: Circulation

Passenger Circulation Plan – Platform Level

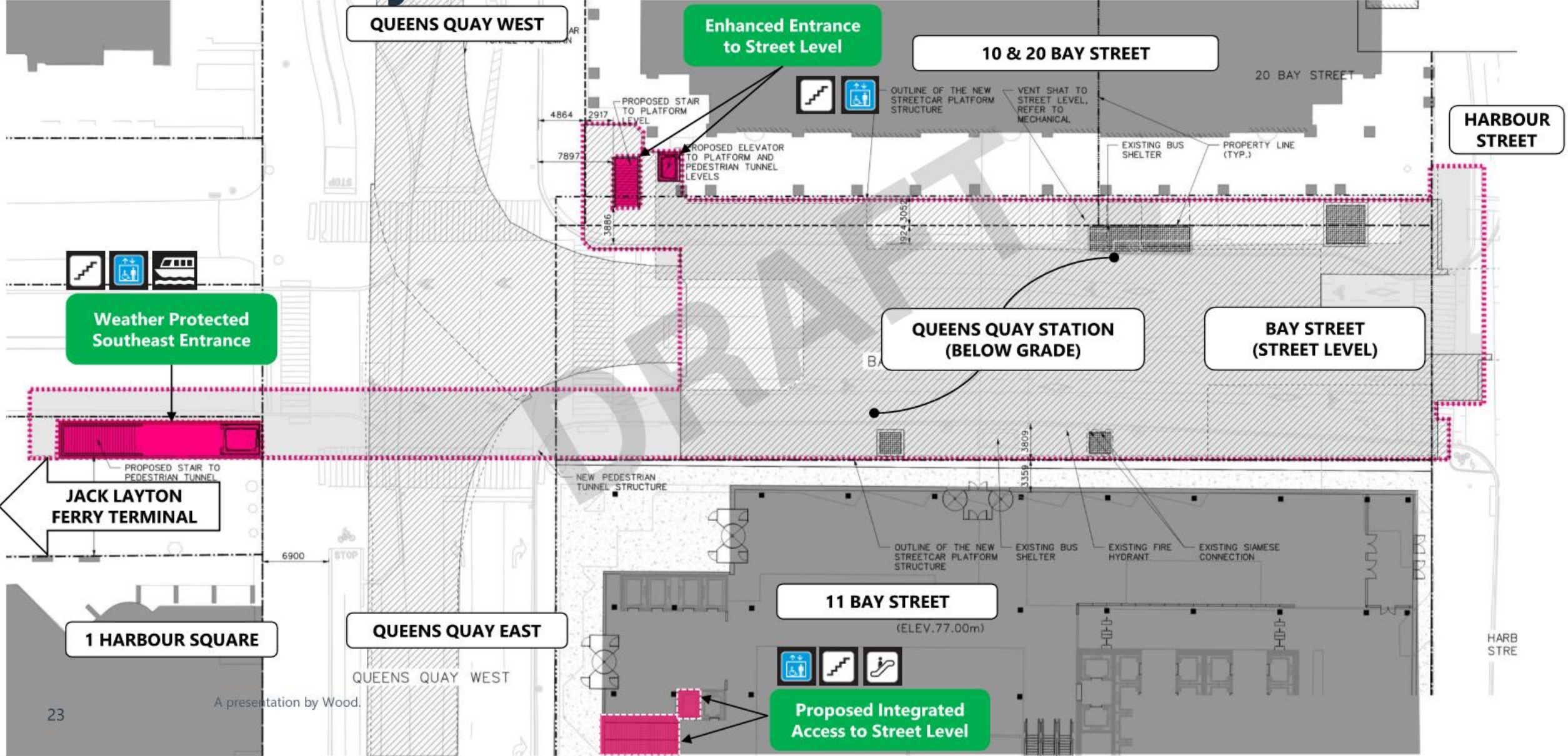
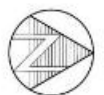


LEGEND

- Passenger Circulation
- Platforms
- Mechanical/Electrical/Service Rooms
- Smoke Exhaust
- Fresh Air Intake
- Emergency Egress Route
- Pedestrian Flow
- Boarding & Alighting
- Accessible Path
- Accessible Boarding & Alighting



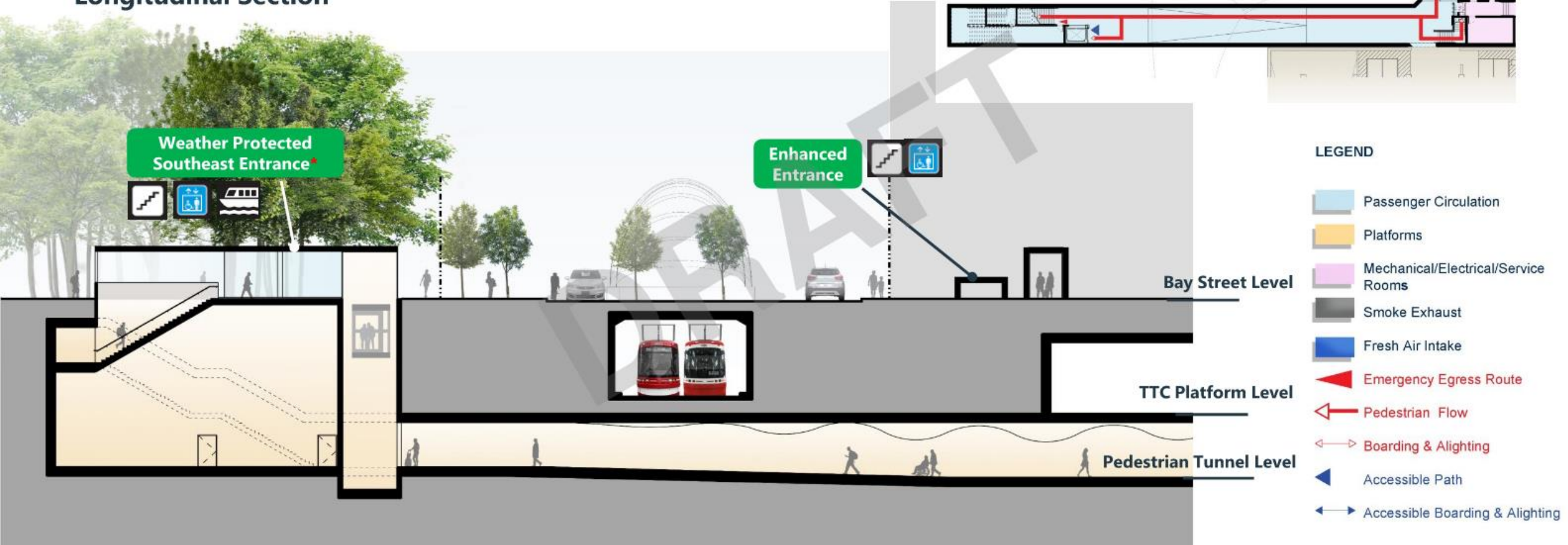
Queens Quay Station: Street Level Circulation



Queens Quay Station: Circulation Plan

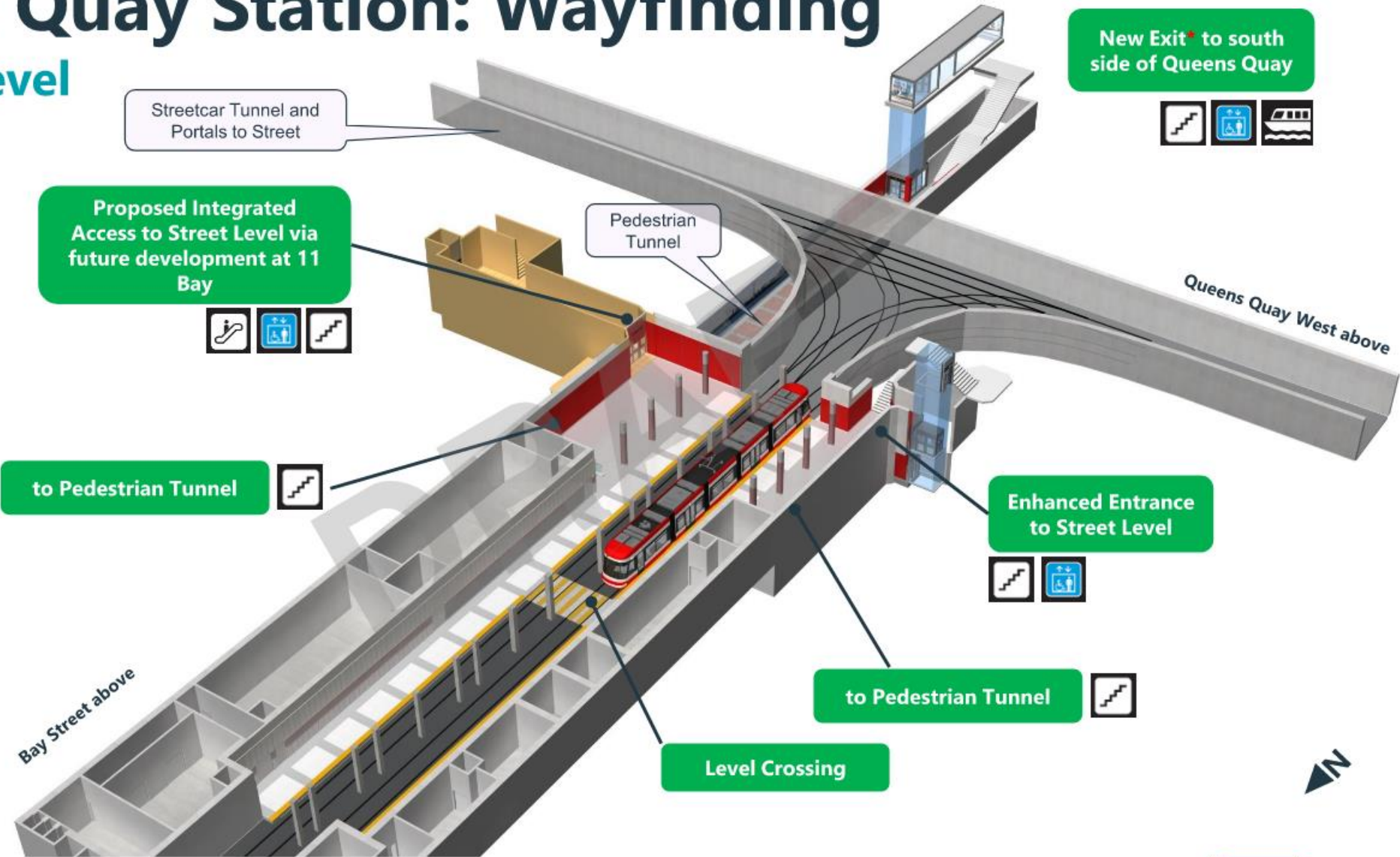
Passenger Circulation – Pedestrian Tunnel Level

Longitudinal Section



Queens Quay Station: Wayfinding

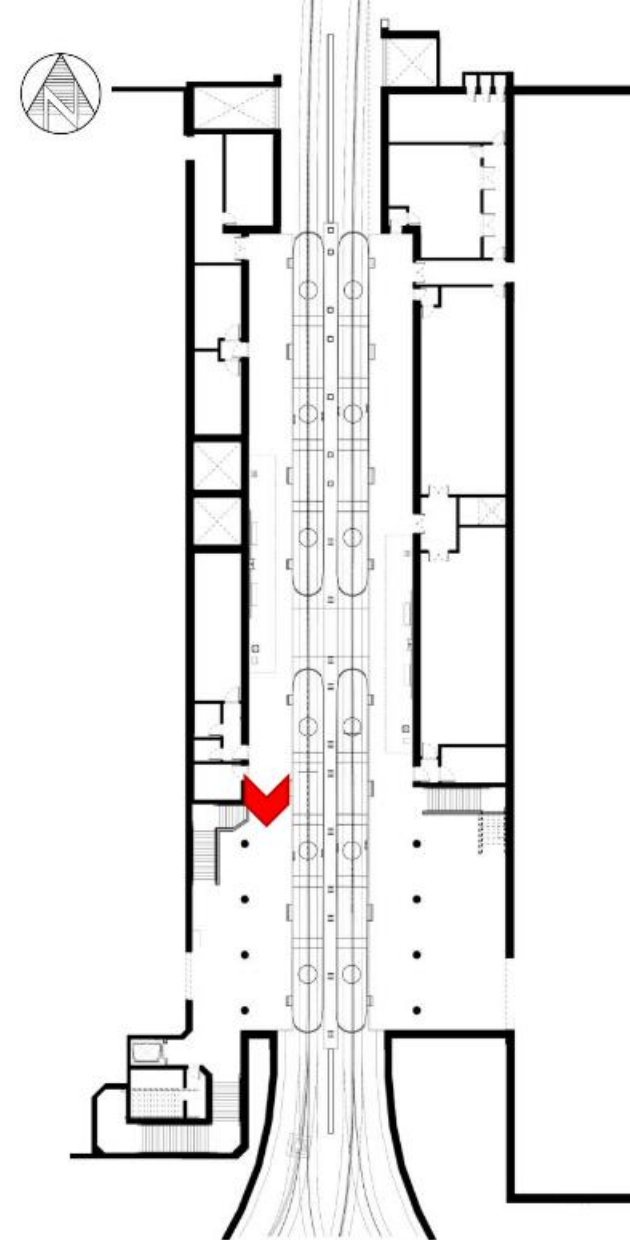
Platform Level



Queens Quay Station: Wayfinding



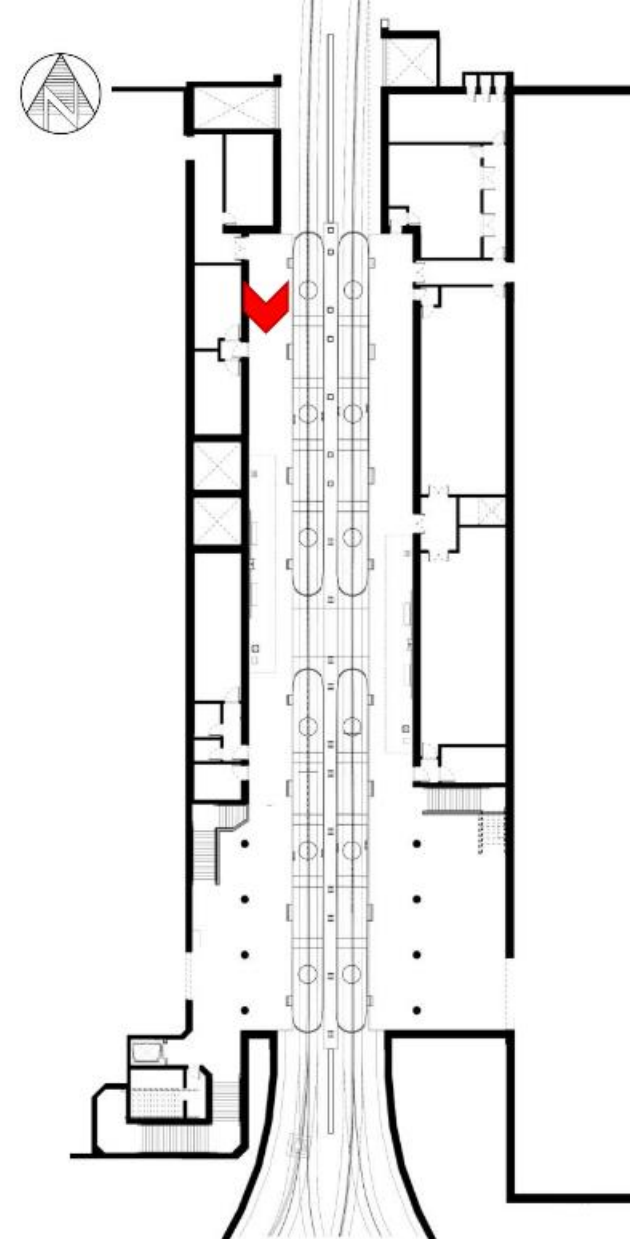
West Platform Looking South



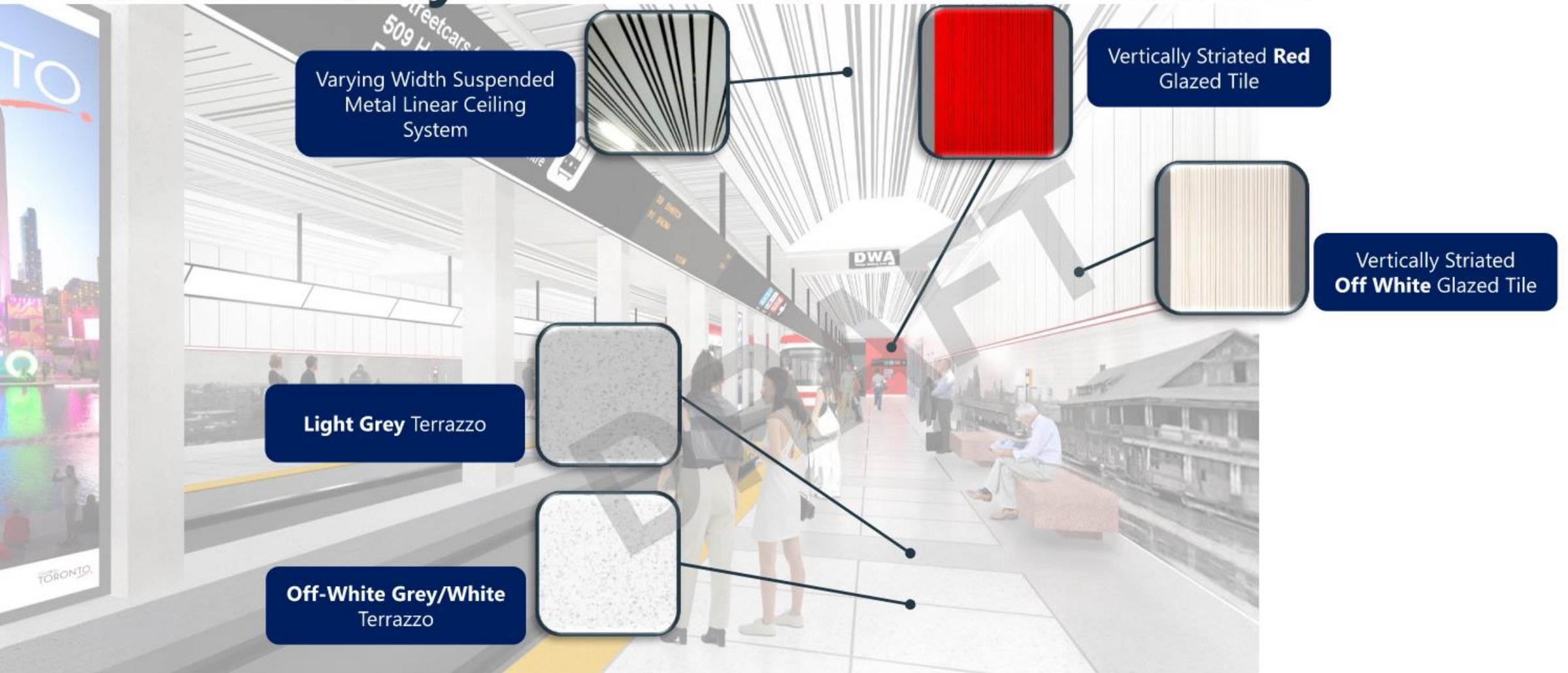
Queens Quay Station: Wayfinding



West Platform Looking South



Queens Quay Station: Materials & Finishes

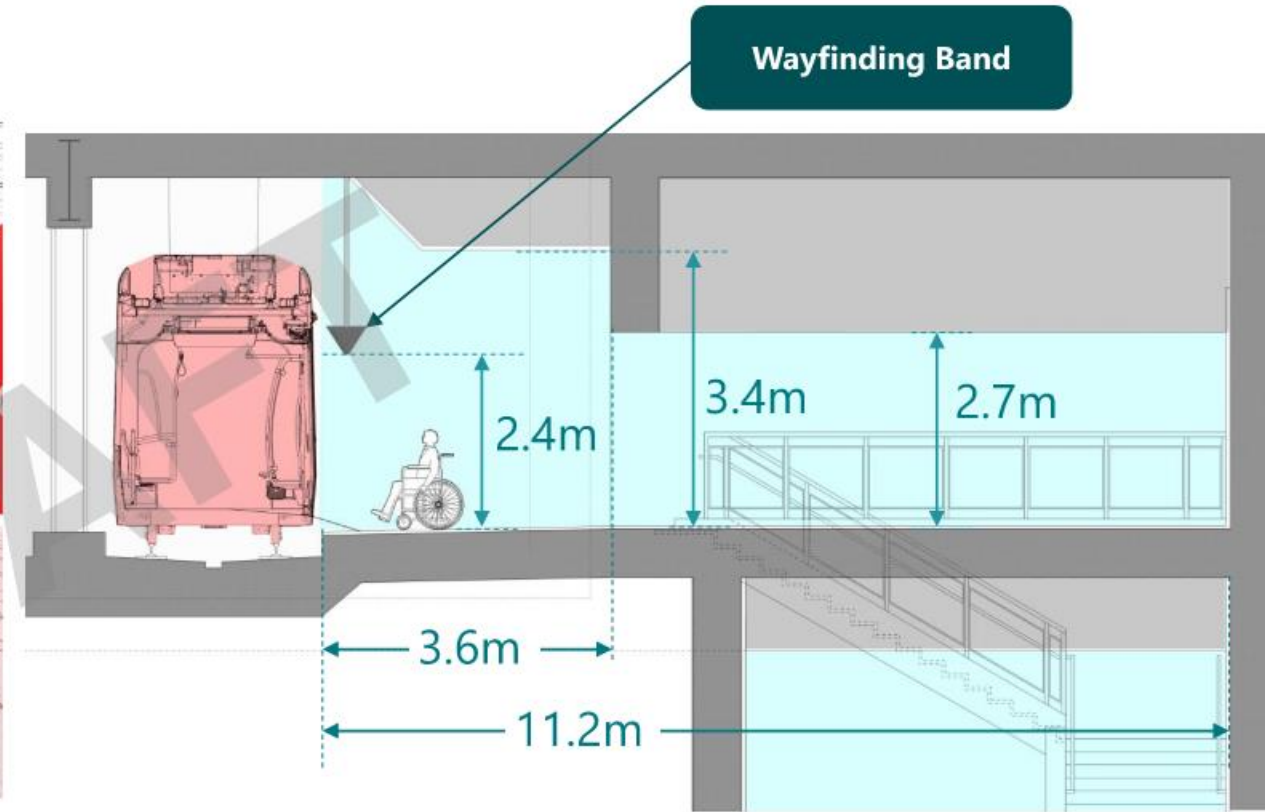


West Platform Looking South

Queens Quay Station: Platform Clearance



East Platform Looking North



Public Art

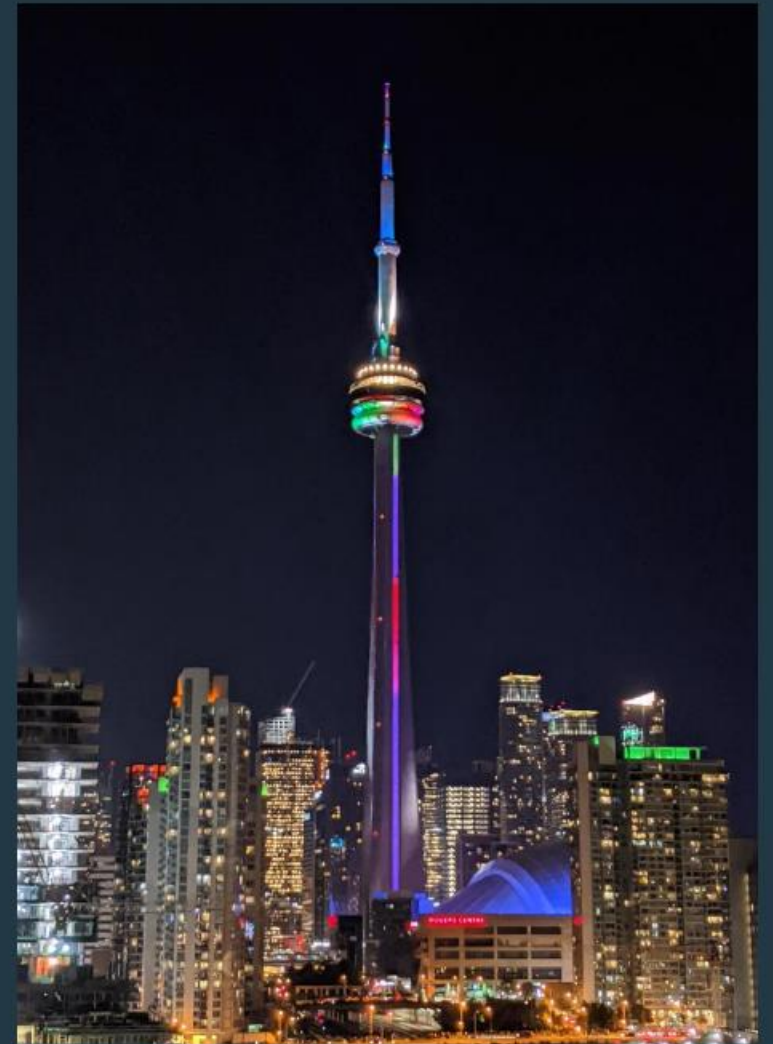


Kings Cross Tunnel - London

A presentation by Wood.

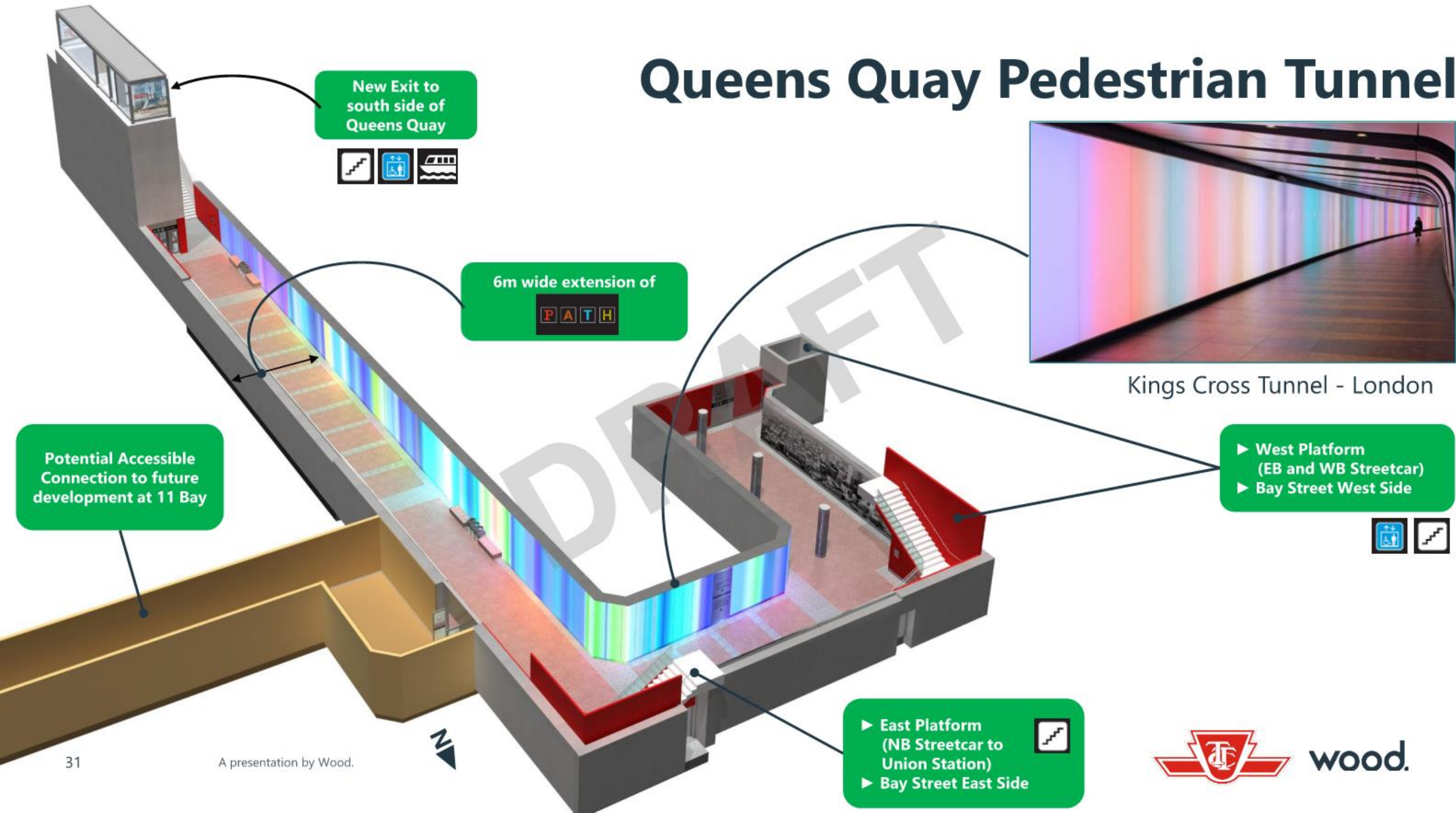


Waterlight - Toronto



CN Tower / SkyDome - Toronto

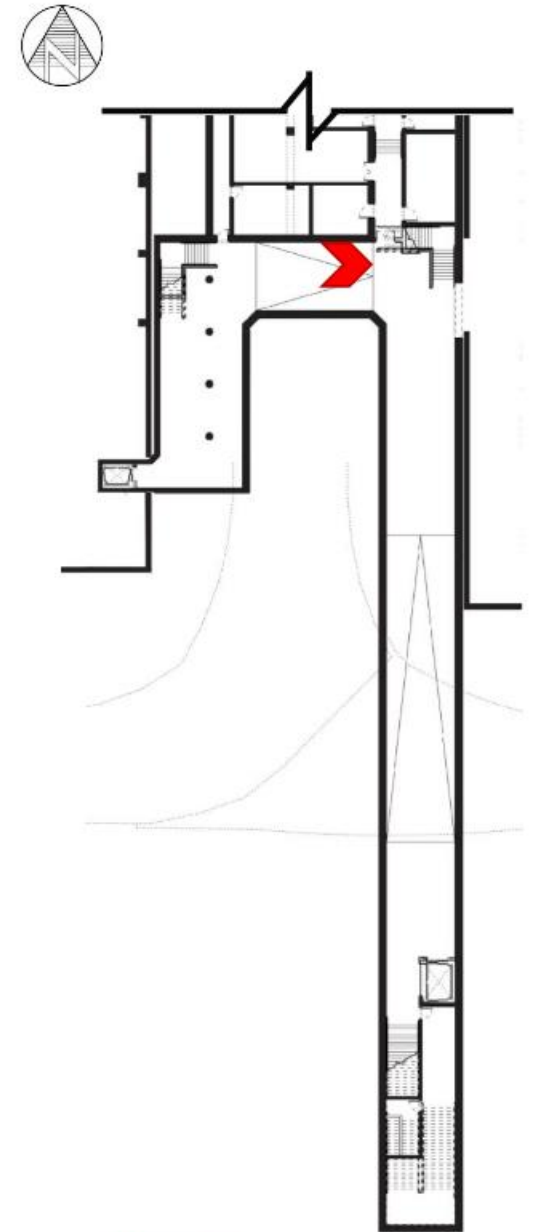
Queens Quay Pedestrian Tunnel



Queens Quay Tunnel: Circulation



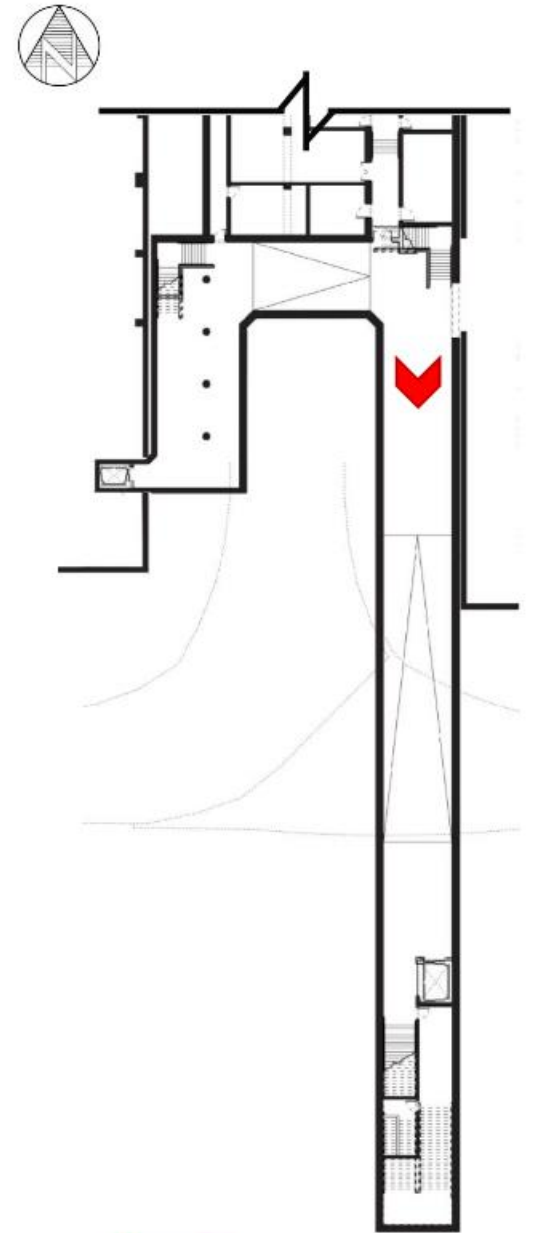
Pedestrian Tunnel Looking East



Queens Quay Tunnel: Circulation



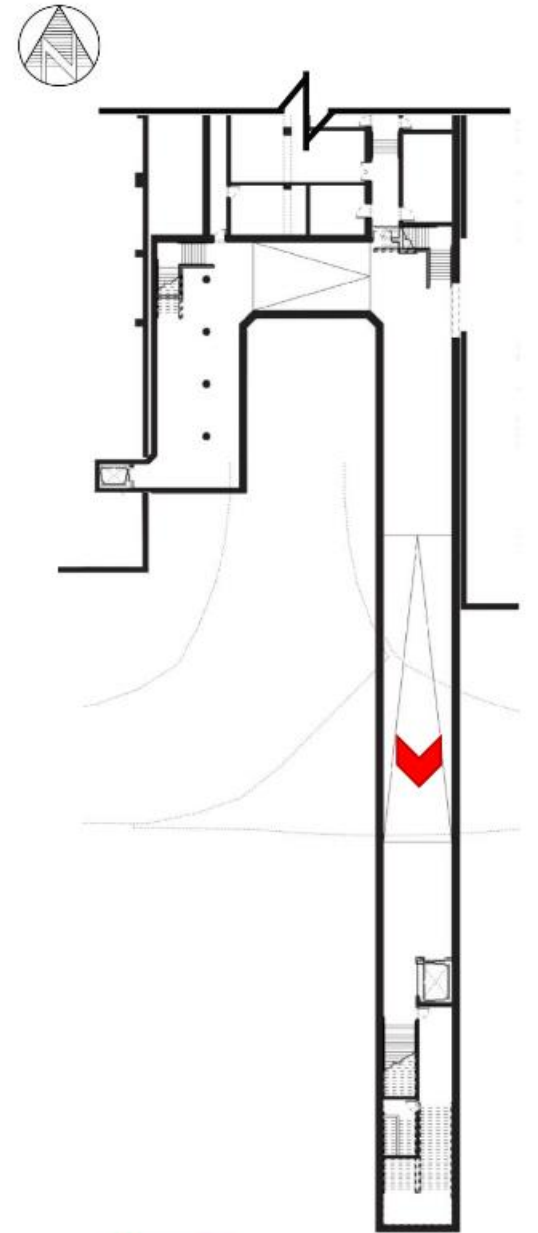
Pedestrian Tunnel Looking South



Queens Quay Tunnel: Circulation



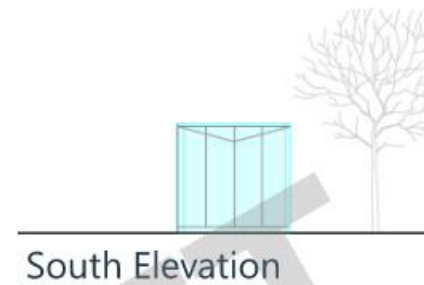
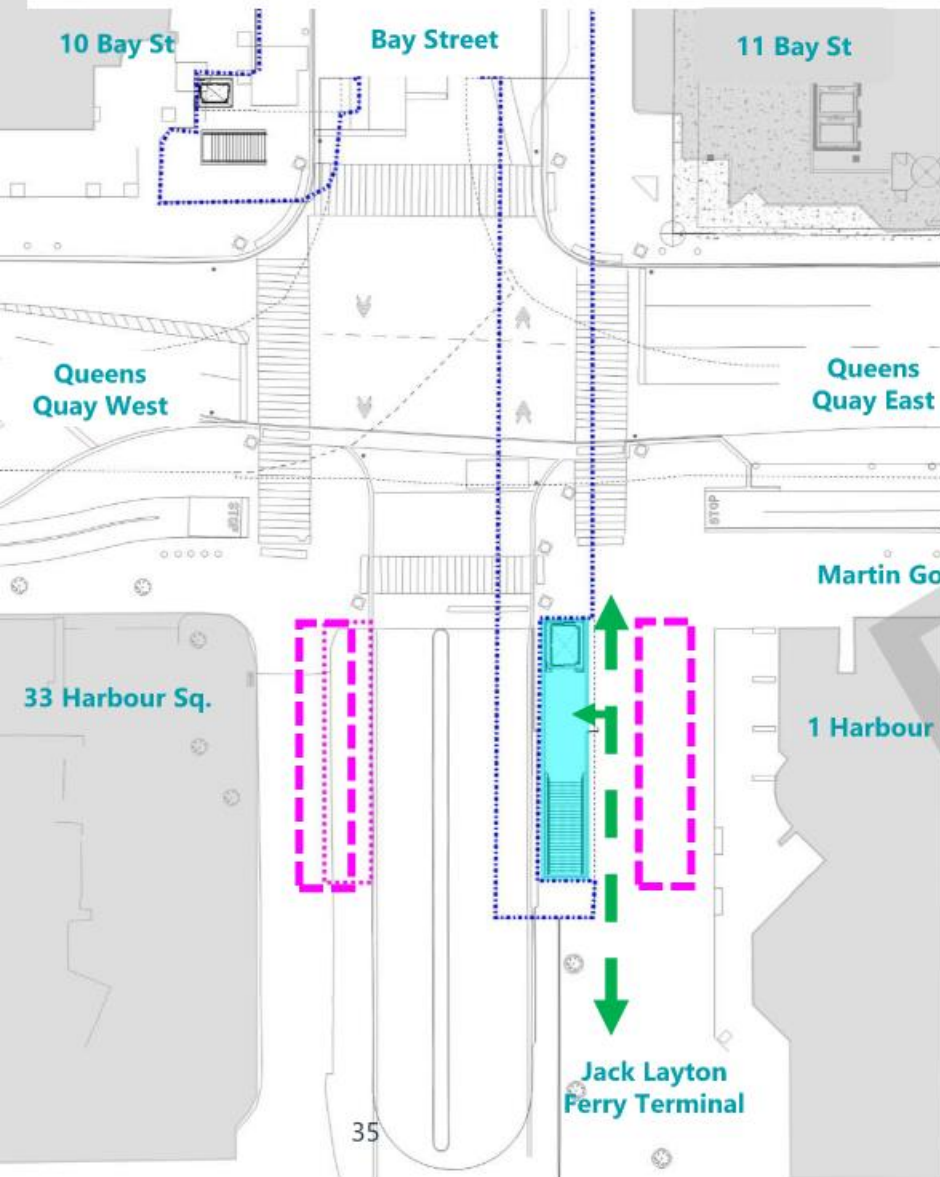
Pedestrian Tunnel Looking South



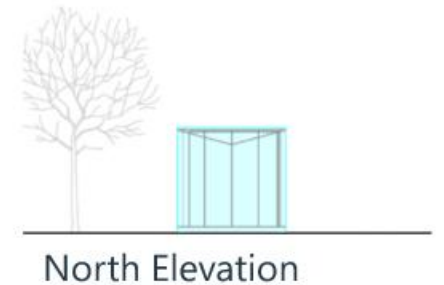
Weather Protected Southeast Entrance



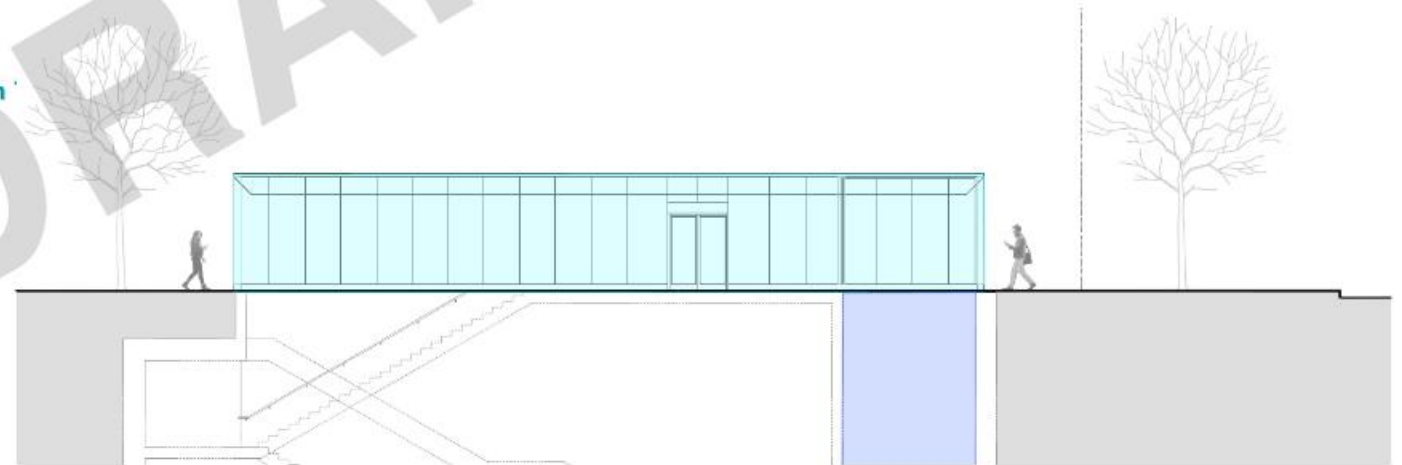
Existing Street Level Layout



South Elevation



North Elevation



East Elevation

Location of Proposed
Glazed Entrance

Study Locations

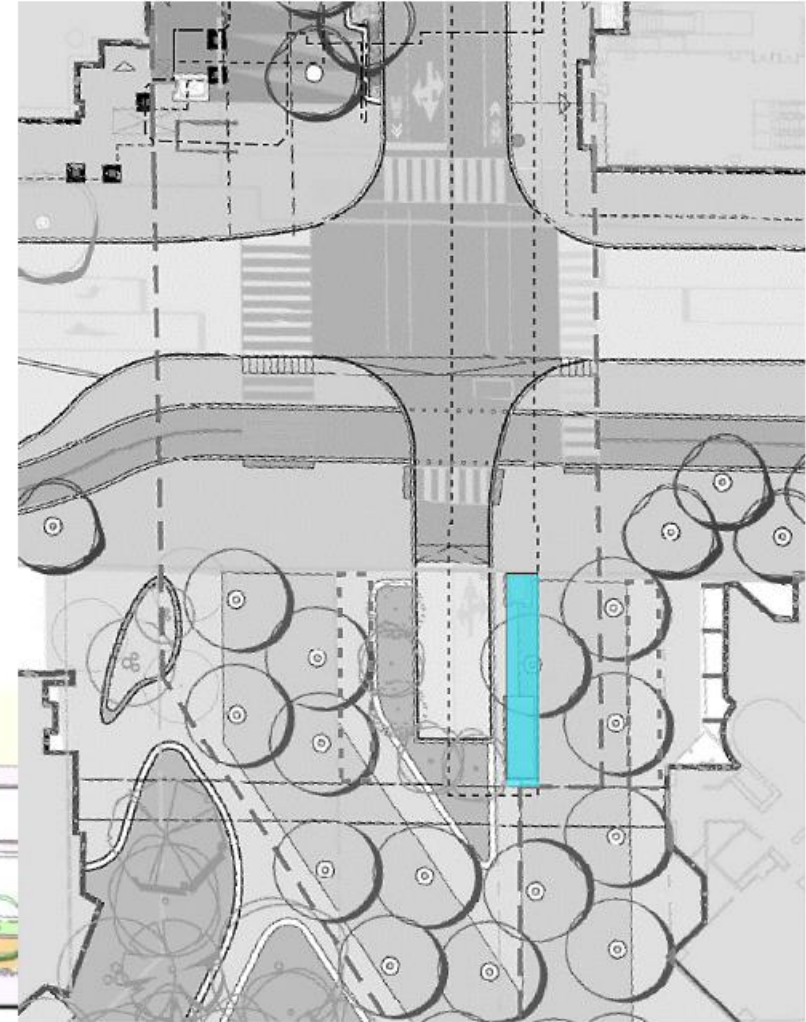
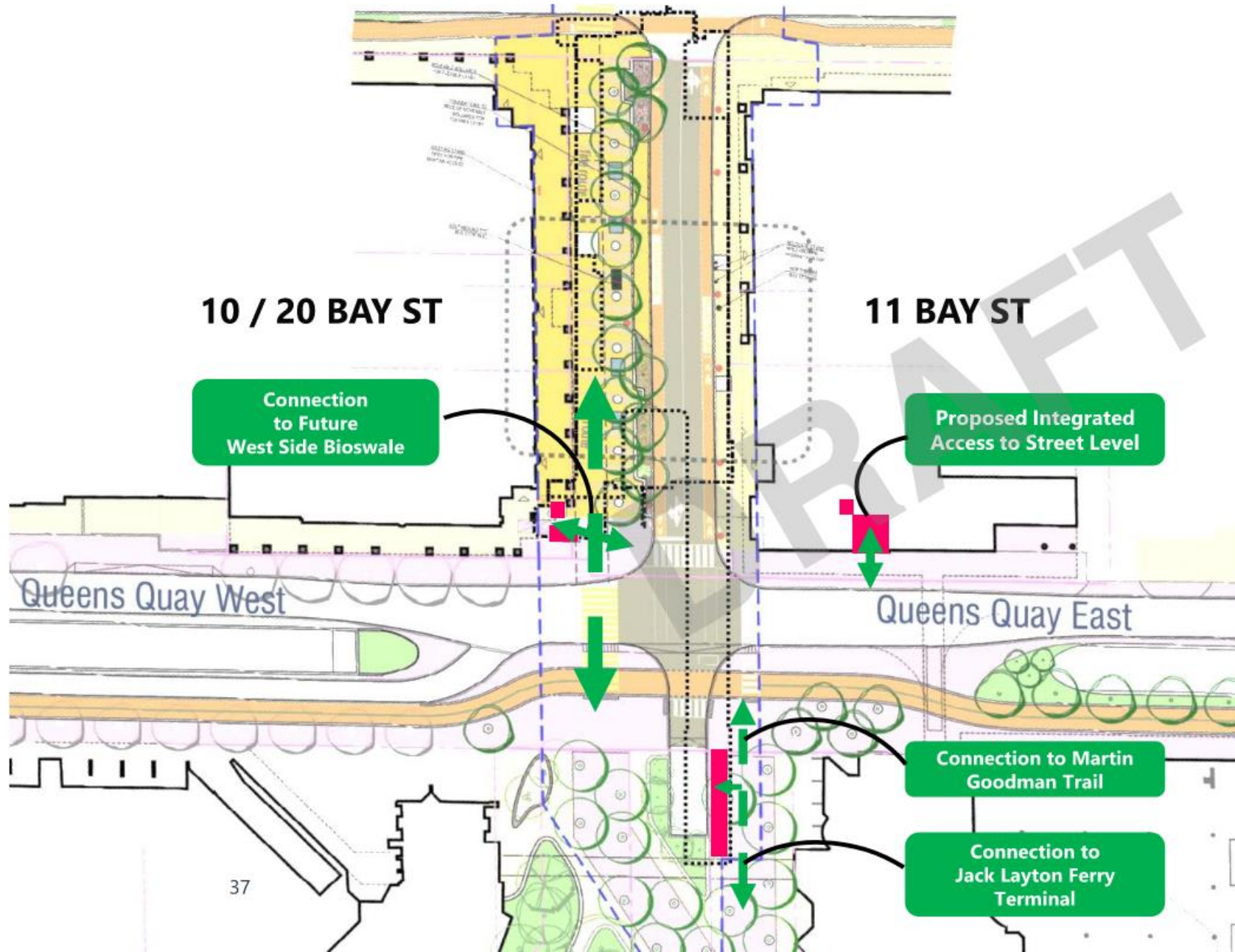


wood.

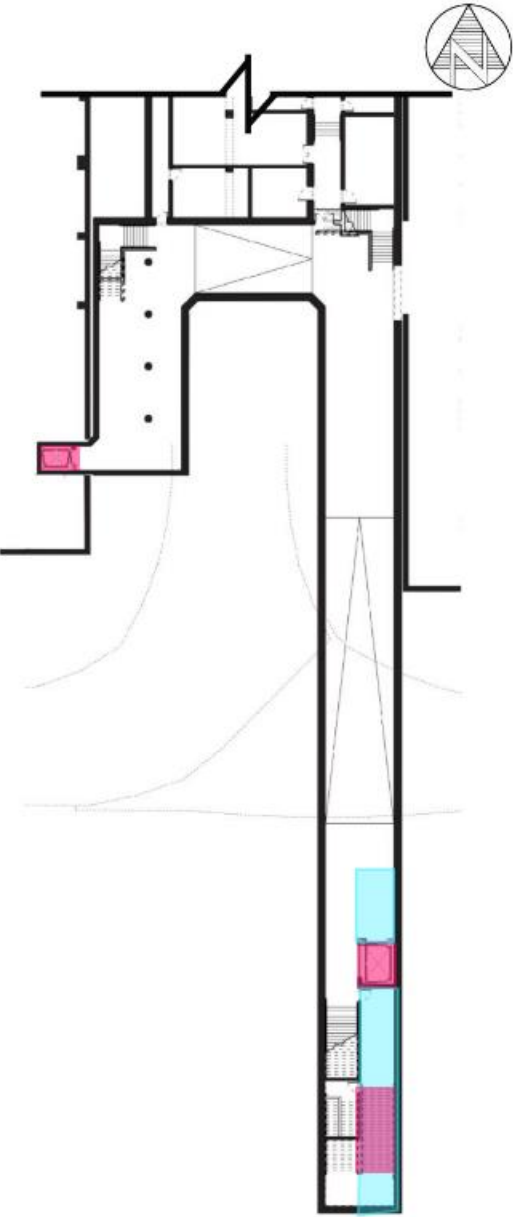
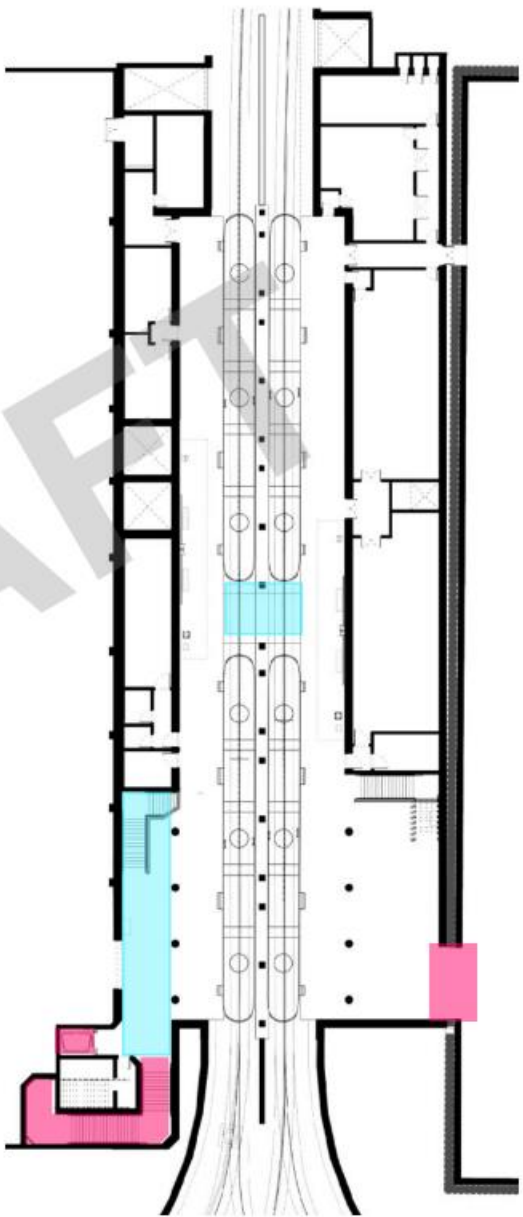
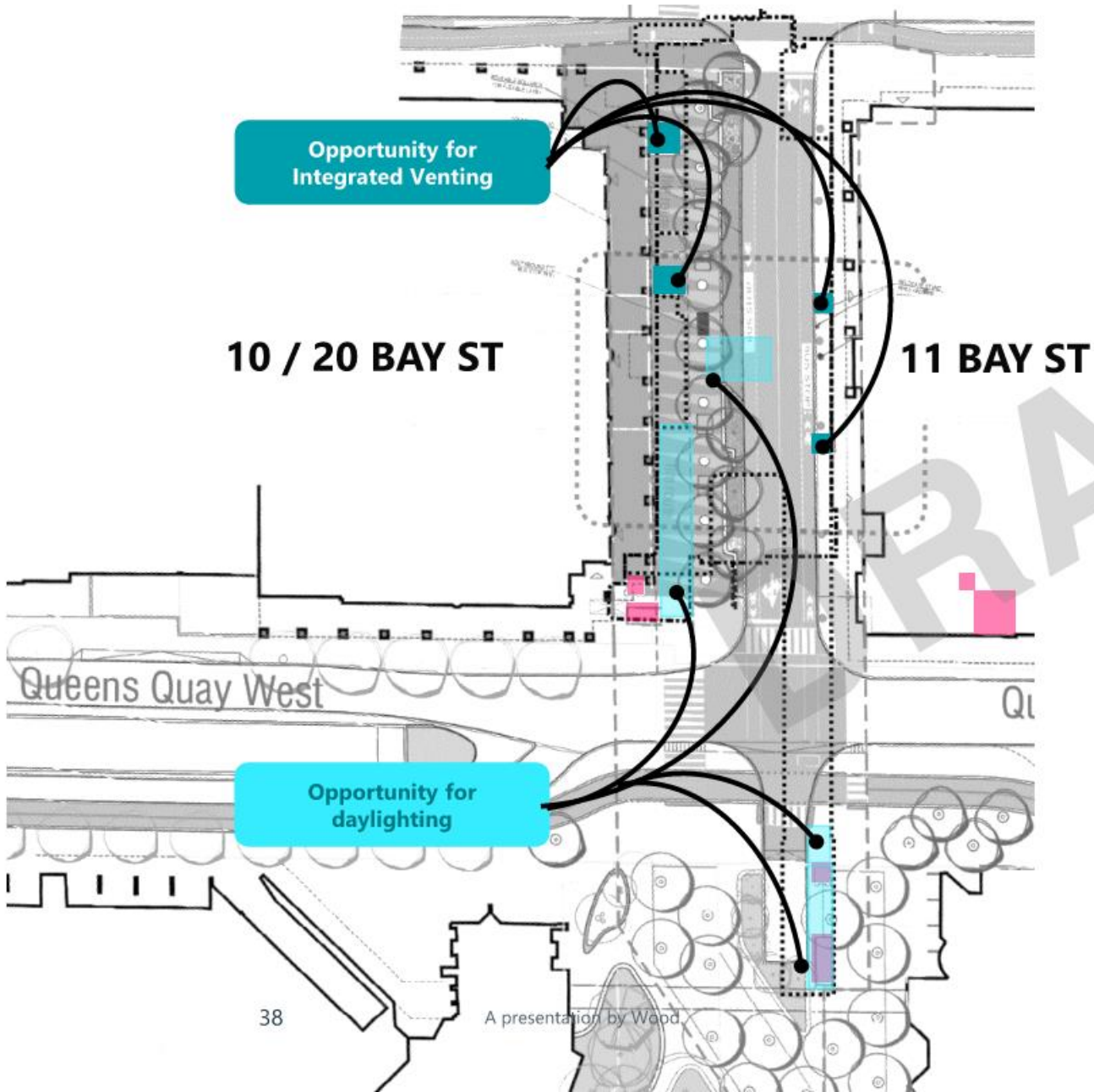
Weather Protected Southeast Entrance



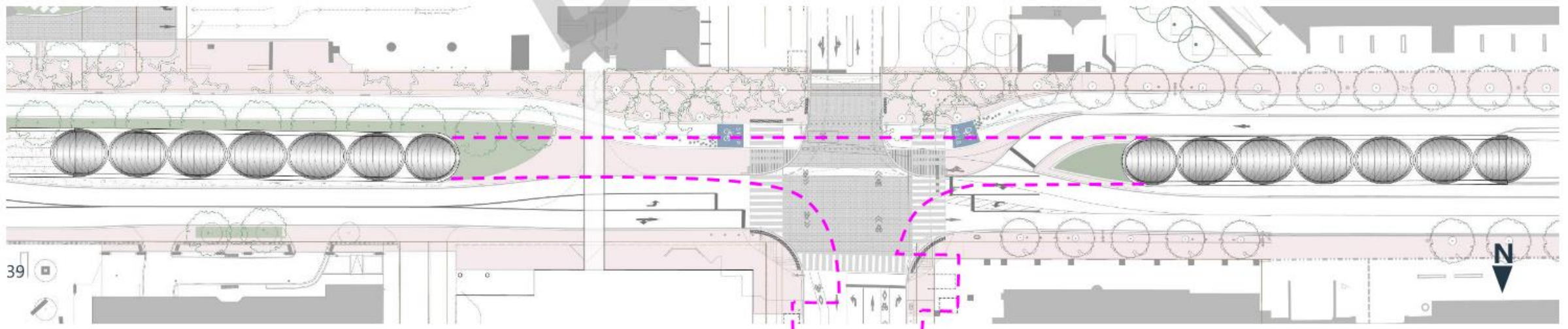
Enhanced Bay Street Opportunities



Enhanced Bay Street Opportunities



The Gateway - Streetcar Portal (East and West)



Portal Canopies



SKIN

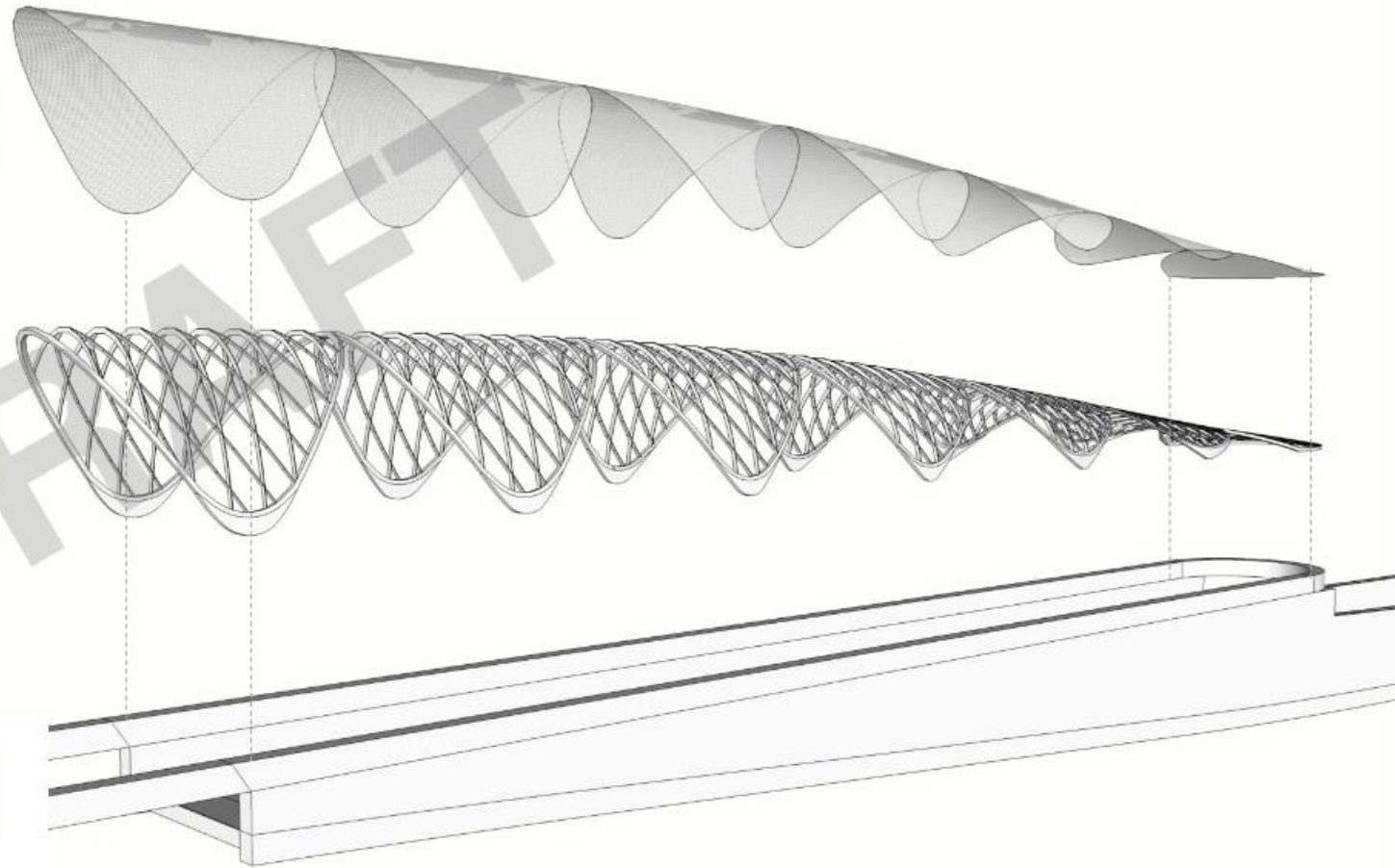
Stainless Steel
Woven Mesh

SKELETON

Factory Painted Steel

BASE

Cast in Place Concrete



Portal Canopies

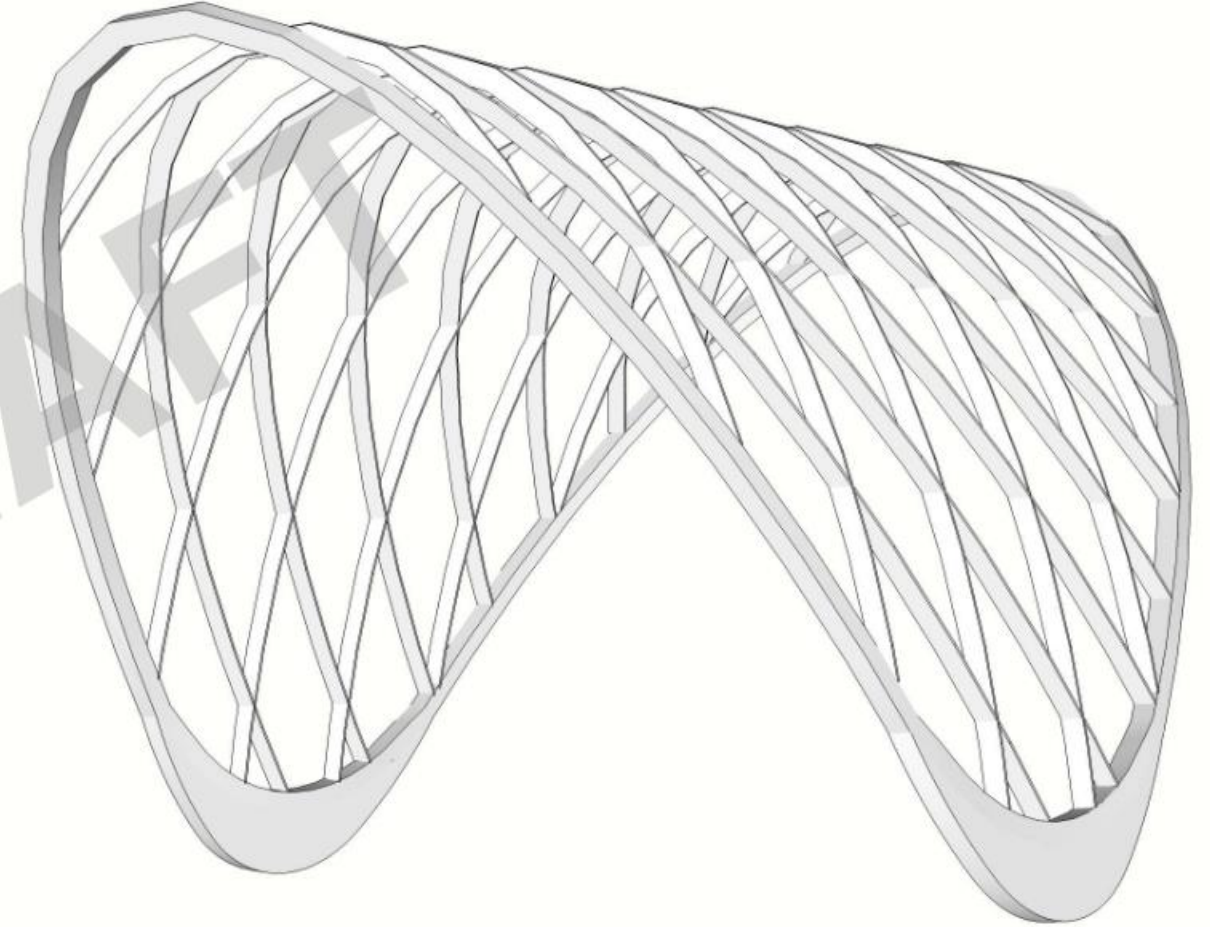


Cherry Street Bridge - Toronto



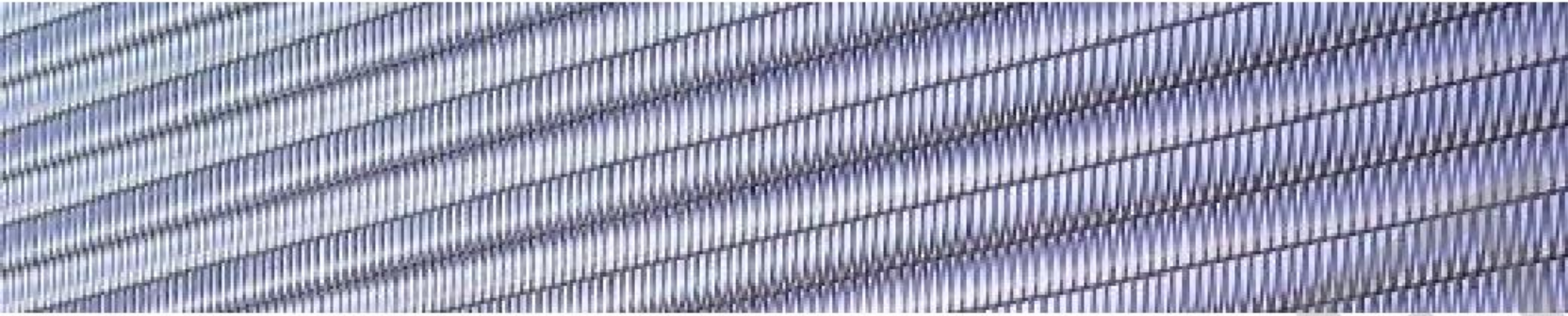
Sherbourne Common Pavilion - Toronto

Opportunity for prefabrication



Single Canopy Parasol

Portal Canopies: Materials & Finishes



GKD Metal Fabrics - Escal 7x1



Artist: Nancy Blum
CCLRT - West Bank Station
Minneapolis MN, USA



Artist: Uncle Lawrence Omeenyo
Retail Store and Offices
Lockhart River, Australia



Children's Palace,
Guangzhou, China

Portal Canopies

East Portal *looking northwest*
– Day View



East Portal *looking west towards foot of*
Bay Street.



wood.

Portal Canopies

East Portal *looking northeast towards Queens Quay East.*

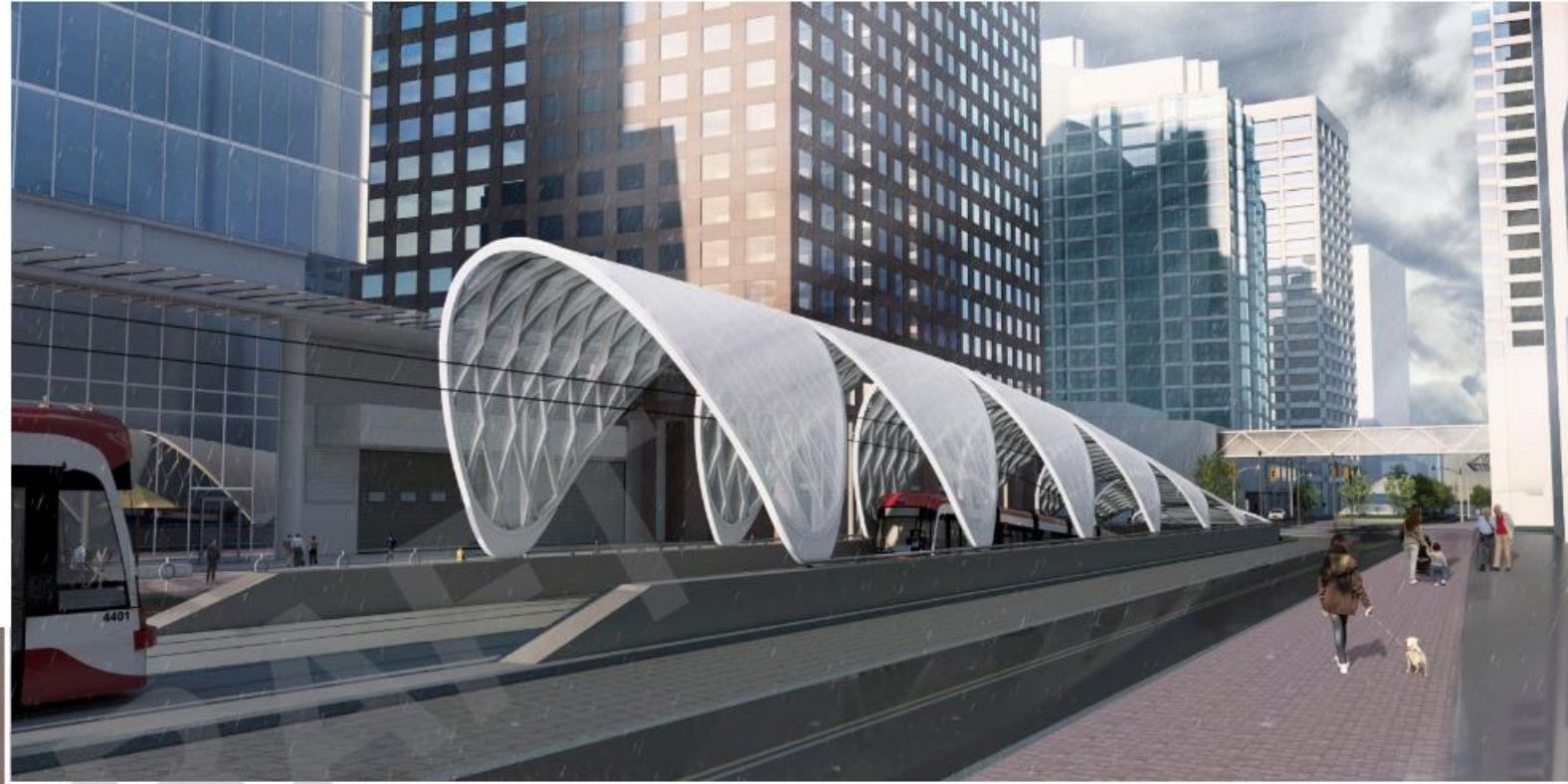


East Portal view from right-of-way



Portal Canopies

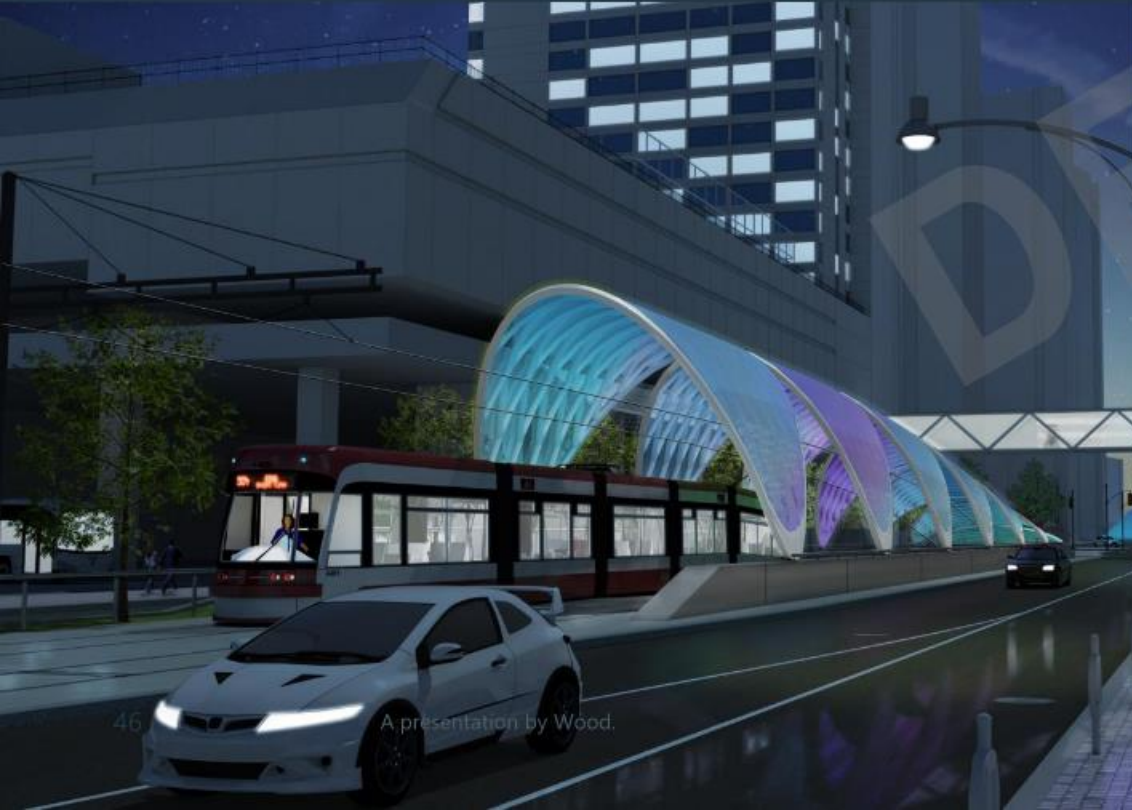
West Portal *looking west*



Proposed West Portal Canopy
on reconstructed structure

Portal Canopies

East Portal *looking southwest*
– *Night View*



East Portal Canopy aerial view
– *Night View*





ECOLOGY, ENERGY, AND SUSTAINABILITY



wood.

Ecology, Energy, and Sustainability

ECOLOGY

- Provide maximum opportunity for tree planting when relocating/replacing underground infrastructure impacted by station construction
- Remove oil/dirt from water collected by storm sewer using oil-grit separators

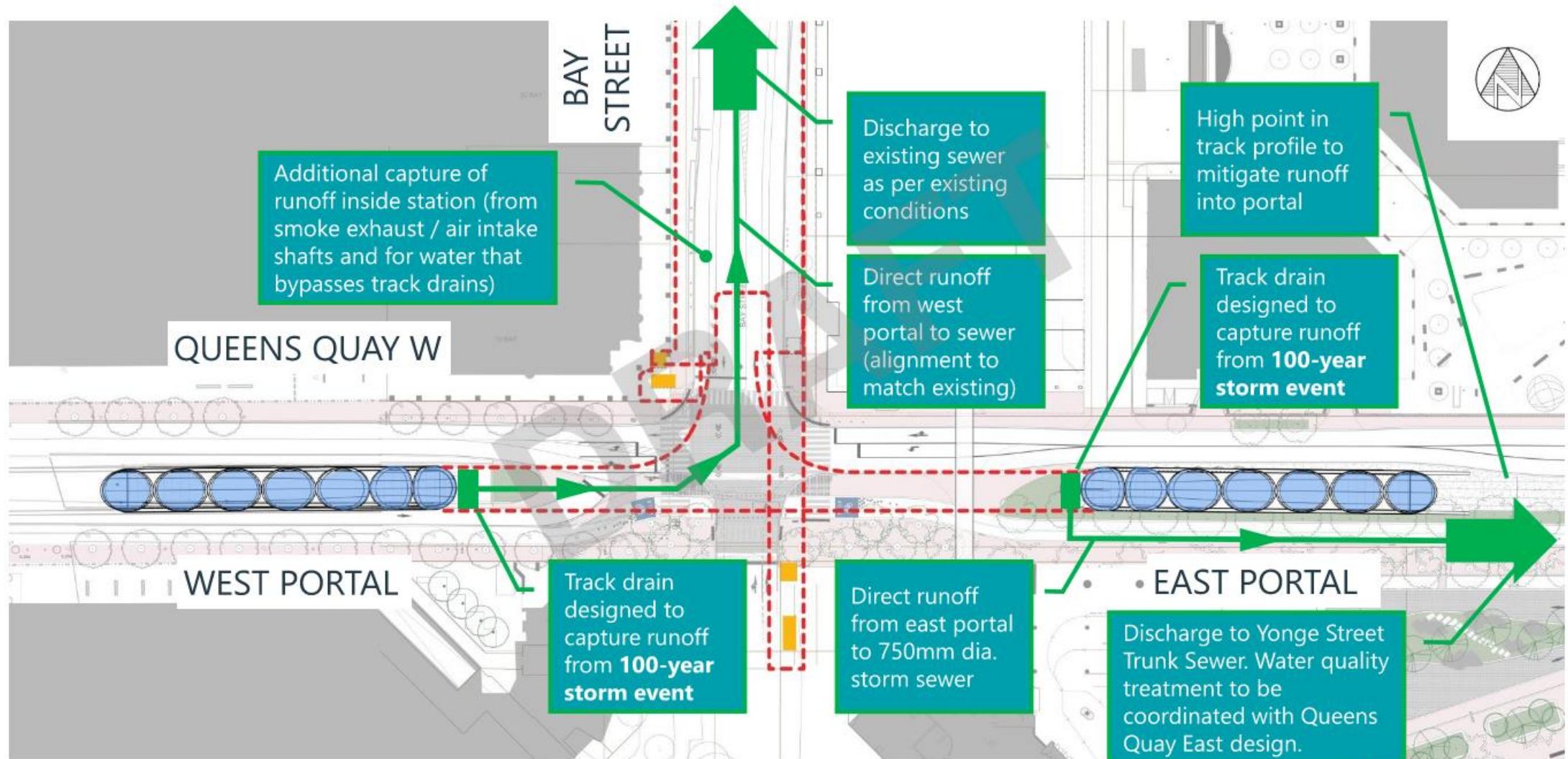
ENERGY

- Implement procedures to minimize energy use during station operation (where permitted by TTC standards and guidelines)
- Stations will not require HVAC systems for air conditioning / heating

SUSTAINABILITY

- Crush waste concrete material generated from demolition of existing stations and reuse for lean concrete (mixed on-site), reducing overall fossil fuel consumption
- Implementation of water conservation measures inside station such as water efficient plumbing fixtures and water recycling or reuse measures (where permitted by TTC standards and guidelines)

Stormwater Management



Thank You!

