



Cherry St. North – QQE to Mill St., Transit Underpass and Plaza
Waterfront East LRT (WELRT) Area 2B Cherry North
Schematic Design – Feb. 23, 2022

Waterfront East LRT - Design and Engineering Scope



Preliminary Design and Engineering Segments:

- ▬ AREA 1: Underground Portion (30% Design in progress by TTC)
- ▬ AREA 2A: Queens Quay East Surface Work from Bay to Silos (30% Design in progress by WT)
- ▬ AREA 2B: Queens Quay East Extension and Cherry Street (30% Design in progress by WT)
- ▬ AREA 2C: Cherry Street Transitway from Queens Quay East to Polson and Cherry Street Bridge (30% Design in progress by WT)



Project Description & Background

Cherry St. North – QQE to Mill St., Transit Underpass & Plaza

Proponent: Waterfront Toronto
Design Team: Stantec, Public Work
Review Stage: Schematic Design

Background

- 30% Preliminary Design and Engineering and Class 3 Costing for all project segments is required to report to council with an updated business case to secure implementation funding for the Waterfront East LRT (WELRT)
- Transit Project Assessment Process (TPAP) is required to update previous East Bayfront and Lower Don Lands EA
- First DRP appearance - June 2021 Issues Identification, returned for Schematic Design for QQE and Cherry South in Oct 2021

Scopes of Work

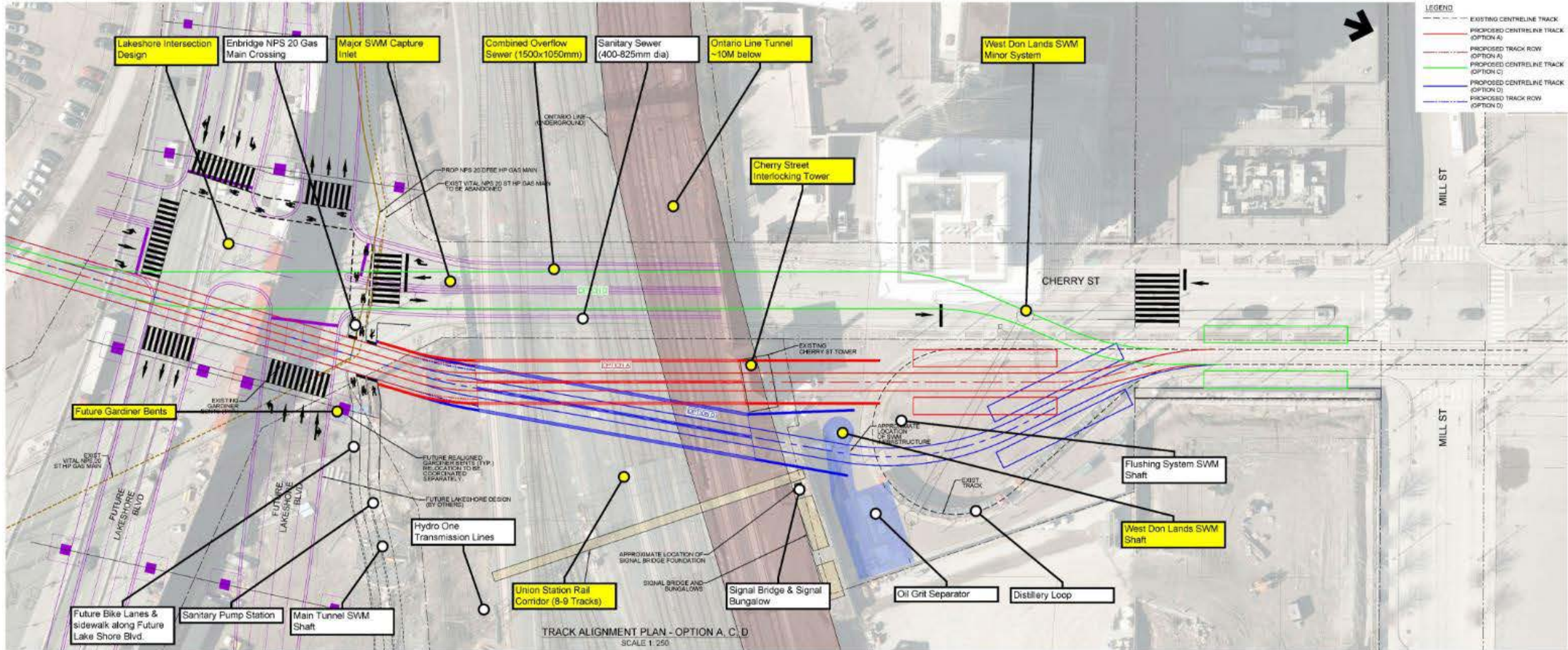
- Area 2B: Extension of Queens Quay East from Silo St. to Cherry St.
- **Area 2B: Addition of LRT infrastructure on Cherry St. from Queens Quay to Mill St., including transit connection under rail corridor, removal of Distillery Loop and plaza conversion, and relocation of Cherry signals Tower**
- Area 2C: Addition of LRT infrastructure on Cherry St. and a new terminus transit loop in the Port Lands

Project Status & Anticipated Timeline

- Revised phasing and funding strategy to inform council update in March/April 2022
- 30% design and Class 3 costing for remaining components (ie. Cherry North) by April 2021
- Full WELRT program 30% design and costing, business case and TPAP commencement to inform council report
- Construction timing TBD, pending funding and coordination with PLFP, Ontario Line, USRC projects, and Gardiner Realignment

Cherry North Transit Underpass Feasibility Study

3 Alternative alignments considered





Cherry St. Rail Underpass & Heritage Tower

Existing Context



Distillery Loop, Cherry St. Tower & Rail Underpass (North)

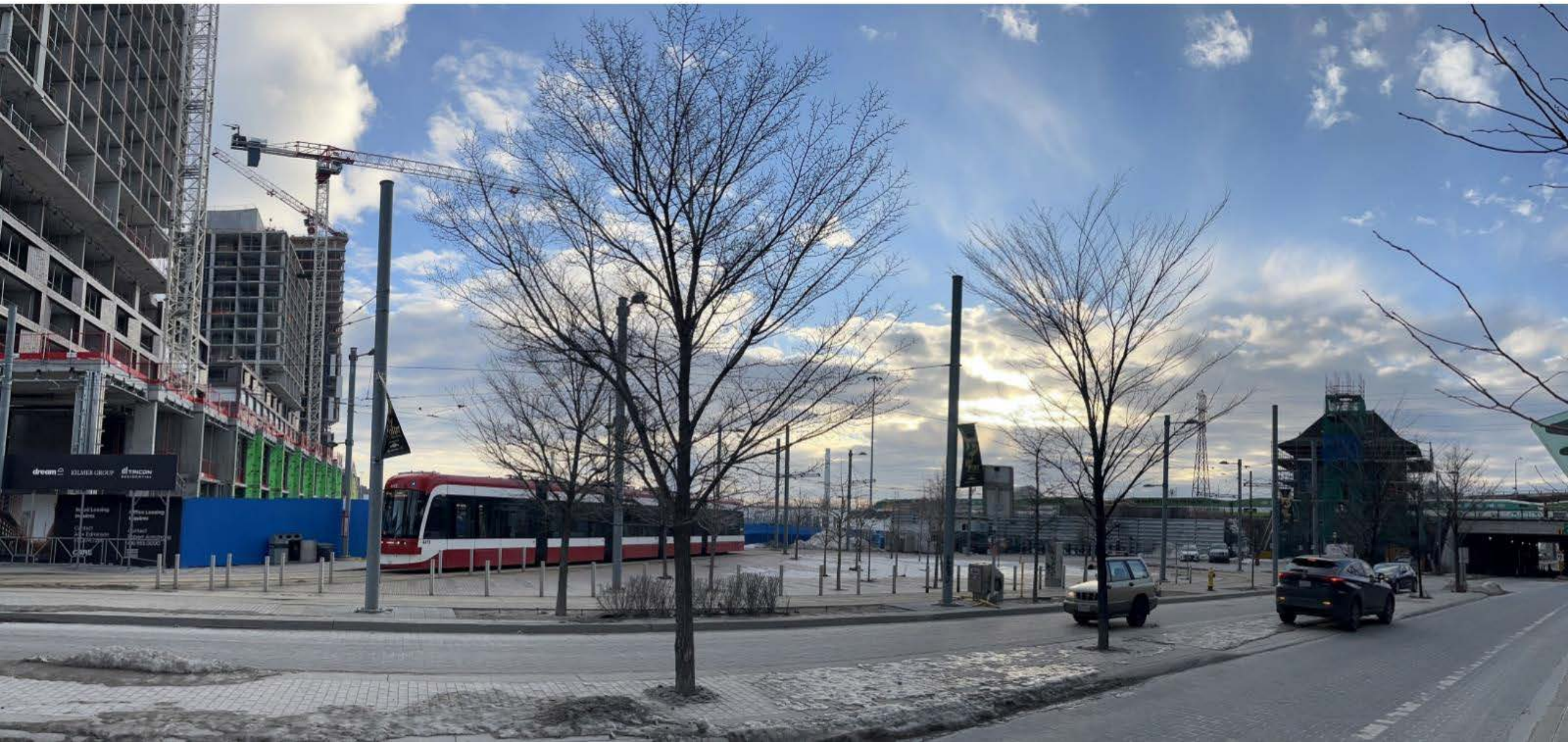


Cherry St. Rail Underpass (South)



Distillery Transit Loop Plaza

Existing Context





Cherry St. at Mill St.

Existing Context



3C Master Plan

Future Context: Adjacent Development



West Don Lands Block 20

QQE Extension & E. Waterfront LRT Area 2B

Proponent: Waterfront Toronto
Design Team: Stantec, Public Work
Review Stage: Issues ID

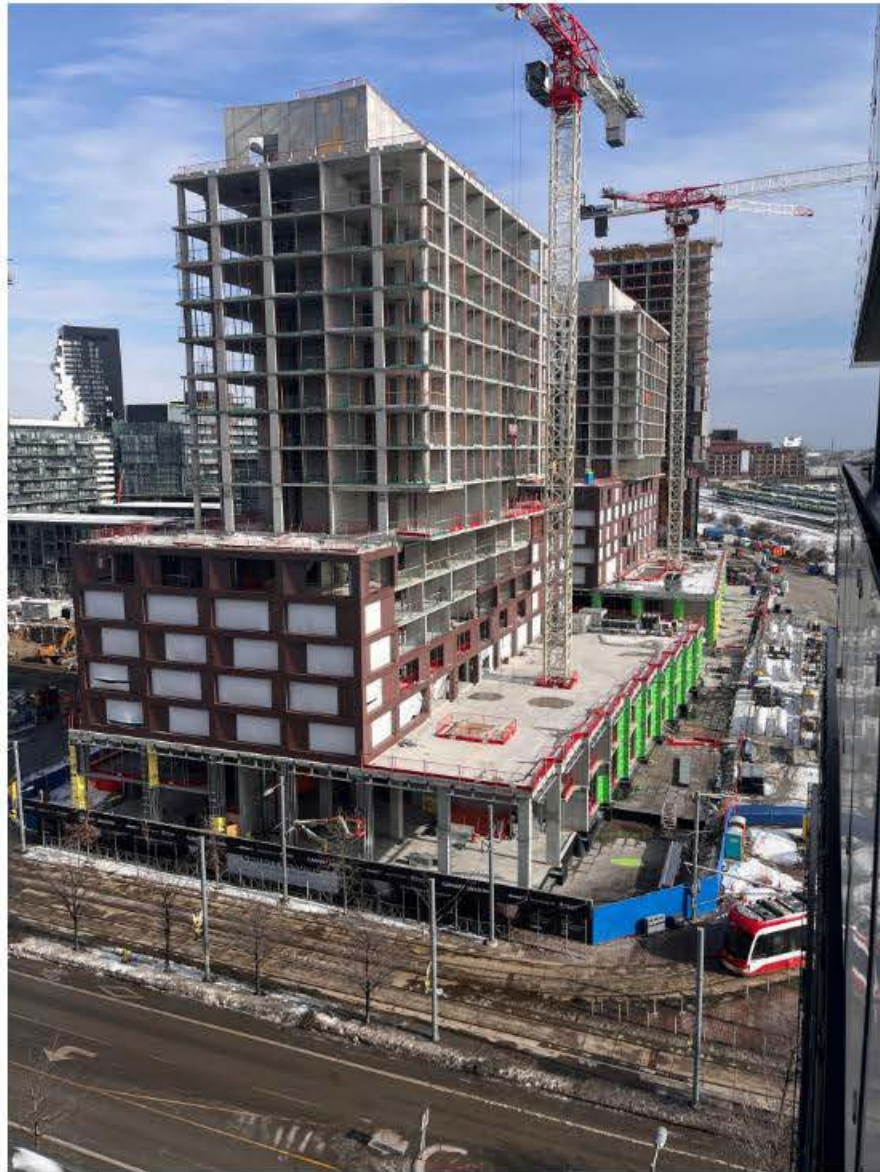


Proposed ground floor site plan from May 2021 Schematic Design DRP

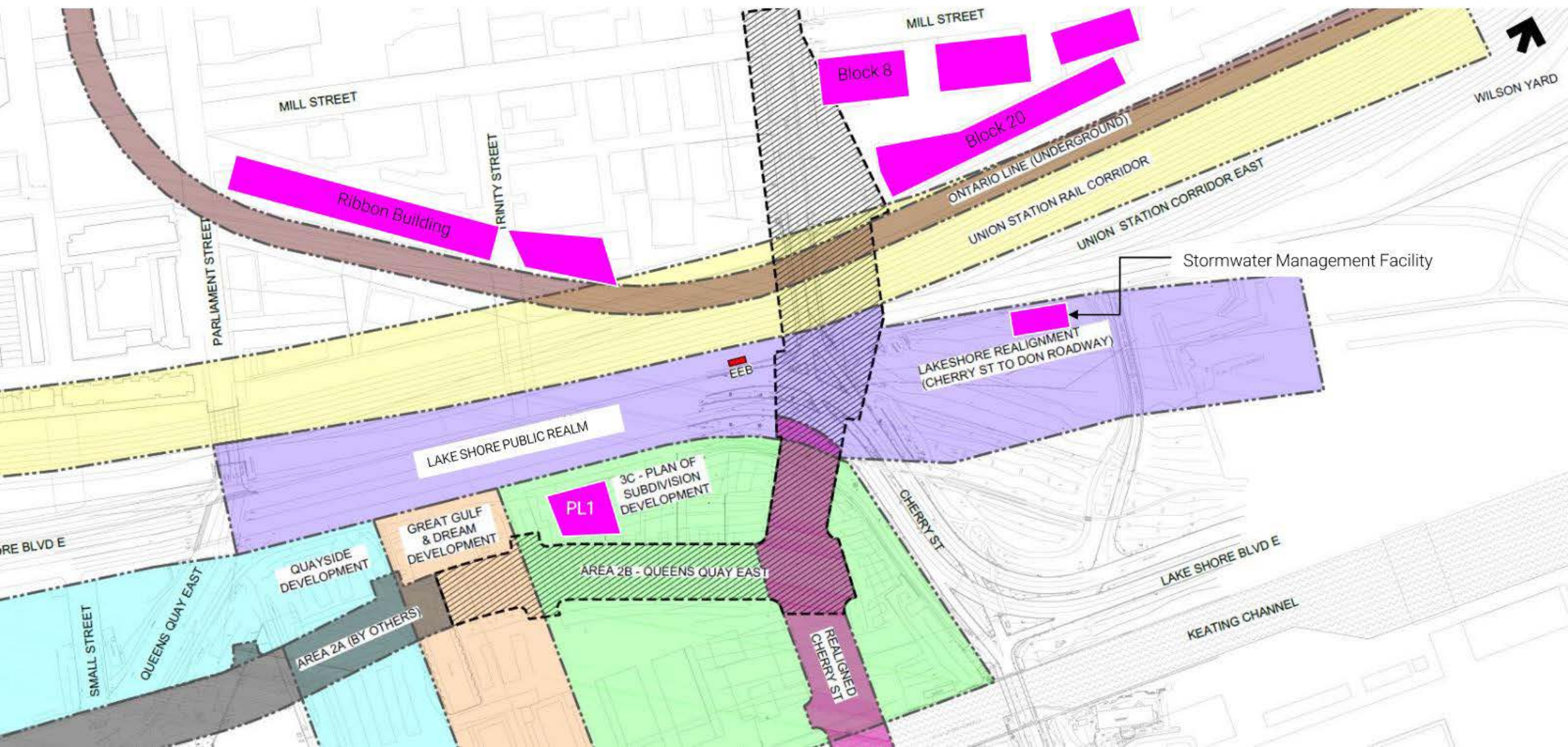


Tankhouse Lane

Existing & Emerging Context



Coordination with Many Adjacent Projects



Stormwater Management Facility

Architectural & Infrastructural Context



View from the Gardiner and from above



Pedestrian & Cycling Connectivity Study

Future Context

PLANNED CHERRY LRT TUNNEL

The Cherry LRT is planned to be extended south across the USRCE and into the developing Port Lands.

At this preliminary stage in planning the LRT extension, plans are high-level and subject to change. The PCCS initially carried forward plans for the existing Cherry underpass to be reconstructed to add an LRT crossing, but this assumption changed during the course of the study. The latest planning keeps the existing Cherry underpass intact, while building a new LRT tunnel and pedestrian access to its east.

The recommendation for the Cherry corridor is to focus investments on public realm improvements aimed at enhancing the pedestrian and cycling experience/safety, in addition to the existing plans for a Trinity Tunnel and Cherry LRT Tunnel.

A FRAMEWORK FOR GREATER CONNECTIVITY ACROSS THE USRCE



Conceptual landscape plan (for illustrative purposes only)

Design Brief



1/ Integrating with Urban Ecology:

Design for ecological performance

- Expanded tree canopy and planting
- Integrated green infrastructure
- More permeable ground surface
- Enhanced user comfort
- Habitat and eco-corridors for biodiversity
- Resilient species selection for waterfront
- Customized details for variable lake levels
- Low-maintenance landscape
- Monitoring and adaptive maintenance

2/ Moving People:

Design for safety, convenience and flexibility

- Improve clarity at intersections
- Improve pedestrian crossings
- Safe intermodal interactions
- More convenient cycling environment
- Accommodate new micro-mobility
- Flexibility to accommodate new trends
- Performance review & adaptive management

3/ Building a Destination:

Design for character and experience

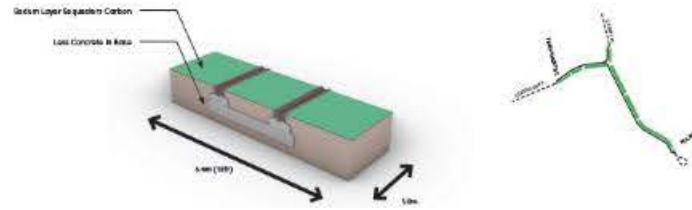
- Continuity of design language with QQW
- Greater coherence of paving materials
- Durable materials and craftsmanship
- Slips and intersections as destinations
- Flexibility for closures & programming
- Consistent palette of furniture, lighting, etc.
- Integrated infrastructure for programming
- Encourage social interaction

Green Track Pilot Project

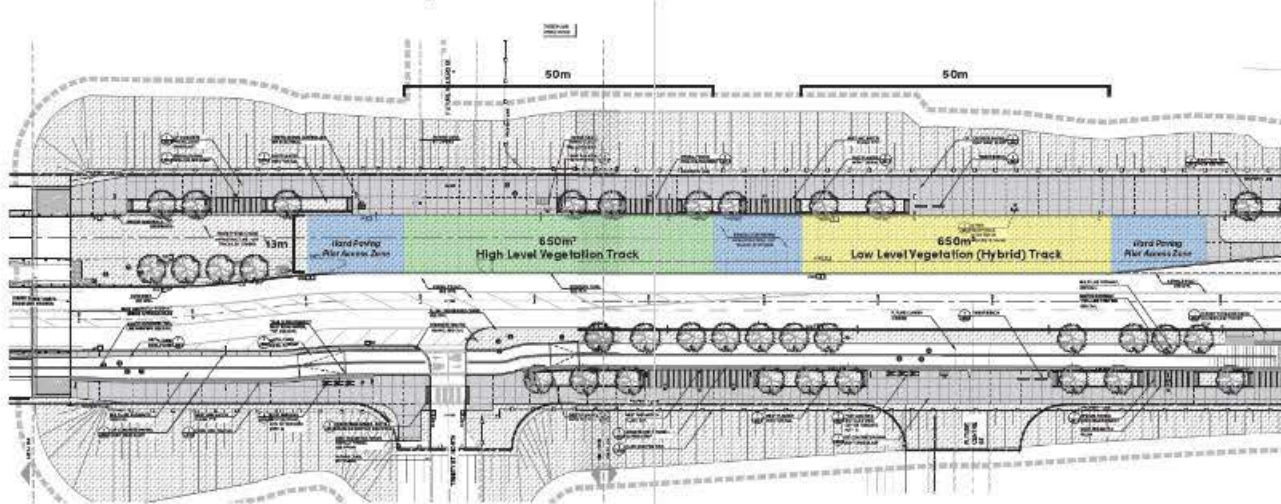
Stormwater Benefits



Embodied Carbon Reduction



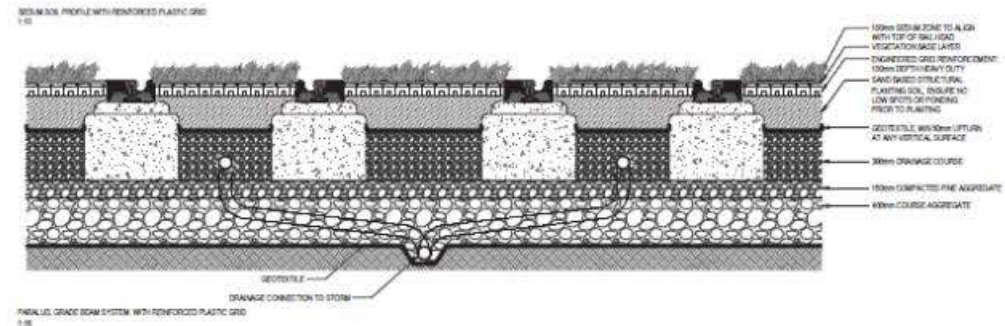
Potential Site on Chery St. at Villiers Island



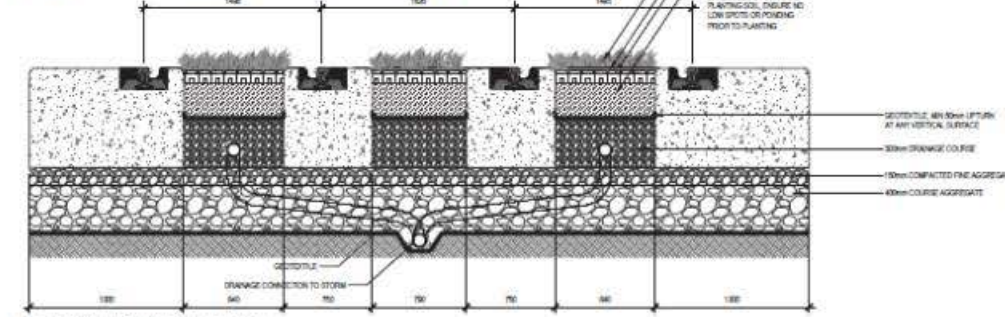
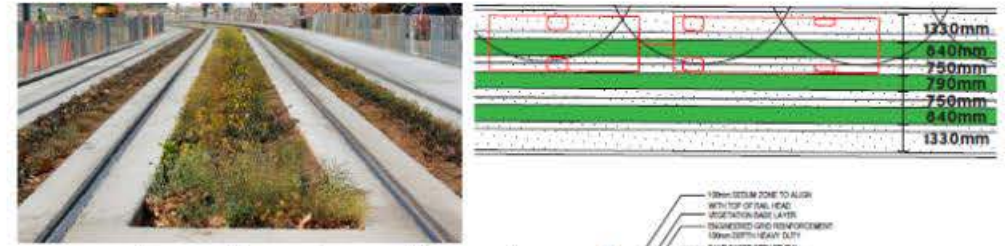
PORTLAND'S FLOOD PROTECTION AND DAMAGING INFRASTRUCTURE NEW CHERRY STREET, STA 420+0 TO STA 430+0

Images: The Green Track Pilot proposal featuring two green track systems with a 100m x 0.3m strip of the A1718 in urban meadow landscape.
After Rain System 1: High Level Vegetation Track with Reinforced Plastic Grid - planting extends to rail head.
After Rain System 2: Low Level Vegetation (Hybrid) Track with Reinforced Plastic Grid - planting in strip between concrete slabs or tracks to provide navigable space for wheelchairs.

Systems to Test



Images: Pilot Test System 1: High Level Vegetation Track with Reinforced Plastic Grid - planting extends to rail head



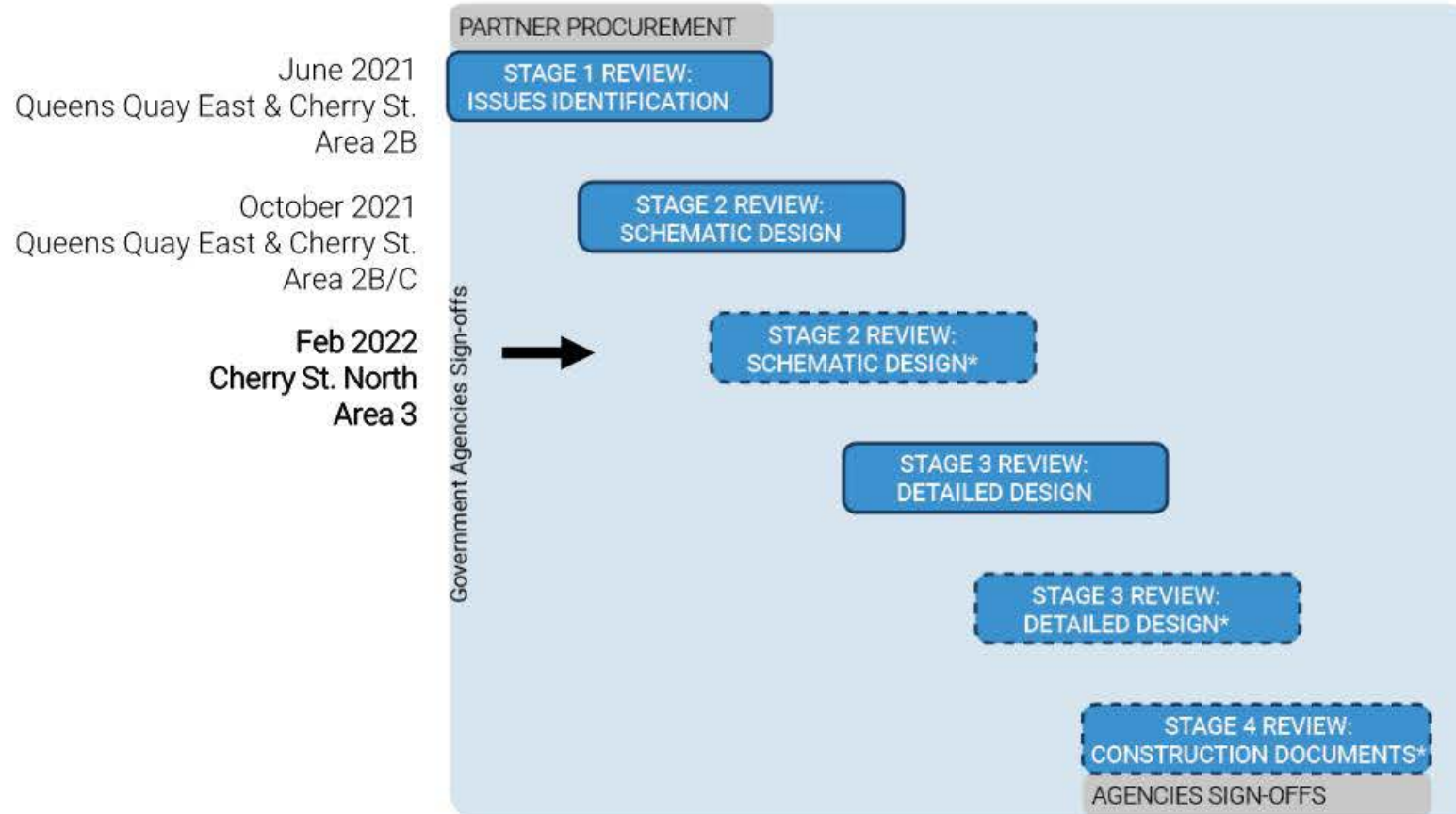
1000mm GRADE BEAM SYSTEM WITH REINFORCED PLASTIC GRID

DRP Stream 2: Public land

Project Approval Stage

Queens Quay East Extension & Cherry St.

Proponent: Waterfront Toronto
Design Team: Stantec, Public Work
Review Stage: Schematic Design





June 2021 DRP Consensus Comments

Cherry St. 2B – Issues ID

General

- Appreciated the excellent presentation, the project has great potential.
- It is **important to lead with landscape and create a strong public realm.**
- Strong **support for the ecological approach** and emphasis on greening the streetscape.

Landscape

- Supported planting Cherry Trees at the Cherry plaza.
- Consider **plant species that are resilient, indigenous to the site, and require little to no maintenance.**
- Consider enlarging or consolidating the street side planting beds to avoid narrow stripes and create wider, more **robust areas for planting.**
- Strong **support for the crossing at Tank House Lane.**

Cherry Street Transit Underpass

- Several Panel members supported **keeping the portal close to Cherry Street** to not break up the plaza.
- Other Panel members supported **keeping the tower in place** so the streetcar will run east of the existing building. The plaza can be conceived as a shared public amenity space. Additionally, it is more economical to keep the building in place.
- Strong support for the **tower being conceptualized as a beacon** to mark Cherry Street and help place-make the plaza.
- **Further investigate the plaza** design, provide a proof of concept, and **explore functional and public programming opportunities** at the next review.



Areas for Panel Consideration

Waterfront Toronto

1. Do the proposed **enhancements to the streetscape on Cherry St.** integrate well within the baseline design for Cherry Street established in PLFP.
2. Do the revised **transit stop location** at Mill Street and the **Tankhouse Lane pedestrian crossing** make for better circulation in the district?
3. Does the **reconfiguration of bike lanes to bidirectional cycle track** on the west-side and **removal of the median** on Cherry St. between Mill St. and Lake Shore improve **cycling and pedestrian circulation**?
4. Does the **new vision** for the transit plaza as a wetland **fit well within the context**?
5. Are the proposed street and plaza designs **achieving our design brief goals** for enhanced **ecological performance, active transportation, and place-making**?

**Cherry Street North
LRT Portal and Public Space**

Design Review Panel
2022.02.23

**PUBLIC
WORK**



Cherry Streetscape: Update



Leahurst Spill

Cherry Beach

The Islands

Mouth of the Don River

TORONTO HARBOUR

Villiers Park

DON RIVER

Sediment Park

KEATING CHANNEL

Queens Quay East

Parliament Slip

Union Station Corridor East

Gardiner / Lake Shore Corridor

Silo Park

Corktown Common

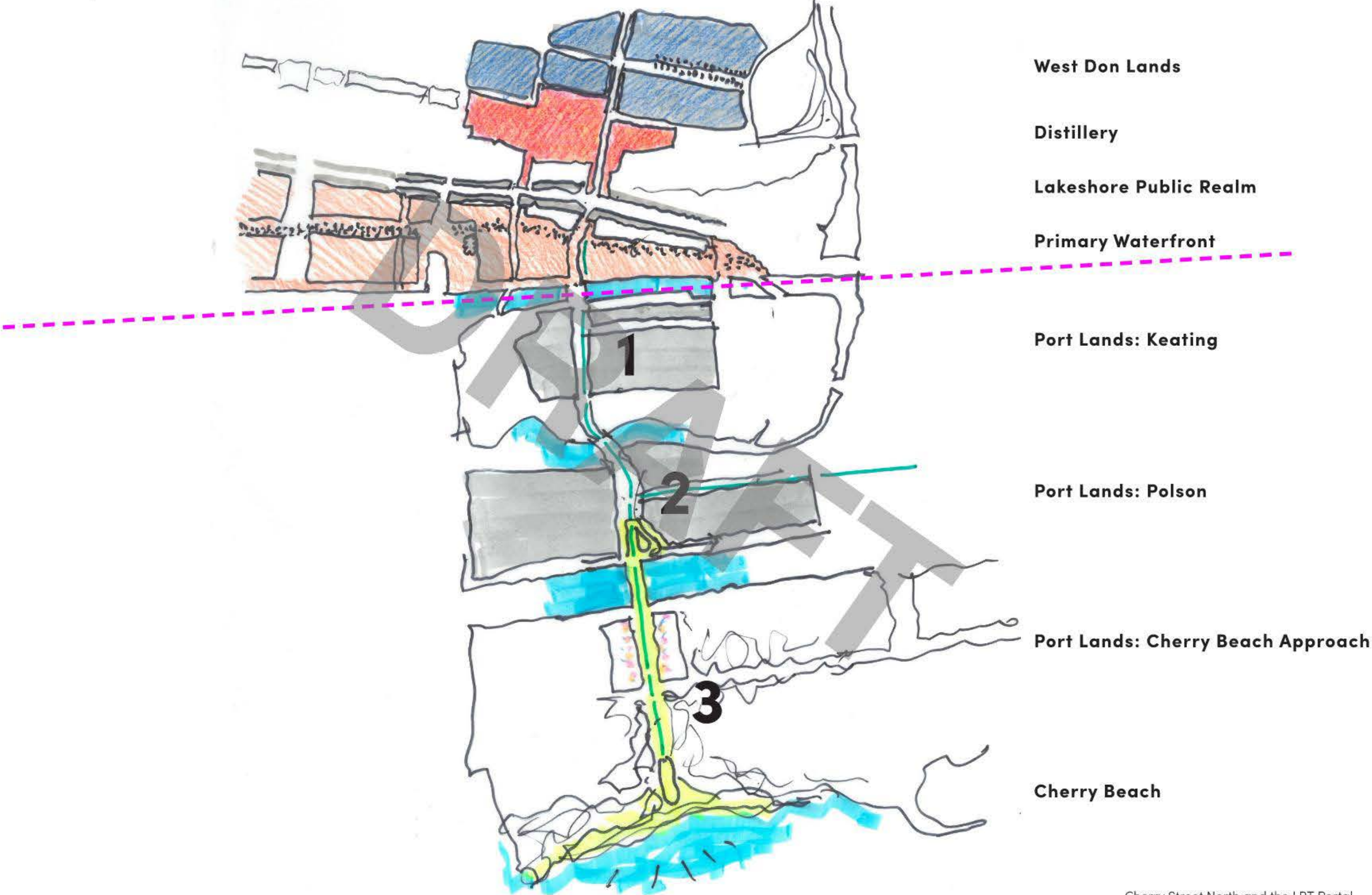
Tank House Lane

Cherry Street

Trinity Street

Parliament Street

Cherry: A Responsive Street Palette



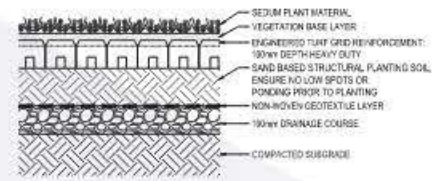
Cherry: Responsive Street Palette



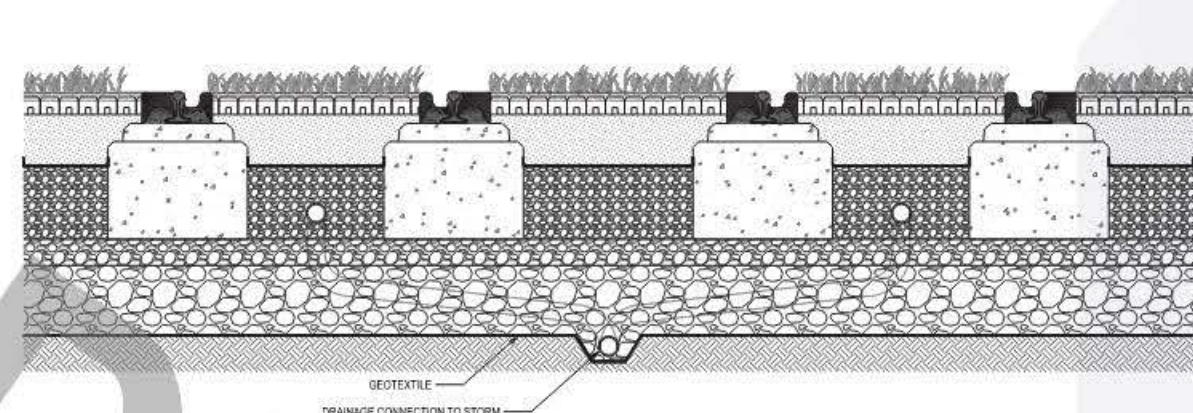


- Embodied carbon reduction and sequestration
- Rain water capture and retention
- Fine dust absorption
- Reduction in air-borne noise
- Reduction in heat island effect
- Enhanced ecological presence in the public realm
- Positive uplift for developing neighbourhoods

Cherry Street Full Green Track



SEDUM SOIL PROFILE WITH REINFORCED PLASTIC GRID
1:10



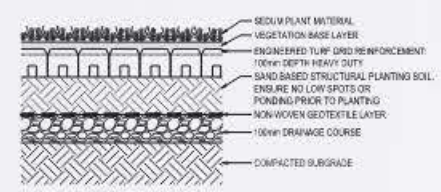
PARALLEL GRADE BEAM SYSTEM WITH REINFORCED PLASTIC GRID
1:10

- 100mm SEDUM ZONE TO ALIGN WITH TOP OF RAIL HEAD
- VEGETATION BASE LAYER
- ENGINEERED GRID REINFORCEMENT: 100mm DEPTH HEAVY DUTY
- SAND BASED STRUCTURAL PLANTING SOIL. ENSURE NO LOW SPOTS OR PONDING PRIOR TO PLANTING
- GEOTEXTILE, MN 50mm UPTURN AT ANY VERTICAL SURFACE
- 300mm DRAINAGE COURSE
- 150mm COMPACTED FINE AGGREGATE
- 400mm COURSE AGGREGATE

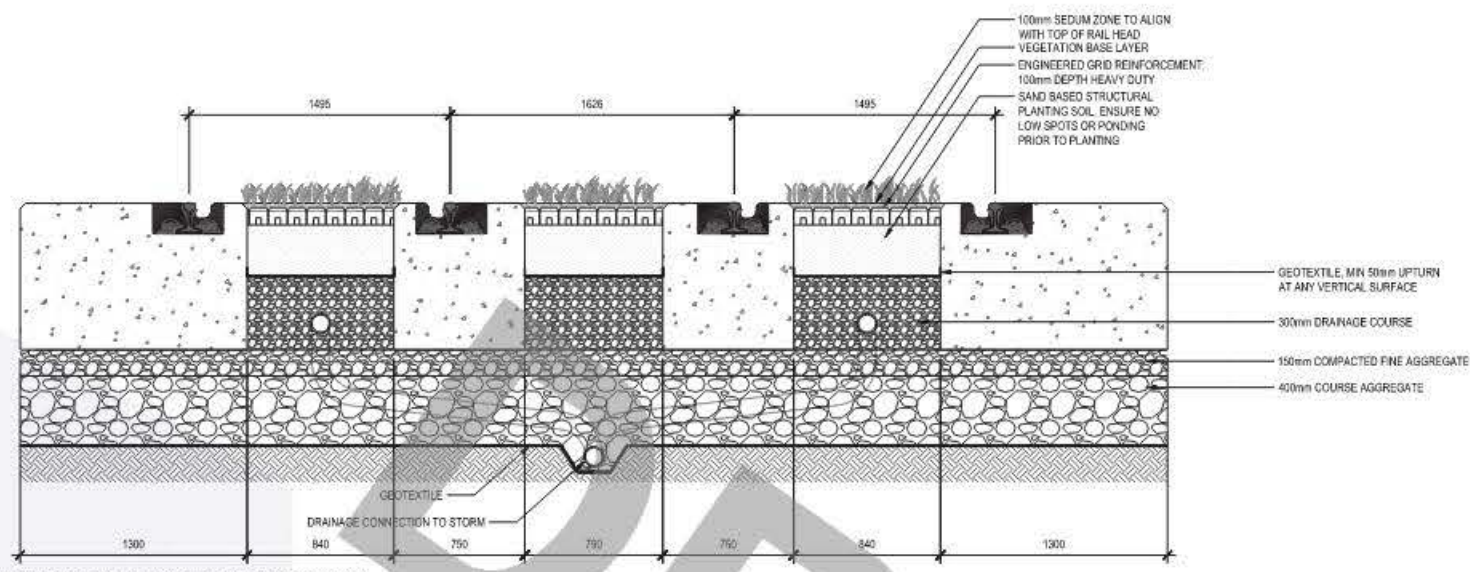


Cherry Street

Hybrid Green Track: To Accommodate Replacement Bus Service



SEDUM SOIL PROFILE WITH REINFORCED PLASTIC GRID
1:10

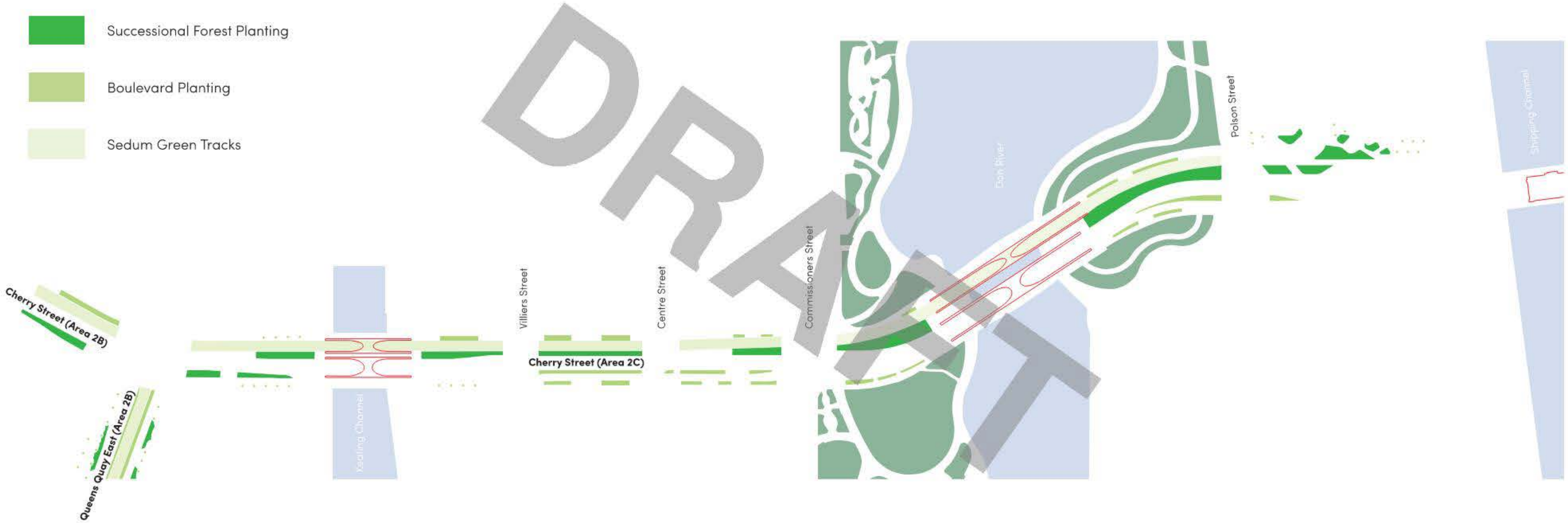


WIDE PARALLEL GRADE BEAM SYSTEM WITH REINFORCED PLASTIC GRID
1:10



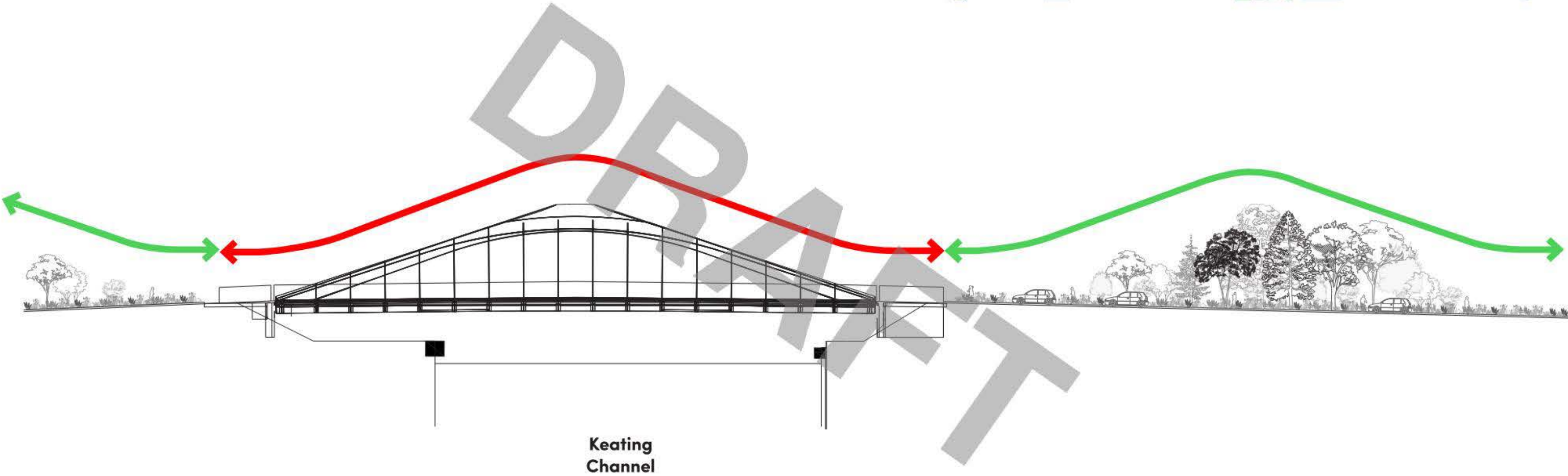
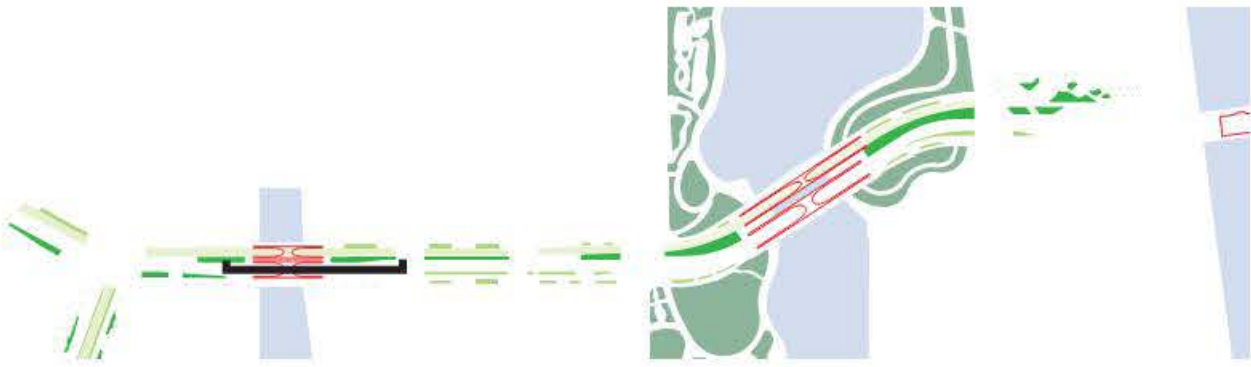
Green Track and Dynamic Planting: A Unifying and Transformational Move Along Cherry into the Port Lands

- Successional Forest Planting
- Boulevard Planting
- Sedum Green Tracks



Cherry Street

Keating Bridge and Ecology Integration

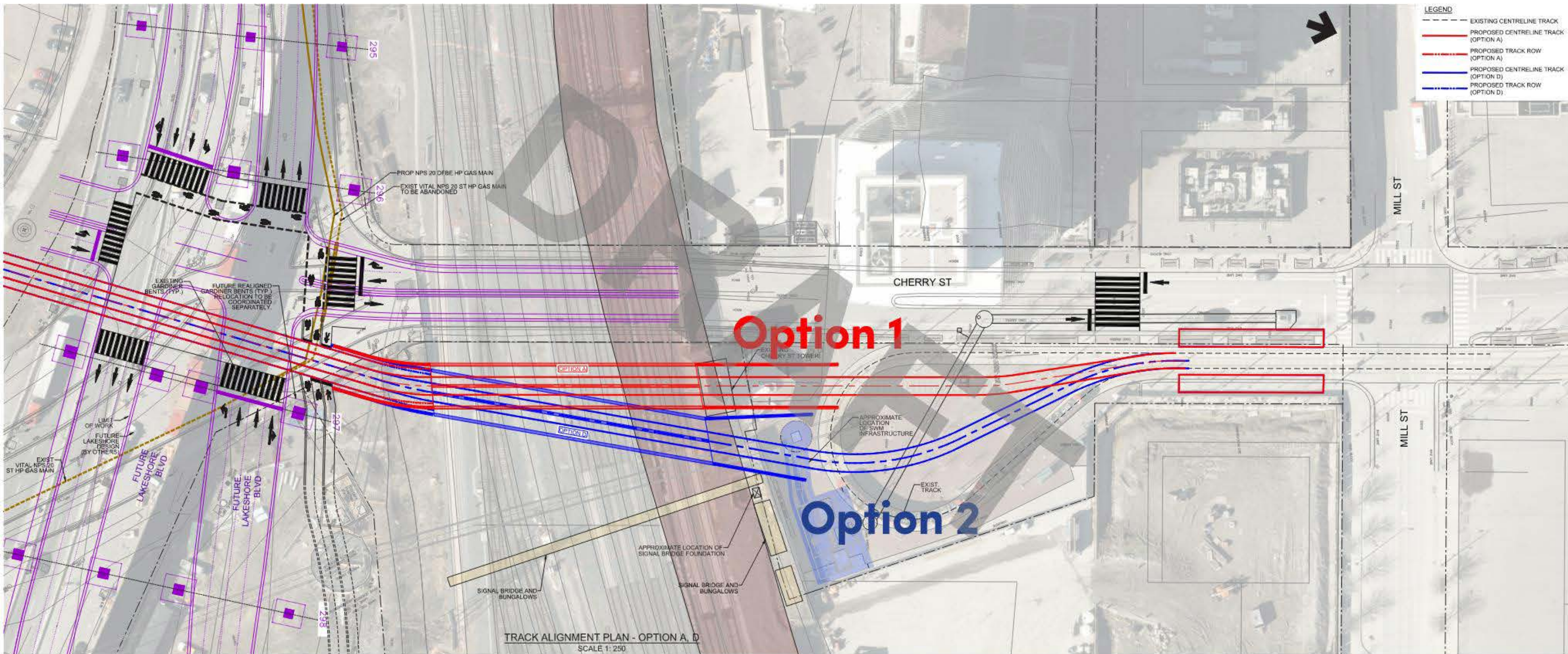


Cherry North: Proposed Transit Solution

Recap from DRP#1, June 2021:



Recap from DRP#1, June 2021: Portal Alignment Options



Recap from DRP#1, June 2021:

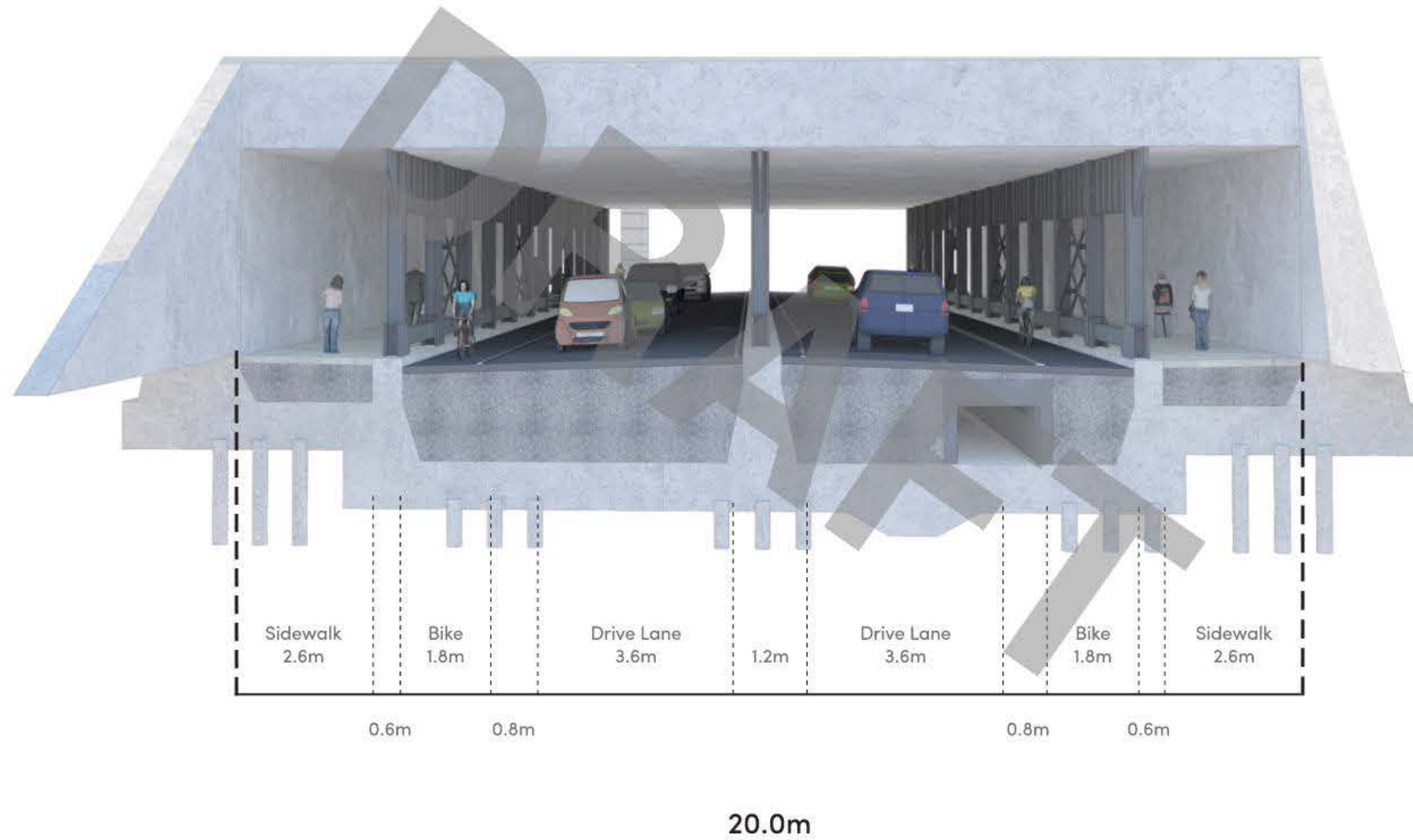


Cherry Plaza: New Portal through Existing Watch Tower Location, relocate tower



Cherry Plaza: New Portal east of Watch Tower, watch tower remains in place

Existing USRC Bridge

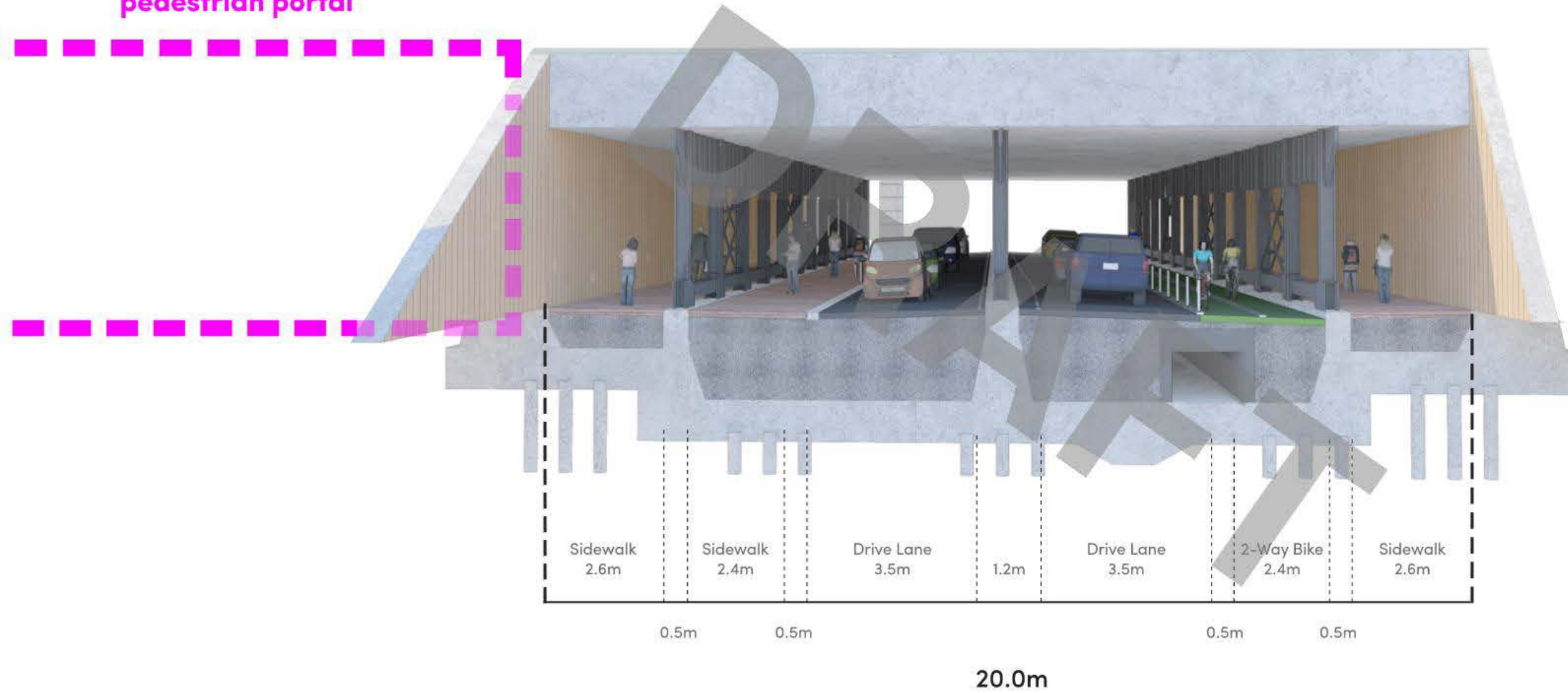


Proposed Solution Step 1: Re-balance existing bridge to match Lower Cherry vision

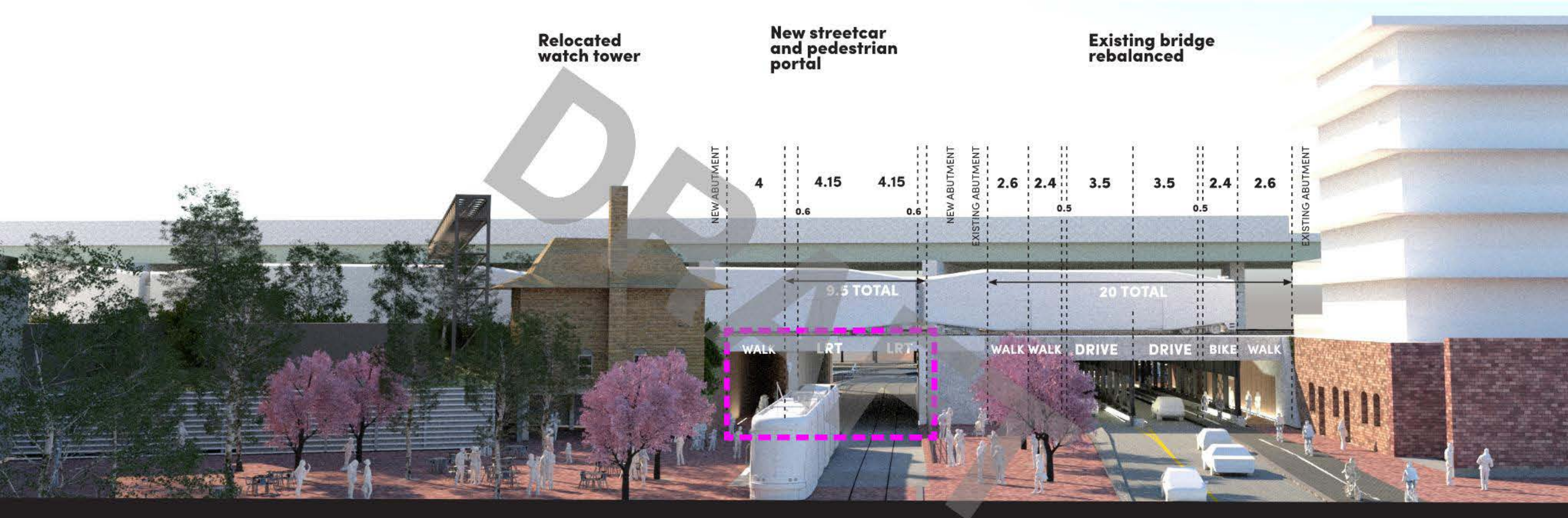
Add new LRT and pedestrian portal

East Side: Sidewalk Expansion

West Side: Cycling Expansion



Proposed Solution Step 2: Add a new LRT and pedestrian portal to the east of the existing bridge



Proposed Solution Step 2: Add a new LRT and pedestrian portal to the east of the existing bridge

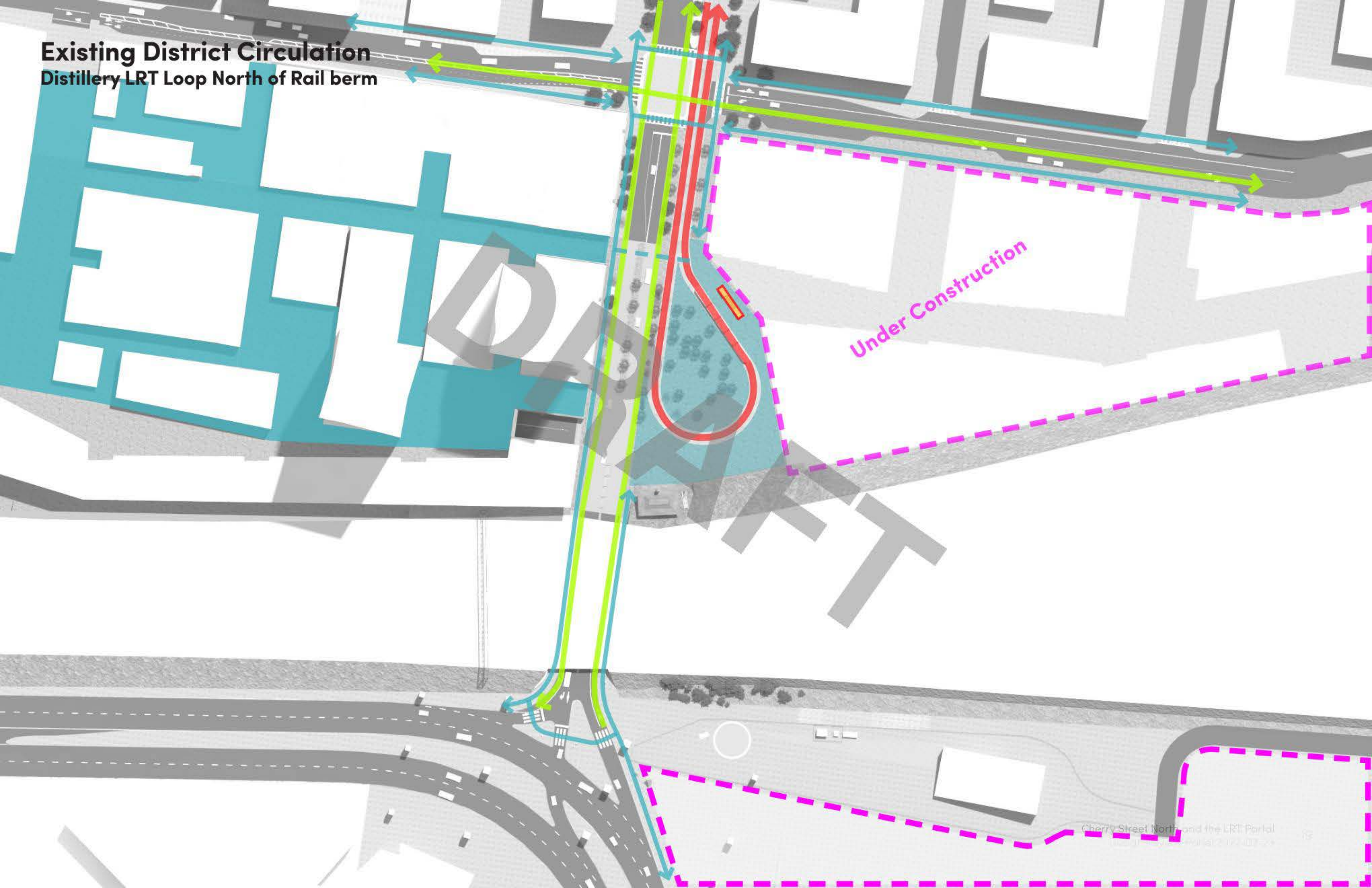


Rail Lines

New Streetcar and Pedestrian Portal

Existing Cherry Underpass Bridge

Existing District Circulation
Distillery LRT Loop North of Rail berm



Under Construction

Proposed District Circulation:

- Cherry Street LRT Portal Brings Transit South of Railberm
- Existing transit loop removed due to proposed grade changes and track alignment at Portal
- Platform located at Mill St and Tank House Lane crossings



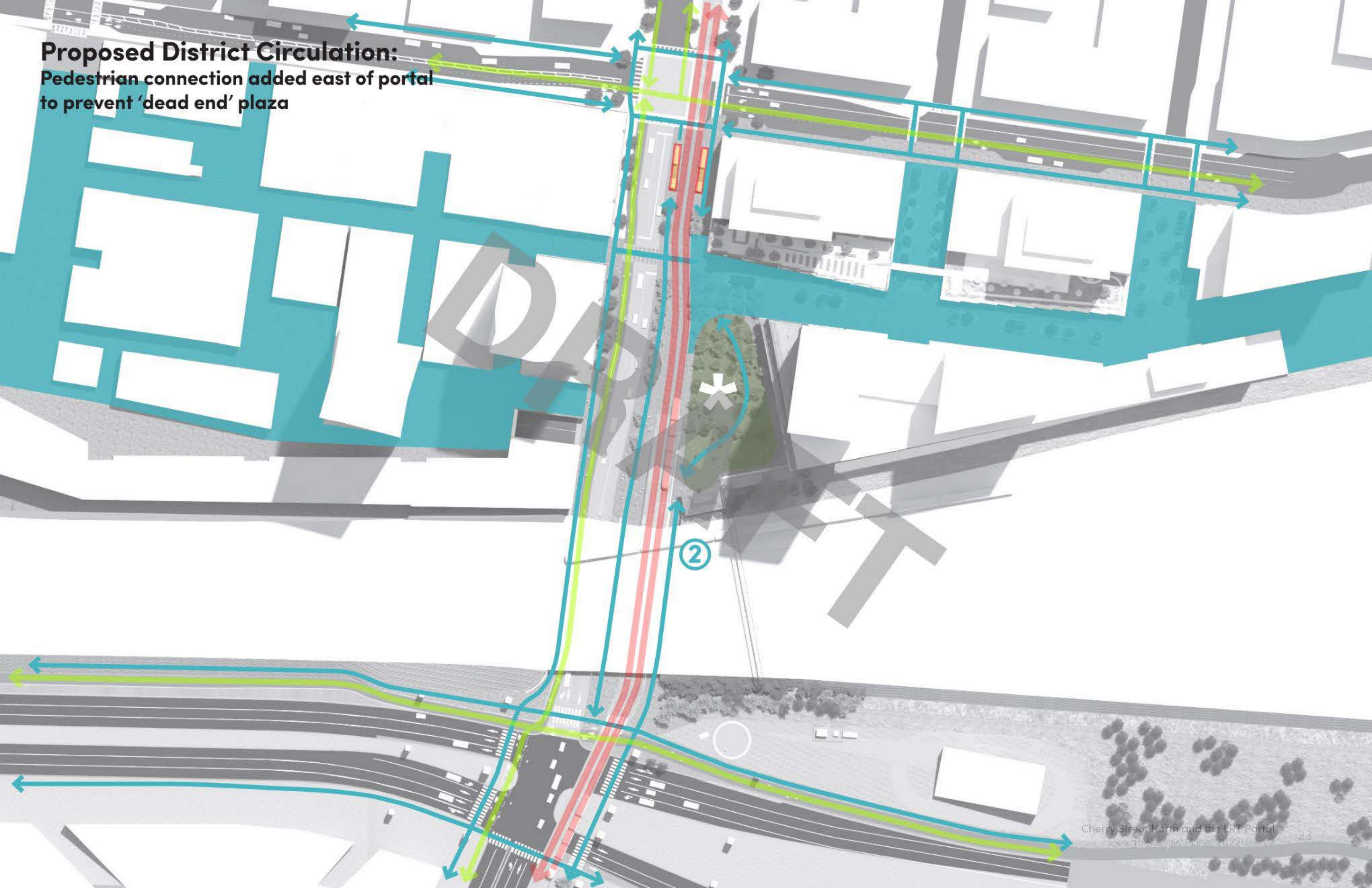
Cherry South of Mill: Existing



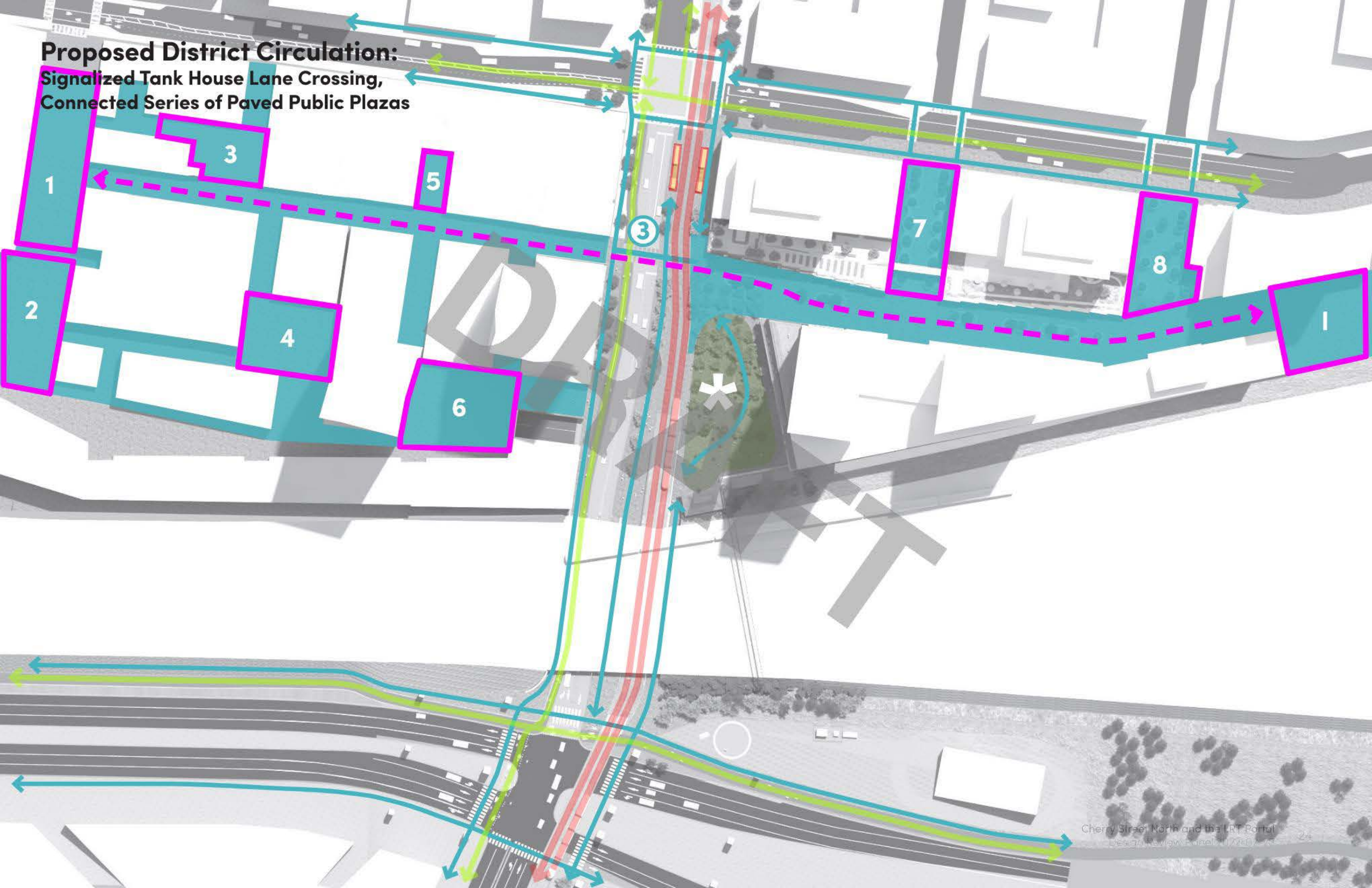
Cherry South of Mill: Proposed



Proposed District Circulation:
Pedestrian connection added east of portal
to prevent 'dead end' plaza



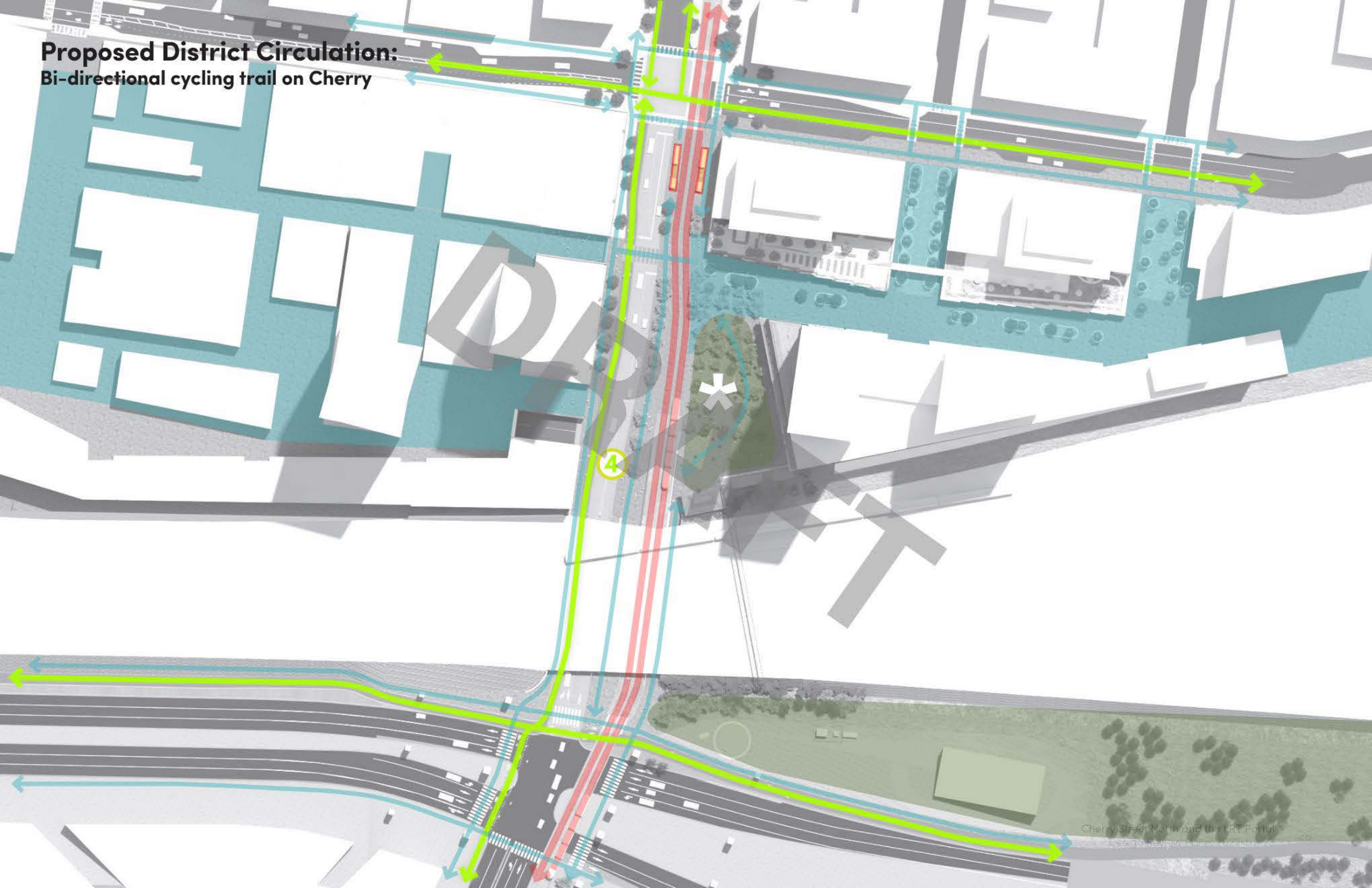
**Proposed District Circulation:
Signalized Tank House Lane Crossing,
Connected Series of Paved Public Plazas**



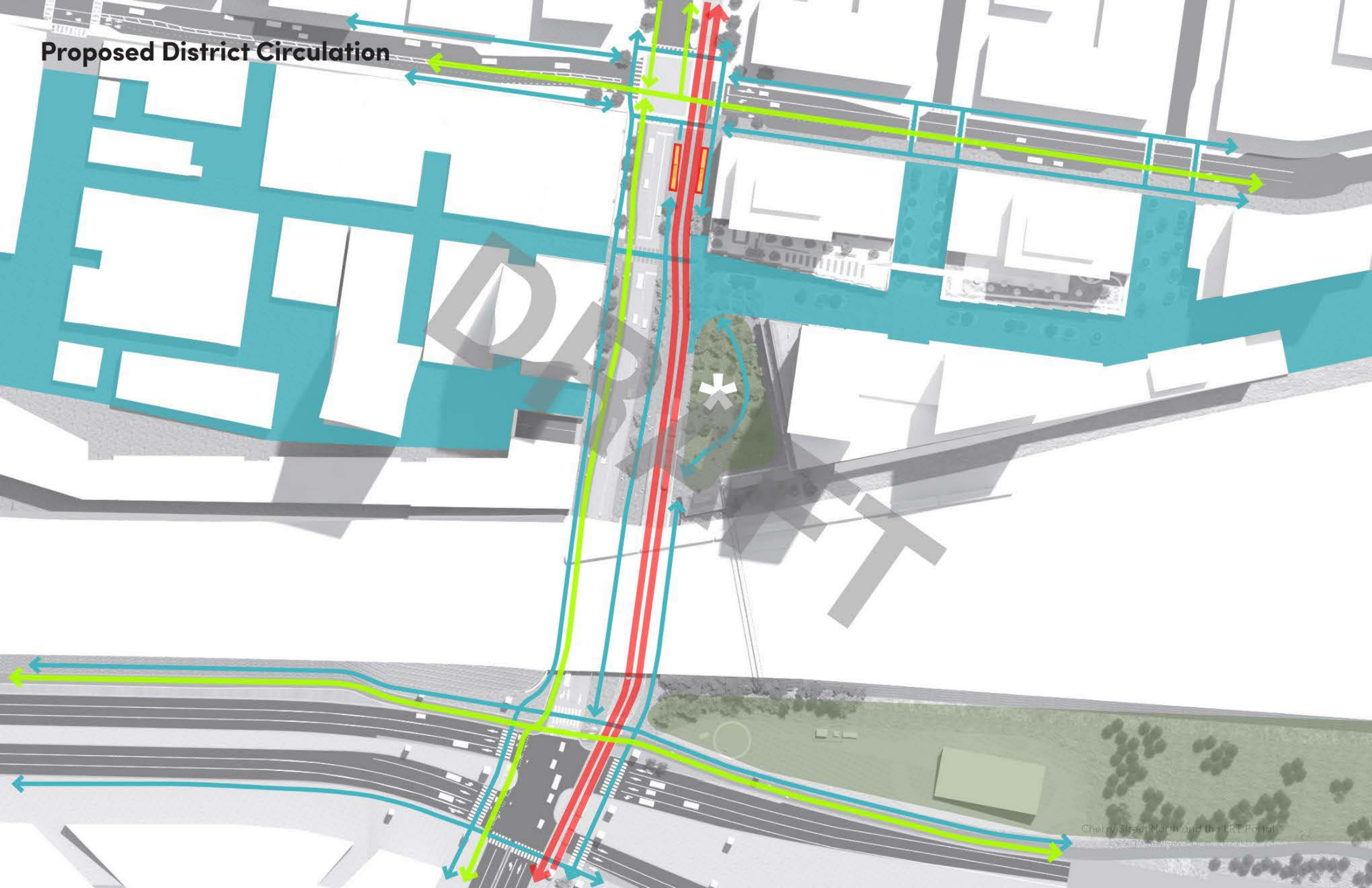
Connected Series of Paved Public Plazas



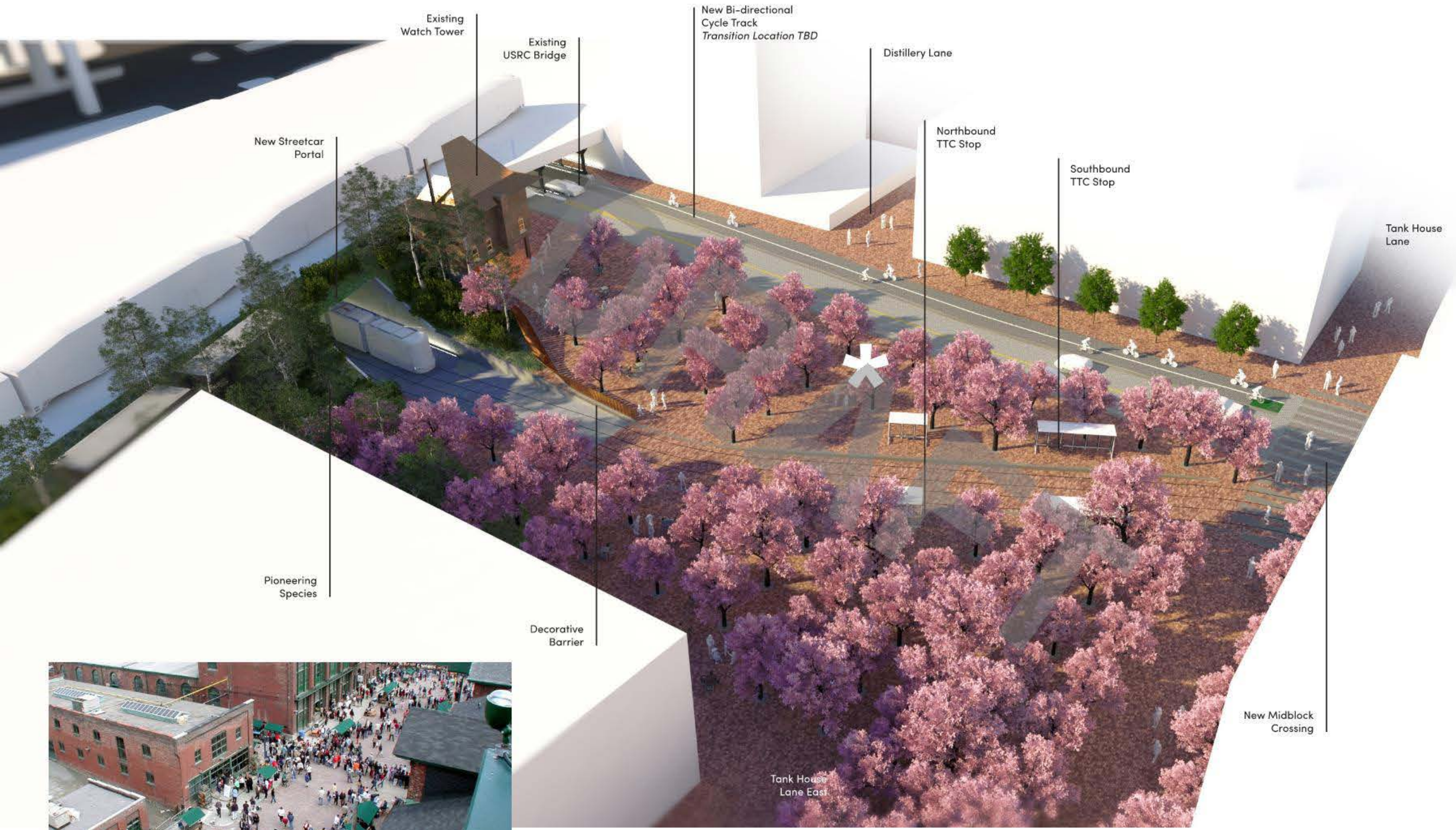
Proposed District Circulation:
Bi-directional cycling trail on Cherry



Proposed District Circulation



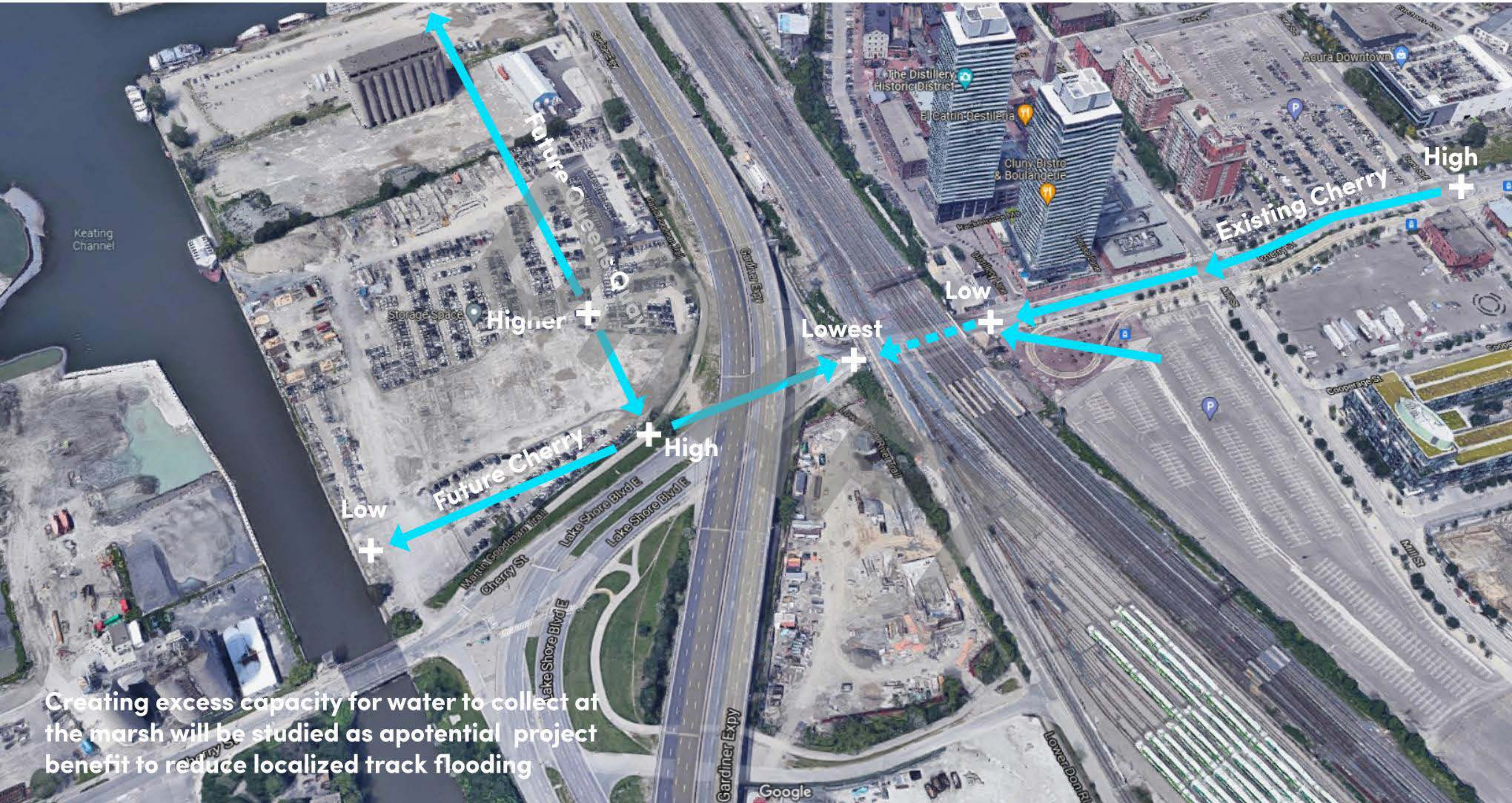
Previous Design Rationale (DRP #1): Distillery Brick Paving and Cherry Tree Bosque



One of the Lowest Points in Toronto....!

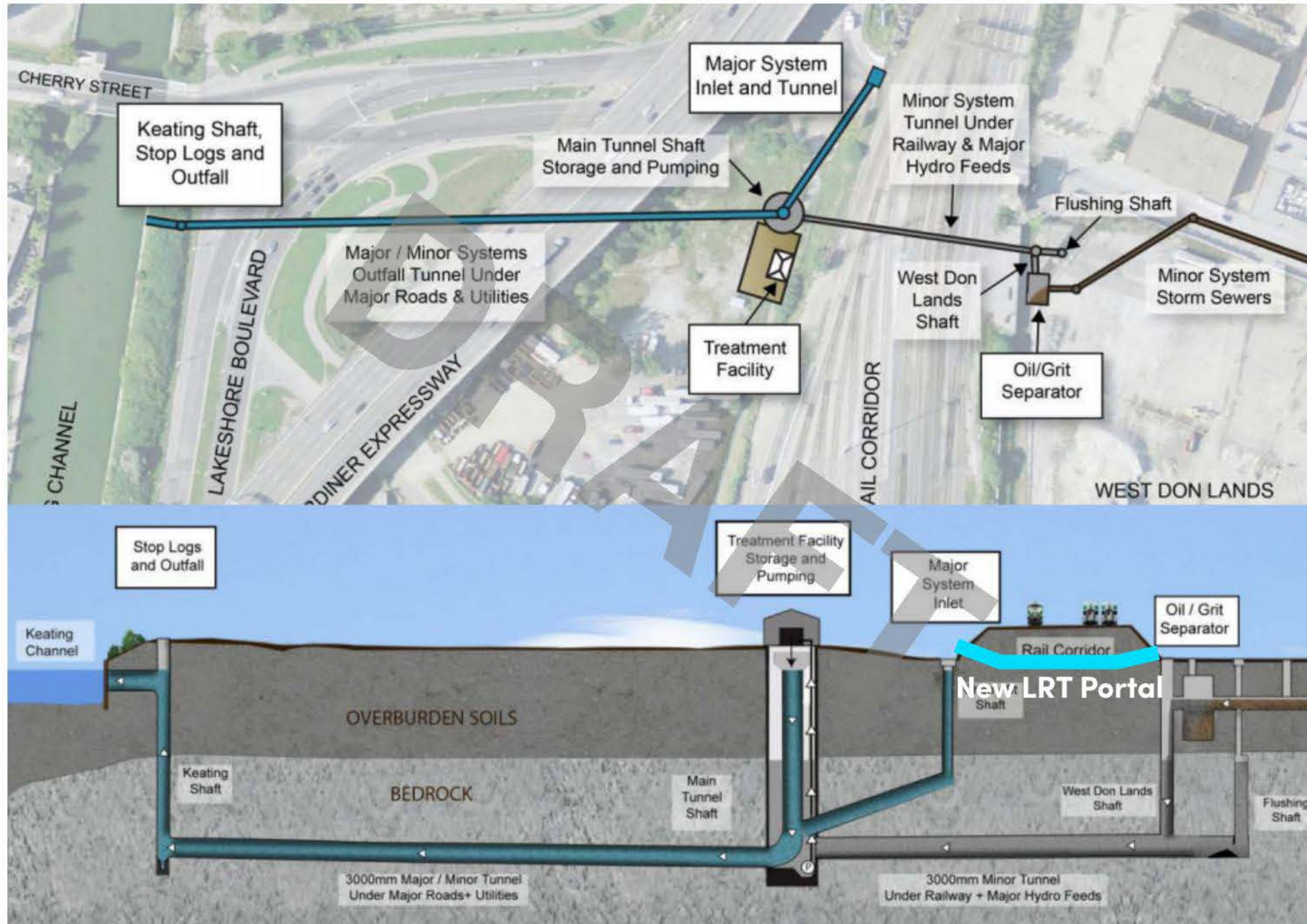


Transit Project Implications of topography / overland flow



Creating excess capacity for water to collect at the marsh will be studied as a potential project benefit to reduce localized track flooding

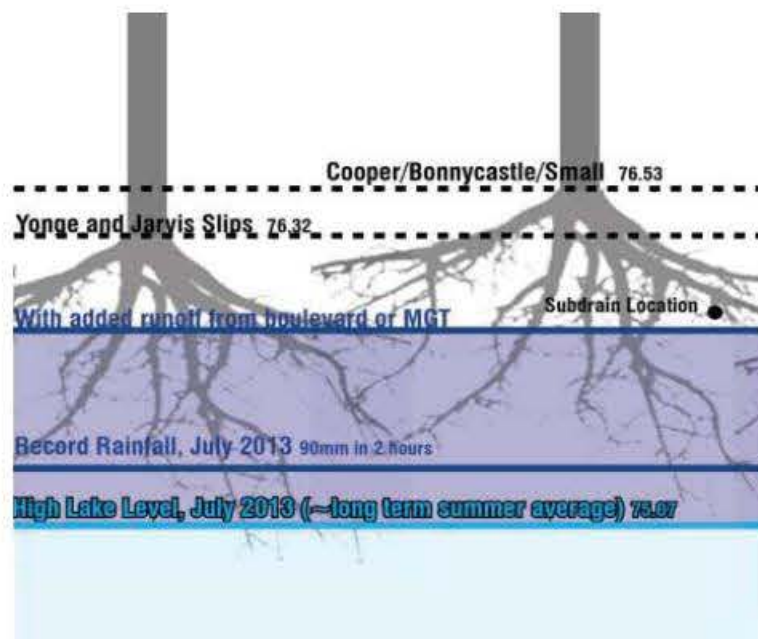
Transit Project Implications of topography / overland flow



Distillery District and the presence of ground water

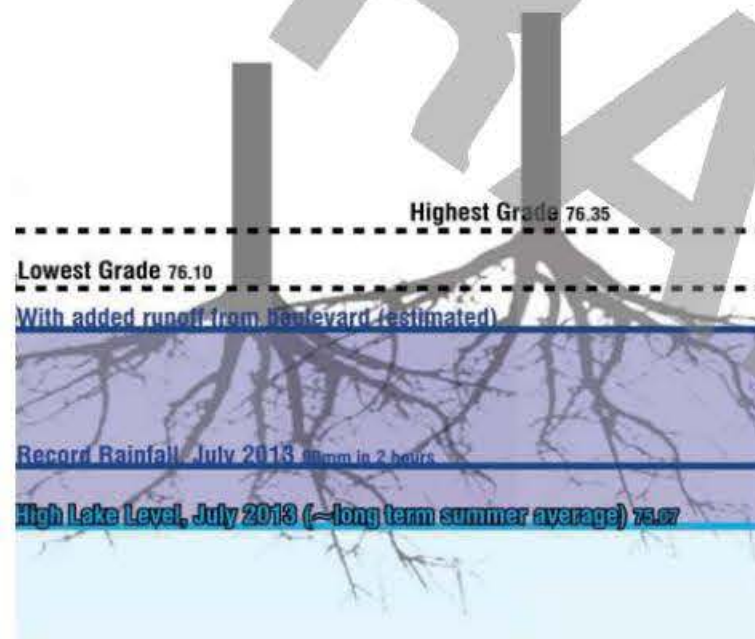
Speculation

Queens Quay East
(assume no raised grades)



Actual Scenario

Cherry Street and Distillery District



100% of Trees Drowned



Images from Distillery District, and Cherry Street Ormston-Holloway, 2009-2012



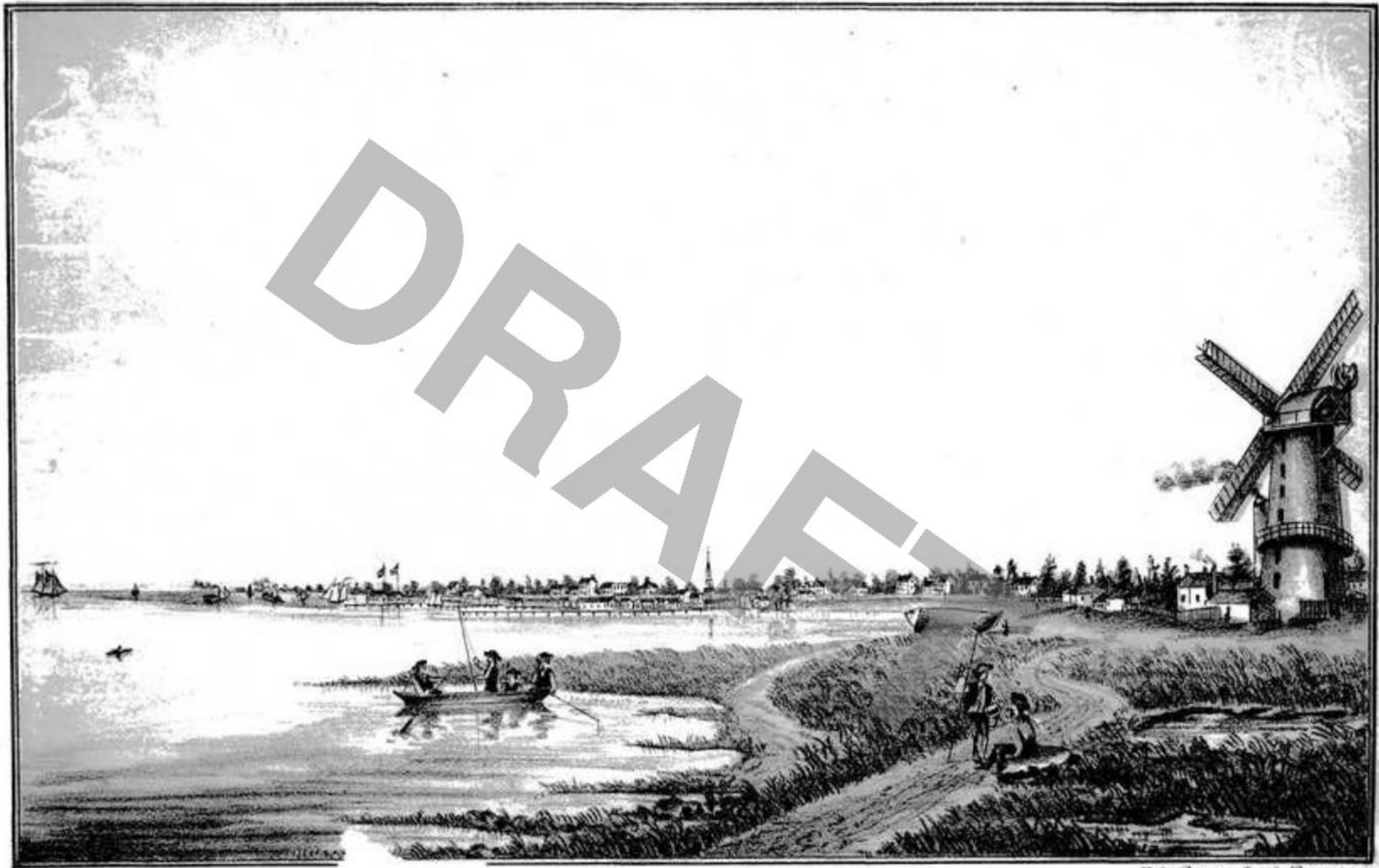
Previous Proposal DRP #1



(Existing): High groundwater level can create anaerobic soil conditions that affect tree health



GOODERHAM & WORTS, LTD.
TORONTO, CANADA.
CANADIAN RYE WHISKY



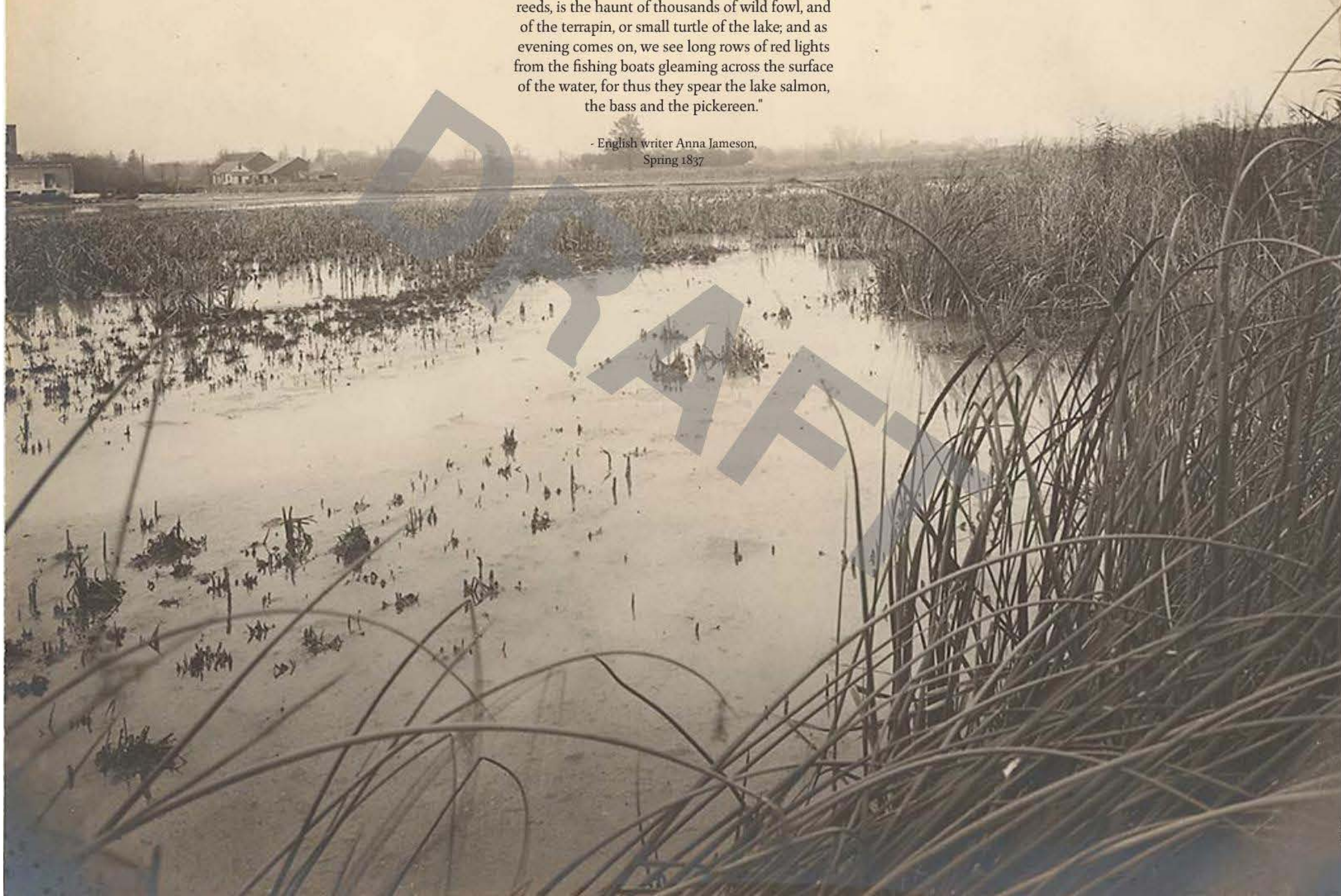
P.A. GROSS Lith. Toronto

The landscape that preceded the City

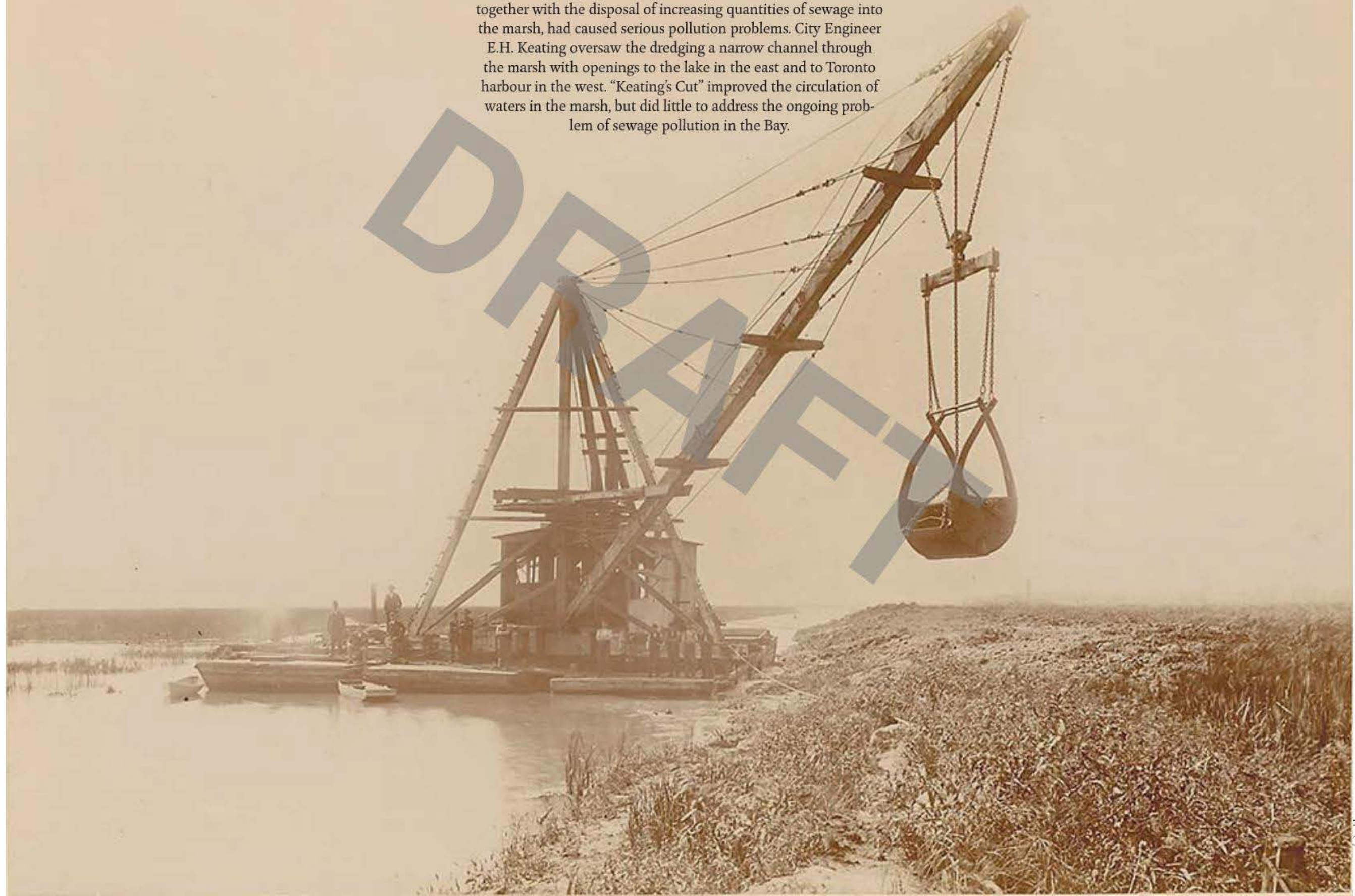
Ashbridges Marsh

"This marsh, intersected by inlets and covered with reeds, is the haunt of thousands of wild fowl, and of the terrapin, or small turtle of the lake; and as evening comes on, we see long rows of red lights from the fishing boats gleaming across the surface of the water, for thus they spear the lake salmon, the bass and the pickereen."

- English writer Anna Jameson,
Spring 1837



By the middle decades of the nineteenth century, industrial development along the shores of the Bay and the Lower Don River, together with the disposal of increasing quantities of sewage into the marsh, had caused serious pollution problems. City Engineer E.H. Keating oversaw the dredging a narrow channel through the marsh with openings to the lake in the east and to Toronto harbour in the west. "Keating's Cut" improved the circulation of waters in the marsh, but did little to address the ongoing problem of sewage pollution in the Bay.



**– Celebrating the Landscape that Preceded the City -
Revealing the water that was always there....**

DRAFT

**Shoreline Migration: This has always been a site
of variable wetness and dryness, an asset which
no longer needs to be hidden and buried**



Celebrating (instead of concealing) water



Immersive urban ecology



Tanner Springs Park, Portland

Corridor Logic Recalibration: Cherry and the River Valley



Cherry Corridor Logic: Prior; series of plazas



Cherry Corridor Logic: New; water and river ecology





“Where there are trees standing in the water”

The Indigenous Hub in Toronto: Quadrangle, Stantec and Two Row



The Indigenous Hub in Toronto: Stantec and Nak



Concept: Cherry Marsh



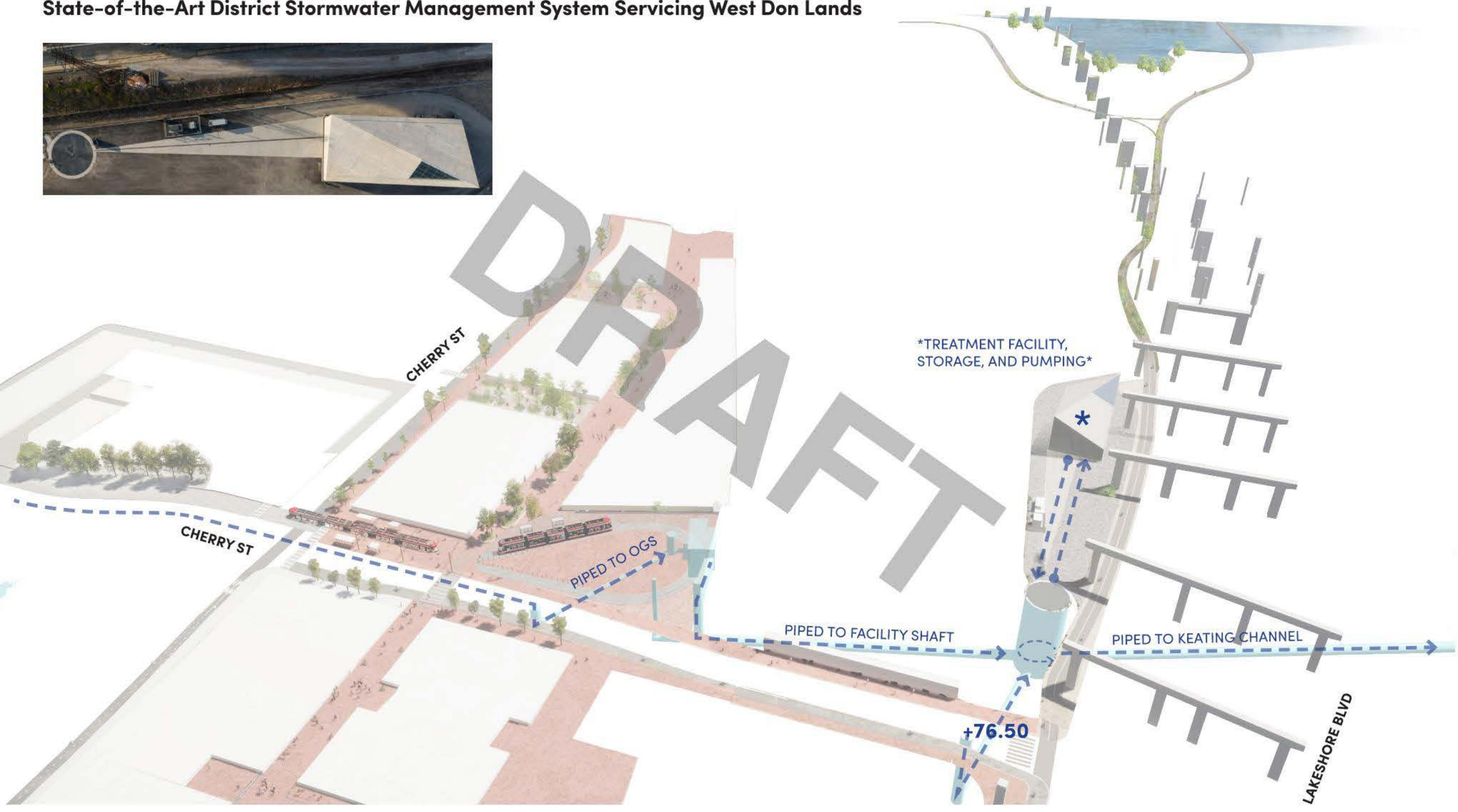
Expanding Network of Distillery District Lanes and Squares



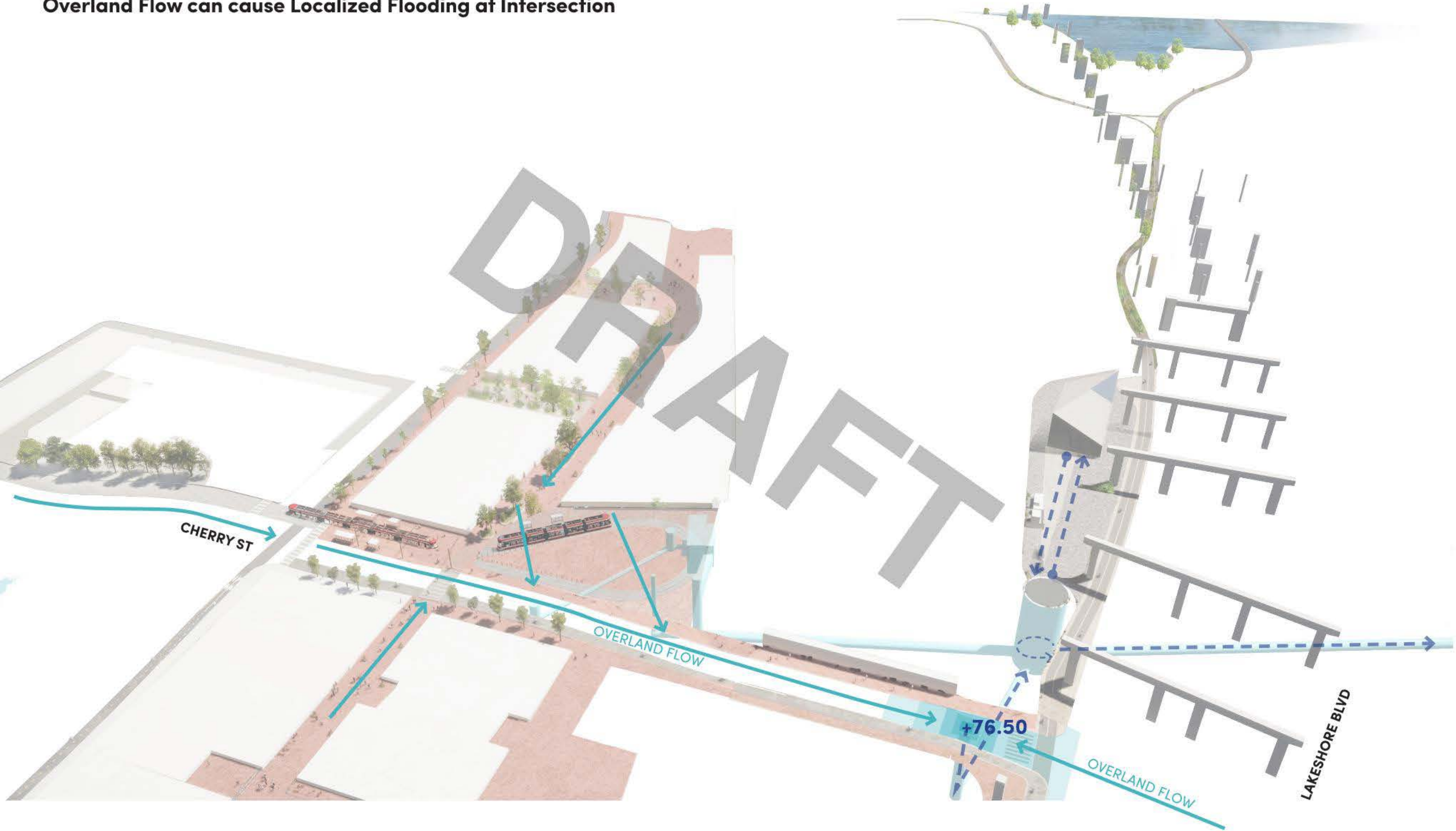
Cherry Marsh, Sediment Park and the River



Cherry SWM Facility: State-of-the-Art District Stormwater Management System Servicing West Don Lands

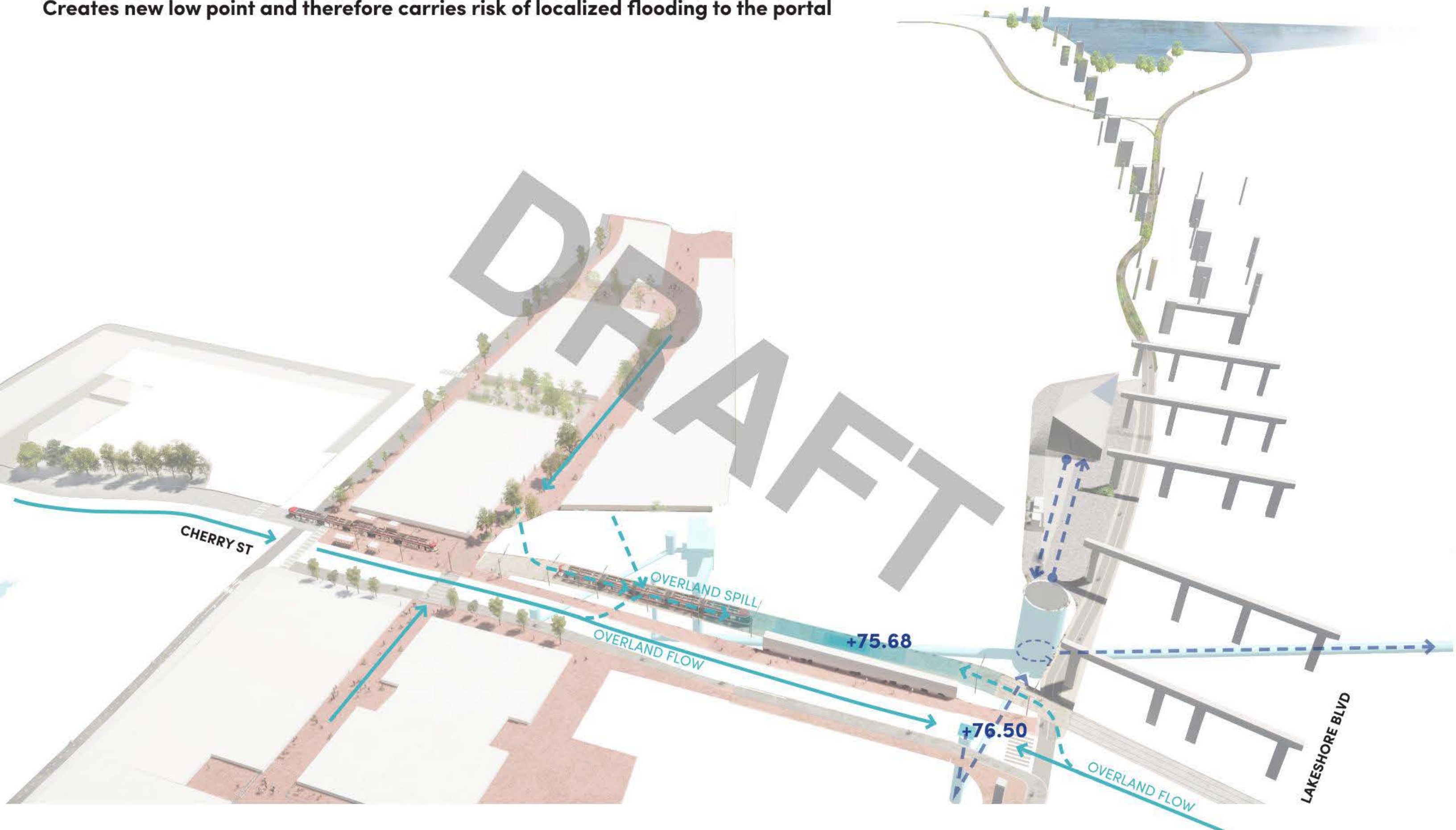


Existing Condition:
Overland Flow can cause Localized Flooding at Intersection

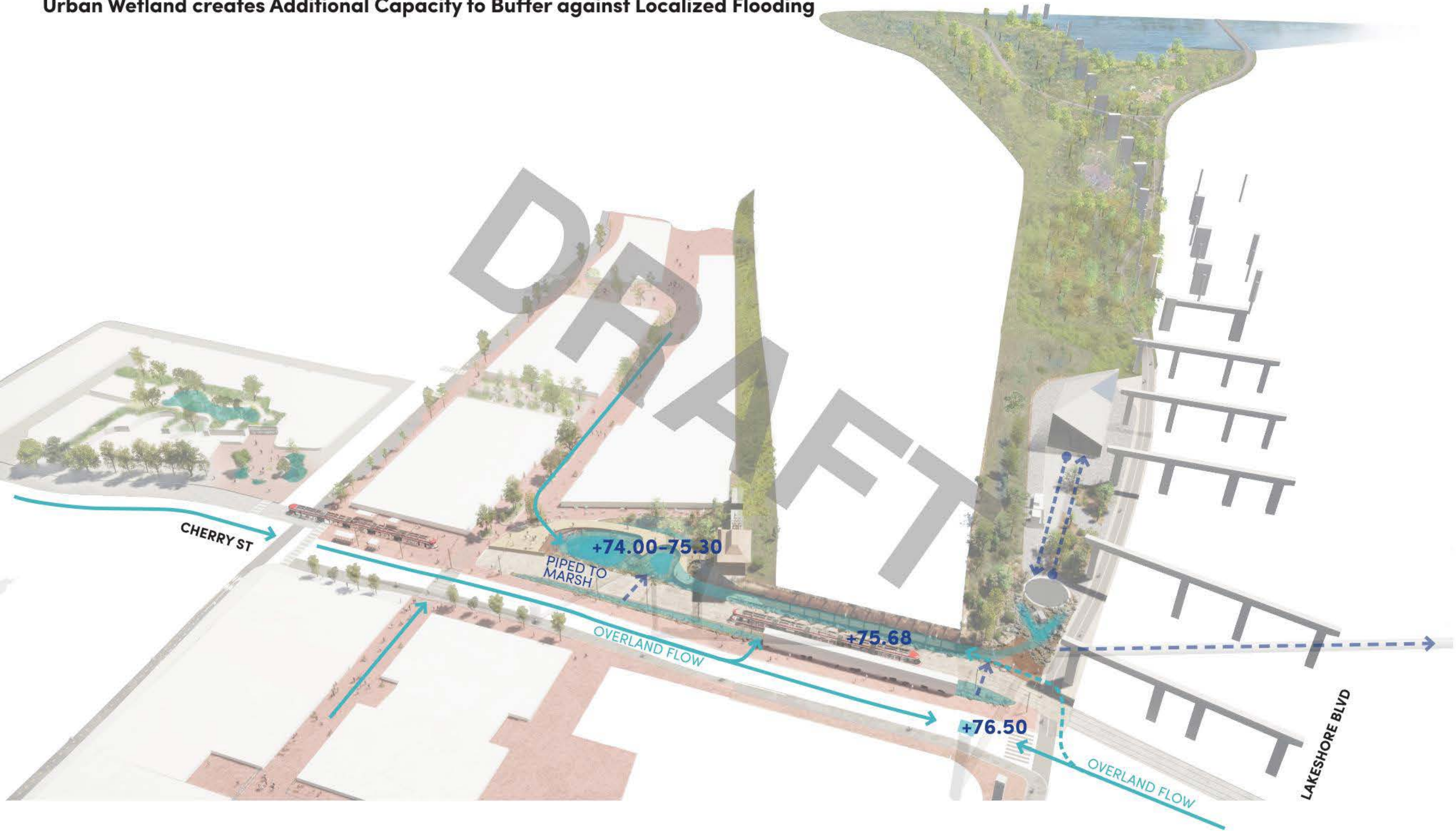


New TTC and Pedestrian Portal:

Creates new low point and therefore carries risk of localized flooding to the portal



Potential Solution:
Urban Wetland creates Additional Capacity to Buffer against Localized Flooding



Potential Solution:
Urban Wetland creates Additional Capacity to Buffer against Localized Flooding





Cherry Marsh



Relocated
Watch Tower

Metrolinx Switching
Cabins

Upland Planting

Pedestrian
Portal

Patio Seating

Primary Wetland

Streetside
Bioswale

Bio Planter

TTC balast track

Prospect Deck

Mid block crossing at
Tankhouse Lane

Cherry Marsh



Block 20 Tankhouse Lane Landscape and Courtyards

Patio Seating

Upland Planting

Relocated Cherry Tower

Metrolinx Switching Cabins

Primary Boardwalk

Marsh zone - variable water level

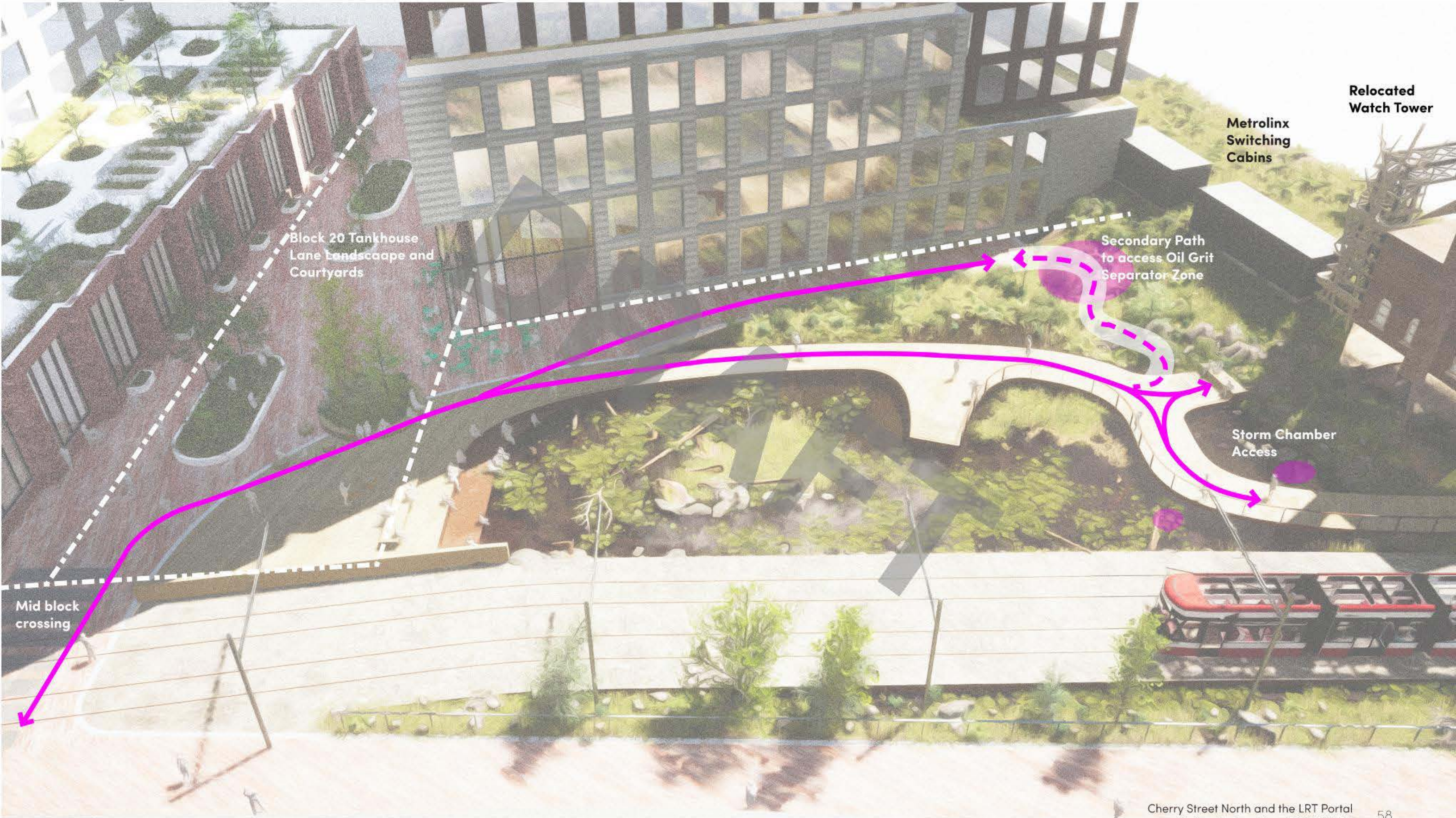
Prospect Deck

Mid block crossing

Streetcar line with ballast track

Streetside Bieswale

Cherry Marsh: Maintenance Access



Cherry Marsh: Species that Thrive in Variable Inundation



Dry



Carex stricta, Tussock Sedge



Carex comosa, Longhair Sedge



Carex aquatilis, Water Sedge



Aster umbellatus, White Aster



Juncus effusus, Soft Rush



Panicum lanuginosum



Ceanothus americanus, NJ Tea



Betula papyrifera, Paper Birch



Abies balsamea, Balsam Fir



Sagittaria rigida, Arrowhead



Schoenoplectus tabernaemontani



Sagittaria graminea, Arrowhead



Eupatorium maculatum, Joe-Pye



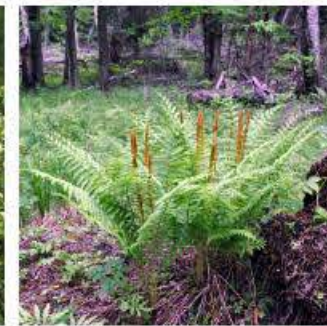
Lobelia cardinalis, Cardinal Flower



Lobelia siphilitica, Blue Cardinal



Viburnum spp.



Osmundastrum cinnamomeum

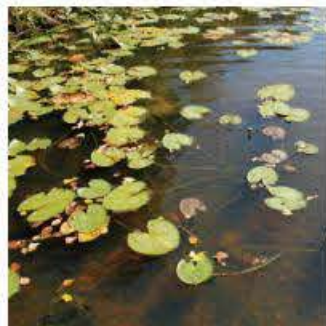


Salix spp., Willow

Wet



Nuphar advena, Spatterdock



Nuphar advena, Spatterdock



Persicaria amphibia, Smartweed



Matteuccia strathiopteris, Ostrich



Osmunda regalis, Royal Fern



Iris versicolor, North Blue Flag



Caltha palustris, Marsh Marigold



Symplocarpus foetidus, Skunk



Acer x freemanii, Freeman Maple

Cherry Marsh



Cherry Marsh: Emerging Through Portal, South to North





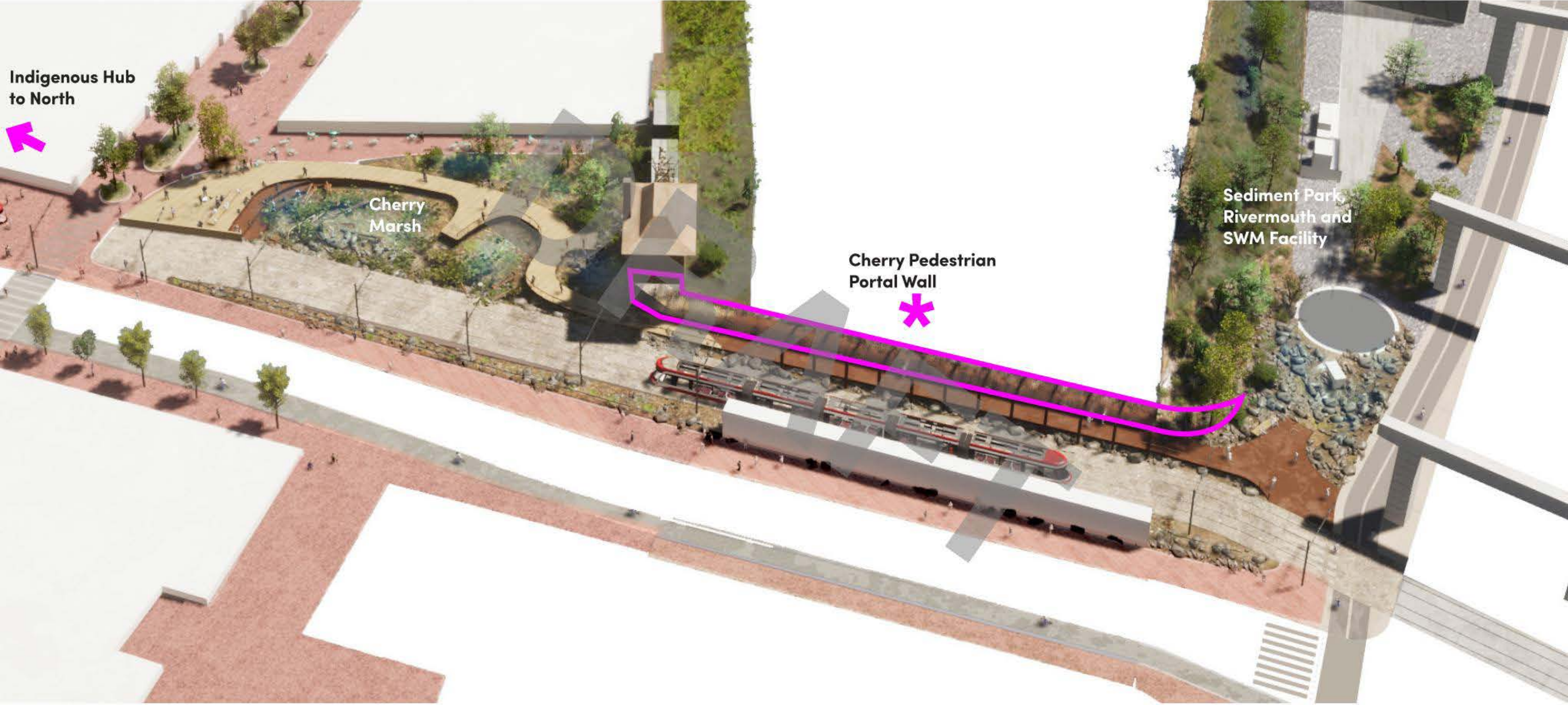




Seasonal Fluctuating Water Levels



Public Art Integration at the Portal: Indigenous Stories, Shoreline Interpretation



Public Art Integration at the Portal



Rail Lines

New Streetcar and Pedestrian Portal

Existing Cherry Underpass Bridge

Ongoing Decking and Circulation Explorations



Weathering Steel
Planking for all
weather durability
and grip

Exploring
Secondary Loop
Path