

# Port Lands Flood Protection & Enabling Infrastructure Design Review Submission

Phase 2

12 April 2018

DRAFT

## Design Review Panel Comments

- Ensure a **strong presence of public realm** throughout ROW's (leading with landscape).
- Within the 40 m ROW there is **opportunity** to achieve a very good landscape **best practices vs. innovation**.
- There is **concern over** the ROW widths being too wide and verging on having a **suburban character**.
- Think about **what is innovative** with the design and what makes it different.
- A better understanding of how this is going to **look, feel, and work** (cross sections) is required.
- Ensure the **streets integrate well into Villiers Island**.
- Find a role for **public art within the design**.

## Design Advancement: 4 Strategies

- Reconnect the Port Lands to Toronto's regional road and bike network
- Program Opportunities for Innovative Sustainability and Resilience Strategies
- Clarify the identity of the Villiers Island public realm
- Develop a site-specific character for each major thoroughfare

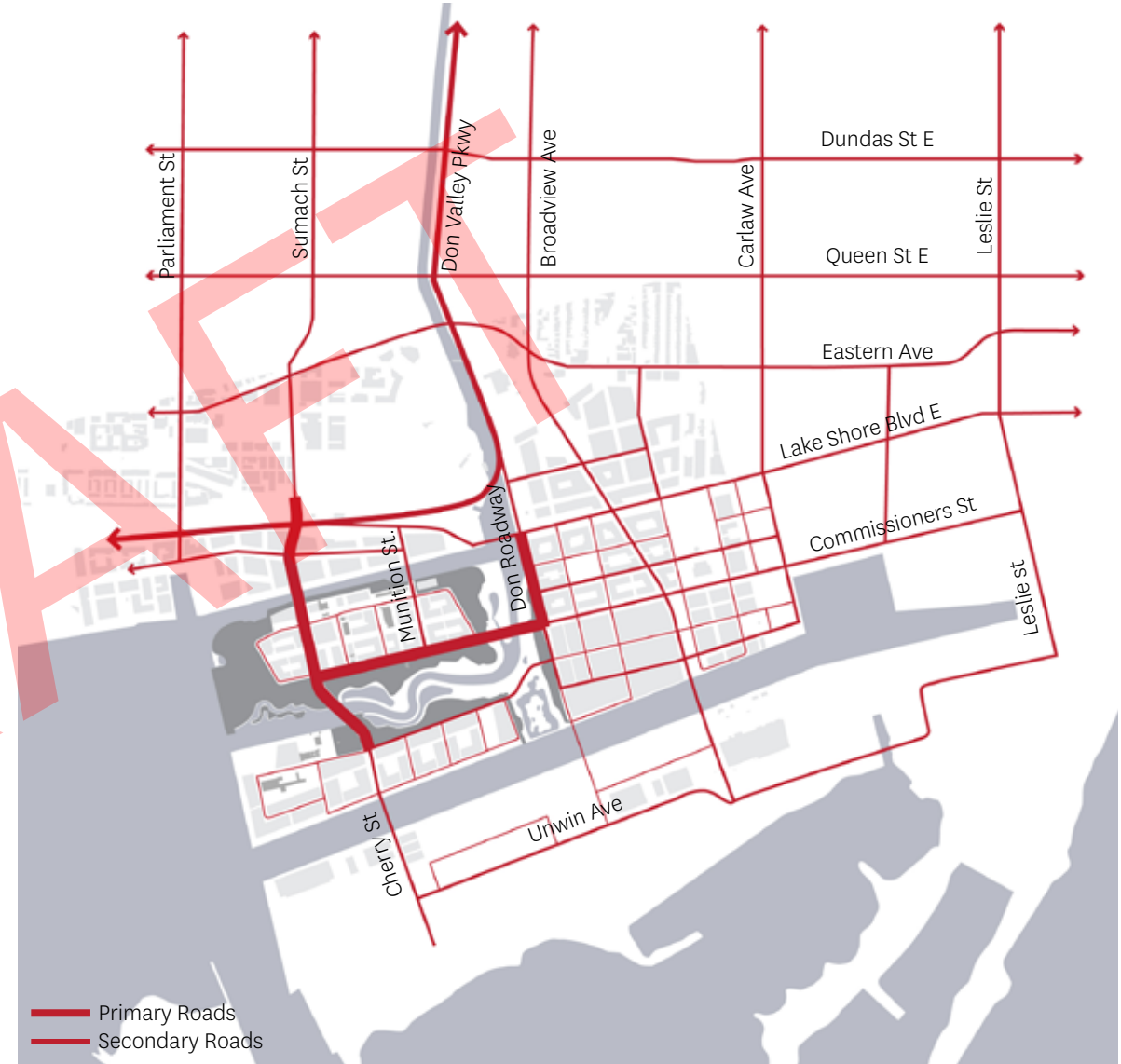
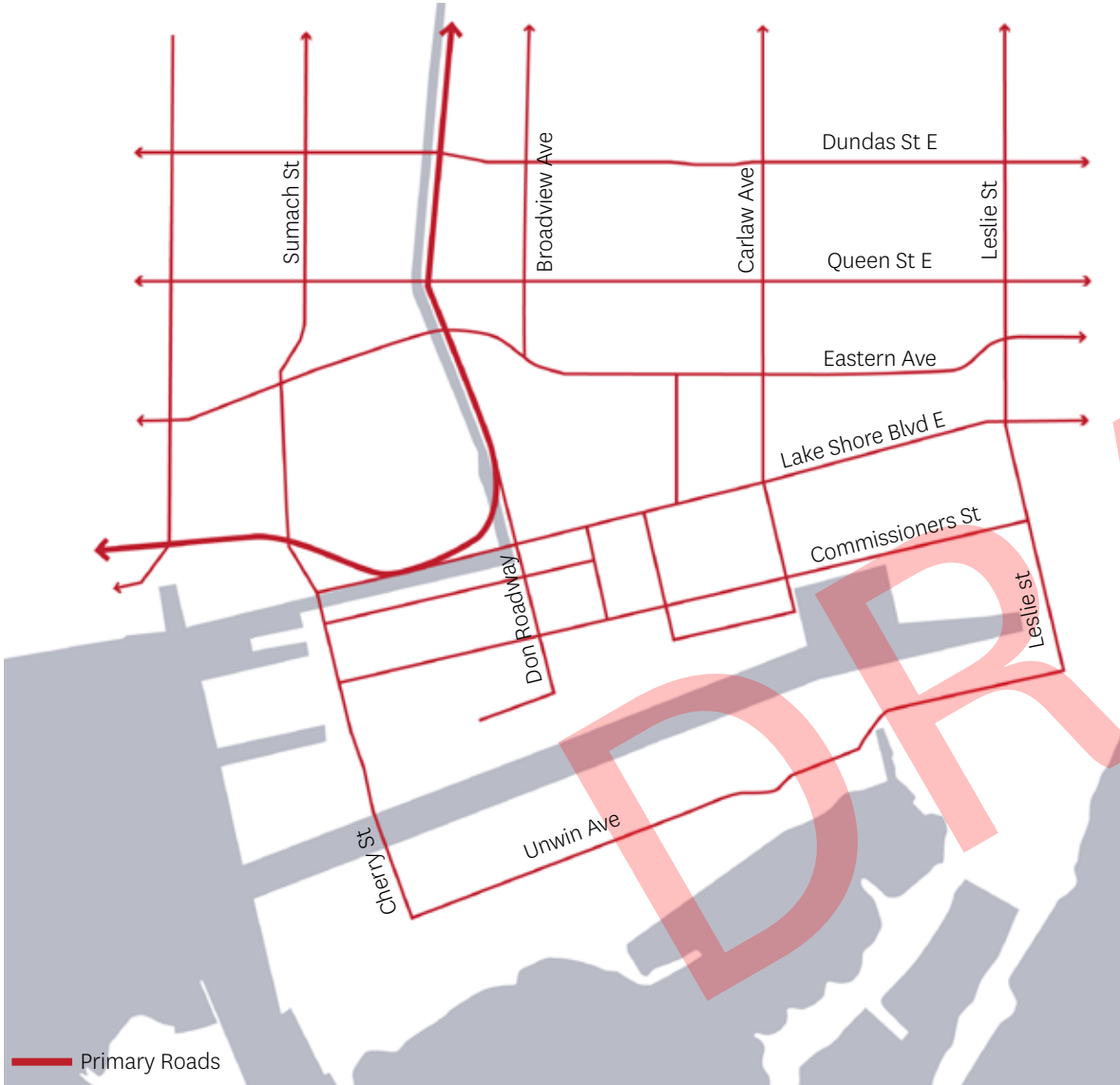
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**1. Reconnect the Port Lands to  
Toronto's Regional Road and Bike  
Network**



# Existing Connective Roadways

# Expanded Port Lands Connectivity

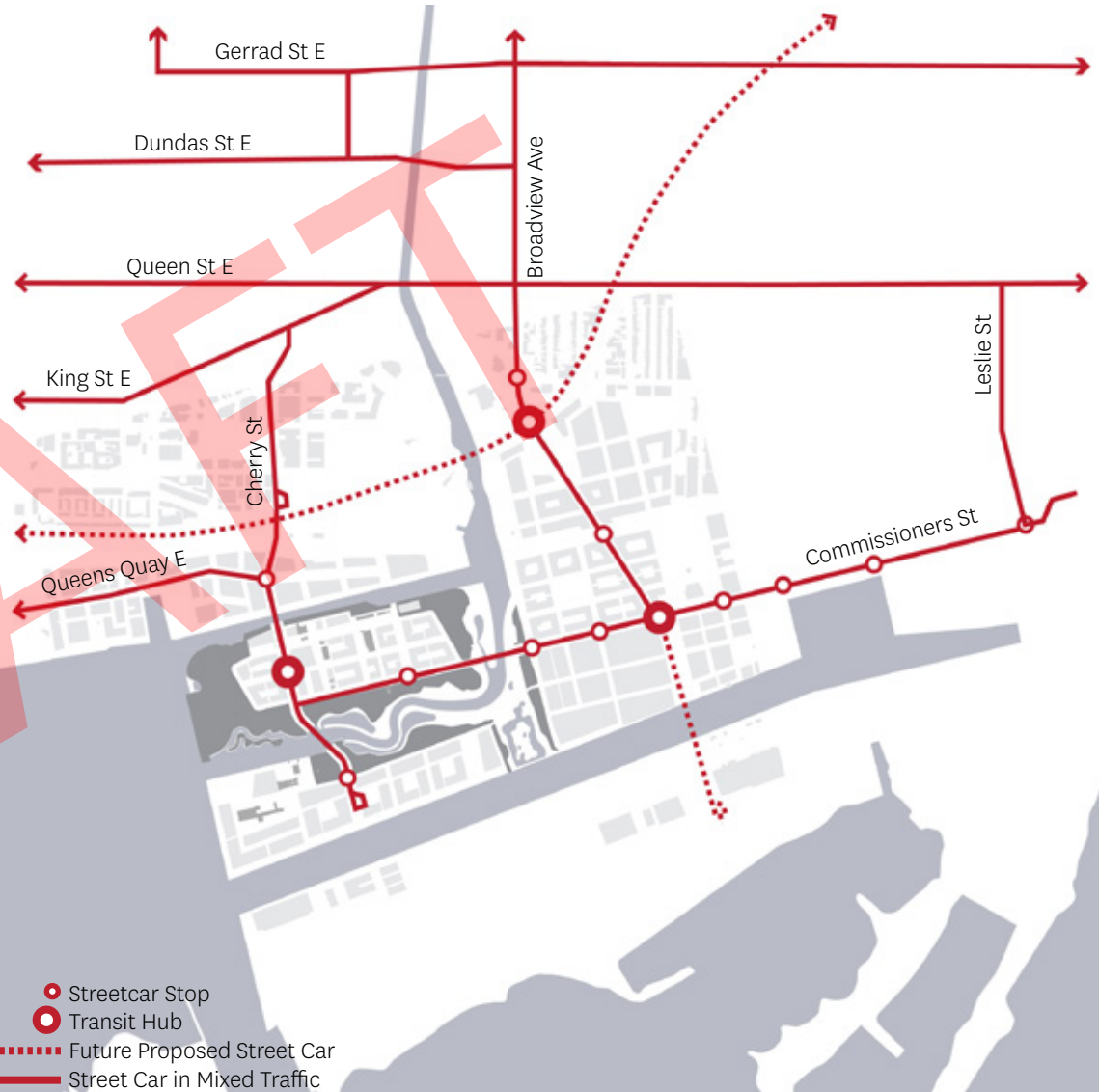


# Existing Transit Network



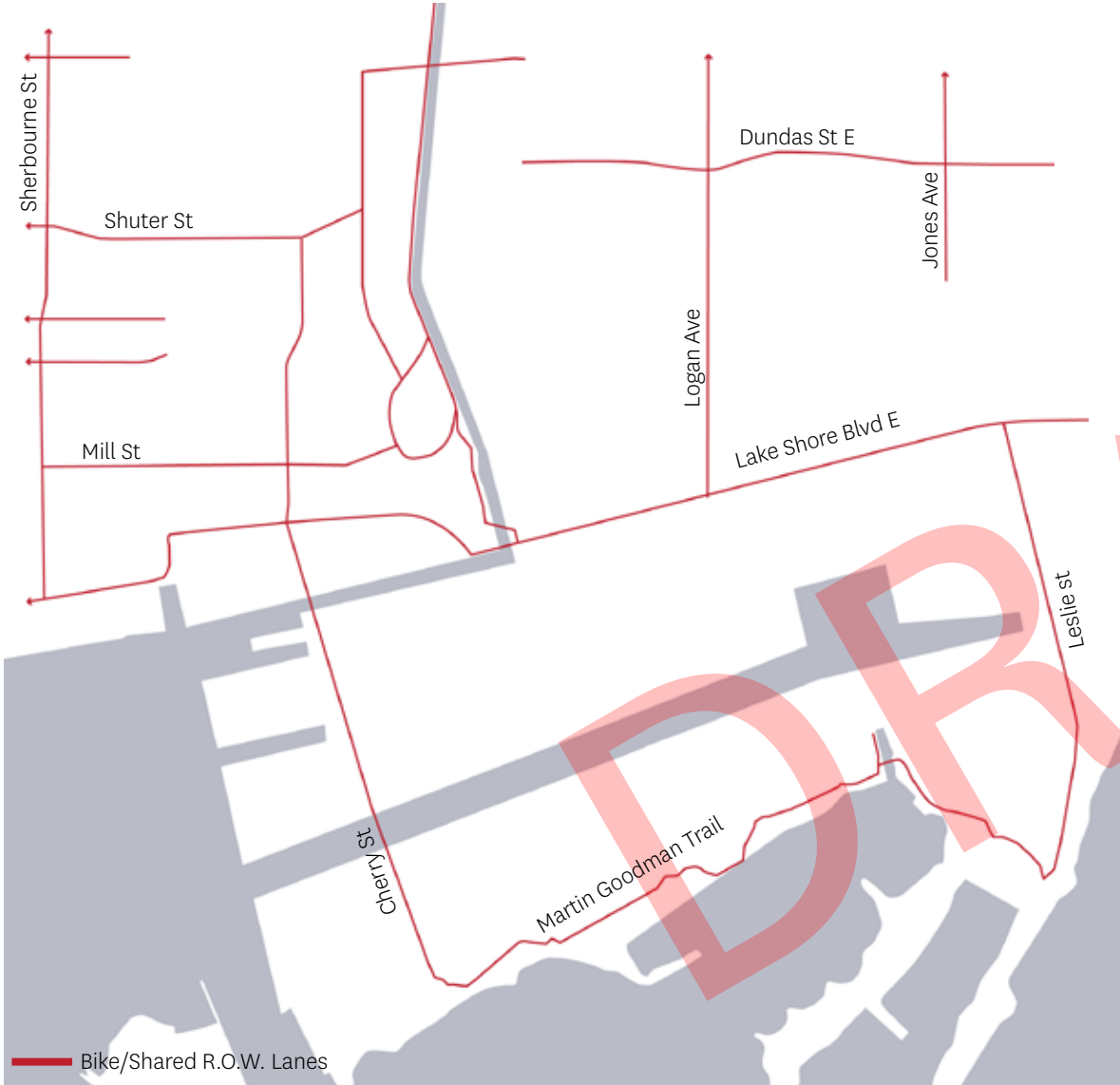
Street Car in Mixed Traffic

# Open the Port Lands with Transit

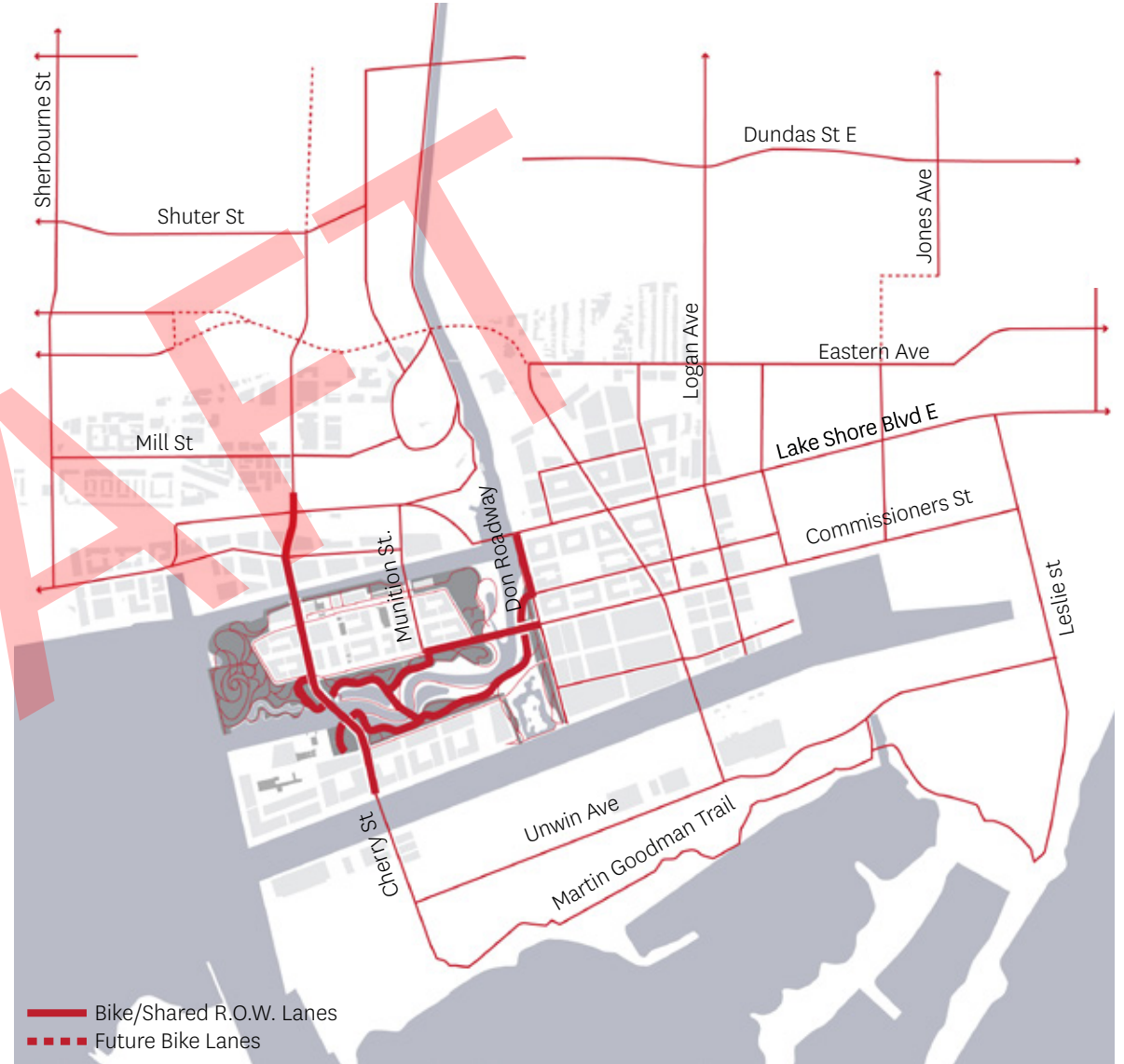


- Streetcar Stop
- Transit Hub
- ..... Future Proposed Street Car
- Street Car in Mixed Traffic

# Existing Bike Network



# Create a Bikeway Nexus





# Regional Bike Trail Network (Existing)





# Trail Network (Existing)



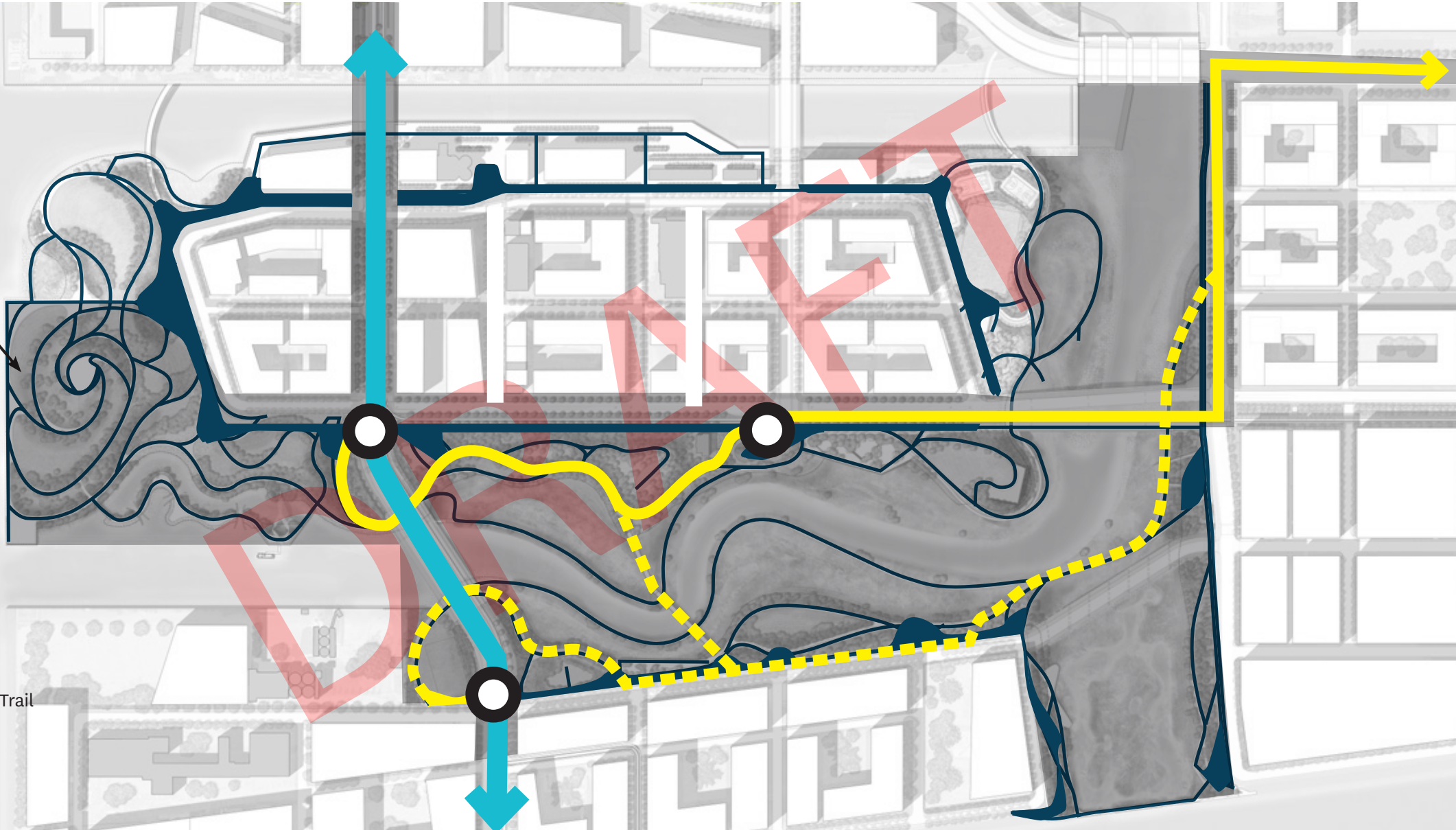
# Trail Network (Interim)



# Trail Network (Interim)

Phase 1 Scope

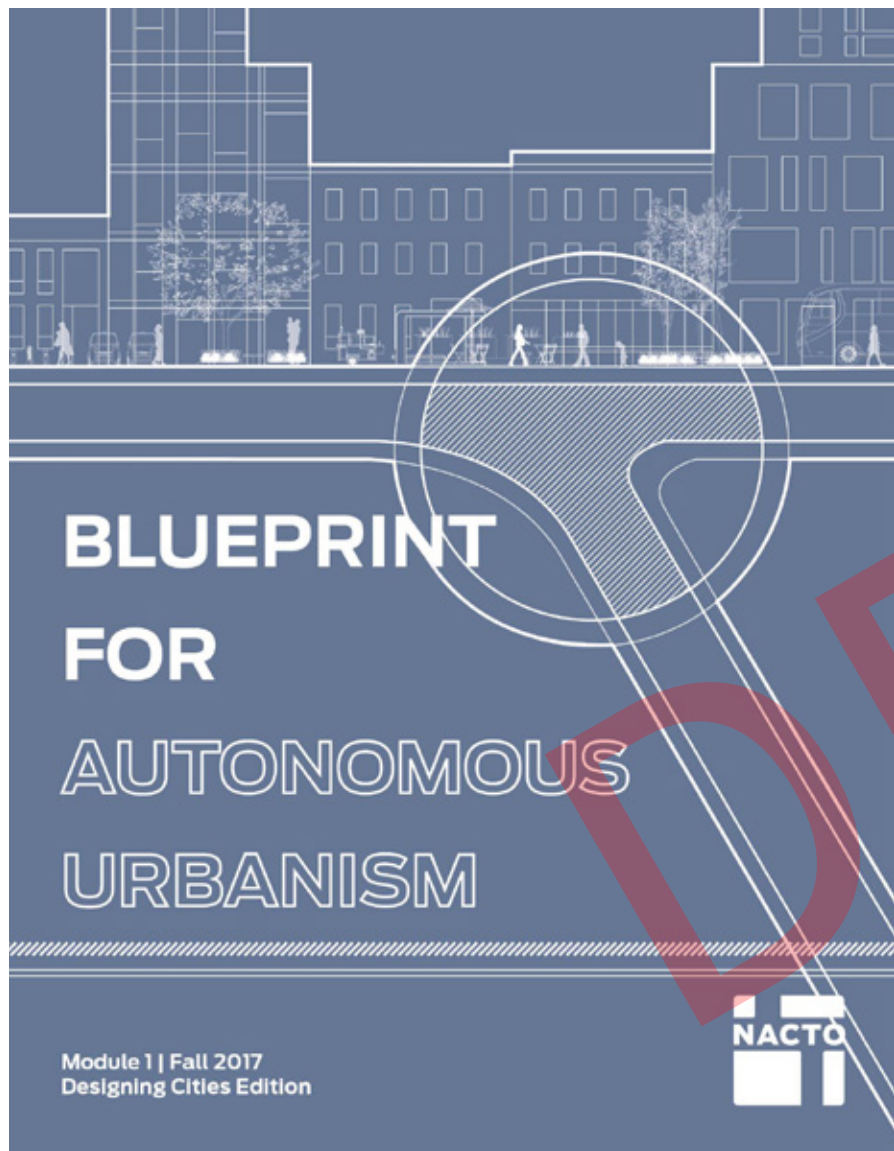
- LEGEND**
-  Martin Goodman Trail
  -  Don River Trail
  -  Park Path



## 2. Program Opportunities for Innovative Sustainability and Resilience Strategies



# Framework Considerations for Innovative Road Design



## Adaptive Technology

- Communication between ‘smart’ elements (streetlight poles, cars, smart phones, transit buses / LRT)
- Road infrastructure will feature a joint use trench (JUT) with fibre/copper
- Potential data collection on users to refine future phase of implementation

## Road Design Considerations for Autonomous Urbanism

- At grade design which separates users (bikes, cars, pedestrians) is conducive to introduction of autonomous urbanism
- Less parking, more drop-off lay-bys
- Locating drop-off areas close to desired destinations
- Toronto Hydro will likely manage-build extra capacity in JUT’s



# Adaptive Local Road Network

adaptive pedestrian signal crossing

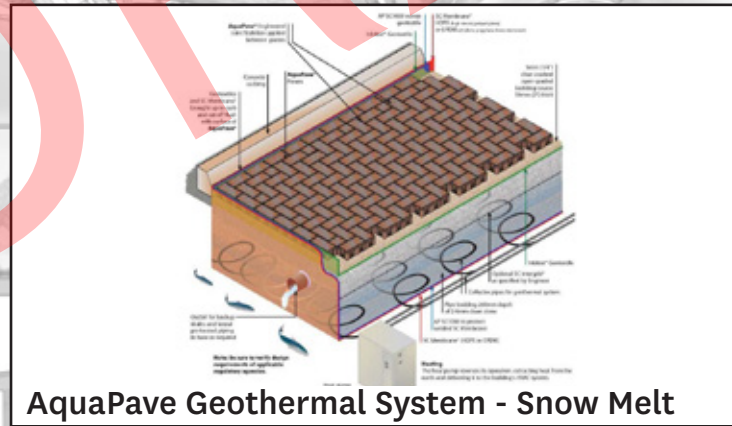
potential data collection

designated lay-bys for Uber/AV

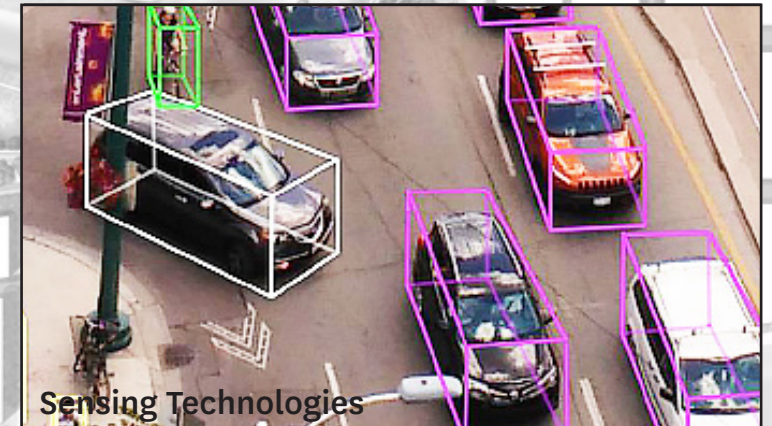
E.V. recharge stations



PaveGen (London, UK)



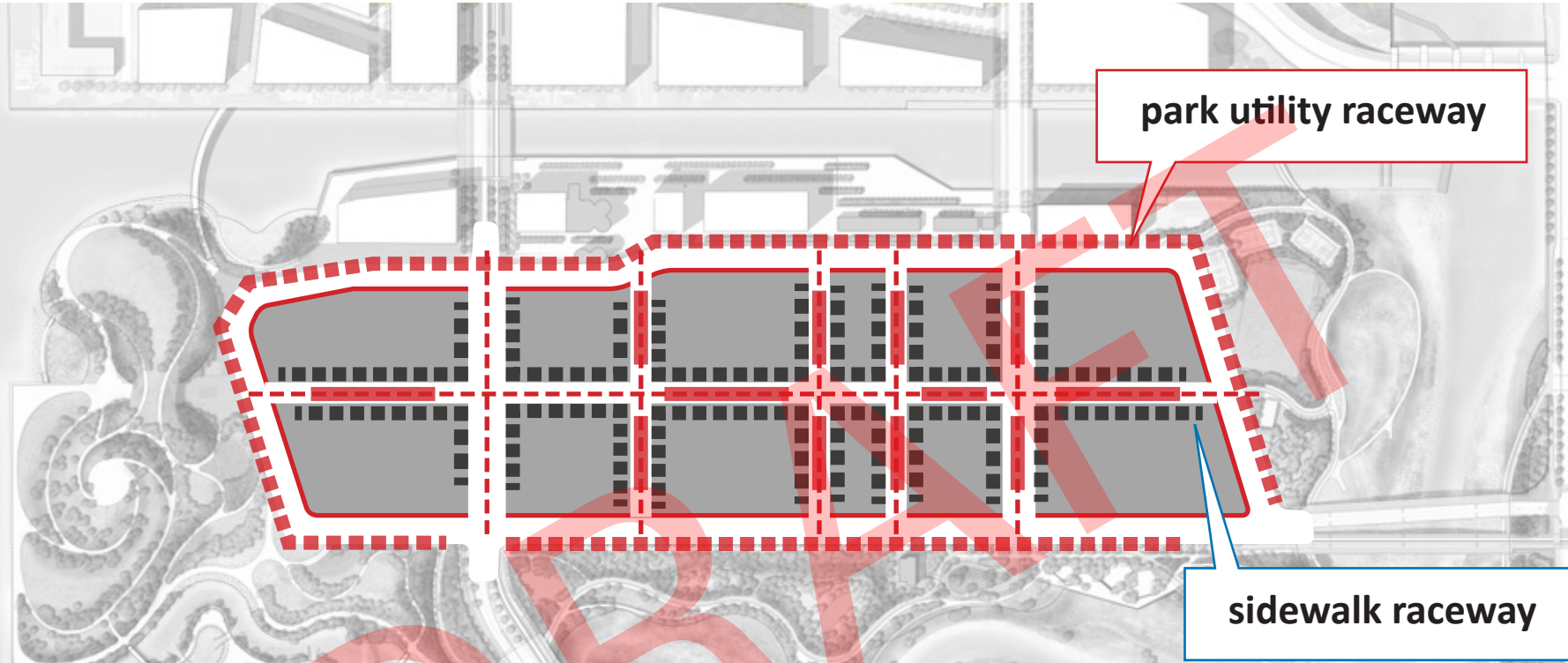
AquaPave Geothermal System - Snow Melt



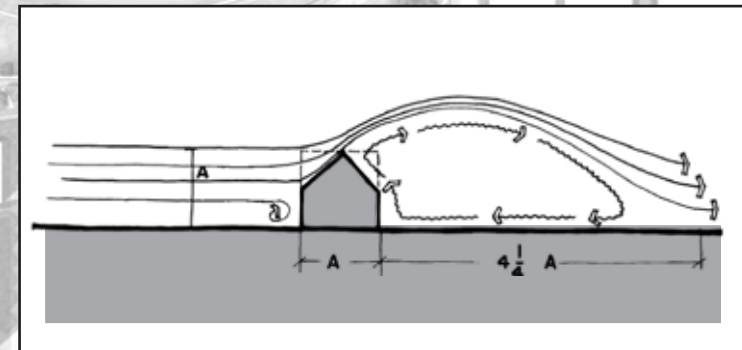
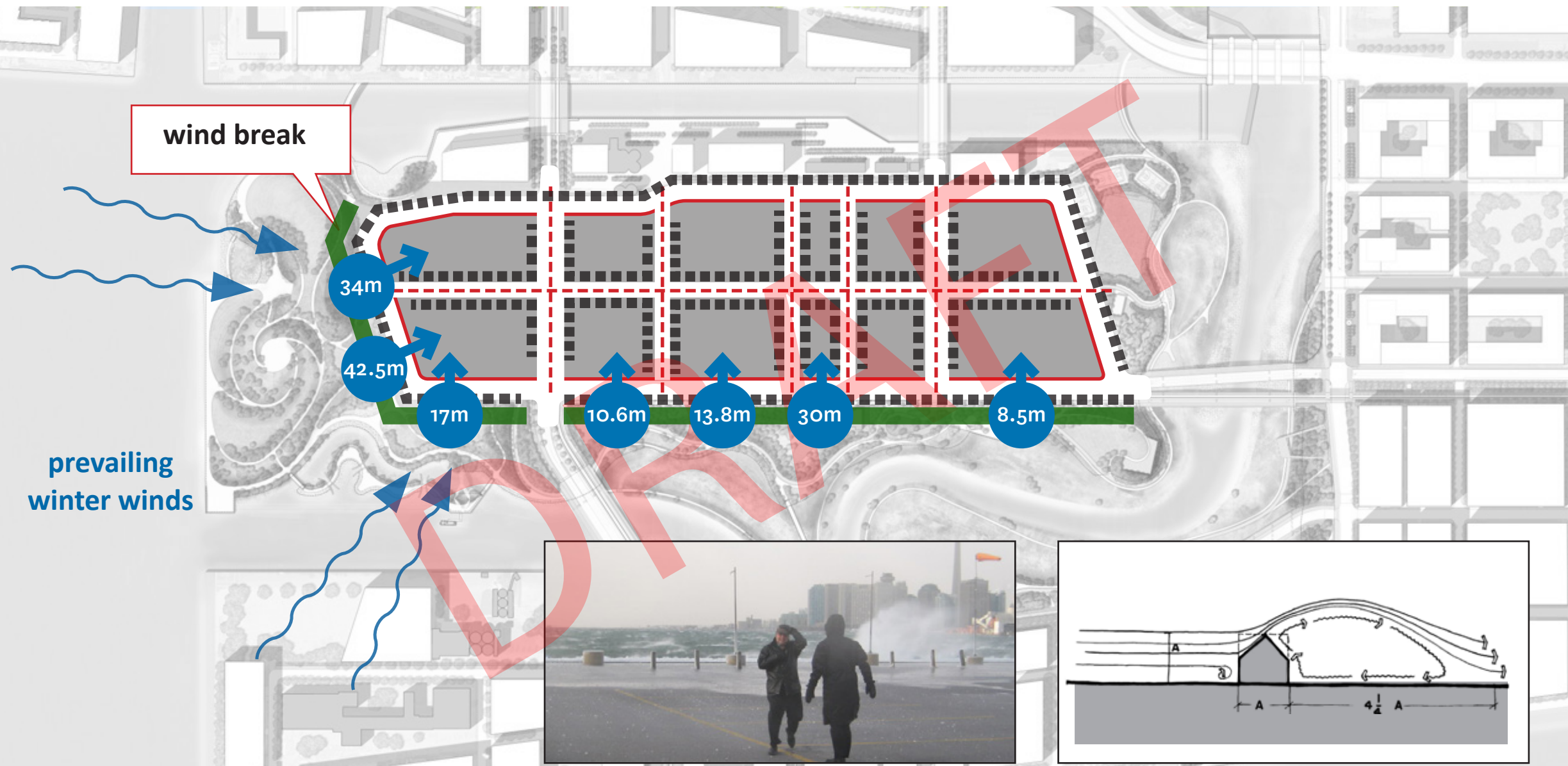
Sensing Technologies



# “Open Building” Utility Raceways

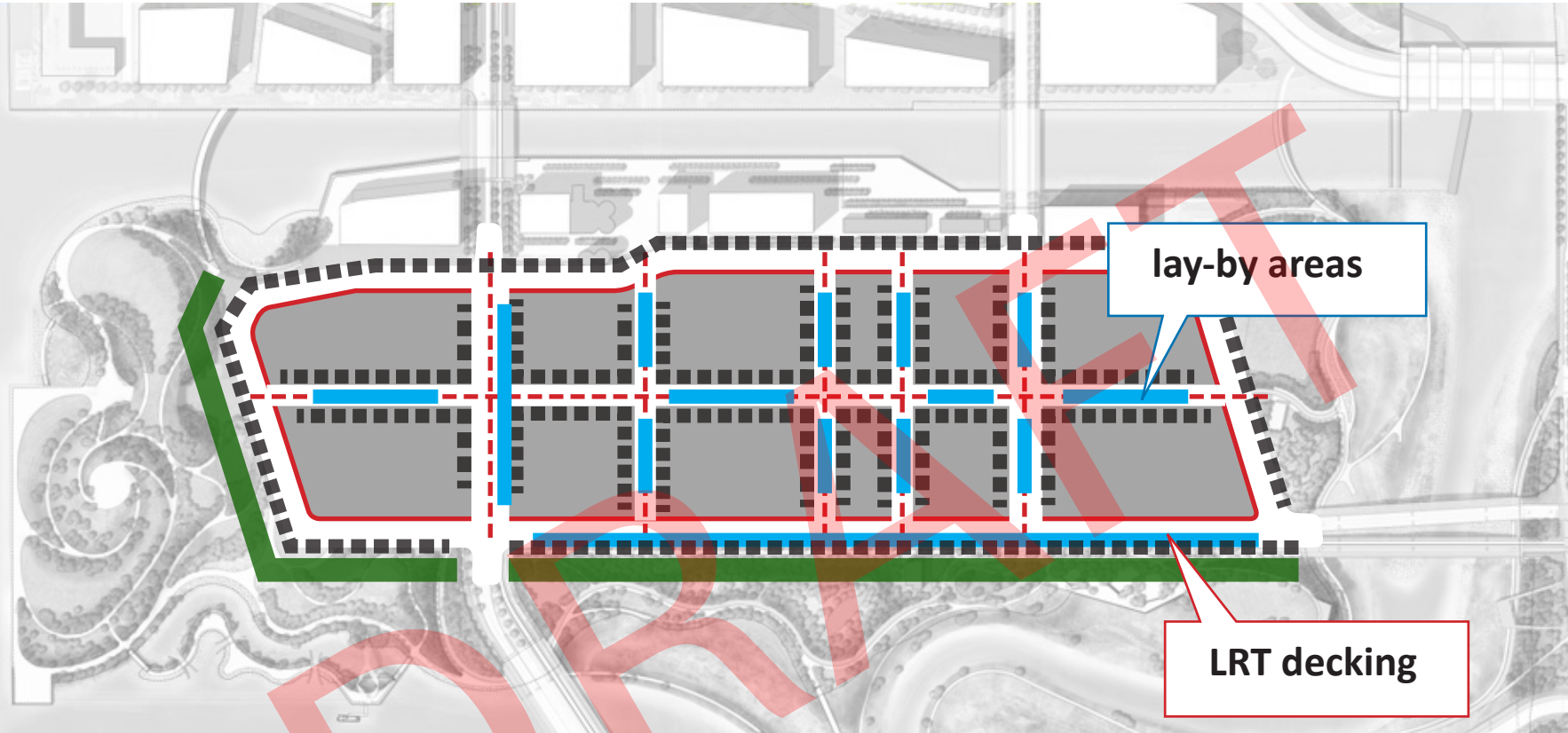


# Environmental Comfort: Wind Breaks

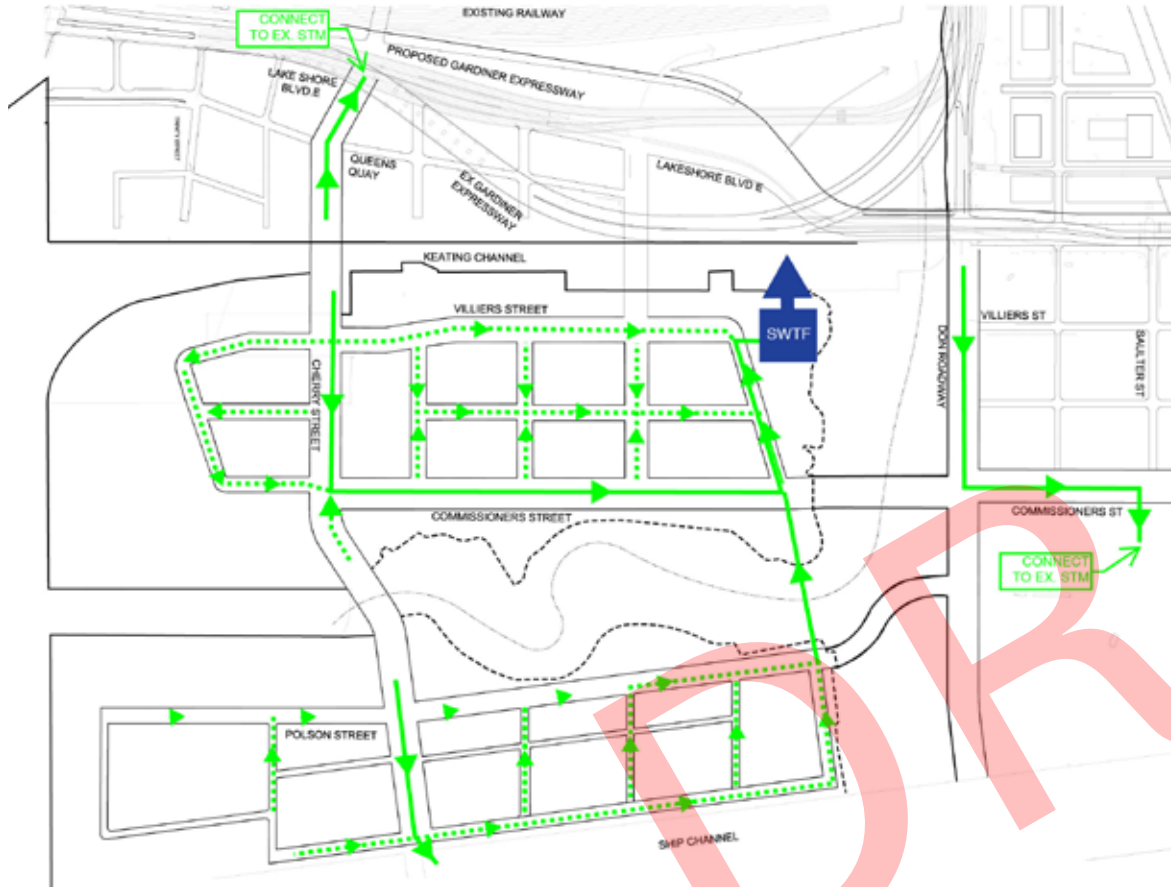




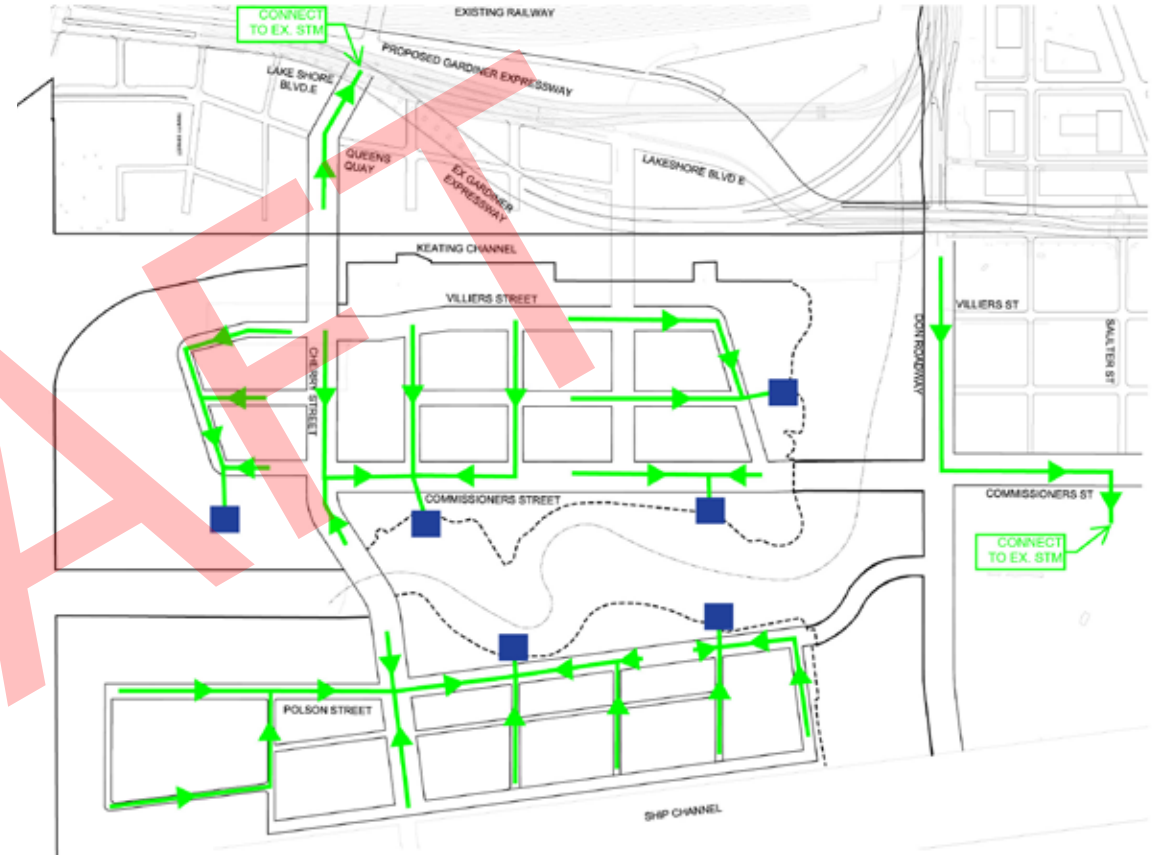
# Permeable Pavements



# Centralized vs. Decentralized Stormwater Treatment Program



- Construction parallels maintenance of utility service
- District scale economy of service
- New technology for ballasted flocculation meets/exceeds WWFMG

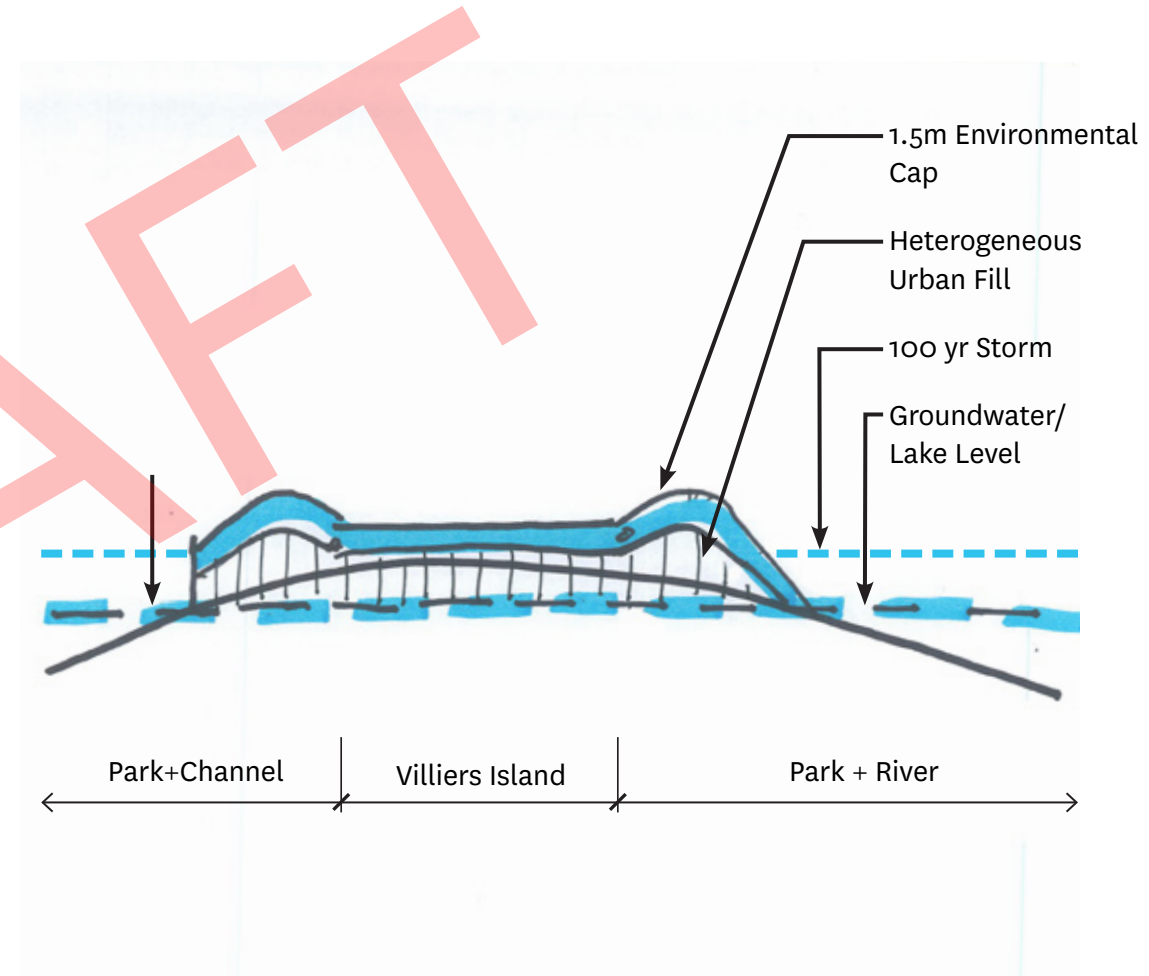


- Treatment train approach to stormwater management
- Park edge treatment, diverting boulevard drainage to park
- Enhanced water balance targets / climate change

# Hybrid Centralized-Decentralized Stormwater Treatment Program

	CENTRALIZED	DECENTRALIZED
Capital Cost	●	●
Time to Achieve Approvals	●	●
O&M Cost	●	●
Sustainability	●	●
Performance wrt WWFMG	●	●
Process Equipment Standardized	●	●
Design Precedence	●	●
Penetration of the Environmental Barrier	●	●
Potential Additional Filling for Gravity Sewers	●	●
Discharges above 100-year HGL	●	●

- Good: Signifies most desirable option relative to others, or strategy most likely to succeed.
- Possible (complicated): Signifies additional complications, which though possible, will result in undesirable consequence
- Fail: Signifies significant complications to be approved.



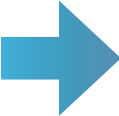


# Decentralized Stormwater Collection and Redistribution



# Centralized Stormwater Treatment

Rainfall Event



Local LID for Surface and Sub Surface Collection



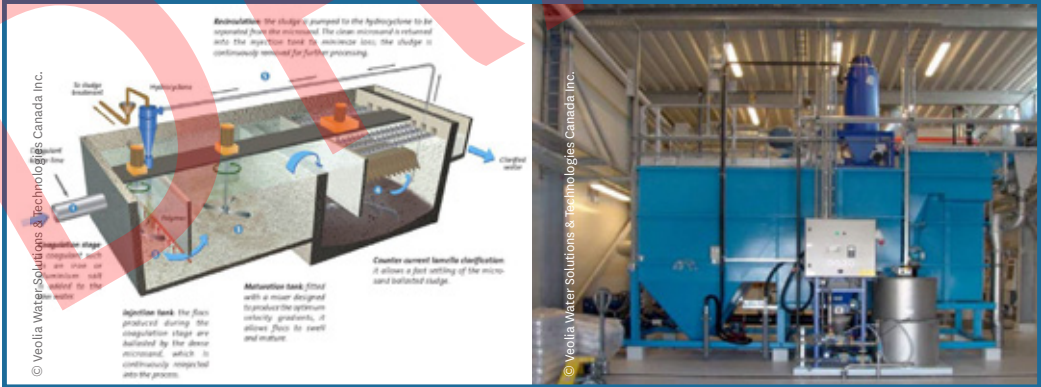
Linear Pre-Treatment



Outlet to Lake



End of Pipe Treatment: Ballasted Flocculation Facility



OIL / GRIT SEPARATOR



# Villiers Island Public Art Strategy (Draft WT - 2017)



**Passages Program** (*marks transformation over time*)



**Linkages Program** (*connects to site history*)



**Engagement Program** (*lures with temporary works*)



**Parallel Program** (*integrates with infrastructure*)

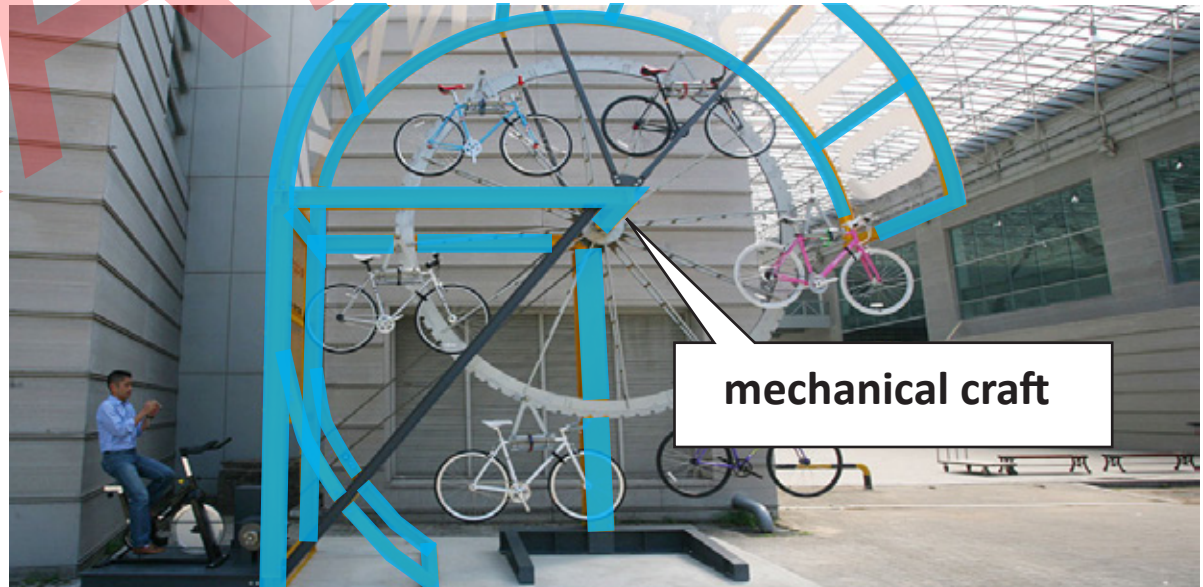


# Engagement Program: 'Isle of Bikes' Competition





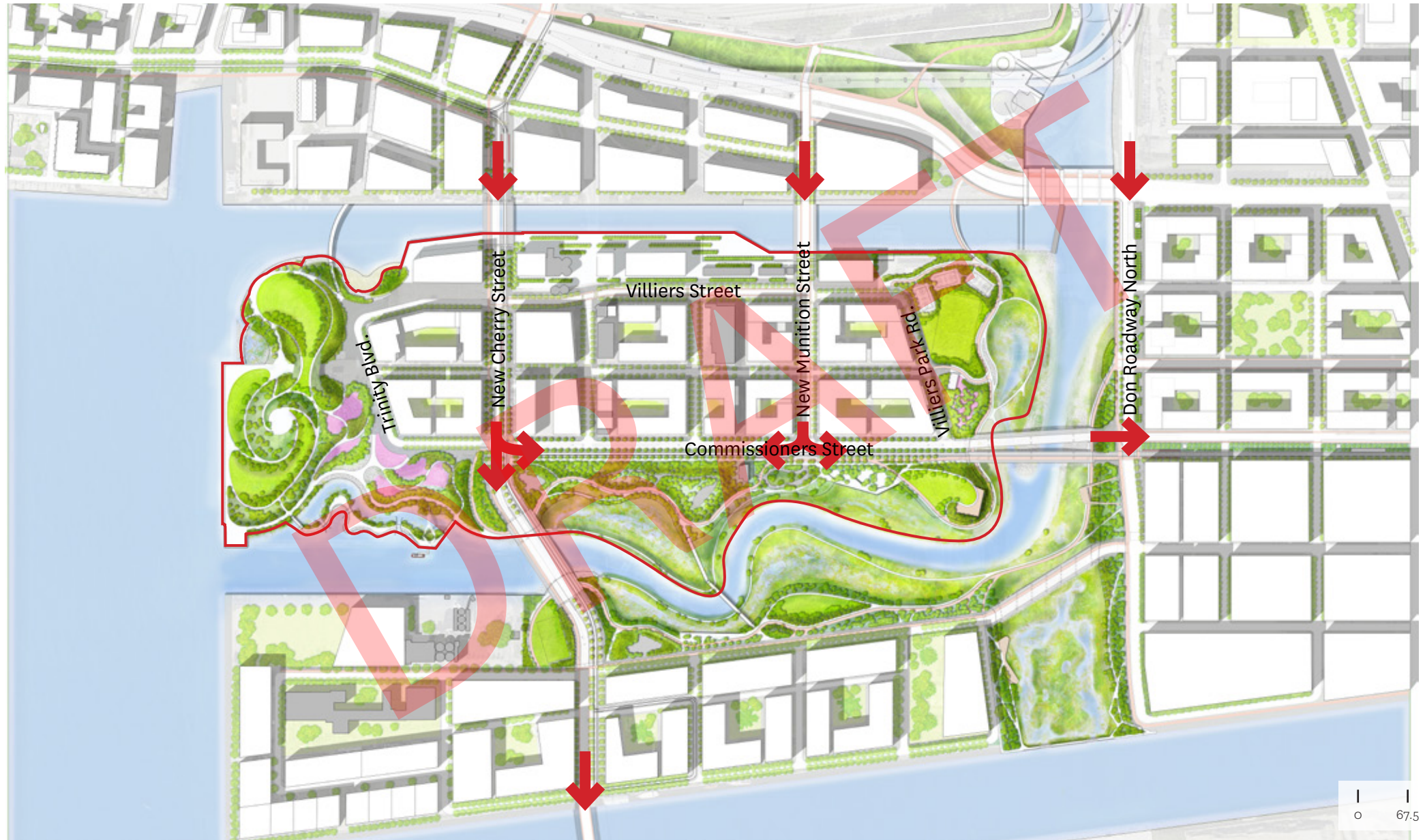
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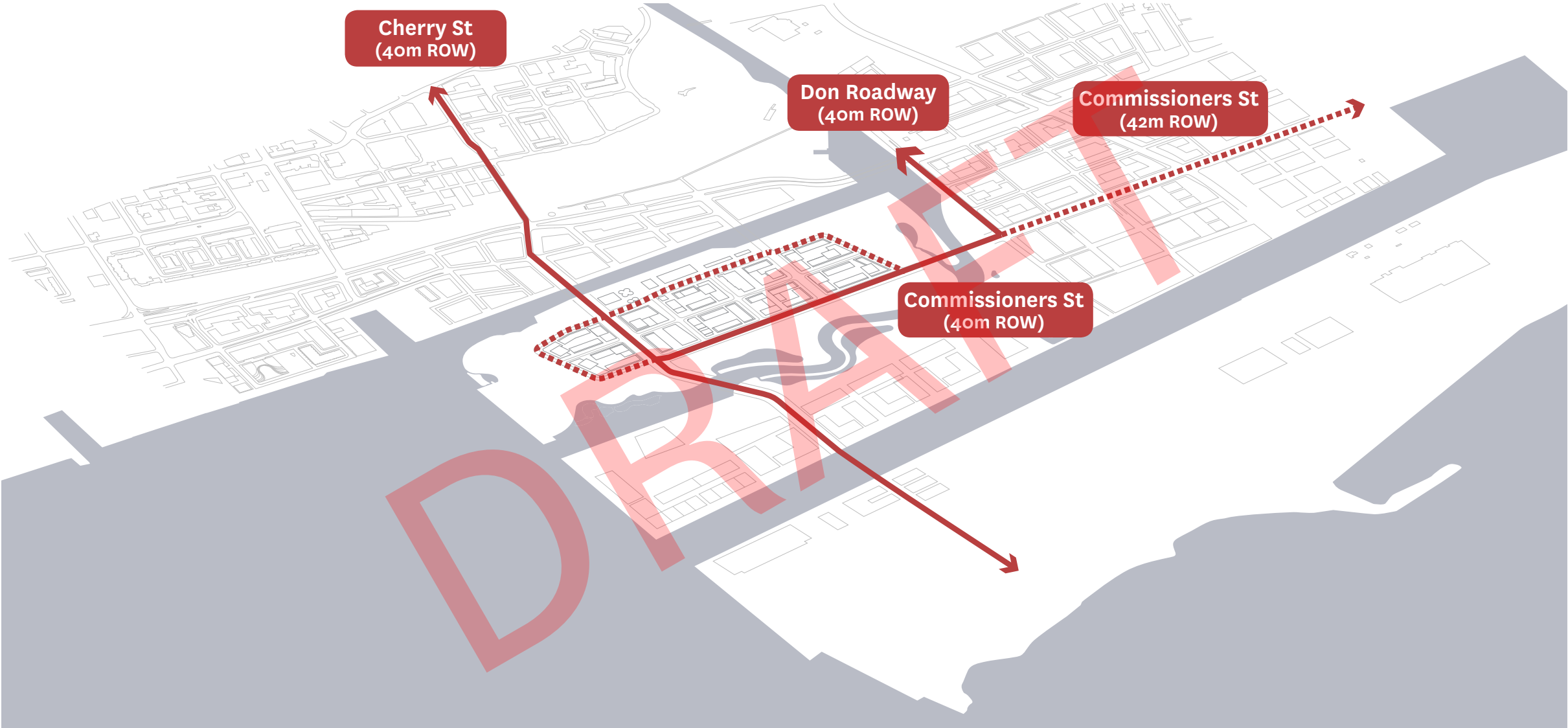
### 3. Clarify the Identity of the Villiers Island Public Realm



# Villiers Island: Gateway to the Port Lands



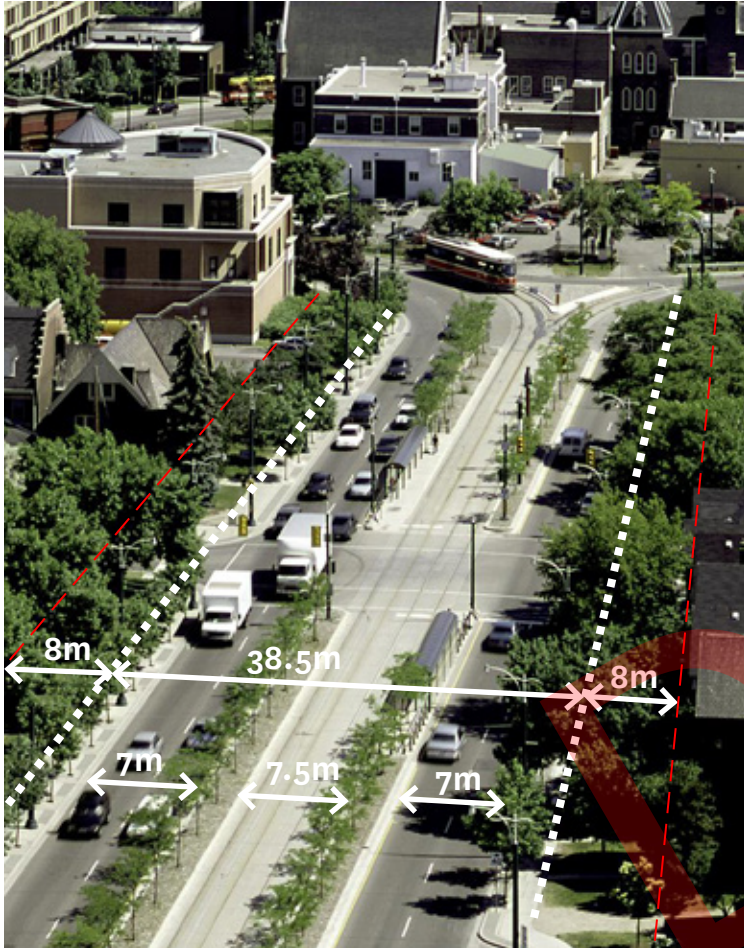
# Villiers Island: Gateway to the Port Lands





# R.O.W. Width: Comparative Scale Studies

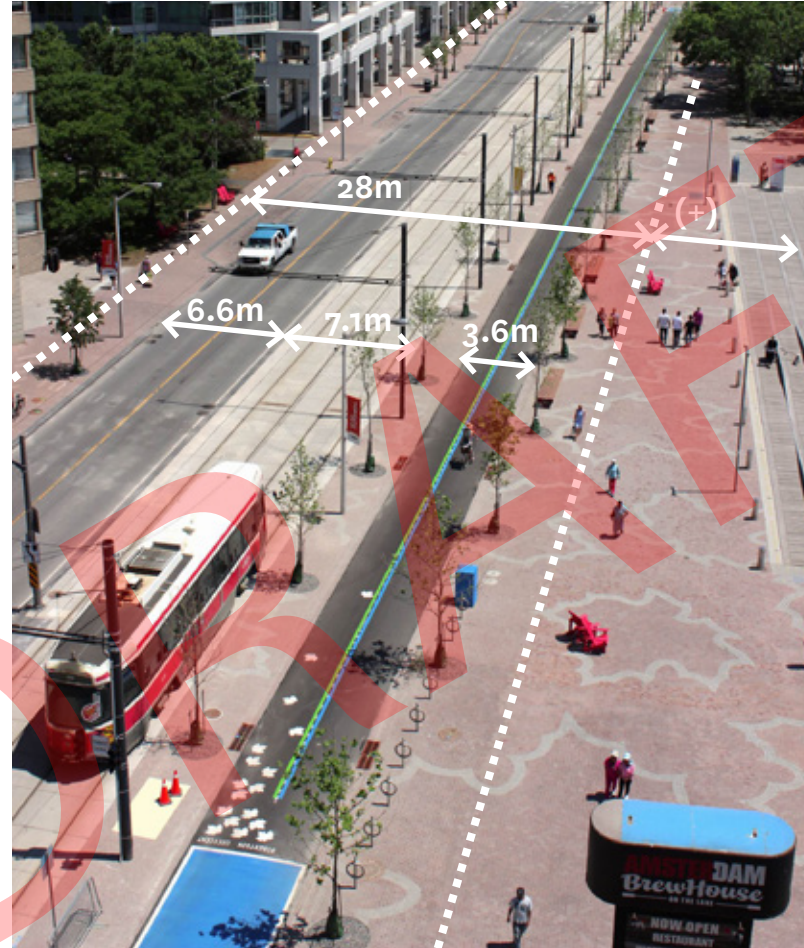
## Spadina Avenue (University)



ROW = 38.5m (+16m)

32% Cross Section = Public Realm

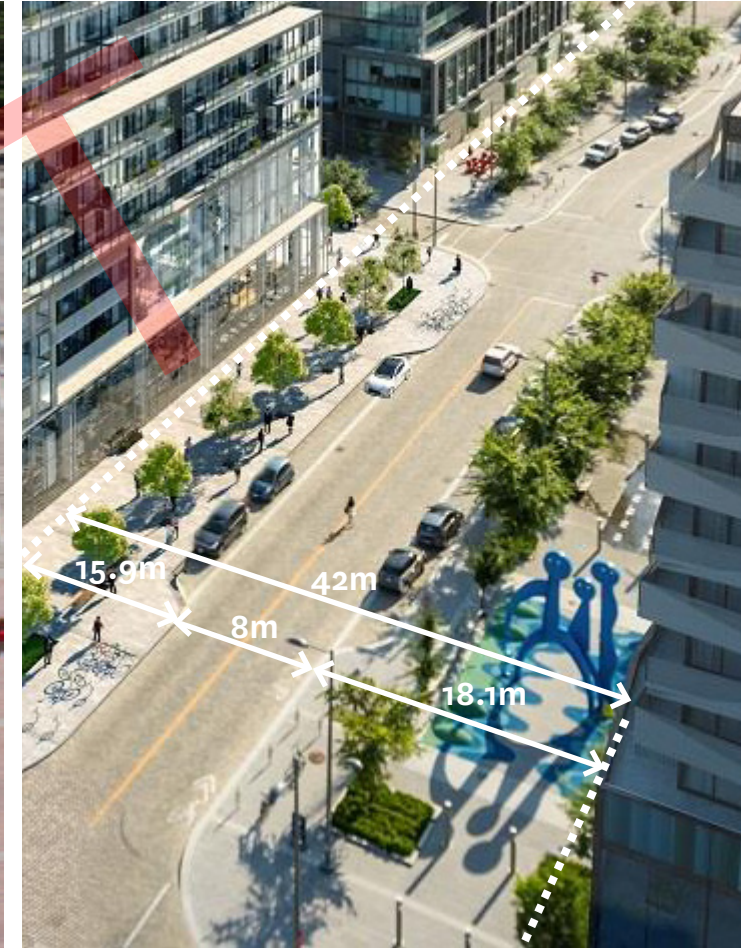
## Queens Quay Boulevard



ROW = 28m (Min)

50% Cross Section = Public Realm

## Front Street (WDL)



ROW = 42m

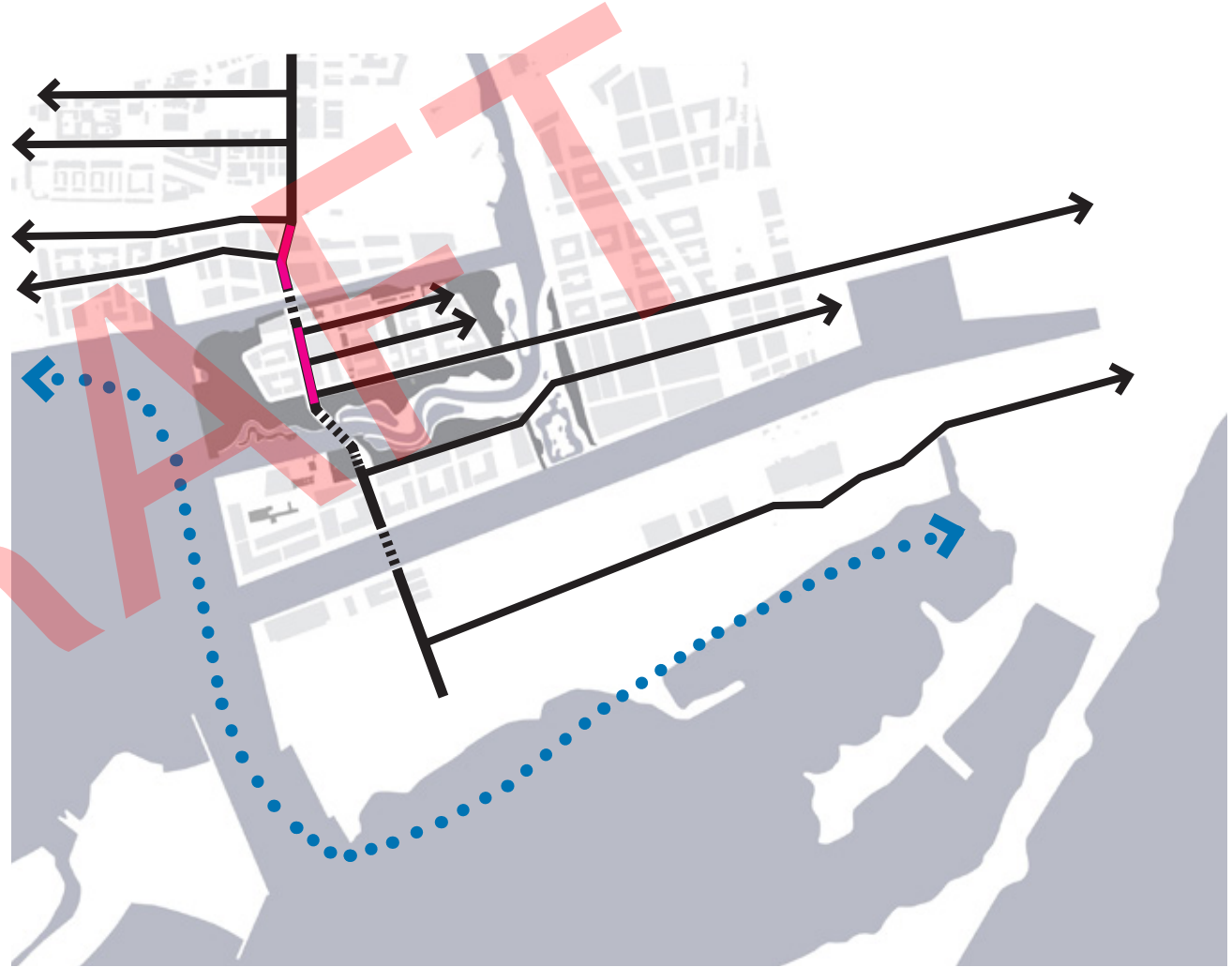
75% Cross Section = Public Realm



# Cherry Street

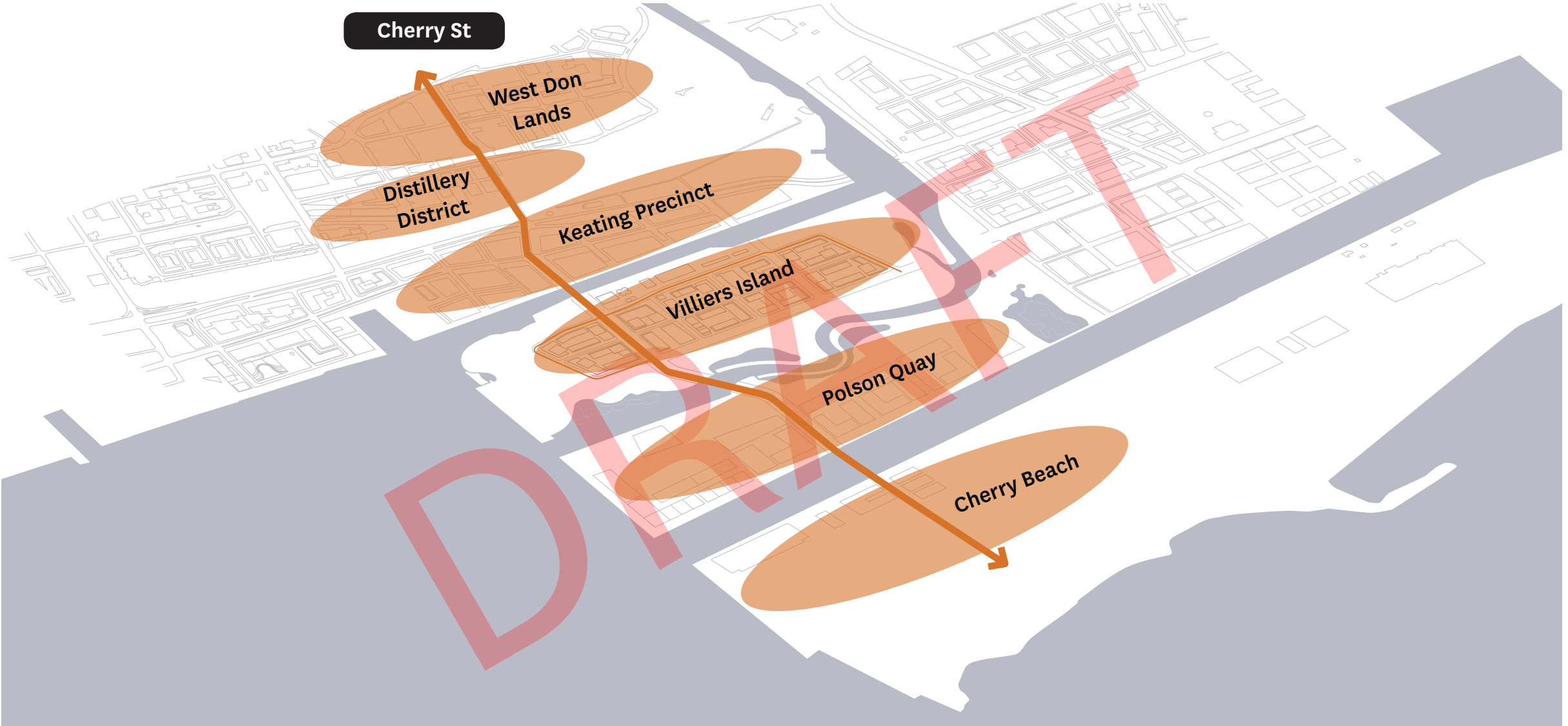


Cherry Street Expresses the Shift in Waterfront Geometry





# Cherry Street: Link the Urban Archipelago



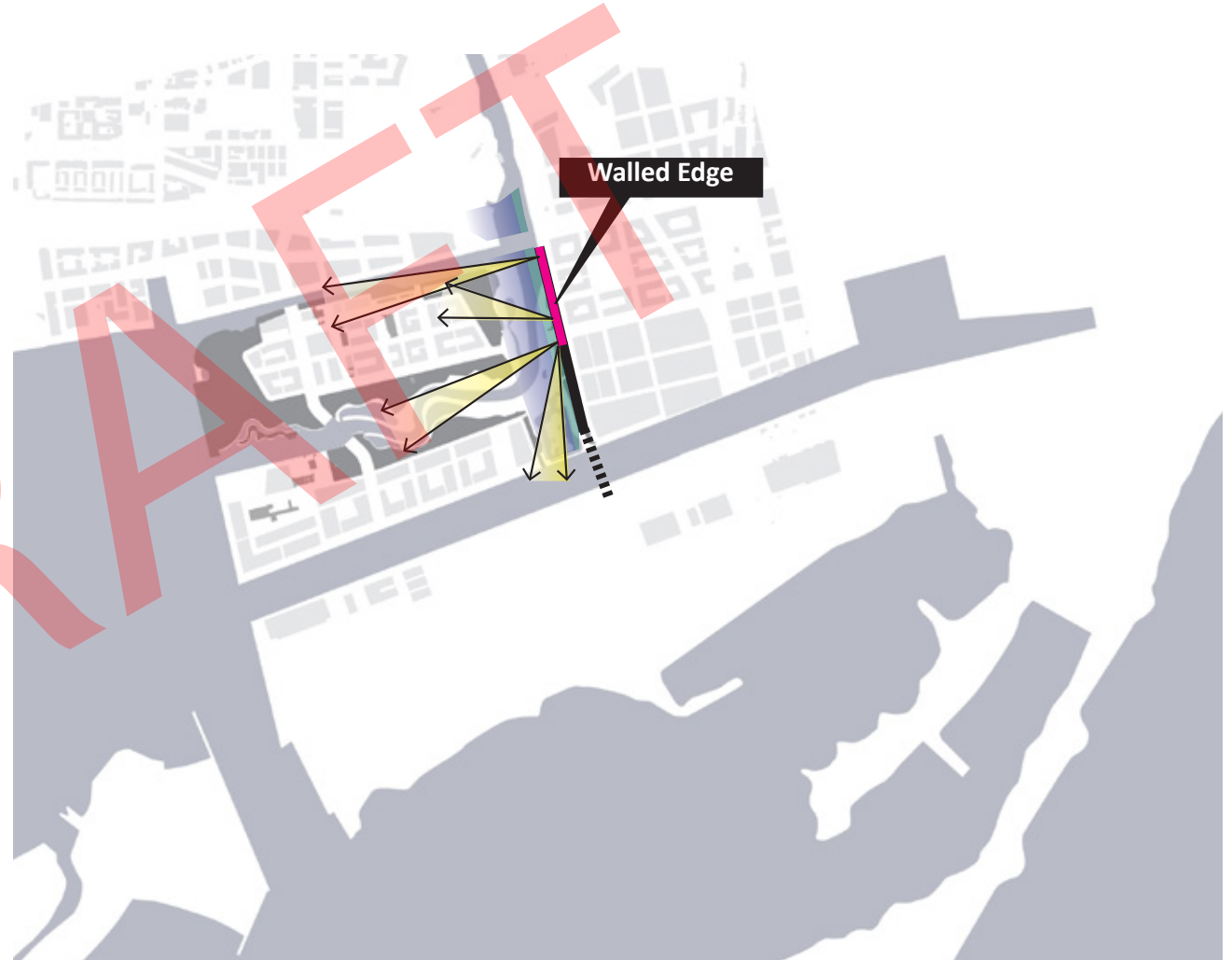
# Don Roadway

Sculptural form at crest of wall

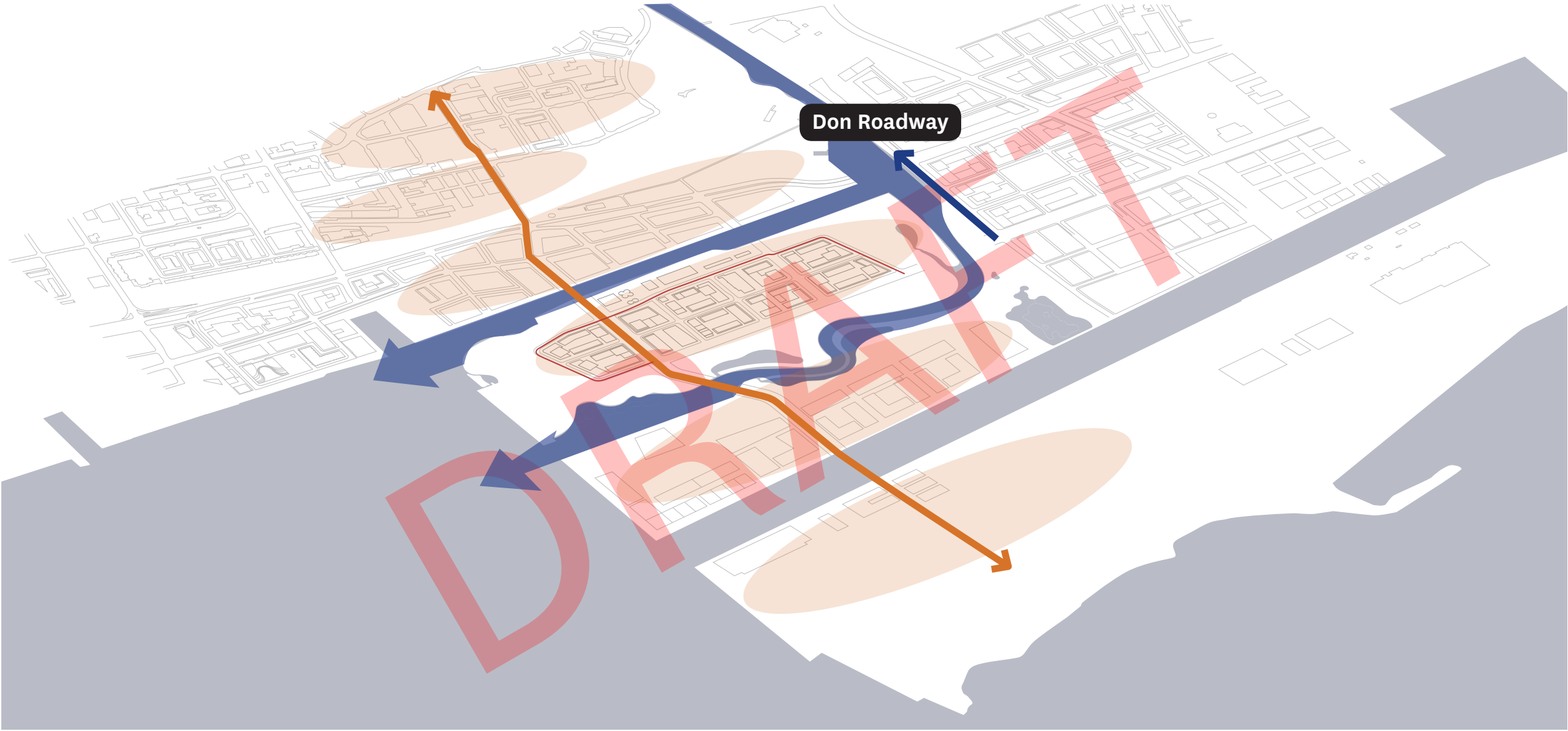


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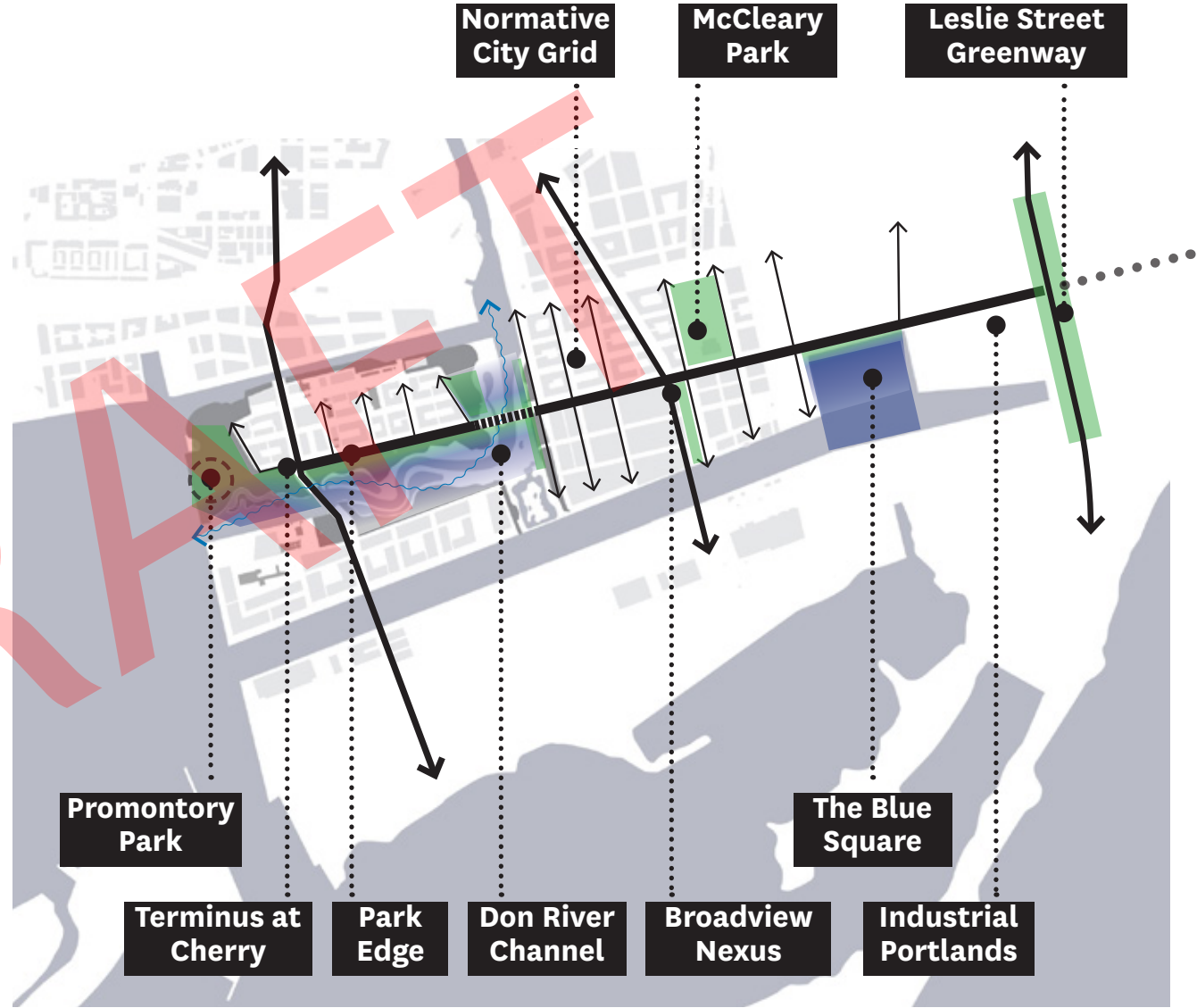
Occupiable edges at riverine vistas



# Don Roadway: Reveal the New River Mouth

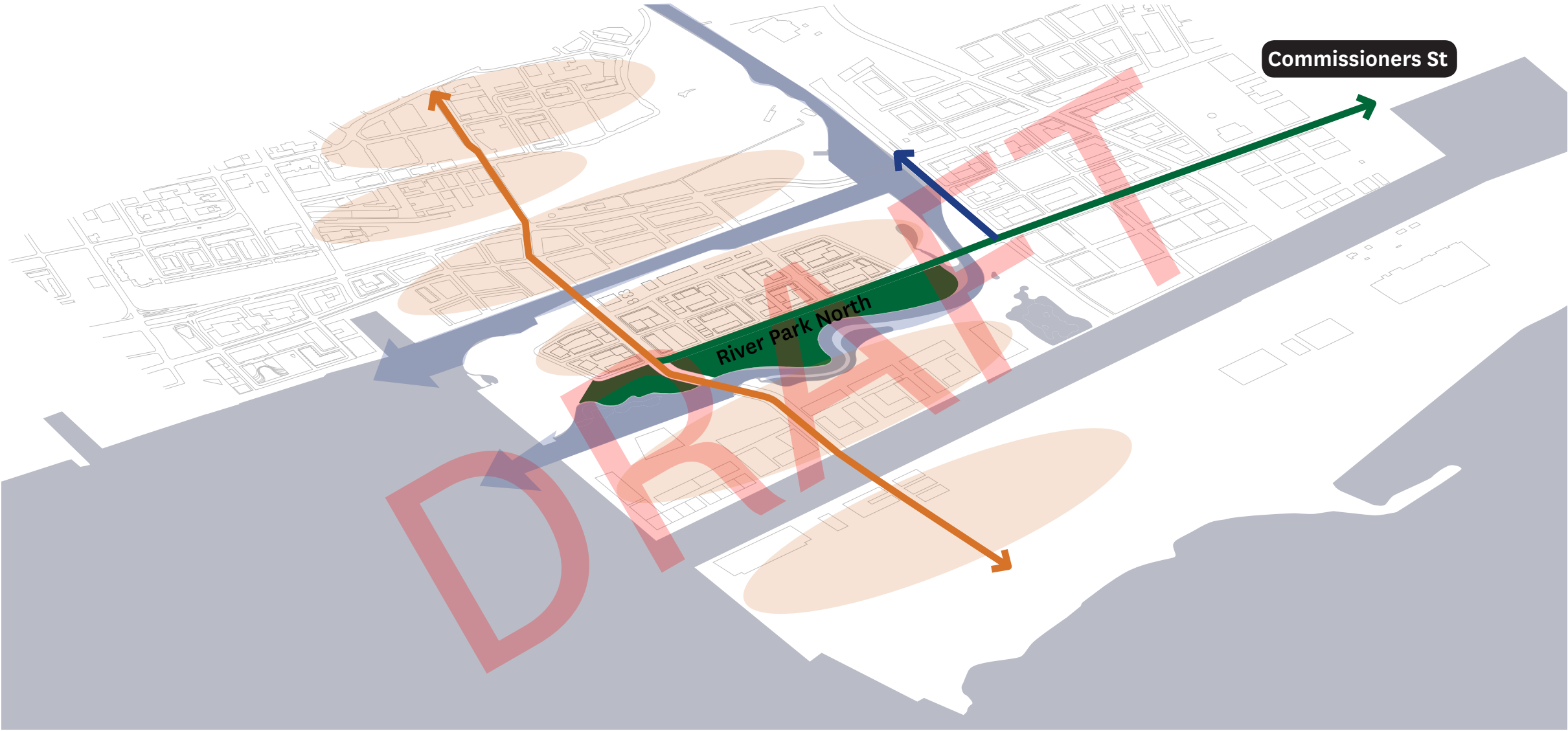


# Commissioners Street

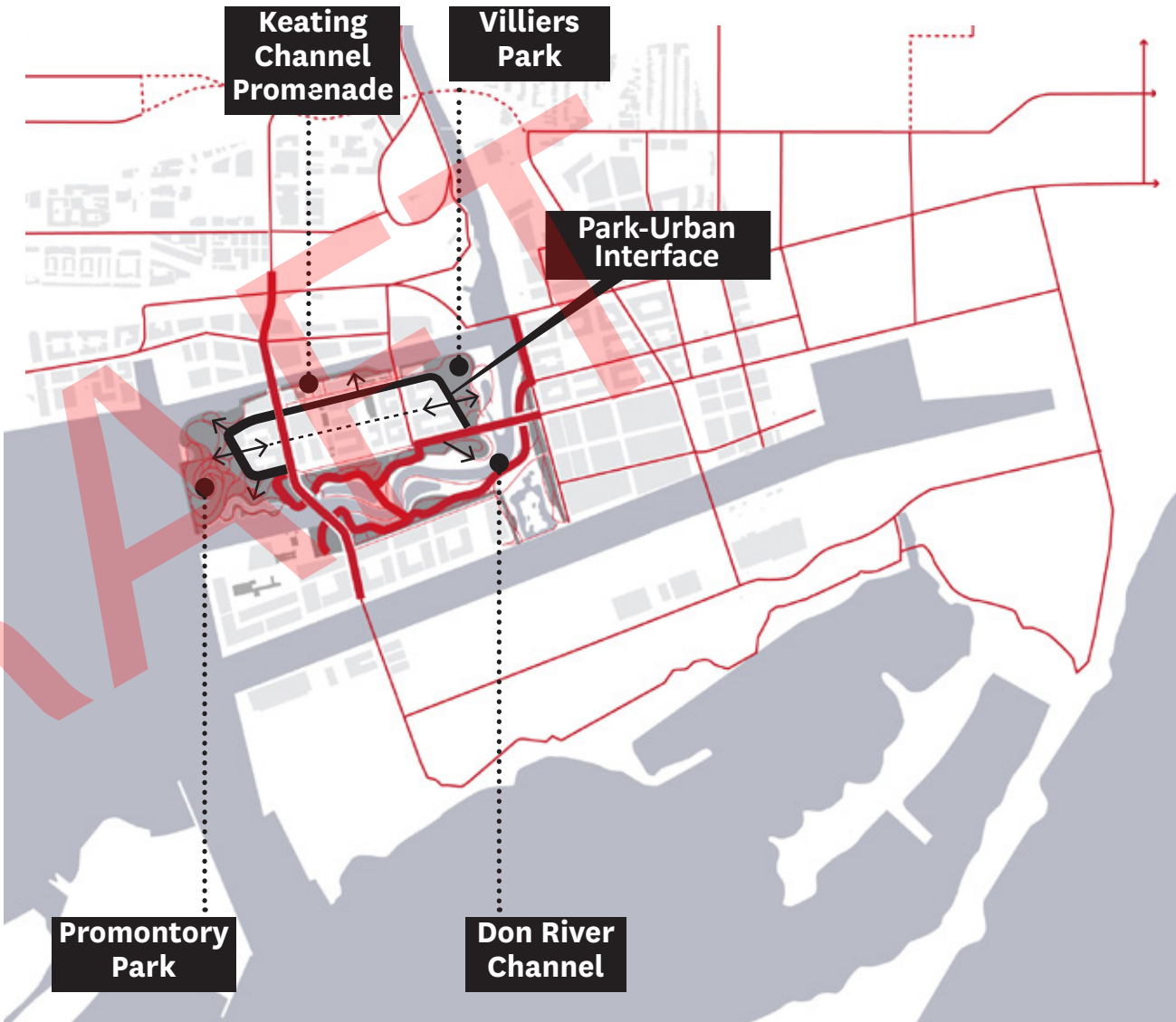




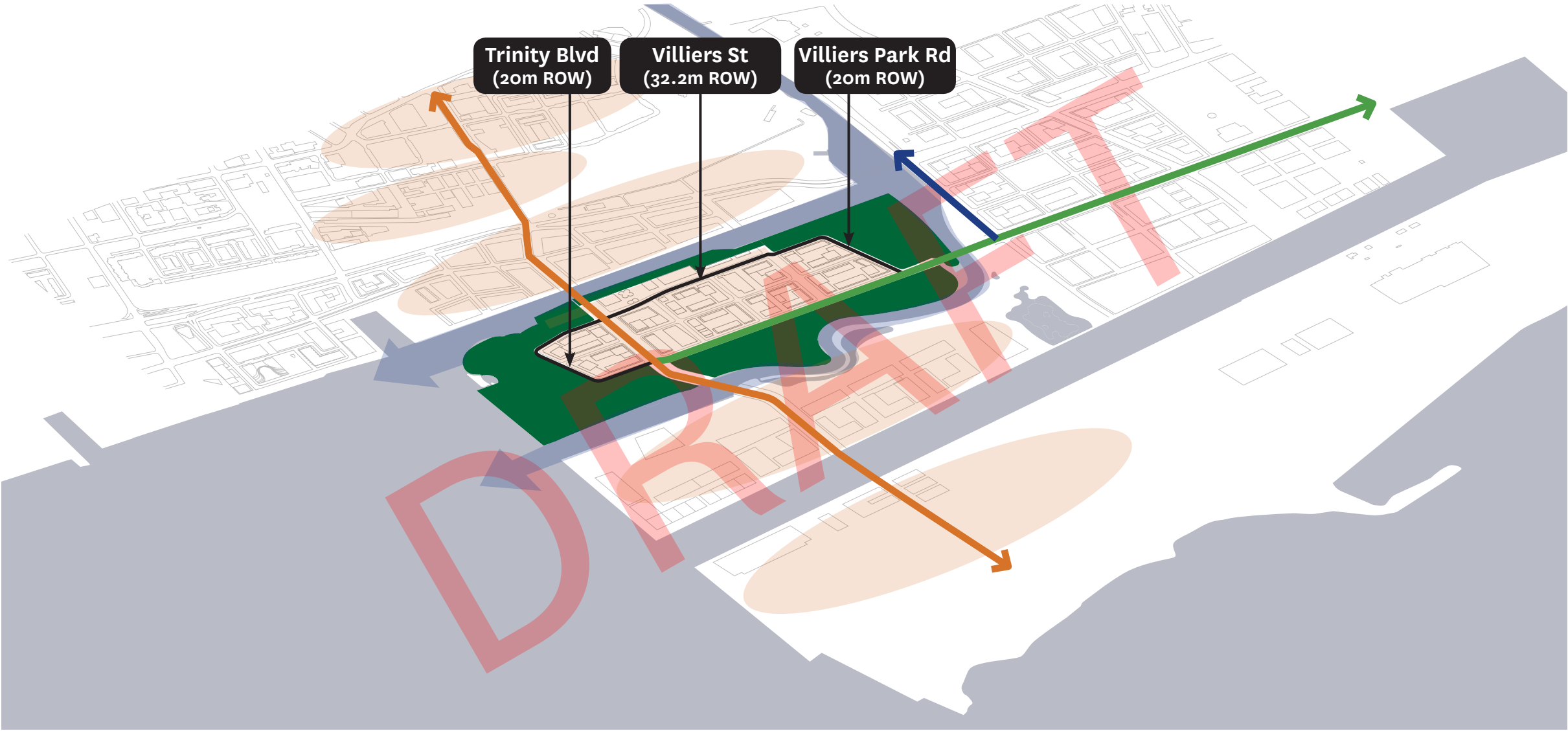
# Commissioners Street: Incorporate the Park Edge



# Trinity + Villiers Streets



# Trinity + Villiers: Unify the Island Edge



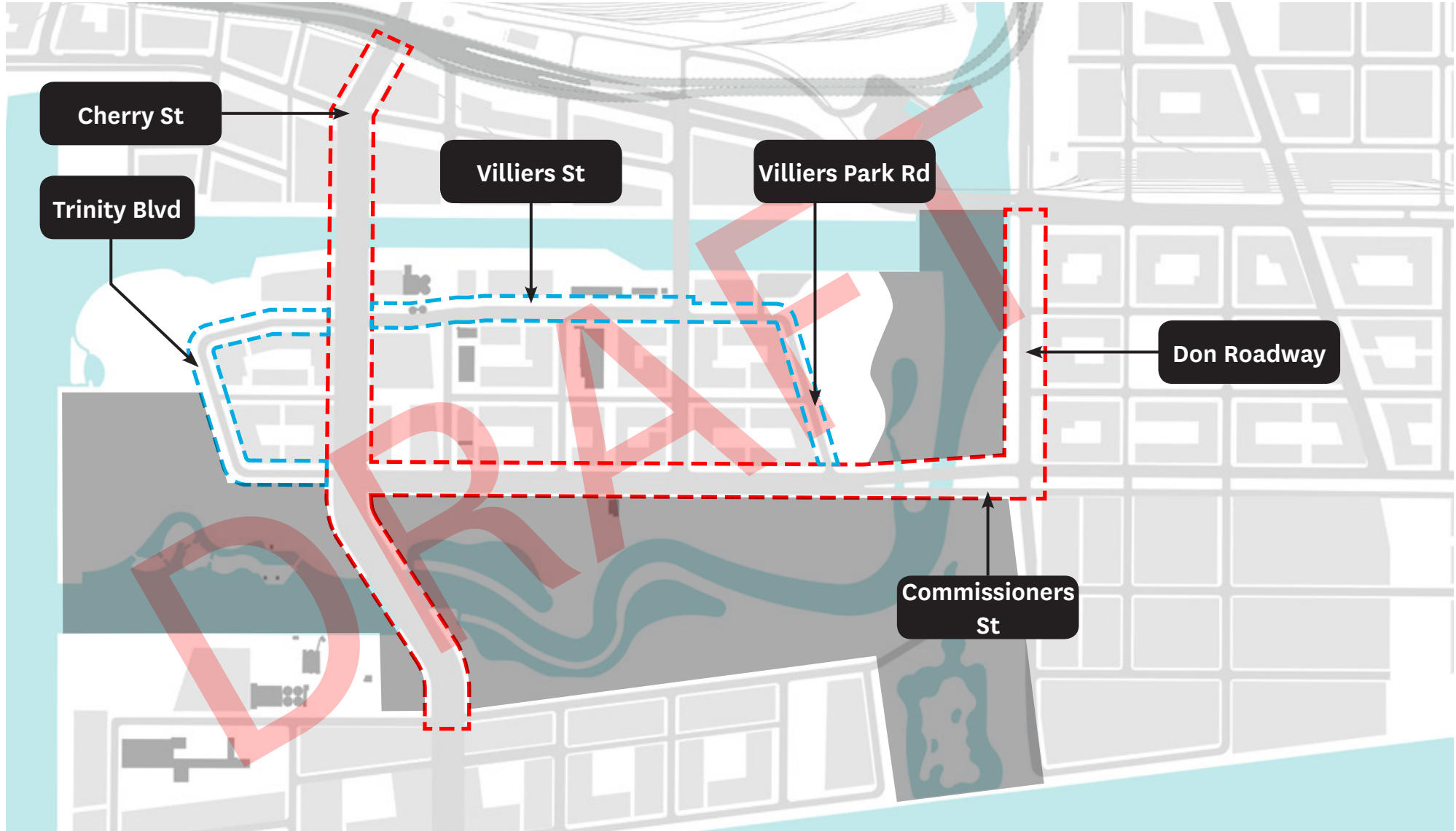
**4. Develop a Site-Specific  
Character for Each Major  
Thoroughfare**



# Roadway Scope - Relative to PPRR Scope

## Legend

- Phase 1
- Future Phases
- Relative PPRR Scope



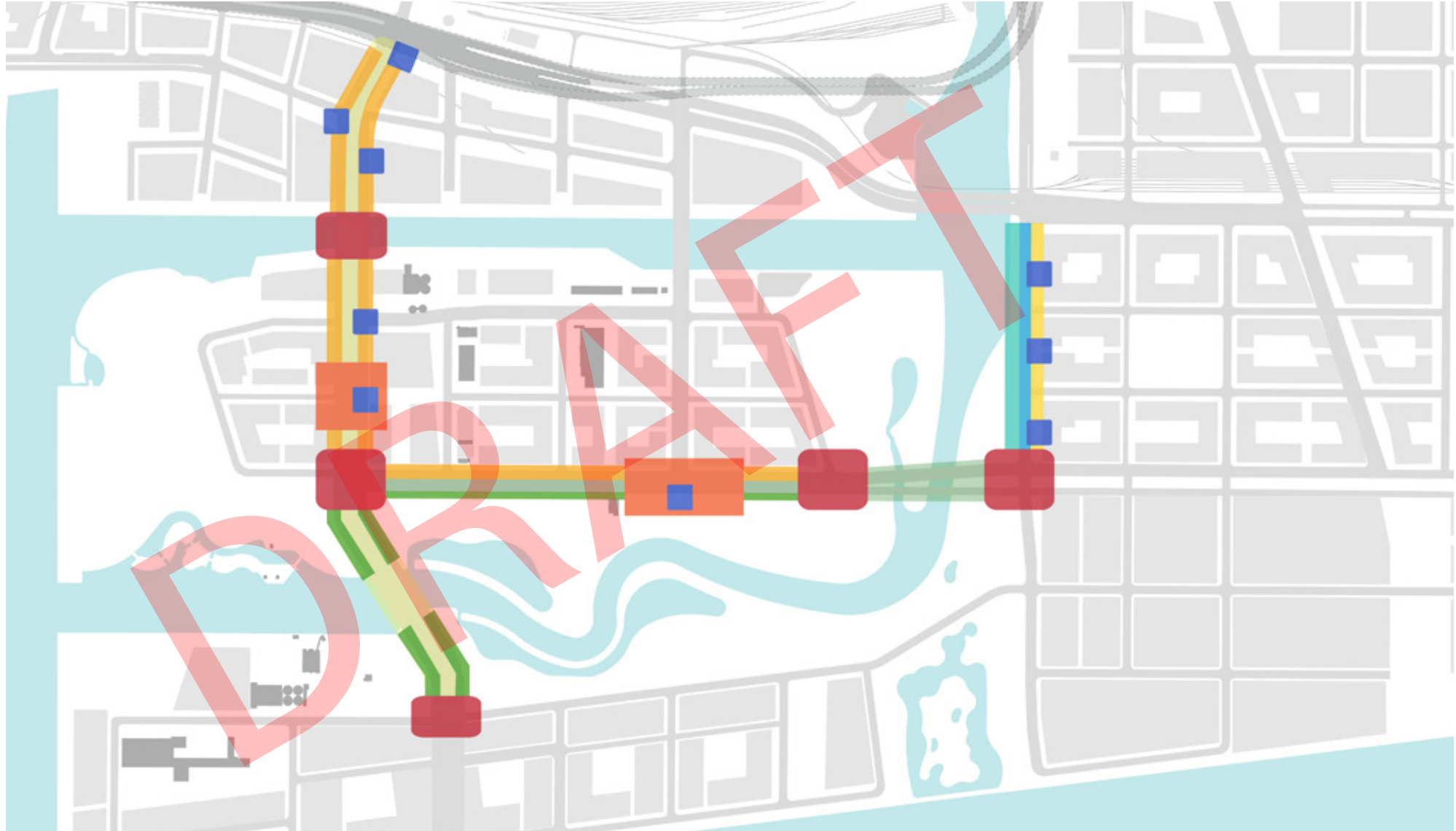
# Phase 1 Streetscape Types

## Corridors

- Urban
- Park
- River

## Landscape Typologies

- Precinct Threshold
- Park Threshold
- Plaza
- LRT Station
- Pedestrian Thoroughfare
- Promenade





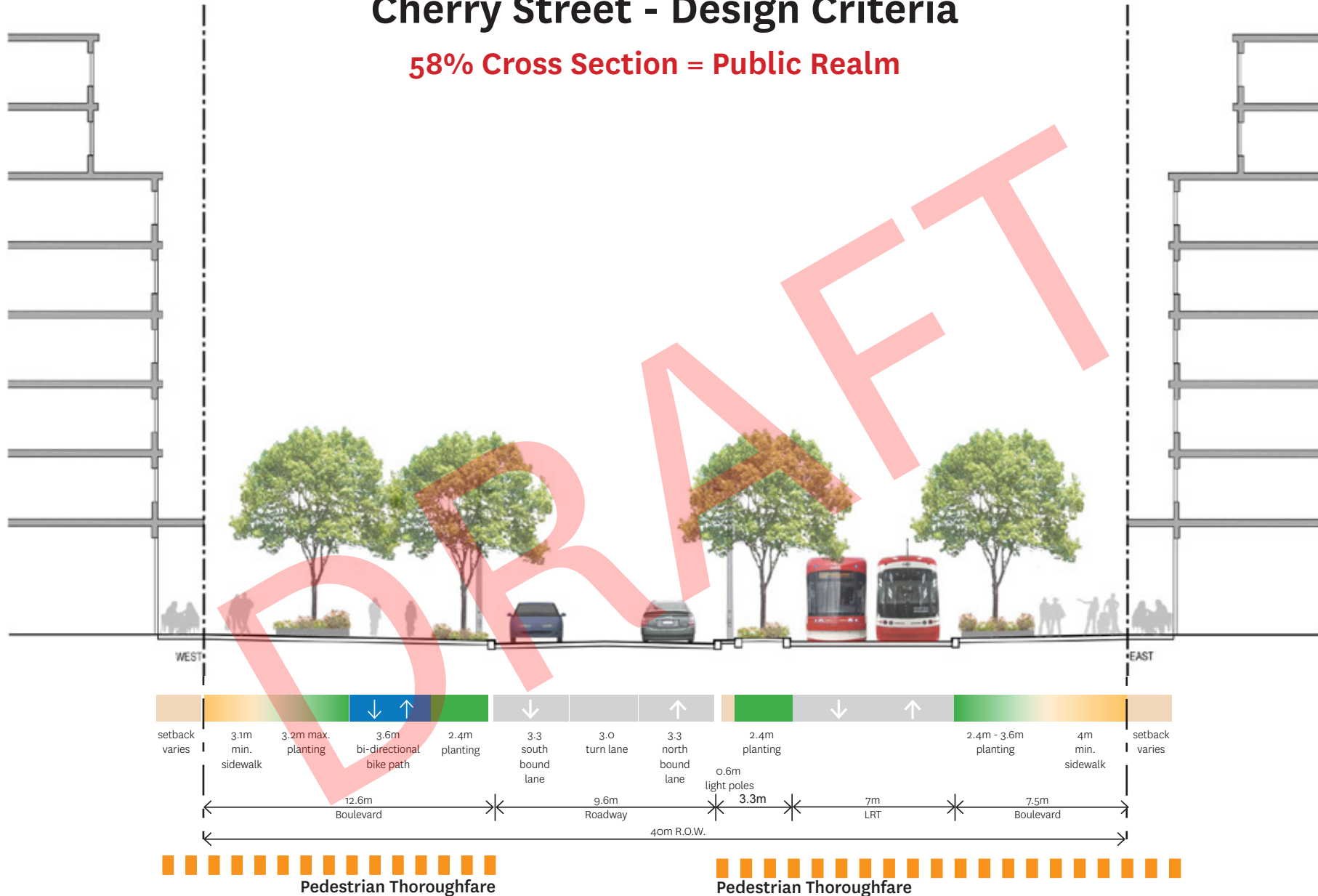
# Cherry Street: Link the Urban Archipelago



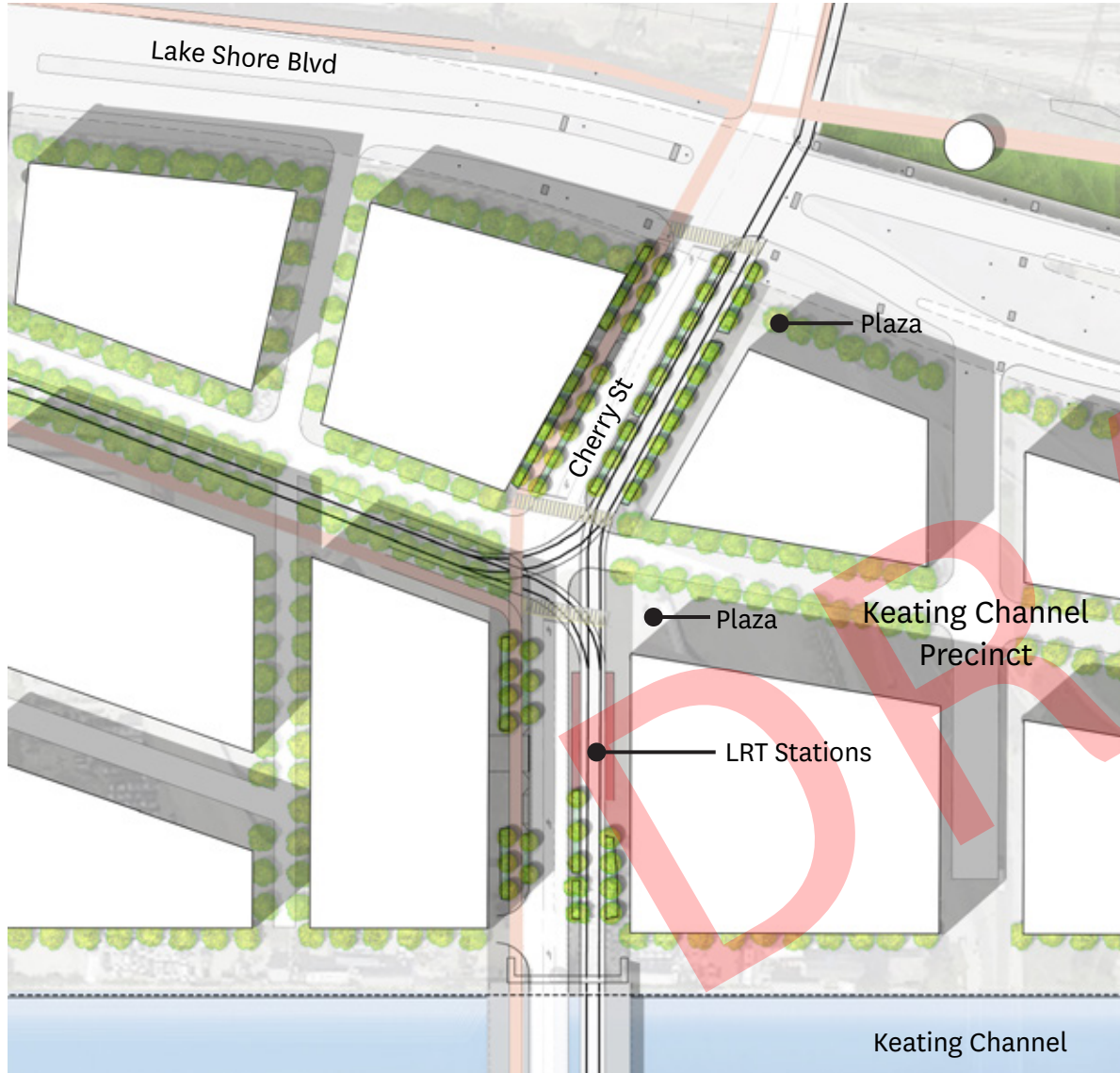


# Cherry Street - Design Criteria

58% Cross Section = Public Realm



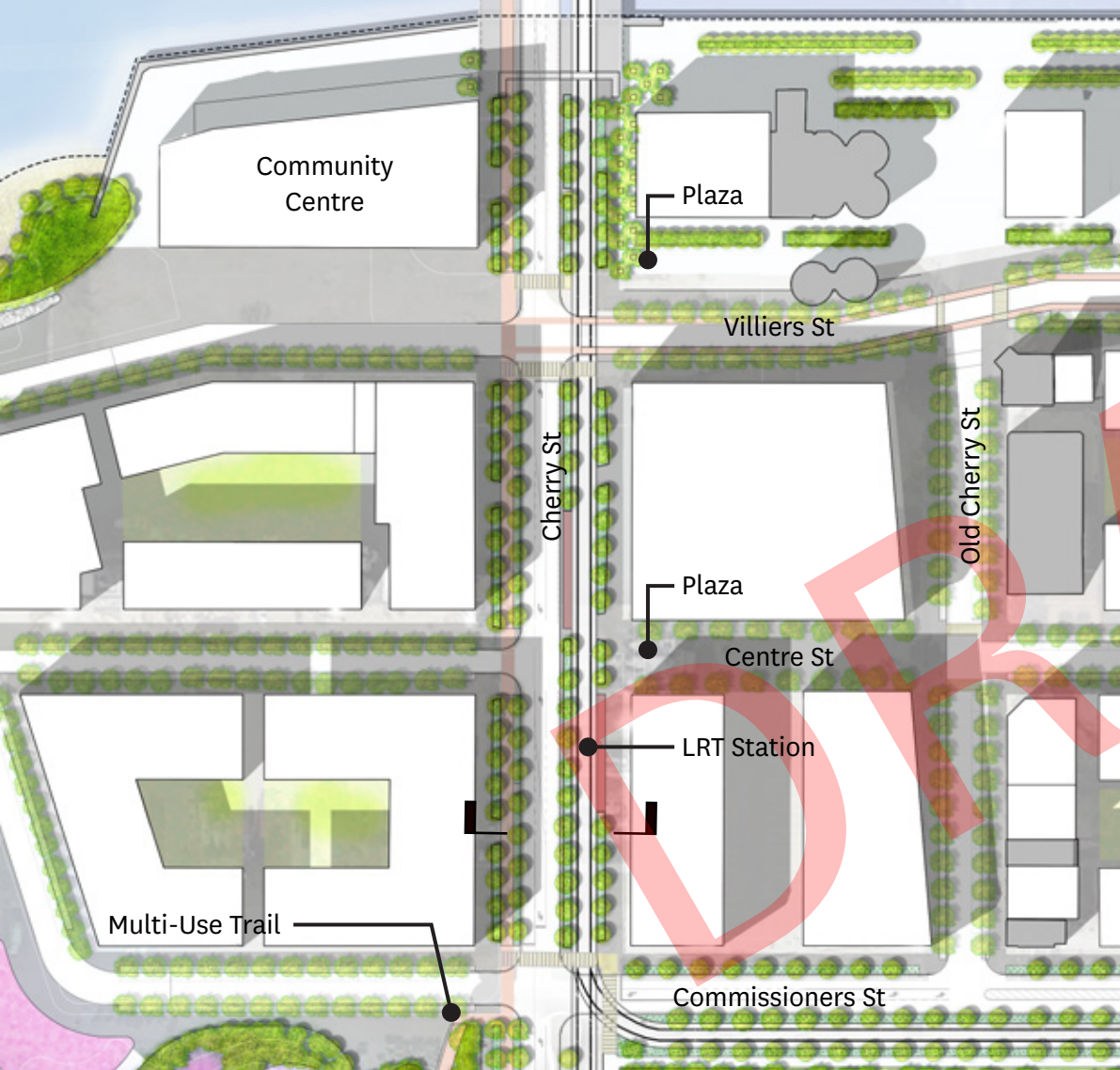
# Cherry Street North: Link the Urban Archipelago



- Gateway and extension of the city into the Port Lands
- Elevated Gardiner Expressway and Rail Berm
- Nexus of Transit Infrastructure
- Lower light levels relative to anticipated development massing
- Constrained - Variable pedestrian clearway and shade tolerant planting to suit specific locations



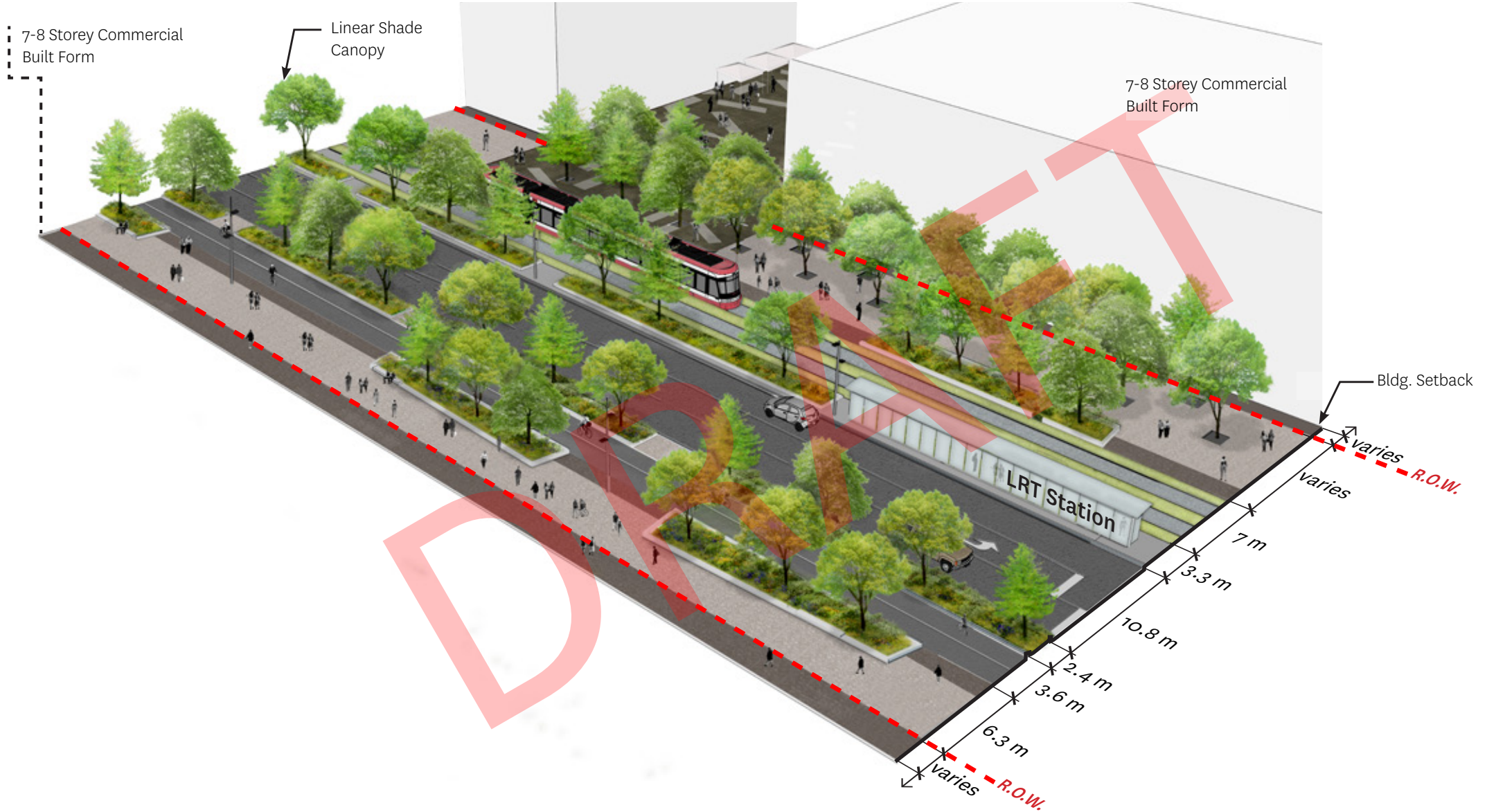
# Cherry Street South: Link the Urban Archipelago



- Boulevard feel at Villiers Island
- Water crossings at both ends
- Incorporate building set back to maximize planting zones / public realm within street R.O.W.
- Adequate Light Levels
- Planting shaped to create varying scales and experiences through the street

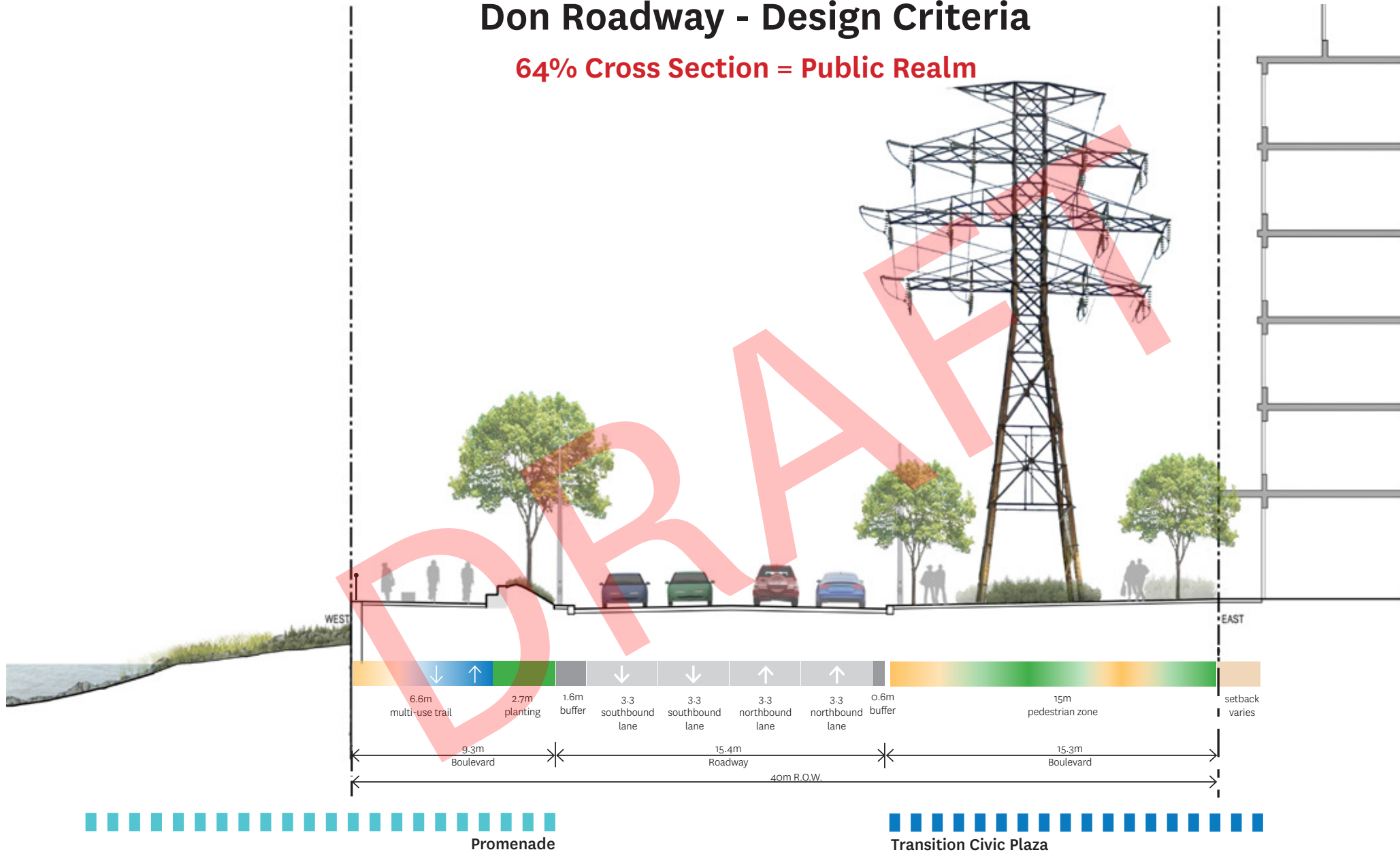


# Cherry Street



# Don Roadway - Design Criteria

64% Cross Section = Public Realm





# Don Roadway: Reveal the New River Mouth



- Asymmetrical
- Enhance expansive open vistas of river channel (west)
- Integrate public realm with park pathway system (west)
- Maintain required clearances to existing Hydro One infrastructure (east)
- Provide amenity space for adjacent commercial developments (east)



# Don Roadway - Character



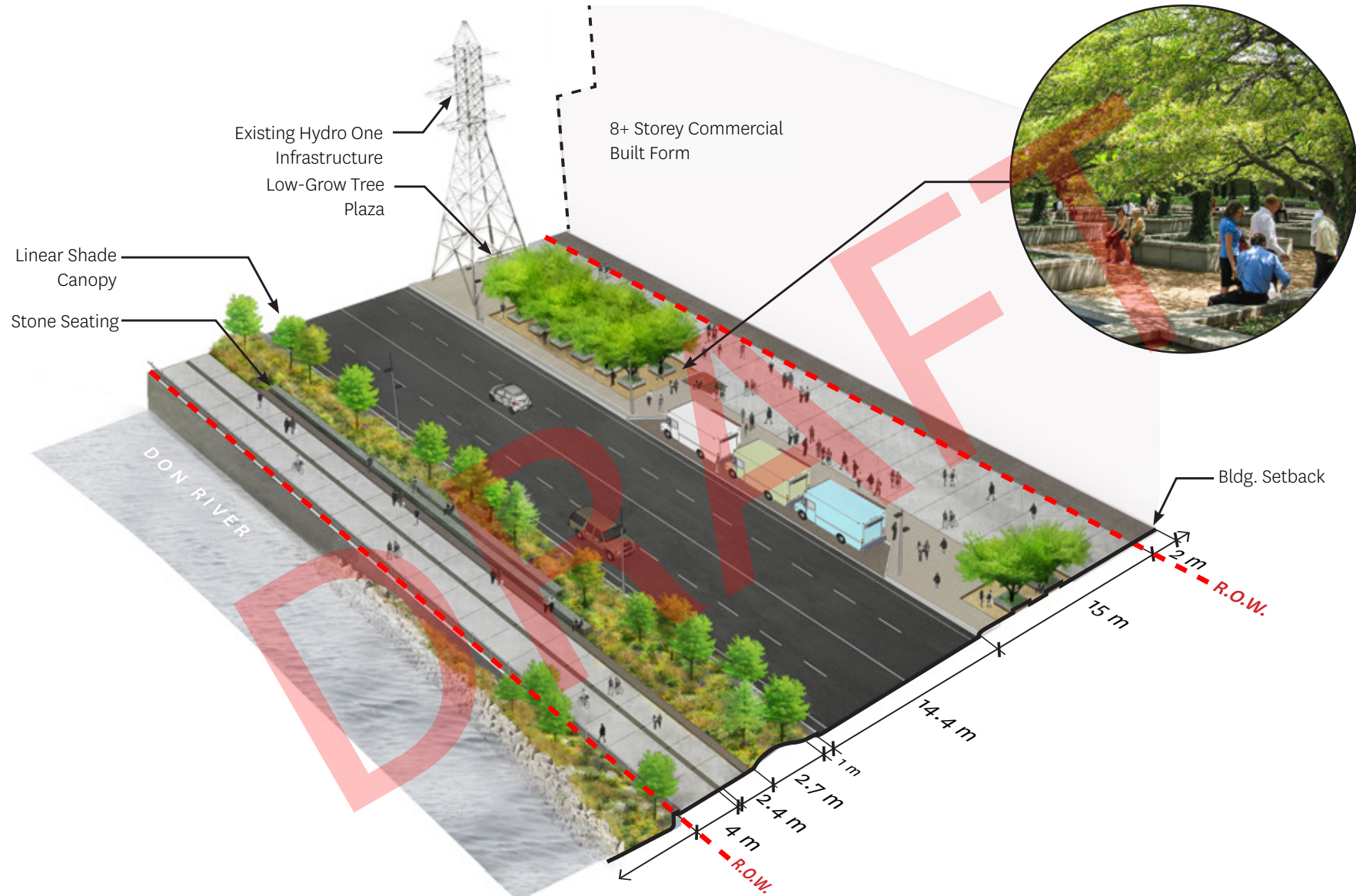
West / River



East / Urban



# Don Roadway





# Don Roadway - River Edge

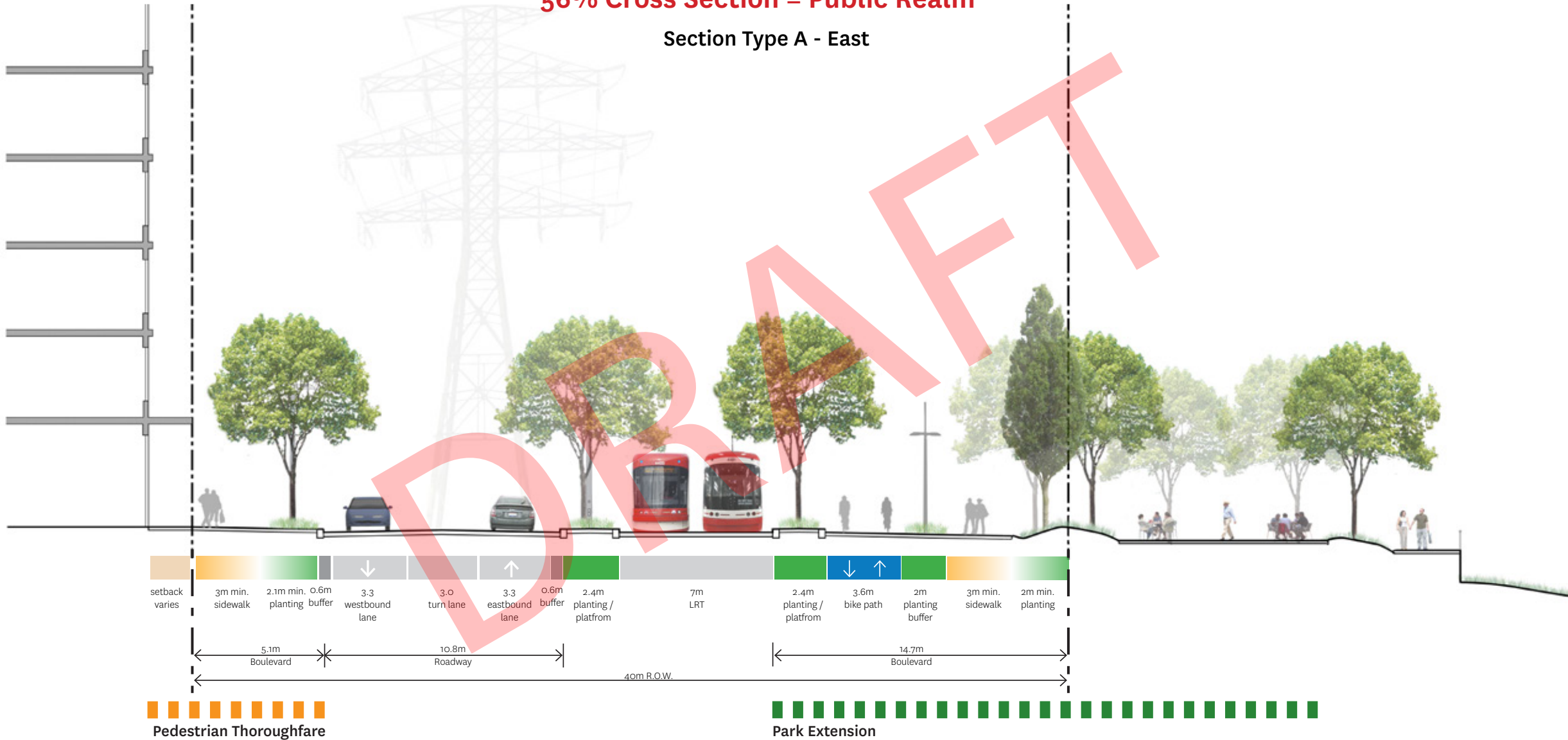




# Commissioners Street - Design Criteria

56% Cross Section = Public Realm

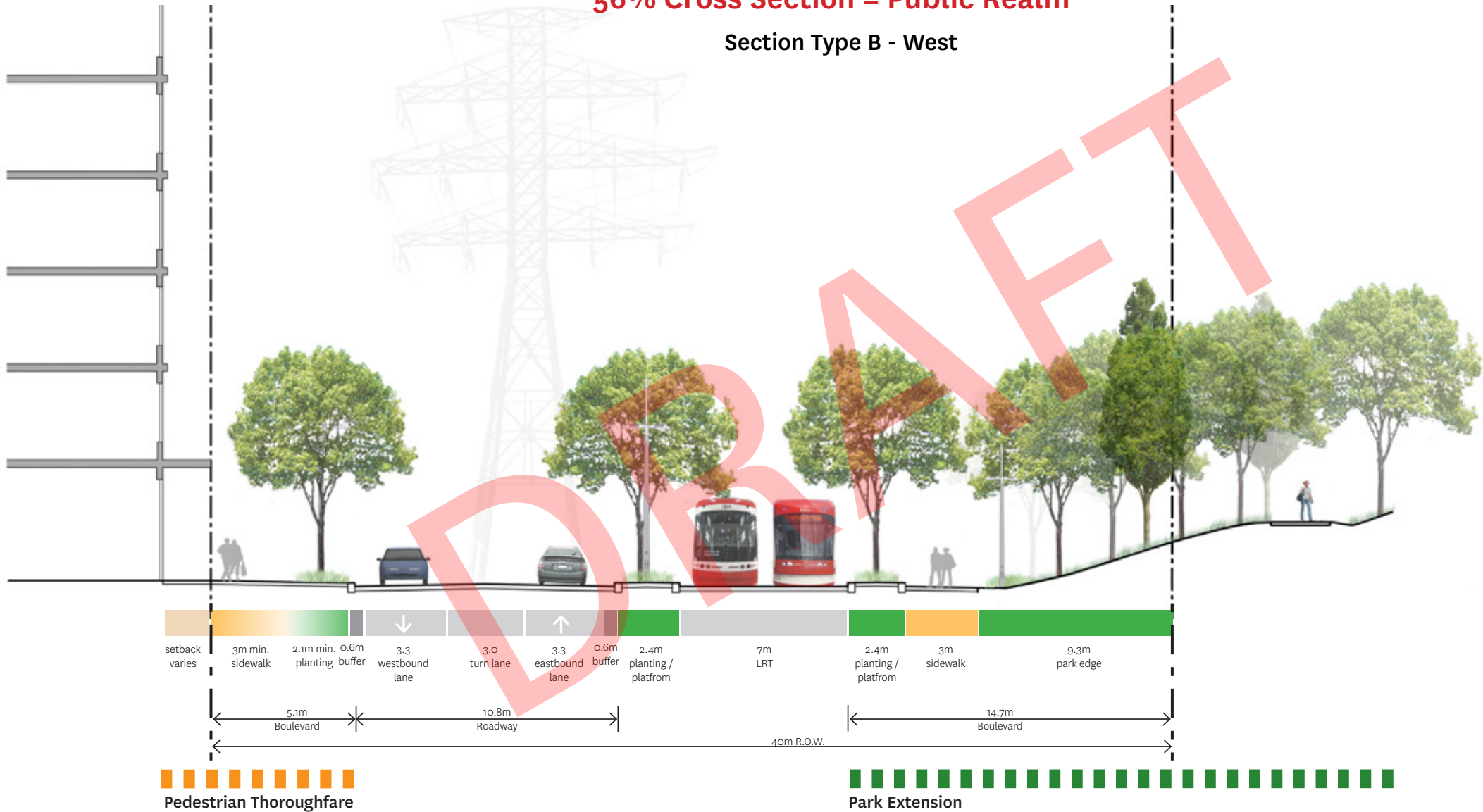
Section Type A - East



# Design Criteria - Commissioners Street

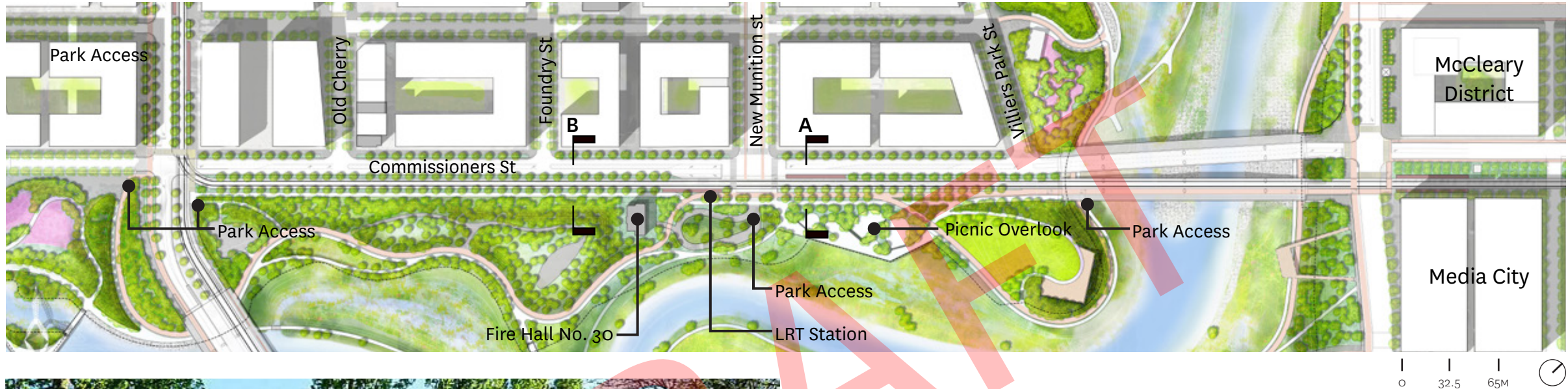
56% Cross Section = Public Realm

Section Type B - West





# Commissioners Street: Incorporate the Park Edge



- Asymmetrical with open southern exposure
- Limited north south connection - simplify interchanges between various users / circulation system at intersections
- Blur the edge of the park through integrated planting
- Maximize soil volumes and minimize soil cells
- Park landforms + wind shelter

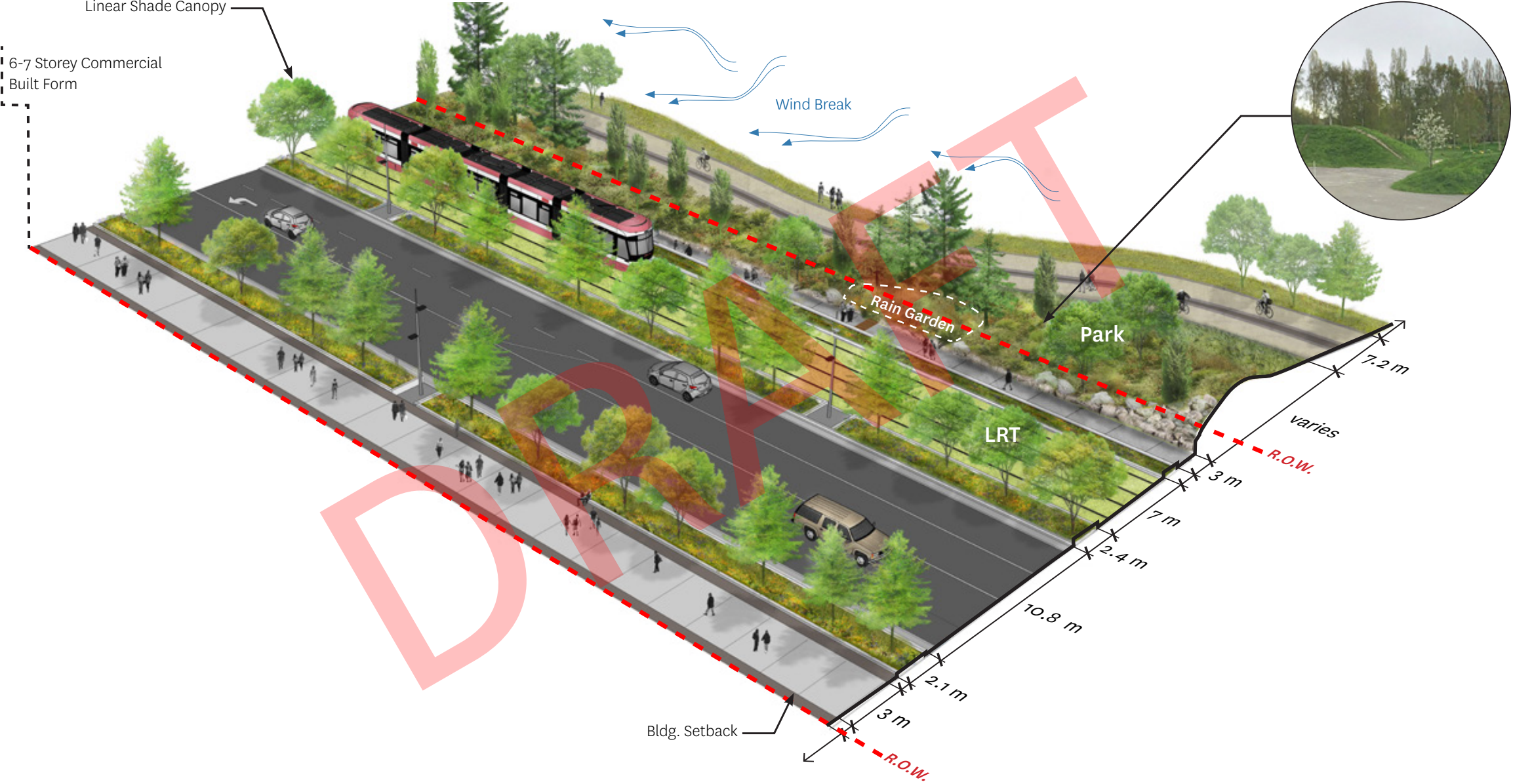


# Commissioners Street - Character



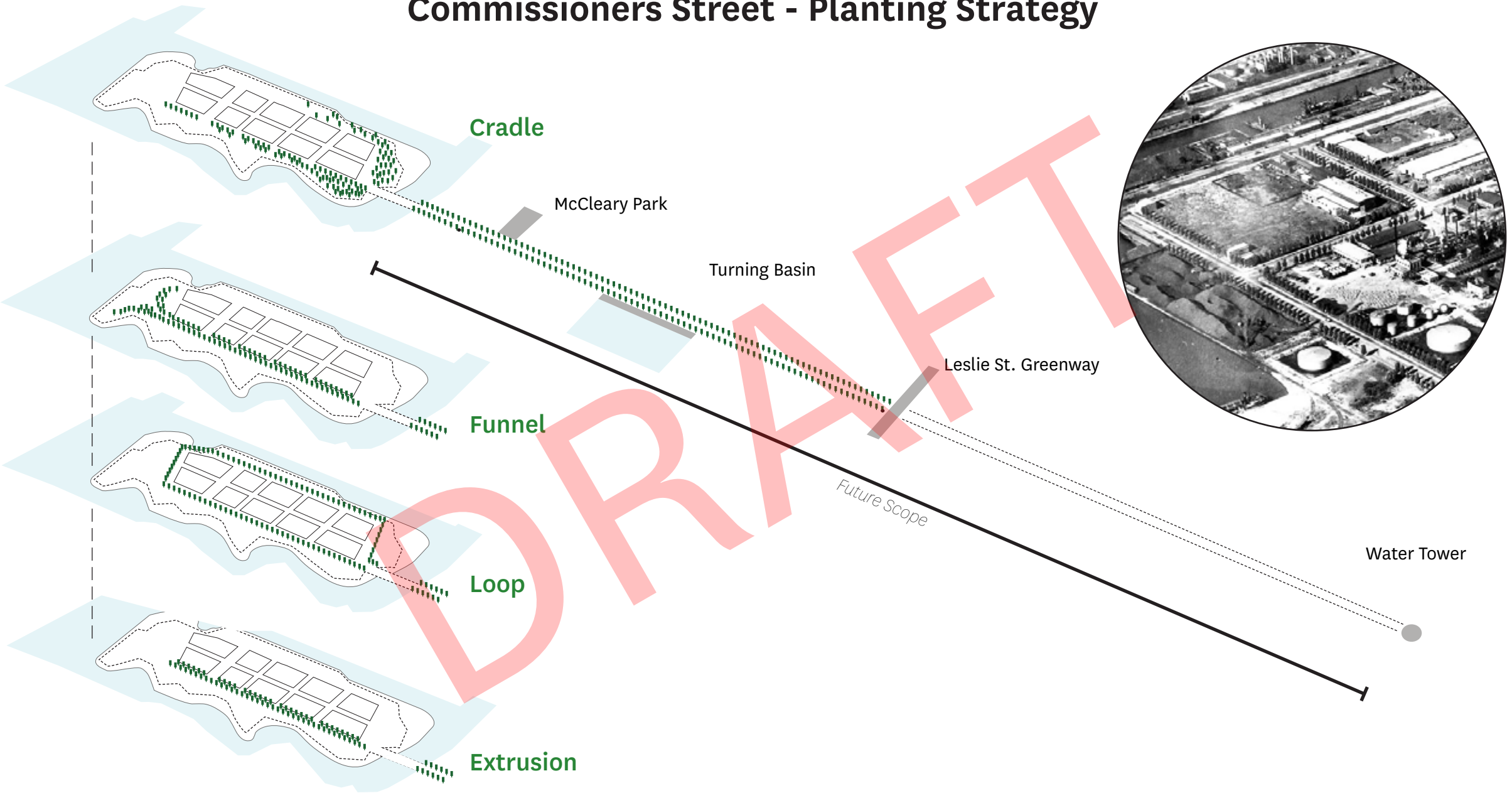


# Commissioners Street





# Commissioners Street - Planting Strategy



**Cradle**

McCleary Park

Turning Basin

Leslie St. Greenway

**Funnel**

*Future Scope*

**Loop**

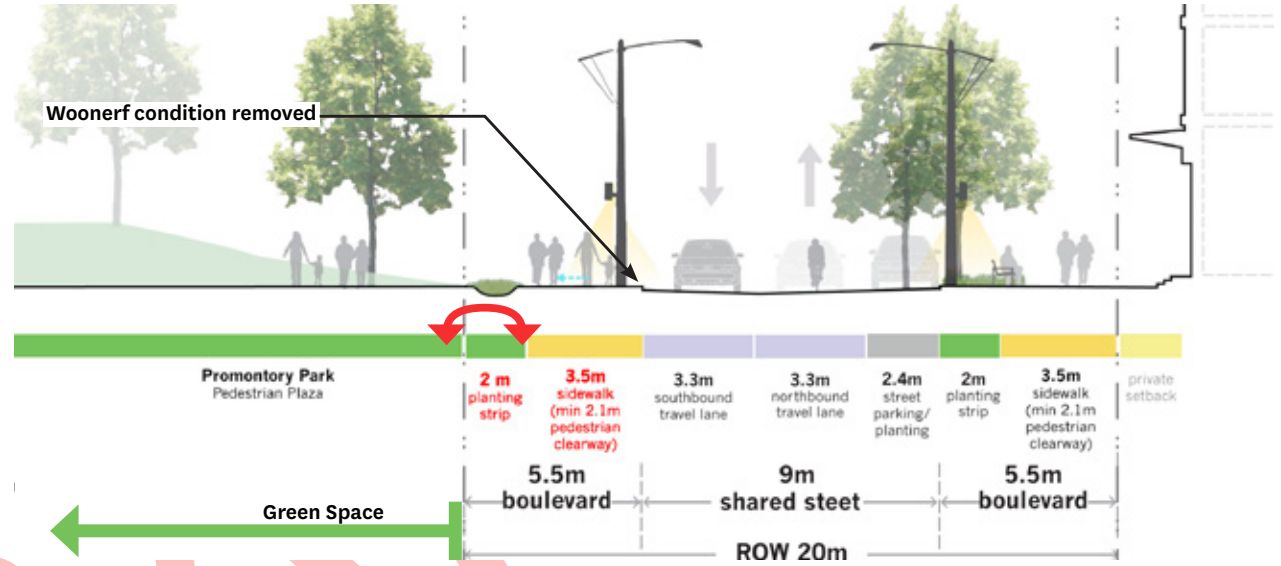
Water Tower

**Extrusion**

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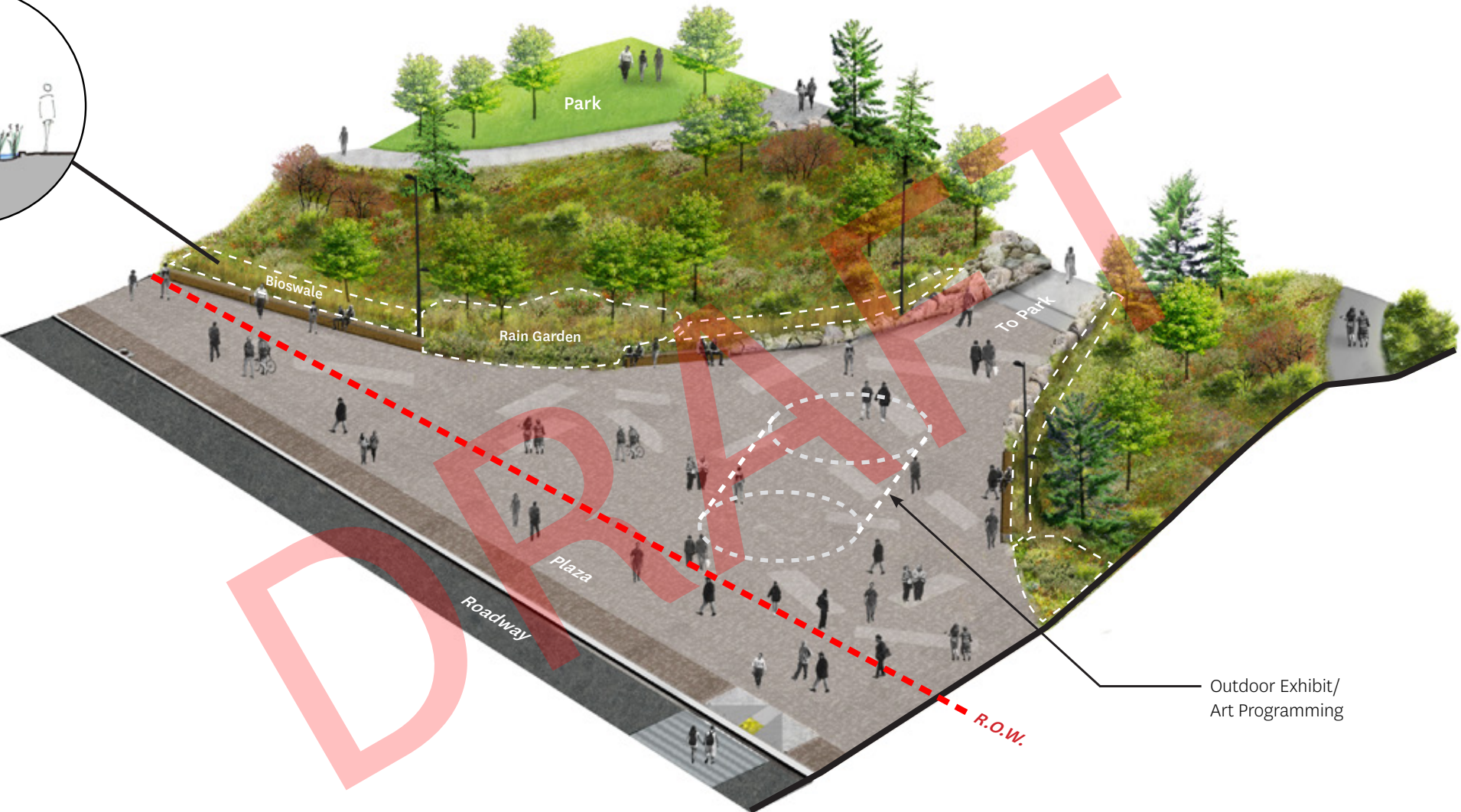
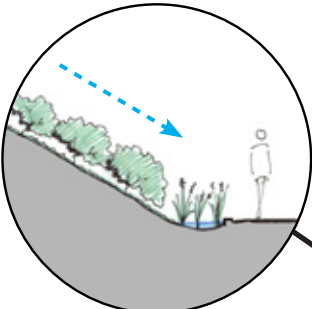
# Trinity Blvd: Unify the Island Edge



- Urban - Park interface
- Plaza at Centre Street park entry
- Windbreak land forms at Promontory Park

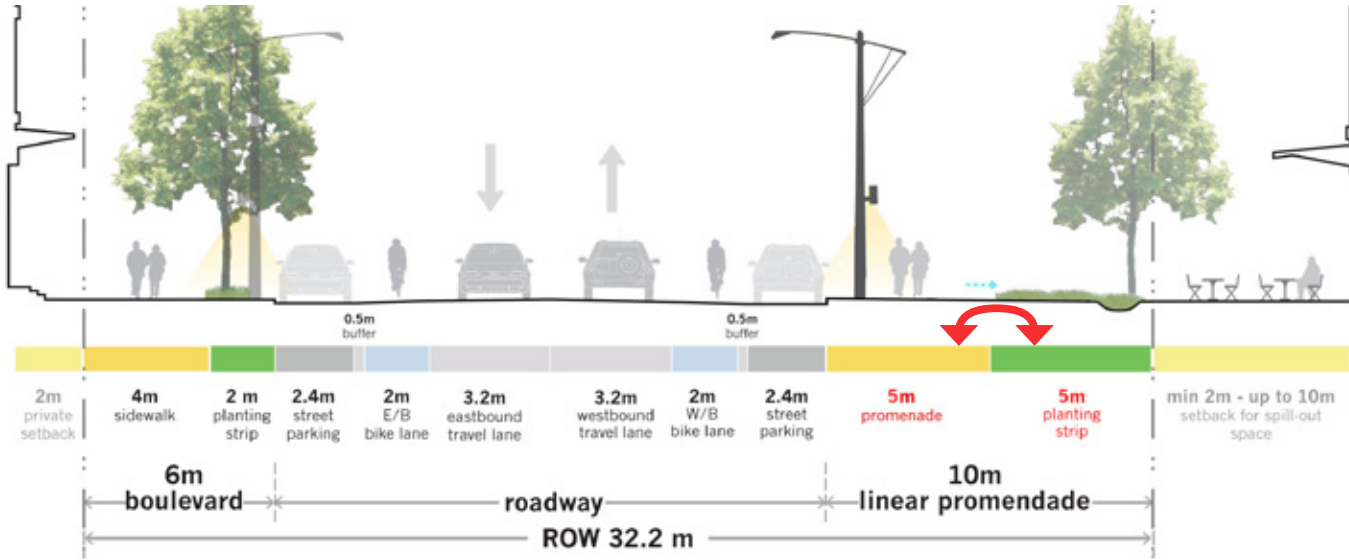


# Park Entry

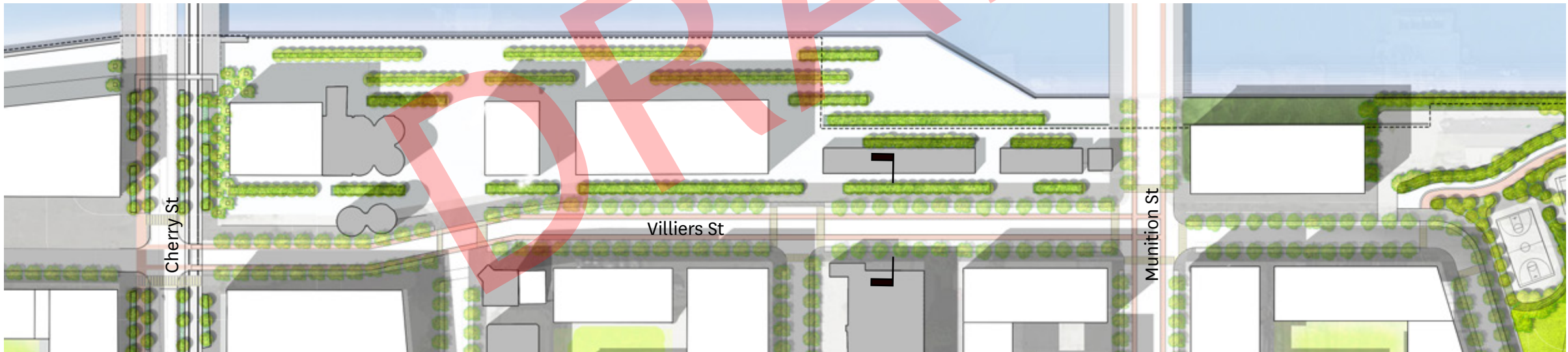


Outdoor Exhibit/  
Art Programming

# Villiers Street: Unify the Island Edge

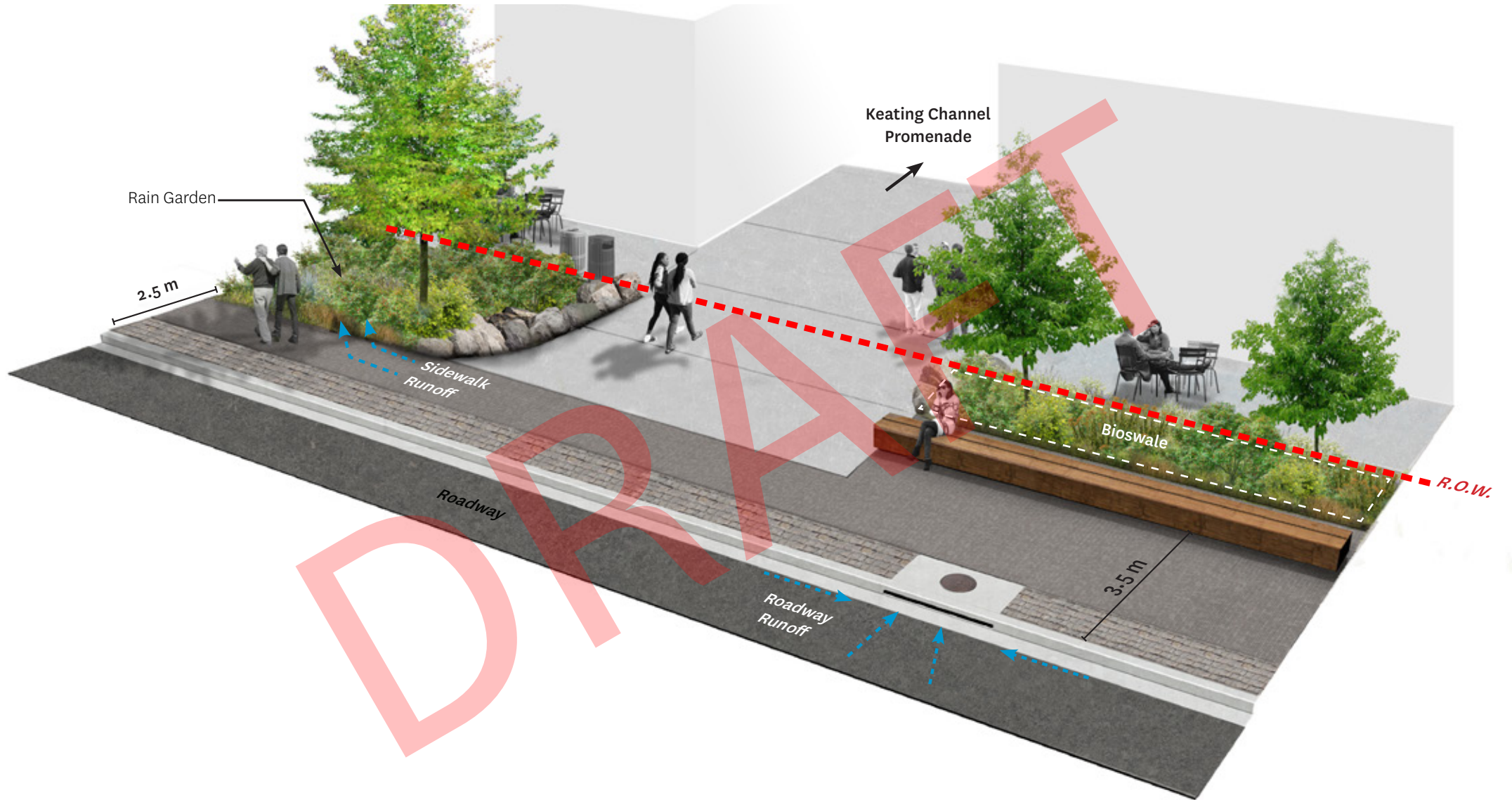


- Access to Keating Channel
- Plazas and seating
- Interface with Heritage Structures





# Villiers Street



# PLFPEI Project - Full Vision

