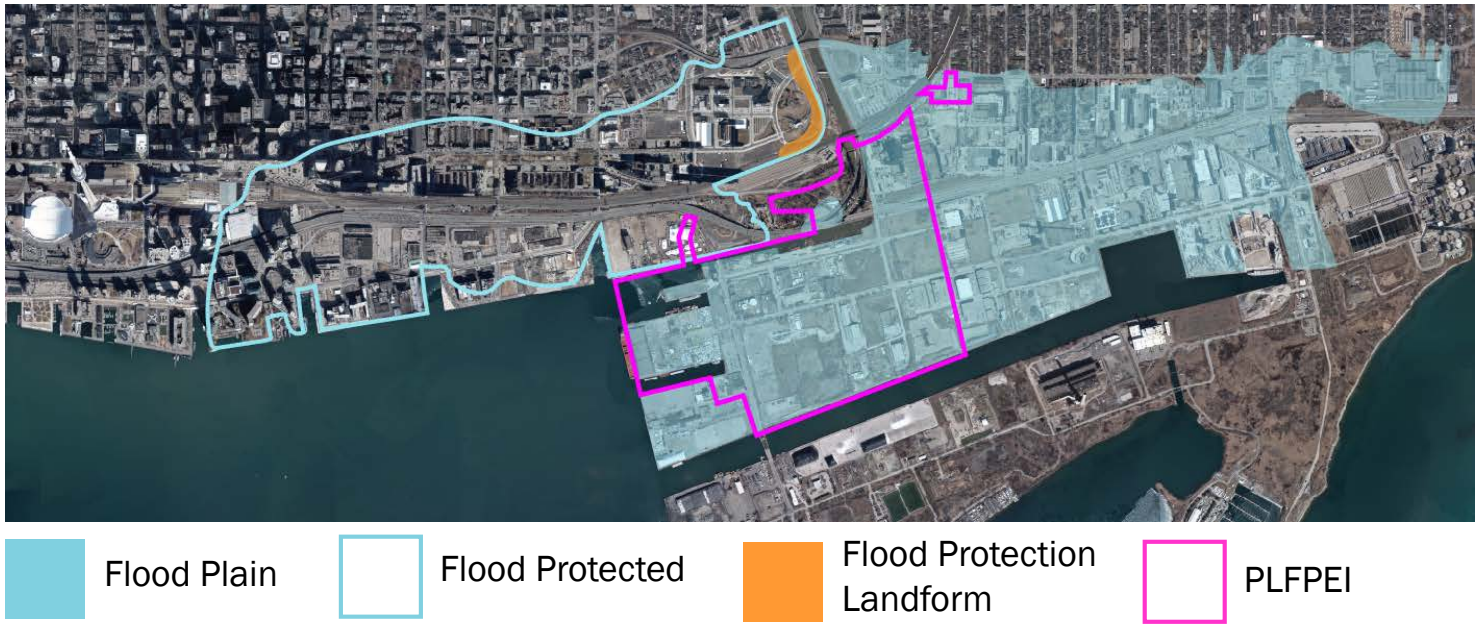
Port Lands Flood Protection and Enabling Infrastructure: Bridges and Roads (Cherry Street)

Detailed Design

November 21, 2018

Project Description and Background

- 290 hectares of southeastern downtown Toronto are at risk of flooding from the Don River watershed
- The Port Lands Flood Protection and Enabling Infrastructure Project is a comprehensive solution to flood protection
- The presentation will focus on:
  - PLFP Bridges
  - PLFP Roads - Cherry Street only



What are we building?

- A Cherry Street Stormwater and Lakefilling
- B Polson Slip Naturalization
- C Flood Protection - River Valley
- D Don Greenway (Spillway & Wetland)
- E Don Roadway Valley Wall Feature
- F East Harbour Flood Protection Land Form
- G Sediment and Debris Management Area
- H Flow Control Weirs
- I Eastern Avenue Flood Protection
- J Villiers Island Grading
- K Keating Channel Modifications
- L Promontory Park South
- M River Park
- N Lake Shore Road and Rail Bridge Modifications
- O Cherry Street Bridge North
- P Cherry Street Bridge South
- Q Commissioners Street Bridge
- R Old Cherry Street Bridge Demolition
- S Site Wide Municipal Infrastructure
- T Don Roadway
- U Hydro One Integration
- V Commissioners Street
- W Cherry Street Re-alignment

- Port Lands Flood Protection and Enabling Infrastructure Boundary
- Earthworks/Flood Protection
- Parks
- Bridges & Structures
- Roads and Municipal Infrastructure

Bridges and Structures

- A Cherry Street Stormwater and Lakefilling
- B Polson Slip Naturalization
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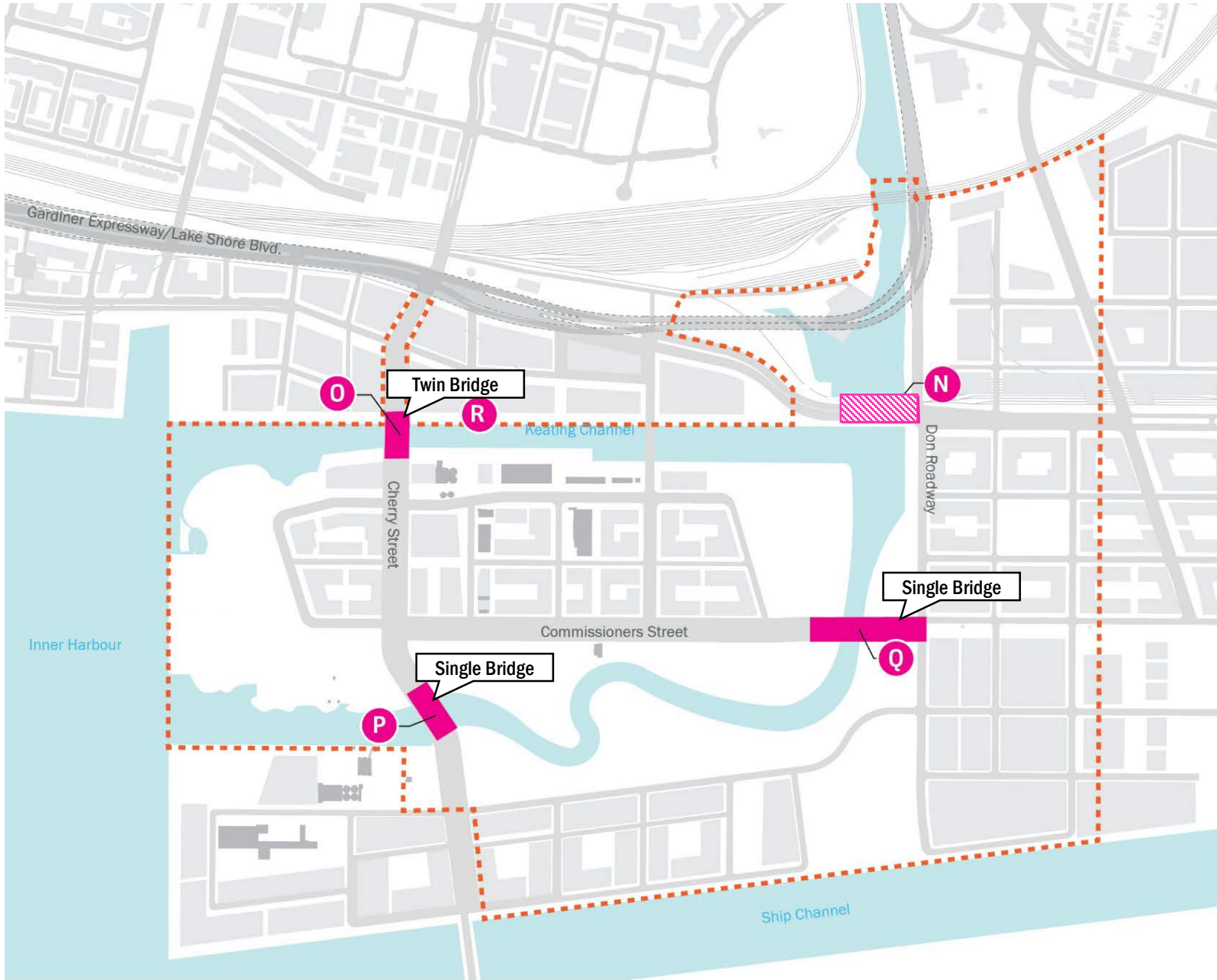

Roads and Municipal Services

- A Cherry Street Stormwater and Lakefilling
- B Polson Slip Naturalization
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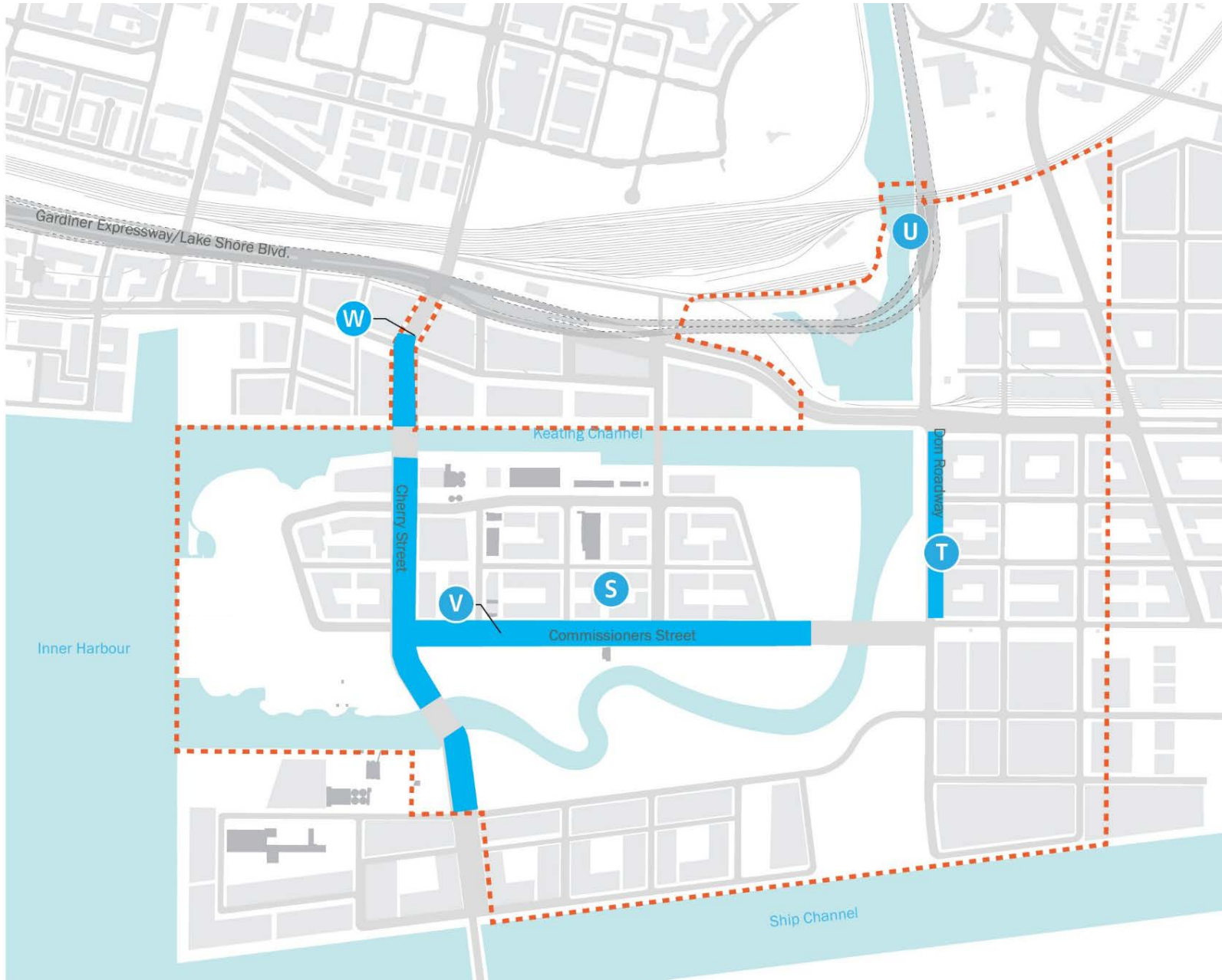


Team Structure

Parks, Flood Protection & River Valley

- All flood protection elements
- Park and wetland design
- Integration of all four streams

MVVA

Roads and Municipal Infrastructure

- Public realm design
  - Cherry Street
  - Don Roadway
  - Commissioners Street
- All municipal services

WSP with DTAH

Bridges

- Cherry Street North Bridge
- Cherry Street South Bridge
- Commissioners Street Bridge
- Lake Shore Bridge
- Integration with roads and municipal services

Entuitive with Grimshaw & SBP

Environmental

- Environmental permits
- Baseline environmental information and modeling
- Soil and groundwater remediation and risk management design
- Environmental monitoring plans

Jacobs (CH2M)

Policy Context – Central Waterfront Secondary Plan

C21_The mouth of the Don River will be rerouted through lands south of the rail corridor. This will improve the ecological function of the river, provide flood protection for the Port Lands and East Bayfront and attract new wildlife to the area. The renaturalized mouth of the river will also become a key open space and recreational link to the Don Valley, West Don Lands, Port Lands and waterfront park system. This enhanced river setting will provide a gateway to the new urban communities in the Port Lands. Pedestrian and cyclist's bridges over the river mouth will be designed as signature entrances of beauty and inspiration

(P28) Lakefilling will be considered only for stabilizing shorelines, improving open spaces, creating trail connections, preventing siltation and improving natural habitats and is subject to Provincial and Federal Environmental Assessment processes. Consideration will be given to the impact of such lakefilling on recreational uses.

D22_OPENING UP THE PORT LANDS TO URBAN DEVELOPMENT - The vast Port Lands, an area more than 14 times the size of London's Canary Wharf, will be cleaned up and opened to a range of urban development opportunities. The Port Lands will become Toronto's springboard to the future, a place for wealth creation, originality and creativity in all aspects of living, working and having fun. The Port Lands will be transformed into a number of new urban districts set amid the hustle and bustle of Toronto's port activities. An enticing environment conducive to the creation of an international Centre for Creativity and Innovation for knowledge-based industries, film and new media activities will be nurtured. It will be a part of the city where "green" industries can be incubated and thrive. The new Port districts will be supported by a rich infrastructure of recreational, cultural and tourist amenities.

Port Lands Framework Plan: Bridges

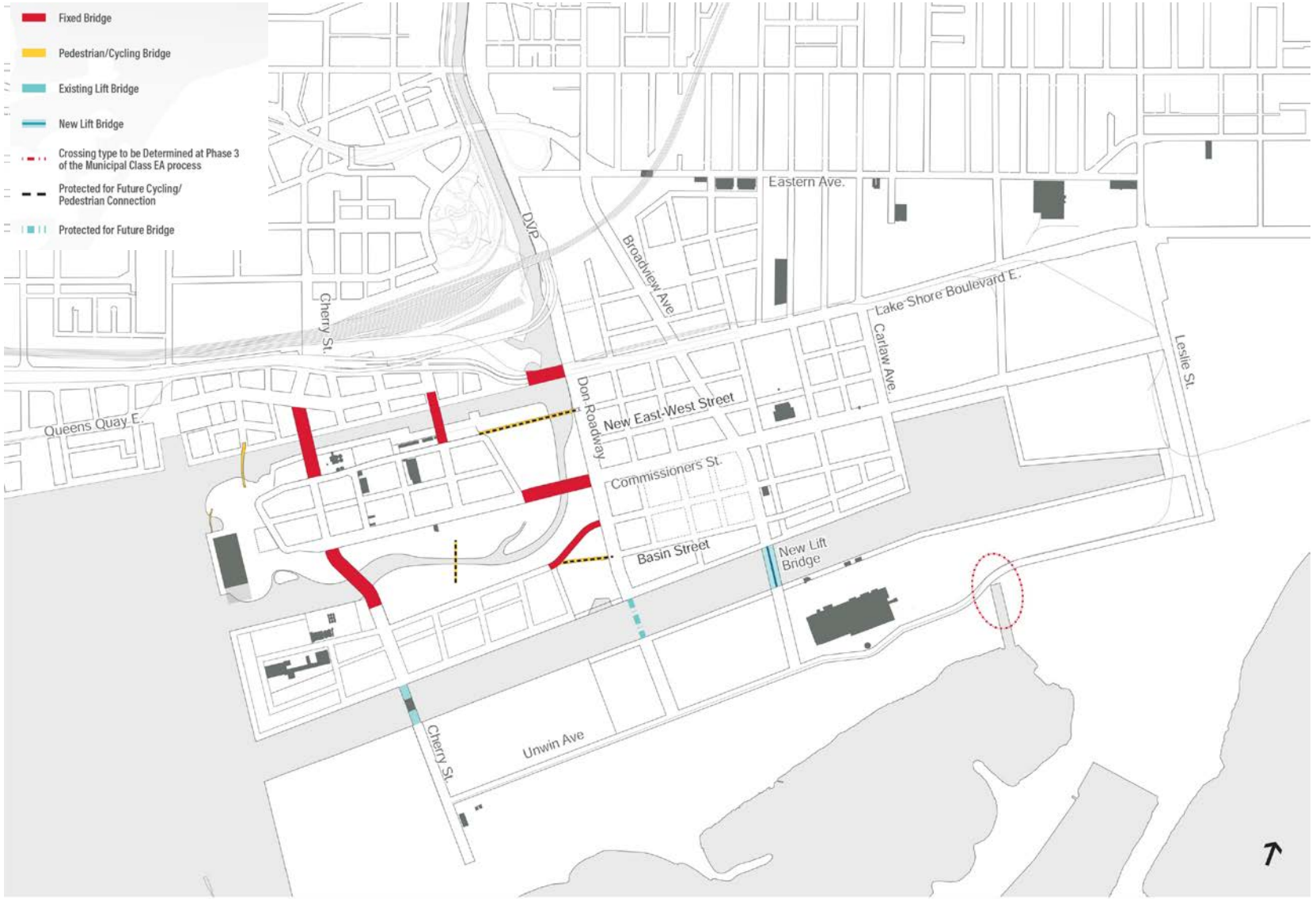
Port Lands Flood Protection: Bridges and Roads (Cherry Street)

Review Stage: Detailed Design

Proponent: Waterfront Toronto

Design Team: Entuitive with Grimshaw and SBP (Bridges) WSP with DTAH (Roads)

- Bridges will be important elements of the overall transportation system, providing connection across the Port Lands' many utilitarian and naturalized waterways.
- The bridges will reflect appropriate levels of utility and design excellence to complement the unique characteristics and qualities of the accompanying river and park system.
- Space will be provided to accommodate dedicated higher order transit lanes on Cherry Street and Commissioners Street and within the new bridge across the river at Cherry Street.



Port Lands Framework Plan - Roads

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Complete Street Principles

Transit Prioritization through the use of dedicated transit rights-of-ways will improve the reliability of transit routes and convenience for passengers.

Minimum Lane Widths will assist in making streets safer and more pedestrian friendly. Narrower pavement widths contribute to safer vehicle speeds.

Bicycle Lanes + Cycle Tracks provided on all major streets will create a well-connected, robust and safe cycling network enabling active transportation as a primary means of moving in and through the area.

Wide Sidewalks with unobstructed, accessible pedestrian clearways will encourage walking and contribute to the overall vibrancy of in the Port Lands and South of Eastern public realm.

Accommodation of Goods Movement to ensure the continued economic vitality of live-industry. Critical goods movement corridors will be designed with suitable conditions for truck access balanced with other complete street objectives.

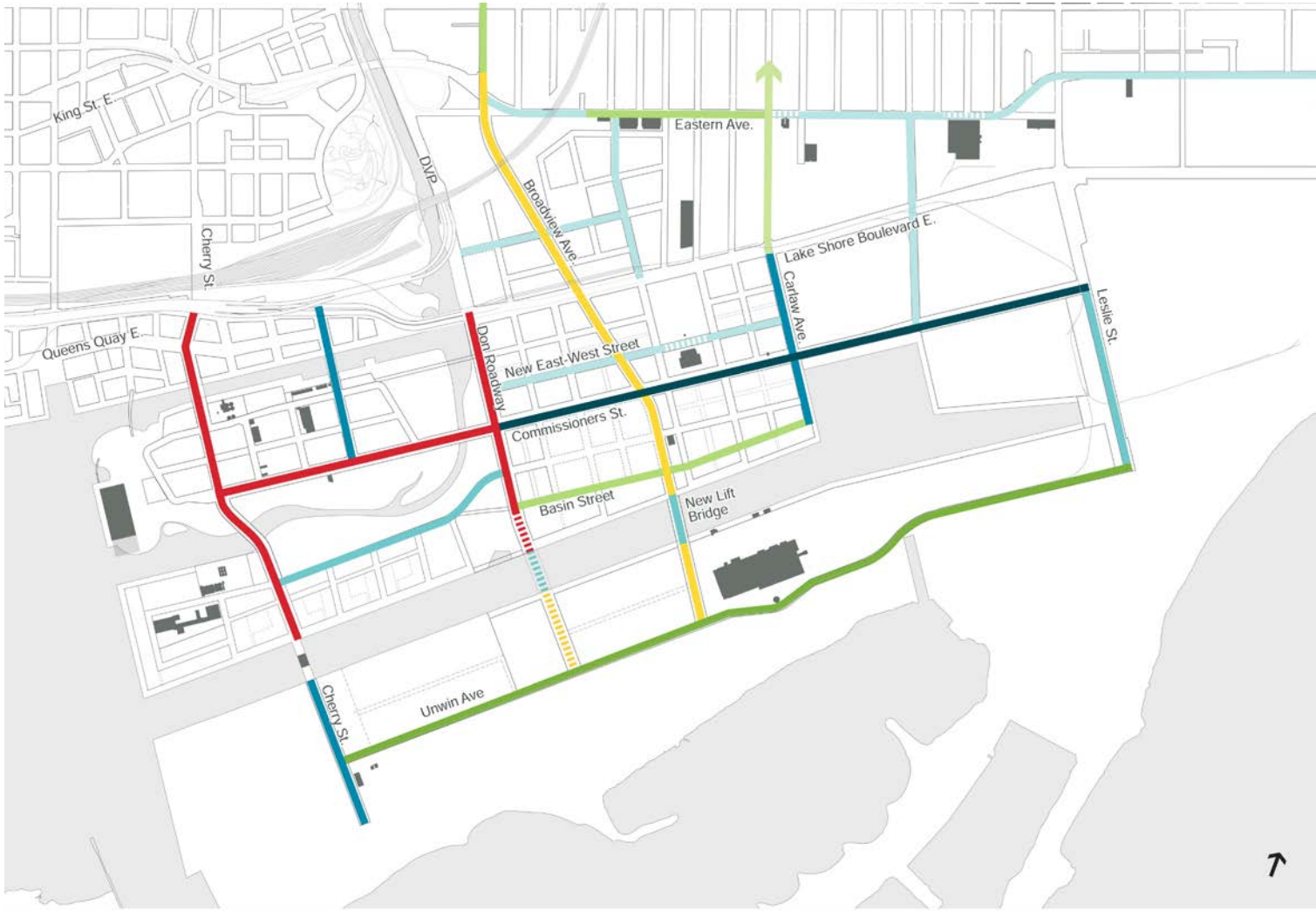
Water as a Community Resource and other greenscape elements will divert stormwater and allow for infiltration while also improving air quality, providing habitat and adding visual interest to an area. Streets celebrate and embrace stormwater as a valuable resource and provide access for LIFE!

Permeable Surfaces for roadways and sidewalks will reduce flooding, preserve capacity in storm drains and sewers where provided and add visual interest in the overall street design.

Street Trees with adequate room to grow and high-quality soil conditions provide shade, beauty and wildlife habitat. They also reduce air pollution and energy consumption.

Pedestrian + Cycling Amenities are important elements to be considered in the design of streets and encourage people to be on our streets. Benches, bike rings, pedestrian-scaled lighting, weather protection, garbage and recycling receptacles and public art, among others, will be provided.

Innovative Features such as the port / industrial / infrastructural qualities of the study area will contribute to the character of the area. Other features like electric vehicle charging stations, bicycle and car sharing stations and renewable energy features will contribute to a sustainable future for the area.



Recap

Roads – September 26:

- The streets require a stronger identity, whether it be through planting or materials.
- Recapture the industrial heritage of the site back into the revised road design
- Ensure that the pedestrian and bicycle lanes have adequate separation
- Consider making pedestrian connections into the river valley at the termination of each north-south street
- The left hand turning lane on Commissioners requires further thinking. Ensure that the configuration is straightforward.

Bridges – July 25:

- Overall the Panel felt that this project is on the right track
- The design of the balustrades requires further refinement to maximize transparency while maintaining cohesiveness with the rest of the bridge design.
- Ensure that safety concerns are addressed, specifically with kids climbing on the arches.
- The design of the fins requires further thinking. They should be less prominent.
- Ensure that there are adequate ways of getting down to the river from the bridge level.
- Provide further detail on how the landscape relates to the bridges.
- Refine the piers and the treatment of the visible underside of the bridge

Areas for Panel Consideration

Bridges:

- The revised balustrade design
- The revised lighting strategy
- The proposed colour options
- The underside of the bridges

Cherry Street:

- Consideration of the design team's effort to make visible the management of water within the streetscape
- Clarification of the planting scheme and what it seeks to achieve
- Strengthening of the individual identity of Cherry Street through materials and plant palette

Port Lands Flood Protection & Enabling Infrastructure
Cherry Street Detailed Design 90%

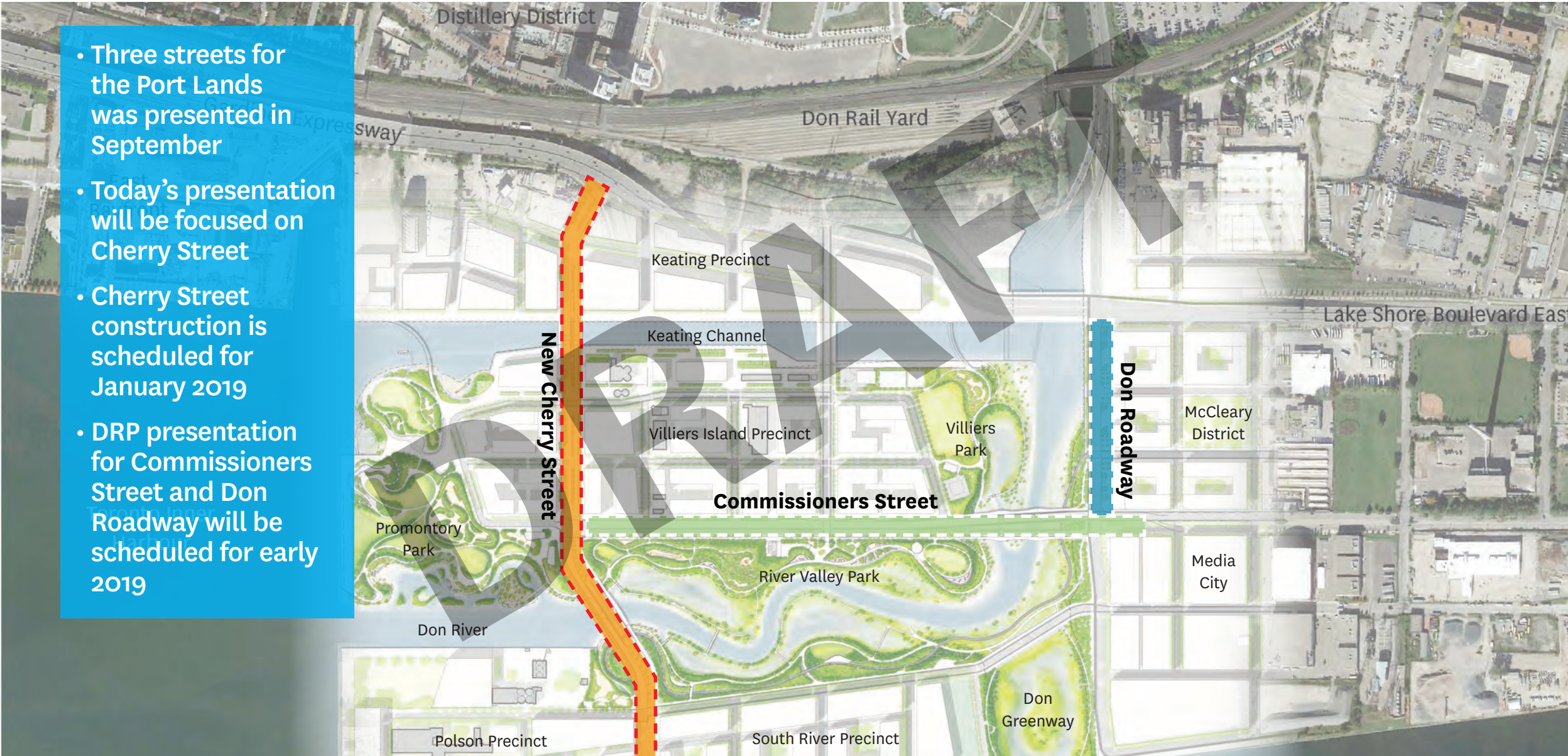
Waterfront Toronto Design Review Panel:
Fourth Submission

21 November 2018

WSP • DTAH

Three Streets for the Port Lands

- Three streets for the Port Lands was presented in September
- Today's presentation will be focused on Cherry Street
- Cherry Street construction is scheduled for January 2019
- DRP presentation for Commissioners Street and Don Roadway will be scheduled for early 2019



Design Review Panel Comments

September 26, 2018

Panel Comments:

Show storm water management and where it goes.

Storm water management and other green infrastructure strategies will be presented.

Focus more on the design aspect of the street's identity.

Proposed design responds to the scale, adjacency and function of Cherry Street

Suggested using a unique tree typology on the streets.

Cherry Street's tree typology is unique to its urban characteristic and tolerance to road salt.

Are the left-hand turn lanes necessary and can the roads be narrowed?

Turning lanes are provided where necessary. Road widths have been reviewed and narrowed where feasible.

Texture and quality of materials are resilient to ensure that they are not value engineered out of the design.

Materiality will be presented.

Consensus Comments:

The streets require a stronger identity, whether it be through planting or materials.

Cherry Street's urban boulevard identity will be presented.

Recapture the industrial heritage of the site back into the revised road design.

Focus included material selection, scale and site organization of elements.

Ensure that the pedestrian and bicycle lanes have adequate separation

Pedestrians and bicycle lanes are physically separated by a raised planters. Where space is restrictive, a minimum 0.6m buffer is provided. This buffer will be a material change to provide tactile and visual cues.

Consider making pedestrian connections into the river valley at the termination of each north-south street

Pedestrian connections into the River Valley Park will be presented.

The left hand turning lane requires further thinking. Ensure that the configuration is straightforward.

A straightforward configuration is proposed where there will be a continuous left hand turning lane along Cherry Street

New Cherry Street

Urban Boulevard to Forest

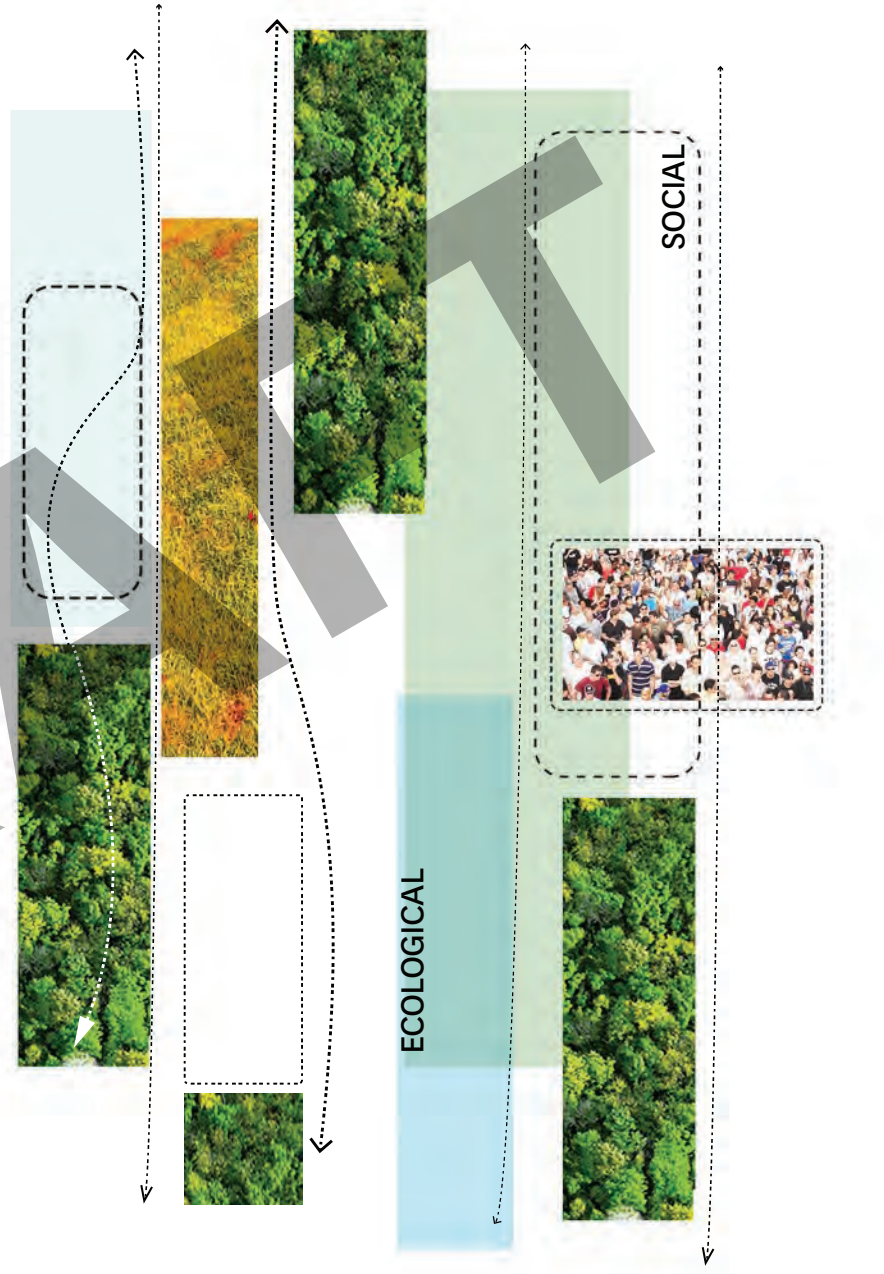
DRAFT

New Cherry Street

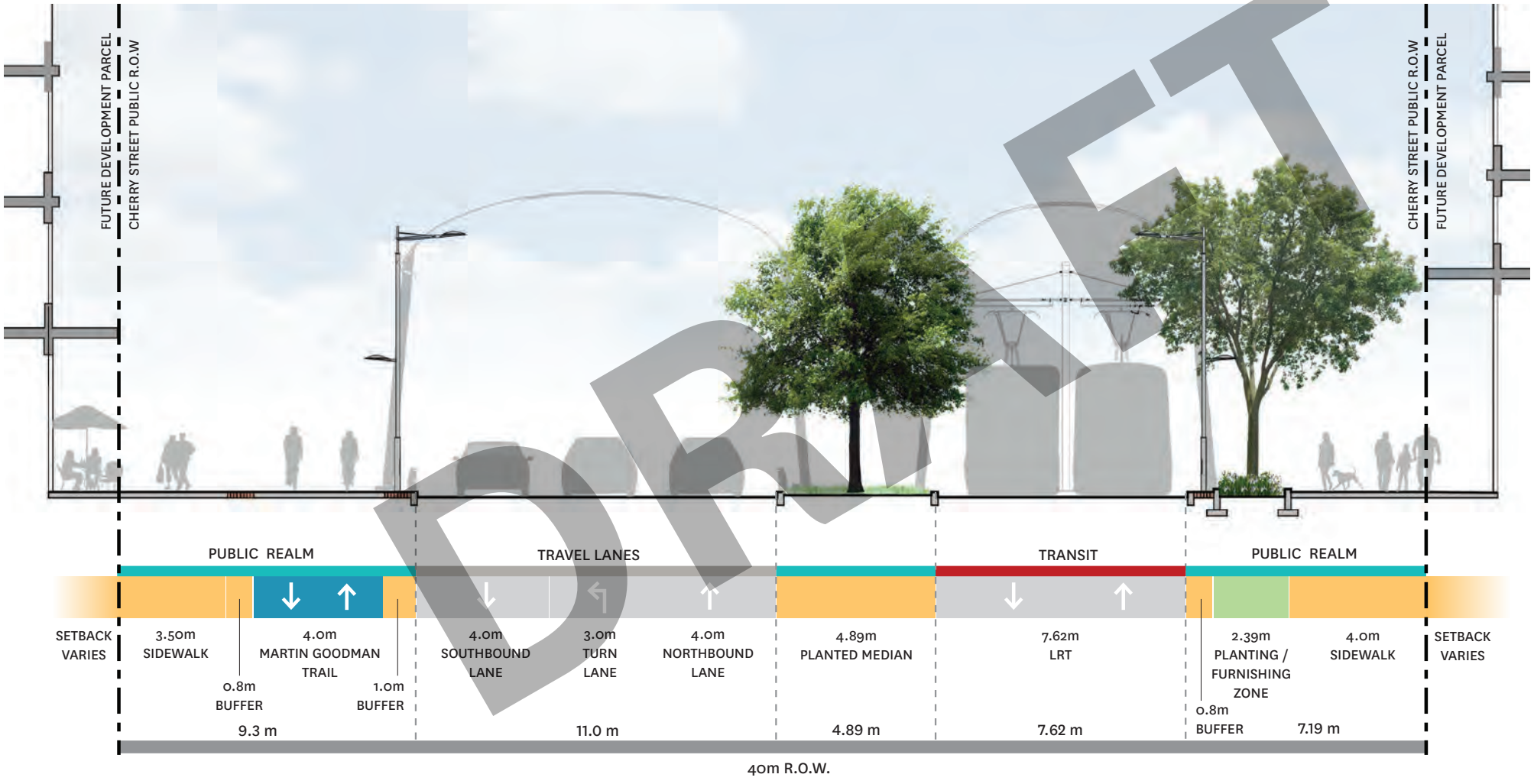
Cherry Street will be the **gateway** into the Port Lands - an urban green spine

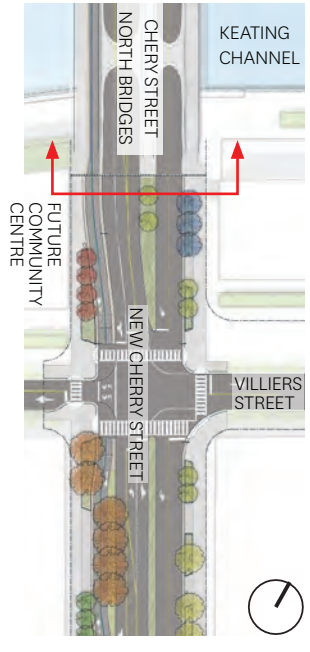
Offering a sequence of spaces, moments - **"urban rooms"** and a heirarchy of flows

Design integrates **social spaces** within an **ecologically responsible** storm water management and robust urban tolerant planting.



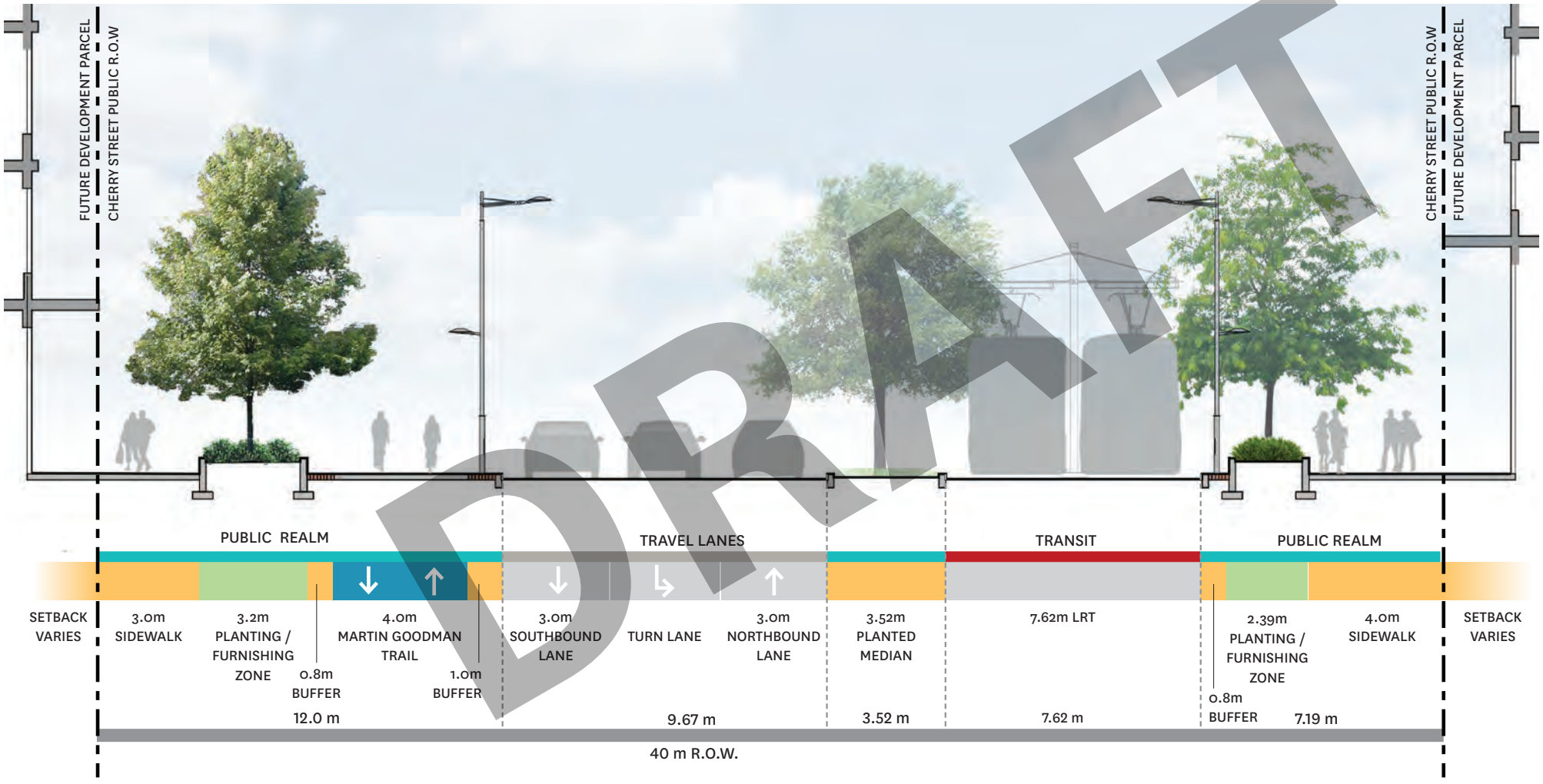
Cross Section - Near Bridge Abutment

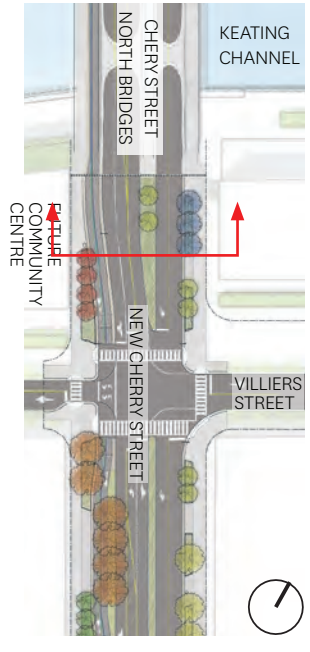




KEY PLAN

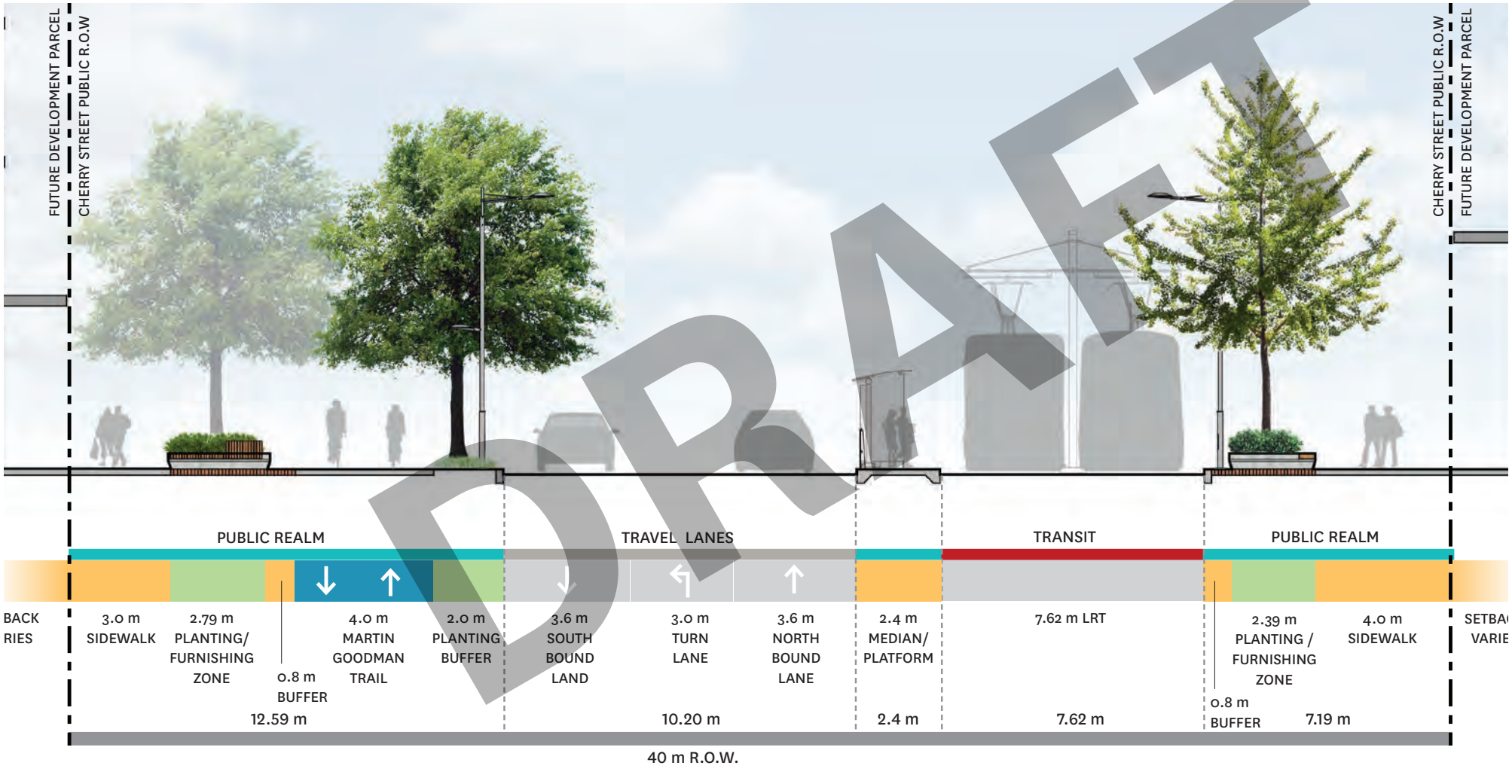
Cross Section - Near Intersections

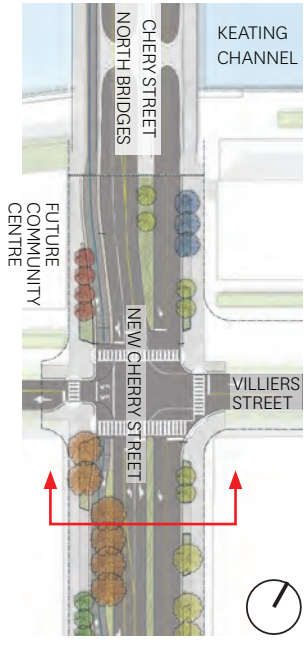




KEY PLAN

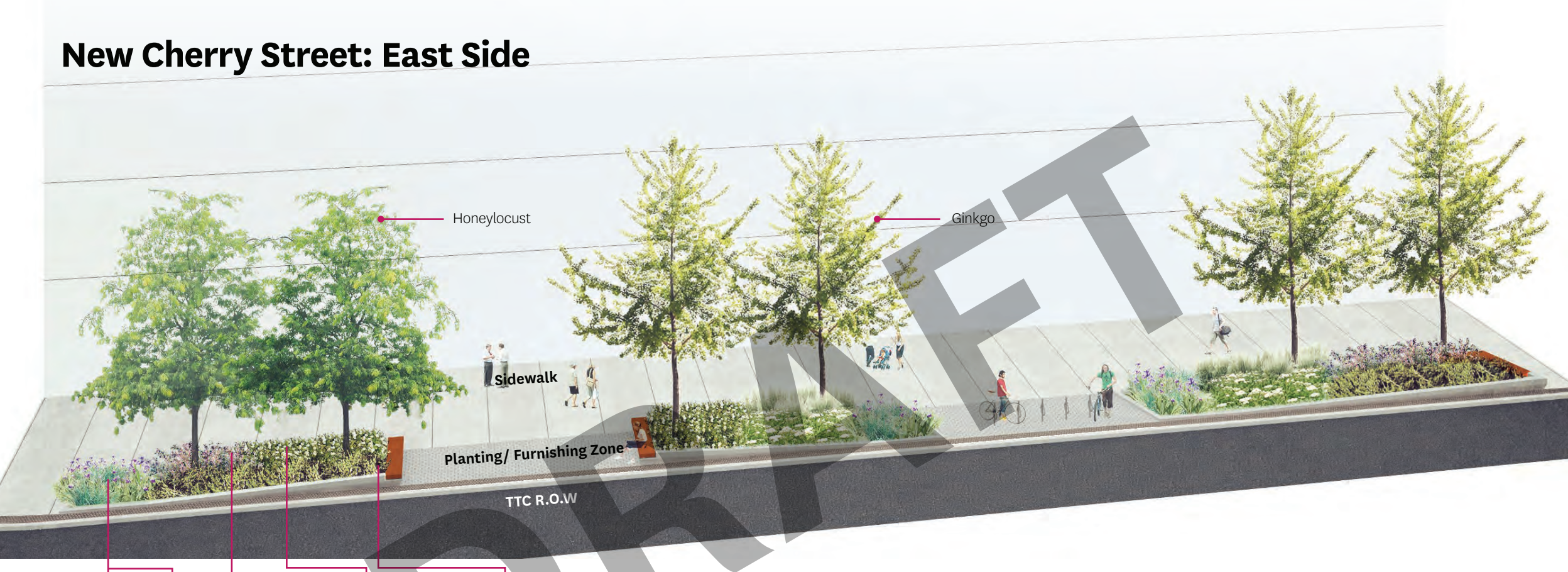
Cross Section - At Mid-Block





KEY PLAN

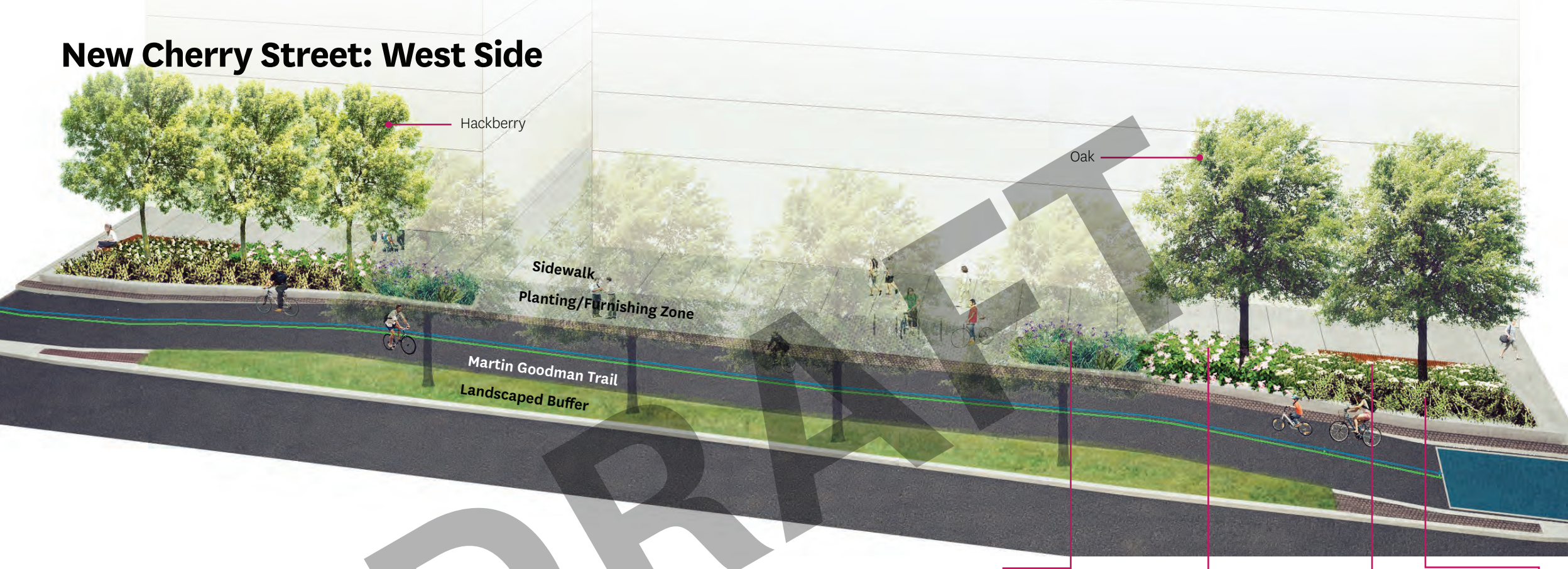
New Cherry Street: East Side



Understorey Planting Diagram

New Cherry Street: East Side

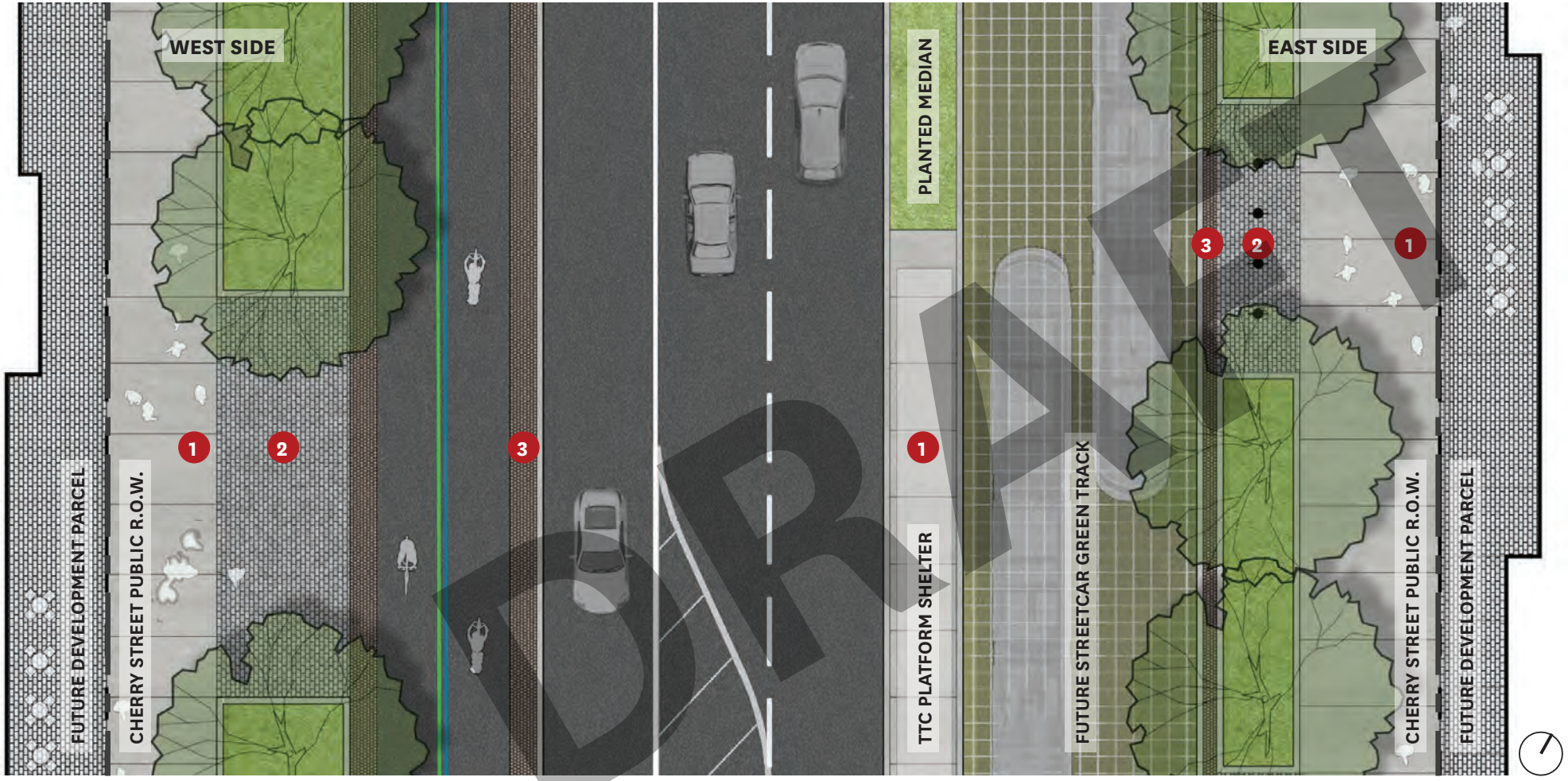
New Cherry Street: West Side



Understorey Planting Diagram

New Cherry Street: West Side

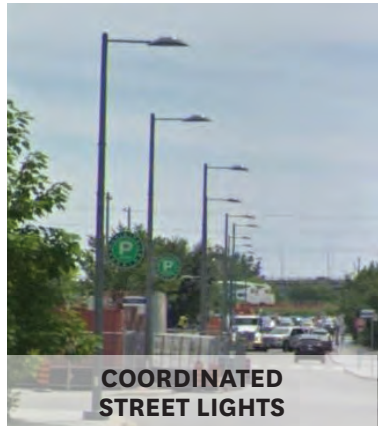
Materiality



1. CAST-IN-PLACE CONCRETE - STANDARD BROOM FINISH
2. 120 x 240 x 80mm LIGHT GREY CONCRETE UNIT PAVER (PERMACON PALEOTEC)
3. 100 x 100 x 80mm CALEDONIA GRANITE (POLYCOR)

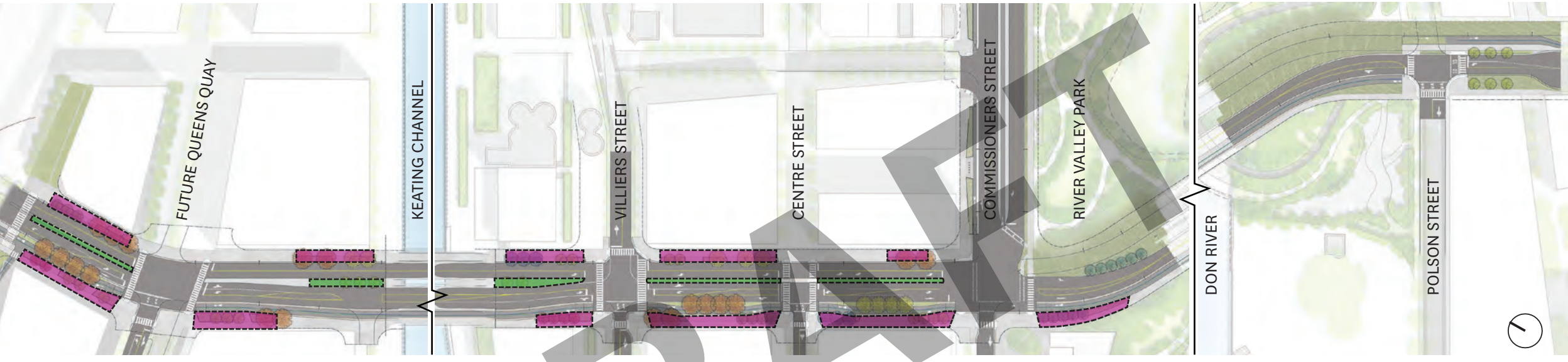
PAVERS

WOOD TOP SEAT



COORDINATED STREET LIGHTS

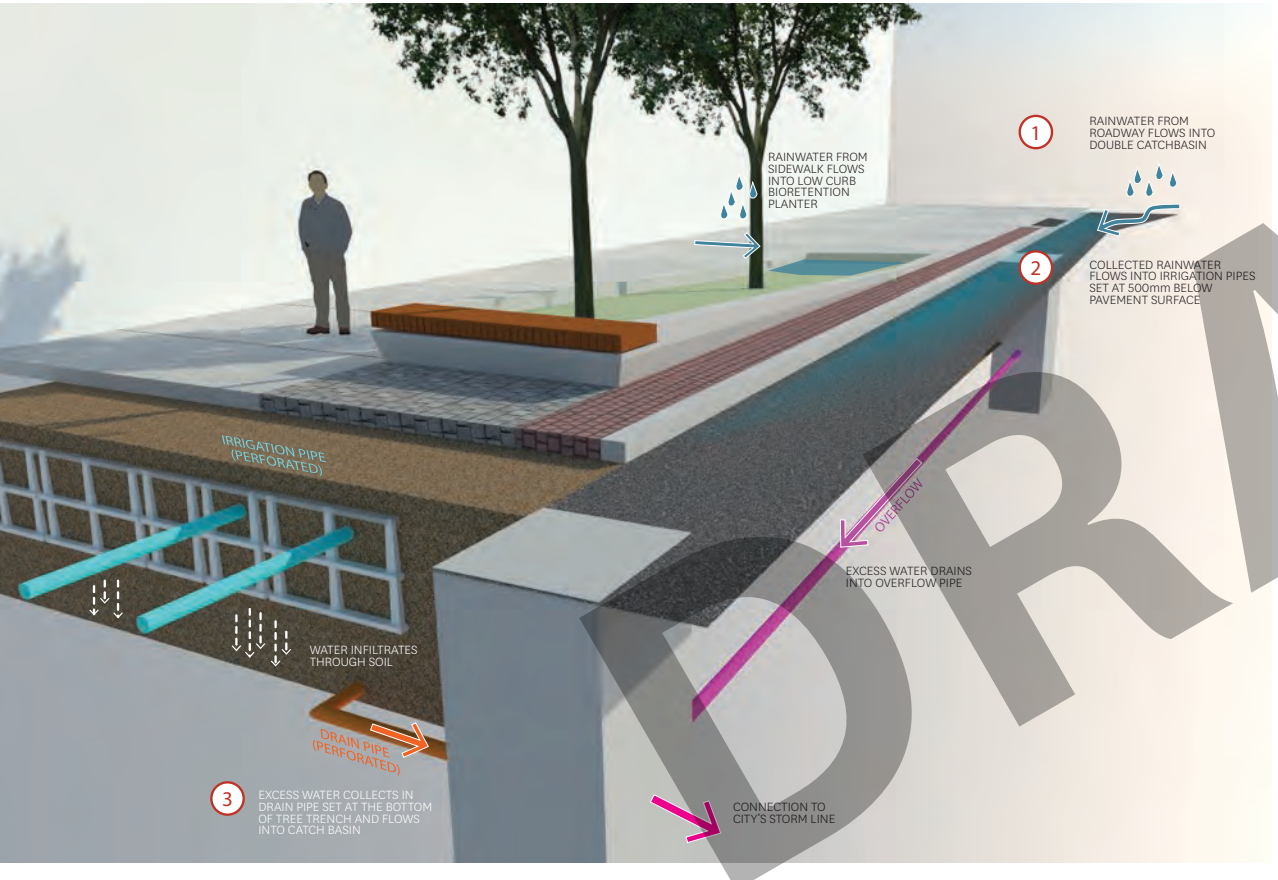
Green Infrastructure: Bioretention Planters, Green Medians, and Porous Asphalt

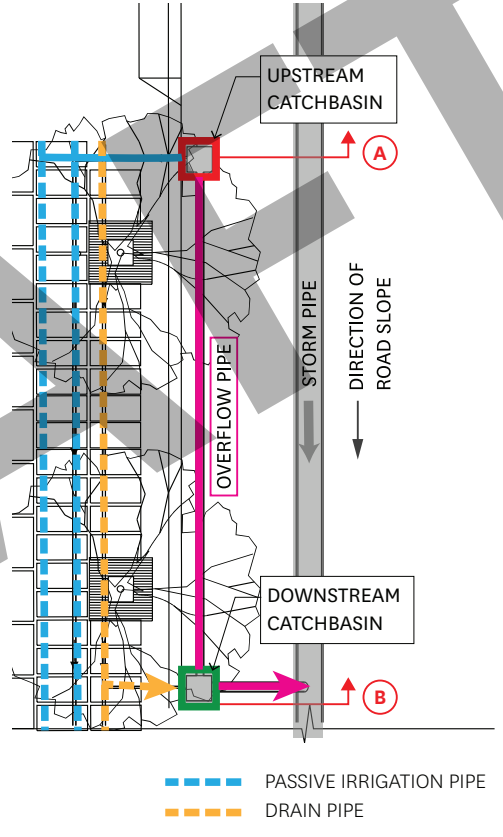


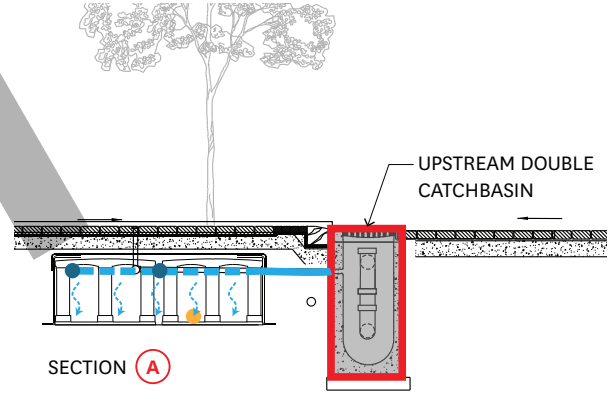

BIORETENTION PLANTERS

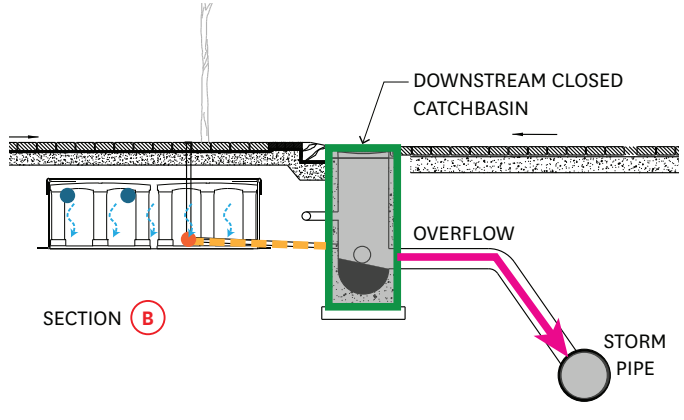

GREEN MEDIANS
*under review

Green Infrastructure: Rainwater Re-use for Passive Irrigation





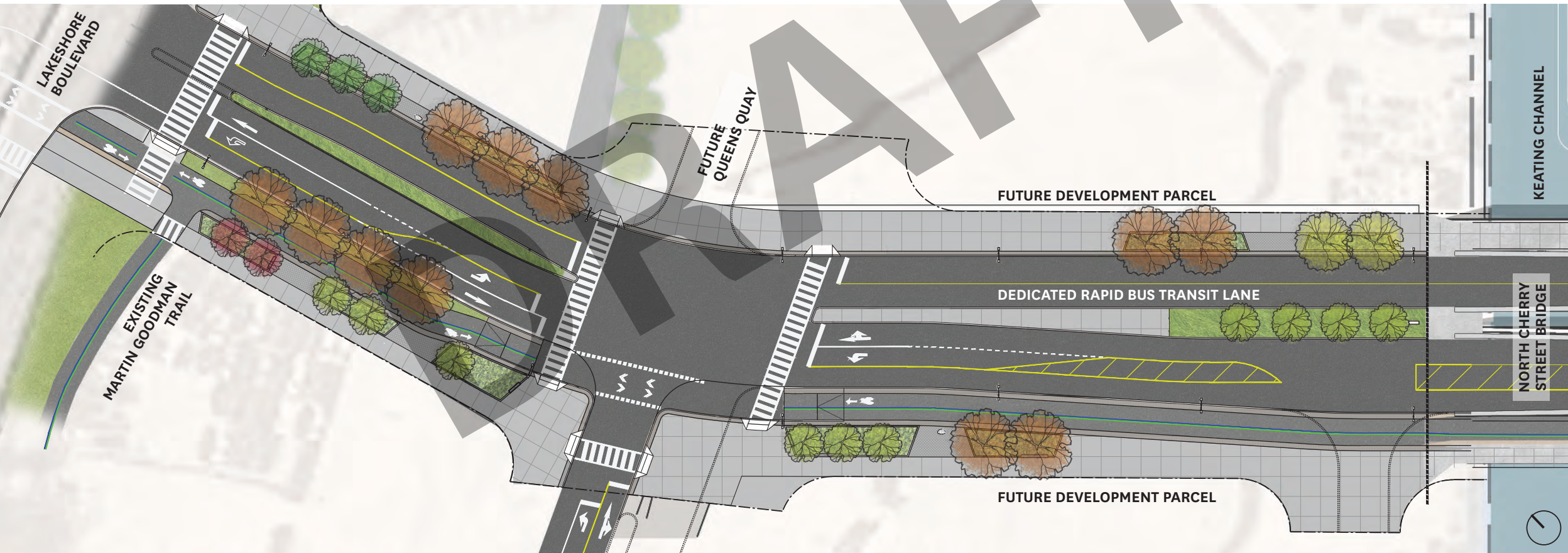




Lakeshore Boulevard to Cherry Street North Bridge

Tree Planting Legend

- ***Acer x fremanii* 'Autumn Blaze'** Freeman Maple
- ***Ginkgo biloba*** Ginkgo
- ***Gleditsia triacanthos*** Thornless Honey Locust
- ***Ulmus* 'Homestead'** Homestead Elm
- ***Celtis occidentalis*** Common Hackberry
- ***Gymnocladus dioicus*** Kentucky Coffeetree
- ***Quercus bicolor*** Swamp White Oak



Cherry Street North Bridge to Centre Street

Tree Planting Legend

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- ***Celtis occidentalis*** Common Hackberry
- ***Ginkgo biloba*** Ginkgo
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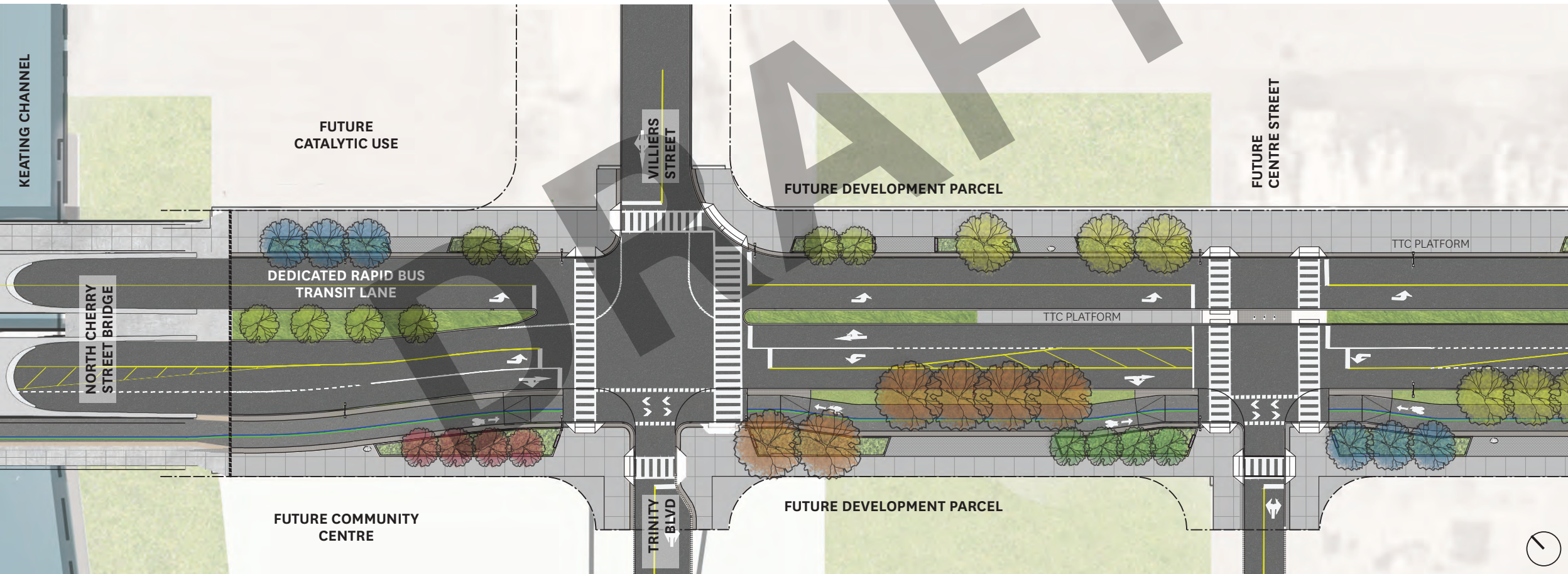
- ***Gleditsia triacanthos*** Thornless Honey Locust
- ***Quercus bicolor*** Swamp White Oak
- ***Ulmus* 'Homestead'** Homestead Elm



Centre Street to Cherry Street South Bridge

Tree Planting Legend

***Acer x fremanii* 'Autumn Blaze'**
Freeman Maple

Ginkgo biloba
Ginkgo

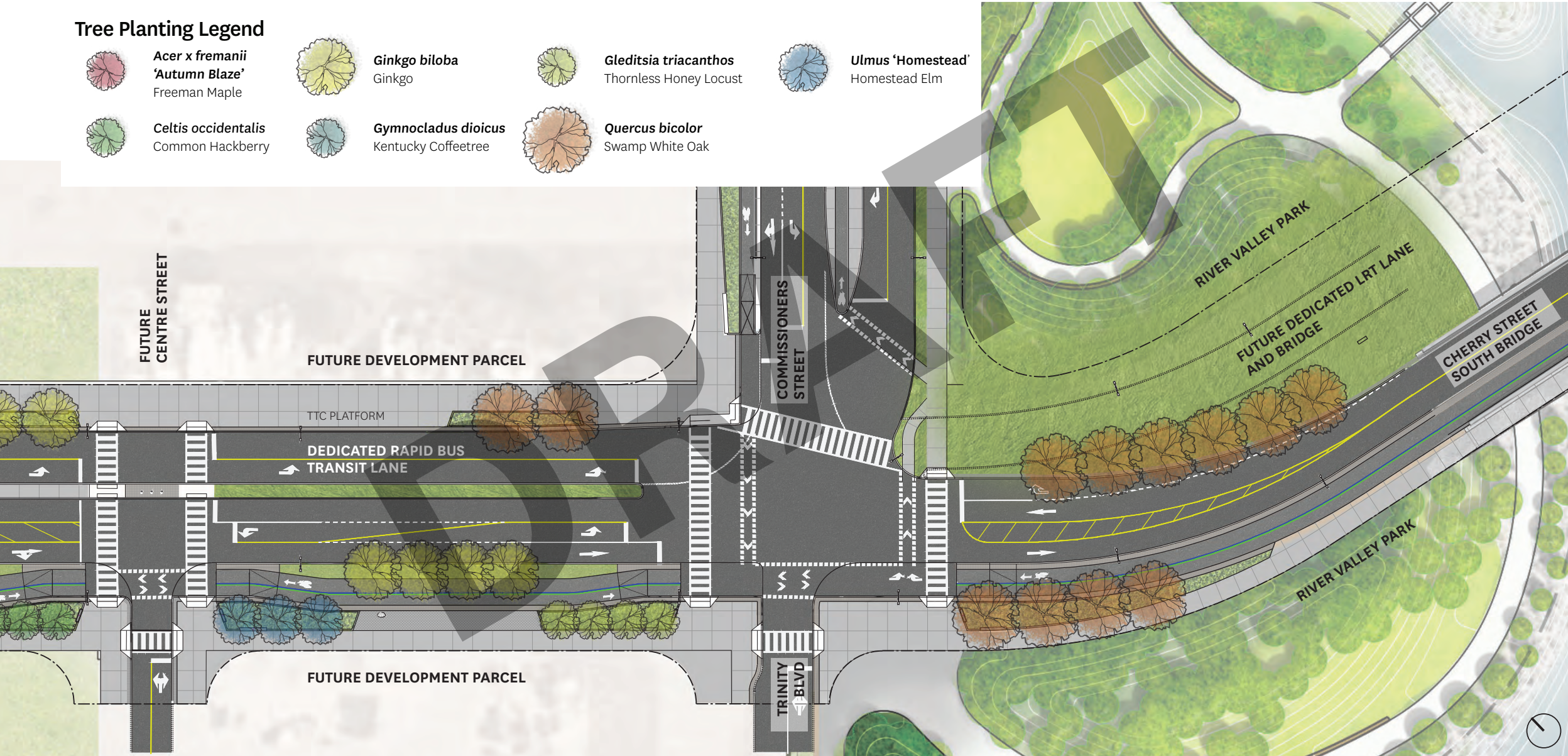
Gleditsia triacanthos
Thornless Honey Locust

***Ulmus* 'Homestead'**
Homestead Elm

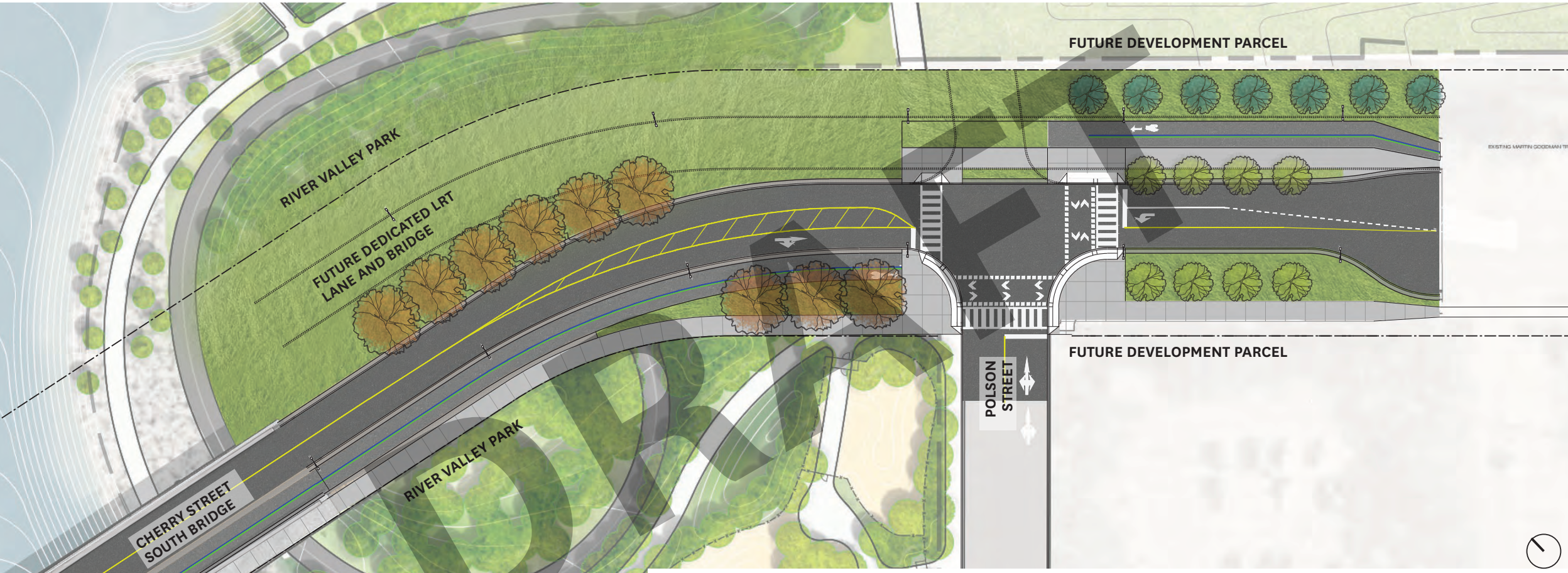
Celtis occidentalis
Common Hackberry

Gymnocladus dioicus
Kentucky Coffeetree

Quercus bicolor
Swamp White Oak



Cherry Street South Bridge to Polson Street



Tree Planting Legend

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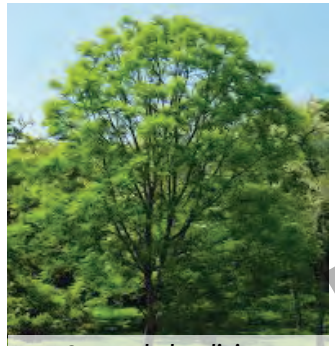
Planting Strategy: Tree Selection + Seasonal Interests

Acer x fremanii 'Autumn Blaze'
Freeman Maple*

Celtis occidentalis
Common Hackberry

Ginkgo biloba
Ginkgo



Gymnocladus dioicus
Kentucky Coffeetree

Gleditsia triacanthos
Thornless Honey Locust

Quercus bicolor
Swamp White Oak*

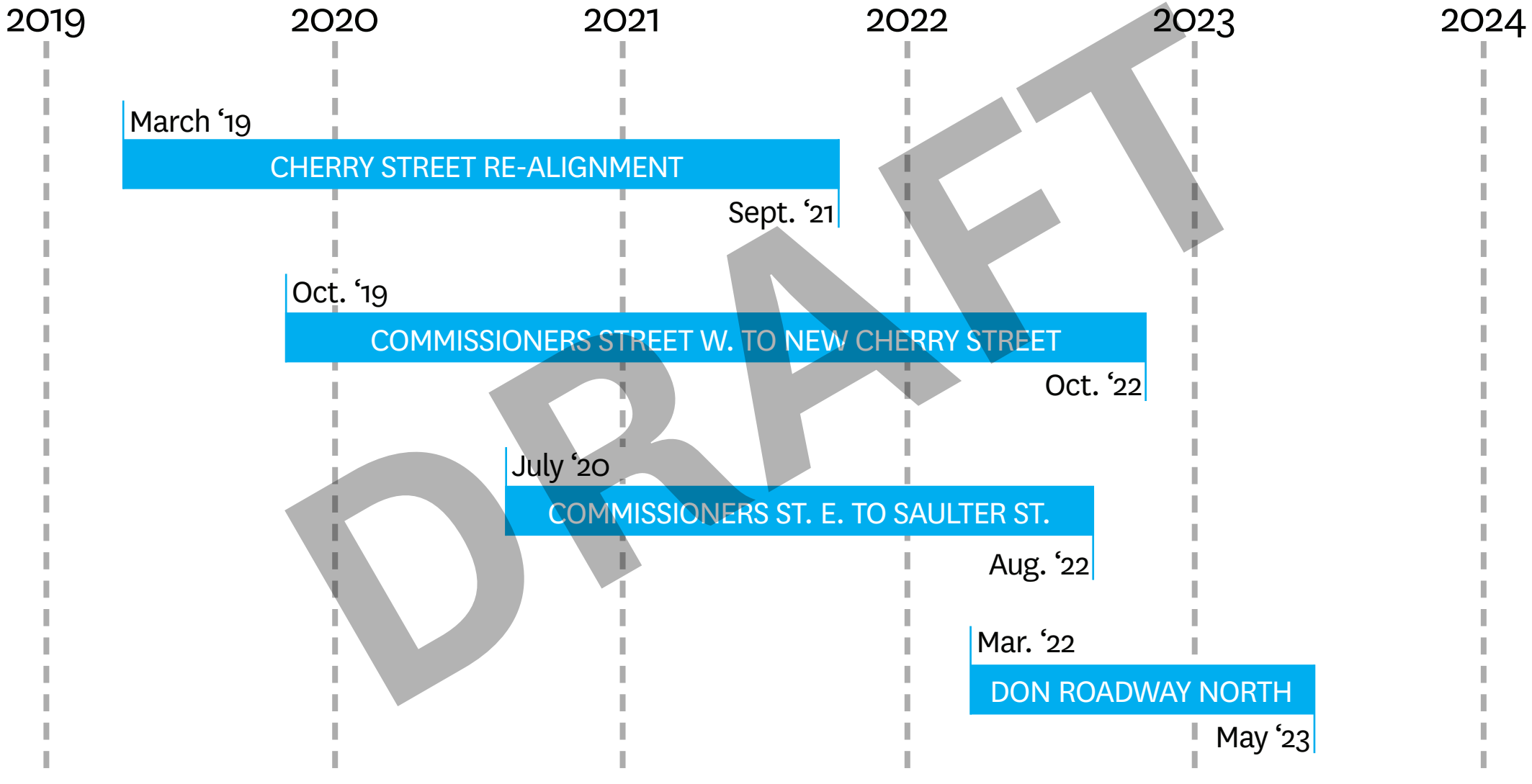
***Ulmus* 'Homestead'**
Homestead Elm

* tolerates wet soil

Planting Strategy: Understorey Planting + Seasonal Interests

* tolerates wet soil

Project Schedule - Anticipated Construction Schedule

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