Port Lands Flood Protection and Enabling Infrastructure: Roads

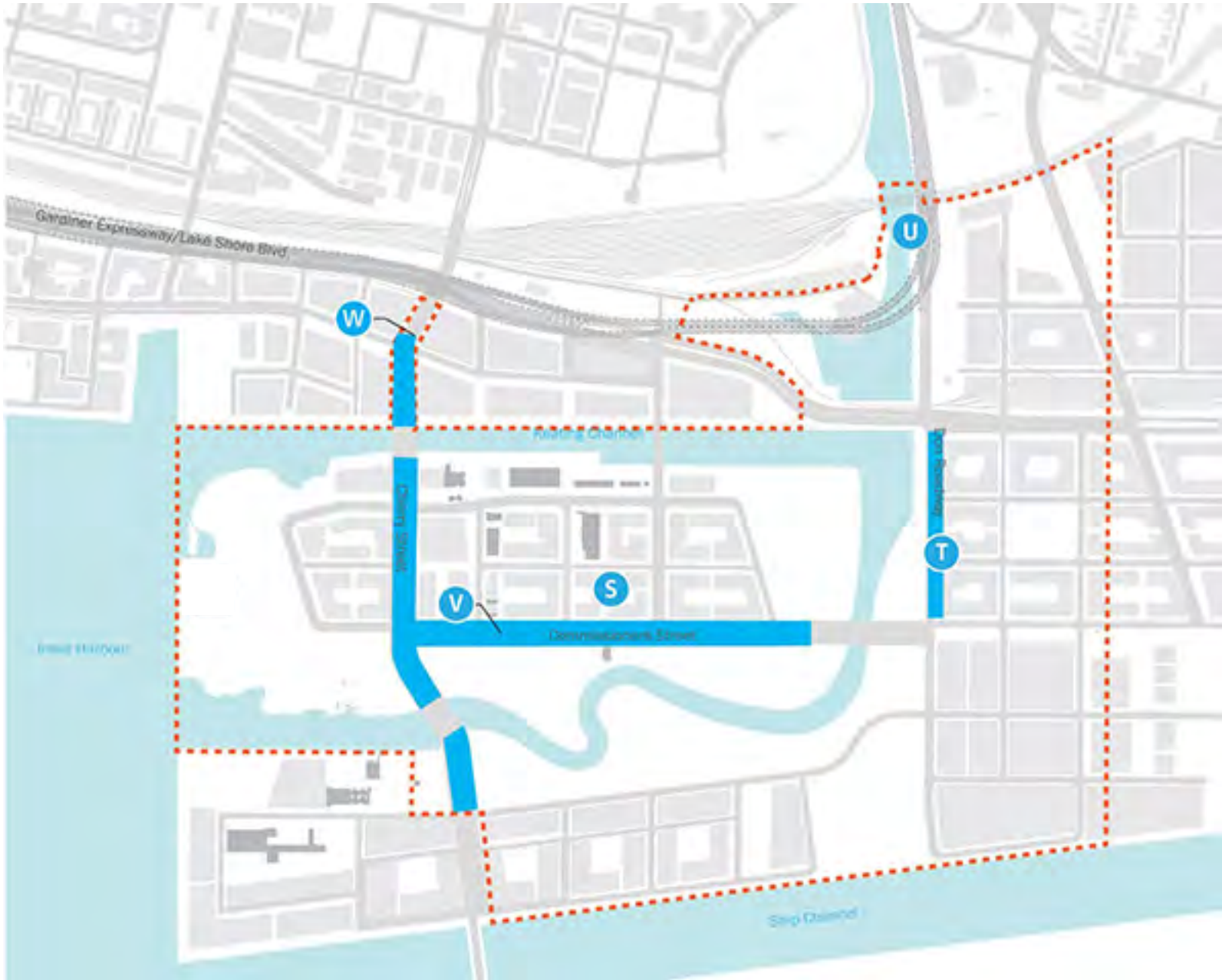
Detailed Design

September 25, 2019

Roads and Municipal Services

- 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



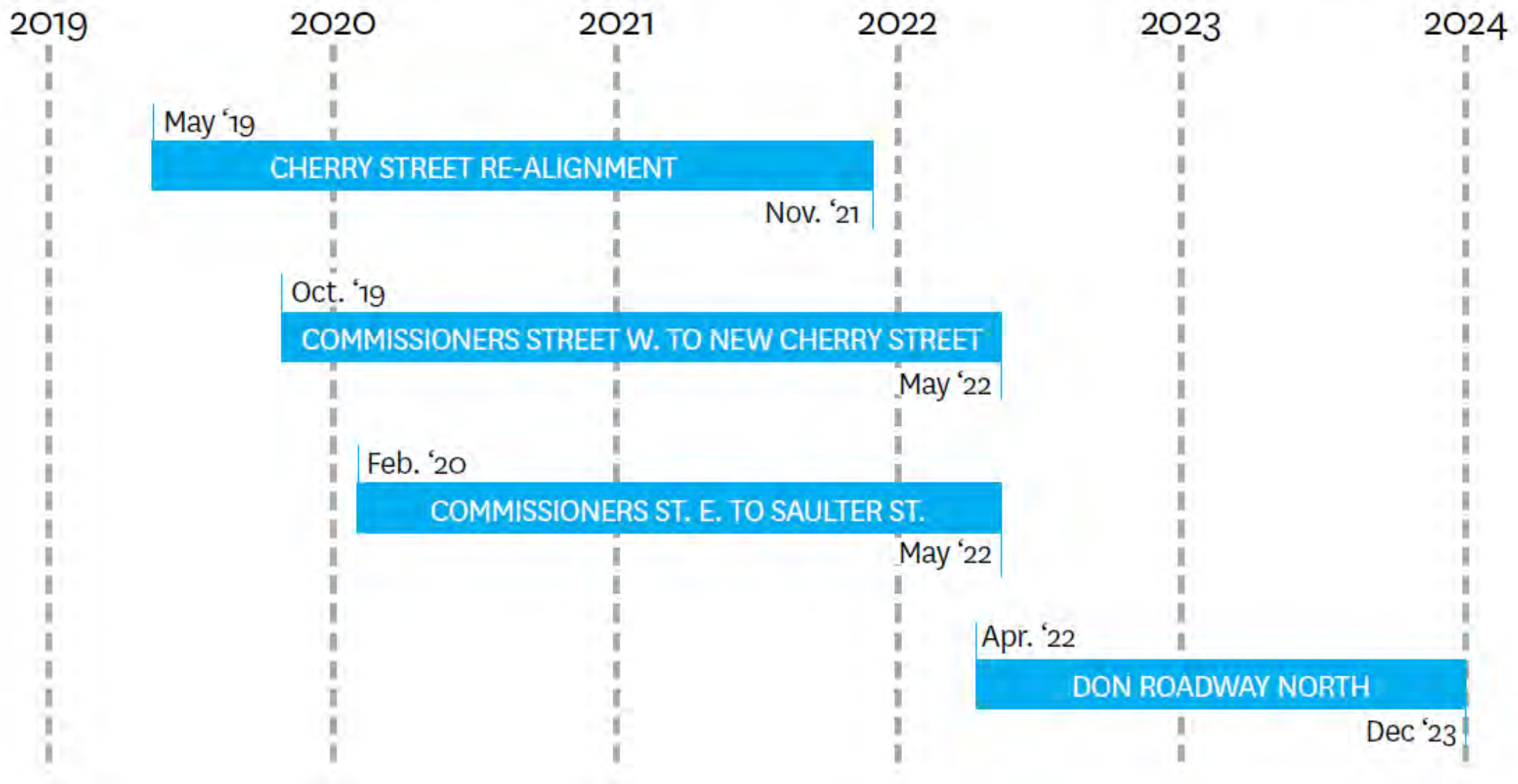
Team Structure

Parks, Flood Protection & River Valley	Roads and Municipal Infrastructure	Bridges	Environmental

• All flood protection elements
• Park and wetland design
• Integration of all four streams
	• Public realm design
	  • Cherry Street
	  • Don Roadway
	  • Commissioners Street
	• All municipal services
		• Cherry Street North Bridge
		• Cherry Street South Bridge
		• Commissioners Street Bridge
		• Lake Shore Bridge
		• Integration with roads and municipal services
			• Environmental permits
			• Baseline environmental information and modeling
			• Soil and groundwater remediation and risk management design
			• Environmental monitoring plans

MVVA	WSP with DTAH	Entuitive with Grimshaw & SBP	Jacobs (CH2M)

Project Schedule – Anticipated Construction Schedule

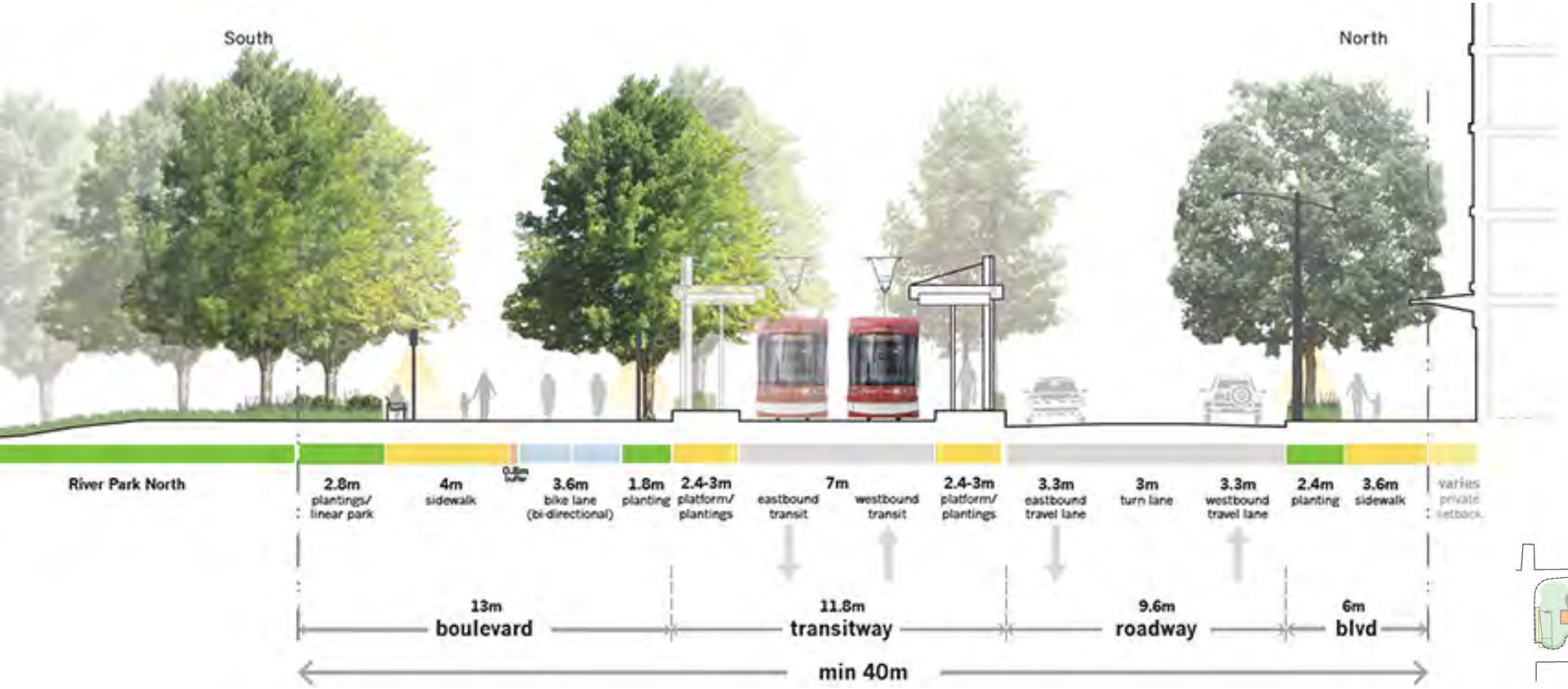


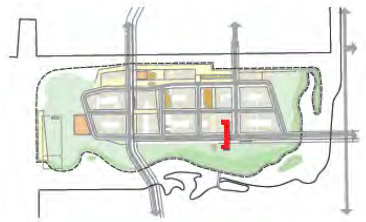
Villiers Island Precinct Plan – Roads

Port Lands Flood Protection: Roads

Review Stage: Detailed Design
Proponent: Waterfront Toronto
Design Team: WSP with DTAH

Commissioners Street





Roads DRP Comments

June 26, 2019

Port Lands Flood Protection: Roads

Review Stage: Detailed Design

Proponent: Waterfront Toronto

Design Team: WSP with DTAH

Overall

- Street designed to reflect its significant role to the City and as a standard for future development
- Street design over-engineered, consider “loosening “ the design and “blurring” between Park and Roads
- Provide lighting plan - with consideration to park experience and pedestrian safety

Context

- Reference & represent Villiers Island Precinct Plan
- Consider existing and future conditions

Streets

- Support bump-out
- Attention to design of the intersections
- More permanent looking solution for the temporary areas on Don Roadway
- Proposed street conditions are too similar
- Consider qualities of rough edges and relief for the street material palette
- Commitment to Vision Zero - prioritize pedestrian perspective
- Full designs of all three streets

Trees

- Opportunities of more trees, filling gaps at intersections and future intersections
- Breaking from normal Toronto street trees and distribution
- Reconsider columnar trees and Sugar Maple

Areas for Panel Consideration

- Is the design successful in achieving the Panel's recommendation of **'loosening' the streets** and **blurring between Park and Roads**?
- In adopting the **Vision Zero** approach, have we humanized the streets sufficiently?
- Are the streets capitalizing on **opportunities for sustainability** within the unique design challenges of each street?
- Does the design approach succeed in emphasizing the **unique character of each street**?

Port Lands Flood Protection & Enabling Infrastructure

Cherry Street Design Update

Commissioners Street & Don Roadway Detailed Design 90%

Waterfront Toronto Design Review Panel:
Sixth Submission

25 September 2019

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WSP • DTAH

Three Streets for the Port Lands

Street Character

Cherry Street

Urban Street

Commissioners Street

Park Street

Don Roadway

River Street

Street Character

View Looking Southwest on East Side of Cherry Street (future)

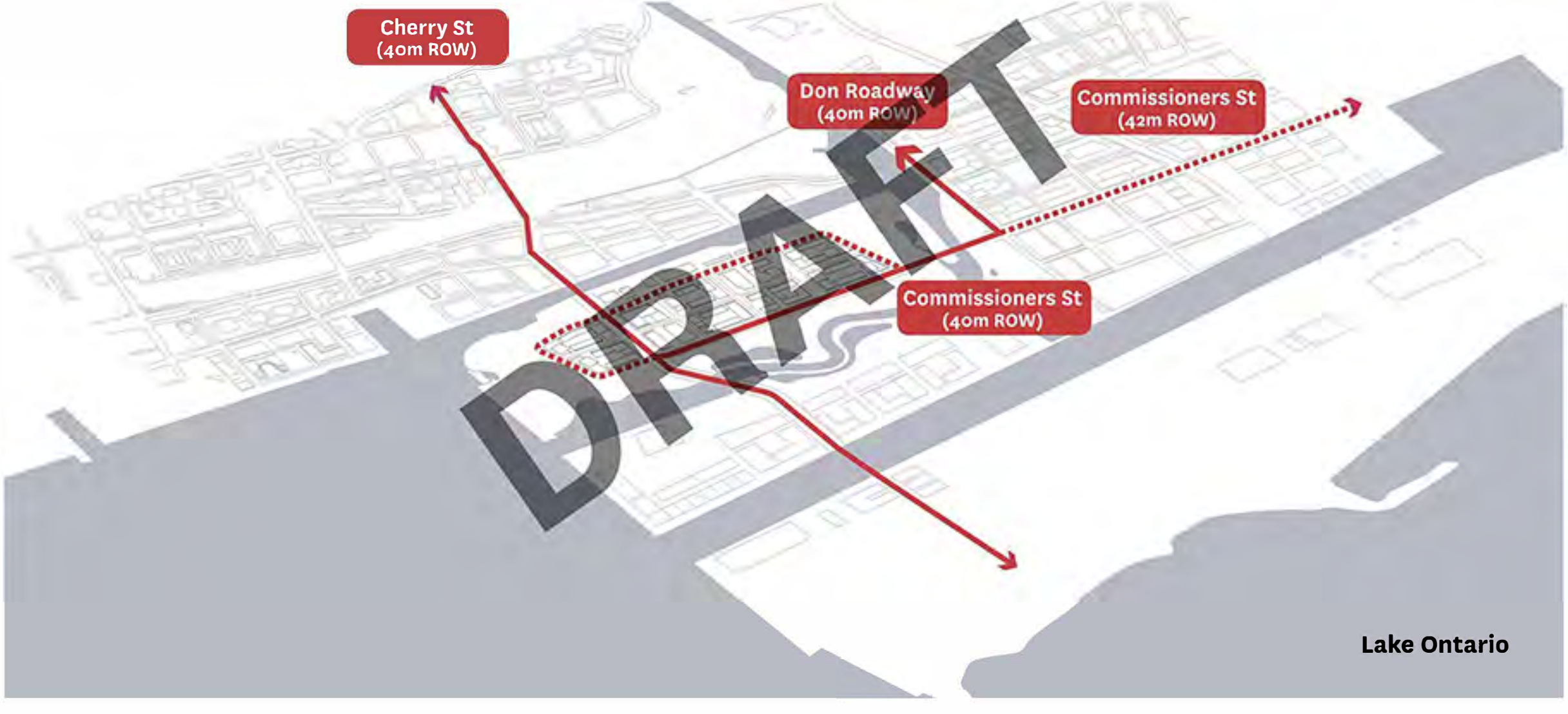
Street Character

View Looking West on South Side of Commissioners Street (future)

Street Character

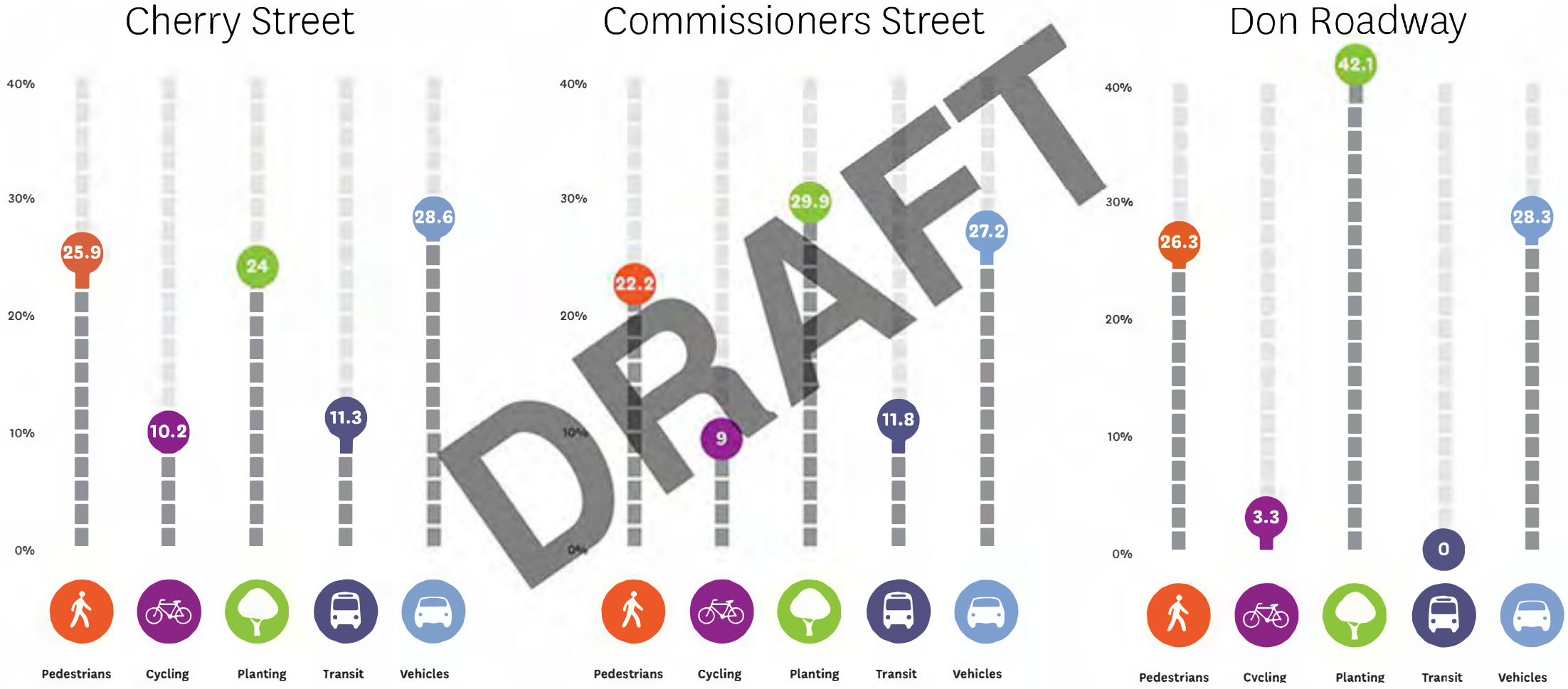
View Looking West on South Side of Commissioners Street (future)

Port Lands Streets
Public Rights-of-Way



Port Lands Streets

Public Rights-of-Way: Space Allocation by User



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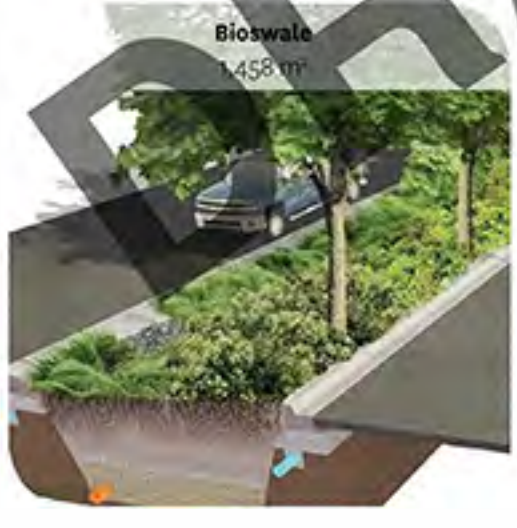
71.9% Average Non-Passenger Auto Use

Port Lands Streets
Landscape Types

1,806 m³
potential
stormwater capture

2.18 hectares
vegetated space

480 trees



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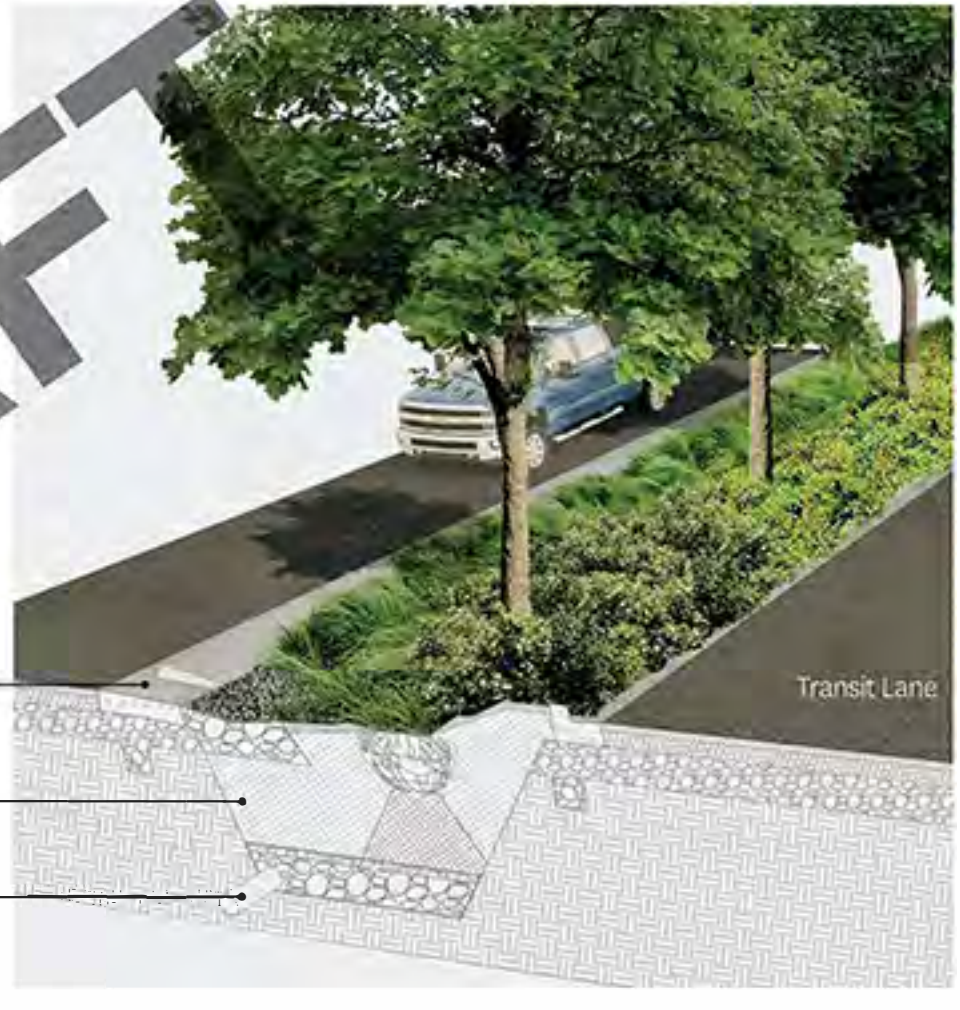
Port Lands Streets

Landscape Types - Green Infrastructure Facilities

Open Planter with Passive Irrigation

Bioswale



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Port Lands Streets
Materiality

Granite Paver

Granite Stone Mulch

Timber Bench

Generation 50 Bench

Galvanized Steel Toe Rail

Concrete Paving
Sandblast Finish

Steel Plate Inlay

Asphalt Trail Marking

Galvanized Webnet Railing

City of Toronto Bike Rings

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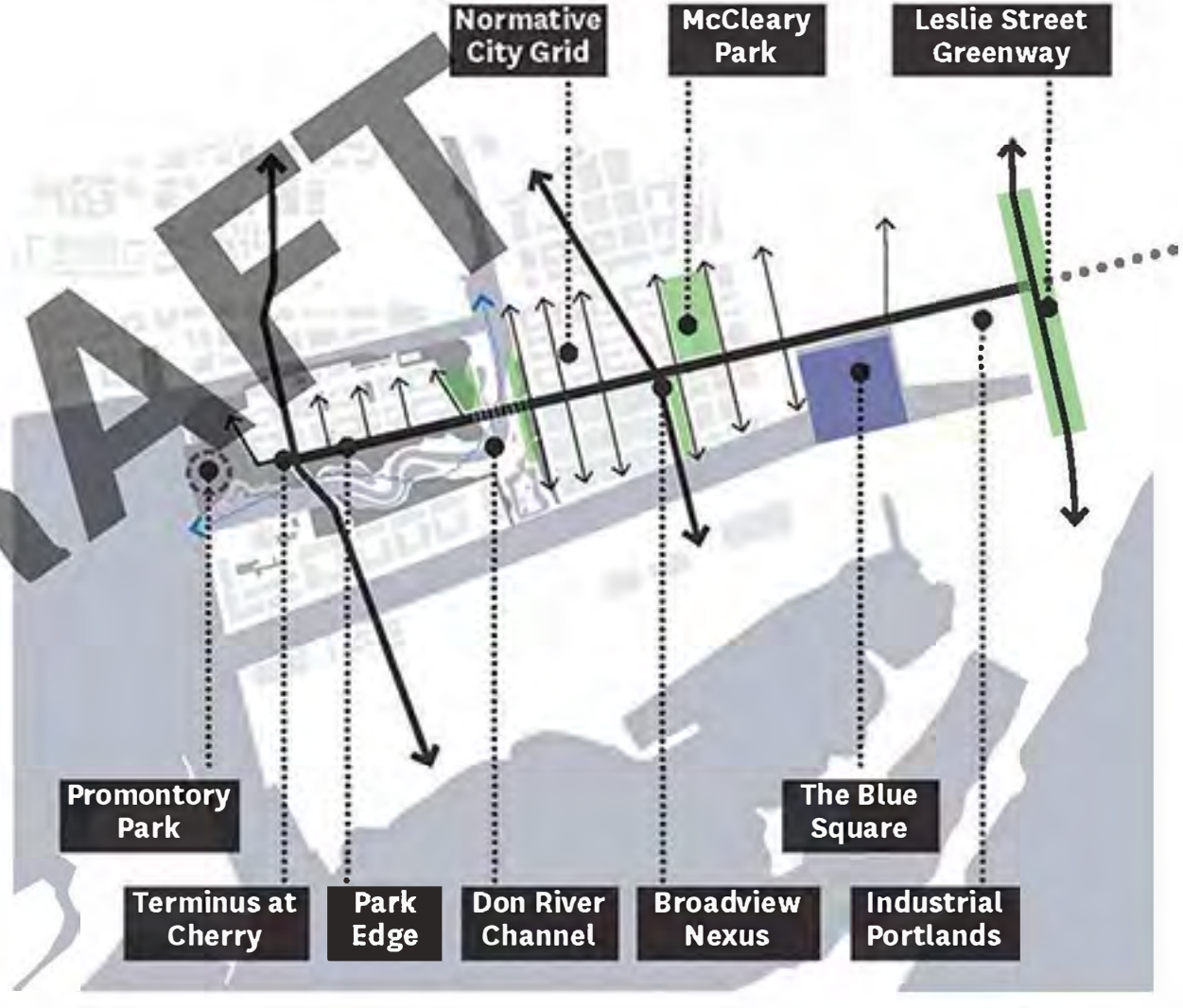
Commissioners Street

East West Green Corridor - “Park Street”



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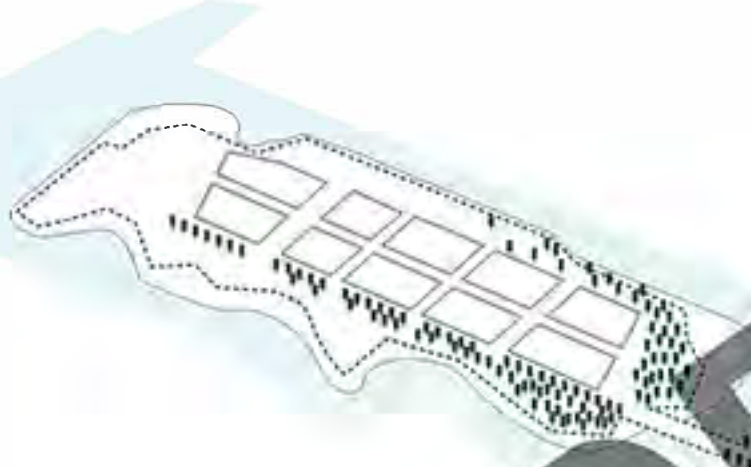
Commissioners Street

East West Green Corridor - Planting Strategy



Cradle

McCleary Park

Turning Basin

Leslie St. Greenway

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Commissioners Street

East West Green Corridor - Planting Strategy Collaboration with Parks Team

Model Study by MVVA - Overall Character Study of Columnar and Canopy Trees (View looking South East)

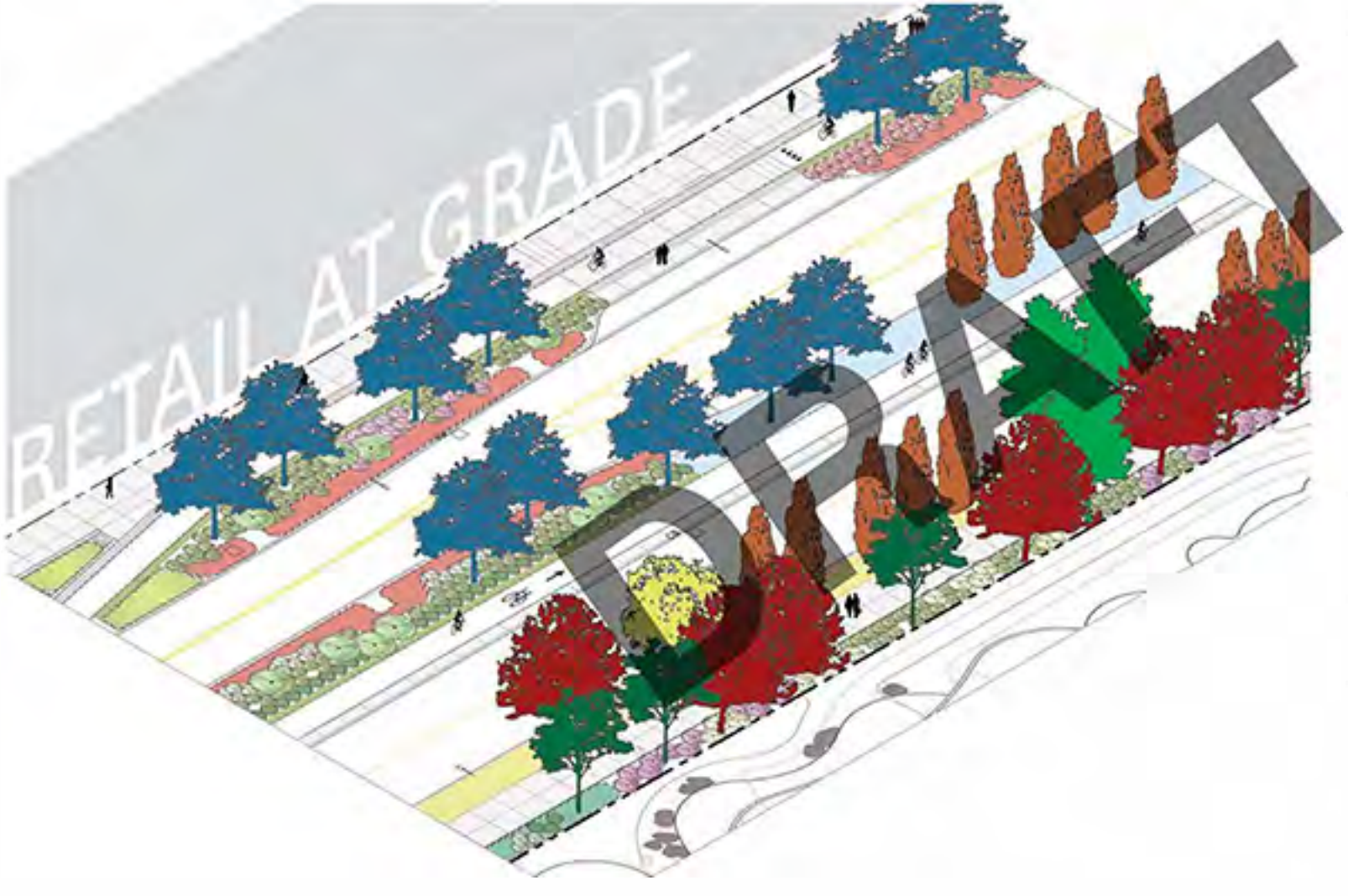
Commissioners Street

East West Green Corridor - Planting Strategy Collaboration with Parks Team

Model Study by MVVA - Columnar Oaks at Park Entrances

Commissioners Street

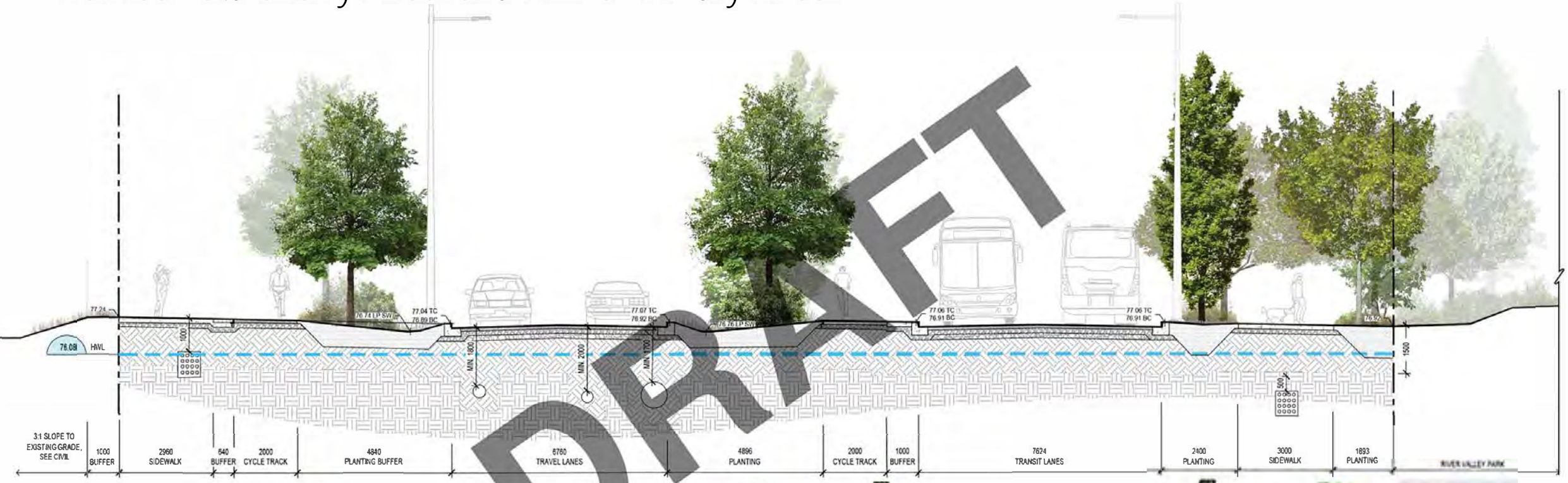
East West Green Corridor - Planting Strategy and Green Infrastructure Facilities



1. Planting design informed by:
   - View preservation
   - Integration with Park's edge
   - Safety - unobstructed sight lines
   - Unobstructed cycle track
   - Tree soil volume
   - Tree growth size
   - New design lake level
   - Green infrastructure types
2. Varied tree species and spacing along street corridor.
3. Blending of Roads & Park edge through similar planting palette.
4. Organized planting drifts in planters transitioning to areas of 'wild growth' at bioswales and park interface. 'Wild growth' achieved through mixed and irregular planting strategy.

Commissioners Street

Between Old Cherry Street and Future Foundry Street



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Swamp White Oak


Swamp White Oak


English Pyramidal Oak


English Pyramidal Oak


Common Hackberry


Basswood


Caroiina Rose


Red Osier Dogwood


Fox Sedge


Fox Sedge


Red Osier Dogwood


Winterberry


Chokeberry


Caroiina Rose


Northern Bayberry


Native Pollinator Meadow Seed Mix

Commissioners Street

West of Future Villiers Street

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Freeman Maple


Thornless Honeylocust


English Pyramidal Oak


English Pyramidal Oak


Swamp White Oak


Basswood


Side Oat Grama


Little Bluestem


Carolina Rose


Abbotswood Potentilla


Native Pollinator Meadow Seed Mix


Red Osier Dogwood


Northern Bayberry


Native Pollinator Meadow Seed Mix

Commissioners Street

Mid-block crossings, TTC platforms and Lay-By

- Two “Wait for Gap” crossings
- One pedestrian signalized crossing
- Two signalized intersection - pedestrian & cyclist crossings
- ★ Park access
- TTC platforms
- Wheel-Trans pick-up/drop-off
- LAY-BY Passenger car pick-up/drop-off
- PARKING On-street parking

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Commissioners Street

Mid-block crossings, TTC platforms and Lay-By (future)

- Two “Wait for Gap” crossings
- One pedestrian signalized crossing
- Two signalized intersection - pedestrian & cyclist crossings
- ★ Park access
- TTC platforms
- Wheel-Trans pick-up/drop-off
- LAY-BY Passenger car pick-up/drop-off
- PARKING On-street parking

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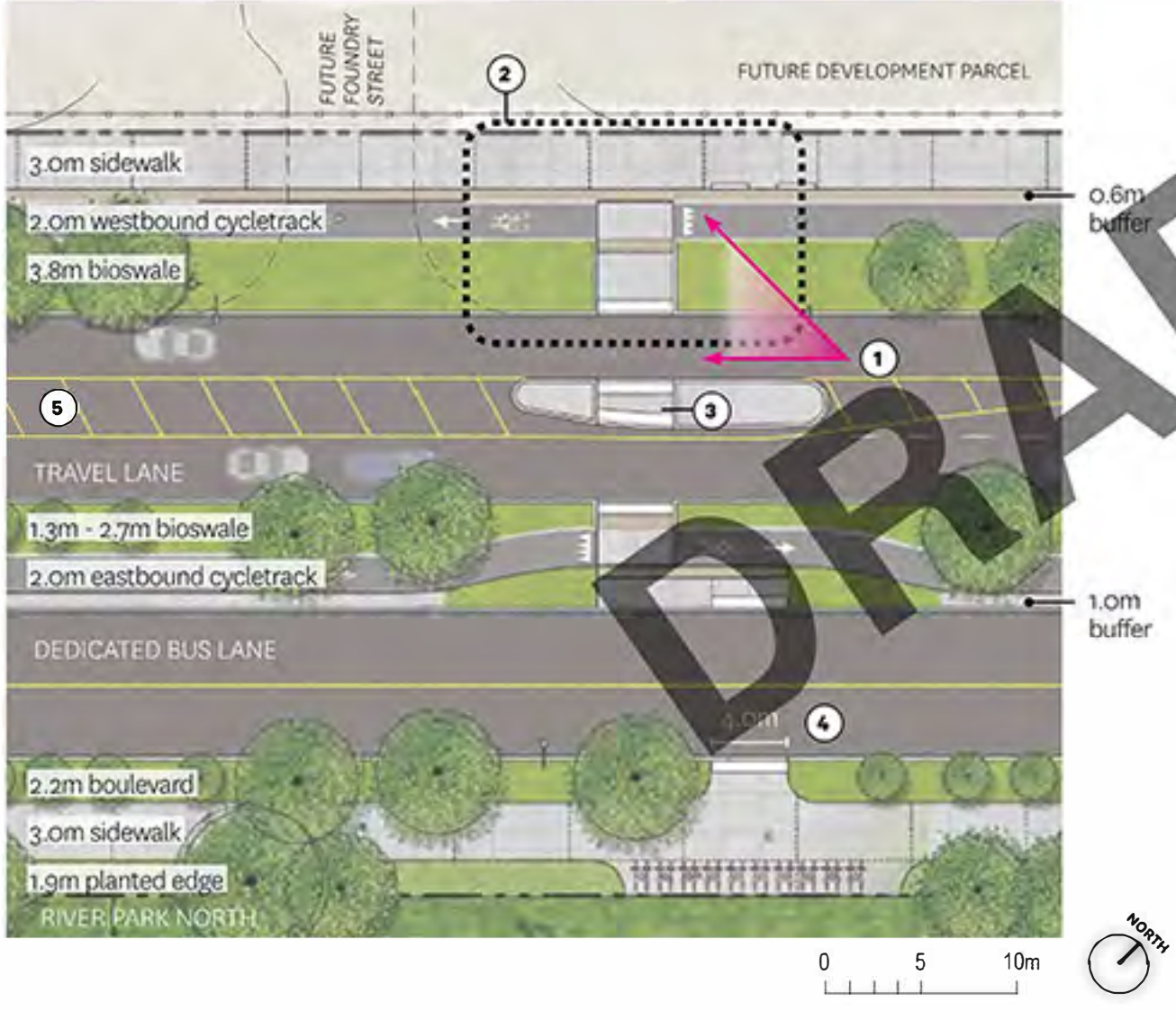
Commissioners Street
Mid-block crossings



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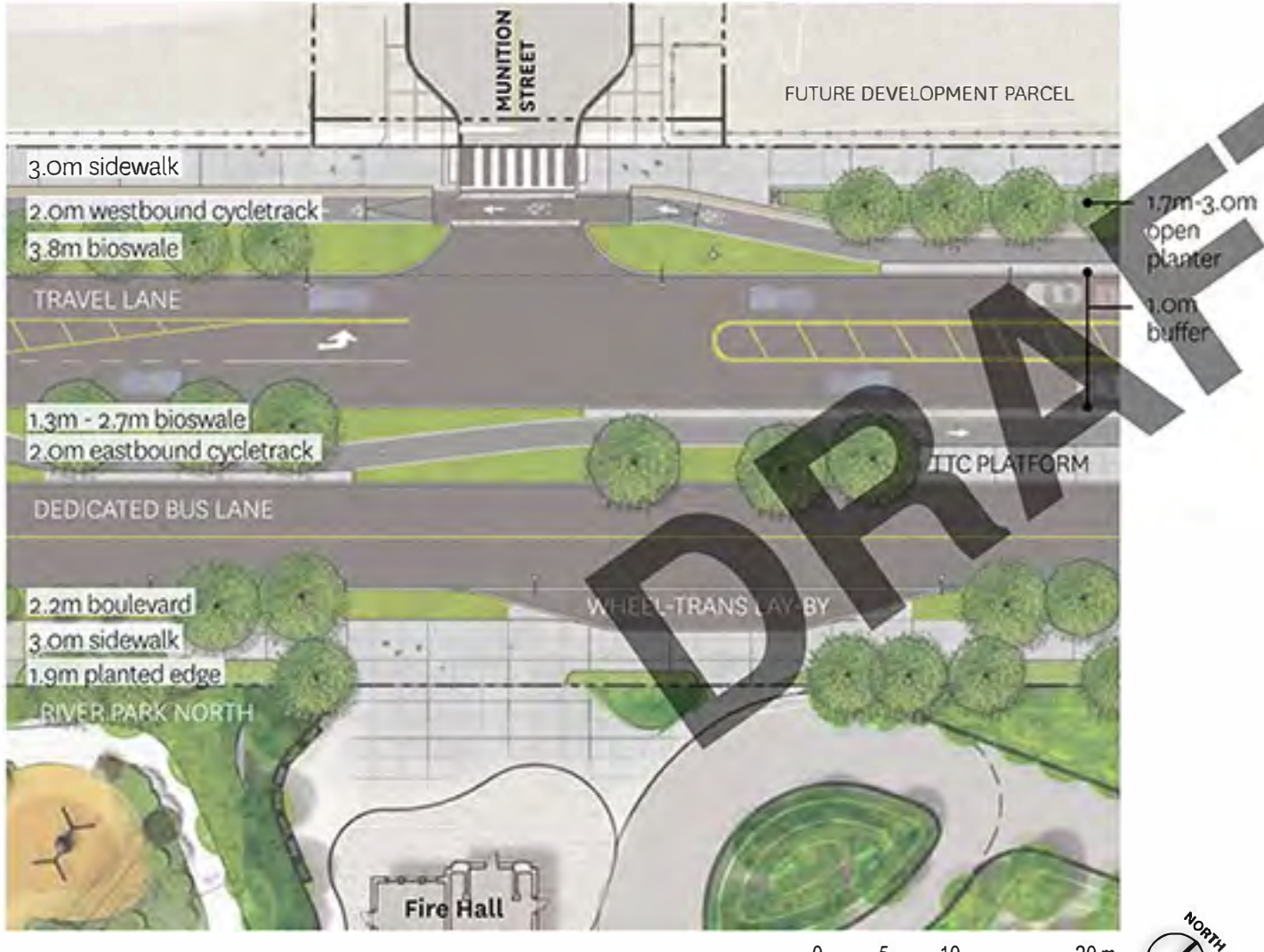
1. Unobstructed sight lines of pedestrians - low planting and no trees within this zone.
2. Material change to indicate pedestrian crossing.

3. Refuge island allows people to cross only one lane of traffic at a time.
4. Wide crossings (4.0m) to facilitate mixed pedestrian-cyclist crossing. No zebra markings at "Wait for Gap" crossings.
5. Future left turn lane into Foundry Street.
6. 30km/h posted speed.

Commissioners Street

Wheel-Trans Pick-Up/Drop-Off



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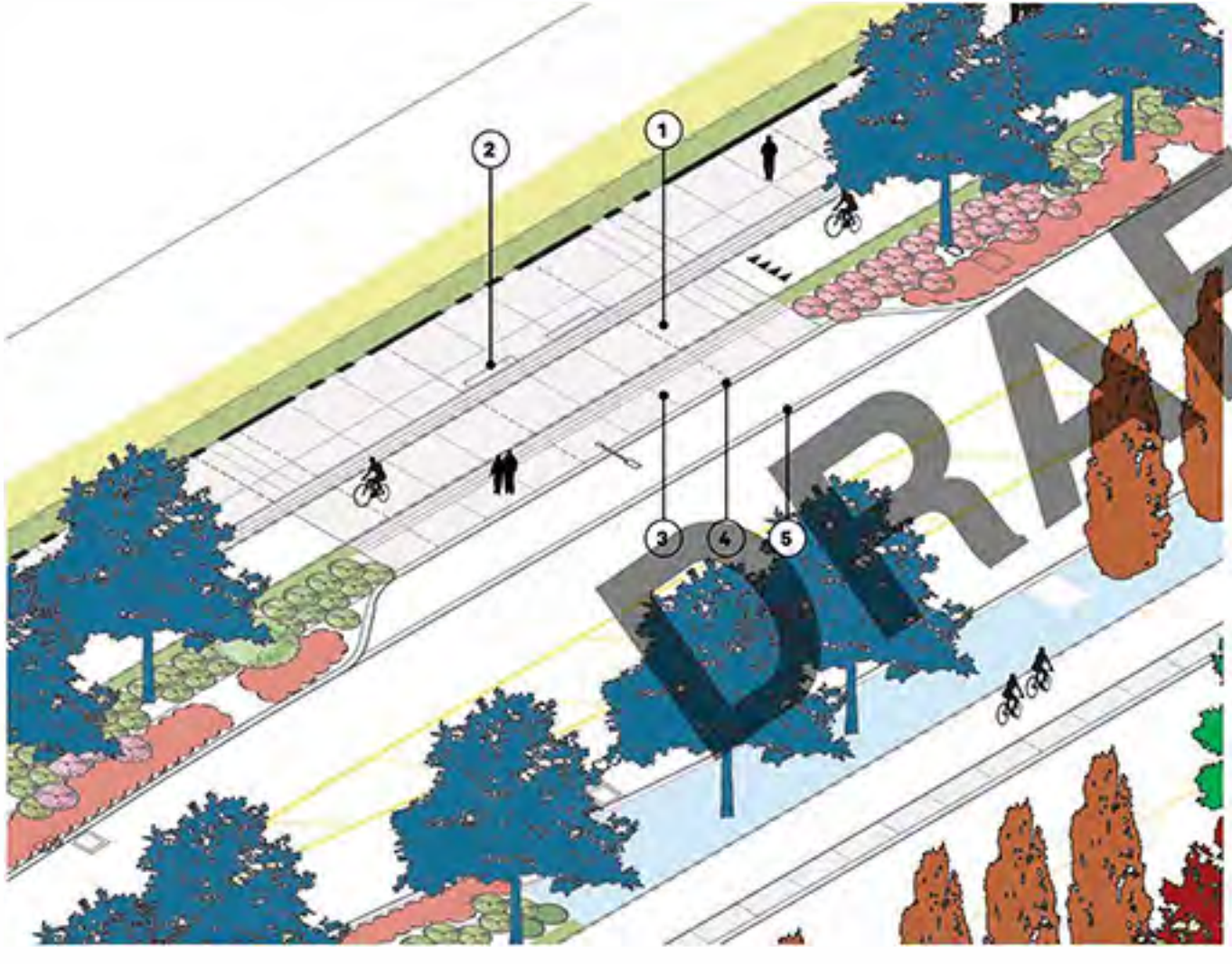
1. Direct access for Wheel-Trans to River Park North destinations.
2. View of Fire Hall preserved and framed by canopy tree planting

Model study by MVVA

Commissioners Street

Passenger Car Pick-Up/Drop-Off



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1. Material change to indicate pedestrian crossing for cyclist.
2. Timber seats as additional indicator of pedestrian crossing.
3. 2.0m wide standing zone
4. Mountable curb
5. Depressed curb

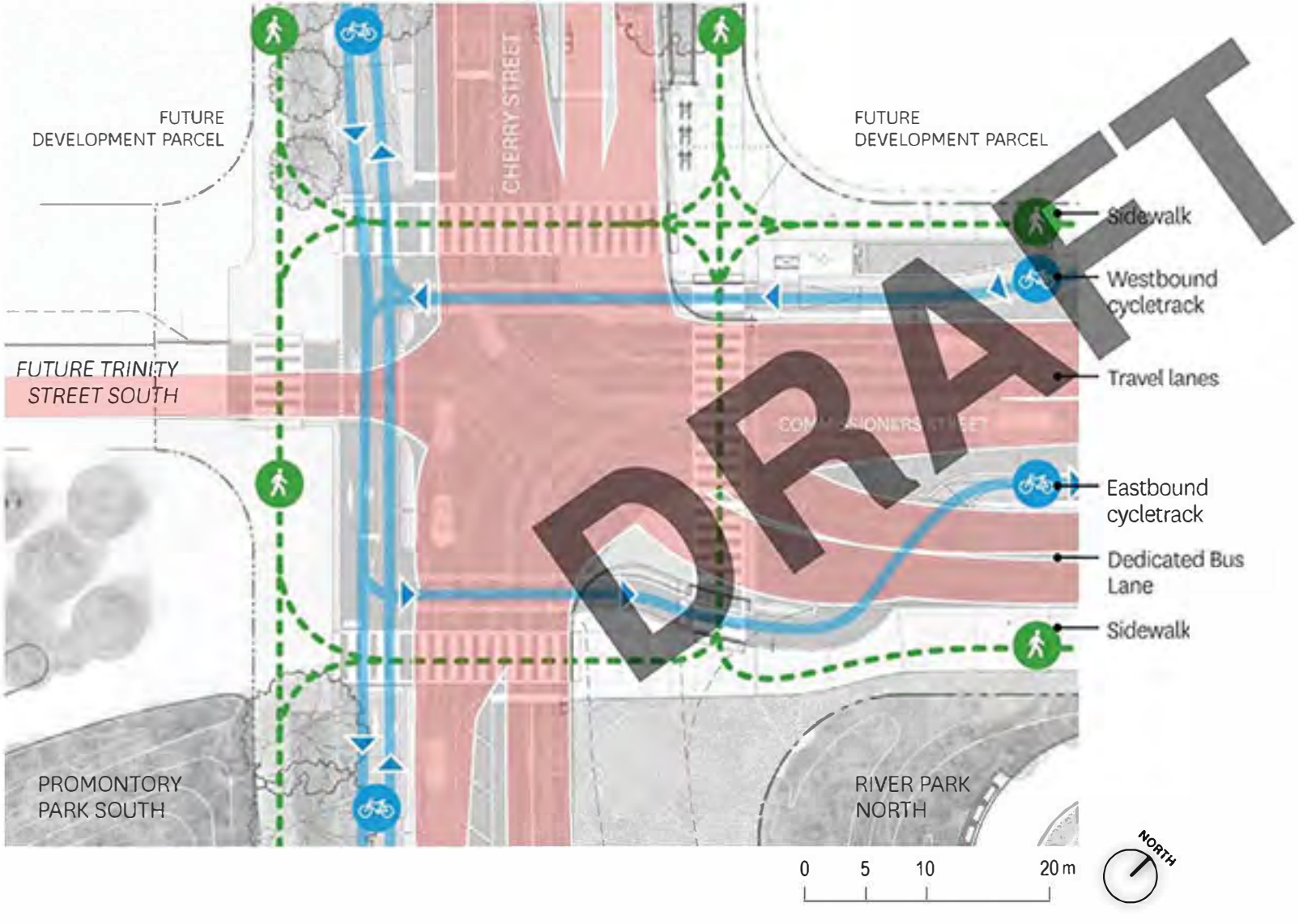
Commissioners Street: Intersection Design

Commissioners Street & Cherry Street

1. 4.0m wide pedestrian crosswalk
2. Tight curb radii, where feasible, with raised curb island protection
3. Mountable curb to accommodate access between Martin Goodman Trail, cycle track and Park
4. Temporary landscape planting at future LRT lanes

Commissioners Street: Intersection Design

Commissioners Street & Cherry Street - Traffic Movement Overlay



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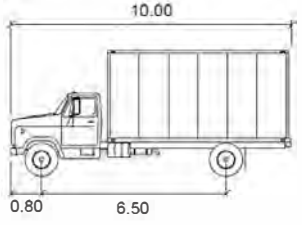
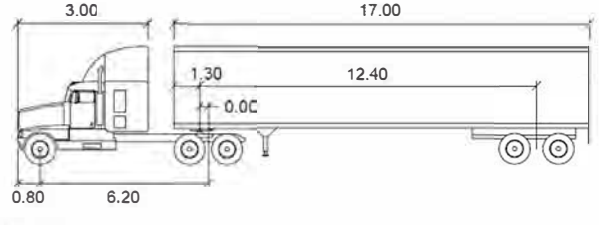


MSU

	meters
Width	: 2.60
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.2



WB-20

	meters		
Tractor Width	: 2.60	Lock to Lock Time	: 6.0
Trailer Width	: 2.60	Steering Angle	: 28.2
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

Commissioners Street: Intersection Design

Commissioners Street & Future New Munition Street

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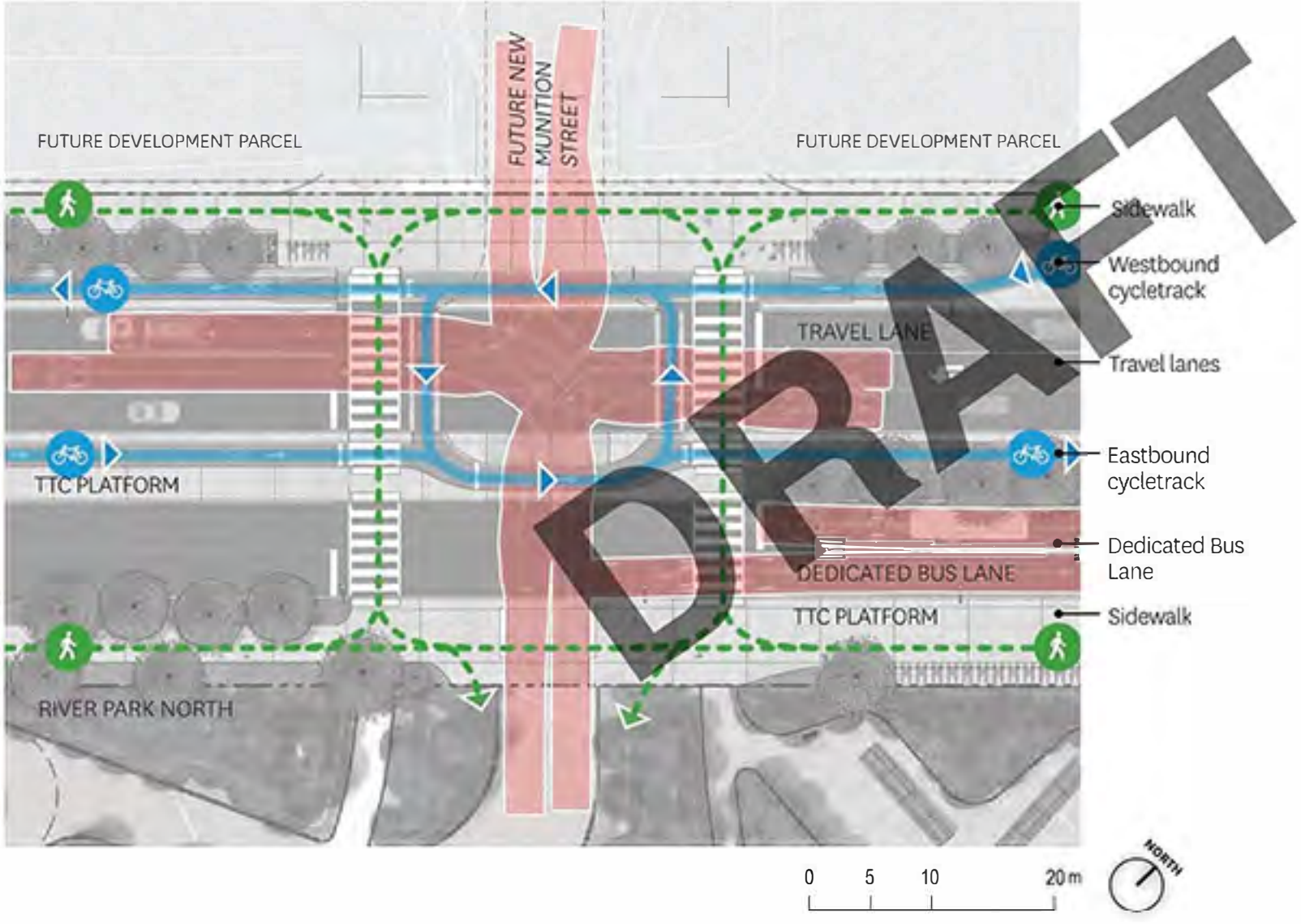
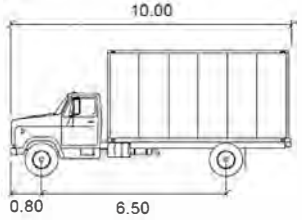
1. 4.0m wide pedestrian crosswalk.
2. Park maintenance access only.
3. Continuous concrete paving with dropped curb to deter general vehicular access.
4. Future left turn lane into New Munition Street

Commissioners Street: Intersection Design

Commissioners Street & Future New Munition Street - Traffic Movement Overlay





MSU

	meters
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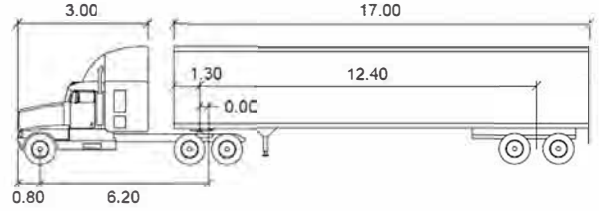
Track	: 2.60
Lock to Lock Time	: 6.0
Steering Angle	: 40.2

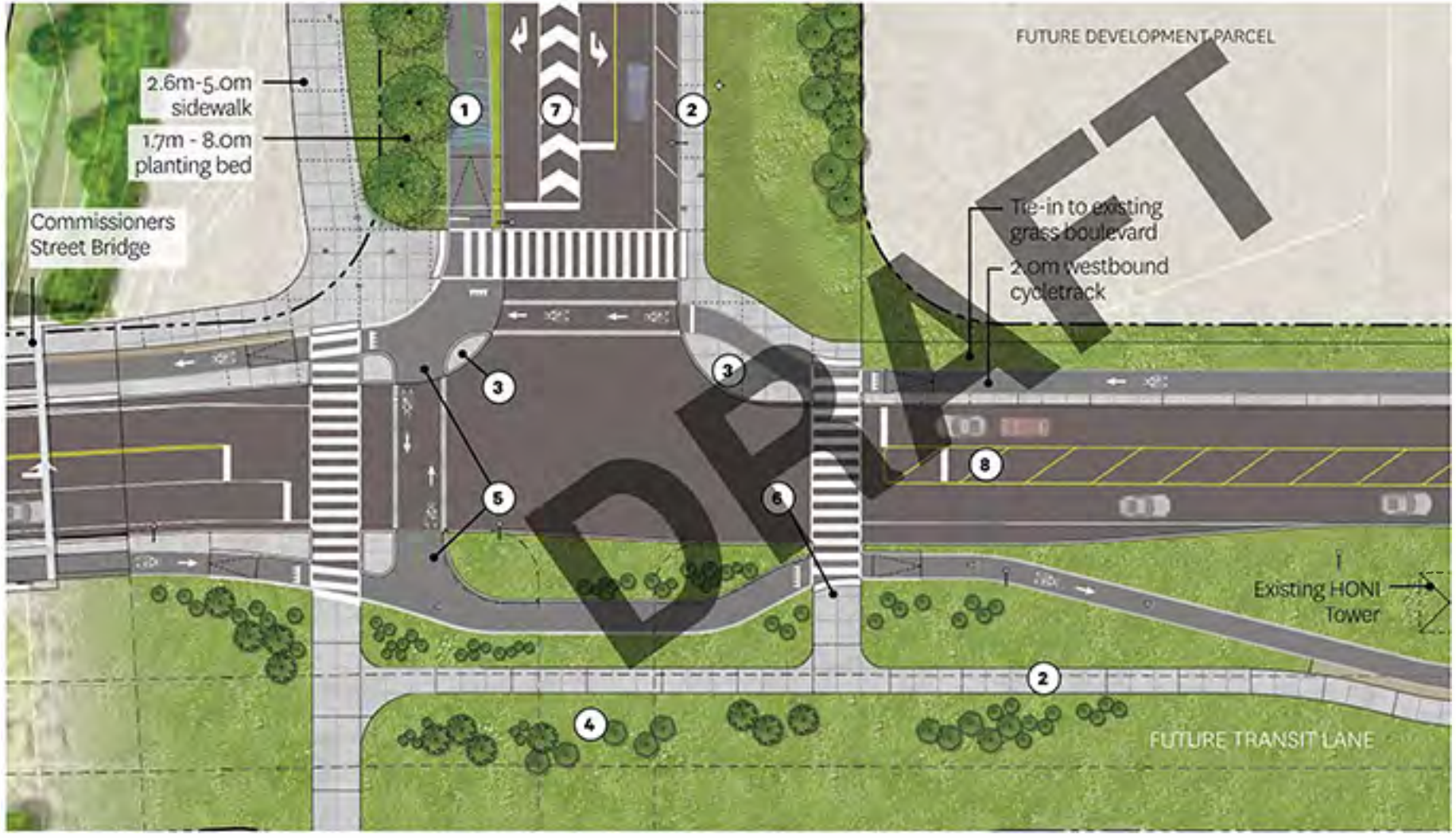


WB-20

	meters		
Tractor Width	: 2.60	Lock to Lock Time	: 6.0
Trailer Width	: 2.60	Steering Angle	: 28.2
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

Commissioners Street: Intersection Design

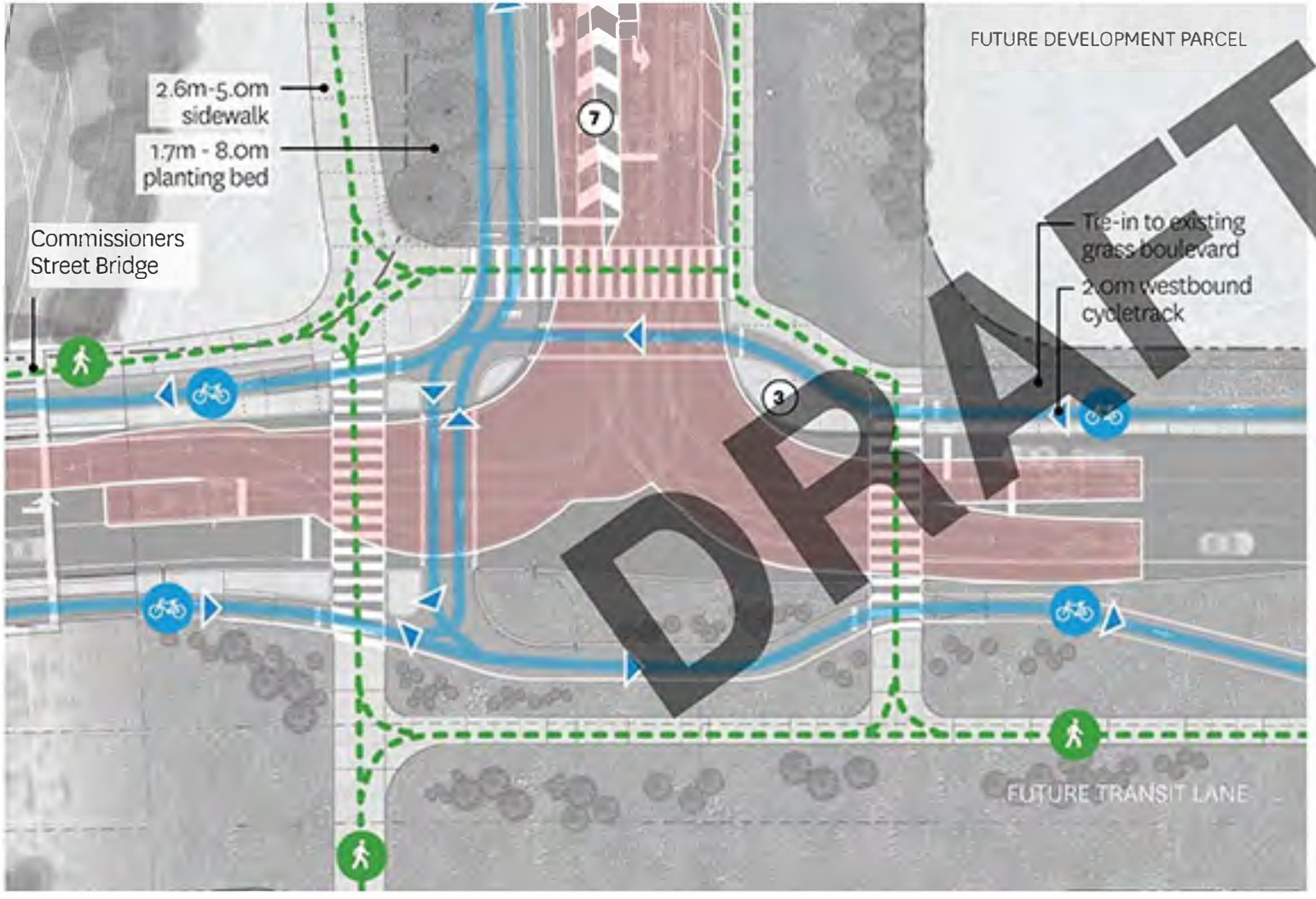
Commissioners Street & Don Roadway

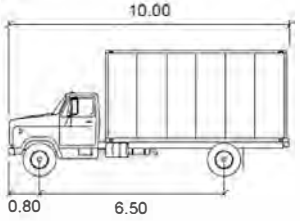


1. 3.6m Lower Don River Trail
2. 2.1m sidewalk (temporary)
3. Tight curb radii, where feasible, with raised curb island protection
4. Temporary landscape planting at future LRT lanes
5. Protected queuing lane for cyclist
6. Sidewalk close to curb to reduce crossing distance
7. Hatched Lane (future through lane)
8. Future left turn lane

Commissioners Street: Intersection Design

Commissioners Street & Don Roadway - Traffic Movement Overlay





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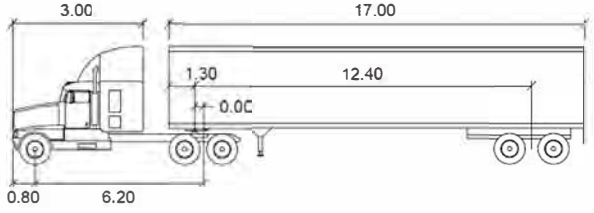

WB-20

	meters		
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Trailer Width	: 2.60	Steering Angle	: 28.2
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

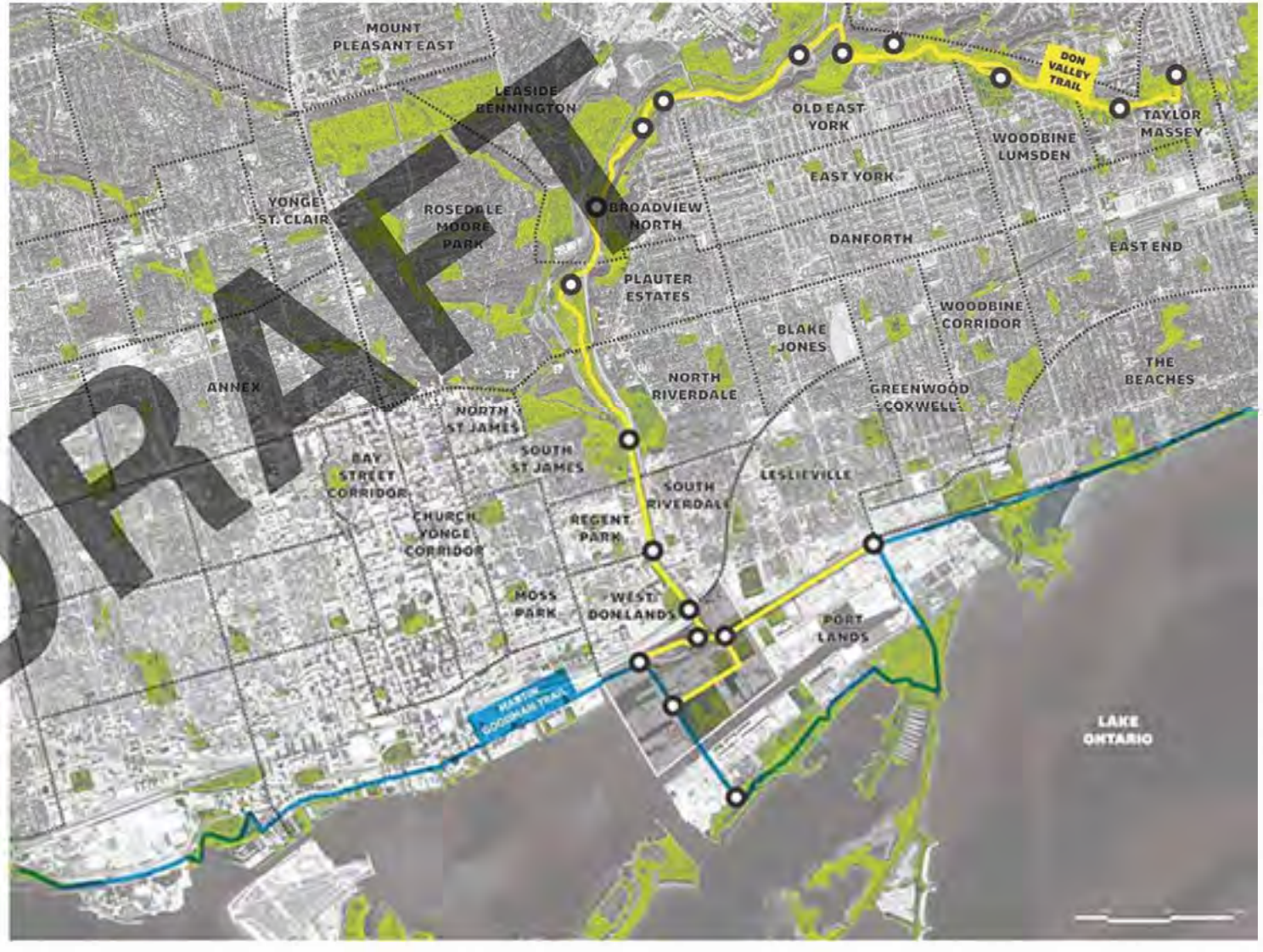
Don Roadway
Transportation and Ecological Corridor

Don Roadway

Transportation and Ecological Corridor

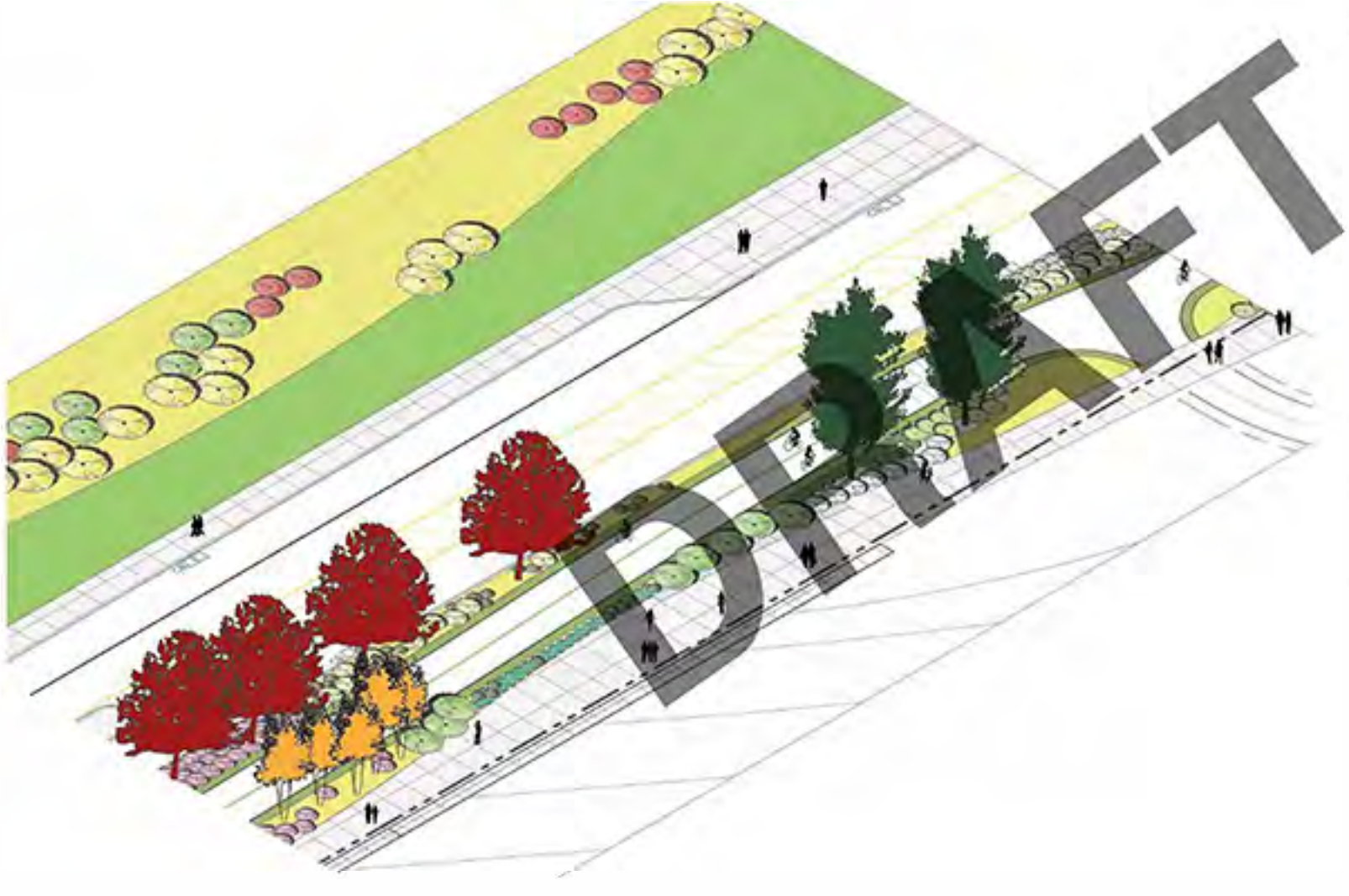
Don Valley Trail

Martin Goodman Trail - Queens Quay Blvd



Don Roadway

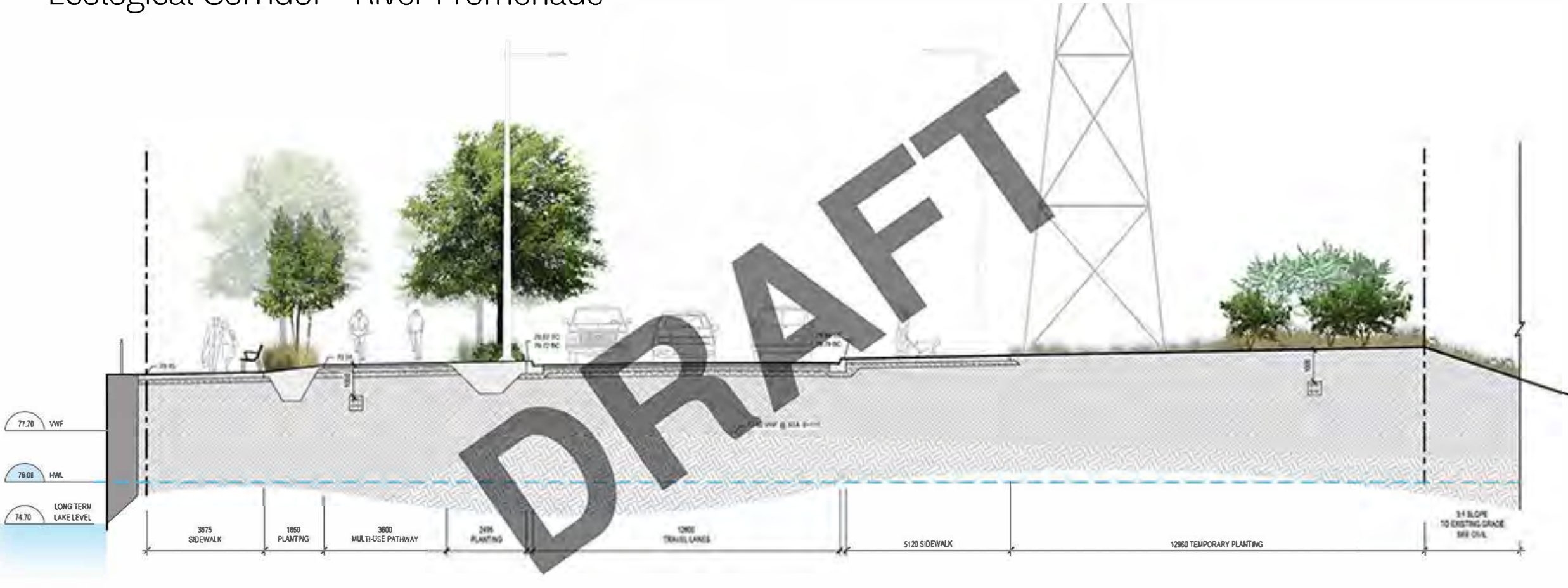
Ecological Corridor - Planting Strategy



1. Planting design informed by:
   - View preservation
   - River ecology planting palette - food and habitat
   - Safety - unobstructed sight lines
   - Unobstructed Lower Don Trail
   - Tree soil volume
   - Tree growth size
2. Varied tree species and spacing
3. Varied understorey planting - height, massing, texture
4. 'Wild growth' plant arrangements. Moments of hedgerows and prairie meadow

Don Roadway

Ecological Corridor - River Promenade



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Trembling Aspen


Red Oak


Carolina Rose


Bush Honeysuckle


Side Oat Grama


Native Prairie Grass Seed Mix


Native Prairie Grass Seed Mix


Native Pollinator Meadow Seed Mix


Staghorn Sumac


Elderberry

Don Roadway

Ecological Corridor - Transition towards the River


Balsam Poplar


Trembling Aspen


Red Oak


Highbush Cranberry


Bush Honeysuckle


Yew


Northern Bayberry


Native Prairie Grass Seed Mix


Native Pollinator Meadow Seed Mix


Staghorn Sumac


Serviceberry

Don Roadway

Mid-block crossing and Lay-By

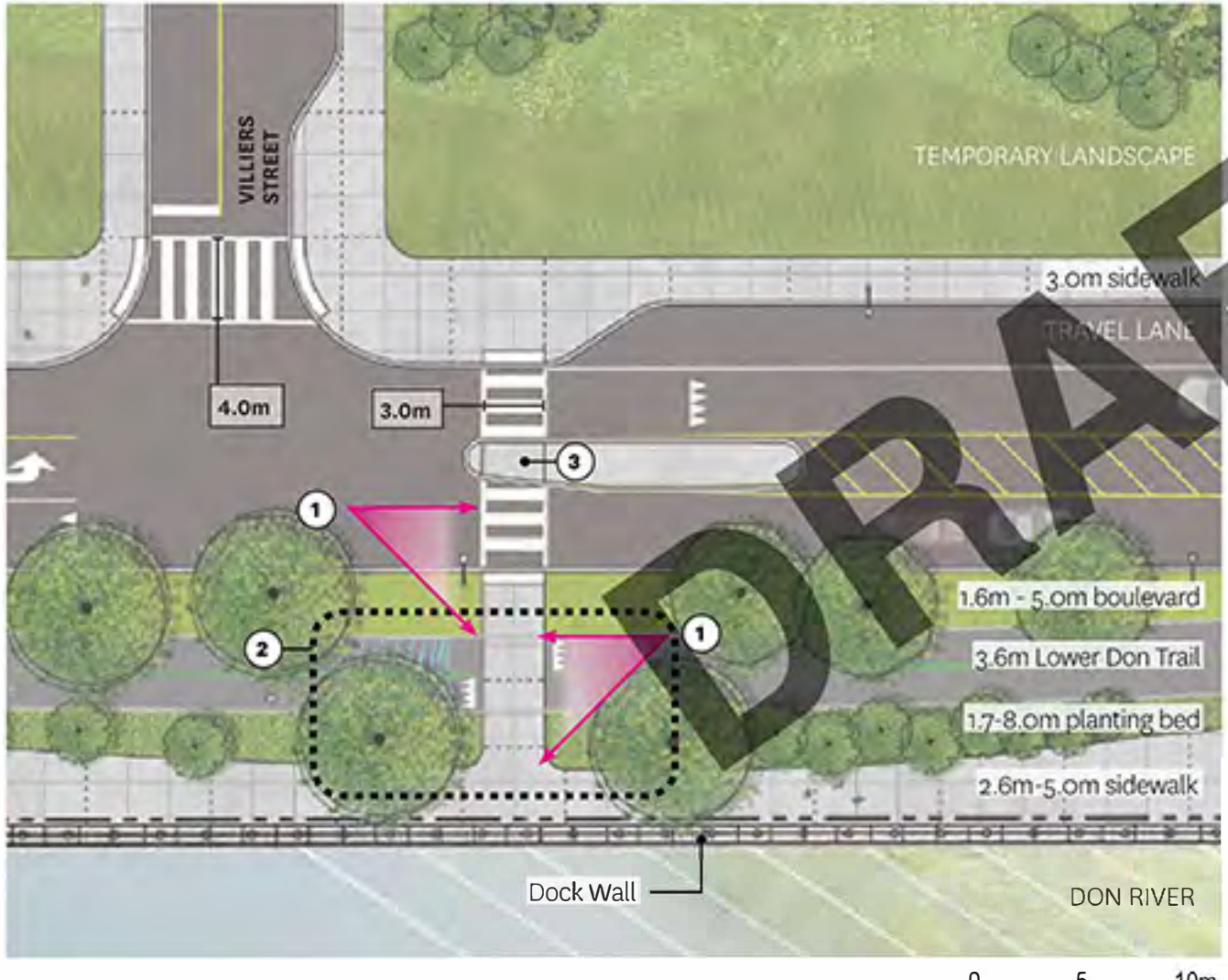
- One “Pedestrian Crossover” crossings
- Two signalized intersections - pedestrian & cyclist crossings
- Park access
- On-street parking

Don Roadway

Mid-block crossing and Lay-By (future)

- One “Pedestrian Crossover” crossings
- Three signalized intersections - pedestrian & cyclist crossings
- Park access
- On-street parking
- TTC Platforms

Don Roadway
Mid-block crossing



1. Unobstructed sight lines of pedestrians - low planting and no trees within this zone.
2. Material change and pavement markings to indicate pedestrian crossing.

3. Refuge island allows people to cross only one lane of traffic at a time.
4. Pedestrian only crossing to provide connection to existing Villiers Street.

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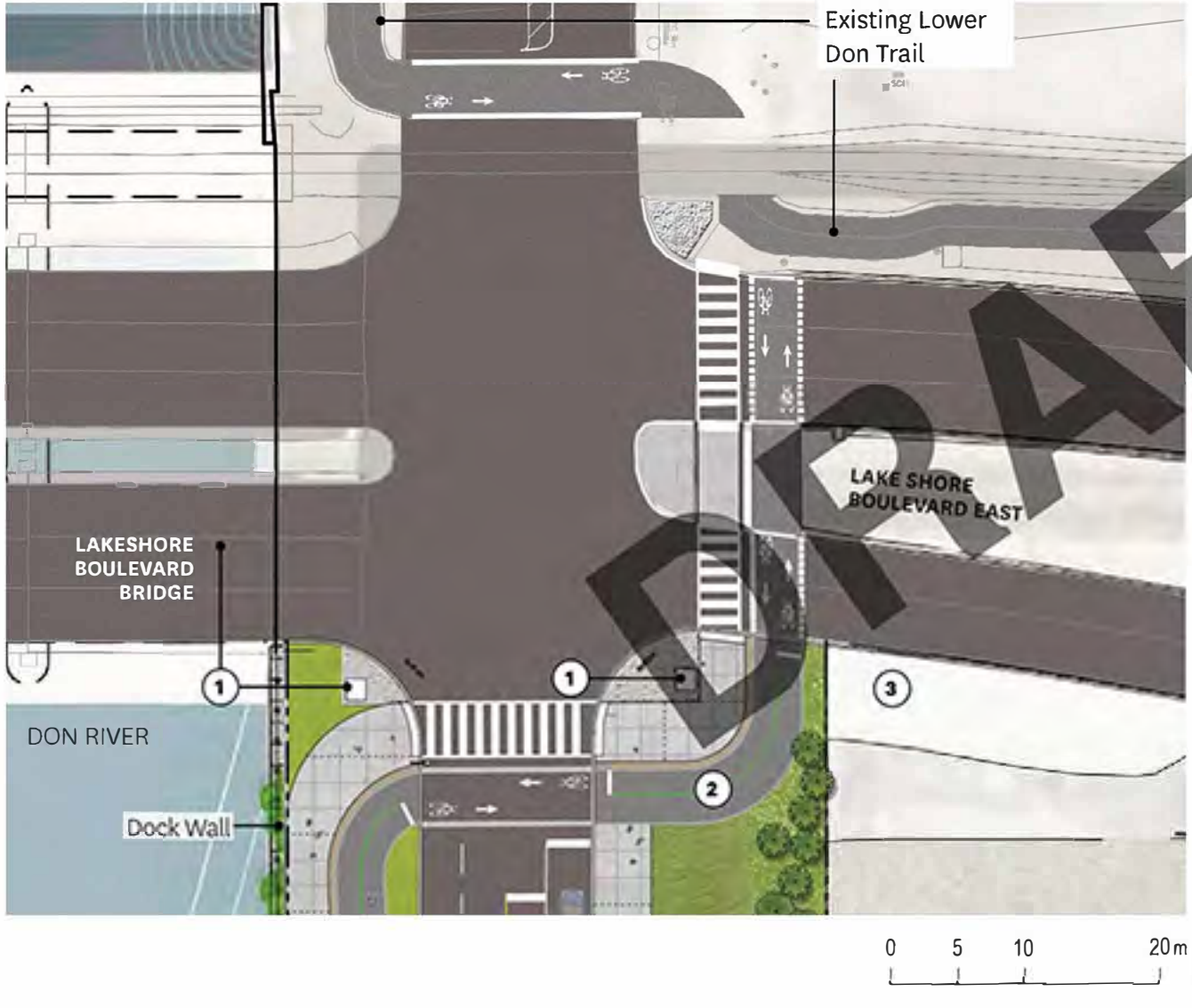
Don Roadway: Intersection Design

Don Roadway & Lake Shore Boulevard East



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① Pedestrian & cyclist connection diverted around existing barriers

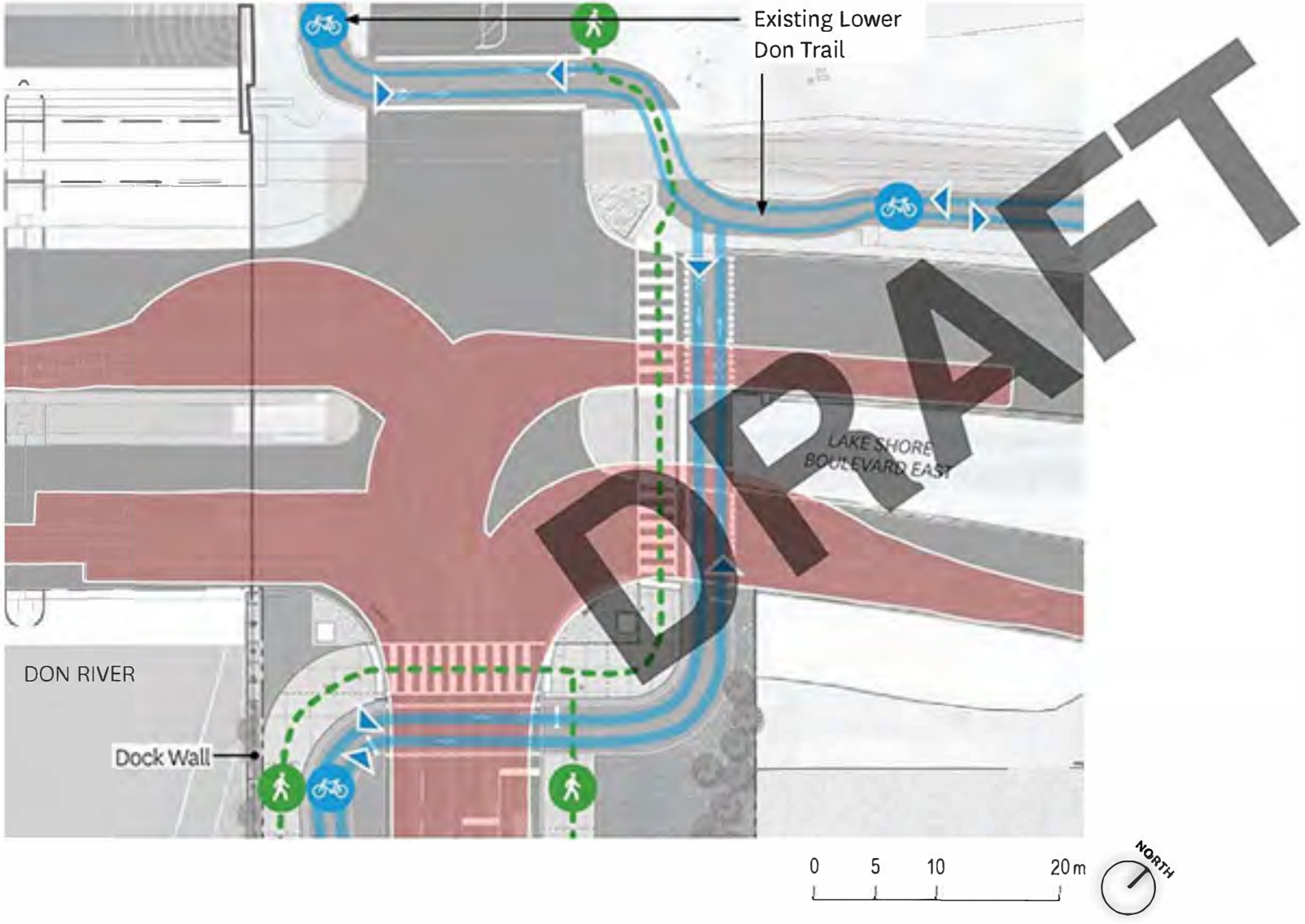
Existing Condition - Bridge and Bent at Intersection

② Temporary landscape east of Don Roadway

③ Existing right turn channel removed and filled in with temporary planting

Don Roadway: Intersection Design

Don Roadway & Lake Shore Boulevard East - Traffic Movement Overlay



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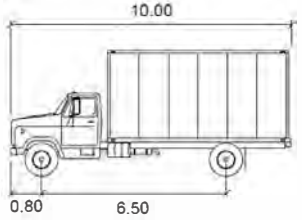

MSU

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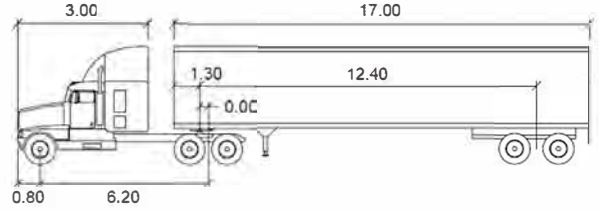
Steering Angle	: 40.2



WB-20

	meters		
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Trailer Width	: 2.60	Steering Angle	: 28.2
Tractor Track	: 2.60	Articulating Angle	: 70.0
Trailer Track	: 2.60		

View Looking Southwest on East Side of Cherry Street

View Looking West on North Side of Commissioners Street

View Looking West on South Side of Commissioners Street

View Looking South on West Side of Don Roadway


DRAFT