



Port Lands Flood Protection and Enabling Infrastructure: Roads

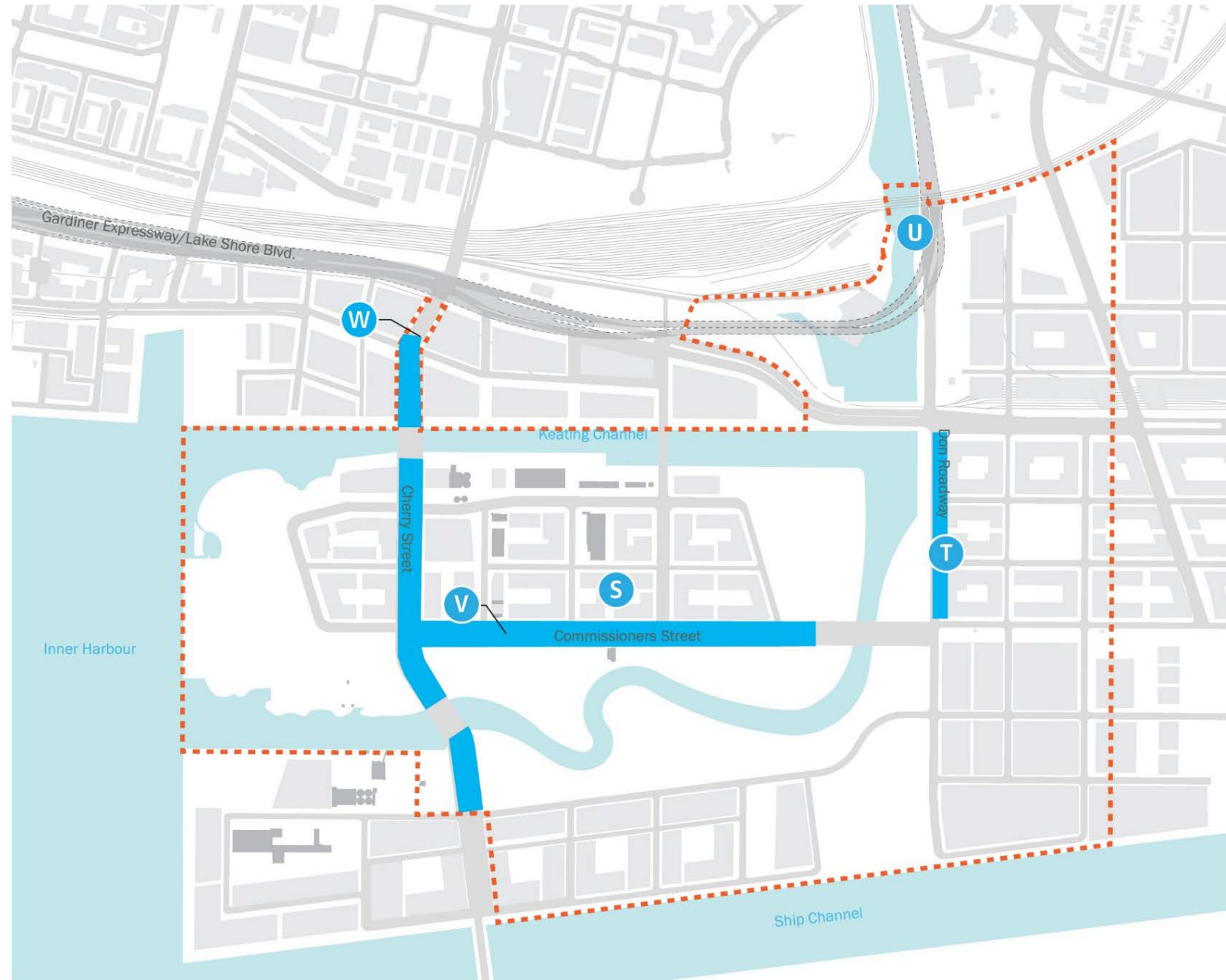
Detailed Design

September 25, 2019

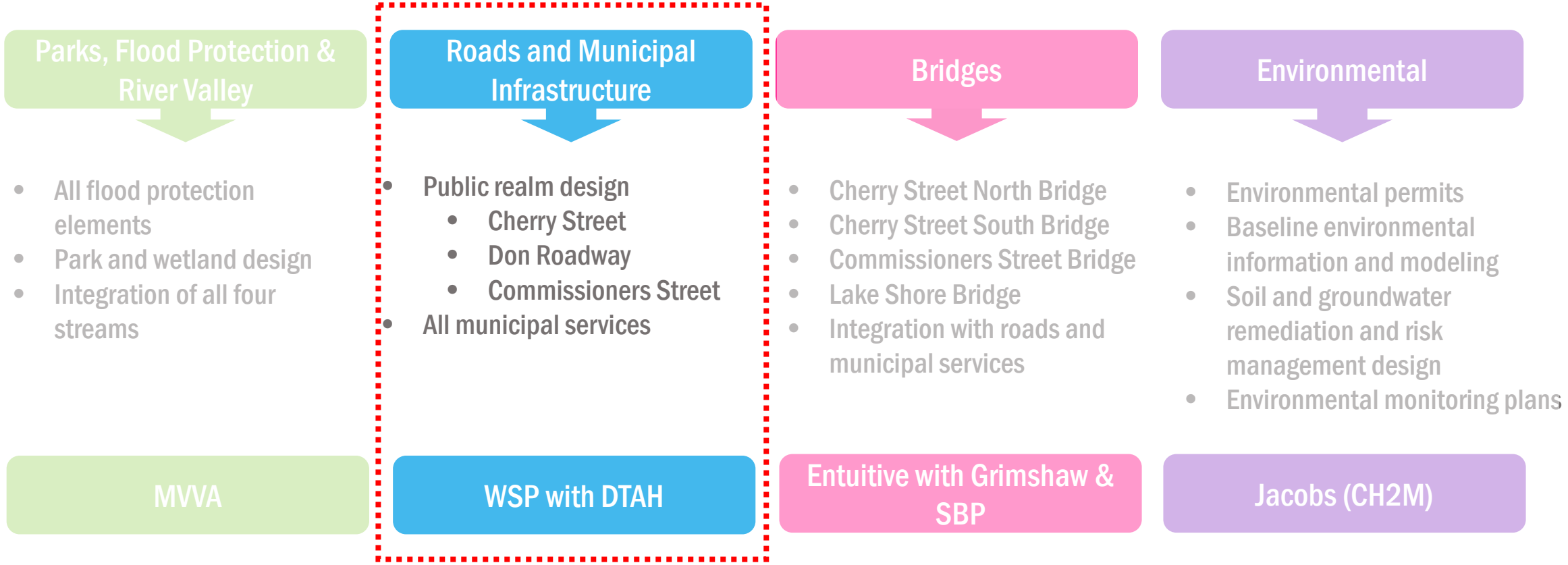
Roads and Municipal Services

- 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

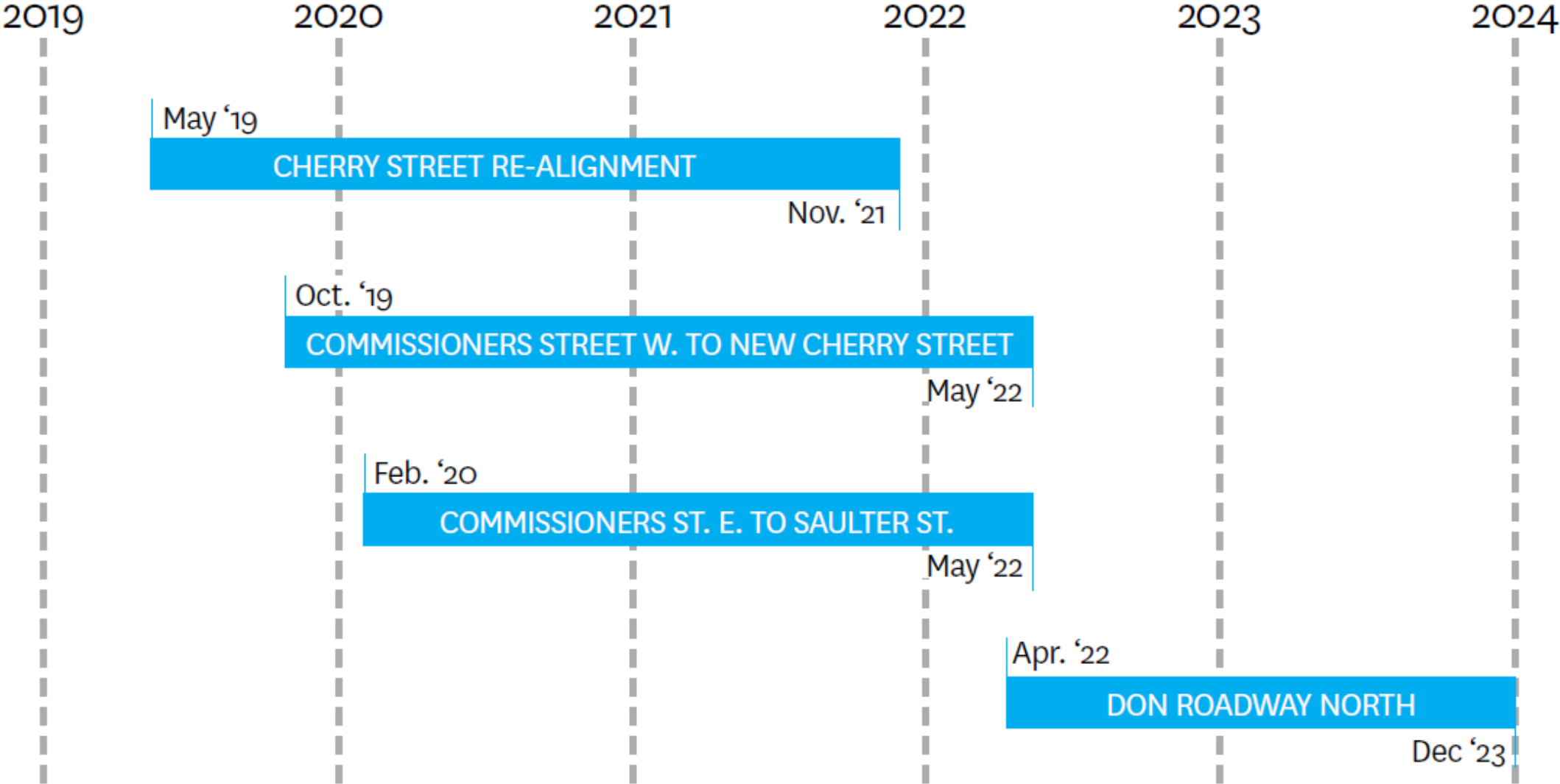
- Port Lands Flood Protection and Enabling Infrastructure Boundary
- Earthworks/Flood Protection
- Parks
- Bridges & Structures
- Roads and Municipal Infrastructure



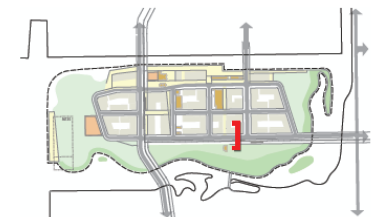
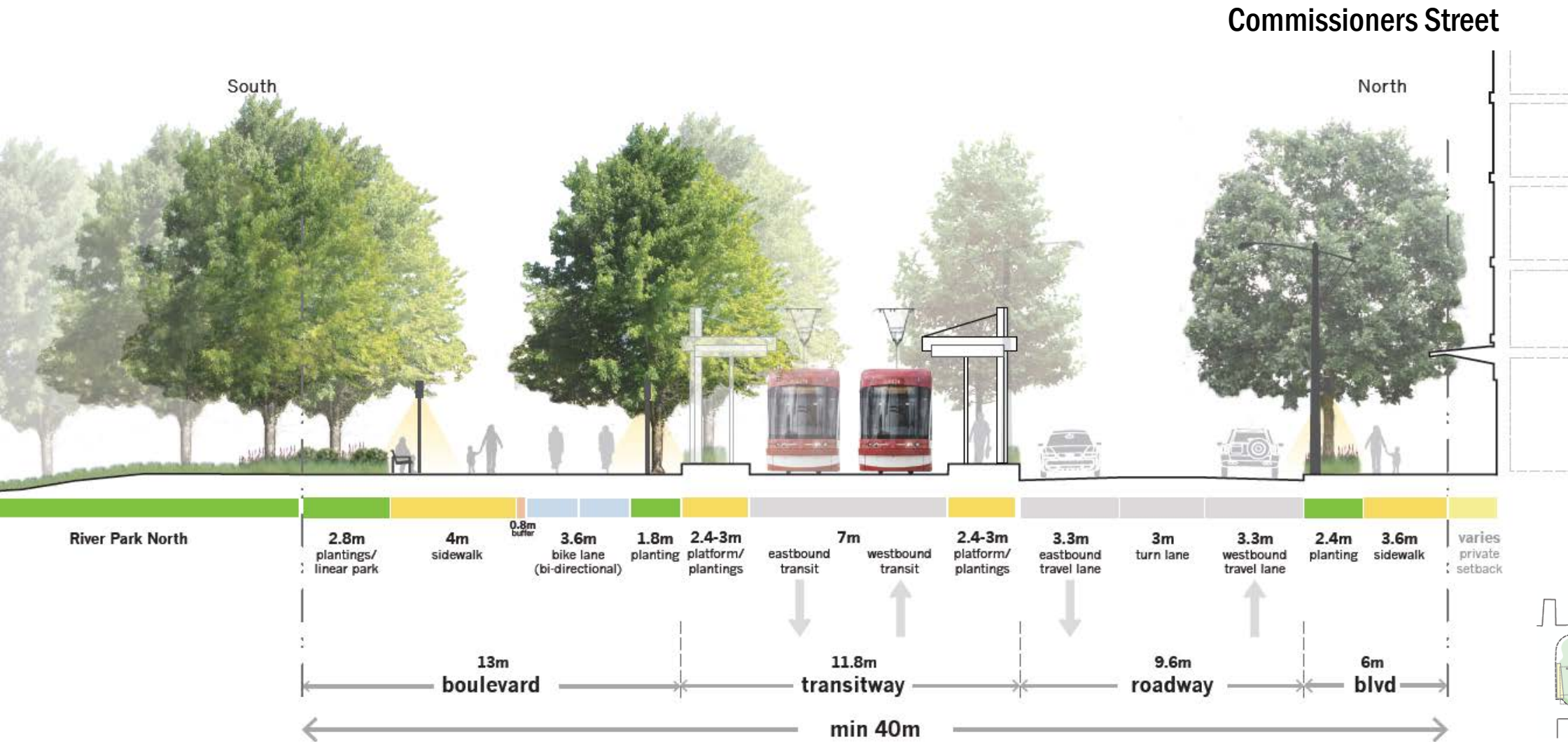
Team Structure



Project Schedule – Anticipated Construction Schedule



Villiers Island Precinct Plan - Roads



Roads DRP Comments

June 26, 2019

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

Three Streets for the Port Lands

- Three streets for the Port Lands were presented September 2018
- Cherry Street 90% Detailed Design was presented November 2018
- Commissioners Street & Don Roadway 60% Detail Design was presented June 2019



Toronto Inner Harbour



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)



Urban Street

- Martin Goodman Trail (west side)
- Dedicated transit lane (east side)
- Regular tree spacing intervals in open planters with organized planting drifts
- Future at-grade retail animation

Street Character

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



Park Street

Unidirectional cycle track

Dedicated transit lane (south side)

Areas of 'wild growth' to tie-in to Park's planting strategy

Heritage inspired columnar trees to accentuate key Park entrances

Future at-grade retail/residential animation

Street Character

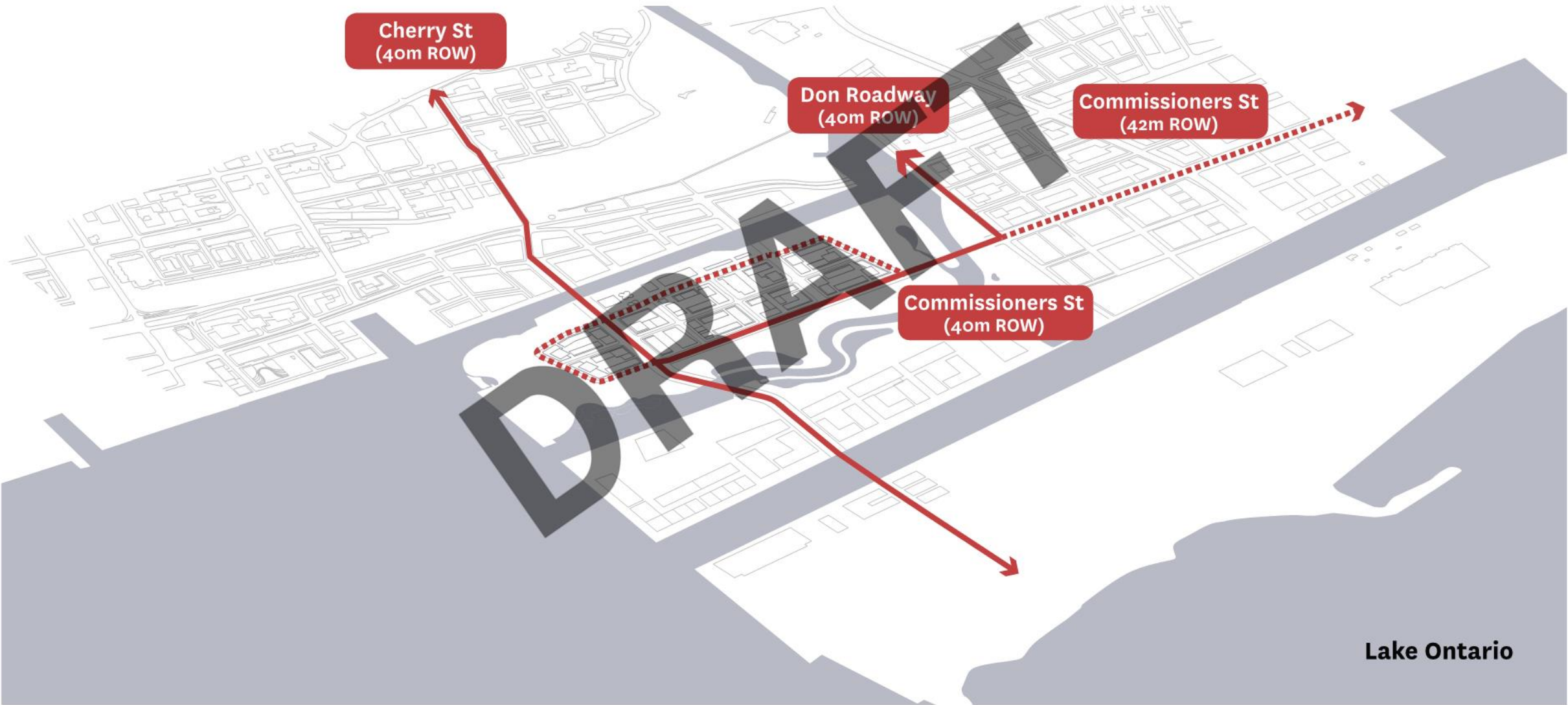
View Looking West on South Side of Commissioners Street (future)



River Street
Lower Don River Trail (west side)
‘Wild growth’ planting arrangement with focus on river ecology planting palette- habitat and food-producing species for urban wildlife
Future development along east side of Don Roadway

Port Lands Streets

Public Rights-of-Way



Cherry St
(40m ROW)

Don Roadway
(40m ROW)

Commissioners St
(42m ROW)

Commissioners St
(40m ROW)

Lake Ontario

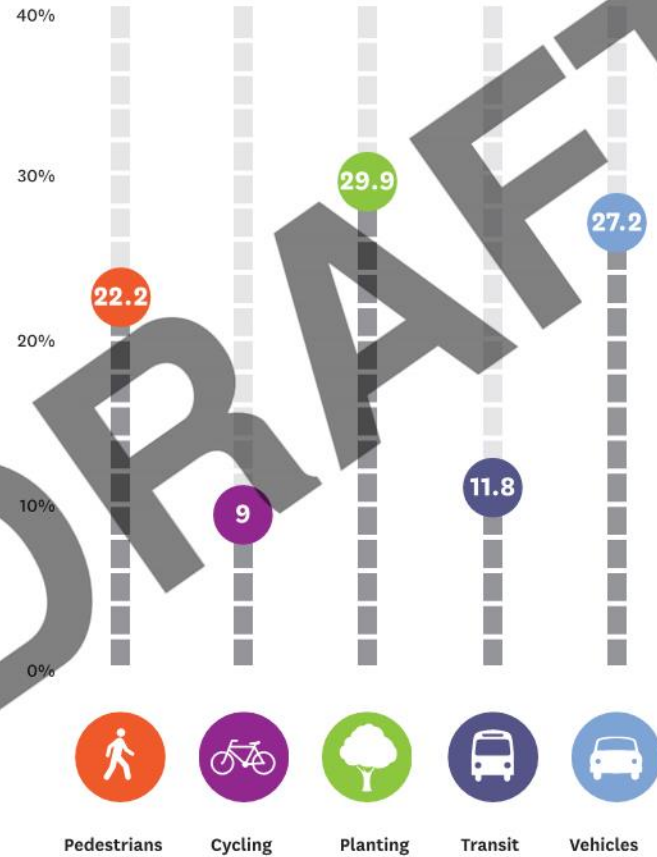
Port Lands Streets

Public Rights-of-Way: Space Allocation by User

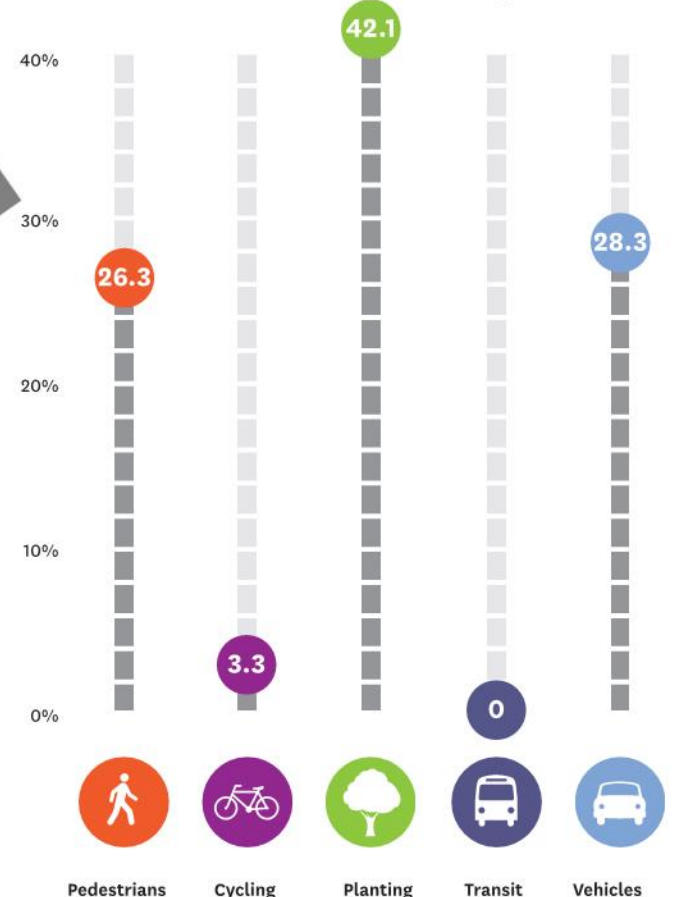
Cherry Street



Commissioners Street



Don Roadway



71.9% Average Non-Passenger Auto Use

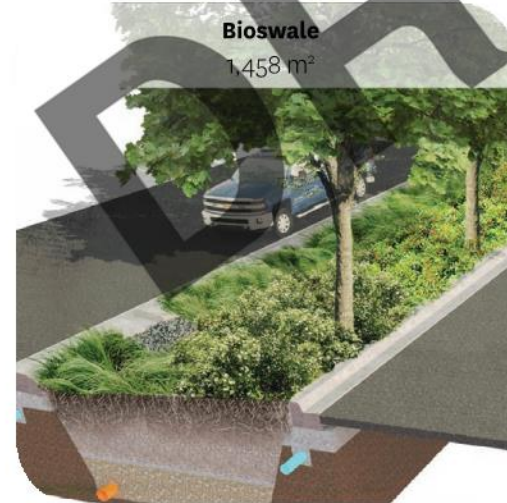
Port Lands Streets Landscape Types



1,806 m³
potential
stormwater capture



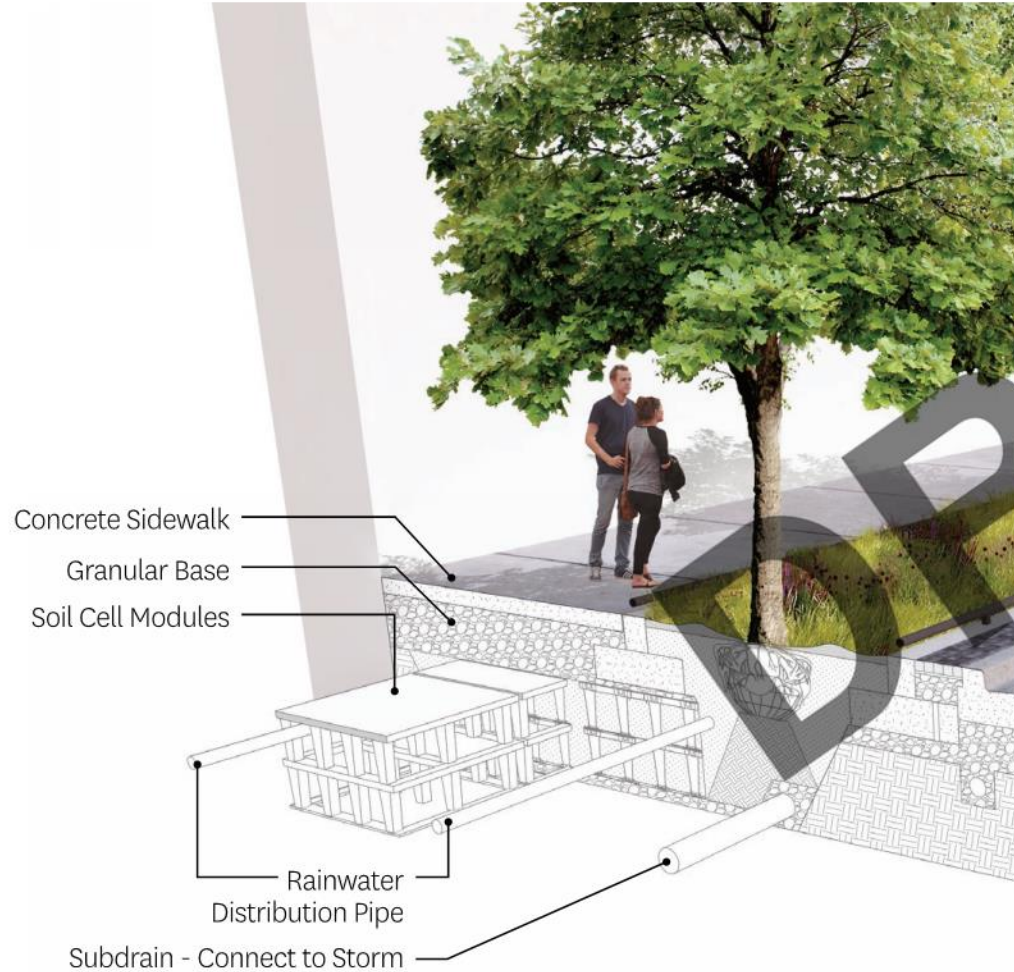
2.18 hectares
vegetated space
480 trees



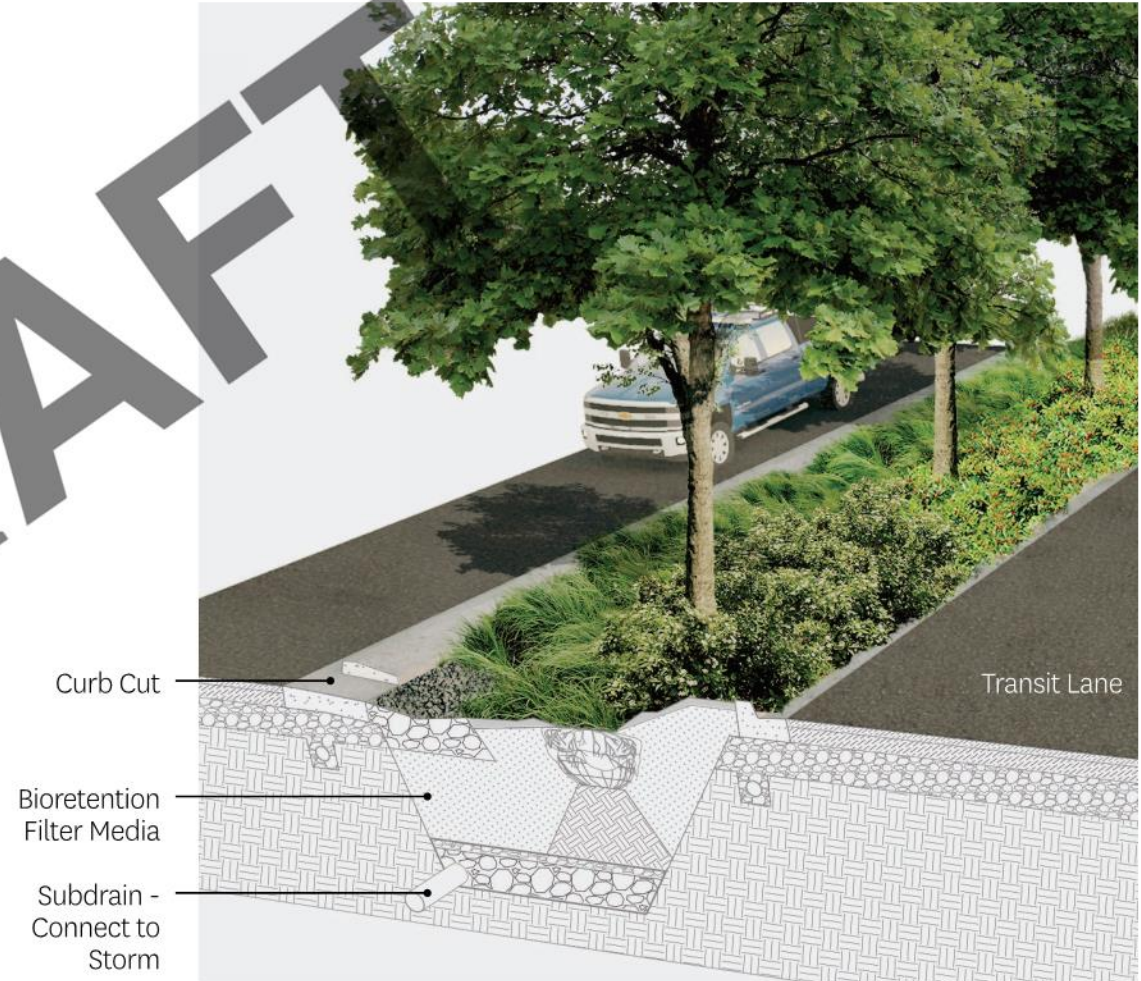
Port Lands Streets

Landscape Types - Green Infrastructure Facilities

Open Planter with Passive Irrigation



Bioswale



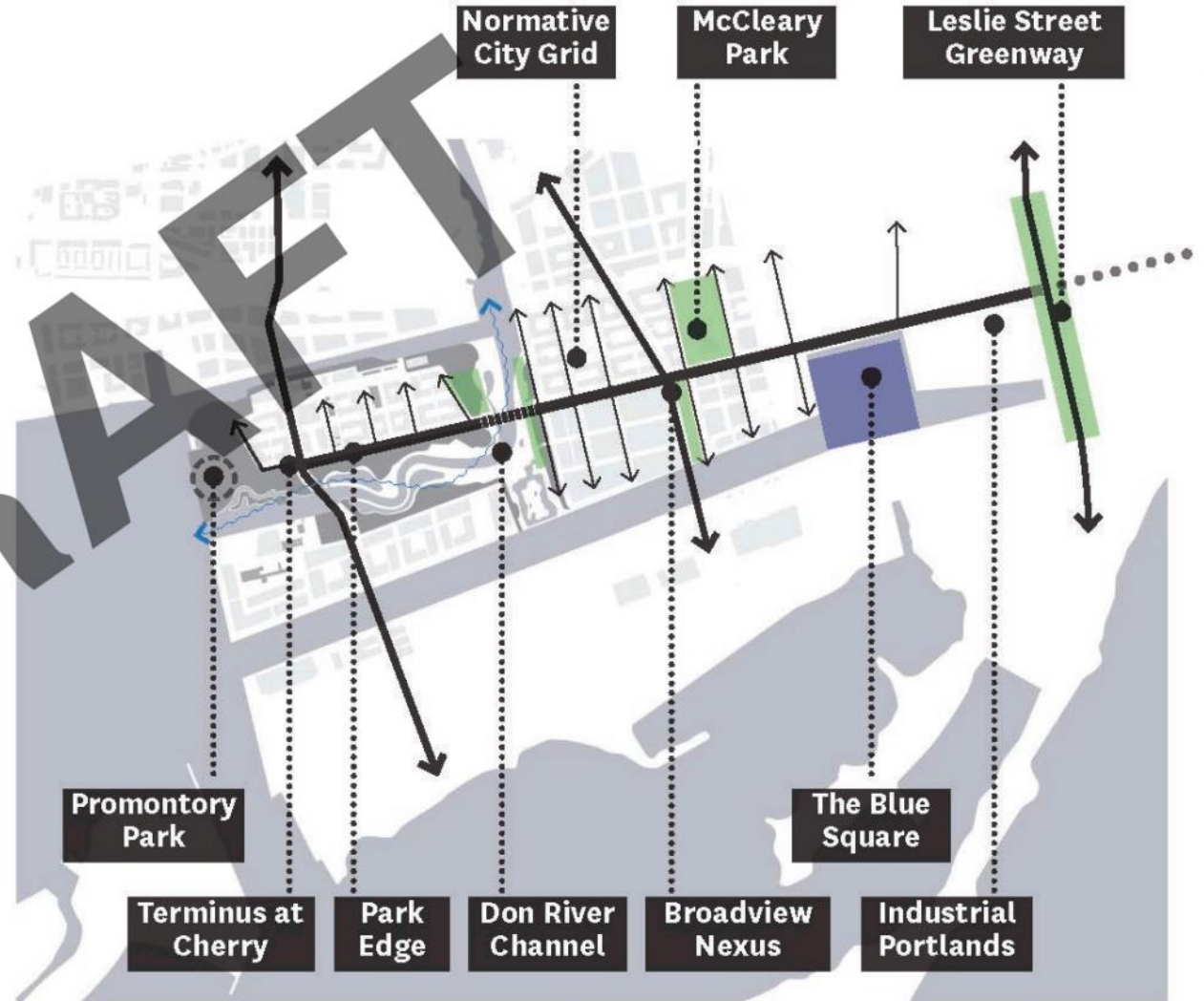
Port Lands Streets

Materiality



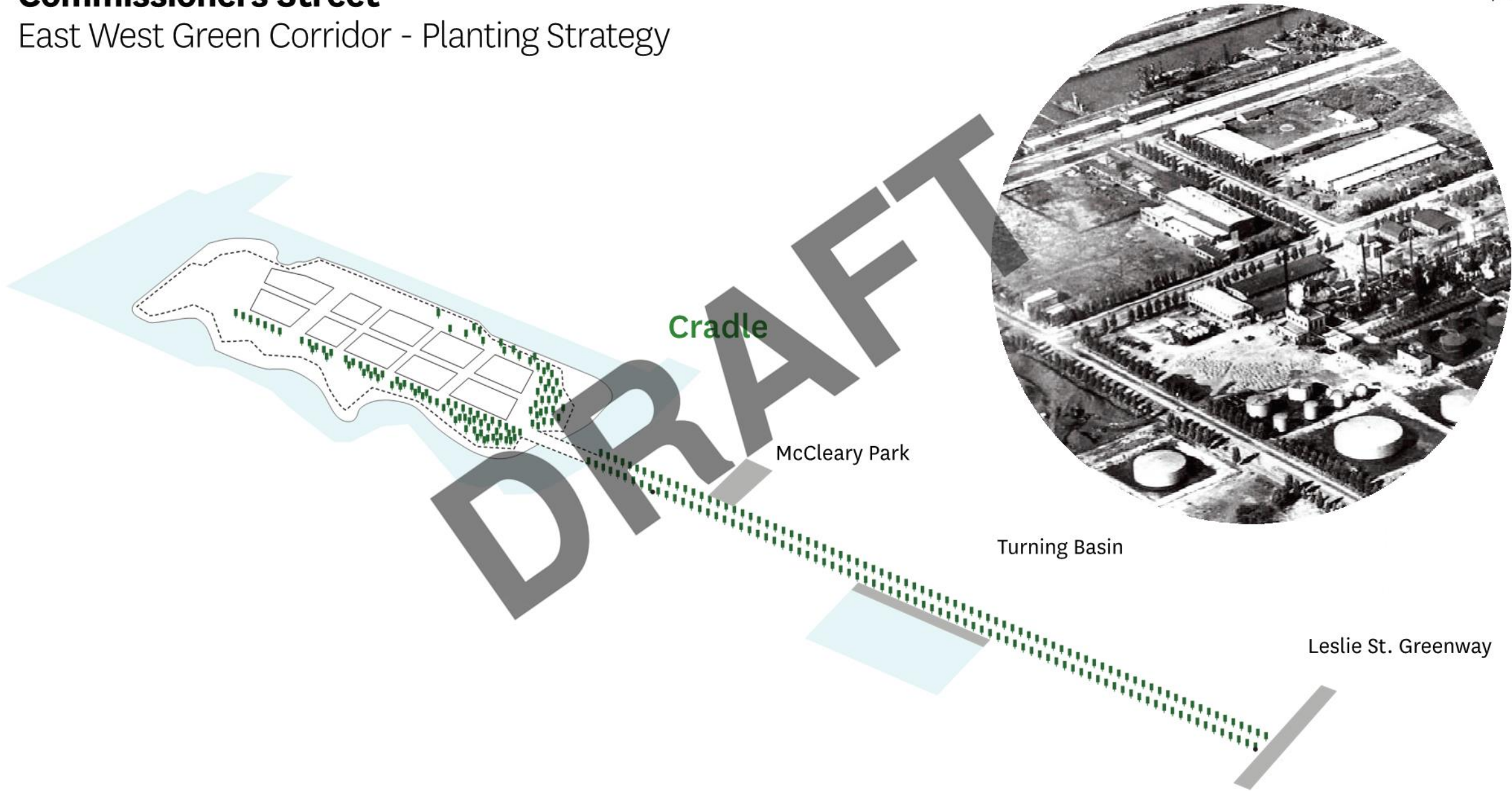
Commissioners Street

East West Green Corridor - "Park Street"



Commissioners Street

East West Green Corridor - Planting Strategy



Cradle

McCleary Park

Turning Basin

Leslie St. Greenway

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

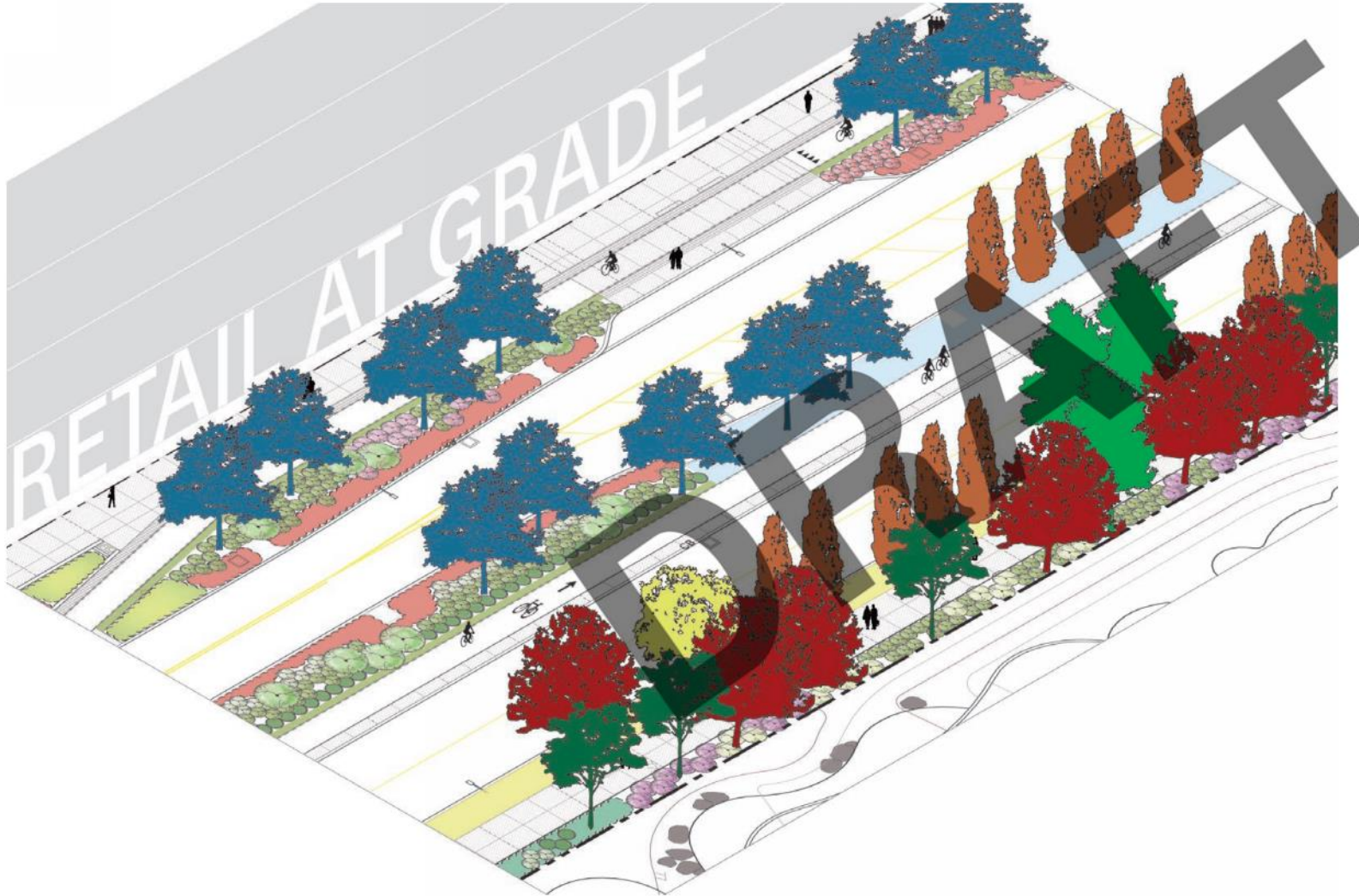
East West Green Corridor - Planting Strategy Collaboration with Parks Team



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



Swamp White Oak



Swamp White Oak



English Pyramidal Oak



English Pyramidal Oak



Common Hackberry



Basswood



Carolina Rose



Red Osier Dogwood



Fox Sedge



Fox Sedge



Red Osier Dogwood



Winterberry



Chokeberry



Carolina Rose



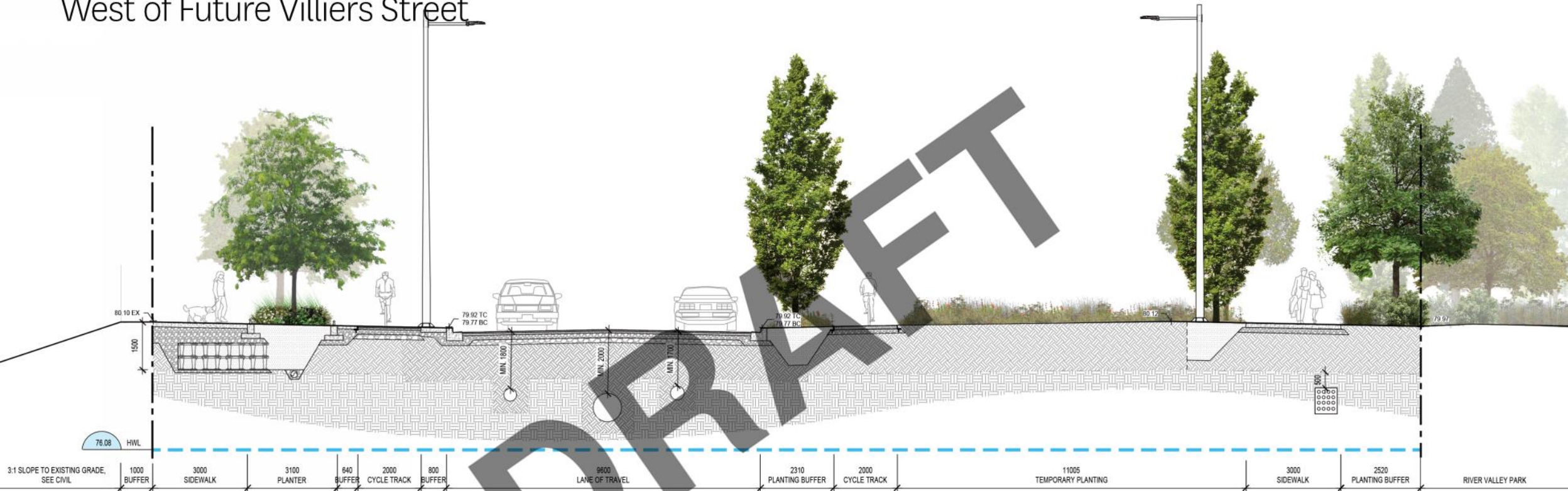
Northern Bayberry



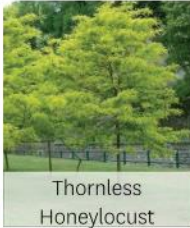
Native Pollinator Meadow Seed Mix

Commissioners Street

West of Future Villiers Street



Freeman Maple



Thornless Honeylocust



English Pyramidal Oak



English Pyramidal Oak



Swamp White Oak



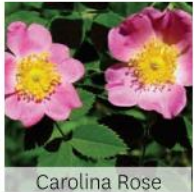
Basswood



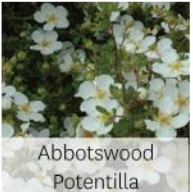
Side Oat Grama



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



Passenger car pick-up/drop-off



On-street parking



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



Passenger car pick-up/drop-off

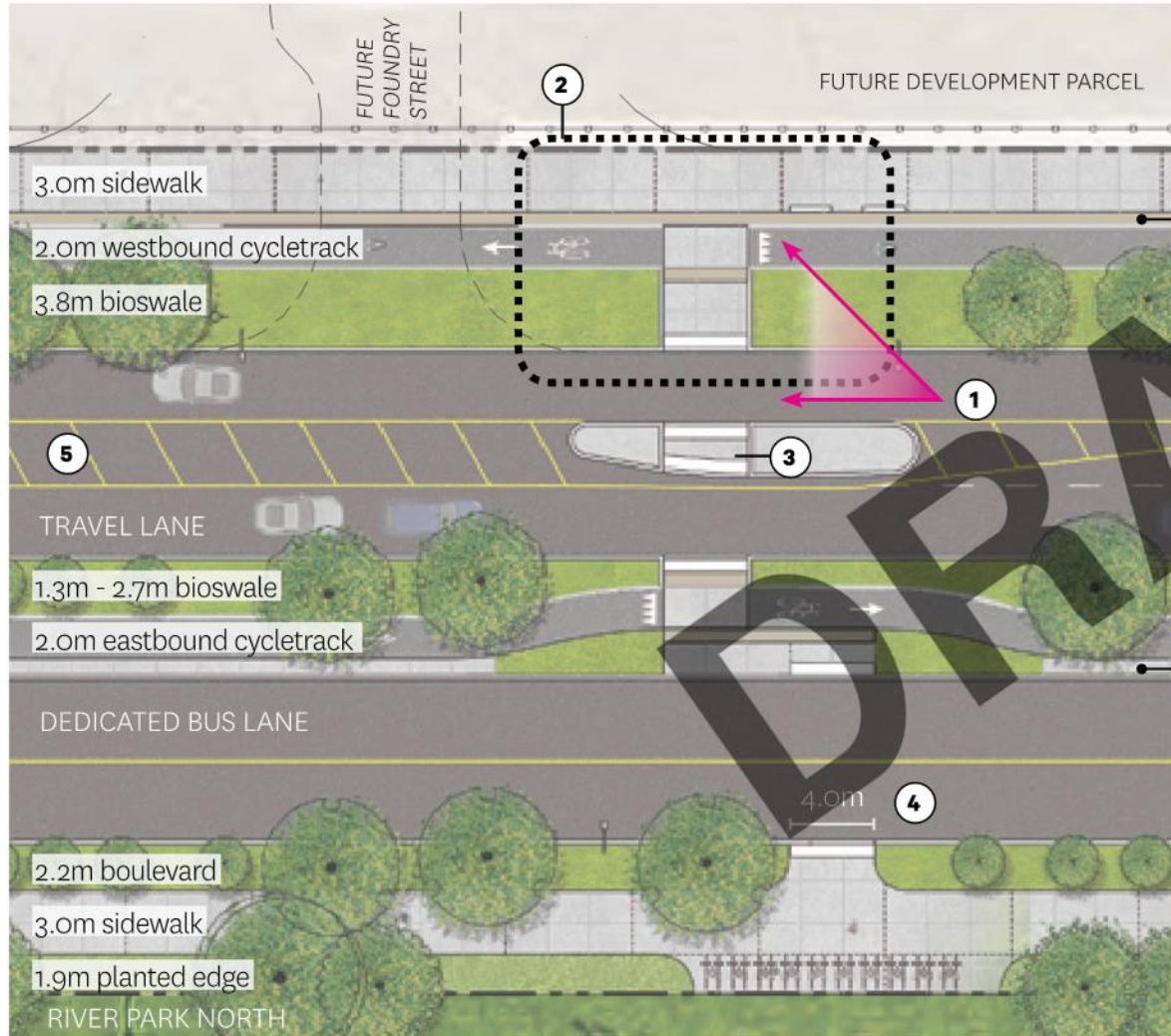


On-street parking

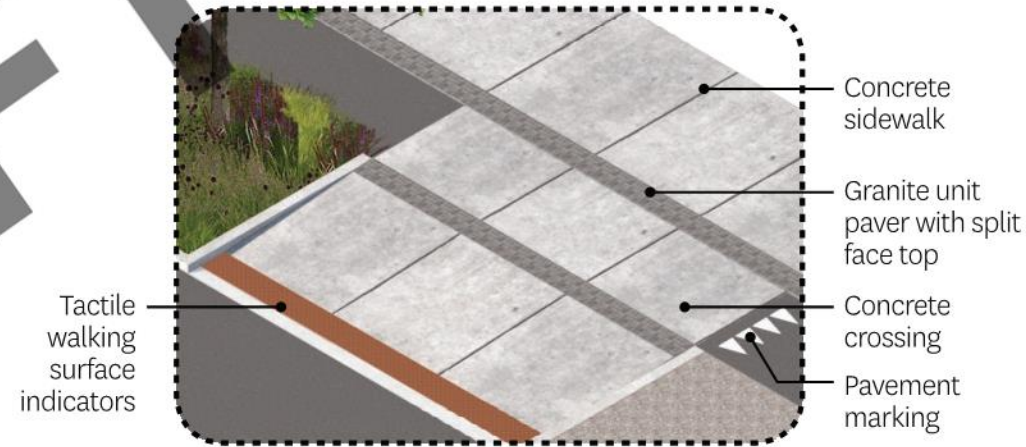


Commissioners Street

Mid-block crossings



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

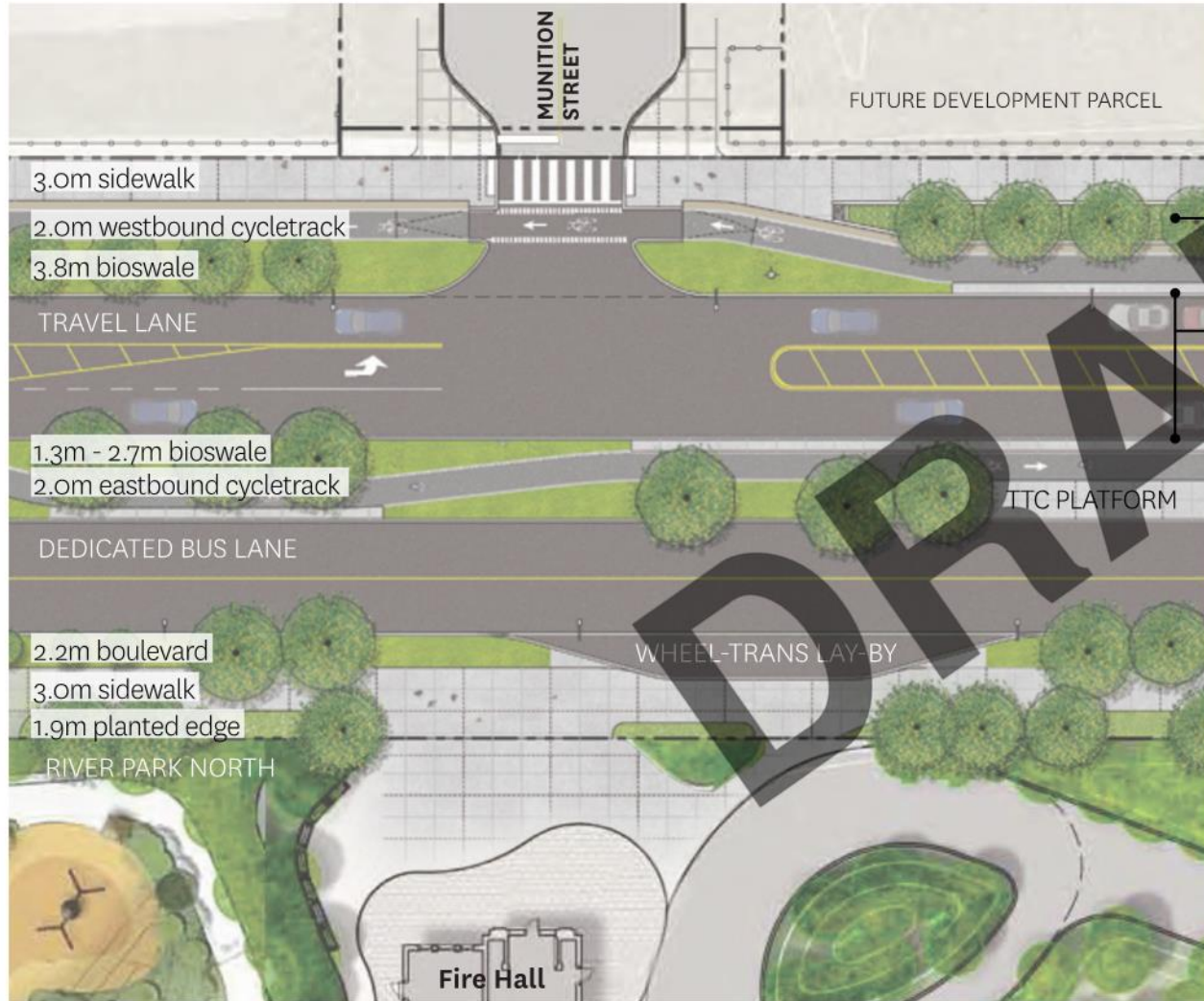


- ③ Refuge island allows people to cross only one lane of traffic at a time.
- ④ Wide crossings (4.0m) to facilitate mixed pedestrian-cyclist crossing. No zebra markings at "Wait for Gap" crossings.
- ⑤ Future left turn lane into Foundry Street.
- ⑥ 30km/h posted speed.

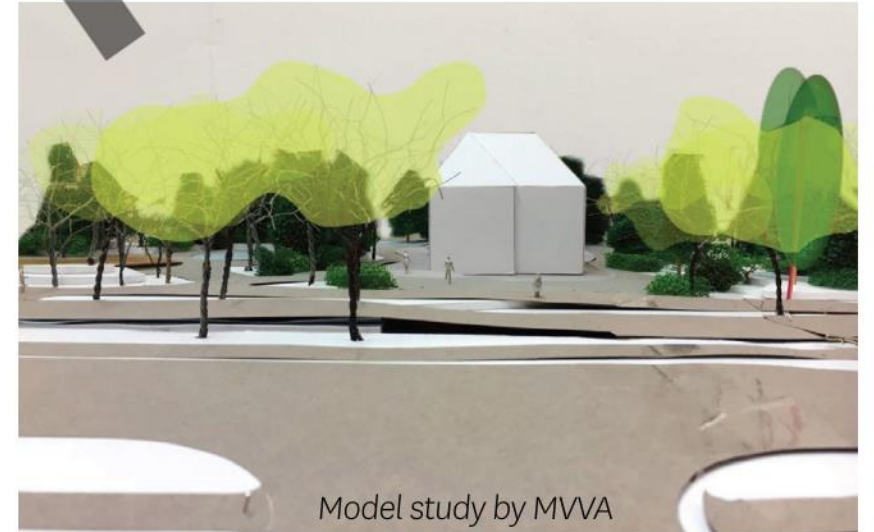


Commissioners Street

Wheel-Trans Pick-Up/Drop-Off

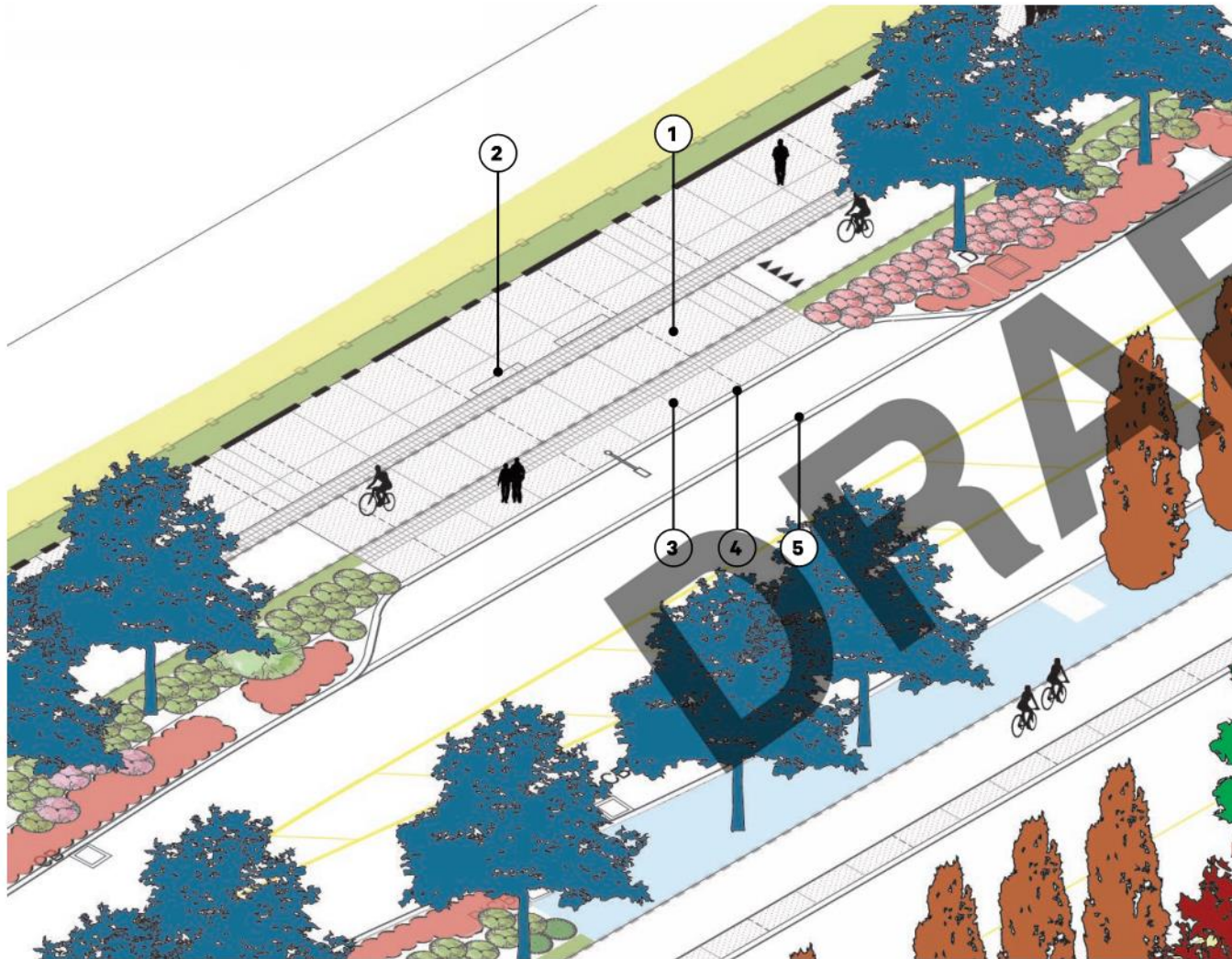


- ① Direct access for Wheel-Trans to River Park North destinations.
- ② View of Fire Hall preserved and framed by canopy tree planting



Commissioners Street

Passenger Car Pick-Up/Drop-Off



- 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



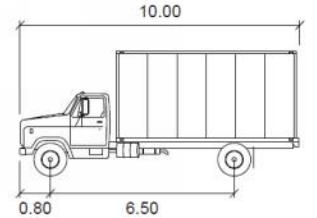
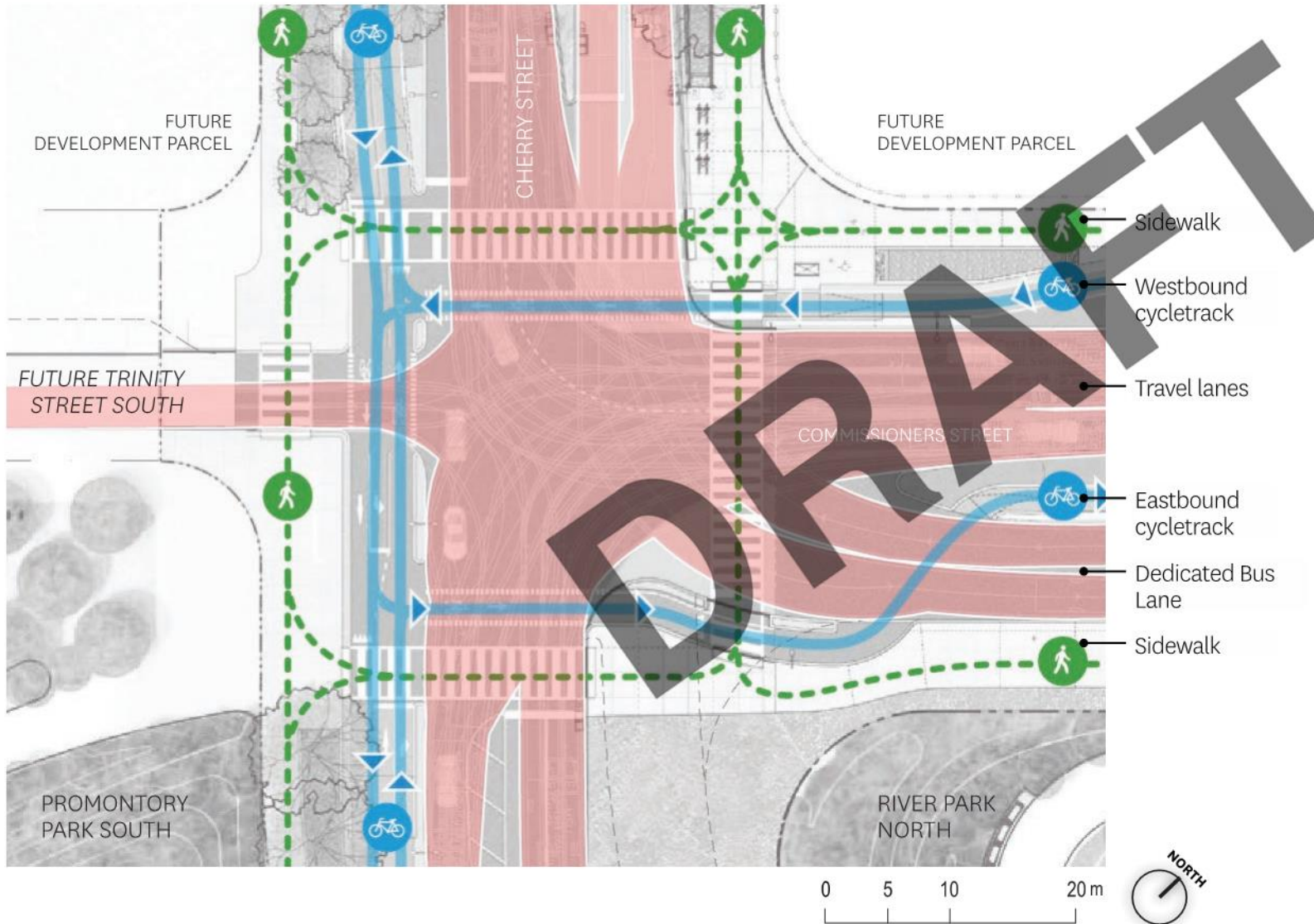
- ① 4.0m wide pedestrian crosswalk
- ② Tight curb radii, where feasible, with raised curb island protection
- ③ Mountable curb to accommodate access between Martin Goodman Trail, cycle track and Park
- ④ Temporary landscape planting at future LRT lanes

Sidewalk
Westbound cycletrack
Travel lanes
Eastbound cycletrack
Dedicated Bus Lane
Sidewalk



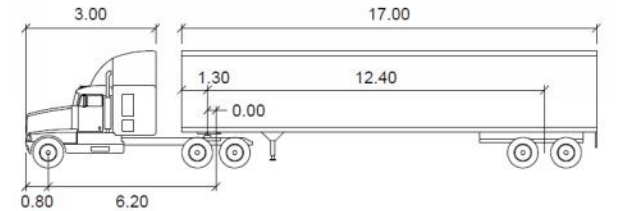
Commissioners Street: Intersection Design

Commissioners Street & Cherry Street - Traffic Movement Overlay



MSU

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

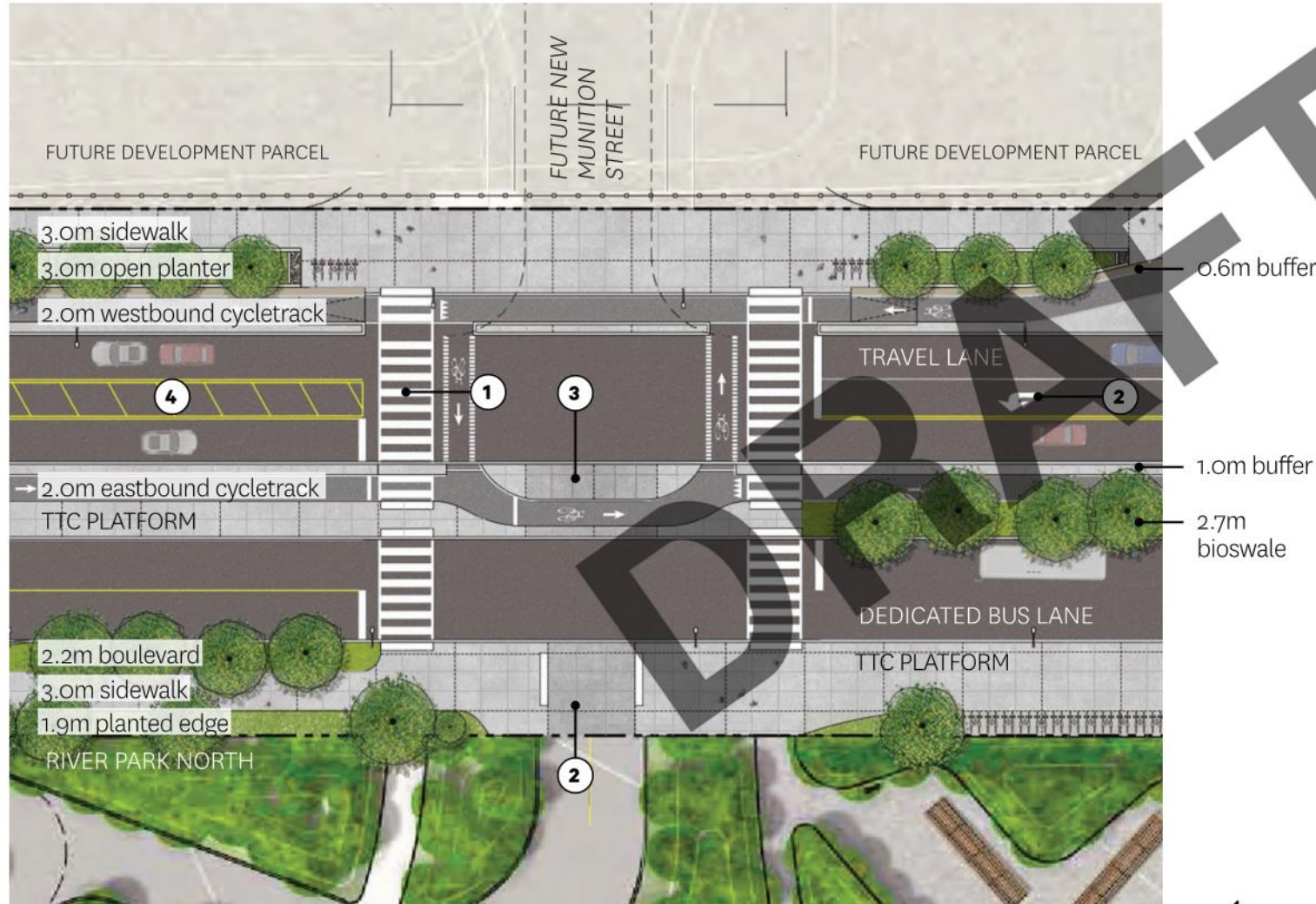


WB-20

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

Commissioners Street: Intersection Design

Commissioners Street & Future New Munion Street

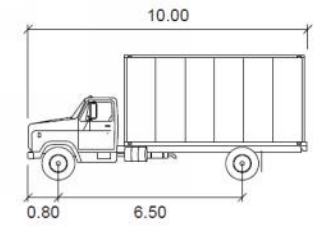
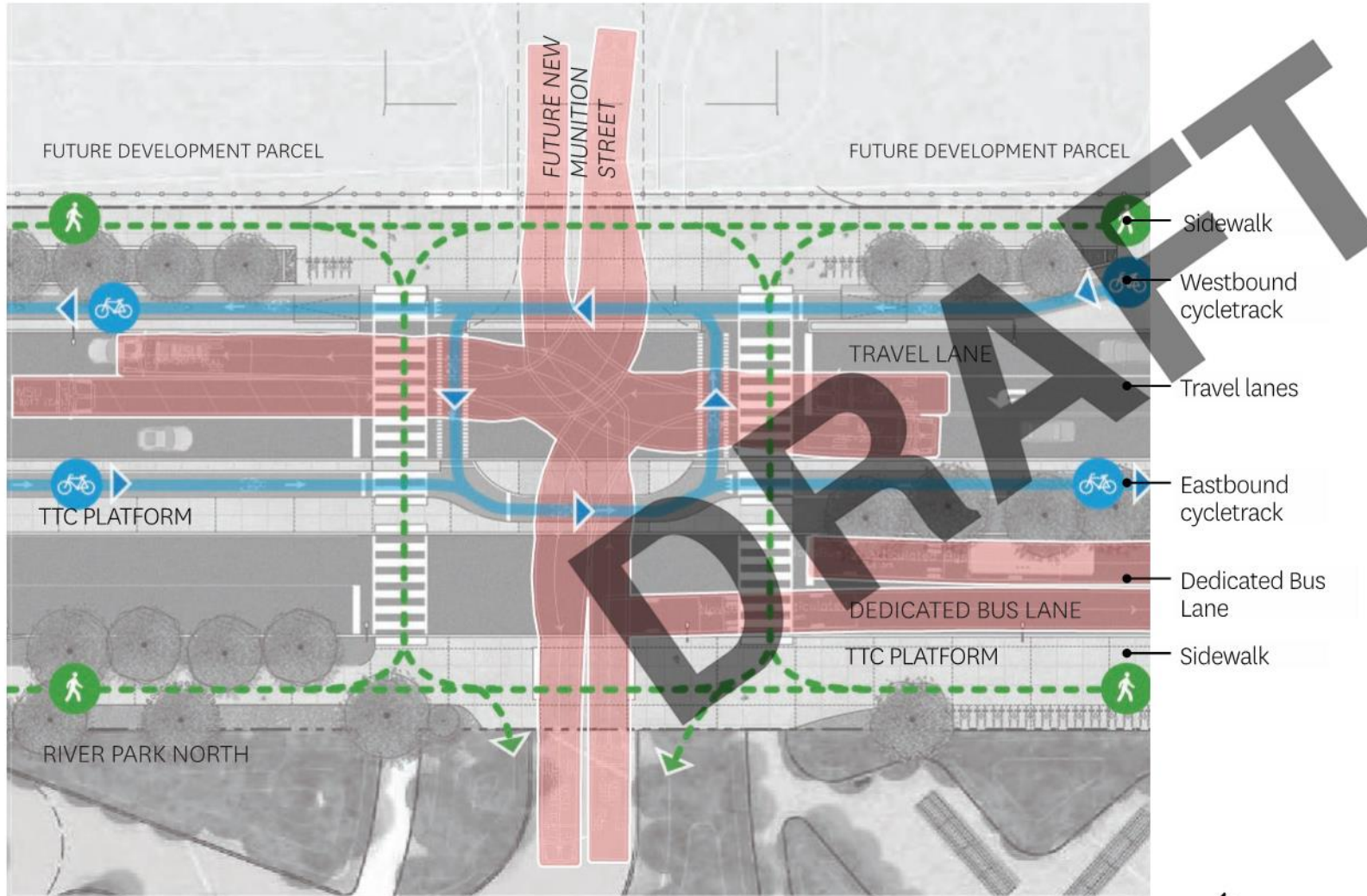


- ① 4.0m wide pedestrian crosswalk.
- ② Park maintenance access only.
- ③ Continuous concrete paving with dropped curb to deter general vehicular access.
- ④ Future left turn lane into New Munion Street



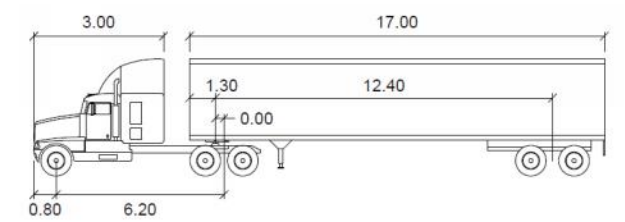
Commissioners Street: Intersection Design

Commissioners Street & Future New Munition Street - Traffic Movement Overlay



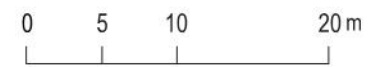
MSU

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



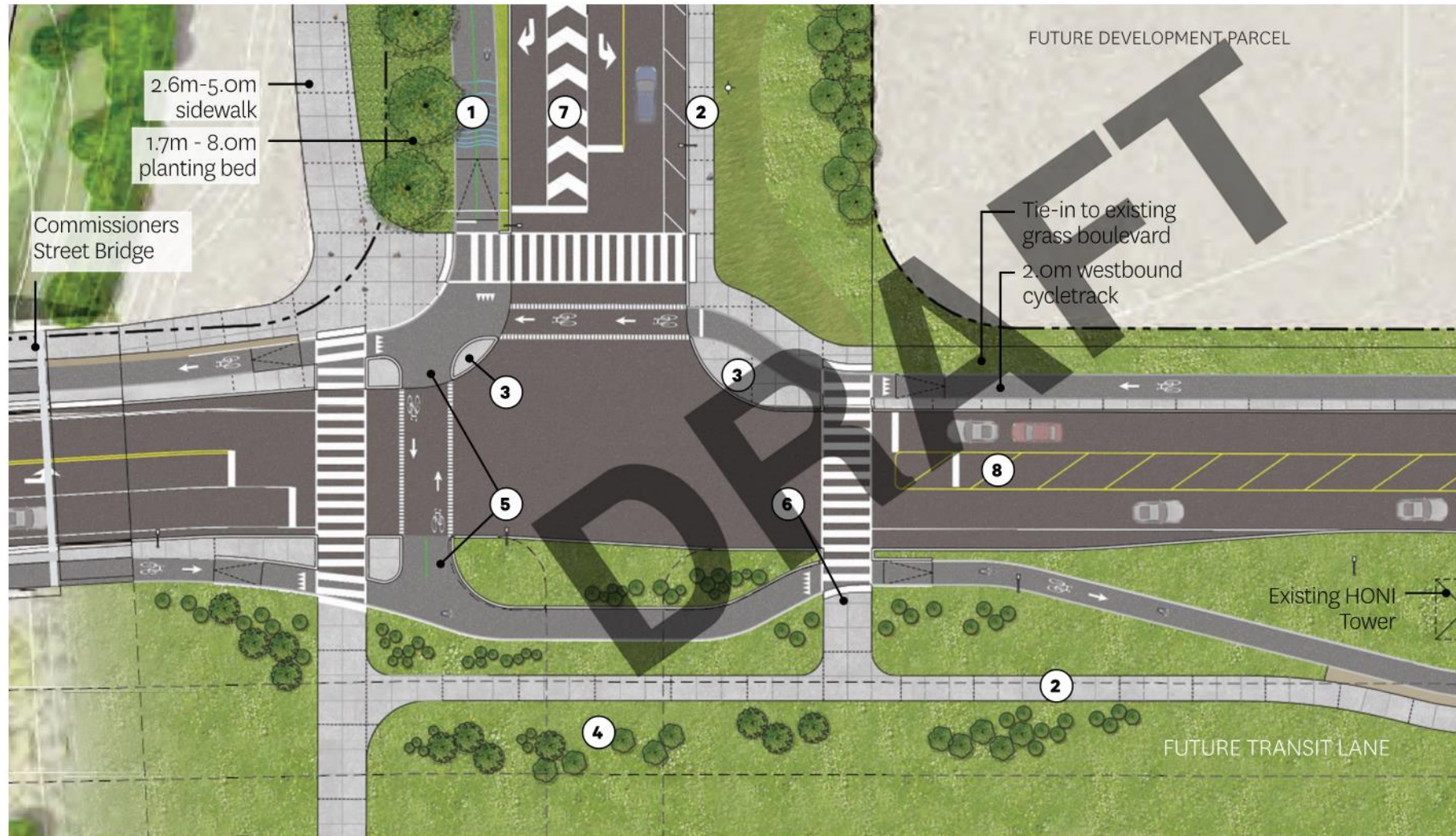
WB-20

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



Commissioners Street: Intersection Design

Commissioners Street & Don Roadway

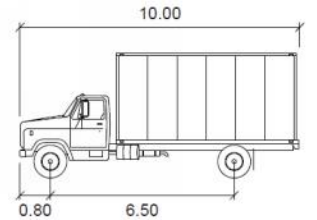
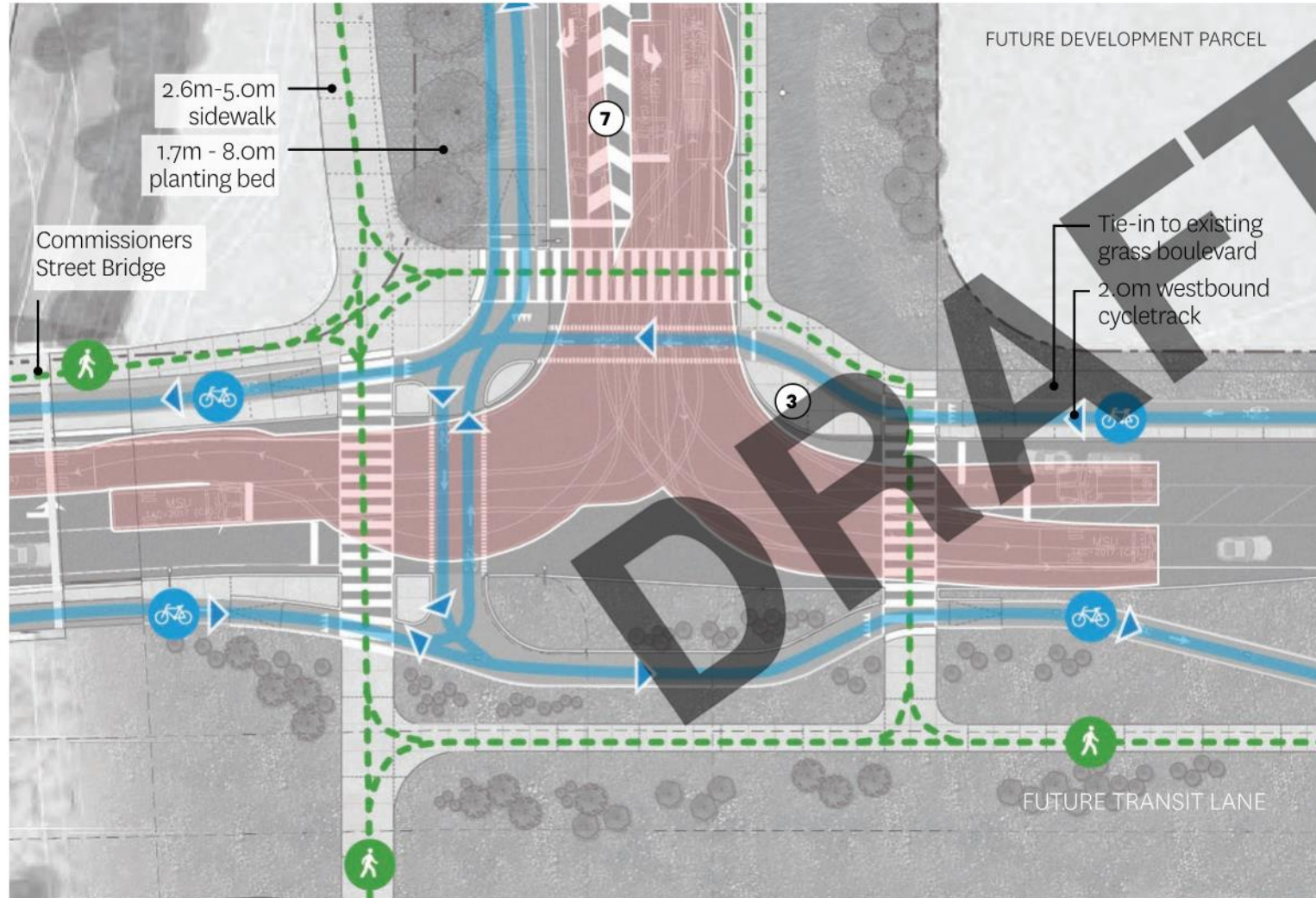


- ① 3.6m Lower Don River Trail
- ② 2.1m sidewalk (temporary)
- ③ Tight curb radii, where feasible, with raised curb island protection
- ④ Temporary landscape planting at future LRT lanes
- ⑤ Protected queuing lane for cyclist
- ⑥ Sidewalk close to curb to reduce crossing distance
- ⑦ Hatched Lane (future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



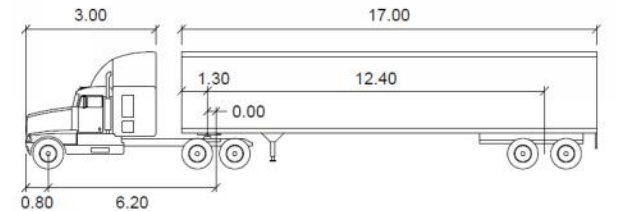
Commissioners Street: Intersection Design

Commissioners Street & Don Roadway - Traffic Movement Overlay



MSU

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



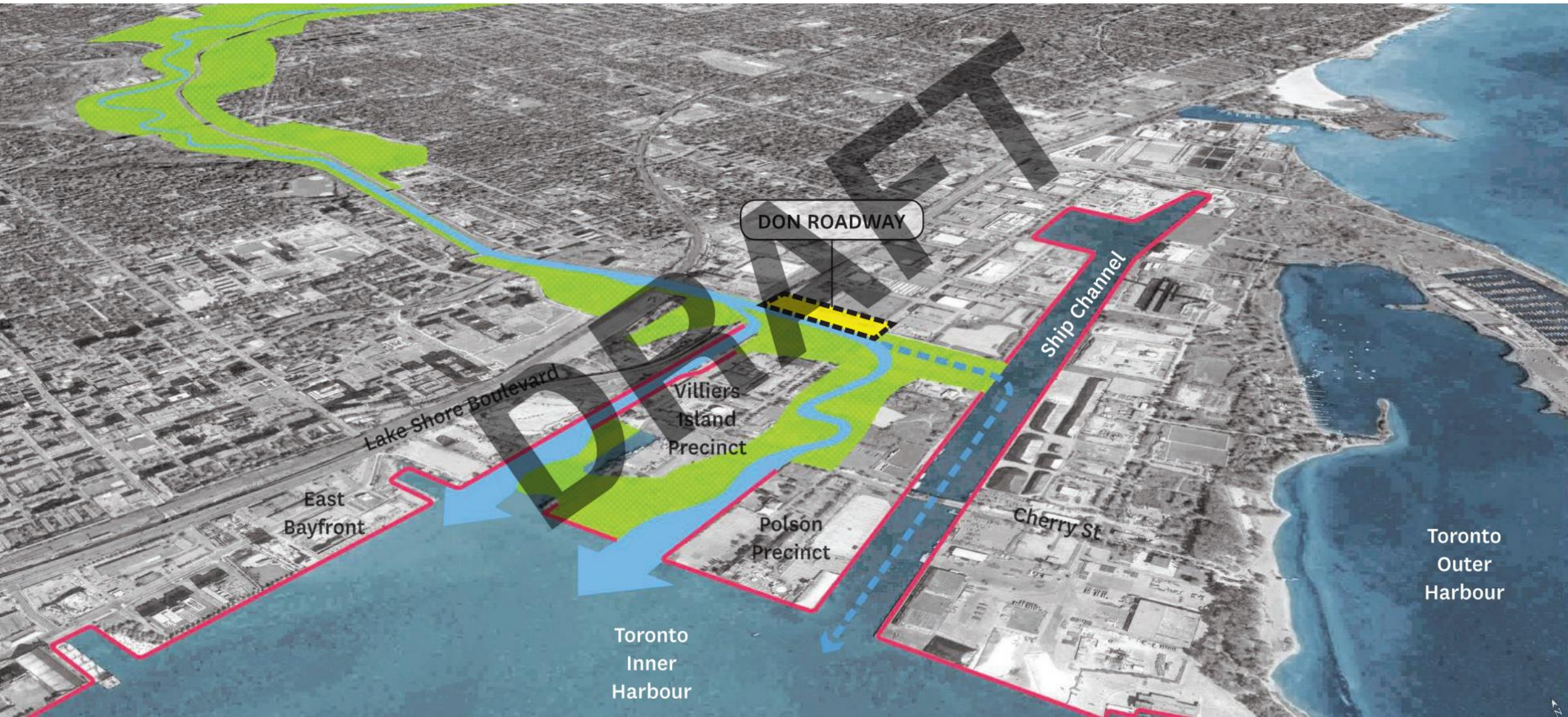
WB-20

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



Don Roadway

Transportation and Ecological Corridor



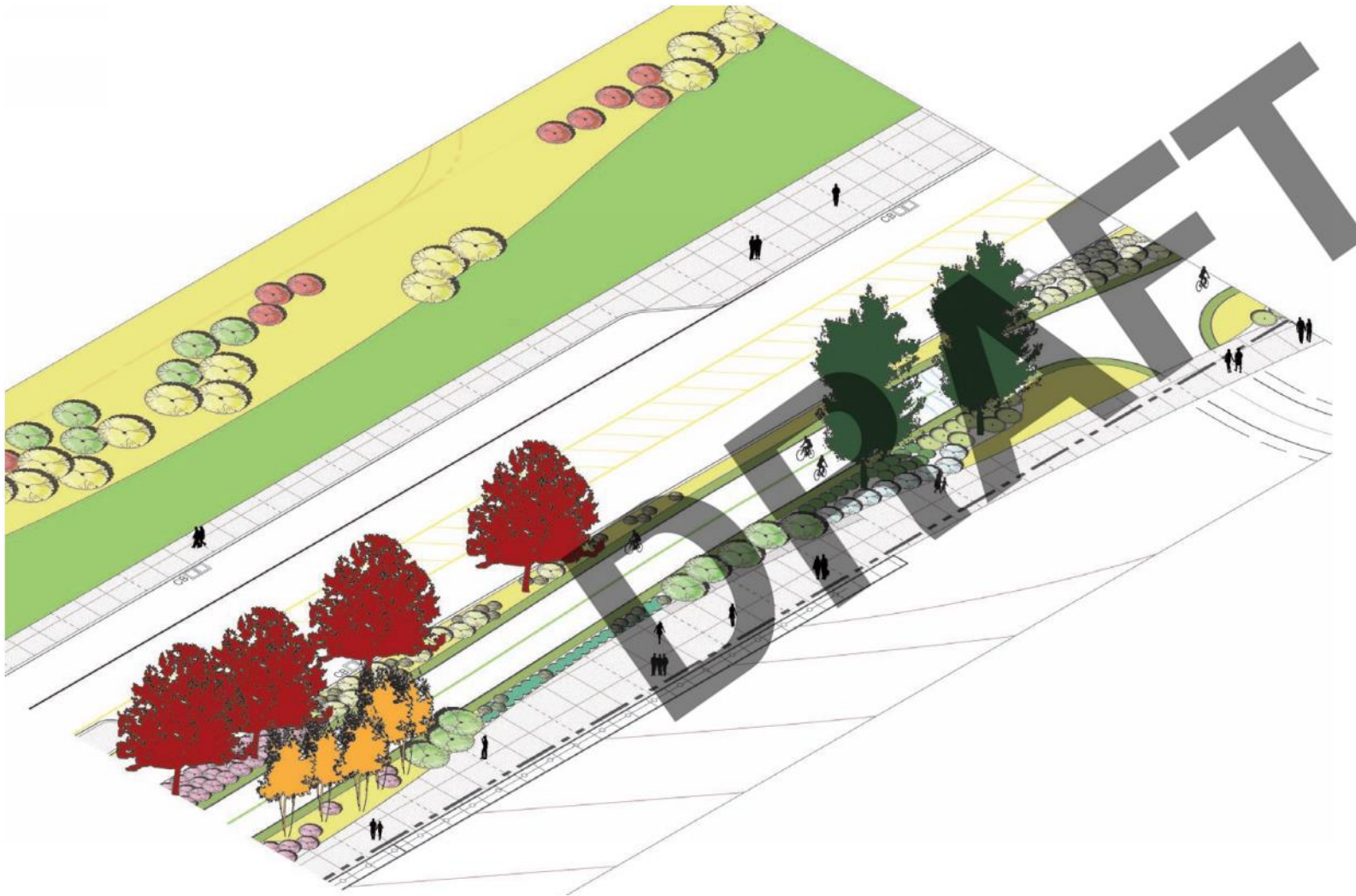
Don Roadway

Transportation and Ecological Corridor



Don Roadway

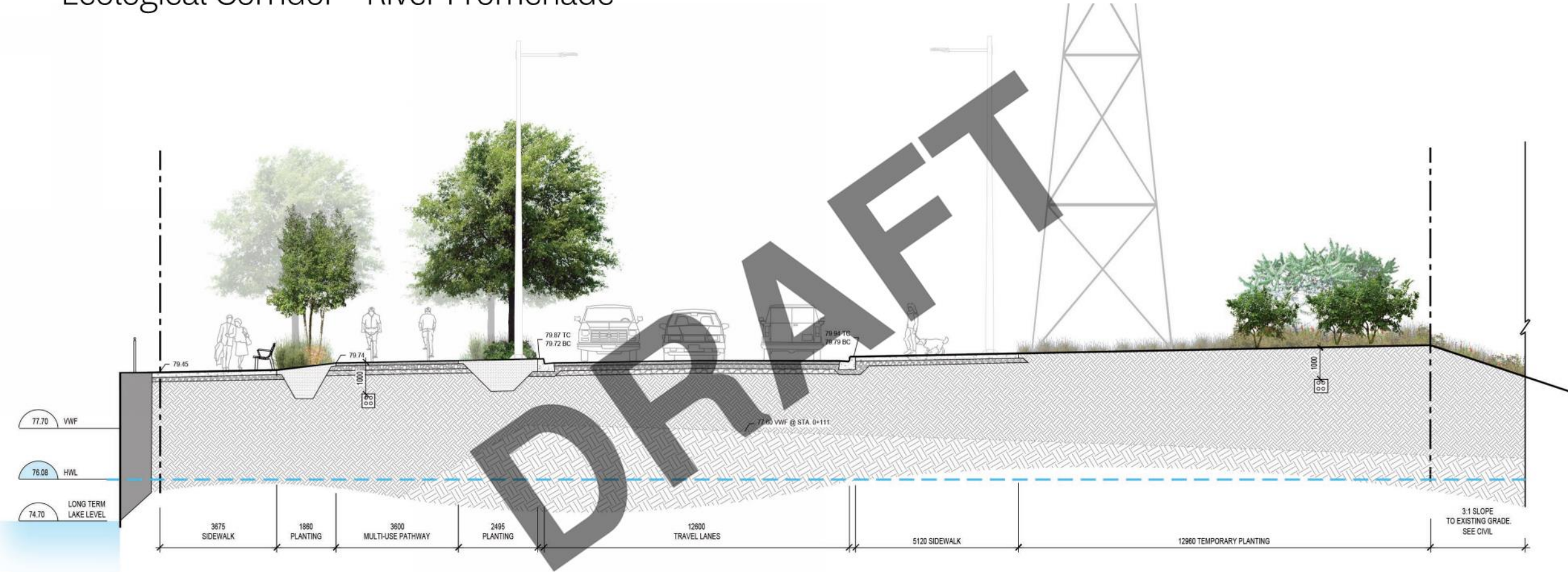
Ecological Corridor - Planting Strategy



- 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



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



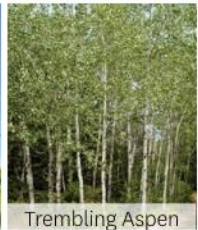
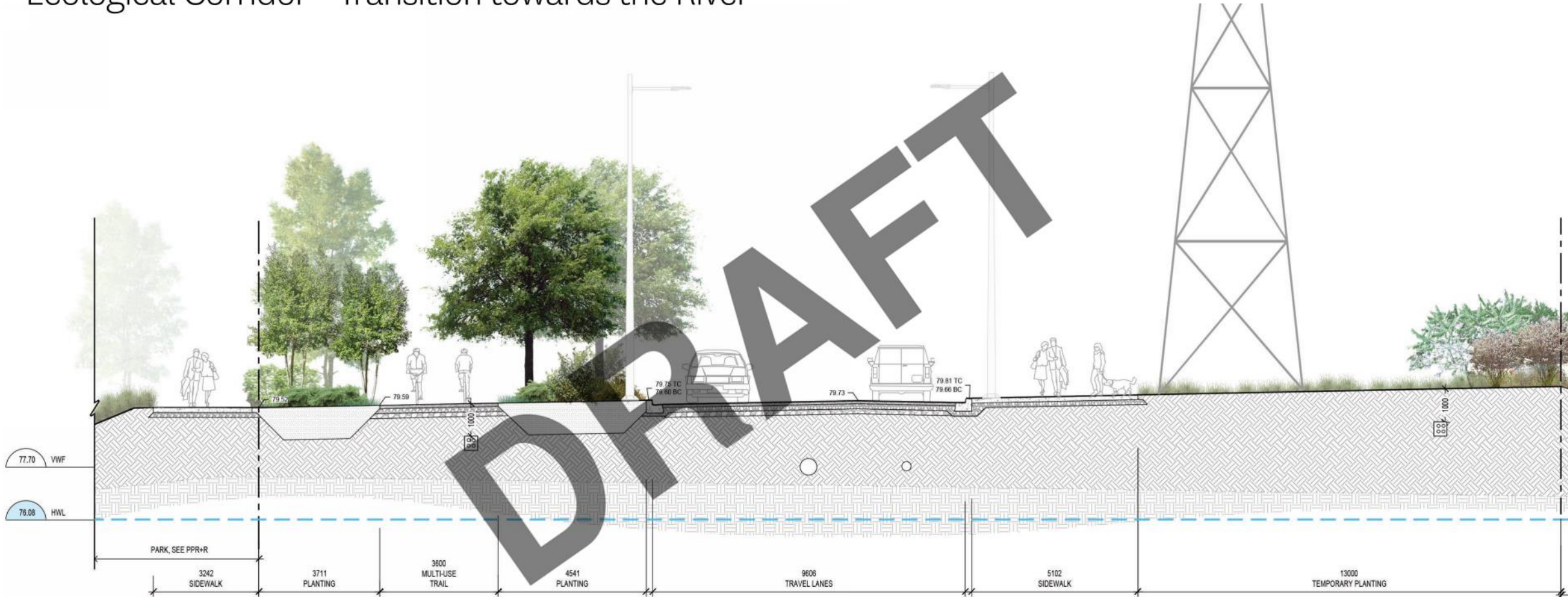
Staghorn Sumac



Elderberry





Don Roadway

Ecological Corridor - Transition towards the River



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

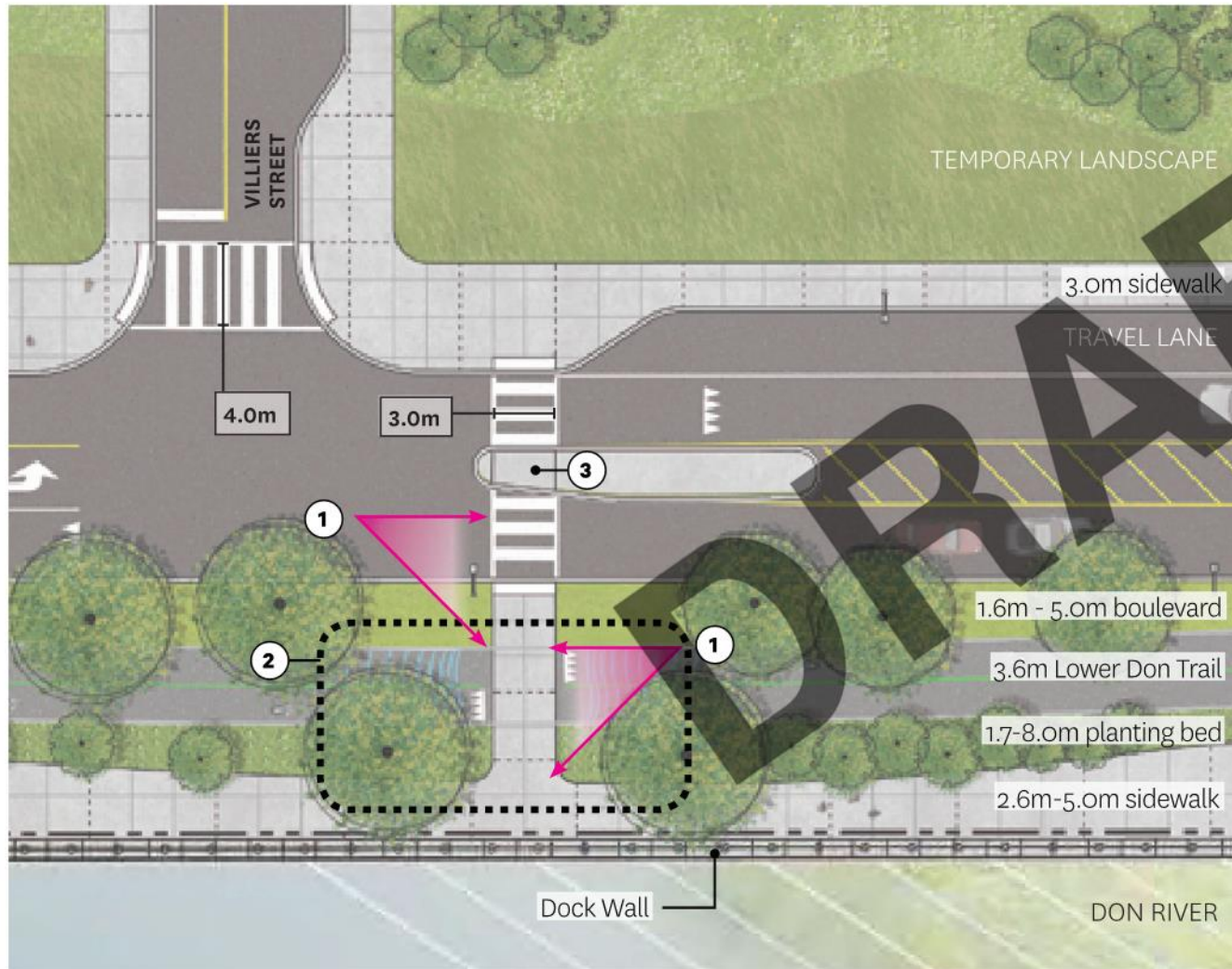
Mid-block crossing and Lay-By (future)

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

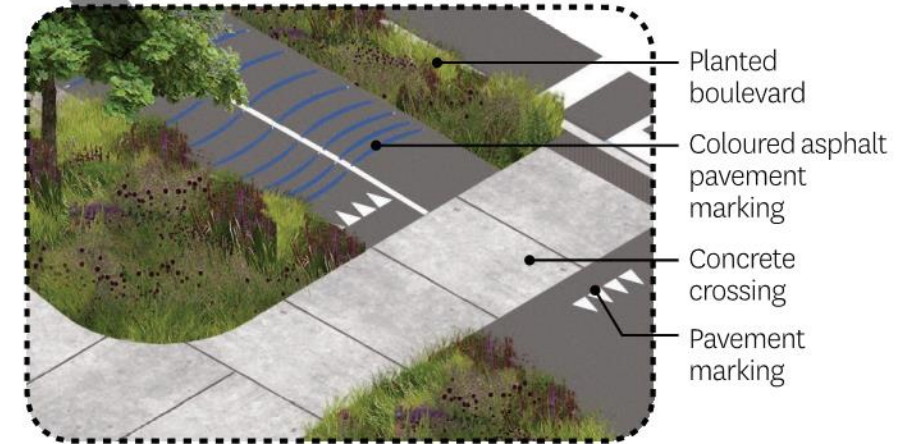


Don Roadway

Mid-block crossing



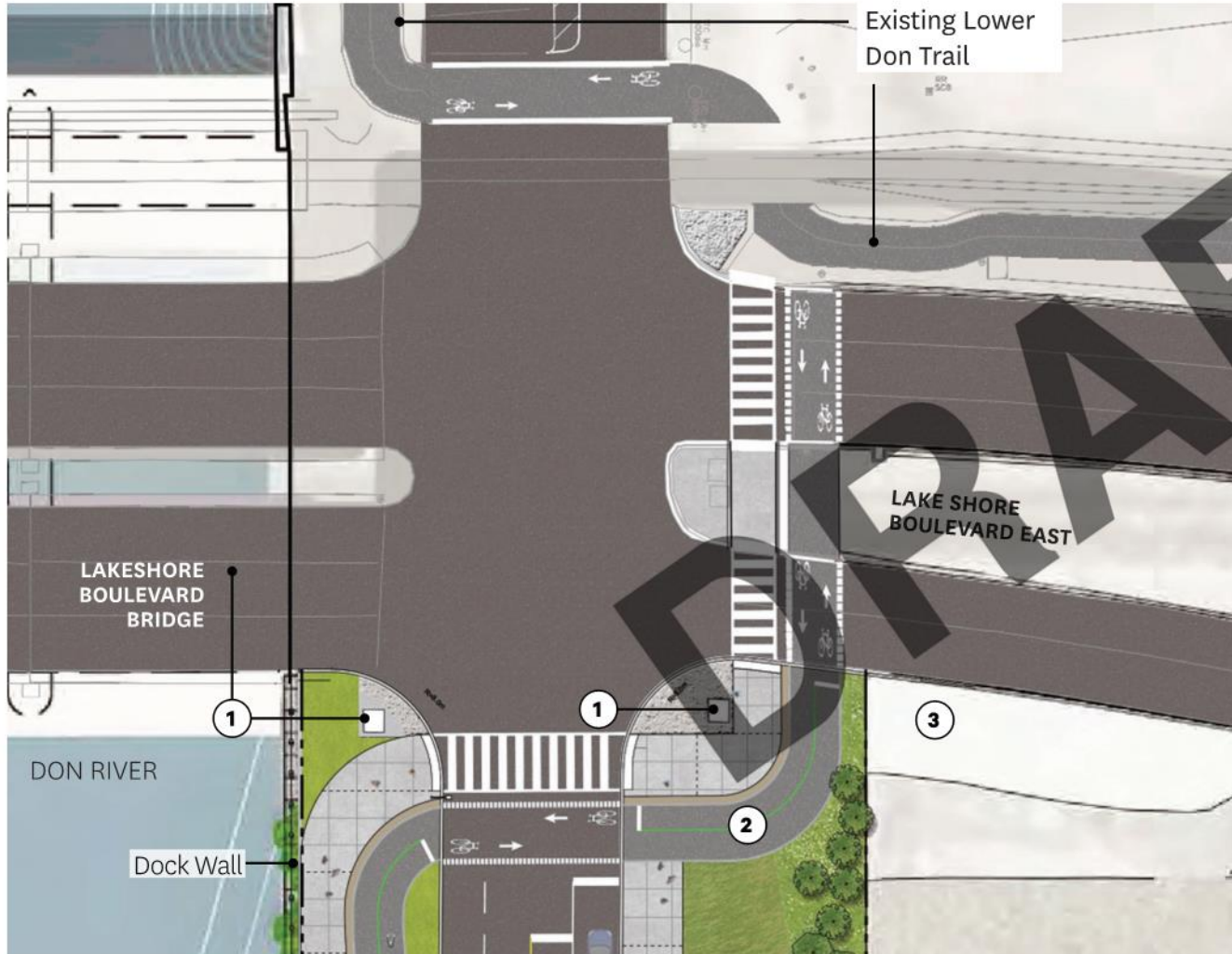
- ① Unobstructed sight lines of pedestrians - low planting and no trees within this zone.
- ② Material change and pavement markings to indicate pedestrian crossing.



- 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.

Don Roadway: Intersection Design

Don Roadway & Lake Shore Boulevard East



① Pedestrian & cyclist connection diverted around existing barriers



Existing Condition - Bridge and Bent at Intersection

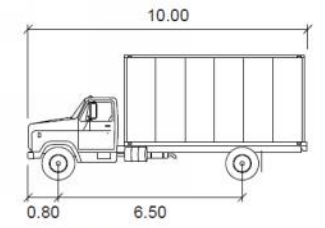
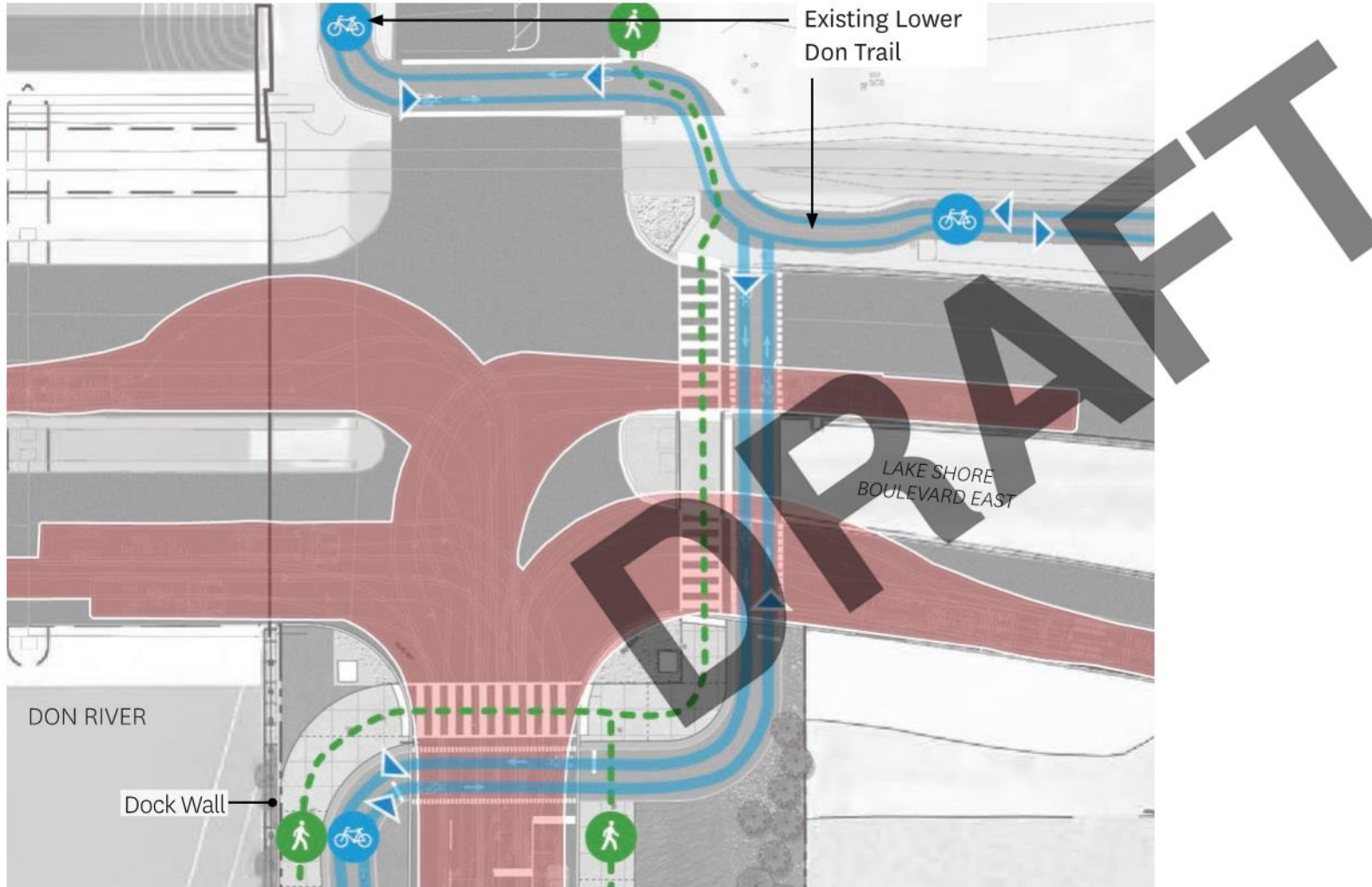
② Temporary landscape east of Don Roadway

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



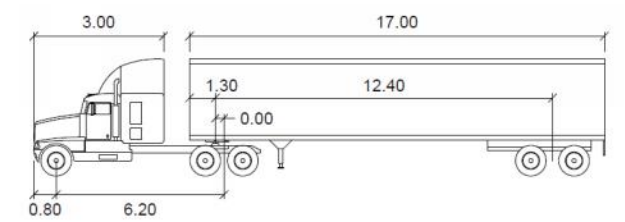
Don Roadway: Intersection Design

Don Roadway & Lake Shore Boulevard East - Traffic Movement Overlay



MSU

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



WB-20

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

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







DRAFT